State Route 57/State Route 60 Confluence at Grand Avenue Project

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 - LA - 60 (PM R23.3/R26.5)
DISTRICT 7 - LA - 57 (PM R4.3/R4.5 & R4.5/R4.8)
EA279100

Final Environmental Impact Report/Finding of No Significant Impact and Programmatic Section 4(f) Evaluation

Prepared by the
State of California Department of Transportation

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 asumption of responsibility pursuant to 23 USC 327.

Caltrans

December 2013

SCH #2009081062
7-LA-60-PM R23.3/R26.5
7-LA-57-PM R4.3/R4.5 & R4.5/R4.8
EA279100

Improve the State Route 57 and State Route 60 Confluence at Grand Avenue (State Route 60 postmile R23.3 to postmile R26.5 and State Route 57 postmile R4.3 to postmile R4.5, postmile R4.5 to postmile R4.8)

FINAL ENVIRONMENTAL IMPACT REPORT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
and 49 USC 303

The City of Industry
and
THE STATE OF CALIFORNIA
Department of Transportation

Dec 11, 2013
Date of Approval

Ronald Kosinski
Deputy District Director
California Department of Transportation
CEQA Lead Agency

The following persons may be contacted for additional information concerning this document:

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Individuals who require special accommodation (American Sign Language interpreter, accessible seating, documentation in alternative formats, etc.) are requested to contact Caltrans' District 7 Public Affairs Office at (213) 897-3656 at least 21 days prior to the scheduled public meeting. TDD users may use the California Relay Service TDD line at 1 (800) 735-2929 or voice line at 1 (800) 735-2922.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

State Route 57 and State Route 60 Confluence at Grand Avenue Interchange Improvement Project

Submitted Pursuant to: 42 USC 4332(2)(C)

The California Department of Transportation (Caltrans) has determined that Alternative 3 of the proposed project will have no significant impact on the human environment. Alternative 3 consists of making improvements to the approximately 2.5 mile confluence of SR-57 and SR-60, which includes the addition of auxiliary lanes and associated on-ramp/off-ramp reconfigurations.

This FONSI is based on the attached Final EIR/FONSI (Final EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an EIS is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Final EIR/FONSI (Final EA) and associated Technical Studies.

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.

Dec 11, 2013
Date

Ronald Kosinski
Deputy District Director, District 7
California Department of Transportation
NEPA Lead Agency

FINDINGS

CALIFORNIA DEPARTMENT OF TRANSPORTATION FINDINGS FOR STATE ROUTES 57/60 CONFLUENCE AT GRAND AVENUE IMPROVEMENT PROJECT IN LOS ANGELES COUNTY (EA 279100)

The following information is presented to comply with State CEQA Guidelines (Title 14 California Code of Regulations, Chapter 3, Section 15901) and the Department of Transportation and California Transportation Commission Environmental Regulations (Title 21, California Code of Regulations, Chapter 11, Section 1501). Reference is made to the Final Environmental Impact Report (FEIR) for the project, which is the basic source for the information.

The following effects have been identified in the EIR as resulting from the project. Effects found not to be significant have not been included.

Land Use

Adverse Environmental Effects:
Property from the Los Angeles County Diamond Bar Golf Course will be permanently acquired to make improvements at the Grand Avenue Interchange. Project redesign to avoid the golf course proved to be infeasible and the partial acquisition is needed.

Findings
Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

Statement of Facts
Coordination with LA County to reconfigure the golf course, replace parkland in-kind, as well as make aesthetic improvements, has led to lessening impacts and improving the golf course. The golf course compensatory provisions are included as part of this project.

Wetlands

Adverse Environmental Effects:
A permanent loss of 0.12 acre of wetlands would result from completing the proposed project. Project redesign to avoid the wetland area proved to be infeasible and development on the wetland is needed to complete project.

Findings
Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

Statement of Facts
Purchase of mitigation land just downstream from the project site will be completed to compensate for the loss of wetlands. A minimum replacement ratio of 2:1 will be used to adequately replace loss of wetlands.

Project Name: SR-57/60 Confluence at Grand Avenue Improvement Project
District/County/Route/Postmiles: 07/LA/SR-57 (PM R4.3/R4.5) / 60(PM R23.3/R26.5)
EA: 279100

EIR CERTIFICATION

Part I. This is to certify that, in accordance with Section 15090 of the State CEQA Guidelines, the Final Environmental Impact Report (Final EIR) has been completed in compliance with CEQA and the State CEQA Guidelines. The Final EIR reflects the Department's independent judgment and analysis

Env Branch Chief: Garrett Damrath (Print name) _____ (Signature) Date: 12/9/13

Part II. This certifies that I have reviewed and considered the information contained in the Final EIR prior to approving the project. Findings have been prepared for each of the significant environmental impact(s) identified in the Final EIR. These findings are attached along with a statement of overriding considerations (if applicable) supporting approval of the project.

Deputy District Director: Ronald Kosinski (Print name) _____ (Signature) Date: 12-11-13

Summary

California participated in the Surface Transportation Project Delivery Pilot Program (Pilot Program), pursuant to 23 United States Code (USC) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. Moving Ahead for Progress in the 21st Century (MAP-21) (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a memorandum of understanding (MOU), pursuant to 23 USC 327 (National Environmental Policy Act [NEPA] Assignment MOU), with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012; it terminates 18 months from the effective date of FHWA regulations developed to clarify amendments to 23 USC 327 or on January 1, 2017. The NEPA Assignment MOU incorporates by reference the terms and conditions of the Pilot Program MOU. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as assigned under the Pilot Program, with minor changes. With NEPA assignment, FHWA assigned and Caltrans assumed all of the U.S. Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 USC 326 Categorical Exclusion Assignment MOU, projects excluded by definition, and specific project exclusions. The proposed project is a joint project of Caltrans and FHWA and subject to federal and state environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and NEPA. Caltrans is the lead agency under both NEPA and CEQA. In addition, 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 USC 327.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an environmental impact report/environmental assessment (EIR/EA).

This Final Environmental Impact Report/Finding of No Significant Impact (EIR/FONSI) was prepared following receipt of comments on the Draft EIR/EA from the public and reviewing agencies. This Final EIR/FONSI includes responses to comments received on the Draft EIR/EA and identifies the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published in compliance with CEQA, and a Notice of Availability of the FONSI will be sent to the affected federal, state, and local government agencies as well as the State Clearinghouse in compliance with Executive Order 12372.

S-1 Introduction

The City of Industry, in cooperation with Caltrans, is proposing freeway improvements to the State Route (SR) 57/SR-60 confluence at the Grand Avenue interchange in Los Angeles County.

Figure S-1 and Figure S-2 show the regional vicinity and project construction limits, respectively. The primary purpose of the proposed project is to improve traffic operations and safety on SR-57 and SR-60 at the Grand Avenue interchange.

S-2 Project Description

S.2.1 Purpose and Need

Improvements to the SR-57/SR-60 confluence are needed to improve safety and operational deficiencies at the Grand Avenue interchange. Forecast regional population and employment growth between 2008 and 2035[1] is expected to result in more traffic, with volumes 10 to 25 percent higher than existing volumes along the SR-60 mainline and in the recently constructed HOV lanes, according to the traffic forecast from the Southern California Association of Governments (SCAG) model.

Traffic conditions on most roadway facilities are analyzed by using the principles or the specific analysis methods contained in the *Highway Capacity Manual, 2000 Edition* (HCM), a publication of the Transportation Research Board, an agency that is associated with the federal government. Level of service (LOS) is the report-card scale used in the HCM. LOS, which ranges from A to F, describes the varying conditions on a roadway during a specific time interval. Brief definitions of LOS are found in Table S-1.

Forecast traffic in 2037 would result in further deterioration of freeway operations and an estimated LOS of F on the mainline of the SR-57/SR-60 confluence in both the westbound and eastbound direction. Therefore, improvements are proposed at the SR-57/SR-60 confluence to accommodate expected traffic volumes.

Table S-1: Level of Service Descriptions

Level of Service	Traffic Description
A	Excellent, light traffic
B	Good, light to moderate traffic
C	Moderate traffic, with insignificant delay
D	Heavy traffic, with significant delay
E	Severe congestion and delay
F	Failed; indicated levels cannot be handled

Source: Transportation Research Board, 2000.

[1] Note that 2035 is the horizon year of the most recently adopted regional plan (2008 RTP) at the time the traffic analysis was completed. The proposed project is included in the list of projects that make up the 2008 RTP, and the recently adopted 2012 RTP.

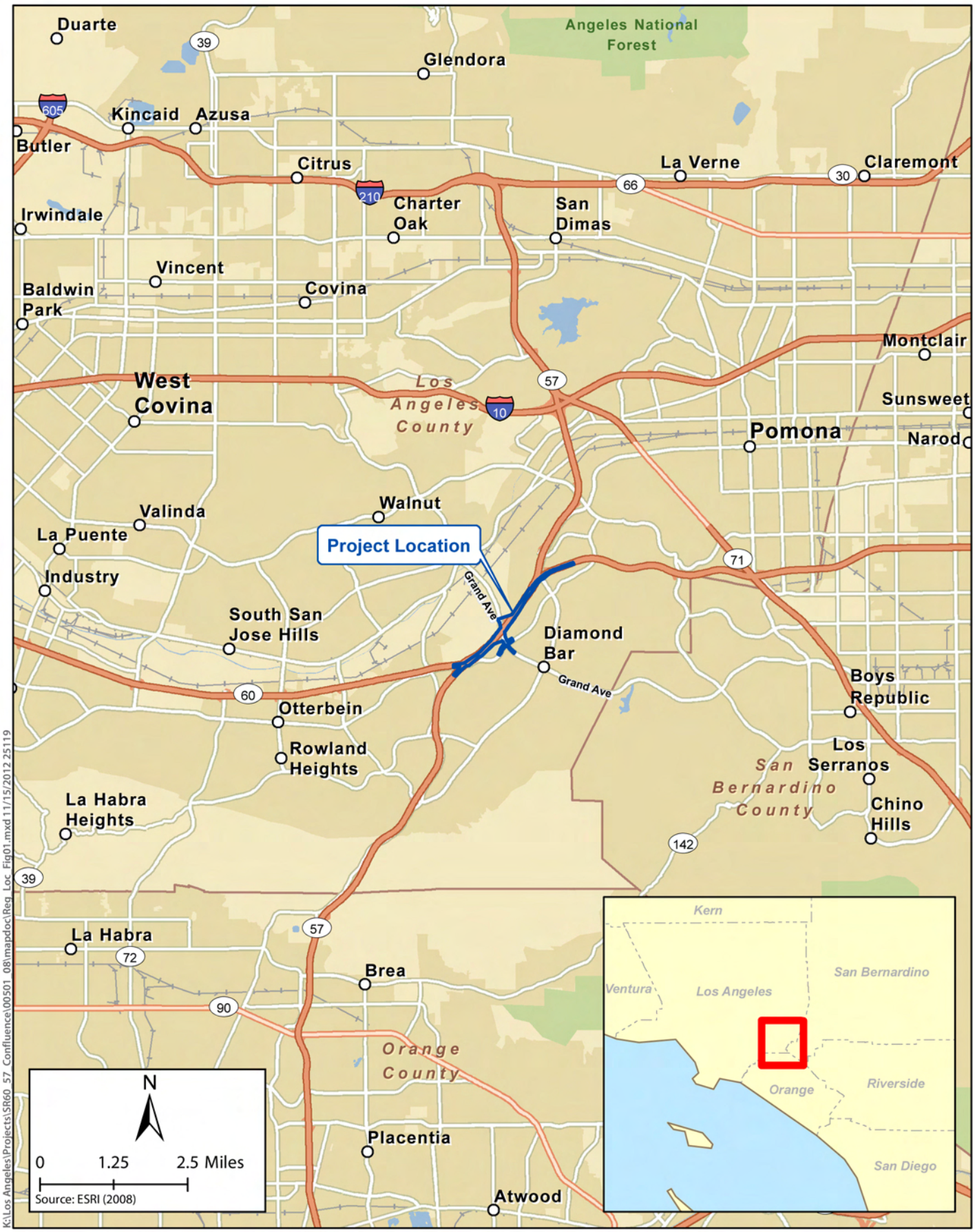

Figure S-1
Regional Vicinity Map
State Route 57/State Route 60 Confluence at Grand Avenue Project

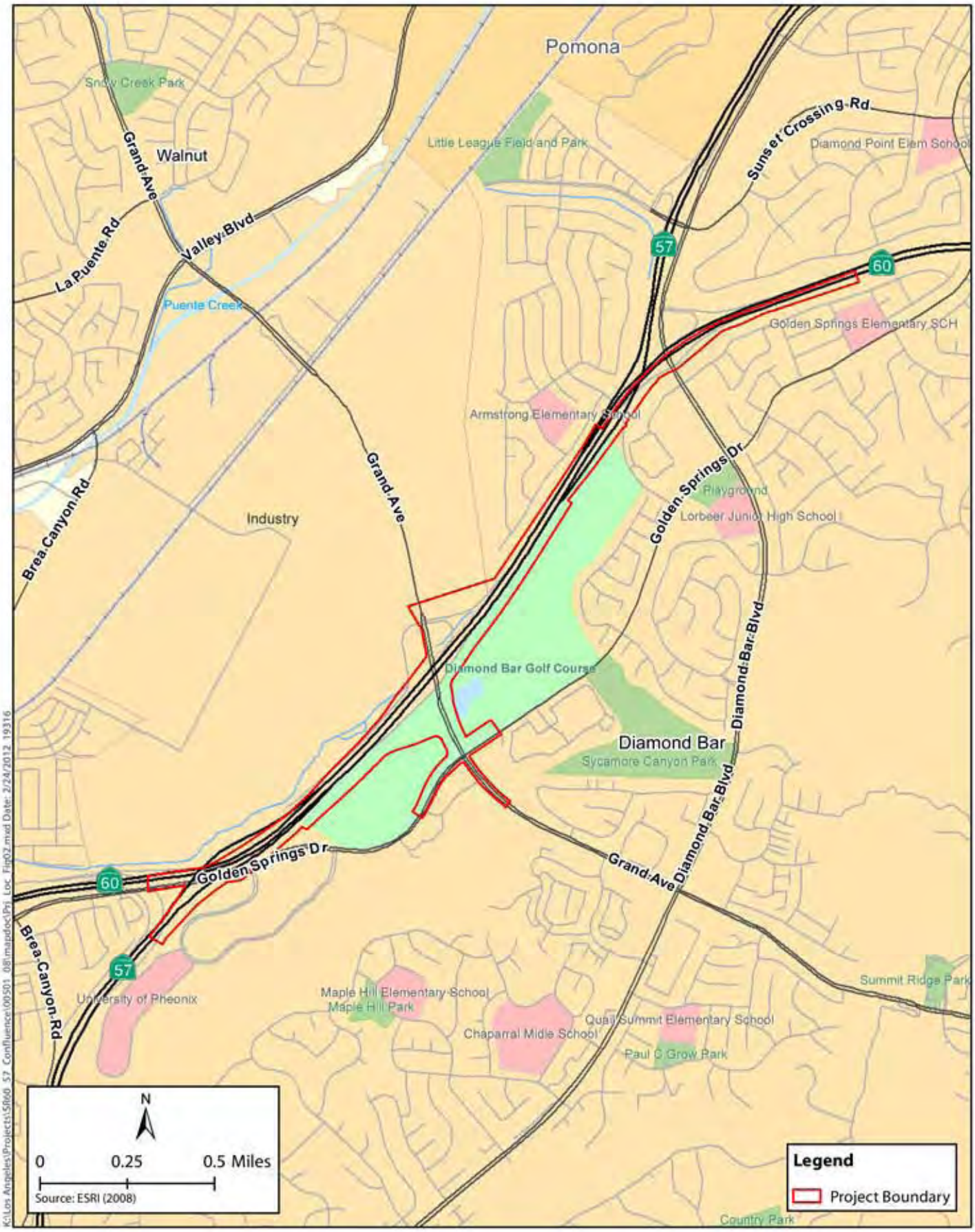

Figure S-2
Project Construction Limits
State Route 57/State Route 60 Confluence at Grand Avenue Project

S-3 Alternatives

Three build alternatives, in addition to the No-Build Alternative (see Alternative 1, below), were presented in the project study report (PSR) for the proposed project. Two of the build alternatives (Alternatives 2 and 3) are analyzed in this document. One alternative has been eliminated from further consideration (see discussion on p. 1-28). The total length of the project under both Alternatives 2 and 3 would be approximately 2.9 miles along SR-60. As of 2012, Alternative 2 has an estimated capital cost of $222.2 million, while Alternative 3 has an estimated capital cost of $231 million. Some of the criteria used in the evaluation of alternatives in the PSR included cost, effect on traffic operations, and environmental impacts (adverse and beneficial).

S-3.1 Alternative 1 – No-Build Alternative

The No-Build (or No-Action) Alternative would result in no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange. Existing deficient capacity and congestion conditions due to short weaving distances on SR-57, SR-60, and Grand Avenue would not change under this alternative.

S-3.2 Alternative 2 – Combination Cloverleaf/Diamond Configuration Interchange

Alternative 2 would maintain the existing interchange configuration (compact diamond) for the eastbound SR-60 on- and off-ramps. The interchange configuration at Grand Avenue for Alternative 2 would remain a combination partial cloverleaf for the westbound SR-60 on- and off-ramps. An auxiliary lane would be added, connecting the new three-lane on-ramp at Grand Avenue to the new connector, which would bypass the north/east SR-57/SR-60 interchange.

Under Alternative 2, the existing Grand Avenue overcrossing would be replaced by a 10-lane, 148-foot-wide structure over SR-60. The bridge would contain eight through lanes and two 450-foot-long double left-turn lanes from southbound Grand Avenue to the eastbound on-ramp. Figure S-3 shows the basic configuration of this alternative.

S-3.3 Alternative 3 – Partial Cloverleaf Interchange Configuration (Preferred Alternative)

The main difference between Alternative 2 and Alternative 3 is the configuration of the eastbound SR-60 interchange at Grand Avenue, as shown in Figure S-3. Under Alternative 3, the existing eastbound on- and off-ramps at Grand Avenue, which form a compact diamond interchange, would be reconfigured to form a partial cloverleaf interchange. The new intersection at Grand Avenue and the new eastbound on- and off-ramps would be located approximately 500 feet south of the existing intersection (i.e., midway between the freeway and Golden Springs Drive). The new eastbound on-ramp from southbound Grand Avenue would be a loop on-ramp that would join SR-60 as a new eastbound auxiliary lane. The existing eastbound on-ramp would be realigned to accommodate the widened Grand Avenue and merge into the eastbound auxiliary lane created by the new loop on-ramp from southbound Grand Avenue to eastbound SR-60. The auxiliary lane would connect to the new connector that bypasses the north/east SR-57/SR-60 interchange.

Similar to Alternative 2, the existing Grand Avenue overcrossing would be replaced by a new structure over SR-60. However, unlike Alternative 2, a double left-turn lane from southbound Grand Avenue to the eastbound on-ramp would not be required because vehicles traveling

southbound on Grand Avenue would access northbound SR-57 and eastbound SR-60 by way of the new loop on-ramp on the west side of Grand Avenue. The new Grand Avenue overcrossing would be widened to accommodate eight through lanes and a center divider/median (a total width of 136 feet). A longer span would be required to accommodate the third SR-57 through lane and the loop on-ramp auxiliary lane.

S-4 Known Areas of Controversy

There are no known areas of controversy for this project. Closure of Diamond Bar Golf Course during construction, as well as the loss of revenue, is an area of concern for the County of Los Angeles. During the public scoping process, a number of agencies and individuals submitted written comments. Many had questions and concerns about traffic, and several expressed concern about the project's relation to future development projects in the area. A list of scoping comments and responses can be found in Chapter 4, Comments and Coordination.

S-5 Intended Uses of the EIR

According to Section 15121 of the State CEQA Guidelines, an EIR is a public document used by a public agency to analyze the potentially significant environmental effects of a proposed project, identify alternatives, and disclose possible ways to reduce or avoid environmental damage. As an informational document, an EIR does not recommend for or against approving a project. The main purpose of an EIR is to inform governmental decision makers and the public about potential environmental impacts of a project. Accordingly, this EIR will be used by Caltrans, as the lead agency under CEQA, and the City of Industry, as the project proponent, in making decisions regarding approval of the State Route 57/State Route 60 Confluence at Grand Avenue Project.

The information in this EIR may also be used by the responsible agencies identified below in Section S-6 to decide whether to grant the permits or approvals necessary to construct or operate the proposed project.

S-6 Permits and Approvals

The following permits or approvals would be required to construct the proposed project:

Agency	Permit/Approval
U.S. Army Corps of Engineers	Clean Water Act, Section 404 Permit (Discharge of Dredged or Fill Material into Waters of the United States)
California Department of Fish and Game	Section 1600 Agreement for Streambed Alteration
State Water Resources Control Board	Clean Water Act, Section 401 Permit (Water Quality Certification)
Los Angeles Regional Water Quality Control Board	National Pollutant Discharge Elimination System permit
County of Los Angeles	Right-of-Entry Permit; concurrence regarding parkland conveyance
City of Diamond Bar	Encroachment Permit for construction on local streets
City of Industry	Approval of project

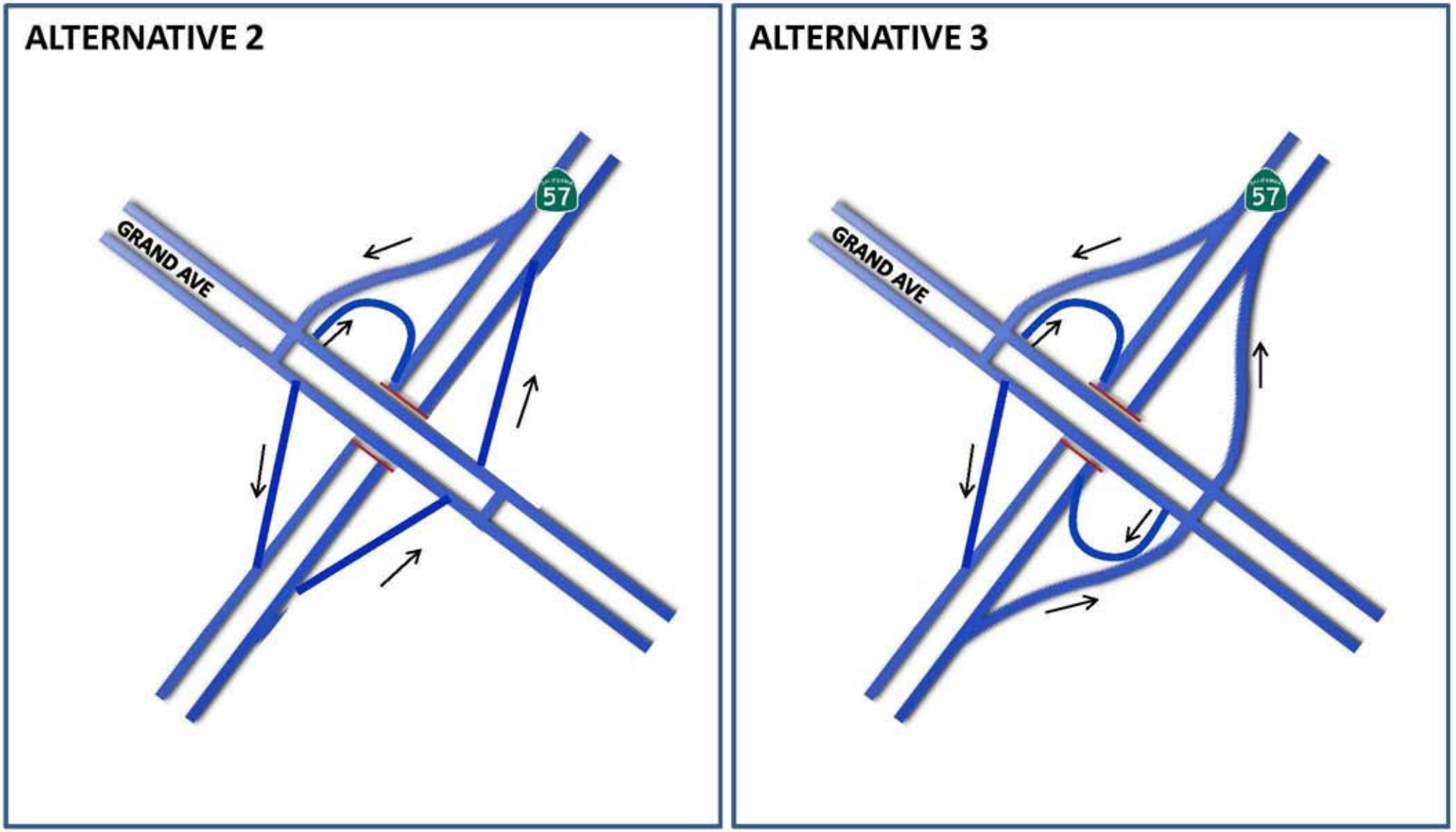

Figure S-3
On- and Off-Ramp Configurations
State Route 57/State Route 60 Confluence at Grand Avenue Project

S-7 Summary of Impacts and Mitigation Measures

Table S-2 provides a summary of the environmental effects that would result from implementation of the proposed project, potential mitigation measures, and impact determinations before and after implementation of proposed mitigation. For a detailed discussion of the proposed project's environmental impacts under NEPA, please see Chapter 2 of this Final EIR/FONSI. A discussion of the proposed project's potential impacts under CEQA and other CEQA-required discussions are included in Chapter 3 of this Final EIR/FONSI.

Table S-2: Summary of Significant Impacts and Mitigation Measures under the Proposed Build Alternatives

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
Human Environment		
FEIR/FONSI Section 2.1.1 – Land Use		
Parks and Recreation: Both build alternatives would permanently acquire land from Diamond Bar Golf Course. After construction, the golf course would be reconfigured to maintain playability and resume operation. Compensation for land acquisition with equivalent value parkland would be provided.	Mitigation Measure PARK-1, which involves land compensation per the Park Preservation Act, and Mitigation Measure PARK-2, which involves measures to minimize harm per Section 4(f) Consultation with the County of Los Angeles, would reduce adverse effects on Diamond Bar Golf Course. For the full text of these measures, please see page 2-25 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.1.3.1 – Community Character and Cohesion		
During construction, lane closures and presence of construction vehicles in the area would result in temporary traffic disruptions in the community.	Mitigation Measure COM-1 would involve the development of a comprehensive Transportation Management Plan (TMP) and a Construction Zone Enhanced Enforcement Program (COZEEP). For the full text of this measure, please see page 2-43 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Community Impacts		
The three projects that would occur in the immediate vicinity of the proposed project have the potential to result in similar community impacts, such as lane closures and the presence of construction equipment and personnel.	Implement Mitigation Measure COM-1.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.1.3.2/3.2 – Relocations and Real Property Acquisition/Population and Housing		
Cumulative Relocations and Real Property Acquisition/Population and Housing Impacts		
Because no existing uses would be displaced, the proposed project would not contribute to cumulative relocation, population, or housing impacts. An equivalent compensation for acquisition of any partial property, as required by the project, will be provided. Additionally, the related projects in the study area would not require land from the properties affected by the partial acquisitions under the proposed project.	No mitigation is required.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
FEIR/FONSI Section 2.1.4 – Utilities/Emergency Services		
Water Supply Relocation of several water lines would be required during construction.	***Water Supply and Electricity*** Mitigation Measures UT-1, UT-2, and UT-3 would be implemented. The measures involve coordination efforts with utility providers to minimize the potential for the disruption of service to utility customers. For the full text of these measures, please see pages 2-56 and 2-57 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Electricity Relocation of several electric lines would be required during construction. ***Police and Fire Protection*** During construction, temporary lane or road closures may affect response times of emergency vehicles.	***Police and Fire Protection*** Mitigation Measure UT-4 involves coordination with emergency service providers to avoid emergency service delays. For the full text of this measure, please see page 2-57 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Utilities/Emergency Service Impacts		
Construction of one or more of the related projects in the area could result in temporary, localized, site-specific disruptions, including partial and/or complete street and lane closures and detours.	Mitigation measures UT-1, UT-2, UT-3, and UT-4 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.1.6 – Visual/Aesthetics		
Removal of trees and vegetation and construction of a noise wall have the potential to affect the visual character of the project area.	Mitigation Measures VIS-1, VIS-2, VIS-3, VIS-4, and VIS-5 would be implemented to reduce aesthetic effects resulting from the removal of trees and vegetation and construction of a noise wall. The measures involve landscaping and lighting strategies to minimize effects on the existing visual character of the project area. For the full text of these measures, please see page 2-125 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Visual/Aesthetic Impacts		
The related projects in the study area would not affect the golf course, or degrade the visual setting in the vicinity of the proposed project through removal of trees, vegetation, or introduction of visually intrusive elements. Therefore, the potential for cumulative visual impacts is low.	Implement mitigation measures VIS-1 through VIS-4.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
FEIR/FONSI Section 2.1.7 – Cultural Resources		
Construction activities associated with the build alternatives have the potential to unearth unknown cultural resources within the area of potential effects.	Minimization measures CUL-1 and CUL-2, which are standard measures for all Caltrans projects, are recommended to ensure that potential effects on unknown cultural resources would be avoided during earthmoving and excavation activities. For the full text of these measures, please see pages 2-132 and 2-133 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Cultural Resources Impacts		
Construction activities associated with the build alternatives and related projects have the potential to unearth unknown cultural resources.	Minimization measures CUL-1 and CUL-2 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant
Physical Environment		
FEIR/FONSI Section 2.2.1 – Hydrology and Floodplain		
The build alternatives have the potential to induce downstream flooding or deflect flows from their natural course.	Minimization Measure HYD-1, which involves the use of drainage facilities, would be implemented to minimize effects associated with downstream flooding or deflecting flows from their natural course. For the full text of this measure, please see page 2-136 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Sections 2.2.2 and 3.4.1 – Water Quality and Stormwater Runoff		
Construction activities and the presence of adverse amounts of raw materials for construction, including concrete, asphalt, and slurry, may lead to stormwater runoff contamination.	Minimization Measures WQ-1 and WQ-2 would be implemented during project construction. These measures are best management practices (BMPs) and would be used in the design, construction, and operation of the project to minimize impacts associated with stormwater runoff contamination. For the full text of these measures, please see pages 2-144 and 2-145 in this document.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
Cumulative Water Quality and Stormwater Runoff Impacts		
Construction and operation of the proposed project and the related projects could contribute pollutants to surface waters within the watershed. The Los Angeles Regional Water Quality Control Board (RWQCB) has adopted a water quality control plan, or Basin Plan. All construction projects within the basin must comply with necessary permits and appropriate measures in accordance with the Basin Plan.	Measures WQ-1 and WQ-2 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.2.3 – Geology/Soils/Seismicity/Topography		
Seismic Ground Shaking The potential for surface ground shaking from distant earthquakes exists. Numerous faults have been mapped within the Southern California region, several of which are within about 62 miles, or 100 kilometers, of the site. No Alquist-Priolo Earthquake Fault Zones are located in the immediate project area. *Slope Stability* The materials at the project site are underlain by late to middle Holocene age stream channel, alluvial basin, and alluvial fan sediments, which may be susceptible to running or caving in temporary excavations. The Seismic Hazard Map of the San Dimas quadrangle does not identify the project site as having a potential for landslides during an earthquake. *Liquefaction/ Seismically Induced Settlement/Lateral Spreading* Liquefaction potential is high in several areas of the project site. Given that portions of the project area are underlain by liquefiable alluvial soils, there is the potential for seismic settlement of on-site soils and lateral spreading.	Mitigation and Minimization Measures GEO-1 through GEO-16 would be implemented into the project design and construction to minimize effects related to seismic ground shaking, slope stability, liquefaction, erosion, and contact with ground groundwater to the extent feasible. These measures consist of various design, grading, and excavation strategies, which would help minimize several geologic risks that may occur given the scope of the project and its location. For the full text of these measures, please see pages 2-159 and 2-160 in this document.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
Soil Characteristics Most native soils on-site, as well as fill slopes constructed with native soils, have a moderate level of susceptibility to erosion. These materials would be particularly prone to erosion during the grading phase, especially during heavy rains. *Groundwater* Historical data and recent borings indicate that groundwater may be encountered during drilling piles for the proposed retaining walls.		
Cumulative Impacts on Geology/Soils/Seismicity/Topography		
All building projects are required to comply with applicable building and structural codes. The proposed project and related projects would not contribute to significant adverse cumulative impacts related to geology, soils, seismicity, or topography.	Measures GEO-1 through GEO-16 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.2.4 – Paleontology		
Construction of the build alternatives, Alternatives 2 and 3, could affect, disturb, or destroy paleontological resources present within deeper Pleistocene alluvium or in the Puente Formation.	Mitigation Measure CUL-3 would be implemented to ensure that impacts on paleontological resources would remain less than significant. Mitigation Measure CUL-3 involves the process that shall occur in the event that paleontological resources are uncovered during excavation activities and the use of a qualified paleontologist. For the full text of this measure, please see pages 2-163 and 2-164 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Paleontology Impacts		
Construction activities associated with the project and other related projects could contribute to a progressive loss of paleontological resources.	Measure CUL-3 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
FEIR/FONSI Section 2.2.5 – Hazardous Waste/Materials		
There is a potential to encounter lead-based paint, aerially deposited lead (ADL), asbestos-containing material, poly-chlorinated biphenyls (PCBs), or other contaminants and hazards present within the project area, during construction.	Mitigation Measures HAZ-1 through HAZ-7 would be implemented. These measures consist of surveys for hazardous materials, including ADL and lead-based paint, as well as measures for dealing with hazardous materials that may be encountered during construction, such as asbestos-containing materials, PCBs, or other contaminants and hazards that may be present within the project area. For the full text of these measures, please see pages 2-170 through 2-172 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Hazardous Waste/Materials Impacts		
Many of the related projects including other roadway projects have similar potential with respect to resulting in the disturbance or release of hazardous materials. However, all construction projects are required to comply with local, state, and federal requirements for storing hazardous wastes and worker training for handling hazardous wastes.	Implement measures HAZ-1 through HAZ-6.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Sections 2.2.6 and 3.4.3 – Air Quality		
During construction, short-term degradation of air quality may occur because of the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment are also anticipated. These would include carbon monoxide (CO), oxides of nitrogen (NO_X), reactive organic gas (ROG), directly emitted particulate matter (PM10 and PM 2.5), and toxic air contaminants (i.e., MSATs), such as diesel exhaust particulate matter.	Implementation of the California Department of Transportation Standard Specifications, some of which may also be required for other purposes, such as stormwater pollution control, would reduce any air quality impacts resulting from construction activities. For the full text of these specifications, please see pages 2-196 and 2-197 in this document. *Comply with SCAQMD's Rule 403 Requirements to Control Construction Emissions of Fugitive Dust* Compliance with SCAQMD's Rule 403 is required for all construction projects. To control the generation of construction-related fugitive dust emissions, Caltrans would require construction contractors to comply with SCAQMD's Rule 403 requirements, which are summarized in Table 2-70 on pages 2-198 through 2-200 in this document.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
FEIR/FONSI Section 2.2.7 – Noise		
There is the potential for short-term increases in noise due to construction activities. Construction equipment is expected to generate noise levels ranging from 70 to 90 decibels (dB) at a distance of 50 feet. Construction noise would be short-term, intermittent, and generally overshadowed by local traffic noise. Unabated future (2037) noise levels at representative noise-sensitive receptors may exceed the Noise Abatement Criteria (NAC). Noise levels are predicted to range from 66 dBA L_{eq}(h) to 82 dBA L_{eq}(h) during the peak noise hour.	The contractor would adhere to Minimization Measure NOI-1, which is a standard measure and associated with all Caltrans projects, to ensure that noise effects would be minimized during the construction period. For the full text of this measure, please see page 2-219 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Noise Impacts		
None of the related projects in the immediate project vicinity, with the possible exception of the Industry Business Center project, would generate construction or operation noise that would cumulatively contribute to the noise levels generated by construction activities associated with the proposed project. Under long-term (2037) cumulative conditions, noise levels associated with the proposed project and future projects would result in traffic noise levels approaching or exceeding the NAC. Therefore, the proposed project and cumulative development would result in cumulative traffic noise impacts. However, the potential increases in noise levels would be less than the 12 dBA increase considered substantial by Caltrans.	Measure NOI-1 would be implemented. Implementation of mitigation measure NOI-1 would ensure that the proposed project's construction noise impacts would be minimized.	NEPA: Cumulatively Considerable Impact for Alternative 3 CEQA: Cumulatively Considerable Impact for Alternative 3
Biological Environment		
FEIR/FONSI Section 2.3.1 – Natural Communities		
The proposed project would result in the removal of existing native trees.	Mitigation Measures BIO-1 through BIO-2 are proposed to reduce impacts of the proposed project on native trees. They consist of permitting and replacement procedures. For the full text of these measures, please see page 2-229 in this document.	NEPA: Minor Adverse CEQA: Less than Significant

Potential Environmental Impacts	Mitigation Measures	Impact after Mitigation
FEIR/FONSI Section 2.3.2 – Wetlands and Other Waters		
The proposed project would result in the permanent loss of 0.12 acre of wetlands due to culvert extensions.	In addition to measures WQ-1 and WQ-2, Measures BIO-3 through BIO-8 would substantially reduce impacts of the proposed project on jurisdictional waters. The measures involve coordination with various jurisdictional agencies as well as preparation of a Habitat Mitigation Monitoring Plan. For the full text of these measures, please see pages 2-232 and 2-233 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.3.4 – Animal Species		
Impacts on nesting birds could occur if an active nest is removed or nesting birds are disturbed as a result of construction activities.	Mitigation Measures BIO-9 and BIO-10 would be implemented to protect nesting birds during project construction. For full text of Mitigation Measures BIO-9 and BIO-10, please see page 2-237 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
FEIR/FONSI Section 2.3.6 – Invasive Species		
Construction of the build alternatives has the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed of invasive species is spread along the highway.	Mitigation measures BIO-11 and BIO 12 would be implemented to reduce the potential for spreading invasive species. For full text of the mitigation measures, please see page 2-241 in this document.	NEPA: Minor Adverse CEQA: Less than Significant
Cumulative Invasive Species Impacts		
There is the potential for the proposed project and related projects to spread invasive species. However, this spread can be minimized by following standard/typical construction procedures.	Measures BIO-10 and BIO-11 would be implemented.	NEPA: Minor Adverse CEQA: Less than Significant

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Chapter 1 The Proposed Project

1.1 Introduction

The City of Industry, the California Department of Transportation (Caltrans), and the Federal Highway Administration (FHWA) are proposing freeway improvements to the State Route (SR) 57/SR-60 confluence at the Grand Avenue interchange in Los Angeles County. The proposed project would be subject to both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA). Caltrans would be the lead agency under both CEQA and NEPA.

Figure 1-1 and Figure 1-2 show the regional location and project vicinity, respectively.

SR-57 is a major north/south freeway, serving the cities and communities of the Greater Los Angeles area, and part of the National Highway System and the State Freeway and Expressway System. The freeway's northern terminus is at its junction with Interstate (I) 210 in the City of Glendora, and its southern terminus is at its junction with I-5 and SR-22 in the City of Orange. The portion of SR-57 within the project area is located in the Pomona Valley.

SR-60 is a major east/west freeway that also serves the cities and communities of the Greater Los Angeles area. The freeway is also part of the National Highway System and the State Freeway and Expressway System. SR-60 begins near the Los Angeles River in the City of Los Angeles and continues eastward to Riverside County, serving the cities and communities on the east side of the Los Angeles metropolitan area and on the south side of the San Gabriel Valley. The western terminus of the freeway is at the East Los Angeles interchange with I-10, I-5, and U.S. 101; the eastern terminus is at its junction with I-10 in the City of Beaumont.

There is a gap in SR-57 at its junction with SR-60. SR-57 terminates at the west end of the confluence with SR-60. SR-60, which carries traffic from both freeways, maintains six lanes in each direction under Grand Avenue. SR-57 resumes at the split with SR-60 at the east end of the confluence near Diamond Bar Boulevard. The primary purpose of the proposed project is to improve traffic operations and safety on SR-57 and SR-60 at the Grand Avenue interchange.

The proposed project is identified in the 2011 Federal Transportation Improvement Plan (Amendment 24). In addition, the project is included in the recently approved 2012 Regional Transportation Plan (RTP) prepared by the Southern California Association of Governments (SCAG). Furthermore, the Transportation Concept Report (TCR) prepared in July 2005 identifies seven distinct segments along SR-60 where improvements are needed. The Grand Avenue interchange improvements are within Segment 5 of the approved TCR. The proposed project would provide the recommended lane configurations specified in the approved TCR (i.e., mixed-flow lanes and high-occupancy vehicle [HOV] lanes in each direction) but not the recommended truck lanes. It is anticipated that dedicated truck lanes, if required, would follow a separate corridor alignment outside the existing or proposed Caltrans right-of-way and be analyzed as an independent project.

In 2005, the Los Angeles County Metropolitan Transportation Authority (Metro), in conjunction with Caltrans, the City of Industry, and the City of Diamond Bar, prepared a Project Feasibility Study (PFS). The PFS presented concepts to improve SR-57 and SR-60. Specifically, the purpose of the PFS was to develop a long-range plan after evaluating concepts for improving the SR-57/SR-60 confluence. A subset of that study identified opportunities to improve interchange operations at Grand Avenue and reduce weaving between the mainline and the on- and off-ramps. The study also evaluated concepts for completing the missing connectors between the north/east freeway-to-freeway interchange, from westbound SR-60 to northbound SR-57 and the reverse move; HOV connectors for all directions at the north/east interchange; and an additional HOV connector at the south/west interchange, from northbound SR-57 to westbound SR-60 and the reverse move. Metro completed the study and issued a final report in August 2010. The Grand Avenue interchange improvement alternatives developed for the proposed project, which are evaluated in this environmental document, have been coordinated with the concepts developed in the PFS.

Project planning costs would be paid entirely by the City of Industry, using local funds. Project design costs would be funded through local funds from the City of Industry, funds from the Regional Surface Transportation Improvement Program (RSTIP) (2011 Metro Call for Projects), and federal funds. The remaining costs, including capital costs, would be funded through a mix of local funds, Metro RSTIP funds, and federal funds. Construction of the proposed project would commence in the fall of 2014 and be completed by the fall of 2017.

1.2 Purpose and Need

1.2.1 Project Purpose

Improvements to the SR-57/SR-60 confluence are needed to improve safety and operational deficiencies at the Grand Avenue interchange. The primary objectives are presented below.

- Relieve congestion and delays on Grand Avenue from Golden Springs Drive to the interchange at SR-60.
- Relieve congestion and delays at the Grand Avenue interchange.
- Relieve congestion and delays on the SR-57/SR-60 freeway mainline.
- Improve safety by reducing weaving movements and increasing weaving distances along the SR-57/SR-60 confluence.

1.2.2 Project Need

Forecast regional population and employment growth between 2008 and 2035[1] is expected to result in more traffic, with volumes 10 to 25 percent higher than existing volumes along the SR-60 mainline and in the recently constructed HOV lanes, according to the traffic forecast from the SCAG model.

[1] Note that 2035 is the horizon year of the most recently adopted regional plan (2012 RTP). The proposed project is included in the list of projects that make up the 2012 RTP.

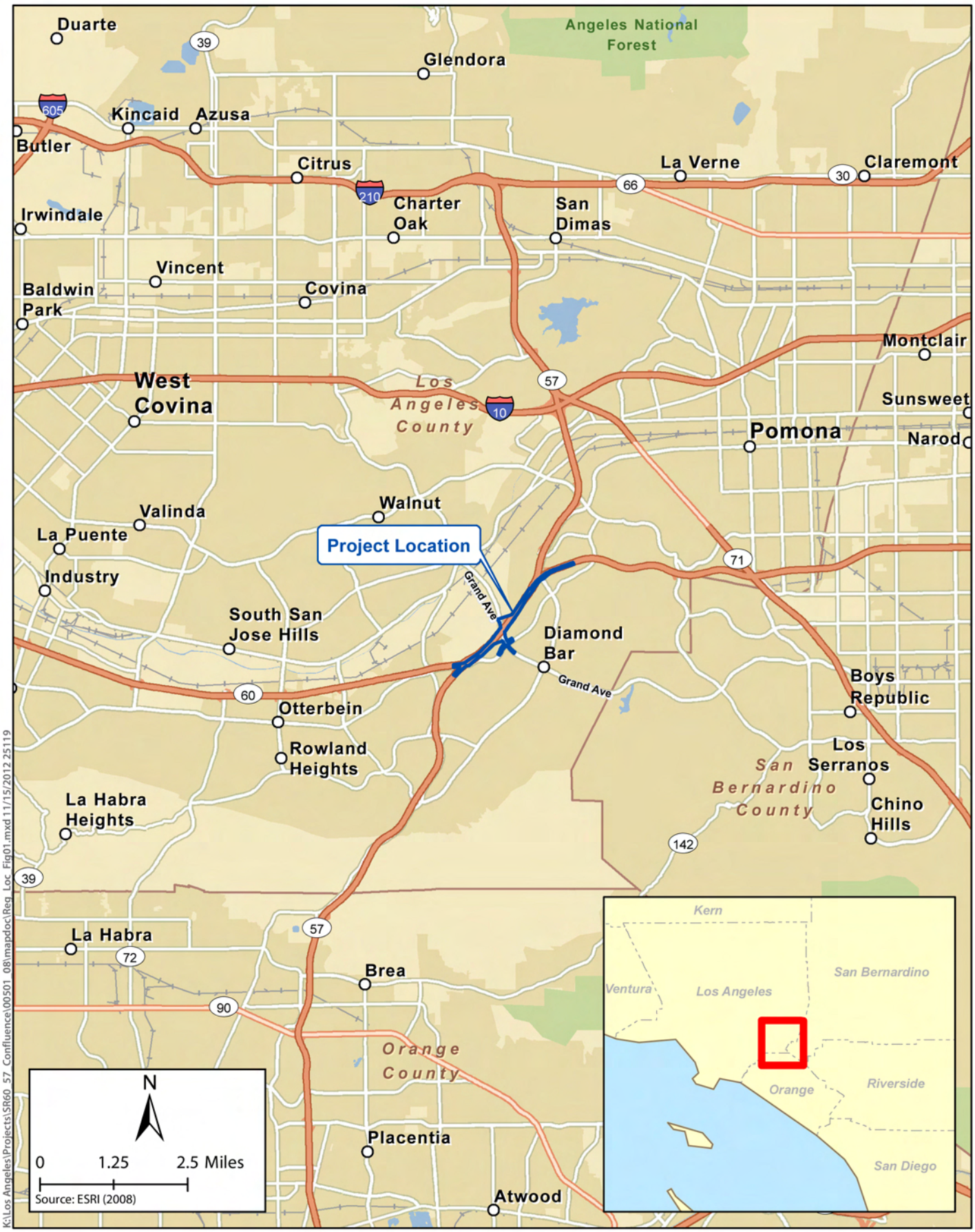

Figure 1-1
Regional Vicinity Map
State Route 57/State Route 60 Confluence at Grand Avenue Project

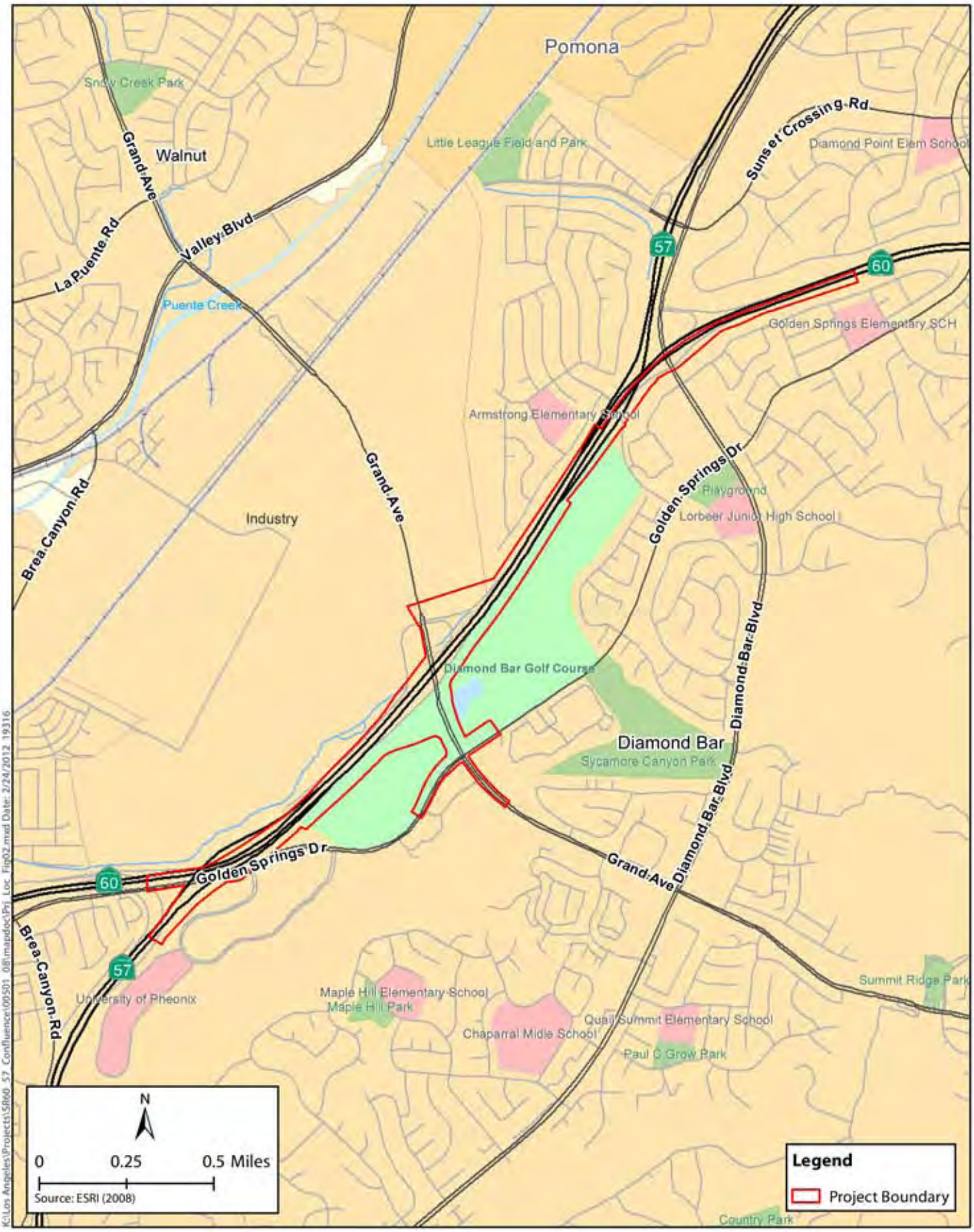

Figure 1-2
Project Construction Limits
State Route 57/State Route 60 Confluence at Grand Avenue Project

Traffic conditions on most roadway facilities are analyzed by using the principles or the specific analysis methods contained in the *Highway Capacity Manual, 2000 Edition* (HCM), a publication of the Transportation Research Board, an agency that is associated with the federal government. Level of service (LOS) is the report-card scale used in the HCM. LOS, which ranges from A to F, describes the varying conditions on a roadway during a specific time interval. Brief definitions of LOS are found in Table 1-1.

Forecast traffic in 2037 would result in further deterioration of freeway operations and an estimated LOS of F on the mainline of the SR-57/SR-60 confluence in both the westbound and eastbound direction. Therefore, improvements are proposed at the SR-57/SR-60 confluence to accommodate expected traffic volumes.

Table 1-1. Level of Service Descriptions

Level of Service	Traffic Description
A	Excellent, light traffic
B	Good, light to moderate traffic
C	Moderate traffic, with insignificant delay
D	Heavy traffic, with significant delay
E	Severe congestion and delay
F	Failed; indicated levels cannot be handled

Source: Transportation Research Board, 2000.

1.2.2.1 Capacity, Transportation Demand, and Safety

Existing Freeway Capacity and Level of Service

SR-57 terminates as it approaches SR-60 from Orange County, then resumes approximately 1 mile east of the Grand Avenue interchange. It then heads north to the City of Pomona. Along the 2-mile segment of the confluence, which carries traffic through the Grand Avenue interchange, SR-60, SR-57, and Grand Avenue are heavily congested during the AM (6 a.m.–9 a.m.) and PM (4 p.m.–8 p.m.) peak periods (see Tables 1-2, 1-3, 1-4, 1-5, and 1-6).

Table 1-2. Existing 2009 Traffic Conditions at Grand Avenue

	AM Peak Hour			PM Peak Hour		
Intersection	Queue Length	Delay[3]	Level of Service	Queue Length	Delay[3]	Level of Service
Grand Avenue at SR-60 Westbound Off-ramp	283 feet[1]	42.2	D	192 feet[1]	20.1	C
Grand Avenue at SR-60 Eastbound Ramps	220 feet[1]	16.2	B	88 feet[1]	11.3	B
Grand Avenue at Golden Springs Drive	349 feet[2]	38.6	D	306 feet[2]	54.0	D

[1] Queue length in feet on freeway off-ramp approach.
[2] Queue length in feet on southbound approach.
[3] Delay in seconds per vehicle average.

Source: Traffic Study Report, 2011.

Table 1-3. Existing 2009 Traffic Conditions for Eastbound SR-60[2]

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Brea Canyon On-ramp to SR-57 Southbound Connector Ramp	56	B
SR-57 Southbound Connector Ramp to HOV Lane Start	60	B
HOV Lane Start to SR-57 Northbound Merge	62	C
SR-57 Northbound Merge to Grand Avenue Off-ramp	61	C
Grand Avenue Off-ramp to Grand Avenue On-ramp	52	D
Grand Avenue On-ramp Merge Segment	45	D
Grand Avenue Merge Lane Drop to Additional Lane Opening	49	D
Additional Lane Opening to SR-57 Northbound Diverge	56	C
SR-57 Northbound Diverge to Diamond Bar Boulevard On-ramp	61	C
PM Peak Hour		
Brea Canyon On-ramp to SR-57 Southbound Connector Ramp	57	B
SR-57 Southbound Connector Ramp to HOV Lane Start	59	C
HOV Lane Start to SR-57 Northbound Merge	61	C
SR-57 Northbound Merge to Grand Avenue Off-ramp	17	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	14	F
Grand Avenue On-ramp Merge Segment	14	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	24	F
Additional Lane Opening to SR-57 Northbound Diverge	47	D
SR-57 Northbound Diverge to Diamond Bar Boulevard On-ramp	61	C

Source: Traffic Study Report, 2011.

Table 1-4. Existing 2009 Traffic Conditions for Westbound SR-60

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Diamond Bar Boulevard On-ramp Merge Lane End to SR-57 Southbound Merge	13	F
SR-57 Southbound Merge to Additional Lane Opening	17	F
Additional Lane Opening to Grand Avenue On-ramp	37	F
Grand Avenue On-ramp to Additional Lane Opening	52	C
Additional Lane Opening to SR-57 Southbound Diverge	55	C
SR-57 Southbound Diverge to HOV Lane Merge	62	B
PM Peak Hour		
Diamond Bar Boulevard On-ramp Merge Lane End to SR-57 Southbound Merge	61	B
SR-57 Southbound Merge to Lane Drop	40	D
Lane Drop to Grand Avenue On-ramp	54	C
Grand Avenue On-ramp to Additional Lane Opening	61	C
Additional Lane Opening to SR-57 Southbound Diverge	61	B
SR-57 Southbound Diverge to HOV Lane Merge	62	B

Source: Traffic Study Report, 2011.

[2] The correlation between segment speed and LOS in this table is not necessarily a direct correlation. LOS for a given freeway segment is determined by a variety of factors, primarily the density of the given segment. For example, for two freeway segments, one of the segments may have a higher speed but a lower LOS than the other segment because the first segment has a higher density. The complete formula/methodology for calculating segment density and assigning LOS is found in the Transportation Research Board's HCM.

Table 1-5. Existing 2009 Traffic Conditions for Northbound SR-57

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
SR-60 Westbound Connector Ramp to SR-60 Eastbound Merge	60	C
SR-60 Eastbound Merge to Grand Avenue Off-ramp	61	C
Grand Avenue Off-ramp to Grand Avenue On-ramp	52	D
Grand Avenue On-ramp Merge Segment	45	D
Grand Avenue Merge Lane Drop to Additional Lane Opening	49	D
Additional Lane Opening to SR-60 Diverge	56	C
SR-60 Eastbound Diverge to Four-lane Opening	62	C
PM Peak Hour		
SR-60 Westbound Connector Ramp to SR-60 Eastbound Merge	18	F
SR-60 Eastbound Merge to Grand Avenue Off-ramp	17	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	14	F
Grand Avenue On-ramp Merge Segment	14	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	24	F
Additional Lane Opening to SR-60 Diverge	47	D
SR-60 Eastbound Diverge to Four-lane Opening	61	C

Source: Traffic Study Report, 2011.

Table 1-6. Existing 2009 Traffic Conditions for Southbound SR-57

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Sunset Crossing On-ramp Merge Lane End to SR-60 Westbound Merge	13	F
SR-60 Westbound Merge to Lane Drop	17	F
Lane Drop to Grand Avenue On-ramp	37	F
Grand Avenue On-ramp to Additional Lane Opening	52	C
Additional Lane Opening to SR-60 Westbound Diverge	55	C
SR-60 Westbound Diverge to SR-60 Eastbound Connector Ramp	60	D
PM Peak Hour		
Sunset Crossing On-ramp Merge Lane End to SR-60 Westbound Merge	53	E
SR-60 Westbound Merge to Lane Drop	40	D
Lane Drop to Grand Avenue On-ramp	54	C
Grand Avenue On-ramp to Additional Lane Opening	61	C
Additional Lane Opening to SR-60 Westbound Diverge	61	B
SR-60 Westbound Diverge to SR-60 Eastbound Connector Ramp	61	C

Source: Traffic Study Report, 2011.

Projected Capacity Needs, Queue and Delay, and/or Level of Service

With steady commercial and industrial growth in the City of Industry and residential growth in the City of Diamond Bar, Grand Avenue, from the interchange at SR-60 south to Golden Springs Drive, would experience extensive delays and an LOS that would approach F during both the AM and PM peak hours. Anticipated future (2037) traffic delay and LOS data are presented in Tables 1-7, 1-8, 1-9, 1-10, and 1-11. Future traffic volumes were derived from

SCAG's 2008 RTP, 2035 Model (SCAG 2008). The SCAG model provided the basis for the 2037 traffic forecasts, but the land use associated with the Industry Business Center (IBC) was not properly shown in the model. The SCAG model was therefore modified with the addition of IBC trip generation to the model trip tables. The traffic model forecast prepared for the project thus includes trips associated with the IBC, which were not reflected in SCAG's 2008 RTP, 2035 Model.

Table 1-7. 2037 Summary of Traffic Conditions for Alternative 1 (No Build)

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay[3]	Level of Service	Queue Length	Delay[3]	Level of Service
Grand Avenue at SR-60 Westbound Off-ramp[1]	1,005 feet	99.7	F	700 feet	178.9	F
Grand Avenue at SR-60 Eastbound Ramps[1]	628 feet	81.9	F	268 feet	84.3	F
Grand Avenue at Golden Springs Drive[2]	615 feet	111.6	F	673 feet	103.6	F

[1] Queue length in feet on freeway off-ramp approach.
[2] Queue length in feet on southbound approach.
[3] Delay in seconds per vehicle average.

Source: Traffic Study Report, 2011.

Table 1-8. Eastbound SR-60 2037 Traffic Conditions for Alternative 1 (No-Build)

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Brea Canyon Off-ramp to SR-57 Southbound Connector Ramp	48	D
SR-57 Southbound Connector Ramp to HOV Lane Start	56	C
HOV Lane Start to SR-57 Northbound Merge	56	D
SR-57 Northbound Merge to Grand Avenue Off-ramp	22	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	36	F
Grand Avenue On-ramp Merge Segment	38	E
Grand Avenue Merge Lane Drop to Additional Lane Opening	50	E
Additional Lane Opening to SR-57 Northbound Diverge	60	C
SR-57 Northbound Diverge to Diamond Bar Boulevard On-ramp	60	C
PM Peak Hour		
Brea Canyon Off-ramp to SR-57 Southbound Connector Ramp	58	B
SR-57 Southbound Connector Ramp to HOV Lane Start	59	B
HOV Lane Start to SR-57 Northbound Merge	59	C
SR-57 Northbound Merge to Grand Avenue Off-ramp	14	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	12	F
Grand Avenue On-ramp Merge Segment	12	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	26	F
Additional Lane Opening to SR-57 Northbound Diverge	51	C
SR-57 Northbound Diverge to Diamond Bar Boulevard On-ramp	61	C

Source: Traffic Study Report, 2011.

Table 1-9. Westbound SR-60 2037 Traffic Conditions for Alternative 1 (No Build)

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Diamond Bar Boulevard On-ramp Merge Lane End to SR-57 Southbound	9	F
SR-57 Southbound Merge to Grand Avenue Off-ramp	21	F
Grand Avenue Off Ramp to Grand Avenue On-ramp	27	F
Grand Avenue Loop On-ramp to Slip On-ramp	60	B
Additional Lane Opening to SR-57 Southbound Diverge	61	B
SR-57 Southbound Diverge to Westbound Connector	62	B
PM Peak Hour		
Diamond Bar Boulevard On-ramp Merge Lane End to SR-57 Southbound	58	C
SR-57 Southbound Merge to Grand Avenue Off-ramp	26	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	31	F
Grand Avenue Loop On-ramp to Slip on-ramp	60	C
Additional Lane Opening to SR-57 Southbound Diverge	60	C
SR-57 Southbound Diverge to Westbound Connector	61	C

Source: Traffic Study Report, 2011.

Table 1-10. Northbound SR-57 2037 Traffic Conditions for Alternative 1 (No Build)

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
SR-60 Westbound Connector Ramp to SR-60 Eastbound Merge	13	F
SR-60 Eastbound Merge to Grand Avenue Off-ramp	22	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	36	F
Grand Avenue On-ramp Merge Segment	38	E
Grand Avenue Merge Lane Drop to Additional Lane	50	E
Additional Lane Opening to SR-60 Eastbound Diverge	65	C
SR-60 Eastbound Diverge to Four-lane Opening	62	C
PM Peak Hour		
SR-60 Westbound Connector Ramp to SR-60 Eastbound Merge	15	F
SR-60 Eastbound Merge to Grand Avenue Off-ramp	14	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	12	F
Grand Avenue On-ramp Merge Segment	12	F
Grand Avenue Merge Lane Drop to Additional Lane	26	F
Additional Lane Opening to SR-60 Eastbound Diverge	51	C
SR-60 Eastbound Diverge to Four-lane Opening	62	C

Source: Traffic Study Report, 2011.

Table 1-11. Southbound SR-57 2037 Traffic Conditions for Alternative 1 (No Build)

Freeway Segment	Segment Speed (mph)	Level of Service
AM Peak Hour		
Sunset Crossing On-ramp Merge Lane End to SR-60 Westbound Merge	11	F
SR-60 Westbound Merge to Grand Avenue Off-ramp	21	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	27	F
Grand Avenue Loop On-ramp to Slip On-ramp	60	B
Grand Avenue Slip On-ramp to SR-60 Westbound Diverge	61	B
SR-60 Westbound Diverge to SR-60 Eastbound Connector Ramp	61	C
PM Peak Hour		
Sunset Crossing On-ramp Merge Lane End to SR-60 Westbound Merge	13	F
SR-60 Westbound Merge to Grand Avenue Off-ramp	26	F
Grand Avenue Off-ramp to Grand Avenue On-ramp	31	C
Grand Avenue Loop On-ramp to Slip On-ramp	60	C
Grand Avenue Slip On-ramp to SR-60 Westbound Diverge	60	C
SR-60 Westbound Diverge to SR-60 Eastbound Connector Ramp	60	D

Source: Traffic Study Report, 2011.

Forecast 2037 Grand Avenue interchange traffic volumes indicate that substantial delays will occur at the off-ramps from both eastbound and westbound SR-57/SR-60 because of high demand. In addition, the AM and PM peak-hour intersection LOS calculations presented in Table 1-7 show that all existing off-ramps from Grand Avenue will experience an LOS of F during peak hours.

System Safety Needs

Traffic Accident Surveillance and Analysis System (TASAS) data, provided by Caltrans District 7, cover the 36-month period from July 1, 2008, through June 30, 2011. Table 1-12 compares fatal, fatal-plus-injury, and total accident rates with the average rate for the mainline per million vehicle miles as well as for the ramps and connectors per million vehicles. In addition, data for potential investigation locations along northbound SR-57 (post mile R4.296 to post mile R4.496) are included in Table 1-13.

Table 1-12. Accident Summary, July 1, 2008, through June 30, 2011

Location (PM to PM)		Post Mile	Total Number of Accidents	Actual Rate (acc/mvm)			Average Rate (acc/mvm)		
				Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Grand Avenue	Bridge No. 53-1864	R24.451	Grand Avenue would be included as part of the ramp data						
Grand Avenue Ramps	Westbound Off-ramp	R24.712	17	0.000	0.26	1.49	0.003	0.35	1.01
	Westbound On-ramp	R24.551	6	0.000	0.09	0.55	0.003	0.24	0.72
	Eastbound Off-ramp	R24.277	35	0.000	0.36	3.17	0.003	0.36	1.01
	Eastbound On-ramp	R24.552	22	0.000	0.07	1.61	0.002	0.22	0.63

[Table 1-12 continued] Location (PM to PM)		Post Mile	Total Number of Accidents	Actual Rate (acc/mvm)			Average Rate (acc/mvm)		
				Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Diamond Bar Boulevard Ramps	Westbound Off-ramp	R25.876	21	0.000	0.60	1.59	0.003	0.35	1.01
	Westbound On-ramp	R25.659	11	0.000	0.00	1.93	0.003	0.24	0.72
	Eastbound Off-ramp	R25.440	6	0.000	0.18	1.07	0.003	0.35	1.01
	Eastbound On-ramp	R25.706	12	0.000	0.00	0.99	0.002	0.22	0.63
Connectors at SR-57/ SR-60	Northbound SR-57 to Westbound SR-60	R4.160	14	0.000	0.14	0.64	0.004	0.16	0.49
	Eastbound SR-60 to Southbound SR-57	R23.252	19	0.000	0.33	0.91	0.005	0.13	0.38
	Northbound SR-57 to Eastbound SR-60	R23.708	16	0.000	0.06	0.19	0.003	0.11	0.32
Connectors at SR-57/ SR-60	Westbound SR-60 to Southbound SR-57	R23.884	32	0.000	0.08	0.37	0.004	0.16	0.49
	Eastbound SR-60 to Northbound SR-57	R25.157	9	0.000	0.01	0.13	0.004	0.16	0.49
	Southbound SR-57 to Westbound SR-60	R25.372	4	0.000	0.01	0.06	0.003	0.11	0.32
SR-60	Westbound SR-60	R23.173–R26.527	921	0.004	0.44	1.72	0.004	0.32	1.07
	Eastbound SR-60	R23.173–R26.527	496	0.007	0.26	0.93	0.004	0.32	1.07
SR-57	Northbound SR-57	R4.160–4.519	99	0.000	0.85	3.99	0.003	0.24	0.77
	Southbound SR-57	R4.160–4.519	19	0.000	0.20	0.77	0.004	0.25	0.82
SR-57	Northbound SR-57	R4.518-5.272	32	0.000	0.20	0.58	0.004	0.26	0.82
	Southbound SR-57	R4.518–5.272	72	0.00	0.36	1.30	0.004	0.26	0.82
acc/mvm = accidents/million vehicle miles.									

Source: California Department of Transportation. 2013. District 7 Traffic Accident Surveillance and Analysis System Data.

Table 1-13. Potential Investigation Locations

Location (PM to PM)		Post Mile	Total Number of Accidents					Actual Rate (acc/mvm)		Average Rate (acc/mvm)	
			36 months	24 months	12 months	6 months	3 months	Fatal + Injury	Total	Fatal + Injury	Total
SR-57	NB	4.296–R4.496	72	43	25	15	11	1.11	2.78	0.33	1.08
NB = northbound.											

Source: California Department of Transportation District 7 Traffic Accident Surveillance and Analysis System Data, December 2009.

The data in Tables 1-12 and 1-13 show the following:

- The actual fatal accident rate is higher than the statewide average rate for
  - northbound SR-57 departing the SR-60 interchange.
- Based on the data provided, the following 12 locations have been identified as having higher than average accident rates within the specified period:
  - the westbound Grand Avenue off-ramp,
  - the eastbound Grand Avenue off-ramp,
  - the eastbound Grand Avenue on-ramp,
  - the westbound Diamond Bar Boulevard off-ramp,
  - the westbound Diamond Bar Boulevard on-ramp,
  - the eastbound Diamond Bar Boulevard off-ramp,
  - the eastbound Diamond Bar Boulevard on-ramp,
  - the connector from northbound SR-57 to westbound SR-60,
  - westbound SR-60,
  - the connector from eastbound SR-60 to southbound SR-57,
  - northbound SR-57 approaching SR-60, and
  - southbound SR-57 approaching SR-60.
- Based on the data provided, the following five locations have been identified as having higher than average injury rates:
  - eastbound SR-60 to southbound SR-57,
  - the westbound Diamond Bar Boulevard off-ramp,
  - westbound SR-60,
  - northbound SR-57 approaching SR-60, and
  - southbound SR-57 approaching SR-60.

- The predominant collision type was the rear-end collision for most of the above locations. Rear-end collisions are typically associated with congestion.
- The predominant collision type for the northbound SR-57 connector to westbound SR-60 as well as eastbound SR-60 to southbound SR-57 was hit object. Hit-object collisions are typically associated with inadequate sight distance and inadequate shoulders.
- Based on the data provided, one location was identified as having higher than average fatality rates, which was eastbound SR-60.

1.2.2.2 Roadway Deficiencies

Under current conditions, operational deficiencies exist along SR-60 between the merge and diverge points with SR-57. The deficiencies are primarily due to the inadequate weaving[3] length between the Grand Avenue interchange and the merge and diverge points of the two freeways. The Grand Avenue interchange is located approximately 1,800 feet east of the northbound SR-57 and eastbound SR-60 merge point. To exit at Grand Avenue, eastbound SR-60 traffic must make a three-lane weave within this 1,800-foot distance, crossing lanes that are heavily used by SR-57 traffic and thereby creating a weaving conflict. SCAG forecasts that the volume of traffic at the eastbound off-ramp to Grand Avenue in 2035 will increase the length of the queue and exceed the length of the single exit lane.

A similar inadequate weaving length exists at the eastbound on-ramp from Grand Avenue to SR-57/SR-60. For eastbound traffic from the Grand Avenue on-ramp to stay on SR-60, vehicles need to weave across two lanes of traffic on SR-57, thereby creating a weaving conflict and a bottleneck for both northbound SR-57 and eastbound SR-60.

In the westbound direction, a lane drop occurs on southbound SR-57 just before the merge point with westbound SR-60, which increases density in the two remaining lanes on SR-57. Westbound SR-60 traffic that exits at Grand Avenue must weave across these two lanes, creating a conflict with SR-57 traffic and resulting in congestion on SR-60.

The existing geometric constraints, which result in operational deficiencies on the two freeways, raise safety concerns as well. Short weaving distances and inadequate ramp queuing capacity have contributed to interchange accident rates that are, in general, higher than the statewide averages (see Table 1-12).

Structural Limitations (load limits)

No structural limitations or load limits are known for freeway segments in the project area.

Maintenance Problems

The 2003 bridge inspection report entitled *Grand Avenue OC SR-60* indicates that the asphalt at each end of the Grand Avenue bridge over the SR-57/SR-60 confluence has settled, exposing the shear keys to direct wheel loading. The report recommends patching the asphalt.

[3] *Weaving* refers to the excessive lane changes that drivers make to reach ramps over short distances in heavy traffic.

The Grand Avenue overcrossing would be replaced as part of the proposed project. Once the new bridge is constructed, this existing deficiency will be eliminated.

Correcting Deficiencies

With construction of the proposed bypass lane (see description on page 1-15), the weaving conflict between the eastbound SR-60 off-ramp to Grand Avenue and the SR-57 lanes would be eliminated. The off-ramp bypass lane would place SR-60 traffic in a separate lane that does not need to merge with SR-57. All three lanes from SR-57 would continue through the Grand Avenue interchange. Furthermore, problems associated with the inadequate weaving distance of the eastbound SR-60 on-ramp from Grand Avenue would be eliminated with the proposed eastbound bypass connector on SR-60. The bypass connector would place on-ramp traffic from Grand Avenue in a separate auxiliary lane, allowing it to access SR-60 without having to merge. In the westbound direction, the project would extend the third lane of SR-57, creating an auxiliary lane to Grand Avenue and providing a longer distance in which to merge with SR-60.

1.2.2.3 Social Demands or Economic Development

SR-57 and SR-60 are major inter-regional freeways that link cities in the San Gabriel Valley and the Inland Empire to Los Angeles and Orange counties. The project site is surrounded by the City of Industry and the City of Diamond Bar. A variety of land uses are located adjacent to the project site, including Diamond Bar Golf Course, which is to the south. Other land uses south of the project site include hotel, restaurant, retail, and office/commercial uses. The area north of the project site is characterized by single-family residential uses, from the southbound SR-57 on-ramp at Sunset Crossing Road to the westbound SR-60 Grand Avenue off-ramp divergence point. From this point to the western SR-57/SR-60 split, the area north of the project site is characterized by mostly vacant, undeveloped land along Diamond Bar Creek, except for an existing commercial center just west of Grand Avenue, which consists of a fast food restaurant and a vacant automobile dealership.

According to the City of Industry 1995 General Plan, the city developed primarily as an industrial business center. It is likely that the city will continue to promote such uses on its remaining developable land. Furthermore, zoning and general plan designations dictate what types of development will occur in the area. The portion of the project site bordering the City of Industry is designated for transportation uses. Parcels to the north of the commercial center located on Grand Avenue are designated for industrial manufacturing.

A new development, the IBC, is proposed for a location just north of the Grand Avenue interchange. According to the final environmental impact report (2004) for the IBC, the project would include nearly 4.8 million square feet of built space, including 2,878,000 square feet of office uses, 1,268,000 square feet of retail uses, and 633,000 square feet of industrial uses such as research and development space.

A supplemental environmental impact report to the 2004 document was prepared in 2008. The proposed changes included reduced square footage for office, retail, and industrial uses and the addition of a new National Football League stadium along with related facilities.

The City of Diamond Bar has also designated the portion of the project site within its borders for transportation uses. Although the majority of land uses within the city are residential, within the last 5 years, the area surrounding the project site (near the intersection of Grand Avenue and Golden Springs Drive) has been developed for commercial uses. Therefore, the amount of vacant, developable land near the project site is limited.

Diamond Bar Golf Course is owned by the County of Los Angeles and operated by a concessionaire under an operating agreement with the county. The public golf course is an important recreational facility for communities along SR-57 and SR-60 and a source of revenue for the county. The proposed freeway improvements would require land to be acquired from the golf course, but the facility would continue to operate as a golf course during construction as well as after construction.

As stated earlier, with steady commercial and industrial growth in the City of Industry, the City of Diamond Bar, and other cities in the San Gabriel and Pomona valleys, increasing traffic volumes at the SR-57/SR-60 confluence, as forecast to 2037, will result in deteriorating traffic flows.

1.2.2.4 Modal Interrelationships and System Linkages

SR-57 and SR-60 are major transportation facilities. Both play a large role in moving people and goods at both the local and regional level. As stated before, the freeways link the various cities in the San Gabriel and Pomona valleys as well as Los Angeles County, Orange County, and the Inland Empire. Some of the major freeways that link to SR-57 and SR-60 include I-5, I-10, I-15, I-210, I-215, SR-22, and SR-91. In addition, SR-60 serves as a major goods movement corridor, facilitating the movement of freight traffic in the region, the state, and the nation. The ports of Los Angeles and Long Beach are major ports of entry for these goods, which are first transported to the intermodal yards near downtown Los Angeles. Cargo that does not continue on rail is transported by truck throughout the region and the state. A large portion of this cargo makes its way to distribution centers in the Inland Empire by using SR-60 as well as other freeways. The role that SR-57 and SR-60 play in moving people as well as freight in the region, the state, and the nation illustrates the need for the proposed project improvements. It should be noted that truck lanes are not being considered as part of this project. It is anticipated that dedicated truck lanes, if required, would follow a separate corridor alignment outside the existing or proposed Caltrans right-of-way and be analyzed as an independent project.

1.2.2.5 Air Quality Improvements

The proposed project would improve air quality by reducing congestion and delay at the SR-57/SR-60 confluence. Congestion and delay, which result in poor levels of service, contribute to increases in vehicular emissions and greenhouse gases (GHGs). Although emissions of GHGs from project construction would endure in the atmosphere, a net decrease in GHG emissions is anticipated because operational emissions of carbon dioxide (CO_2) would be expected to decrease with implementation of the proposed project under Alternative 2 or Alternative 3.

1.2.2.6 Independent Utility and Logical Termini

Even if no additional transportation improvements are made in the project area, the proposed project would relieve existing traffic congestion without creating new chokepoints outside the project limits. The proposed project would not require future construction to realize this benefit and meet its purpose and need. At the same time, the proposed project would not preclude other reasonably foreseeable transportation improvements in the area. Therefore, the project has both independent utility and logical termini.

The total length of the proposed project is 2.9 miles, including the approximately 2-mile-long confluence of SR-57 and SR-60, which represents the logical termini for the proposed project. All areas of the project where improvements and/or construction activity are proposed are included in the environmental analysis; thus, the logical termini are of sufficient length to address environmental matters.

1.3 Project Description

This section describes the proposed action that was developed to meet the identified need while avoiding or minimizing environmental impacts. A description of the project alternatives follows in Section 1.4.

The proposed project would reconfigure the approximately 2-mile confluence of SR-57 and SR-60, which would entail the addition of auxiliary lanes and associated on-ramp/off-ramp reconfigurations. SR-57 and SR-60 are major inter-regional freeways that link cities in the San Gabriel Valley and the Inland Empire with Los Angeles and Orange counties.

The purpose of the proposed project is to:

- Relieve congestion and delays on Grand Avenue from Golden Springs Drive to the interchange at SR-60.
- Relieve congestion and delays at the Grand Avenue interchange.
- Relieve congestion and delays on the SR-57/SR-60 freeway mainline.
- Improve safety by reducing weaving movements and increasing weaving distances along the SR-57/SR-60 confluence.

1.4 Alternatives

Three build alternatives, in addition to the No-Build Alternative (see Alternative 1, below), were presented in the project study report for the proposed project. Two of the build alternatives (Alternatives 2 and 3) are analyzed in this document (see Figures 1-3 and 1-4). One alternative has been eliminated from further consideration (see discussion on page 1-28). The total length of the project under both Alternatives 2 and 3 would be approximately 2.9 miles along SR-60. Alternative 2 has an estimated capital cost of $222.2 million, while Alternative 3 has an estimated capital cost of $231 million. Some of the criteria used in the evaluation of these alternatives included cost, effect on traffic operations, and environmental impacts (adverse and beneficial).

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-3- Sheet 1 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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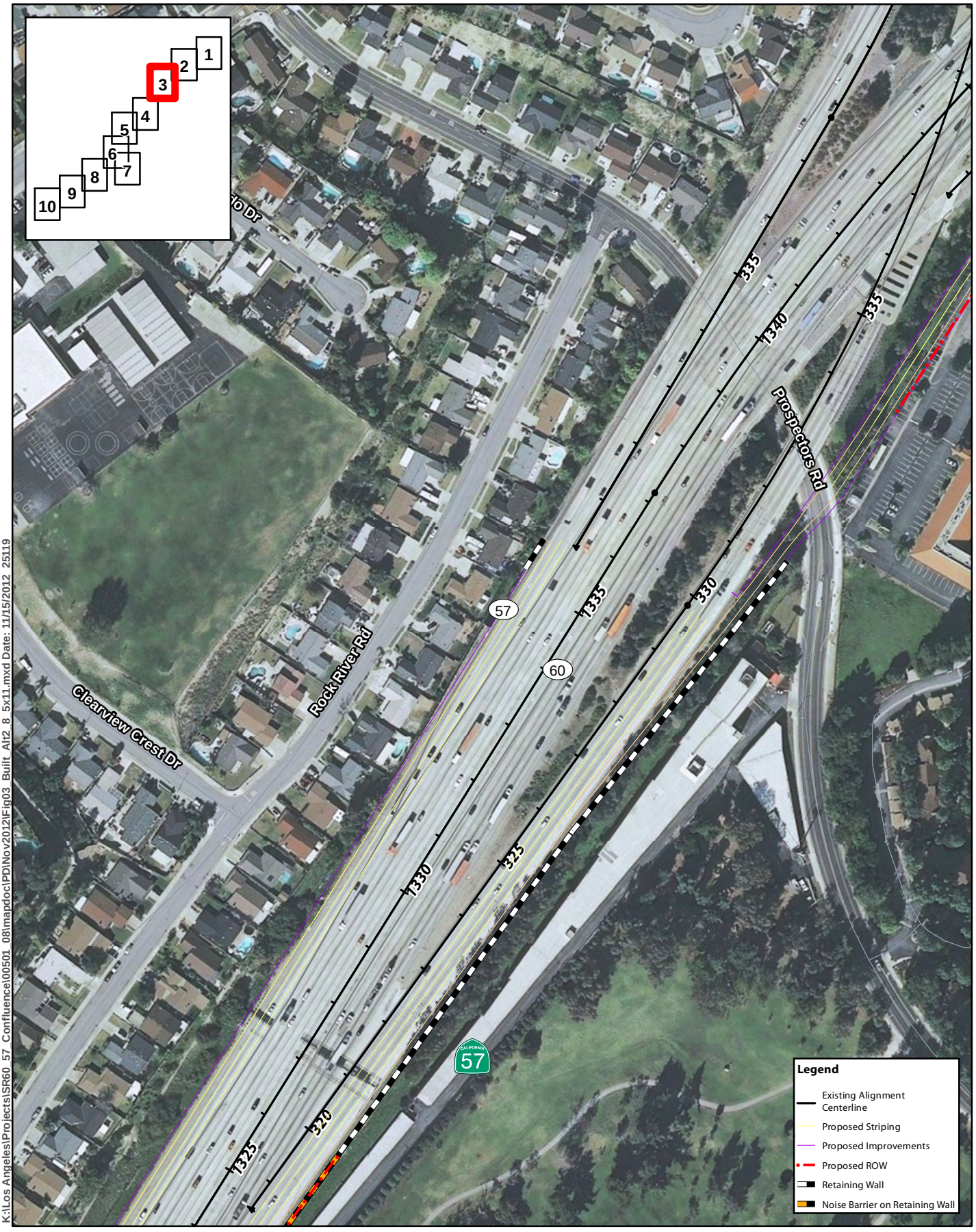
Figure 1-3- Sheet 2 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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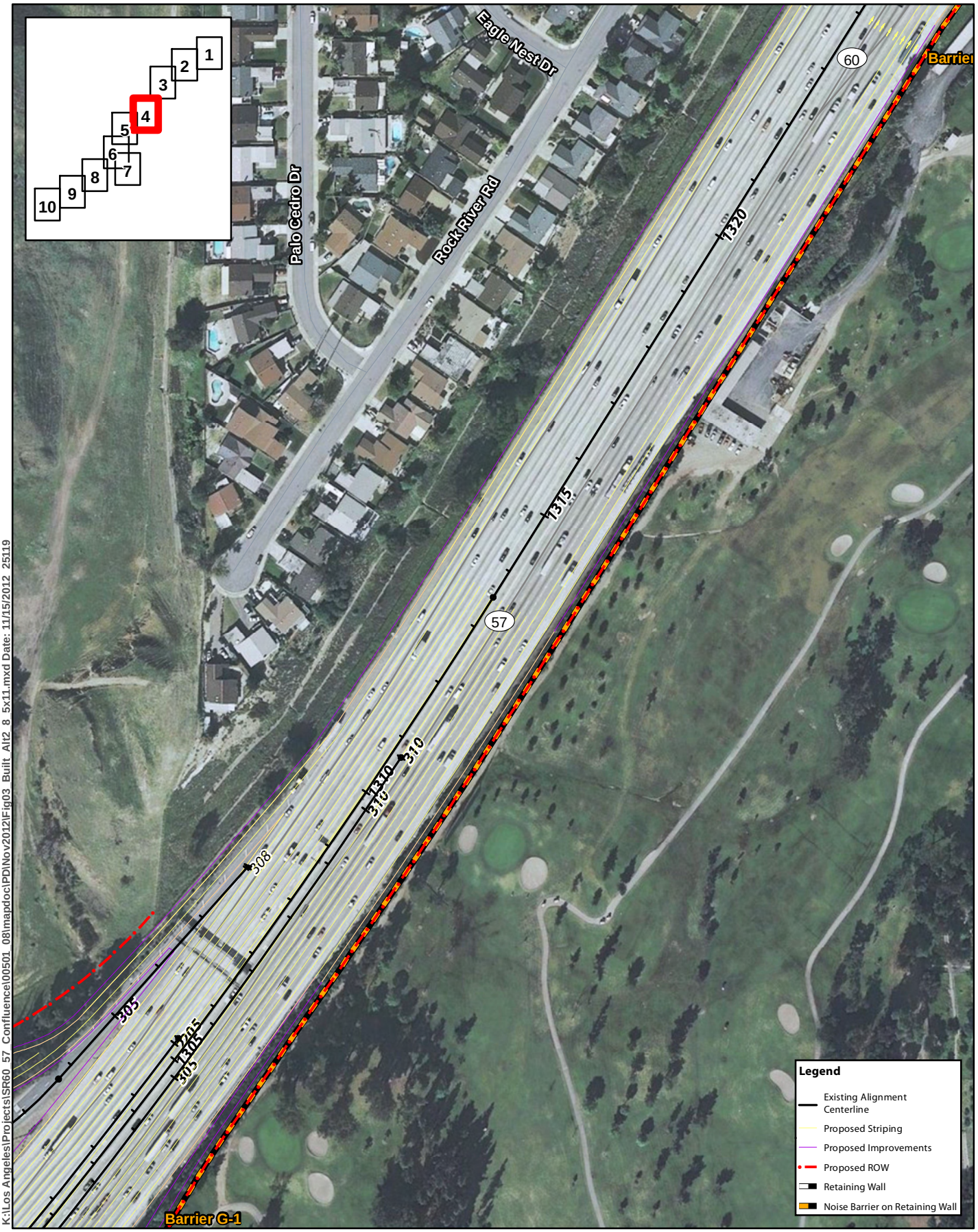
Figure 1-3- Sheet 3 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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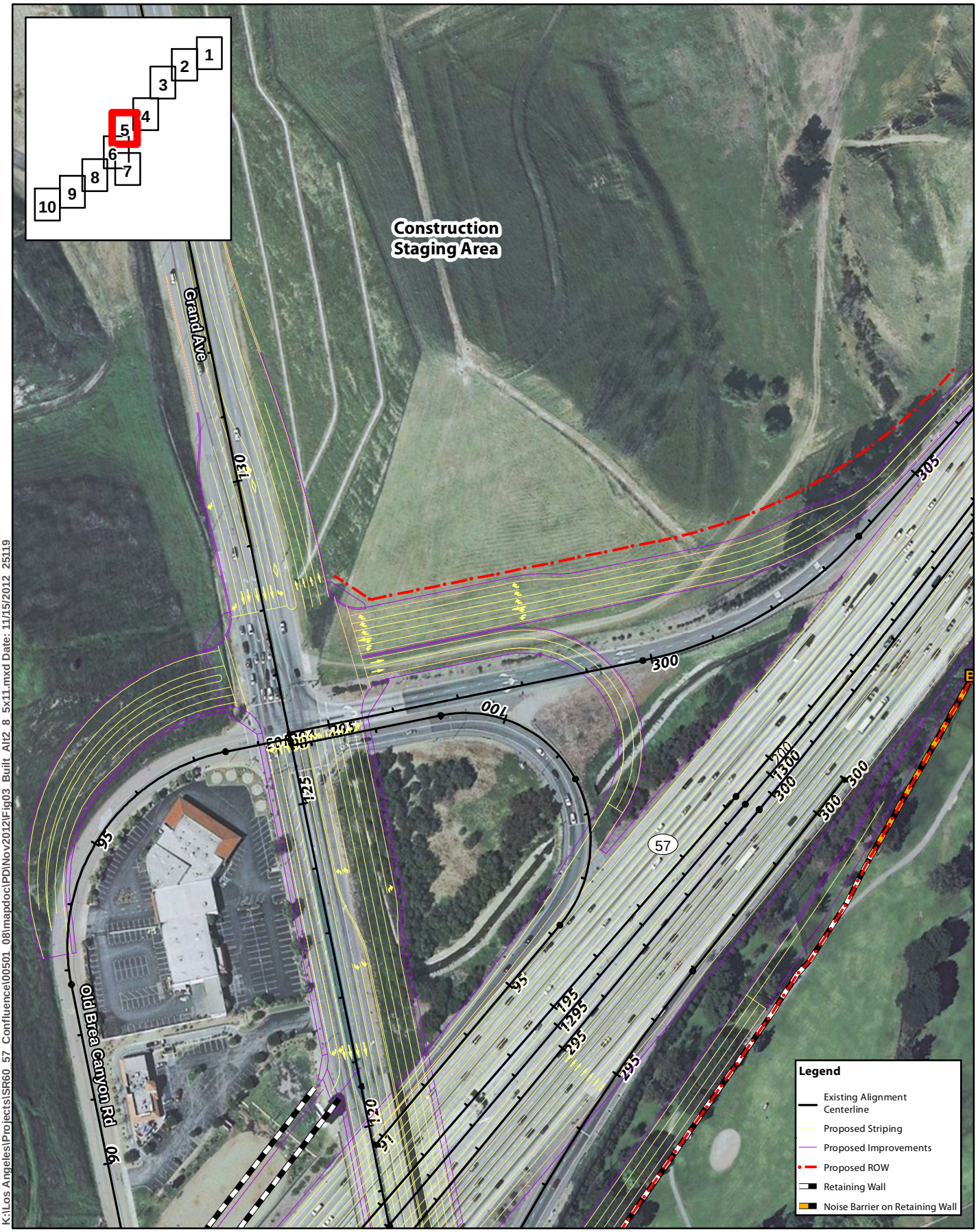
Figure 1-3- Sheet 4 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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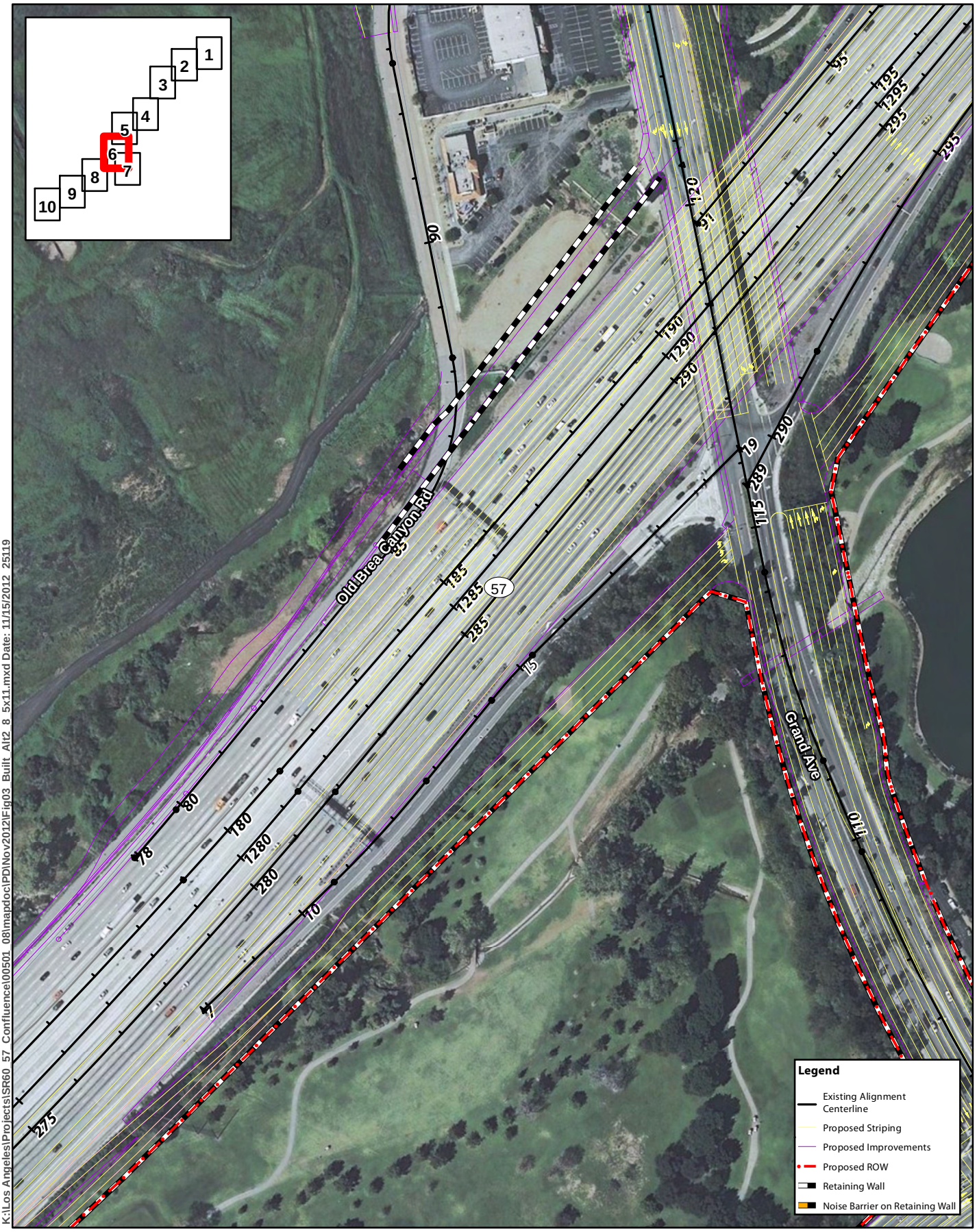
Figure 1-3- Sheet 5 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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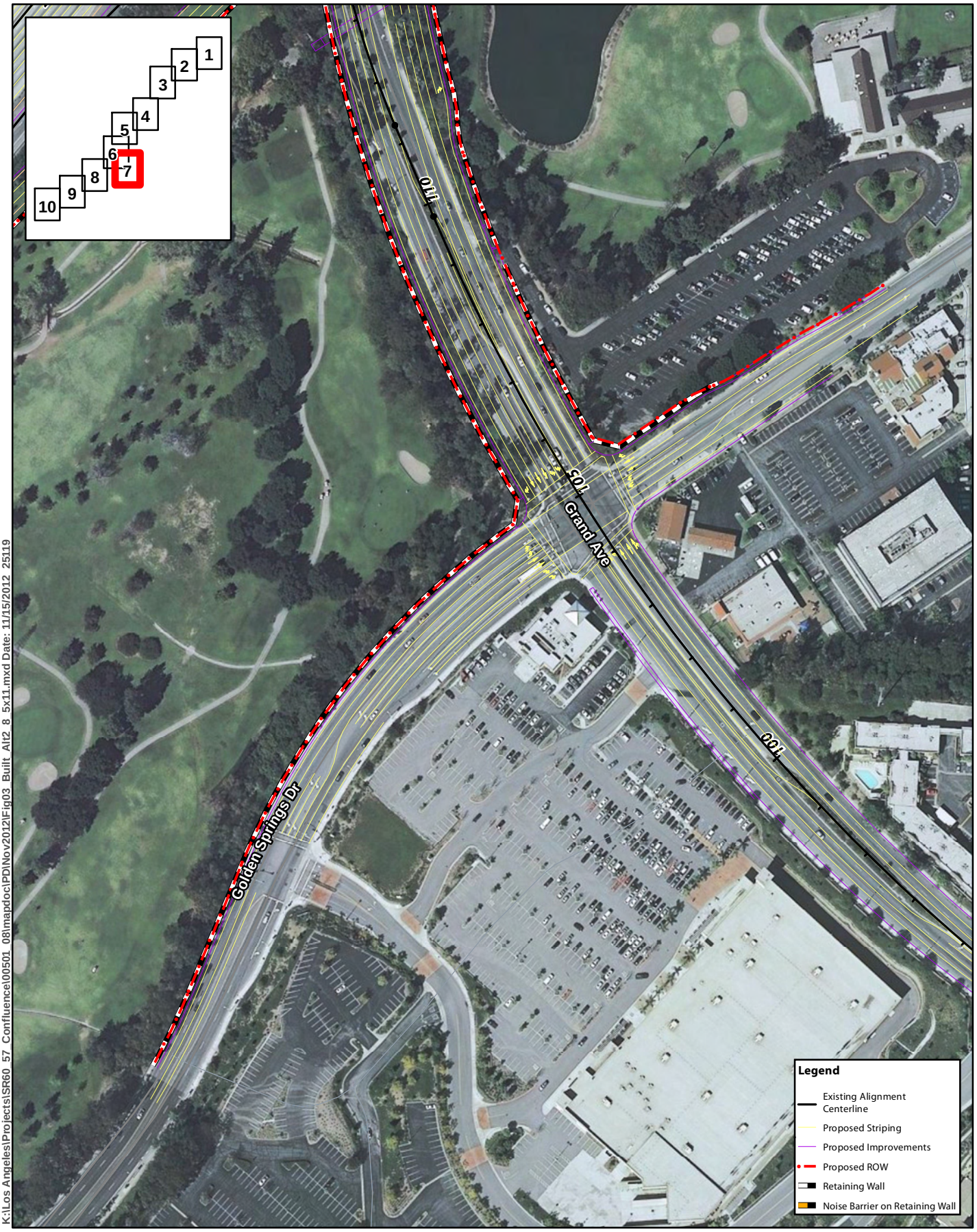
Figure 1-3- Sheet 6 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-3- Sheet 7 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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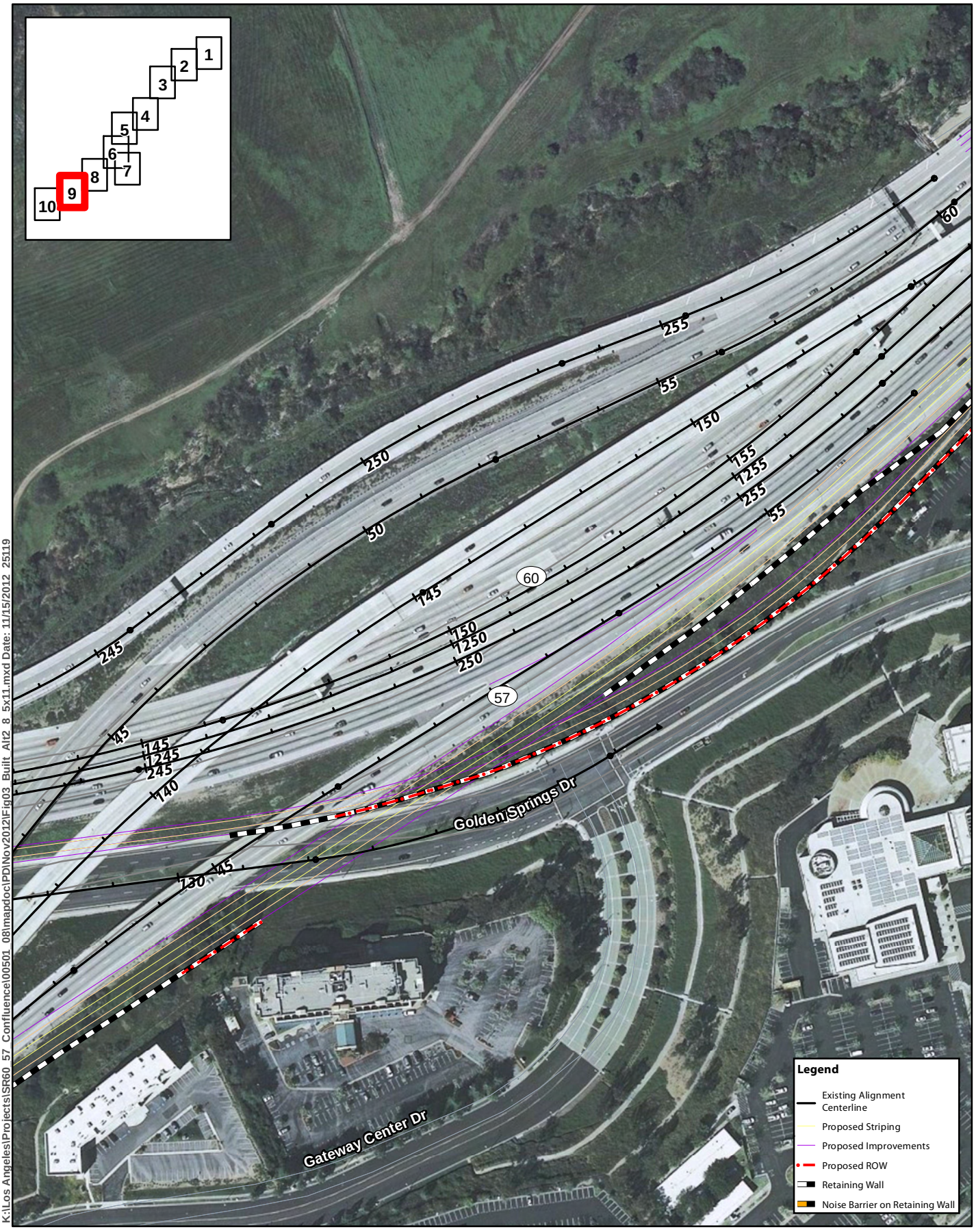
Figure 1-3- Sheet 8 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-3- Sheet 9 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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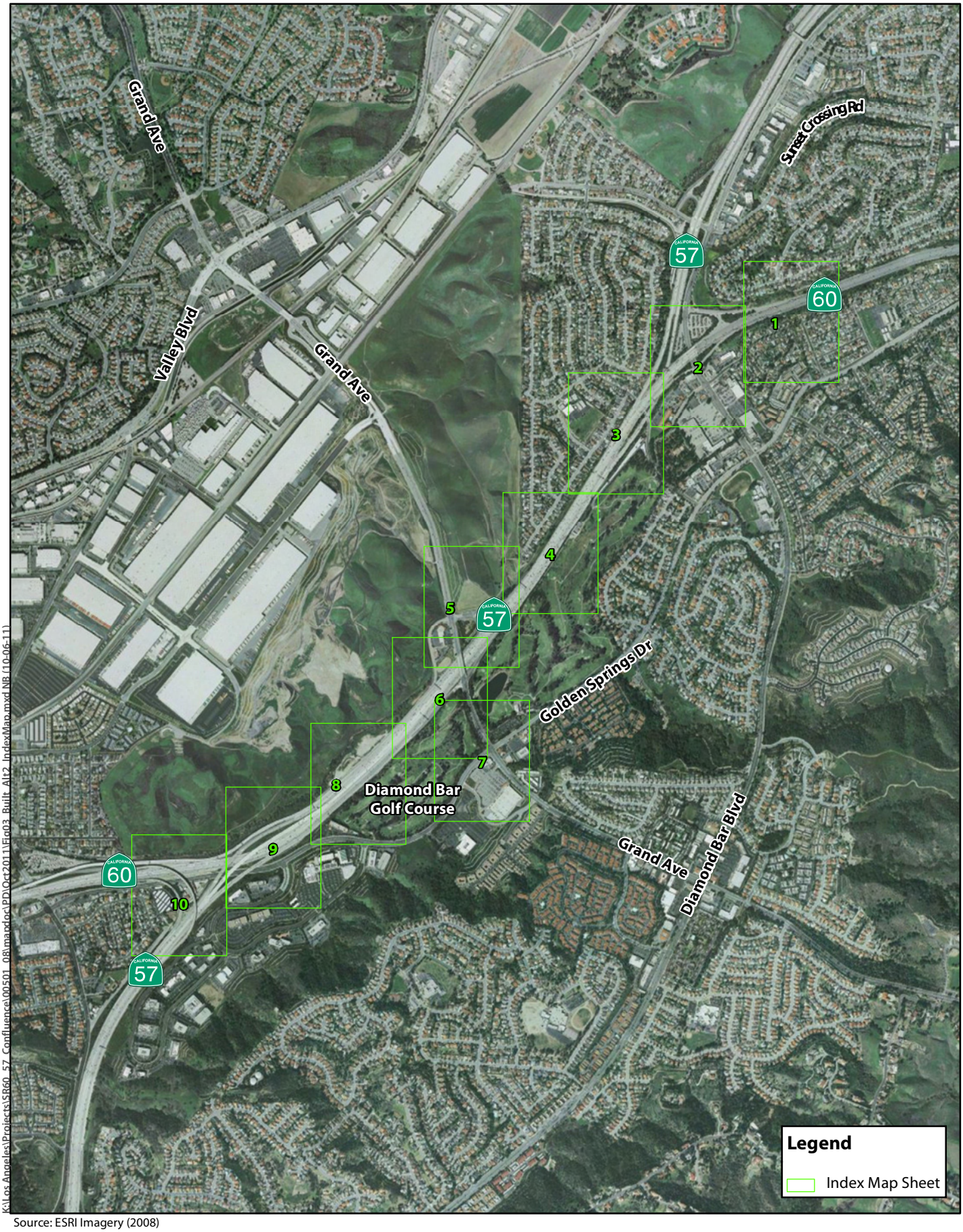
Figure 1-3- Sheet 10 of 10
Alternative 2, Combination Cloverleaf / Diamond Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008)

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Figure 1-4 - Index Map
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-4 - Sheet 1 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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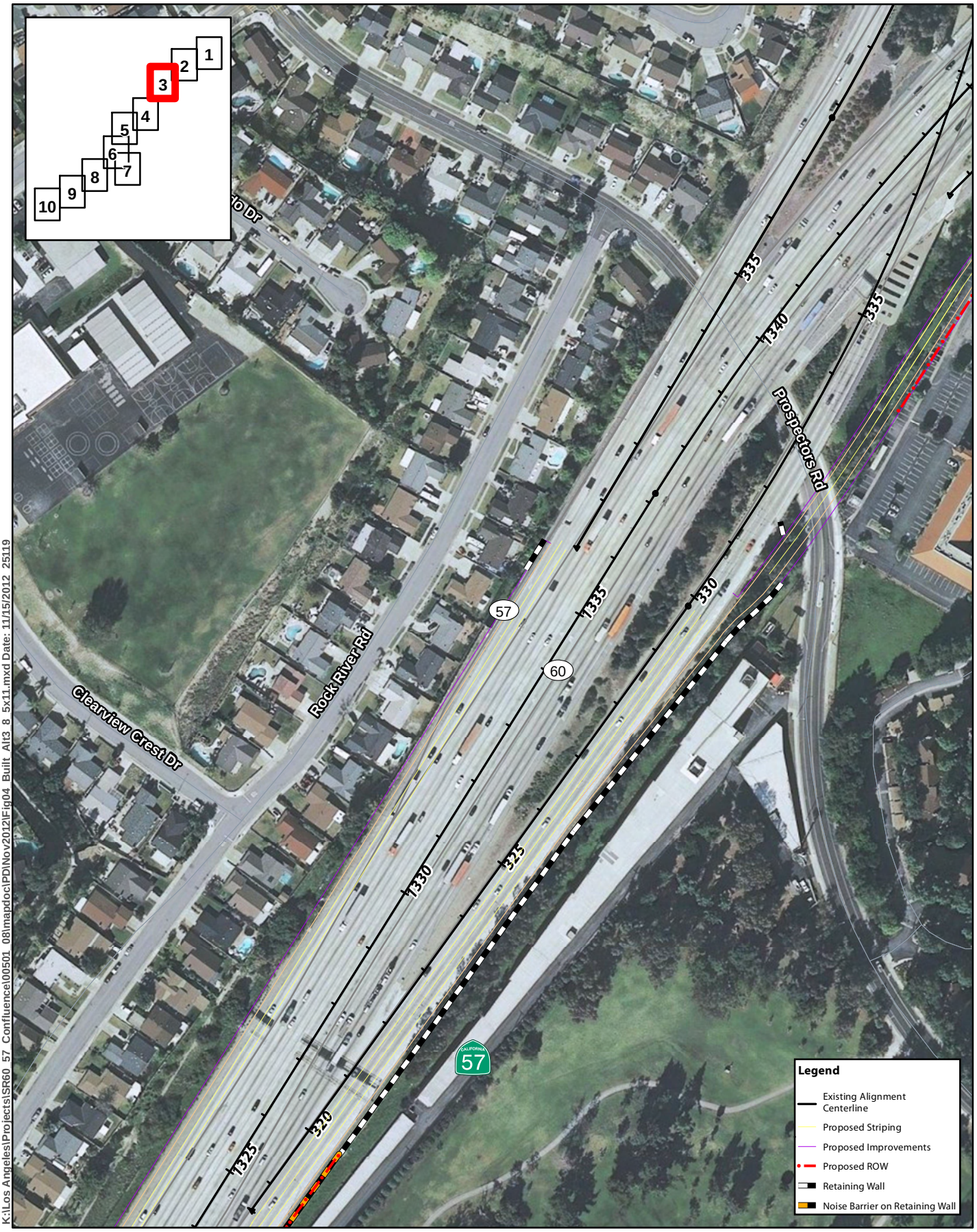
Figure 1-4 - Sheet 2 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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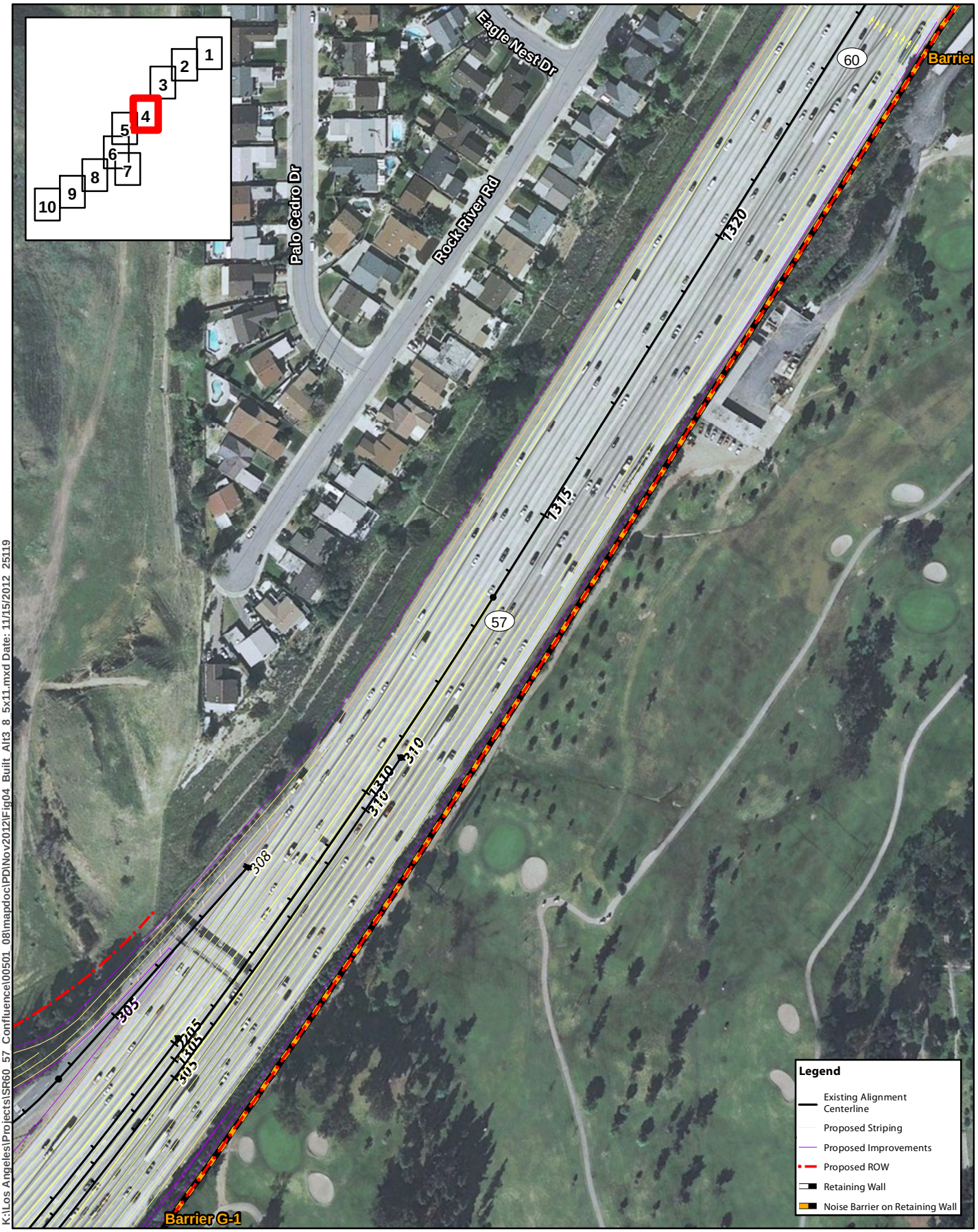
Figure 1-4 - Sheet 3 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-4 - Sheet 4 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

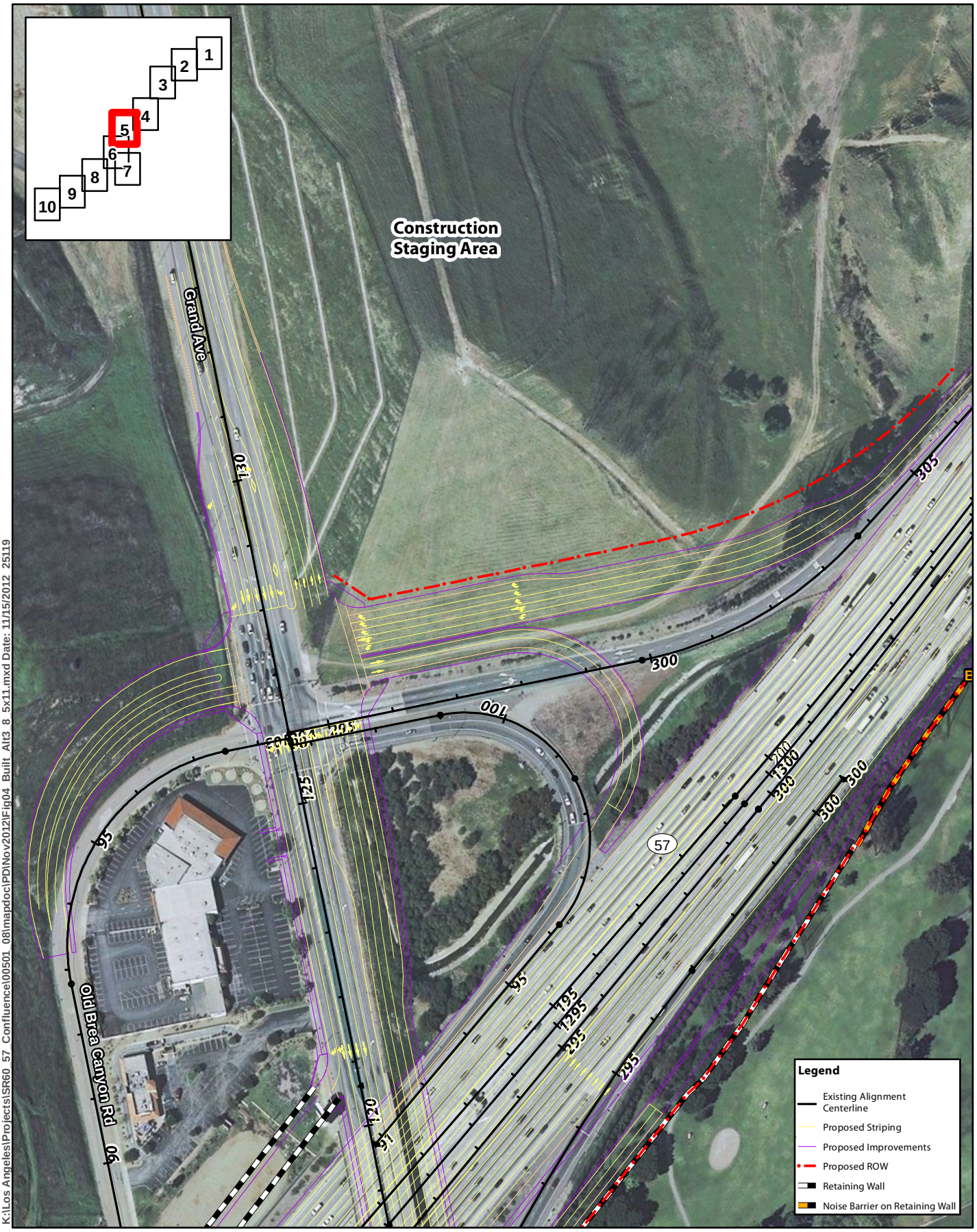

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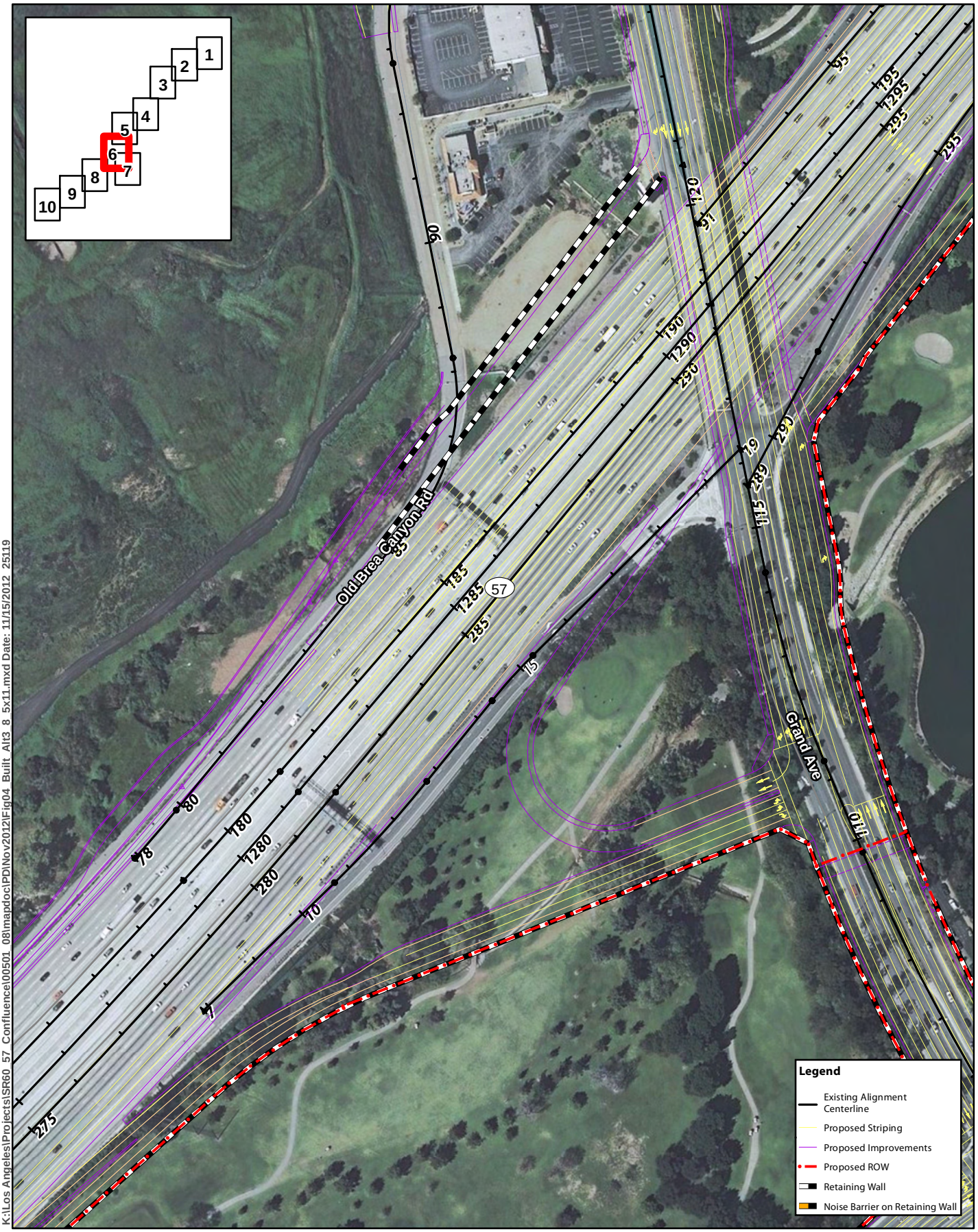
Figure 1-4 - Sheet 5 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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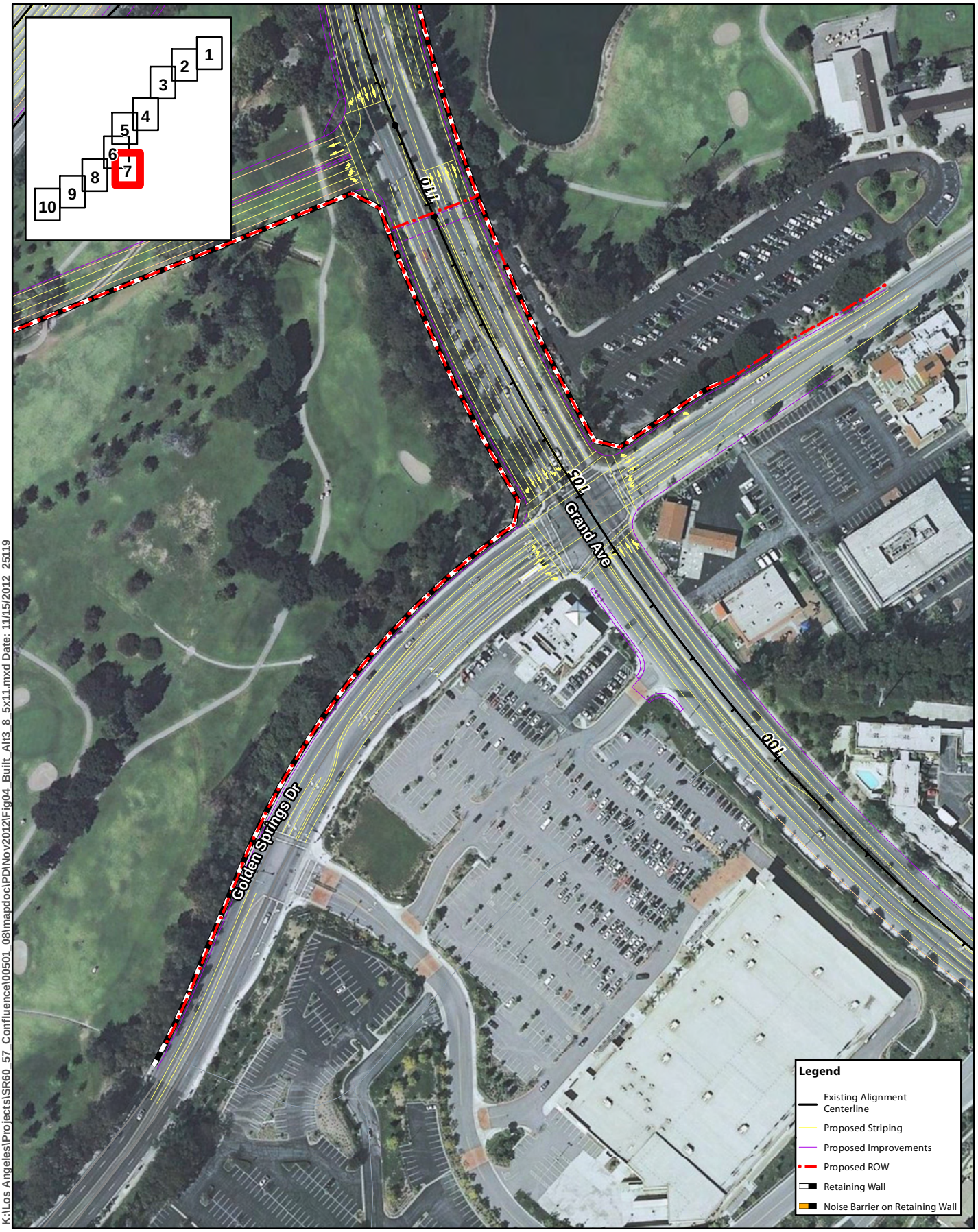
Figure 1-4 - Sheet 6 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-4 - Sheet 7 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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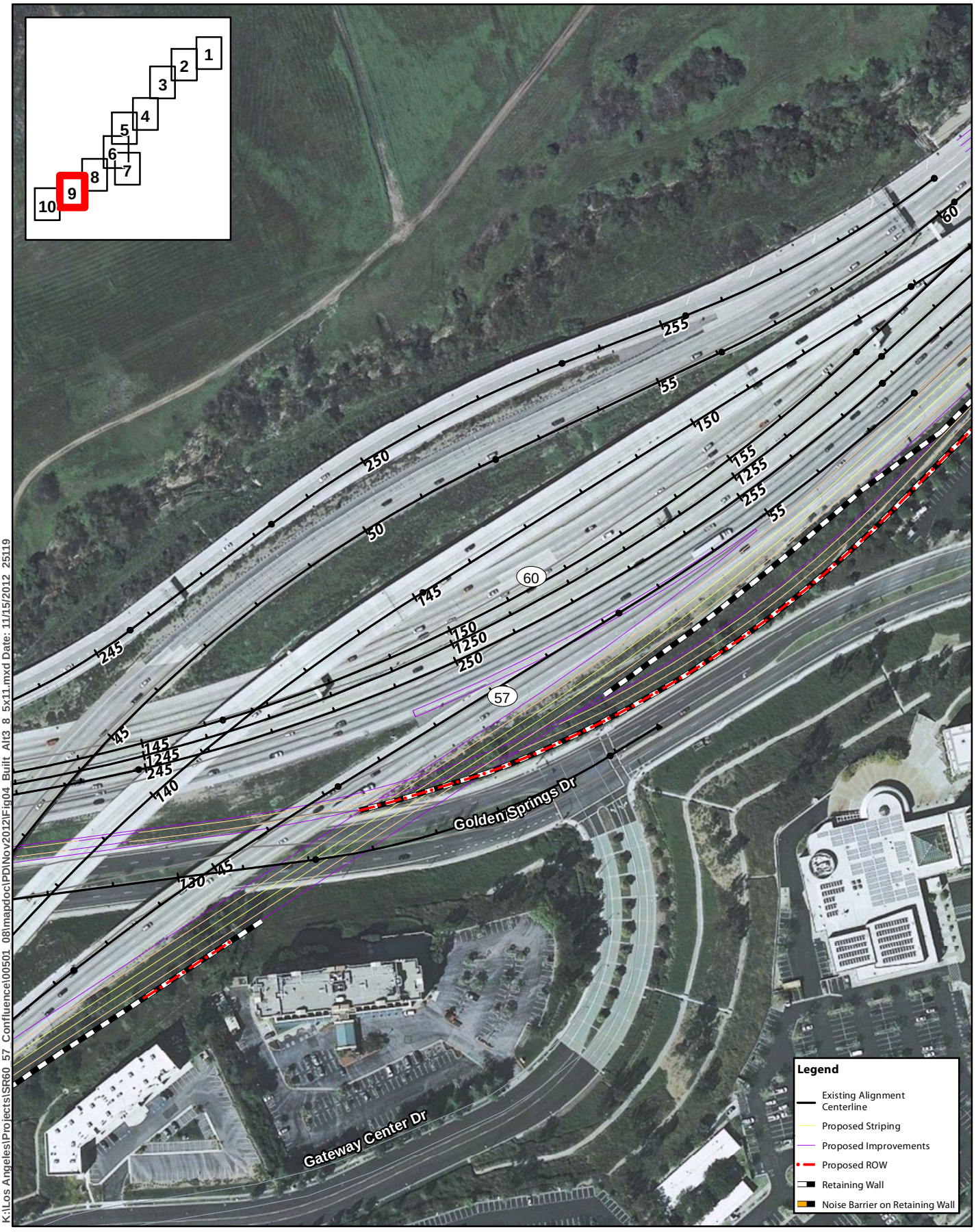
Figure 1-4 - Sheet 8 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project



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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-4 - Sheet 9 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

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Source: ESRI Imagery (2008), WKE, Inc.(2011), ICF (2011)

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Figure 1-4 - Sheet 10 of 10
Alternative 3, Partial Cloverleaf Interchange Configuration
State Route 57/State Route 60 Confluence at Grand Avenue Project

Each alternative is summarized below.

1.4.1 No-Build Alternative

1.4.1.1 Alternative 1 – No-Build Alternative

The No-Build (or No-Action) Alternative would result in no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange. Existing deficient capacity and congestion conditions due to short weaving distances on SR-57, SR-60, and Grand Avenue would not change under this alternative.

1.4.2 Build Alternatives

Two build alternatives are being considered (i.e., Alternative 2: Combination Cloverleaf/ Diamond Interchange Configuration and Alternative 3: Partial Cloverleaf Interchange Configuration). The build alternatives are described below.

1.4.3 Unique Features of the Build Alternatives

1.4.3.1 Alternative 2: Combination Cloverleaf/Diamond Configuration Interchange

Alternative 2 would maintain the existing interchange configuration (compact diamond) for the eastbound SR-60 on- and off-ramps. The interchange configuration at Grand Avenue for Alternative 2 would remain a combination partial cloverleaf for the westbound SR-60 on- and off-ramps. An auxiliary lane would be added, connecting the new three-lane on-ramp at Grand Avenue to the new connector, which would bypass the north/east SR-57/SR-60 interchange.

As discussed in the common design features section below, the existing Grand Avenue overcrossing does not have sufficient length to accommodate an added northbound SR-57 through lane or sufficient vertical clearance over SR-60 to allow for widening. Therefore, it would be replaced. Under Alternative 2, the existing Grand Avenue overcrossing would be replaced by a 10-lane, 148-foot-wide structure over SR-60. The longer span would require a deeper structure, raising the Grand Avenue profile by about 4 feet. The bridge would contain eight through lanes and two 450-foot-long double left-turn lanes from southbound Grand Avenue to the eastbound on-ramp.

With implementation of Alternative 2, the new interchange configuration would require the eastbound on- and off-ramps to be relocated to the southeast by approximately 90 feet, which would require permanent acquisition of portions of the northern edge of the golf course both east and west of Grand Avenue. In addition, as part of Alternative 2, the Grand Avenue overcrossing would be replaced with a wider structure, and minor street improvements would be made along Golden Springs Drive, requiring further permanent acquisitions of golf course property along both the eastern and western edges of Grand Avenue as well as the northern edge of Golden Springs Drive. These acquisitions would result in 7.3 acres of golf course property being permanently incorporated into the proposed project. However, the facility would remain an 18-hole golf course,

with only minor changes made to the configuration, fairway distances, and par at holes 1, 2, 8, and 9 (Figure 1-5). After implementation of Alternative 2, course par would be slightly less than what it is under existing conditions (i.e., 71 rather than 72). Total yardage would also be slightly less than it is under existing conditions (i.e., 6,660 yards rather than 6,801 yards).

In addition to the permanent acquisitions, temporary construction easements (TCEs) totaling approximately 3.3 acres would be required at the golf course to accommodate construction of the on- and off-ramps for the SR-57/SR-60 confluence, widen the Grand Avenue overcrossing, and make street improvements along the north side of Golden Springs Drive west of Grand Avenue. Construction work would last approximately 36 months, during which time vegetation clearing, excavation, and grading would take place on those portions of the golf course that would be permanently acquired or temporarily acquired under construction easements.

To accommodate construction activities and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established. Construction at the golf course would occur in two phases, with only half of the course closed at any one time (nine holes), and a total of 14 months would be required for construction (7 months to reconfigure nine holes [per phase]). Upon completion of construction, the required TCEs would be returned to the county, and the course would be restored to a condition that would be comparable to its existing condition. The facility would continue to serve as an 18-hole golf course but with some changes to its configuration because of the permanent acquisitions required for the newly configured on- and off-ramps, the widened Grand Avenue overcrossing, and the street improvements along Golden Springs Drive (Figure 1-5).

1.4.3.2 Alternative 3: Partial Cloverleaf Interchange Configuration

The main difference between Alternative 2 and Alternative 3 is the configuration of the eastbound SR-60 interchange at Grand Avenue. Under Alternative 3, the existing eastbound on- and off-ramps at Grand Avenue, which form a compact diamond interchange, would be reconfigured to form a partial cloverleaf interchange. The new intersection at Grand Avenue and the new eastbound on- and off-ramps would be located approximately 500 feet south of the existing intersection (i.e., midway between the freeway and Golden Springs Drive). The new eastbound on-ramp from southbound Grand Avenue would be a loop on-ramp that would join SR-60 as a new eastbound auxiliary lane. The existing eastbound on-ramp would be realigned to accommodate the widened Grand Avenue and merge into the eastbound auxiliary lane created by the new loop on-ramp from southbound Grand Avenue to eastbound SR-60. The auxiliary lane would connect to the new connector that bypasses the north/east SR-57/SR-60 interchange.

As discussed in the common design features section above, the existing Grand Avenue overcrossing would be replaced by a new structure over SR-60. However, unlike Alternative 2, a double left-turn lane from southbound Grand Avenue to the eastbound on-ramp would not be required because vehicles traveling southbound on Grand Avenue would access northbound SR-57 and eastbound SR-60 by way of the new loop on-ramp on the west side of Grand Avenue. The new Grand Avenue overcrossing would be widened to accommodate eight through lanes and a center divider/median (a total width of 136 feet). A longer span would be required to accommodate the third SR-57 through lane and the loop on-ramp auxiliary lane. The longer span would require a deeper structure, raising the Grand Avenue profile by about 4 feet.

Figure 1-5. Diamond Bar Golf Course, Alternative 2

DIAMOND BAR GOLF COURSE SCORECARD

HOLE	EXISTING PAR	EXISTING BLUE	PROPOSED PAR	PROPOSED BLUE
1	5	476	4	455
2	4	387	4	371
3	3	191	3	191
4	5	559	5	559
5	4	378	4	378
6	4	480	4	480
7	4	391	4	391
8	4	420	4	291
9	3	188	3	204
OUT	36	3470	35	3320
10	4	345	4	345
11	4	424	4	424
12	5	530	5	530
13	3	197	3	197
14	4	354	4	354
15	5	486	5	486
16	4	414	4	414
17	3	150	3	150
18	4	440	4	440
IN	36	3340	36	3340
TOTAL	72	6810	71	6660

= MODIFIED GOLF HOLE

With implementation of Alternative 3, the new loop on-ramp and off-ramp intersection would be constructed approximately 500 feet south of the existing intersection, which would require permanent acquisition of portions of the northern edge of the golf course both east and west of Grand Avenue. In addition, as part of Alternative 3, the Grand Avenue overcrossing would be replaced with a wider structure, and minor street improvements would be made along Golden Springs Drive, requiring further permanent acquisition of golf course property along both the eastern and western edges of Grand Avenue as well as the northern edge of Golden Springs Drive. These acquisitions would result in 10.1 acres of golf course property being permanently incorporated into the proposed project. However, as with Alternative 2, the facility would remain an 18-hole golf course, with only minor changes made to the configuration, fairway distances, and par at holes 1, 2, 3, 8, and 9 (Figure 1-6). After implementation of Alternative 3, course par would be equal to the existing par of 72. Total yardage would be increased to 6,848 yards compared with 6,801 yards under current conditions.

In addition to the permanent acquisitions, TCEs totaling approximately 3.5 acres would be required at the golf course to accommodate construction of the on- and off-ramps for the SR-57/SR-60 confluence, widen the Grand Avenue overcrossing, and make street improvements along the north side of Golden Springs Drive west of Grand Avenue. Construction work would last approximately 36 months, during which time vegetation clearing, excavation, and grading would take place on those portions of the golf course that would be permanently acquired or temporarily acquired under construction easements.

To accommodate construction activities and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established. Construction at the golf course would occur in two phases, with only half of the course closed at any one time (nine holes), and a total of 14 months would be required for construction (7 months to reconfigure nine holes [per phase]). Upon completion of construction, the required TCEs would be returned to the county, and the course would be restored to a condition that would be comparable to its existing condition. The facility would continue to serve as an 18-hole golf course but with some changes to its configuration because of the permanent acquisitions required for the newly configured on- and off-ramps, the widened Grand Avenue overcrossing, and the street improvements along Golden Springs Drive (Figure 1-6).

1.4.4 Common Design Features of the Build Alternatives

1.4.4.1 New Bypass Off-ramp to Grand Avenue

Under both build alternatives, a new bypass off-ramp is proposed for eastbound SR-60 west of the southern/western SR-57/SR-60 junction. The bypass off-ramp would be barrier separated from SR-57/SR-60 traffic until passing the SR-57 diverge to the Grand Avenue off-ramp. Northbound SR-57 traffic would exit to Grand Avenue by using an optional exit from the third SR-57 lane. The off-ramp lane would add to the one-lane eastbound SR-60 bypass off-ramp. The off-ramp would widen to three lanes at the final approach to the intersection at Grand Avenue.

1.4.4.2 Eastbound Auxiliary Lane

Currently, the third lane on SR-57 ends at the Grand Avenue off-ramp, then begins again 4,200 feet to the east. The build alternatives would both add this lane between the Grand Avenue off-ramp and the additional lane near the SR-57 diverge at the east end. An auxiliary lane would be added adjacent to the added through lane to serve traffic entering from Grand Avenue.

1.4.4.3 New Bypass Connector to Eastbound SR-60

At the east end of the confluence, a bypass connector would be built to connect the Grand Avenue eastbound on-ramp auxiliary lane with eastbound SR-60. This connector would require a new overcrossing structure at Prospector Road and Diamond Bar Boulevard as well as realignment of the Diamond Bar Boulevard on-ramp.

1.4.4.4 Westbound Auxiliary Lane and Off-ramp to Grand Avenue

In the westbound direction, the dropped southbound SR-57 lane would be extended 2,500 feet to the realigned westbound SR-60 off-ramp to Grand Avenue, creating a two-lane exit ramp. The exit ramp would expand to five lanes at the intersection.

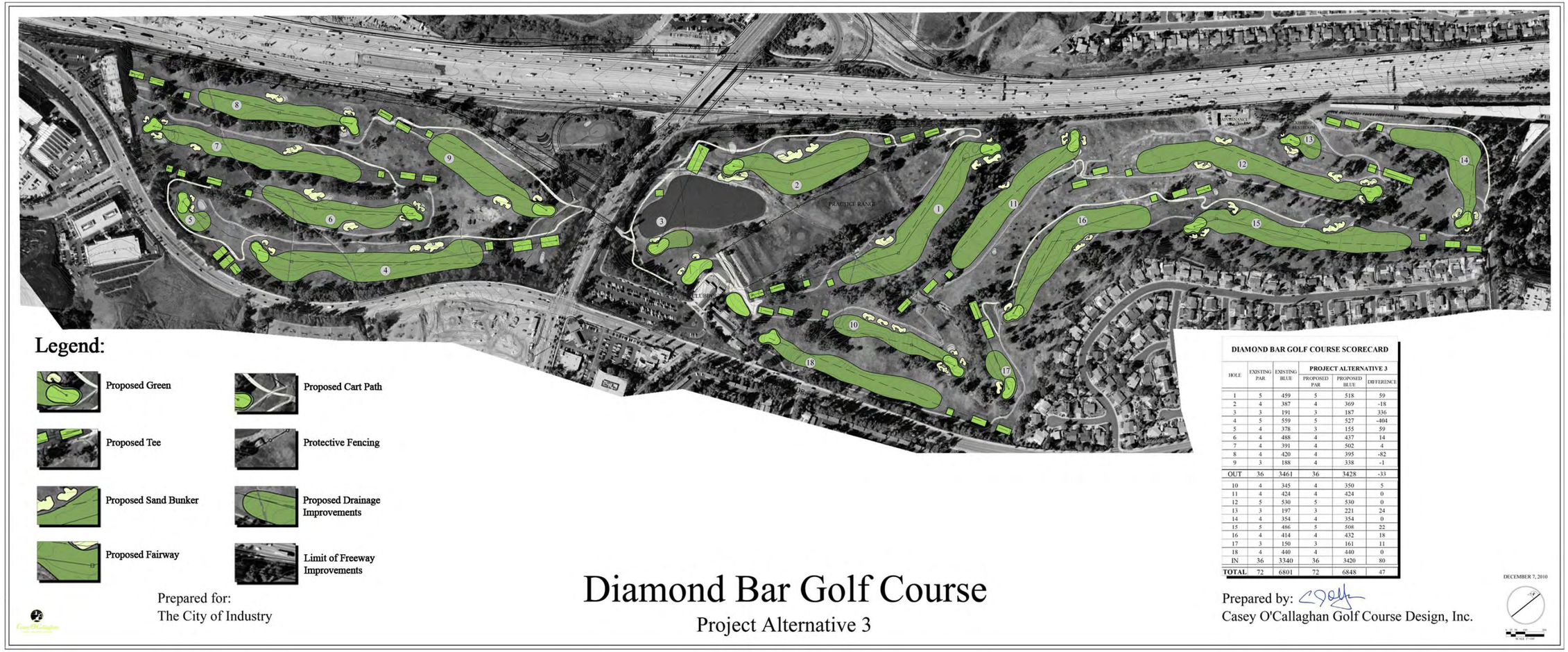
1.4.4.5 Grand Avenue Improvements

Operational improvements along Grand Avenue include widening the roadway from two through lanes in each direction to four through lanes in each direction under both build alternatives. Grand Avenue would be widened easterly, encroaching on the existing westbound loop on-ramp. With widening to the east, further acquisitions from additional properties would be avoided. Grand Avenue would be realigned approximately 50 feet east of the existing centerline to avoid a right-of-way acquisition from a vacant automobile dealership on Grand Avenue north of SR-60 and reconfiguration of the soon-to-be-constructed westbound on-ramp to SR-60. The centerline shift of Grand Avenue would require the westbound off-ramp to be relocated approximately 100 feet north of the existing intersection on Grand Avenue. The intersection relocation would also require realignment of the two-lane westbound loop on-ramp as well as Old Brea Canyon Road (to be renamed Grand Crossing Parkway).

The widening of Grand Avenue would continue south to Golden Springs Drive. Golden Springs Drive would be widened to allow additional through lanes, double left-turn lanes, and one right-turn lane on three legs of the intersection of Grand Avenue and Golden Springs Drive. One right-turn lane would be provided on Grand Avenue at the northbound approach to Golden Springs Drive. Street widening would occur on the north, east, and west legs of the intersection. Approximately 600 feet of northbound Grand Avenue south of the intersection at Golden Springs Drive would be restriped to three lanes.

A continuous pedestrian walkway is currently provided on the west side of Grand Avenue between Golden Springs Drive and Old Brea Canyon Road. However, on the east side of Grand Avenue, no pedestrian walkway is provided north of the overcrossing. Under both alternatives, 8-foot-wide walkways on both sides of Grand Avenue would be constructed from Golden Springs Drive to Old Brea Canyon Road. Neither build alternative would affect pedestrian walkways on other local roads.

Figure 1-6. Diamond Bar Golf Course, Alternative 3



DIAMOND BAR GOLF COURSE SCORECARD

HOLE	EXISTING PAR	EXISTING BLUE	PROJECT ALTERNATIVE 3		
			PROPOSED PAR	PROPOSED BLUE	DIFFERENCE
1	5	459	5	518	59
2	4	387	4	369	-18
3	3	191	3	187	336
4	5	559	5	527	-404
5	4	378	3	155	59
6	4	488	4	437	14
7	4	391	4	502	4
8	4	420	4	395	-82
9	3	188	4	338	-1
OUT	36	3461	36	3428	-33
10	4	345	4	350	5
11	4	424	4	424	0
12	5	530	5	530	0
13	3	197	3	221	24
14	4	354	4	354	0
15	5	486	5	508	22
16	4	414	4	432	18
17	3	150	3	161	11
18	4	440	4	440	0
IN	36	3340	36	3420	80
TOTAL	72	6801	72	6848	47

1.4.4.6 Replacement of Grand Avenue Overcrossing

The existing Grand Avenue overcrossing does not have sufficient length to accommodate an added northbound SR-57 through lane or sufficient vertical clearance over SR-60 to allow for widening. Therefore, it would be replaced. The replacement bridge would be longer and deeper, resulting in a raised profile along Grand Avenue.

1.4.4.7 Right-of-Way Requirements

New rights-of-way and easements would be required to accommodate the proposed improvements for both build alternatives. It is anticipated that all right-of-way acquisitions would be partial acquisitions. Both alternatives would require property from Diamond Bar Golf Course.

Reconstruction of the northbound SR-57 connector to eastbound SR-60 would require partial acquisition of undevelopable slopes on three commercial parcels. Construction of the new eastbound bypass connector would require aerial easements from five commercial parcels with a hotel, tire store, and restaurants. Within two of the easements, the potential exists for four parking stalls to be eliminated to accommodate bridge columns and foundations. The eliminated parking would not be replaced, but both parking lots are currently underutilized. The alignment for the Diamond Bar Boulevard on-ramp would require partial acquisition of an undevelopable slope from a business plaza. In addition, a sliver of landscaping area would need to be acquired from a local shopping mall on Grand Avenue near the intersection with Golden Springs Drive. On the north side of the project area, undeveloped land in the City of Industry would need to be acquired to reconstruct the westbound SR-60 off-ramp to Grand Avenue.

Alternative 2 would require 7.3 acres from Diamond Bar Golf Course. This would necessitate realigning four fairways within the remaining property. Alternative 3 would require 10.1 acres from Diamond Bar Golf Course. This would necessitate relocating six fairways within the remaining property and making minor improvements to the remaining 12 fairways. Both alternatives would also require reconfiguration of a secondary clubhouse driveway to Grand Avenue, but no change to the parking configuration.

Retaining walls are proposed in lieu of slopes to limit the area of right-of-way acquisitions from businesses as well as the golf course. TCEs ranging from 10 to 15 feet wide would be needed along the proposed right-of-way to construct retaining walls. In addition, permanent maintenance or footing easements would be needed along the retaining walls.

Under both alternatives, two utility easements would need to be relocated. A Los Angeles County Sanitation District easement in the slope of the Ayres Hotel would require relocation, and the Southern California Edison distribution line that runs parallel to eastbound SR-60, east of Grand Avenue, would be relocated southward (within the golf course and five commercial parcels).

Alternative 2 would require 174,000 square feet (3.98 acres) of TCEs, and Alternative 3 would require 209,000 square feet (4.81 acres) of TCEs.

1.4.4.8 HOV Lanes

The on-ramps proposed under Alternatives 2 and 3 could accommodate an HOV preferential lane. However, the eastbound loop on-ramp proposed under Alternative 3 would require a third lane to accommodate the lane. A three-lane loop on-ramp is not recommended because of the additional right-of-way that would be needed from the golf course. A three-lane ramp would also force the eastbound off-ramp at Grand Avenue toward Golden Springs Drive; the shortened intersection spacing would reduce intersection capacity at Golden Spring Drive and Grand Avenue and create a non-standard design because of inadequate intersection spacing.

An HOV preferential lane would be added to the westbound loop on-ramp. With the addition of a new westbound direct on-ramp from Grand Avenue, which has already been approved by Caltrans, traffic volumes on the westbound loop-ramp would be reduced to a level that would be adequately served by a single-lane on-ramp, thereby allowing the second lane of the on-ramp to be an HOV preferential lane. An HOV-only left-turn lane from southbound Grand Avenue would be added to access the westbound loop on-ramp HOV preferential lane. An existing HOV preferential lane would be maintained on the eastbound on-ramp at Diamond Bar Boulevard after it is reconstructed.

1.4.4.9 Ramp Metering

Presently, both lanes on the westbound loop on-ramp and the eastbound direct on-ramp from Grand Avenue are metered. The Diamond Bar Boulevard on-ramp is metered only in the right lane. Ramp meters would be provided at all on-ramps from Grand Avenue and Diamond Bar Boulevard. In addition, a ramp meter would be added to the eastbound SR-60 bypass connector. A summary of the ramp meter locations and lane numbers for the build alternatives is provided in Table 1-14.

Table 1-14: Proposed Build Alternatives, Ramp Meter Locations, and Lane Number

Location	Lane Number
Westbound Loop On-ramp from Grand Avenue	Lane 1 HOV preferential meter Lane 2 meter (both build alternatives)
Eastbound Direct On-ramp from Grand Avenue	Lane 1 HOV preferential meter Lane 2 meter (both build alternatives) Lane 3 meter (Alternative 2 only)
Eastbound Loop On-ramp from Grand Avenue	Lane 1 and Lane 2 meters (Alternative 3 only)
Eastbound On-ramp from Diamond Bar Boulevard	Lane 2 meter (both build alternatives)
Eastbound SR-60 bypass from Grand Ave On-ramp auxiliary lane	Lane 1 and Lane 2 meters (both build alternatives)

Source: WKE, Inc., 2010.

1.4.4.10 California Highway Patrol Enforcement Areas

California Highway Patrol (CHP) enforcement areas would be provided at all five ramp meter locations. These are areas where the CHP stations a vehicle to monitor and enforce traffic and speed laws.

1.4.4.11 Utilities

There are several utilities on Grand Avenue and Golden Springs Drive that would need to be relocated to clear the ultimate right-of-way for the project. Listed below are the known utilities that would require relocation.

Sanitation Districts of Los Angeles County

- A total of 1,350 feet of 18-inch vitrified clay pipe sewer lines, as well as manholes, located between Golden Springs Drive and SR-57/SR-60 would be relocated south of the eastbound SR-60 Grand Avenue off-ramp.
- A total of 150 feet of 12-inch vitrified clay pipe sewer lines (in encasement) that cross SR-57/SR-60 as well as a manhole located south of freeway would be relocated. Lines would be extended southward and the manhole relocated to accommodate the new eastbound SR-60 Grand Avenue off-ramp.

Southern California Edison

- A 66-kilovolt (kV) overhead transmission pole located south of the freeway and west of the Grand Avenue interchange would be relocated because of the proposed eastbound SR-60 Grand Avenue off-ramp.
- A total of 800 feet of underground 12 kV distribution lines along southbound Grand Avenue would be relocated for Grand Avenue bridge construction.
- A total of 650 feet of underground 12 kV distribution lines along Grand Avenue and north of the westbound freeway ramps would be relocated to the edge of Grand Avenue.
- A total of 1,550 feet underground 12 kV distribution lines located south of the eastbound SR-57/SR-60 Grand Avenue on-ramp, along northbound Grand Avenue south of the interchange and along westbound Golden Springs Drive, would be relocated to the edge of proposed roadway.
- A total of 2,700 feet overhead distribution lines located south of the eastbound SR-57/SR-60 Grand Avenue on-ramp would be relocated south outside of the Caltrans right-of-way.
- A total of 800 feet of overhead distribution lines located south of the freeway and west of the Diamond Bar Boulevard interchange would be relocated because of the proposed bypass connector to SR-60.
- A total of 900 feet of overhead distribution lines located south of the freeway and east of the Diamond Bar Boulevard interchange would be relocated because of the proposed bypass connector to SR-60.

Verizon

- A total of 800 feet of communication lines along southbound Grand Avenue would be relocated for bridge reconstruction.

Walnut Valley Water District

- Existing fire hydrants and water meters would be relocated where appropriate.
- A total of 800 feet of 12-inch asbestos cement pipe (ACP) water lines in 20-inch steel casings would be relocated for Grand Avenue bridge construction. ACP would be replaced with polyvinyl chloride (PVC) lines.
- A total of 700 feet of 12-inch PVC water lines in 20-inch steel casings and 2,000 feet of 12-inch PVC reclaimed water lines in 20-inch steel casings would be relocated for Grand Avenue bridge construction.

1.4.4.12 Highway Plantings

Highway plantings are proposed at the interchange between the eastbound off-ramp and the loop on-ramp, between the westbound off-ramp and the loop on-ramp, and along Grand Avenue between the eastbound and westbound ramps. A revised maintenance agreement among Caltrans and the City of Diamond Bar and the City of Industry would be required to define maintenance responsibilities in the landscaped areas outside the state rights-of-way.

1.4.4.13 Noise Barriers

The existing sound wall that extends from the westbound SR-60 confluence with southbound SR-57 to Station 1330+60 on SR-60 will be maintained. For the two build alternatives, the project proposes to construct a 12-foot-high noise barrier on eastbound SR-60 (along the golf course property). The proposed noise barrier would be approximately 3,000 feet long (Station 1295+00 to Station 1326+01) (see Figures 1-3 and 1-4). The entire noise barrier would be constructed within the proposed state right-of-way.

Installation of a noise barrier along the golf course property was proposed as a measure to minimize harm related to acquisition of portions of the golf course, as discussed in the Programmatic Section 4(f) Evaluation included within Appendix G.

The noise study report and noise abatement decision report evaluate reasonable and feasible noise barriers for both private and public property. Residential properties and outdoor areas of hotels in the study area are considered noise-sensitive resources with potential long-term exposure to noise. Diamond Bar Golf Course is considered an area of frequent human use and a noise-sensitive resource for users of the golf course.

1.4.4.14 Retaining Walls

Both alternatives would require retaining walls along the freeway mainline, auxiliary lanes, Grand Avenue and Golden Springs Drive adjacent to the golf course, as well as the on- and off-ramps. The proposed locations for the retaining walls are shown in Figures 1-3 and 1-4.

1.4.4.15 Tall Netting along the 8th Hole of the Golf Course

As a result of the freeway being moved closer to the golf course under both build alternatives, netting (130 feet tall) would be installed along the west side of the 8th hole of the golf course to prevent golf balls from reaching the freeway.

1.4.4.16 Non-standard Mandatory and Advisory Design Features

According to the design standards described in the 2001 *Highway Design Manual* (HDM), Alternatives 2 and 3 would include non-standard features. Fact sheets documenting the proposed exceptions from mandatory and advisory design standards were approved on March 19, 2009, and March 25, 2009, respectively. The non-standard design features are listed below.

- **Design Exception Feature No. M-1:** HDM Index 301.1, Travel Way Width. The proposed project would maintain or relocate the existing non-standard freeway lanes, with widths of 10.8 feet and 11.8 feet, on both westbound and eastbound SR-60 from Station 240+00 to Station 388+00. However, the proposed project would improve the existing northbound lanes, widening them from 11 feet to the 12-foot standard, on Grand Avenue from Station 116+60 to Station 125+40.
- **Design Exception Feature No. M-2:** HDM Index 202.2, Standards for Super-elevation. The proposed project would maintain the existing non-standard -1.5% (adverse) cross slope for the freeway crown section through the two 10,000-foot-radius geometric curves. The standard rate is 2%.
- **Design Exception Feature No. M-3:** HDM Index 501.3, Interchange Spacing/DIB 77. The proposed design would maintain the existing 1-mile non-standard interchange spacing between both the SR-57/SR-60 west and east junctions to the Grand Avenue interchange. The standard space between interchanges is 2 miles. The westbound section of SR-60 between the SR-57/SR-60 merge to the Grand Avenue off-ramp would maintain a non-standard weaving length of 3,168 feet as opposed to the standard weaving length of 4,920 feet.
- **Design Exception Feature No. M-4:** HDM Index 302.1, Standard for Left Shoulder Width; HDM Index 308.1, City Streets and County Roads; HDM Index 309.1(3)(a), Horizontal Clearances; HDM Index 305.1(3)(a), Median Standards. The existing left freeway shoulder widths and the horizontal clearances along eastbound and westbound SR-60 within the project limits are 1 foot, 2 feet, and varied. A segment of SR-60 where the HOV connector from SR-57 touches down has left shoulders that vary in width from 2 to 10 feet. The existing median width along SR-60 varies from 4 to 22 feet within the project limits. The existing shoulder along the southbound lanes of the Grand Avenue overcrossing is 8 feet wide. The existing shoulder width along the northbound lanes of the Grand Avenue overcrossing is zero. The shoulder width standard is 10 feet on freeways and 4 feet along Grand Avenue. However, the proposed design would increase the left freeway shoulder width, the horizontal clearance, and the median width along eastbound and westbound SR-60 between Station 290+00 and Station 300+00 from 2 to 8.3 feet. The proposed design for the project would also restore to standard the shoulder along Grand Avenue from Station 116+60 to Station 125+40.

- **Design Exception Feature No. A-1:** HDM Index 304.1, Side Slope Standards. The 2:1 side slope at the westbound direct on-ramp is proposed to minimize impacts on adjacent commercial properties. The adjacent properties are occupied by a former fast food restaurant and a former automobile dealership. Providing the standard 4:1 side slope at this location would require substantial right-of-way take from these adjacent commercial properties. The adjacent commercial properties provide much-needed tax revenue to the city. Therefore, adverse impacts on adjacent businesses should be minimized or avoided.
- **Design Exception Feature No. A-2:** HDM Index 504.8, Access Control. Providing standard access control would require the closure of Grand Crossing Parkway at the intersection with Grand Avenue. Closure of Grand Crossing Parkway would cut off the only viable access route to the existing commercial properties, which must remain commercially viable after construction of the proposed project. Therefore, Grand Crossing Parkway would remain a public street to serve the existing commercial properties.

An additional exception to the advisory design standards was granted on February 22, 2011:

- **Design Exception Feature No. A-1:** HDM Index 504.3 (5), Single-lane Ramps. The new single-lane eastbound SR-60 bypass off-ramp would be approximately 1,500 feet long. However, the standards call for two lanes on ramps that are more than 1,000 feet long. A two-lane ramp would require relocation of Golden Springs Boulevard, an additional right-of-way from the golf course, and a partial take from the fire access area at a three-story hotel, thereby necessitating reconfiguration of the building. The volume of traffic does not require two lanes. However, because the two-lane requirement would provide a passing lane, an accommodation was made. A 12-foot-wide right shoulder would be constructed so that emergency vehicles would have room to pass.

The following advisory fact sheet, which documents design exceptions for the two build alternatives, may be needed:

- **HDM 504.6, Mainline Lane Reduction at Interchanges.** The third southbound SR-57 lane would be extended to the Grand Avenue off-ramp as an auxiliary lane, thereby reducing the number of mainline lanes through the local interchange. The design standard calls for continuing all mainline lanes through local interchanges. However, continuing this lane would reduce operational efficiency and decrease weaving lengths. Eastbound SR-60 traffic would be required to weave across an additional lane as it attempts to exit at Grand Avenue.

1.4.4.17 Construction Activities and Staging

The construction scenarios would be similar for both Alternative 2 and Alternative 3. The construction phase of the proposed project is anticipated to begin in the fall of 2014 and end by the fall of 2017. The proposed project would involve clearing, excavation, grading, and other site preparation activities prior to structural work and paving. On-site construction staging would occur just north of the westbound SR-60/southbound SR-57 Grand Avenue on- and off-ramps. This area, which is east of Grand Avenue, is owned by the City of Industry.

The project would be constructed in stages to limit local road closures, ramp closures, and freeway closures. The Grand Avenue overpass would be constructed in two stages to maintain four lanes of traffic throughout construction. Grand Avenue may be closed over several weekends between stages and during removal of the existing bridge. Other overnight or weekend closures would affect the westbound off-ramp, Golden Springs Drive at the SR-57 connector, and the Diamond Bar Boulevard on- and off-ramps. Mainline SR-60 would be closed overnight for demolition of the Grand Avenue overpass and erection of falsework over the freeway. All freeway lanes would be open for weekday peak-hour traffic. Longer term ramp closures would be required for the westbound loop on-ramp and the westbound direct on-ramp as well as access from southbound Grand Avenue to the eastbound SR-60 on-ramp.

1.4.5 Transportation System Management and Transportation Demand Management Alternatives

1.4.5.1 Transportation System Management

Transportation System Management (TSM) strategies are actions that increase the efficiency of existing facilities without increasing the number of through lanes and encourage automobile, public and private transit, ridesharing, and bicycle and pedestrian facility improvements. TSM measures alone cannot satisfy the purpose and need of the proposed project because of safety concerns related to heavy traffic congestion and weaving conditions at the interchange. Nonetheless, the following TSM measures have been incorporated into the build alternatives for this project:

- Install traffic signals at ramp intersections
- Install ramp meters
- Install HOV preferential on-ramp lanes

1.4.5.2 Transportation Demand Management

Transportation Demand Management (TDM) focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy and reduces traffic congestion by expanding the traveler's transportation choice in terms of travel method, time, route, and cost as well as the quality and convenience of the travel experience. Typically, this component includes providing contract funds to regional agencies that actively promote ridesharing, maintain rideshare databases, and provide limited rideshare services to employers and individuals. No TDM strategies are proposed as part of this project.

1.4.6 Comparison of Alternatives

Table 1-15: Comparison of the Project Features/Elements of the Alternatives

Project Features/Elements	Alternative 1 (No-Build Alternative)	Alternative 2	Alternative 3
Ramp design at Grand Avenue interchange	No changes to existing conditions.	Same ramp configurations as existing condition would be used; however, the ramps at the Grand Avenue intersection would be realigned. In addition, the westbound off-ramp would go from three to five lanes at the intersection with Grand Avenue. The eastbound on-ramp from Grand Avenue would go from two to three lanes.	The eastbound ramps at the intersection with Grand Avenue would be reconfigured to a partial cloverleaf design. The eastbound on-ramp would be realigned, and an eastbound loop on-ramp for southbound traffic on Grand Avenue would be constructed. The eastbound ramp/Grand Avenue intersection would be moved 500 feet south of the existing intersection. The proposed westbound off-ramp would be striped the same as in Alternative 2. The number of lanes for the eastbound on- and off-ramps at Grand Avenue would not change under this alternative.
Bypass ramps and connectors	No change to existing conditions.	Construct new bypass off-ramp on eastbound SR-60 west of the southern/western SR-57/SR-60 junction. Realign existing northbound SR-57/eastbound SR-60 connector to accommodate the new bypass ramp. Construct a new bypass connector at the northern/ eastern SR-57/SR-60 junction.	Same as Alternative 2.
Overcrossing structures	No change to existing conditions.	Replace Grand Avenue overcrossing structure with a new 10-lane structure (148 feet wide), and construct new overcrossing structures at Prospector Road and Diamond Bar Boulevard to accommodate the bypass connector.	Replace Grand Avenue overcrossing with a new eight-lane structure (136 feet wide), and construct new overcrossing structures at Prospector Road and Diamond Bar Boulevard to accommodate the bypass connector.
HOV lanes	No change to existing conditions.	Add an HOV preferential lane on the westbound loop on-ramp at Grand Avenue.	Same as Alternative 2.
Ramp meters	No change to existing conditions.	Add two-lane ramp meter on SR-60 bypass connector at the northern/eastern SR-57/SR-60 junction.	Same as alternative 2, plus new two-lane meter as part of the new eastbound loop on-ramp from southbound Grand Avenue.
Right-of-way	No change to existing conditions.	Construction of the new eastbound bypass connector would require aerial easements from three commercial parcels with a hotel and restaurants. Within two of the easements, the potential exists for a few parking stalls to be eliminated to accommodate bridge columns and foundations. The eliminated parking would not be replaced. The	Same as Alternative 2, except that Alternative 3 would require 10.1 acres from Diamond Bar Golf Course. This would require relocating six fairways within the remaining property and making minor improvements to the remaining 12 fairways. Also, Alternative 3 would require 209,000 square feet (4.81 acres) of TCEs.

Project Features/Elements	Alternative 1 (No-Build Alternative)	Alternative 2	Alternative 3
		alignment of the Diamond Bar Boulevard on-ramp would require partial acquisition of an undevelopable slope from a business plaza. In addition, a sliver of landscaping area would need to be acquired from a local shopping mall on Grand Avenue near the intersection with Golden Springs Drive. On the north side of the project area, undeveloped land in the City of Industry would need to be acquired to reconstruct the westbound SR-60 off-ramp to Grand Avenue. Alternative 2 would require 7.3 acres from Diamond Bar Golf Course. This would require realigning four fairways within the remaining property. Temporary construction easements (TCEs) ranging from 10 to 15 feet wide would be needed along the proposed right-of-way to construct retaining walls. In addition, permanent maintenance or footing easements would be needed along the retaining walls. Two utility easements would need to be relocated. A Los Angeles County Sanitation District easement in the slope of the Ayres Hotel would require relocation, and the Southern California Edison distribution line that runs parallel to eastbound SR-60, north of Grand Avenue, would be relocated southward (within the golf course and four commercial parcels). Alternative 2 would require 174,000 square feet (3.98 acres) of TCEs.	
Widening and/or striping changes on SR-57/SR-60	No change to existing conditions.	Widen SR-60 at the northeastern portion of the project limits to accommodate the proposed eastbound bypass connector lane as well as the eastbound on-ramp to SR-60 from Diamond Bar Boulevard. Extend the dropped lane from southbound SR-57 before the SR-60 merge through to Grand Avenue, thereby creating a two-lane exit ramp, with only minor widening required to accommodate this lane. Continue the third northbound SR-57 lane through the Grand Avenue interchange. Widen both sides of the freeway confluence at the interchange with Grand Avenue because of the reconfiguration and realignment of the on- and off-ramps.	Same as Alternative 2.

Project Features/Elements	Alternative 1 (No-Build Alternative)	Alternative 2	Alternative 3
Widening and/or striping changes on local streets	No change to existing conditions.	Grand Avenue: Widen and stripe four lanes in each direction, from north of the westbound on- and off-ramps to Golden Springs Drive. Add a third through lane to northbound Grand Avenue south of Golden Springs Drive. Golden Springs Drive: Widen and restripe between Lavender Drive and Racquet Club Drive. Add a second left- and a right-turn lane at the westbound Golden Springs Drive and Grand Avenue intersection. Old Brea Canyon Road: Widen, realign, and restripe along the Old Brea Canyon Road loop just west of the intersection of Grand Avenue and the westbound ramps.	Same as Alternative 2, except for the following differences: Southbound Grand Avenue between the westbound direct on-ramp and the eastbound ramps would be restriped to provide four southbound through lanes and a right-turn lane. The double left-turn lanes would not be needed because of construction of the eastbound loop on-ramp from southbound Grand Avenue, although a fifth (right-turn) lane would be added at the approach to the loop on-ramp. Conditions south of the loop on- and off-ramp would be similar to conditions under Alternative 2.

1.4.7 Selection of a Preferred Alternative

Two build alternatives were developed after consideration of the project need, the project purpose, and the surrounding environment. The Project Development Team then chose a preferred alternative after consideration of the merits of the alternatives, the environmental impacts, and public input provided through the environmental review process. Public and agency comments and any expressed concerns regarding the proposed build alternatives were given serious consideration.

The preferred alternative is Alternative 3. Alternative 3 would improve traffic operations at the Grand Avenue interchange to a greater extent than Alternatives 1 and 2. The public, which did not express concerns about the additional impact on the golf course resulting from construction of Alternative 3, expressed support of Alternative 3 over Alternative 2. Furthermore, the County supports the mitigation features proposed by the project, which will minimize harm to the golf course. No changes to the project design or mitigation features were made as a result of public comments. Alternative 3 was also selected as the preferred alternative because it provides much greater improvement in operational traffic flow, at a marginal increase in cost, compared with Alternative 2. Although the No-Build Alternative would not result in the impacts that would occur under the build alternatives, this alternative would not achieve the identified objective of the project. The project study area would continue to experience unacceptable levels of service in the peak hours, which would only worsen over time because of projected local and regional growth.

1.4.8 Alternatives Considered but Eliminated from Further Consideration

1.4.8.1 Alternative 3B: Partial Cloverleaf Interchange Configuration with Two-lane Collector-Distributor Road

In addition to the build alternatives described above, one alternative that was considered but eliminated from further study is a variation of Alternative 3 (previously identified as Alternative 3B in the project study report). This alternative is similar to Alternative 3, except that the eastbound loop on-ramp and the direct on-ramp would merge to form a two-lane collector-distributor (C-D) road that would run parallel to SR-60 for approximately 1,000 feet. Near the SR-57/SR-60 east junction, the two-lane C-D road would split, with one lane joining northbound SR-57 and the other lane becoming the eastbound bypass connector (Connector B) and joining eastbound SR-60 east of Diamond Bar Boulevard.

Construction of the C-D road would require more right-of-way takes from Diamond Bar Golf Course than the other alternatives because it would intrude an additional 25 to 50 feet into golf course property. As a result, Alternative 3B would require nearly all 18 holes to be reconstructed so that the lengths of the fairways would be similar to the lengths under the existing course design after construction. To reconstruct Diamond Bar Golf Course would take approximately 1 year and require closure of the facility. The County of Los Angeles, as owner of Diamond Bar Golf Course, expressed significant concerns about the right-of-way and construction impacts of this alternative.

Alternative 3B would provide separate lanes for eastbound Grand Avenue on-ramp traffic traveling to northbound SR-57 as well as traffic traveling to eastbound SR-60. However, the traffic operation analysis indicates a poor LOS of E for the northbound SR-57 connector after the split from the C-D lanes. This would be caused by a short merge length for the C-D lanes before reaching the SR-57/SR-60 separation tunnel. To correct this operational deficiency, the existing northbound SR-57/SR-60 separation tunnel would need to be reconstructed. The replacement of the tunnel, which carries SR-60 traffic in both directions, would be extremely costly (estimated to be well over $60 million) and with little to no additional benefit over the other build alternatives.

The aforementioned factors are considered “fatal flaws” for Alternative 3B. Consequently, this alternative was eliminated from further consideration in the environmental process.

1.5 Permits and Approvals Needed

The permits, reviews, and approvals listed below would be required for project construction.

Agency	Permit/Approval
U.S. Army Corps of Engineers	Clean Water Act, Section 404 Permit (Discharge of Dredged or Fill Material into Waters of the United States)
California Department of Fish and Game	Section 1600 Agreement for Streambed Alteration
State Water Resources Control Board	Clean Water Act, Section 401 Permit (Water Quality Certification)
Los Angeles Regional Water Quality Control Board	National Pollutant Discharge Elimination System permit
County of Los Angeles	Right-of-Entry Permit; concurrence regarding parkland conveyance
City of Diamond Bar	Encroachment Permit for construction on local streets
City of Industry	Approval of project

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 of these issues in this document.

Coastal Zone

The project site is located in the City of Diamond Bar and the City of Industry, approximately 40 miles east of the Pacific Ocean. The proposed project would not be located in a coastal zone and would not require coastal permits. No further discussion is required.

Wild and Scenic Rivers

The proposed project, which would include enhancements at the existing SR-57/SR-60 freeway confluence, would occur primarily within a Caltrans right-of-way. The proposed project would not be located in the vicinity of a Wild and Scenic River or a river under study for designation as a Wild and Scenic River. No further discussion is required.

Sole-Source Aquifer

The proposed project, which would include enhancements at the existing SR-57/SR-60 freeway confluence, would occur primarily within a Caltrans right-of-way. The proposed project would not be located in the vicinity of a sole-source aquifer. No further discussion is required.

Agricultural Resources and Timberlands

The project site is located in Los Angeles County, in the City of Diamond Bar and the City of Industry. The urban area where the project site is located does not contain existing agricultural lands and/or timberlands. No further discussion is required.

2.1 Human Environment

2.1.1 Land Use

The following land use information is based largely on the findings of the community impact assessment prepared for the proposed project in July 2012.

Additionally, relevant land use plans and policies were reviewed, including the City of Industry General Plan (1971; amended 2006) and the City of Diamond Bar General Plan (July 25, 1995; amended 1999). The project's consistency with applicable land use–related goals and relevant city policies is presented in the following discussion.

2.1.1.1 Existing and Future Land Use

Affected Environment

The project limits include approximately 2.5 miles of existing transportation-related (freeway) uses in the City of Industry and the City of Diamond Bar at the confluence of SR-57 and SR-60 at Grand Avenue. The portion of SR-57 within the project area is located in the Pomona Valley.

SR-57 and SR-60 are major inter-regional freeways that link cities in the San Gabriel Valley and the Inland Empire with Los Angeles and Orange counties. SR-57 and SR-60 meet and interconnect in the City of Diamond Bar and the City of Industry. The two separate freeways share an alignment for approximately 1.26 miles along the northbound/eastbound direction and approximately 1.34 miles along the southbound/westbound direction, following a generally northeasterly-southwesterly orientation.

Existing Land Uses

The 2.5-mile stretch of SR-57 and SR-60 that encompasses the project site is located within a Caltrans right-of-way. Surrounding land uses include a mix of commercial, retail, recreational (golf course), and residential uses.

The discussion that follows describes the land uses located in the surrounding area.

The City of Industry

The City of Industry, which is located immediately north of SR-60 in the project area, was incorporated in 1956, mainly to give the local population an opportunity to determine how unincorporated Los Angeles County's eastward industrial expansion would be planned and managed in the San Gabriel Valley.

The City of Industry General Plan Land Use and Transportation elements were adopted in May 1971. The most recent general plan land use map was adopted in October 2009. The general plan emphasizes primarily industrial uses under an Industrial Manufacturing land use designation. The Industrial Manufacturing designation also allows for commercial, professional, and service uses, which support the industrial base as well as the city's revenue base.

The City of Industry General Plan Land Use designation for areas adjacent to the proposed project is Industrial Manufacturing. These areas, which support various industrial uses, are located within an existing industrial park, the future site of the proposed Industry Business Center (see Existing and Planned Uses for further discussion).

In 1987, the city adopted a Planned Development Overlay (PD Overlay) zone, which applies to large parcels with diversified development plans. With the application of a PD Overlay zone, commercial and industrial uses are developed using the existing commercial and industrial standards set by the City of Industry. The surrounding area is zoned Industrial PD Overlay.

City of Diamond Bar

The City of Diamond Bar was one of the first planned communities in the west. According to the City of Diamond Bar General Plan, the majority of the city is developed, or planned for development, with residential (approximately 54 percent) and open space land uses (19 percent).[1] Industrial uses make up less than 1 percent of the total land uses, while retail/office/commercial uses account for approximately 3 percent.[2] Approximately 22 percent of the land within the City of Diamond Bar is vacant. The general plan land use designations are shown in Figure 2-1. Land uses in the project area located south of the SR-57/SR-60 confluence are within the City of Diamond Bar. Commercial and restaurant uses in the project area located north of the SR-57/SR-60 confluence are also located within the City of Diamond Bar. A small area is designated Commercial and located immediately southwest of the Grand Avenue/SR-60 confluence. This area of the City of Diamond Bar supports restaurant and automotive uses.

The City of Diamond Bar General Plan was adopted in July 1995. Land use designations for the areas adjacent to the project site and within the City of Diamond Bar are General Commercial and Golf Course (to the south). The general plan land use designations are shown in Figure 2-1. As shown in this figure, most of the area located along the southern portion of SR-60 is within the City of Diamond Bar.

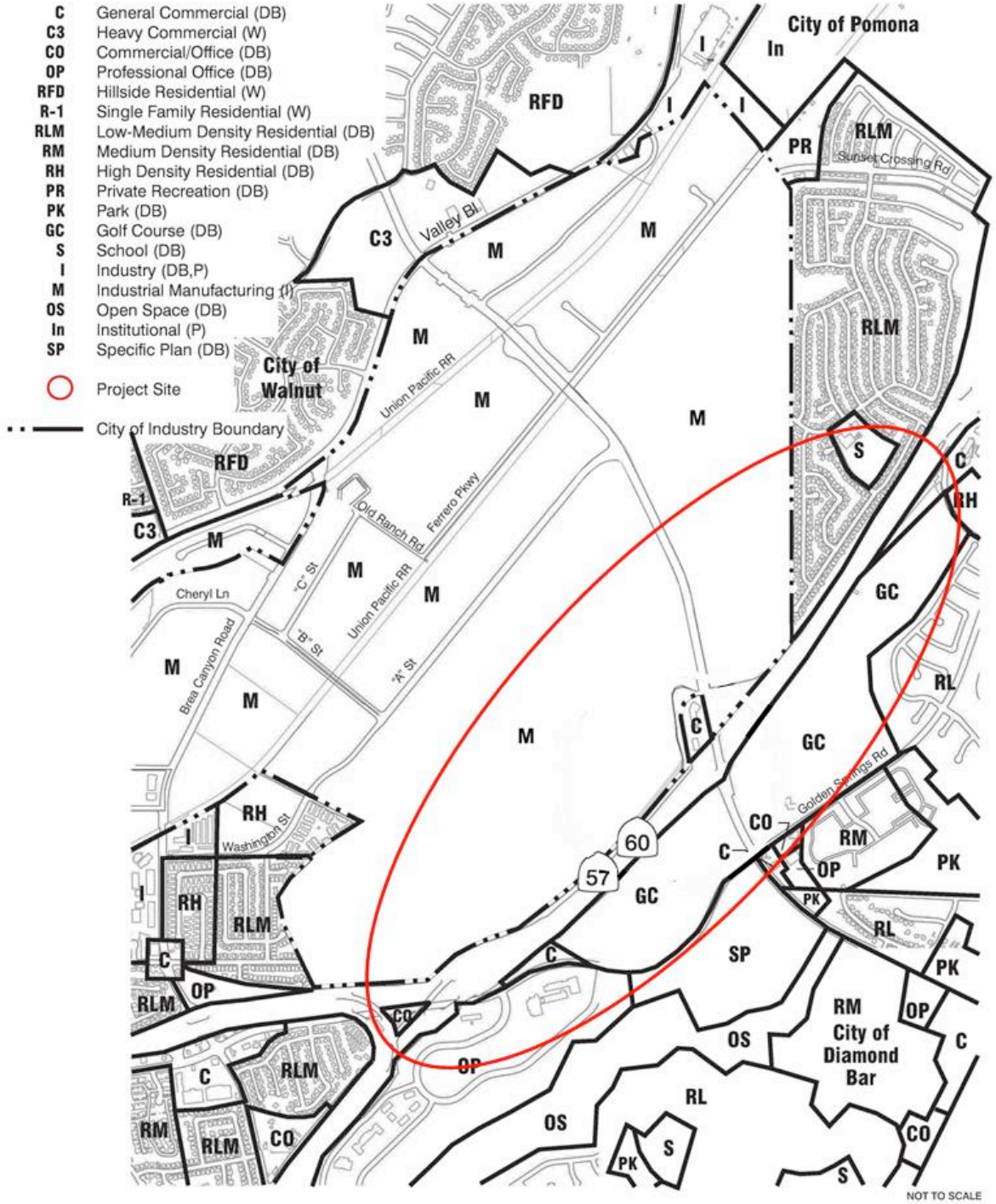
Land along Diamond Bar Creek is planned for ecological restoration. The creek is located north of SR-60; Diamond Bar Golf Course and Sycamore Canyon Park are located south of the project site. Retail and restaurant uses are located along Golden Springs Drive. Commercial office buildings are located in the surrounding area.

Residential areas are located south and east of the project area at varying distances, ranging anywhere from immediately adjacent near the eastern limits of the City of Diamond Bar to more than 1 mile away near the southern city limits. A large part of this portion of the project area is bordered by Diamond Bar Golf Course and several eating and lodging establishments, which serve the regional population and SR-57/SR-60 commuters. These uses do not constitute neighborhood uses or contain any traits that are characteristic of neighborhoods or communities.

Along the SR-57 and SR-60 corridors, single-family lots are generally less than 10,000 square feet. In these areas, detached single-family developments, accounting for more than half of the city's housing stock, have been built with three to five dwelling units per acre. Although single-family development is the predominate type of development, multi-family projects can be found along Diamond Bar Boulevard, south of Grand Avenue, and on Golden Springs Drive, north of Diamond Bar Boulevard. These developments usually occupy small sites along major roadways and are built with 10 to 20 units per acre. The denser multi-family projects (16 units per acre) are older condominiums that were approved by Los Angeles County prior to incorporation.

[1] City of Diamond Bar. 2009. City web site. Available: <http://www.ci.diamond-bar.ca.us/index.aspx?page=1>. Accessed: February 22, 2010.
[2] Ibid.

Figure 2-1: Existing General Plan Designations



Source: City of Industry General Plan (I), City of Diamond Bar General Plan (DB), City of Walnut General Plan (W), City of Pomona General Plan (P)

Existing General Plan Designations

Future Land Uses

Several planned or approved projects in the cities of Industry or Diamond Bar are located in the project vicinity. These projects and their statuses are listed in Table 2-1, below, and shown in Figure 2-2.

Table: 2-1 Approved and Pending Related Projects in the Vicinity

No.	Name	Jurisdiction	Proposed Uses	Status
1	Industry Business Center—off both sides of Grand Avenue between Baker Parkway and the SR-57/60 confluence	City of Industry	Plan of development includes up to 4.8 million square feet of industrial, professional, and commercial uses on 592 acres. Revised Plan of development includes 75,000-seat football stadium and support uses, including retail space, team offices, concession areas, training facilities, practice fields, a sports medical center and clinic, theaters, restaurant/banquet facilities, and office uses.	Plan of development approved in 2004. Revised Plan of development approved in 2009, with exemption for stadium. Various industrial and commercial uses are ongoing. No construction yet on the football stadium; there has been no deal with an NFL team. Design under way as of March 2012.
2	Baldwin Park Boulevard Reconstruction	City of Industry	Reconstruct the asphalt pavement and lower the crown of the street. Reconstruct damaged curbs and sidewalk. Modify traffic signal at Amar Road.	Completed February 2012.
3	Grand Avenue/ Garcia Lane Traffic Signal	City of Industry	Install a new traffic signal.	Completed in March 2012.
4	Grand Crossing Development Substation	City of Industry	Construct City of Industry–owned 66-/12-kilovolt (kV) power substation to serve Grand Crossing Development. Work includes site grading and improvements as well as construction of city power transformation facilities and related equipment, including customer distribution system. Southern California Edison (SCE) will construct and maintain interconnection facilities.	Under construction. Target completion date in the second quarter of 2013.
5	Gale Avenue Widening	City of Industry	Widen Gale Avenue from Azusa Avenue to Auto Mall West, reconstruct and widen Gale Avenue east of Auto Mall West, reconstruct and provide super elevation at the 300-foot-radius curve east of Auto Mall West, resurface the remainder of Gale Avenue between Azusa Avenue and Auto Mall West with rubberized asphalt, resurface Auto Mall East with rubberized asphalt, modify traffic signals at Azusa Avenue and Gale Avenue and at Auto Mall West and Gale Avenue.	Currently in design phase. Completion of construction expected in December 2012.

No.	Name	Jurisdiction	Proposed Uses	Status
6	Grand Avenue Widening	City of Industry	Add a fourth lane in each direction of Grand Avenue near the highpoint of Grand Avenue, with acceleration and deceleration lanes and dual left-turn lanes at intersection with Baker Parkway. A new centerline and curbs are being established. Median will be removed; all aboveground utilities will need to be placed underground.	The project is in the bidding phase. Target completion date is the second quarter of 2013.
7*	Nogales Grade Separation	City of Industry	Construct a grade separation, including a stormwater and a groundwater pump station. Relocate a major storm drain box, sanitation district trunk sewer, and utilities.	The project is in the right-of-way acquisition phase. Projected construction completion date is December 2015.
8	Valley Boulevard Widening	City of Industry	Widen the north side of Valley Boulevard by approximately 14 feet to accommodate a third westbound lane. Also, widen the south side of Valley Boulevard east of Brea Canyon Road by approximately 4 feet to create wider eastbound lanes.	The project is in the construction bidding phase.
9	Old Ranch Road Overhead Utility Undergrounding	City of Industry	Replace the existing SCE 12-kV overhead facilities along the east side of Old Ranch Road with an underground system from Brea Canyon Road to Ferrero Parkway.	Currently in the design phase. No definite timetable for completion.
10	San Jose Avenue Widening at Nogales Street	City of Industry	Widen the north side of San Jose Avenue by 12 feet and the south side by about 8 feet to include an eastbound left-turn lane to northbound Nogales Street. The westerly end of the widening will taper back to the existing width of San Jose Avenue. The street pavement will be concrete for a length of 300 feet, with a 50-foot-long asphalt concrete pavement transition.	The project is to be constructed in conjunction with the Nogales Grade Separation Project, which is in the right-of-way acquisition phase, with an expected completion date of December 2015.
11	Lemon Avenue at SR-60 Partial Diamond Interchange	City of Industry, Caltrans, City of Diamond Bar	Construction of a new SR-60 interchange at Lemon Avenue. The project proposes a partial diamond interchange with eastbound on- and off-ramps and a westbound on-ramp.	The project is to be constructed in conjunction with the Nogales Grade Separation Project. The project is in the right-of-way acquisition phase, with an expected completion date of December 2015.
12	Chino Hills Parkway Rehabilitation	City of Diamond Bar	Rehabilitation of the roadway surface.	Construction completed in summer 2012.
13	Brea Canyon Cutoff at Southbound SR-57 On-/Off-ramps	City of Diamond Bar	Traffic management/safety improvements.	Construction completed in 2011.

No.	Name	Jurisdiction	Proposed Uses	Status
14	Sycamore Canyon Park Improvements	City of Diamond Bar	Americans with Disabilities Act (ADA) retrofits for restrooms; trail improvements.	The project is under construction, with an expected completion date of summer 2012.
15	Improvements at Stardust Park, Silvertip Park (904 Longview Drive), and Longview Park South (1630 Longview Drive)	City of Diamond Bar	ADA retrofits for play equipment and improvements to walking paths.	Construction and completion are expected for summer 2012.
16*	Alameda Corridor East (ACE) Project	ACE Construction Authority	Median improvements, traffic signalization, and grade separations.	Nogales Street grade separation is under construction to implement this project.
17	Foremost Communities (Canyon Hills)	City of Chino Hills	Seventy-six single-family detached homes on a 141-acre property, with approximately 70 acres of the site reserved for open space.	Final subdivision map is complete. Construction has not begun.
18	Pine Valley Estates	City of Chino Hills	Gated community with 98 single-family detached homes.	Under construction.
19	Stonefield Development	City of Chino Hills	Proposed Tentative Tract Map 18393 and Design Review 335 for a gated 28-unit single-family residential development.	Entitlement process has been completed. No timeline has been set for construction.
20	B.A.P.S. Temple and Cultural Center	City of Chino Hills	Hindu socio-religious facility.	Temple is currently under construction (in multiple phases); temple expected to be completed by the end of the year (2012).
21	Carbon Canyon Road (SR-142) Widening	City of Chino Hills/Caltrans	Lengthen the westbound two-lane section of Carbon Canyon Road at Chino Hills Parkway by 1,000 feet.	The project is currently designated as “Inactive” by Caltrans.
22	Rolling Ridge Phase II Pavement Rehabilitation	City of Chino Hills	Grind and overlay sections of Olympic View Drive and adjacent side streets.	Construction complete.
23	Crossroads Park North Restroom Enlargement	City of Chino Hills	Enlargement of the restroom facilities at Crossroads Park North.	The project is on the Capital Improvements Program list, but construction has not begun.
24	English Springs Park Restroom Project	City of Chino Hills	Construction of additional restroom facilities at English Springs Park.	The project is on the Capital Improvements Program list, but construction has not begun.
25	Springer Court Drainage Mitigation Project	City of Chino Hills	Installation of approximately 900 linear feet of 6-inch drain pipe, from Springer Court to Hawk Road and Chino Hills Parkway.	Construction is complete.
26	New Police Facility	City of Pomona	New 120,000-square-foot police facility.	The project is currently in the planning and preliminary environmental review stage.
27	Mission 71 Project	City of Pomona	Removal of an existing at-grade intersection, which will allow construction of a new compressed diamond interchange and a Mission Boulevard overcrossing at SR-71.	Construction of the freeway ramps completed in 2011. Vegetation work was completed in spring 2012.

No.	Name	Jurisdiction	Proposed Uses	Status
28	Pomona Valley Hospital Medical Center Specific Plan	City of Pomona	Renovation/redevelopment and expansion of the Pomona Valley Hospital Medical Center Campus in four phases.	The specific plan has been approved and is in place, but building permits have expired. No timelines for construction have been set.
29	Fairfield Inn & Suites by Marriott	City of West Covina	Development of a five-story, 110-bedroom hotel with 57,028 square feet.	Construction is complete. The hotel began operation in 2011.
30	West Covina Sportsplex Project: Corporate Offices	City of West Covina	Charles Company and the Community Development Commission are currently proposing the construction of multiple office buildings at the West Covina Sportsplex site.	The project is currently on hold. The project proponents did not go through the public hearing process.
31	Dynasty Plaza	County of Los Angeles	Development of a center with retail uses, restaurants, and entertainment anchors as well as open-air plazas and gardens on a 14.06-acre site.	The project is currently on hold. An environmental impact report (EIR) was not completed.
32	Canyon Residences Project	County of Los Angeles	Redevelopment of the approximately 15.7-acre property. The existing Southlands Church and School structures, parking lot, and athletic fields will be replaced with 755 for-lease residential units in multiple buildings, a recreational facility, parking structures, and landscaping.	Application denied by planning commission. The project proponents are in the appeals process.
33	Grove Station	City of San Dimas	Develop 110 townhomes and 9,900 square feet of office/ commercial space. Includes redevelopment of the approximately 15.7-acre property.	Construction is complete on the first phase. The two remaining phases, involving 67 residential units, are in the entitlement process.
34	Bonita Canyon Gateway	City of San Dimas	Develop 156 apartments and 1,969 square feet of retail space.	Project is in the entitlement process.
35	High-Occupancy Vehicle (HOV) Lanes on SR-60	Caltrans	Add HOV lanes in both directions on SR-60 between SR-57 and I-605.	Construction is complete.
36	I-10/I-605 Interchange Improvements	Caltrans District 7	Construct direct connector from southbound I-605 to eastbound I-10.	Construction is scheduled for winter 2015/2016 and expected to be completed by spring 2018.
37	I-10 High-Occupancy Toll Lanes	Caltrans District 7	Construct one HOV lane along the I-10 in each direction between I-605 and Puente Avenue in the City of Baldwin Park.	Under construction as of January 2011. Construction is expected to be completed in fall 2013.
38	Gore Slope Paving and Native Tree Planting	Caltrans District 7	Pave areas subject to erosion and weed growth and plant native trees/shrubs to improve stormwater quality and aesthetics on slopes surrounding the interchange.	Under construction as of June 2009. Completion of project is expected in fall 2013.
39	HOV Lanes, I-10 at Citrus Street to SR-57	Caltrans District 7	Construct one HOV lane in each direction of I-10 between Citrus Street and the Kellogg interchange.	Construction is expected to begin in spring 2014.

No.	Name	Jurisdiction	Proposed Uses	Status
40	Widen Westbound SR-60 Off-Ramp to Nogales Street	Caltrans District 7	Widen the westbound SR-60 off-ramp to Nogales Street from two lanes to three lanes.	Construction is expected to begin in summer 2013, with a target completion date of spring 2014.
41	SR-60 Cold Plane and Rubberized Asphalt Concrete Overlay	Caltrans District 7	Rehabilitate the pavement within the project limits by cold planing 60 millimeters of existing asphalt concrete pavement and placing 60 millimeters of rubberized asphalt concrete, Type G, on mainline, ramps, and shoulders.	Under construction as of May 2011. Construction is expected to be completed in fall 2014.
42	Diamond Bar-Grand Crossing-Sopipe 66 Kilovolt (kV) Reconductor Project	Southern California Edison	Replacement of wood poles and lattice steel towers with new lightweight steel poles and new tubular steel poles. Portion of Diamond Bar-Grand Crossing-Sopipe 66 kV subtransmission line to be reconductored.	Construction expected to occur in summer 2013.
43	Westbound On-Ramp at Grand Avenue/SR-60 Interchange Improvements Project	Caltrans	Construction of a direct westbound on-ramp to State Route 60 at the Grand Avenue interchange.	Construction under way, with completion expected by end of 2013.
44	Kaiser Permanente Medical Office Building	City of Diamond Bar	A 31,050-square-foot medical office building.	The project is in the preliminary planning phase. No address is available.
** Projects are being conducted jointly.*				

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

Regional and sub-regional transportation plans and programs that apply to the cities of Industry and Diamond Bar, as well as SR-60, include the Los Angeles County Congestion Management Plan (CMP) and the Southern California Association of Governments (SCAG) Comprehensive Transportation Plan (CTP), Regional Transportation Improvement Program (RTIP), and Regional Transportation Plan (RTP). The proposed project is identified in the 2013 Federal Transportation Improvement Plan (TIP) in Amendment 24. General plan and zoning code information for the cities of Diamond Bar and Industry is presented in the following discussion.

SCAG Regional Comprehensive Plan and Guide

The SCAG Regional Comprehensive Plan (RCP) was adopted in 2008 by the member agencies of SCAG to set broad goals for the Southern California region and identify strategies for agencies at all levels of government to use in guiding their decision-making. With input from each of the sub-regions that make up the SCAG district (Los Angeles, Orange, San Bernardino, Riverside, Imperial, and Ventura counties), the RCP provides guidance on growth management to government agencies in the Southern California region. To achieve adequate growth management, the plan encourages local land use actions as opposed to regional land use actions to stimulate urban development. The RCP recommends that projects meet the following goals: increased mixed land uses, more efficient use of existing infrastructure, reduced environmental impacts, more transit use, higher densities in mass transit and urban centers, and increased affordable housing.

Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy

The 2012–2035 SCAG Regional Transportation Plan/Sustainable Communities Strategy, adopted in April 2012, presents the transportation vision for the counties of Los Angeles, Orange, San Bernardino, Imperial, Riverside, and Ventura. The plan identifies priorities for transportation planning within the Southern California region, sets out goals and policies, and identifies performance measures for transportation improvements to ensure that future projects are consistent with other planning goals for the area. Projects being constructed within the SCAG region must be listed in the RTP. All regional transportation plans, programs, and projects that receive state and federal funding must conform to the policies set out in the RTP, which are consistent with SCAG RCP. Listed below are the 2012 RTP/SCS goals:

- Align the plan investments and policies with improving regional economic development and competitiveness.
- Maximize mobility and accessibility for all people and goods in the region.
- Ensure travel safety and reliability for all people and goods in the region.
- Preserve and ensure a sustainable regional transportation system.
- Maximize the productivity of our transportation system.
- Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).
- Actively encourage and create incentives for energy efficiency, where possible.
- Encourage land use and growth patterns that facilitate transit and non-motorized transportation.
- Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.

The proposed project is included in the 2012 RTP/SCS prepared by SCAG.

2009 Long-Range Transportation Plan for Los Angeles County

As the state-designated transportation planning and programming agency for Los Angeles County, the Los Angeles County Metropolitan Transportation Authority (Metro) developed a long-range vision for the transportation system that reflects both regional needs and local concerns. The 2009 Long-Range Transportation Plan for Los Angeles County, an update to the 2001 version, serves as the primary transportation-planning tool for guiding future transportation investments in Los Angeles County.[3] The plan lays out a 30-year vision for Los Angeles County's transportation system to 2040 and aims to achieve the following:

[3] Los Angeles County Metropolitan Transportation Authority. 2009. *2009 Long-Range Transportation Plan*. Available: <http://www.metro.net/projects_studies/images/final-2009-LRTP.pdf>. Accessed: March 2, 2010.

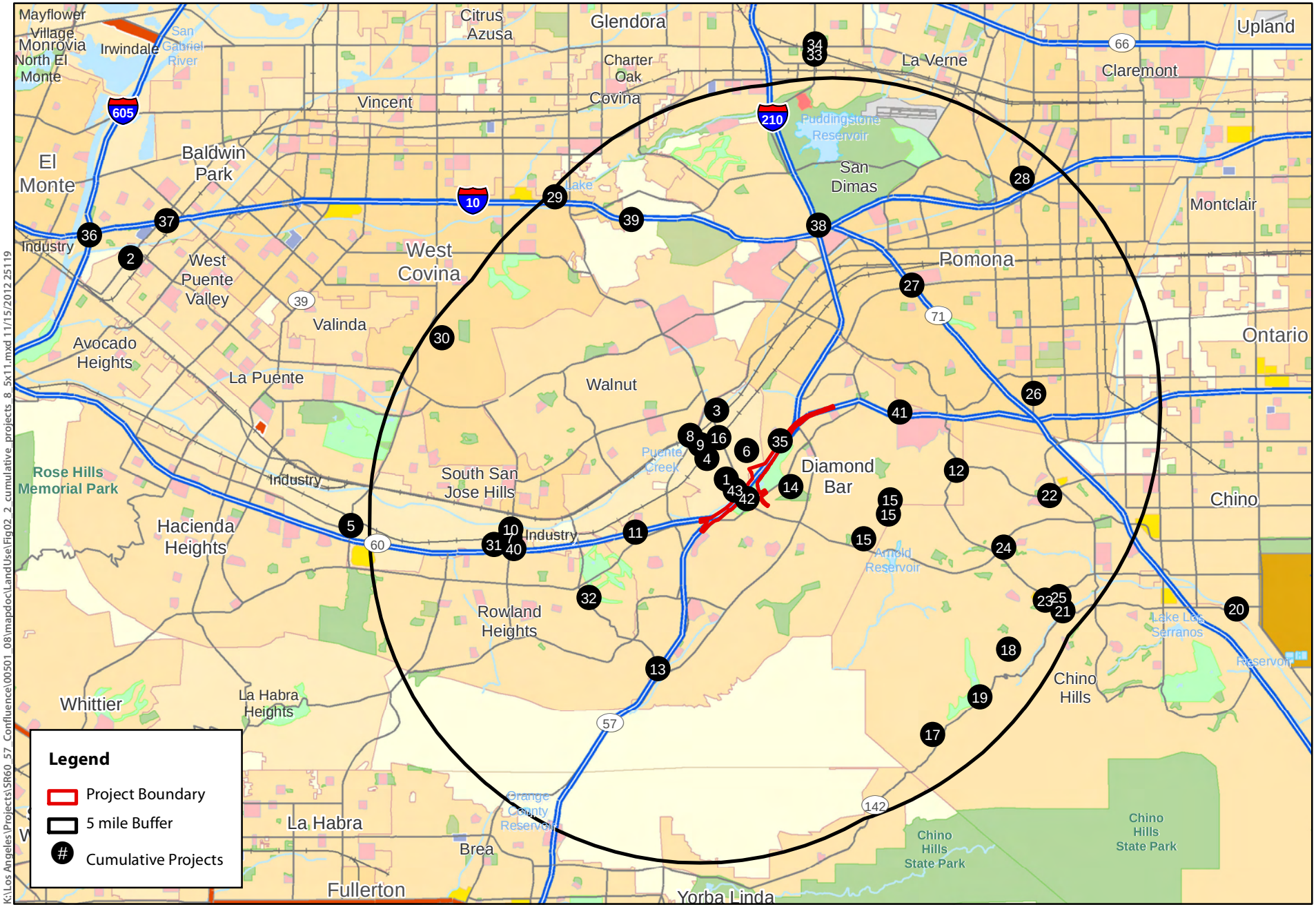


Figure 2-2
Cumulative Projects Map
State Route 57/State Route 60 Confluence at Grand Avenue Project

- Expand the Metro fixed-guideway/busway network to more than 177 stations covering nearly 230 miles.
- Expand the Metro Rapid network to provide more than 400 miles of service through 35 cities and the County of Los Angeles.
- Continue the commitment to operate and expand the Metrolink commuter rail system.
- Continue the commitment to operate the paratransit bus system.
- Expand and improve bus and rail transit services throughout the county.
- Add 170 carpool lane miles to fill in critical gaps along the carpool lane network.
- Build freeway interchanges and carpool lane connectors.
- Expand the Metro Freeway Service Patrol.
- Fund arterial, signal synchronization, transportation demand management, bikeway, pedestrian, transit capital, and transportation enhancements through the Call for Projects.
- Promote rideshare and other Transportation Demand Management strategies that provide options to driving alone.

City of Industry General Plan

The City of Industry General Plan was adopted in 1971 and amended in 2006. The general plan identifies the following primary goals:

- The creation of manufacturing, distribution, and industrial facilities within the city.
- Responsiveness to the creation of a setting that is complementary to its neighboring communities.

The principal objectives, which have been established to work toward the aforementioned goals, are listed below.

Objective 1: Maintain and further develop an employment base in the San Gabriel Valley and the Los Angeles metropolitan area.

Objective 2: Initiate capital improvement programs and incentives to address a full range of industry requirements; such programs shall serve industry presently located in the city and, on a nationwide basis, stimulate and support investment.

Objective 3: Accelerate and sustain a tax base that can support the overall growth potential of the area.

Objective 4: Develop a highway and street network that will serve all circulation desires with a minimum of conflict and inconvenience.

Objective 5: Perpetuate and instigate programs to beautify the city throughout and conserve its natural resources.

Objective 6: Encourage commercial, professional, and service uses to support manufacturing, distribution, and industrial uses.

Land uses in the City of Industry located north of the project site, north of SR-60, are designated Industrial.[4]

[4] City of Industry. 2009. General Plan Land Use Map. October. Available: <http://www.cityofindustry.org/PDF/Planning_pdfs/generalplan.pdf>. Accessed: February 24, 2010.

City of Industry Zoning Code

According to the City of Industry Zoning Map, the area adjacent to the project site is zoned Industrial-Planned Development Overlay.[5] Uses permitted in this zone include the following:

- All uses permitted in the underlying industrial and commercial zones, provided that the applicable requirements contained in this title are met.

The following uses shall be permitted pursuant to a planned development approved by the city council pursuant to this chapter:

1. All uses permitted in the commercial zone may be permitted in a plan of development,
2. All uses permitted in the industrial zones may be permitted in a plan of development,
3. Hotel and motel uses may be permitted in a plan of development, and
4. Recreational uses, such as parks, golf courses, theaters, amusement parks, pavilions, tennis courts, equestrian facilities, pools, health clubs, cultural/historical museums, athletic gymnasiums/fields, botanical gardens, bowling alleys, ice skating/roller skating rinks, or other recreational facilities, may be permitted in a plan of development.[6]

City of Diamond Bar General Plan

The City of Diamond Bar General Plan was adopted on July 25, 1995, and amended in 1999. In the general plan's Vision Statement, the city identified the following goals regarding land use, circulation, housing, and open space planning:

- Retention of the rural/country living community character.
- Preservation of open space resources.
- Reduction of regional traffic impacts on local streets.
- Promotion of viable commercial activity and provision of well-maintained, attractive housing.
- Creation of a community environment.

The City of Diamond Bar has designated a portion of the project site within the city for transportation uses. Although the majority of land uses within the city are residential, within the last five years, the area surrounding the project site (near the intersection of Grand Avenue and Golden Springs Drive, within the City of Diamond Bar) has been developed for commercial uses; therefore, the amount of vacant, developable land near the project site is limited.

Relevant land use, recreation, and circulation/transportation goals and objectives in the City of Diamond Bar General Plan are described in the following sections.

[5] City of Industry. 2010. Zoning Map. Available: <http://www.cityofindustry.org/PDF/Planning_pdfs/zoningmap.pdf>. Accessed: February 24, 2010.
[6] City of Industry. 2009. City of Industry Zoning Code. Available: <http://www.cityofindustry.org/PDF/Planning_pdfs/ZoningCode.pdf>. Accessed: February 24, 2010.

Land Use Goals and Objectives

Goal 2: Consistent with the Vision Statement, manage land use with respect to the location, density and intensity, and quality of development. Maintain consistency with the capabilities of the city and special districts to provide essential services that achieve sustainable use of environmental and man-made resources.

Objective 2.1: Promote land use patterns and intensities that are consistent with the Resource Management and Circulation Elements.

Goal 4: Consistent with the Vision Statement, encourage long-term and regional perspectives in local land use decisions but not at the expense of quality of life for Diamond Bar residents.

Objective 4.1: Promote and cooperate in efforts to provide reasonable regional land use and transportation/circulation planning programs.

Circulation Goals and Objectives

Goal 1: Consistent with the Vision Statement, enhance the environment of the city's street network. Work toward improving the problems presented by the intrusion of regionally oriented commuter traffic through the city and into residential neighborhoods. Consider programs to reinforce the regional transportation and circulation systems to adequately accommodate regional needs.

Objective 1.1: Participate in local and regional transportation-related planning and decision-making.

Objective 1.2: Balance the need for optimum traffic flow on city arterials within economic realities and environmental and aesthetic considerations.

Goal 3: Consistent with the Vision Statement, maintain an adequate level of service on area roadways.

Objective 3.1: Improve the safety and efficiency of existing transportation facilities.

City of Diamond Bar Zoning Map

The City of Diamond Bar Zoning Map was adopted in January 2010. Most of the area surrounding the confluence is zoned Golf Course or Open Space. There are also pockets that are commercially zoned (C2 and C3). Behind these areas are residential areas that are zoned Low/Medium-Density Residential and Medium-Density Residential.

Environmental Consequences

Existing and Planned Uses

Alternative 1, No-Build Alternative

Under Alternative 1, no structural or physical changes to SR-57, SR-60, or the Grand interchange would occur. Existing deficient capacity and congestion conditions due to short weave sections on SR-57, SR-60, and Grand Avenue would not change under this alternative and would be inconsistent with state, regional, and local plans and programs.

Construction Impacts

Construction activities would not occur, and there would be no disruption to existing land uses on the existing site and in the surrounding area. Alternative 1 would not result in construction impacts on existing and planned land uses.

Operational Impacts

Because no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange would occur under this alternative, no operational impacts on existing and planned land uses would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Under Alternative 2, the interchange configuration would remain a combination partial cloverleaf for the westbound direction and compact diamond for the eastbound direction. Additional right-of-way would be required from a few adjacent parcels. It is anticipated that all right-of-way acquisitions would be partial takes, with no full takes required.

Reconstruction of the northbound SR-57 connector to eastbound SR-60 would require a partial take of undevelopable slopes from three parcels. The construction of the new eastbound bypass connector would require aerial easements from three commercial parcels with a hotel and restaurants. Within two of the easements, the potential exists for a few parking stalls to be eliminated to accommodate bridge columns and foundations. Up to two parking stalls out of 170 would be removed at a hotel property, and up to two parking stalls out of 94 would be removed at a restaurant property. A sliver take, consisting of a 0.06-acre landscaped area, would also be needed from the shopping center on Grand Avenue near the intersection with Golden Springs Drive. On the north side, a partial take of undeveloped land would be required from the City of Industry to reconstruct the westbound SR-60 off-ramp to Grand Avenue.

Alternative 2 would require 7.3 acres from Diamond Bar Golf Course. This would be accomplished by realigning four fairways within the remaining property. This alternative would also require the reconfiguration of the clubhouse parking lot, with no net loss of parking.

Construction Impacts

Alternative 2 would require the construction of two eastbound bypass connectors at the SR-57 and SR-60 junctions. Alternative 2 would require the construction of an eastbound SR-60 bypass off-ramp to Grand Avenue and realign the existing northbound SR-57 to eastbound SR-60 connector at the SR-57/SR-60 west junction. This proposed realignment would require a new separation structure for the two connectors.

Other construction activities proposed under Alternative 2 would include reconfiguring the existing eastbound off-ramp from northbound SR-57 and replacing the existing Grand Avenue overcrossing. Proposed construction activities would occur primarily within the Caltrans right-of-way. On-site construction staging would occur just north of the westbound SR-60/southbound SR-57 Grand Avenue on- and off-ramps. This area, which is east of Grand Avenue, is owned by

the City of Industry. Additional equipment storage may occur north of the westbound SR-60/southbound SR-57 Grand Avenue direct on-ramp; however, no rock crushing would occur at that location.

Construction activities would occur between fall 2014 and fall 2017 and adhere to applicable City of Diamond Bar and City of Industry requirements, including any applicable construction noise guidelines.

Construction of the proposed project would not result in adverse effects on land use in the project area. Construction activities would not permanently disrupt existing land uses or result in new land uses or incompatible development. Specifically, access disruptions to adjacent commercial, industrial, and golf course uses during construction would be temporary and would follow all applicable local guidelines. To accommodate construction activities and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established. If construction at the golf course were to occur in two phases, with only half of the course closed at any one time (nine holes), a total of 14 months would be required for construction (7 months to reconfigure nine holes [per phase]). If the entire golf course (all 18 holes) were to be reconfigured at the same time, the closure would last 9 months. During construction, temporary closures of on-ramps and off-ramps during non-peak periods would result in short-term traffic disruption. For a more detailed discussion regarding construction-period traffic impacts, please refer to Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Operational Impacts

This alternative would require the acquisition of land from Diamond Bar Golf Course to construct the widened eastbound on- and off-ramp and the auxiliary lane. These acquisitions would result in 7.3 acres of golf course property being permanently incorporated into the proposed project. However, the facility would remain an 18-hole golf course, with only minor changes made to the configuration, fairway distances, and par at holes 1, 2, 8, and 9. Further information regarding impacts on the golf course and the reconfiguration plans is provided below in subsection 2.1.1.3, Parks and Recreation. The eastbound bypass off-ramp would require a sliver right-of-way take of 1.10 acres from a hotel property on Golden Springs Drive. The bypass connector from the eastbound on-ramp would require aerial easements from several commercial properties on Diamond Bar Boulevard, including a motel and a restaurant on Gentle Springs Lane and a gas station and a restaurant on Palomino Drive.

Aerial easements would be required behind the hotel and restaurant parking lot (between Prospectors Road and Diamond Bar Boulevard). This would accommodate the support columns for the bypass connector structure from the eastbound on-ramp. Up to two parking stalls out of 170 would be removed at the hotel property, and up to two parking stalls out of 94 would be removed at the restaurant property. The proposed realignment of the eastbound on-ramp from Diamond Bar Boulevard would require a 0.02-acre sliver take from a commercial property east of Diamond Bar Boulevard. These takes would not adversely affect adjacent commercial uses or disrupt access to the uses. Therefore, because existing commercial uses would continue to operate and maintain all existing/current operations, no substantial adverse effects on land use are anticipated to occur under Alternative 2. No acquisition of residential uses would occur under Alternative 2.

Implementation of this alternative would result in improvements to the existing SR-57/SR-60 confluence, which would improve traffic flow on the freeway mainline. Operation would also improve traffic flow on Grand Avenue from Golden Springs Drive to the interchange at SR-60. Operation of this alternative is anticipated to result in improved traffic flow and improved traffic safety for surrounding land uses.

No impacts on Sycamore Canyon Park would occur because the park is located approximately 1 mile away and outside the proposed construction limits.

Avoidance, Minimization, or Mitigation

Construction

Please see construction-period mitigation measures in other sections.

Operation

A maximum of two parking stalls out of 170 would be removed at a hotel property, and up to two parking stalls out of 94 would be removed at a restaurant property. The eliminated parking stalls would not be replaced because of the remaining parking at these properties would adequately meet their needs.

Alternative 3, Partial Cloverleaf Interchange Configuration

Alternative 3 would involve a partial cloverleaf interchange configuration for the SR-57/SR-60 confluence. As stated in the project description, adjacent parcels would be acquired under Alternative 3. Land acquisition proposed under Alternative 2 would also occur under this alternative, except that 10.1 acres would be acquired from Diamond Bar Golf Course under Alternative 3.

Construction Impacts

Construction activities under this alternative would include constructing a 2,500-foot-long auxiliary lane from the dropped lane from the SR-57 connector to the Grand Avenue westbound off-ramp, realigning Grand Avenue, and reconfiguring the eastbound on- and off-ramps at Grand Avenue. Additional construction activities would be required under Alternative 3, as described in the project description.

Construction activities would not disrupt existing land uses substantially or result in new land uses or incompatible development. Construction staging would be similar to what would occur under Alternative 2. For a more detailed discussion regarding construction-period traffic impacts, please refer to Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Operational Impacts

Similar to Alternative 2, the proposed improvements along the proposed eastbound on-and off-ramps would require the acquisition of land from Diamond Bar Golf Course. Proposed acquisitions would result in 10.1 acres of golf course property being permanently incorporated

into the proposed project. However, as with Alternative 2, the facility would remain an 18-hole golf course, with only minor changes made to the configuration, fairway distances, and par at holes 1, 2, 3, 8, and 9. After implementation of Alternative 3, course par would be equal to the existing par of 72. Total yardage would be increased to 6,848 yards compared with 6,801 yards under current conditions.

The eastbound bypass off-ramp would require a sliver right-of-way take of 1.10 acres from an existing hotel on Golden Spring Drive. The bypass connector from the eastbound on-ramp would require aerial easements from several commercial properties on Diamond Bar Boulevard, including a hotel and a restaurant on Gentle Springs Lane and a gas station and a restaurant on Palomino Drive. Similar to Alternative 2, no residential land would be acquired under Alternative 3.

The loss of commercial land uses and reconfiguration of the existing golf course fairways would result in the conversion of commercial and golf course uses to transportation-related uses. However, as stated above, the conversion of the golf course would not result in a permanent loss of the golf course because the existing fairways would be reconfigured and the golf course would continue to operate as an 18-hole course. Operation of this alternative would not result in substantial adverse impacts on adjacent commercial uses.

Avoidance, Minimization, or Mitigation

Construction

See Section 2.2.7, Noise, for construction mitigation measures to reduce adverse effects.

Operation

As indicated above, no substantial adverse impacts would occur. No mitigation is required.

Consistency with Plans and Policies

Tables 2-2 and 2-3 analyze project consistency with applicable plans and policies. Table 2-2, below, shows consistency with 2012 SCAG RTP/SCS goals. As shown in the table, existing deficient capacity and congestion conditions would remain under Alternative 1, resulting in inconsistency with applicable RTP goals. However, Alternatives 2 and 3 would be consistent with the applicable RTP goals. Specifically, proposed enhancements to the freeway confluence would help to maximize mobility, accessibility, and safety. Table 2-3 analyzes project consistency with applicable local plans and policies of the City of Diamond Bar and City of Industry.

Table 2-2: Consistency with 2012 SCAG RTP/SCS Goals

No.	Description of Goal	Alternative 1	Alternative 2	Alternative 3
RTP/SCS G1	Align the plan investments and policies with improving regional economic development and competitiveness.	Inconsistent. The No-Build (or No-Action) Alternative would result in no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange. Therefore, existing deficient capacity and congestion conditions due to short weave sections on SR-57, SR-60, and Grand Avenue would not change under this alternative.	Consistent. Proposed improvements and enhancements would improve mobility and accessibility for people and goods in the region, which would improve economic development. The existing Grand Avenue overcrossing would be replaced with a new overcrossing structure over SR-60. The new Grand Avenue overcrossing would be widened to accommodate eight through lanes and double left-turn lanes.	Consistent. Proposed improvements and enhancements would improve mobility, potentially improving regional economic development and competiveness.
RTP/SCS G2	Maximize mobility and accessibility for all people and goods in the region.	Inconsistent. See above discussion.	Consistent. See discussion above. Additionally, northbound Grand Avenue would be restriped for three lanes south of the Golden Springs Drive intersection to improve intersection performance. One of the project objectives is to reduce traffic weaving/increase weaving distances and improve safety.	Consistent. See discussion above. Similar to Alternative 2, proposed enhancements would contribute to improved safety and reduced weaving. The existing Grand Avenue overcrossing structure would be reconstructed to accommodate seven standard-width mixed-flow lanes and two HOV lanes in each direction on SR-60. Alternative 3 would include off-site improvements with the widening of Grand Avenue from the proposed eastbound off-ramp to Golden Spring Drive. Golden Springs Drive would be widened to allow additional through lanes, double left-turn lanes, and one right-turn lane on three legs of the intersection of Grand Avenue and Golden Springs Drive. Two right-turn lanes would be provided on Grand Avenue on the northbound approach to Golden Springs Drive. Approximately 600 feet of northbound Grand Avenue south of the intersection at Golden Springs Drive would be restriped to three lanes. Golden Springs Drive would be restriped to three lanes.

No.	Description of Goal	Alternative 1	Alternative 2	Alternative 3
RTP/SCS G3	Ensure travel safety and reliability for all people and goods in the region.	Inconsistent. See discussion above for G1.	Consistent. See discussion above. Proposed enhancements to SR-57 and SR-60 would improve the operational deficiencies of the freeways at the Grand Avenue interchange.	Consistent. Proposed enhancements to SR-57 and SR-60 would improve the operational deficiencies of the freeways at the Grand Avenue interchange.
RTP/SCS G4	Preserve and ensure a sustainable regional transportation system.	Inconsistent. See discussion above for G1.	Consistent. Proposed enhancements to the freeways would help to maximize the productivity of the transportation system. See discussion above.	Consistent. Proposed enhancements to the freeways would help to maximize the productivity of the transportation system. See discussion above.
RTP/SCS G5	Maximize the productivity of our transportation system.	Inconsistent. See discussion above for G1.	Not applicable	Not applicable
RTP/SCS G6	Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)	Not applicable	Not applicable	Not applicable
RTP/SCS G7	Actively encourage and create incentives for energy efficiency, where possible.	Not applicable	Not applicable	Not applicable
RTP/SCS G8	Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	Not applicable	Not applicable	Not applicable
RTP/SCS G9	Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Consistent. Caltrans would continue to monitor and coordinate with security agencies to maximize the security of the regional transportation system.	Consistent. Caltrans would continue to monitor and coordinate with security agencies to maximize the security of the regional transportation system.	Consistent. Caltrans would continue to monitor and coordinate with security agencies to maximize the security of the regional transportation system.

Source: Southern California Association of Governments (SCAG). *Regional Transportation Plan/Sustainable Communities Strategies*. 2012.

Table 2-3: Consistency with City of Diamond Bar and City of Industry Policies

Description of Objective	Alternative 1	Alternative 2	Alternative 3
City of Diamond Bar LU Objective 2.1: Promote land use patterns and intensities that are consistent with the Resource Management and Circulation elements.	Inconsistent. Existing deficient capacity and congestion conditions due to short weave sections would not change under this alternative. Existing land use patterns would not change, and improvements and enhancements to SR-57, SR-60, and the Grand Avenue interchange would not occur. Project objectives related to increased safety, improved traffic conditions, and shorter weave lengths would not occur. Implementation of this alternative would not be consistent with the Circulation Element objectives, including improving the safety and efficiency of existing transportation facilities.	Consistent. Alternative 2 would include enhancements to SR-57, SR-60 and the Grand Avenue interchange. Proposed improvements would be consistent with the goals and objectives of the City of Diamond Bar Land Use and Circulation elements.	Consistent. Similar to Alternative 2, this alternative would include enhancements to SR-57, SR-60, and the Grand Avenue interchange. These improvements would be consistent with the applicable goals and objectives of the City of Diamond Bar Land Use and Circulation elements.
LU Objective 4.1: Promote and cooperate in efforts to provide reasonable regional land use and transportation/ circulation planning programs.	Inconsistent. No improvements to SR-57, SR-60, and the Grand Avenue interchange would occur under this alternative. Project objectives intended to improve safety and transportation conditions would not occur.	Consistent. Transportation enhancements proposed under Alternative 2 would improve transportation conditions, safety, and efficiency in the region. Alternative 2 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs.	Consistent. Transportation enhancements proposed under Alternative 3 would improve transportation conditions, safety, and efficiency in the region. Alternative 3 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs.
Circulation Objective 1.1: Participate in local and regional transportation-related planning and decision-making.	Inconsistent. See discussion above.	Consistent. See discussion above.	Consistent. See discussion above.
Circulation Objective 1.2: Balance the need for optimum traffic flow on city arterials within economic realities and environmental and aesthetic considerations.	Inconsistent. See discussion above.	Consistent. Alternative 2 would include widening Grand Avenue as well as improving the existing Grand Avenue/Golden Springs Drive intersection. Off-site improvements in support of the proposed Grand Avenue widening would also occur under this alternative.	Consistent. See discussion above.

Description of Objective	Alternative 1	Alternative 2	Alternative 3
Circulation Objective 3.1: Improve the safety and efficiency of existing transportation facilities.	Inconsistent. See discussion above.	Consistent. See discussion above. One of the primary objectives of the two build alternatives (Alternatives 2 and 3) is to improve transportation conditions in the area. Proposed enhancements would increase safety and improve the efficiency of transportation facilities in the area.	Consistent. See discussion above. One of the primary objectives of the two build alternatives (Alternatives 2 and 3) is to improve transportation conditions in the area. Proposed enhancements would increase safety and improve the efficiency of transportation facilities in the area.
City of Industry Objective 1: Maintain and further develop an employment base in the San Gabriel Valley and the Los Angeles metropolitan area.	Not Applicable	Not Applicable	Not Applicable
Objective 2: Initiate capital improvement programs and incentives to address a full range of industry requirements; such programs shall serve industry presently located in the city and stimulate and support investment nationally.	Inconsistent. No improvements to SR-57, SR-60, and the Grand Avenue interchange would occur under this alternative. Project objectives intended to improve safety and transportation conditions for all users, including the transportation needs of industry presently located in the city, would not occur.	Consistent. Transportation enhancements proposed under Alternative 2 would improve transportation conditions, safety, and efficiency in the region. Alternative 2 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs. These improvements would help meet the transportation infrastructure needs of industry presently located in the city and stimulate and support investment nationally.	Consistent. Transportation enhancements proposed under Alternative 3 would improve transportation conditions, safety, and efficiency in the region. Alternative 3 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs. These improvements would help meet the transportation infrastructure needs of industry presently located in the city and stimulate and support investment nationally.
Objective 3: Accelerate and sustain a tax base, which can support the overall growth potentials of the area.	Inconsistent. The City's tax base relies heavily on warehousing and manufacturing businesses. If congestion and safety in the transport of goods is not improved, the City will decrease its competitive advantage as a place to sustain and attract such businesses.	Consistent. Transportation enhancements proposed under Alternative 2 would improve transportation conditions, safety, and efficiency in the region. Alternative 2 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs. These improvements would help meet the transportation infrastructure needs of industrial businesses presently located in the City and would help the City remain competitive in attracting new businesses.	Consistent. Transportation enhancements proposed under Alternative 3 would improve transportation conditions, safety, and efficiency in the region. Alternative 3 would be constructed and operated in concurrence with applicable local and regional transportation planning policies and programs. These improvements would help meet the transportation infrastructure needs of industrial businesses presently located in the City and would help the City remain competitive in attracting new businesses.

Description of Objective	Alternative 1	Alternative 2	Alternative 3
Objective 4: Develop a highway and street network that will serve all circulation desires with a minimum of conflict and inconvenience.	Inconsistent	Consistent. Implementation of Alternative 2 would include transportation improvements to SR-57, SR-60, and the Grand Avenue interchange. Operation would result in increased safety, increased efficiency, improved weaving, and overall improved transportation conditions.	Consistent. Implementation of Alternative 3 would include transportation improvements to SR-57, SR-60, and the Grand Avenue interchange. Operation would result in increased safety, increased efficiency, improved weaving, and overall improved transportation conditions.

Source: City of Industry. 1971. *City of Industry General Plan*; City of Diamond Bar. 1995. *City of Diamond Bar General Plan.*

As described above, Alternative 1, No-Build Alternative, would be inconsistent with some of the applicable land use and circulation objectives. No improvements would occur at SR-57, SR-60, or the Grand Avenue interchange, resulting in inconsistency with circulation element objectives. The two build alternatives (Alternatives 2 and 3) would be consistent with applicable land use and transportation-related objectives. No adverse land use impacts related to land use plans or policies would occur under the two build alternatives.

2.1.1.3 Parks and Recreation

This section is based upon the Programmatic Section 4(f) Evaluation, included in Appendix B.

There is one existing recreational facility, Diamond Bar Golf Course, in the immediate vicinity of the project site. One other recreational facility, Sycamore Canyon Park, is located approximately 1 mile from the project site.

- Diamond Bar Golf Course is a 178-acre, 18-hole public golf course located at 22751 East Golden Springs Drive in Diamond Bar. The golf course is located just south of the project site, adjacent to the eastbound SR-60 on-ramp. Ancillary amenities include a driving range, pro shop, banquet facilities, and a restaurant.
- Sycamore Canyon Park is a 54-acre park located at 22930 East Golden Springs Drive (approximately 0.5 mile southeast of the project site) in Diamond Bar. Facilities include one baseball field (unlighted), a picnic area, tot lot, restrooms, and 70 parking spaces.

Regulatory Setting

This project will affect facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400–5409). The Park Preservation Act prohibits local and state agencies from acquiring any property that is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or provides land, or both, to enable the operator of the park to replace the parkland and any park facilities on that land.

According to the City of Industry and the City of Diamond Bar general plans, there are no existing or planned recreation or bicycle trails along Grand Avenue.

Environmental Consequences

Alternative 1, No-Build Alternative

Construction Impacts

Construction activities would not occur, and there would be no disruptions at existing parks. Alternative 1 would not result in construction impacts on existing parks or other recreational facilities.

Operational Impacts

Alternative 1 would not involve any change in the project area's physical environment, other than what could result from other projects and programs already planned for development in this area. Thus, this alternative would have no impacts on parks or other recreational facilities.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction Impacts

Diamond Bar Golf Course

Under Alternative 2, approximately 4 acres of the golf course would be required, under temporary construction easements, for construction staging and 7.3 acres would be permanently required to construct the Alternative 2 improvements. Upon completion of construction, the temporary construction easements would be returned to the county, and the golf course would be restored to a condition that would be comparable to its existing condition. During site preparation, tree/vegetation removal and material stockpiling would occur. Golf course parking would not be removed, but there may be lane closures on Grand Avenue, resulting in diminished access. Once construction starts, noise would be generated by equipment, and fugitive dust would be present in areas close to construction.

If construction at the golf course were to occur in two phases, with only half of the course (nine holes) closed at any one time, a total of approximately 16 months would be required for construction (8 months to reconfigure holes 1, 2, 8, and 9 and renovate all other green complexes and fairways). If golf course construction/renovation were to occur in a single phase, the closure would last approximately 12 months. Therefore, the proposed project could negatively affect continuing operation of the golf course during construction activities. However, these impacts would be temporary and short term. The project proponent would compensate the golf course operator for any loss of revenue during construction of the proposed project. Compensation would be based on recommendations of the Caltrans right-of-way agent. There are other public golf courses within Los Angeles County that may be used while this golf course is temporarily closed. Per the programmatic Section 4(f) evaluation conducted for the project, which considered the enhancements and improvements for greater playability planned for the golf course as part of the proposed project, a net benefit to the golf course would occur.

Sycamore Canyon Park

Sycamore Canyon Park, located at 22930 East Golden Springs Drive, is approximately 1 mile away. The park is located outside the construction limits. No changes or disruptions at Sycamore Canyon Park would occur under this alternative.

Operational Impacts

Diamond Bar Golf Course

Although 7.3 acres of the golf course would be required to construct the proposed project, the golf course would continue to operate as an 18-hole course under this alternative. Additionally, per the programmatic Section 4(f) evaluation conducted for the proposed project, a net benefit to Diamond Bar Golf Course would occur. As stated in minimization measure PARK-1, the acquisition of land from the golf course would require compensation, either an in-lieu payment or replacement property of equal value. Caltrans consulted with the County of Los Angeles in January 2011 regarding potential impacts on Diamond Bar Golf Course that would result under implementation of the proposed project. The county concurred that, given the measures to minimize harm and other enhancements planned at the golf course as part of the project, a net benefit to the golf course would occur.

Sycamore Canyon Park

Sycamore Canyon Park, located at 22930 East Golden Springs Drive, is located approximately 1 mile away. No changes or disruptions at Sycamore Canyon Park would occur under this alternative.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction Impacts

Diamond Bar Golf Course

Impacts would be similar to those anticipated to occur under Alternative 2, except 3.5 acres of the golf course would be required, under temporary construction easements, for construction staging.

Sycamore Canyon Park

Impacts would be similar to those anticipated to occur under Alternative 2.

Operation Impacts

Diamond Bar Golf Course

Impacts would be similar to those anticipated to occur under Alternative 2, except 10.1 acres of the golf course would be permanently required to construct the Alternative 3 improvements.

Sycamore Canyon Park

Operational impacts would be similar to those anticipated to occur under Alternative 2.

Avoidance, Minimization, and Mitigation

The following avoidance and minimization measures would reduce adverse effects on Diamond Bar Golf Course.

PARK-1: In accordance with the provisions of the California Park Preservation Act (CCP Sections 5400 through 5409), the acquiring entity will pay sufficient (just) compensation (CCP 1263.320), or land, or both, to the County to enable the operating entity to replace the parkland and the facilities thereon. The substitute land will be of comparable characteristics and of substantially equal size, located in an area that would allow for use by generally the same persons who used the existing parkland and facilities. The cost will include the land and the cost of development into parkland, including placing of substitute facilities thereon. If a functional replacement is elected subsequent an offer of payment, just compensation, final determination of a functional replacement relative to the scope of the property is with the FHWA. Negotiations with the County of Los Angeles Department of Parks and Recreation will be with the Land Acquisition and Development Section.

PARK-2: The following measures to minimize harm have been developed in consultationwith the County of Los Angeles. On March 5, 2012, the County of Los Angeles concurred that these measures would ninimize harm and enhance the golf course. All feasible and practicable measures to minimize harm will be proposed to reduce impacts on the Section 4(f) property. These will include the items outlined below.

1. Reconfigure the golf course so that it continues to function as an 18-hole golf course and the user experience is not diminished. The reconfiguration will occur in consultation with the agency having jurisdiction over the resource (Los Angeles County Department of Parks and Recreation). Some of the features that will be reconfigured are as follows:
    - All 18 tee complexes shall be renovated or reconstructed;
    - All 18 green complexes, including greenside sand bunkers, shall be renovated or reconstructed;
    - All fairway sand bunkers shall be renovated or reconstructed;* and
    - The existing concrete gutters across the fairways shall be replaced with underground pipes, and a complete subdrain system shall be placed at all tees, bunkers, and greens.*
2. A noise wall will be constructed on the eastern half of the golf course (along the perimeter), providing beneficial noise attenuation to users.
3. The wall-to-wall cart path system shall be maintained. However, there are areas where the existing cart path must be demolished and removed and a new cart path installed because of relocated holes.
4. The practice putting green shall be reconstructed.*
5. The existing hole 9 green complex shall be converted to a practice pitching green with sand bunkers.

6. The practice range tee shall be located approximately 50 feet farther south to create a safer relationship between the practice range and hole 2.*
7. The concrete channel surface drains that bisect various holes throughout the golf course shall be replaced with a drain pipe and covered with soil and grass.
8. Protective netting and trees shall be installed as required for safety and playability at the golf course.
9. The project proponent shall compensate the Los Angeles County Department of Parks and Recreation for any parkland used by providing lands of reasonably equivalent usefulness and location and at least comparable value or make a payment in lieu of providing such land.
10. The project proponent shall compensate the golf course operator for any loss of revenue during construction of the proposed project. Compensation will be based on a "loss of business goodwill" claim.
11. Contract specifications for construction contractors shall require the construction area to be returned to a condition that is as good as the present condition or better upon completion of construction activities. This will include replanting any screening vegetation or trees removed during construction.
12. The public shall be notified about closure of the golf course through on-site notices and postings on the county's web site.
13. All feasible best management practices shall be implemented to reduce construction-period impacts in accordance with Caltrans policy.

** These measures, which were developed in consultation with the Los Angeles County Department of Parks and Recreation, would increase the total length of time needed for golf course reconstruction.*

2.1.2 Growth

2.1.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 Code of Federal Regulations (CFR) 1508.8, refer to these consequences as *secondary impacts*. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. The State CEQA Guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

2.1.2.2 Environmental Consequences

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no changes to accessibility would occur, and the confluence area would continue to operate in a congested state for existing and future traffic volumes. The No-Build Alternative would not result in impacts on the existing or future condition in relation to growth because no project-related activity would occur. Furthermore, the surrounding area is largely built out, with minimal opportunities for growth.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

A "first-cut" screening was conducted to determine what influence construction of the SR-57/SR-60 Confluence at Grand Avenue Project might have on growth and development in the project area. This screening evaluated the following:

- The project's potential to change accessibility;
- How, if at all, the project type and location, as well as growth pressure, could influence growth in the area; and
- Whether project-related growth is "reasonably foreseeable."

Potential to Change Accessibility

The potential to change accessibility under both build alternatives was studied using information obtained from the traffic impact analysis conducted for the project. Both of the build alternatives would improve local circulation through the interchange. As a result, it is likely that the number of trips may change, as well as travel speeds and travel times, which would result in the level of service improving following construction of the project.

The reduction in congestion through the project area would result in a decrease in delay for those vehicles accessing the freeways at this location but would not result in new access opportunities. In addition, the majority of the surrounding area has been developed, and the vacant land north of Grand Avenue is already planned for development. Improved accessibility would not result in an increase in growth in this area because the project is not connected to or a requirement for future development that would use this access point. Lastly, because of planned development within the project area and existing built-out conditions, the proposed project improvement would not be a major driver of growth and development in the area. Therefore, although interchange operations would improve, the project's potential to change accessibility, under either build alternative, would be minor and oriented toward operation.

Project Factors' Influence on Growth

The project's type and location, as well as growth pressure, were studied using information contained within the project description and land use research conducted for the project.

Project Type

Relative to the project type, both build alternatives would result in an increase in capacity from the addition of eastbound lanes through the currently highly congested confluence area. However, the capacity increase associated with the project would be a result of growth that has already occurred in the area and a direct response to existing traffic congestion and weaving problems. The proposed project would correct existing deficiencies to an existing transportation facility in an urbanized and developed part of the county. Implementation of any of the project alternatives would not cause a substantial shift in growth patterns and, therefore, would not be a major contributing factor to growth.

Project Location

The SR-57 and SR-60 interconnect is located in the City of Diamond Bar and the City of Industry. Both cities are suburbs located within Los Angeles County. The City of Industry is zoned as 92 percent industrial and 8 percent commercial.[7] The City of Diamond consists of 54.6 percent residential uses and 22.2 percent vacant land.[8] The majority of land in both cities has been built out. Future development would occur in the vacant land along both sides of Grand Avenue, north of the project interchange. This area is included in the City of Industry's approved plans for a large commercial development. It should be noted that the approved plans are not reliant on the project improvements. Therefore, project improvements at this interchange would not directly result in growth-related impacts.

Growth Pressure

The majority of the City of Industry and area surrounding the interchange is built out. As such, the availability of land suitable for development is limited. The vacant land located along both sides of Grand Avenue, north of the interchange area, has approved plans for a large commercial development. The approved development is not contingent upon the proposed interchange improvements.

Between the 2000 and 2010, population growth in the City of Diamond Bar has decreased at a rate of -1.3 percent.[9] Between 2000 and 2008, the population growth rate for the City of Industry was 0.0 percent.[10] The population growth rate for both of these cities was below that of Los Angeles County (i.e., 3.1 percent). Based on existing conditions, including the lack of available undeveloped land and a declining or stagnate population, well below that of Los Angeles County, improving the travel time through the area is not anticipated to result in changes to the overall amount or rate of growth in the surrounding area.

[7] City of Industry. 2011. *Facts about the City*. Available: <http://www.cityofindustry.org/?p=about-the-city>.
[8] City of Diamond Bar. 2009. *Businesses – City Stats*. Available: <http://www.ci.diamond-bar.ca.us/Index.aspx?page=1031>.
[9] Southern California Association of Governments. 2011. *Profile of the City of Diamond Bar*. May. Available: <http://www.scag.ca.gov/resources/pdfs/2011LP/LosAngeles/DiamondBar.pdf>.
[10] Southern California Association of Governments. 2009. Profile of the City of Industry. May. Available: <http://www.scag.ca.gov/resources/pdfs/LosAngeles/Industry.pdf>.

Although existing infrastructure and a strong regional economy are found in this area, the potential for growth is limited by the availability of land. In addition, the interchange improvements would not provide a mechanism for growth in this area. Rather, they are a direct consequence of existing populations and congestion in the area.

The project alternatives would result in capacity-increasing operations through the SR-57/SR-60 interchange. However, the improvements to the confluence area are being proposed to relieve existing congestion and improve operations. Approved development in the area is not contingent upon the proposed project improvements, and the availability of land for future developments is limited when compared with the city's overall footprint. Lastly, the project is in a developed area that has exceeded the existing capacity of the interchange. Therefore, it would not result in the development of a project that would lead to substantial growth.

Reasonable Foreseeable Growth Potential

Reasonably foreseeable projects, included in the analysis are those that are likely to occur or are probable but excludes those that are merely possible. Understanding the guidance for this analysis leads to the results of the analysis to be informed and based on actual probabilities and not based on speculation of possible future projects.

Reasonably foreseeable projects, as related to growth-related impacts, are analyzed by looking at:

- Foreseeable growth and land use changes with and without the project;
- Project influence on reasonably foreseeable growth; and
- Project-related growth pressure on or to environmental resources.

Land Use Changes With and Without the Project

The majority of the area surrounding the project is built out, with minimal availability of vacant land. Reasonably foreseeable growth in the area is mainly limited to large infill development located on vacant lands along both sides of Grand Avenue north of the interchange area. The City of Industry has approved plans for the parcels, but the approved plans are not contingent upon the proposed improvements.

The Industry Business Center project was approved in 2004, and an NFL stadium and entertainment complex were added as project components in the supplement to the project in 2009. Construction of the stadium and entertainment complex has not yet begun because an NFL team has not been secured to move into the stadium.

The future land uses, including the large commercial development and potential sports stadium, would be similar under both scenarios, with or without the proposed project. Implementation of the interchange improvements would alleviate existing and future traffic through the area. In addition, as previously stated, the large commercial development and sports stadium can be built without the interchange improvements.

Project Influence on Future Growth

The build alternatives are independent of planned and approved development. The proposed improvements are a direct result of existing congestion and weaving problems within the confluence area. The improvements would not influence the implementation of future projects because those projects are approved and can occur independently if the interchange improvements do not occur. The City of Industry's General Plan, dated May 1971, set the vision for development in this area. Part of the goals and polices set forth in the City of Industry's General Plan include what is seen today. The City of Diamond Bar recognizes the existing deficiency in this area and has included in its general plan, dated July 25, 1995, a goal to permanently fix the circulation issues at the SR-57/SR-60 confluence.[11]

The majority of development near the project has occurred over the past 40 years. Providing improvements at this location to relieve existing traffic conditions would not result in a substantial change in the direction or location of future development. In addition, the land use patterns for surrounding areas have been established through the development of the area; as such, improving the travel time through the area would not result in changes to existing land use patterns.

The project is located within an existing urban area, on an existing intrastate facility near existing roadways, providing access to existing and planned development. The build alternatives have been designed to accommodate present and future traffic volumes and improve flow expected as a result of previously implemented and planned development in the area; therefore, substantial project-related growth for either build alternative is not anticipated.

Based on consideration of the above, no further analysis is required.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

There would be no adverse effects. Therefore, no measures are required.

2.1.3 Community Impacts

The Community Impacts section is divided into three subsections: Community Character and Cohesion, Relocations and Real Property Acquisition, and Environmental Justice.

2.1.3.1 Community Character and Cohesion

Regulatory Setting

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 USC 4331(b)(2)]. The Federal Highway Administration (FHWA) in its implementation of NEPA [23 USC 109(h)] directs that final decisions regarding projects are to be made in

[11] City of Diamond Bar. 2009. *General Plan Annual Report.* Available: <http://www.cityofdiamondbar.com/Index.aspx?page=556>.

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 CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Because 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.

This section identifies the social and economic characteristics of the project area. The sources used in the preparation of this section include information provided by the U.S. Census Bureau, the California Department of Finance, and state, county, and metropolitan planning organization (MPO) sources including SCAG. County, city, and tract-level data are primarily available from the 2010 census. This section describes demographic characteristics of Los Angeles County, the City of Industry, the City of Diamond Bar, and when detailed data are available, the census tracts within which the study area is located.

Affected Environment

A community impact assessment (CIA) document was prepared in June 2011 using data from the 2000 census, and was approved by Caltrans in June 2011. In the summer of 2011, subsequent to the approval of the CIA by Caltrans, the U.S. Census Bureau released data from the 2010 census. Accordingly, the CIA document was updated in July 2012, and this section has been updated to incorporate data from the 2010 census.

Study Area

The project is located within the cities of Industry and Diamond Bar, in southeastern Los Angeles County. The study area for community impacts is defined to include areas anticipated to be directly, and/or indirectly affected by the proposed project, and correlates closely with the project area of potential effect (APE) (see Figure 2-3 for the APE map), which delineates the limits of disturbance. The study area includes the grading limits and areas of potential permanent and temporary right-of-way acquisition, and is within the boundaries of six census tracts (census tracts 4033.12, 4033.16, 4033.19, 4033.21, 4033.22 and 4033.23) from the 2010 census (see Figure 2-4). For the purposes of this section, census tract-level data has been included to specifically identify the presence of minority and low-income populations within a more focused area than at the city and county level, and to ensure that Environmental Justice considerations have been fully analyzed. One of these census tracts (4033.12) falls within City of Industry boundaries (and it also includes portions of the City of Diamond Bar), and the remaining five census tracts fall within City of Diamond Bar boundaries only.

The census tracts include residential, industrial, institutional, and commercial land uses, community services and facilities, and other neighborhood features that may be indirectly affected by the proposed project. The study area census tracts include an area much larger than that directly affected by project construction and right-of-way acquisition, but it provides a more

focused picture of the area affected by the project than the city and county demographics can provide. Census tracts were used because they are the most complete data set for the level of detail required for this analysis, and the use of census tract data was appropriate based on the size of the project. Census tracts are also used to incorporate populations that may not be directly affected by the project but may be indirectly affected by project construction and operation. Data boundaries with finer level of detail such as census blocks were not selected due to incomplete data in some of the required demographic categories necessary for the community impact analysis. Detailed information concerning the affected environment is provided at city and countywide levels for certain topics.

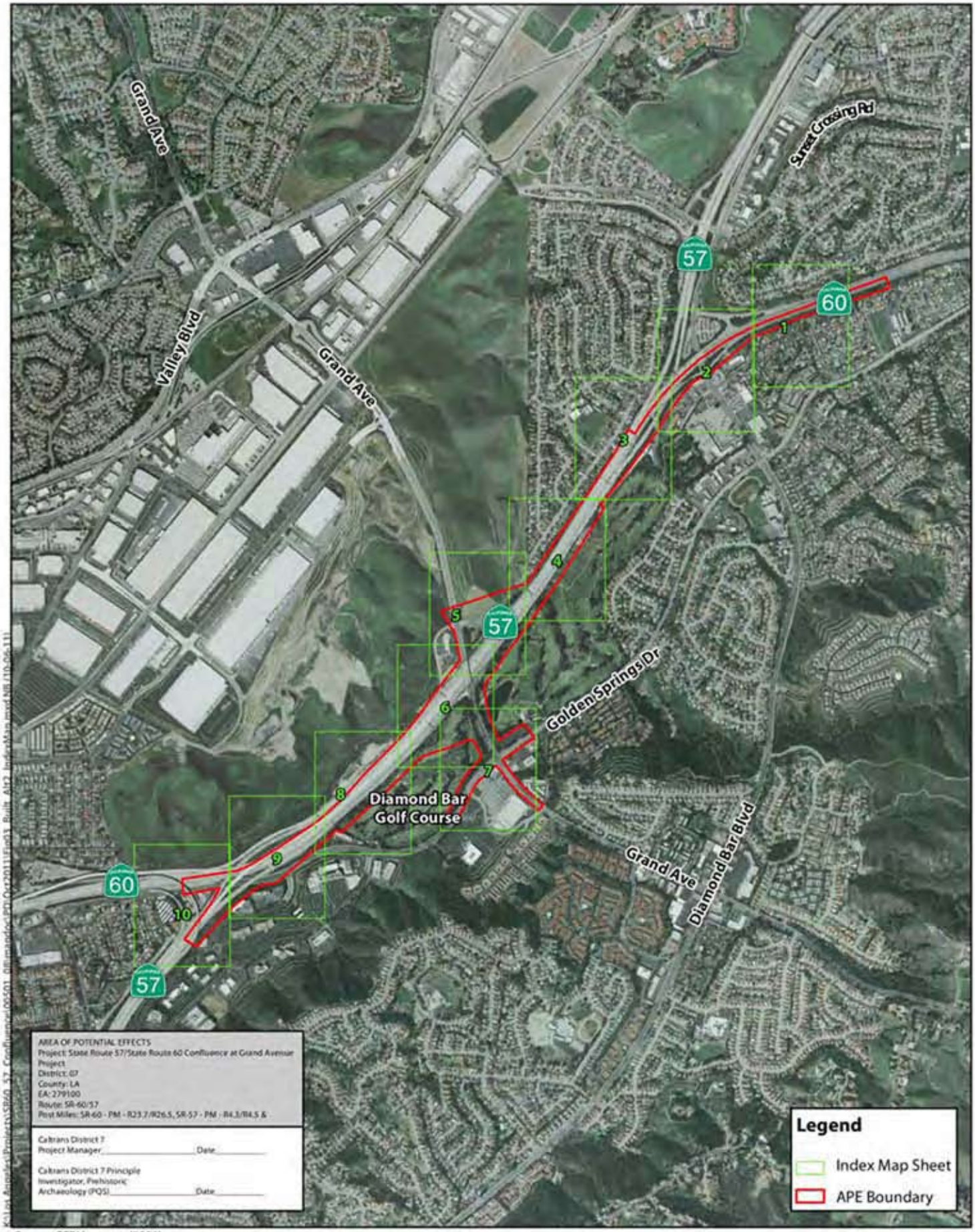
The study area is located within the boundaries of the cities of Industry and Diamond Bar and is transected diagonally by the SR-57/SR-60 confluence. The northwestern portion of the study areas falls within the City of Industry, which has a small population of 219. According to the City of Industry's General Plan Map and Zoning Map (October 2009), there is no residential zoning located within city boundaries; the homes located there are all legal non-conforming uses. The City of Industry, including this portion of the study area, is comprised of predominately industrial and commercial uses, with no residences in close proximity to the project area. Thus, there are no residential neighborhood or community characteristics.

The southeastern portion of the study area falls within the City of Diamond Bar, which has a larger population of 55,544, most of which reside in the residential areas located at varying distances to the south and east of the study area, ranging anywhere from immediately adjacent to the study area near the eastern city limits, to over a mile away from the study area near the southern city limits. A large part of this portion of the study area is bordered by the Diamond Bar Golf Course and several eating and lodging establishments, which serve the regional population and SR-57/SR-60 commuters. These uses do not constitute neighborhood uses, nor contain any traits characteristic of neighborhoods or communities.

Regional and Local Population, Population Growth, and General Demographics

This description of the affected environment is based on data from the U.S. Census Bureau and state and county sources, as well as the City of Industry General Plan and the City of Diamond Bar General Plan. county, city, and tract-level data are primarily available from the 2010 census. This section describes demographic characteristics of Los Angeles County, the cities of Industry and Diamond Bar, and when detailed data are available, the census tracts within which the project study area is located.

Table 2-4 reports the population figures for the 1990, 2000, and 2010 census counts for Los Angeles County, the City of Industry, and the City of Diamond Bar. The U.S. Census Bureau reports that the population in Los Angeles County totaled 8,863,164 in 1990. In the 20 years that followed, the population grew to 9,818,605 (10.8 percent). The California Department of Finance projects that this growth will continue for the next three decades and that population in Los Angeles County will rise over 25 percent to 11,920,289 by 2030. SCAG projects that population in Los Angeles County will rise 26 percent to 12,015,889 by 2030.



Source: ESRI Imagery (2008)

N

0 1,200 2,400 Feet

Figure 2-3
Area of Potential Effects
State Route 57/State Route 60 Confluence at Grand Avenue Project

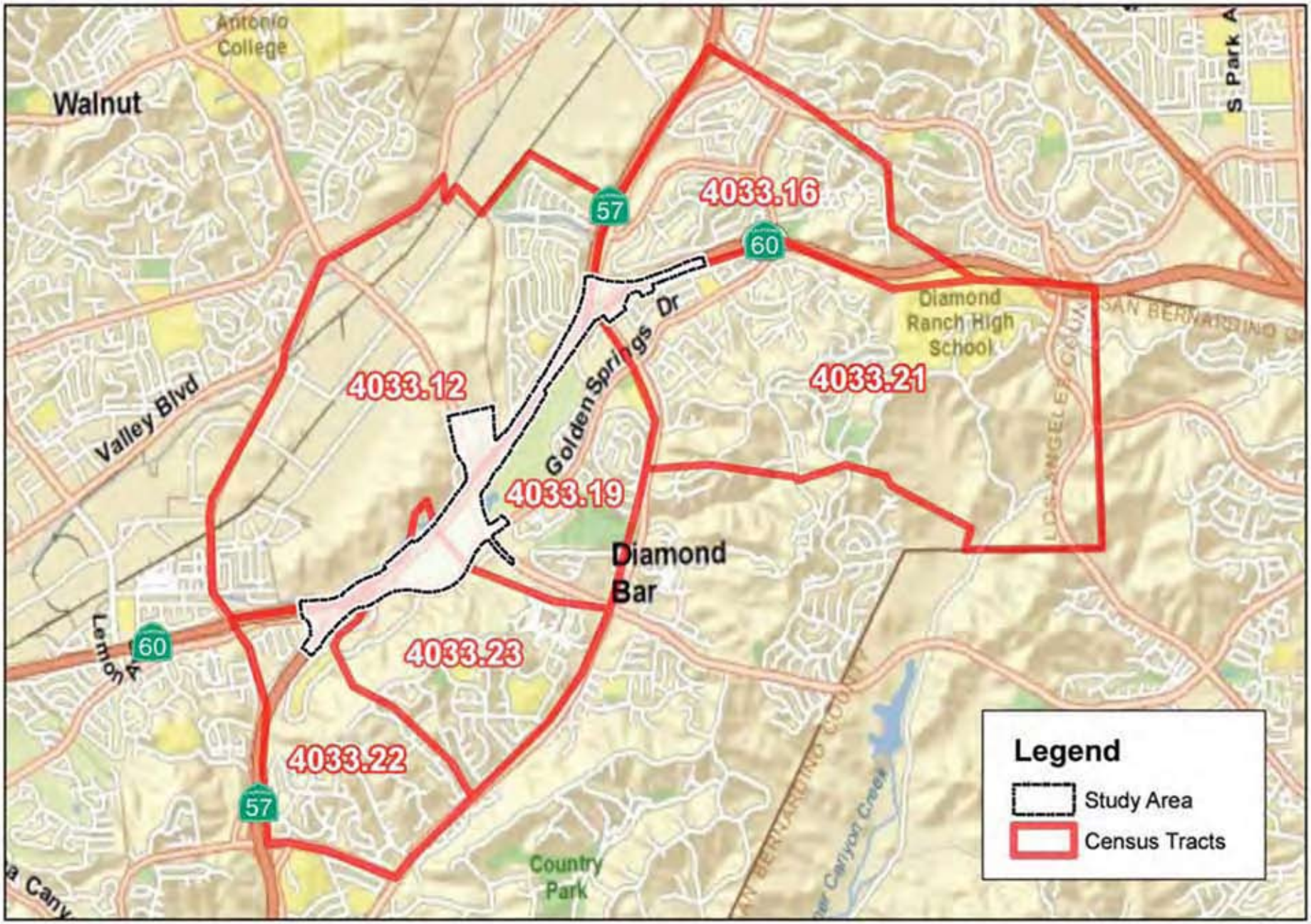


Figure 2-4
Study Area Census Tracts
State Route 57/State Route 60 Confluence at Grand Avenue Project

Table 2-4. Local and Regional Population and Population Growth

	1990	2000	2010	Percent Change from 1990 to 2010
Los Angeles County	8,863,164	9,519,338	9,818,605	+10.8%
City of Industry	631	777	219	-65.3%
City of Diamond Bar	53,672	56,287	55,544	+3.5%
Source: U.S. Census Bureau, 1990, 2000, and 2010 census.				

City of Industry

Compared with Los Angeles County, the City of Industry has experienced a negative rate of population growth since 1990. According to the U.S. Census, the City of Industry's population totaled 631 in 1990. The population decreased approximately 65 percent to 219 in 2010. The city's population is one of the lowest in Los Angeles County; in fact, it was ranked 87th out of 88 cities in Los Angeles County.[12] The city's population has been stable because no new housing has been built, in light of the city's predominate industrial land uses. It is likely that the city will continue to promote such uses on the remaining developable land and that the residential population within the city will remain low.

City of Diamond Bar

Compared with Los Angeles County, the City of Diamond Bar has experienced a significantly slower rate of population growth as since 1990. The city became incorporated in 1989. The first available census data in 1990 shows a population in the city of 53,672. The population rose slightly (4.9 percent) to 56,287 in 2000, and decreased slightly (-1.3 percent) to 55,544 in 2010. SCAG projects that the city will experience steady growth of about 21 percent to 67,240 by 2030.

Table 2-5, General Demographics, provides a snapshot of general economic and social demographic characteristics of Los Angeles County, the City of Industry, and the City of Diamond Bar, as reported in the last census survey. As shown in Table 2-5, the median household income of both cities is higher than the median household income of Los Angeles County, and the City of Diamond Bar has a higher median household income than both the City of Industry and Los Angeles County.

Table 2-5. General Demographics (2010 Census)

	Population Change (2000 to 2010)	Median Household Income	Home Ownership Rate	Persons Per Household
Los Angeles County	+3.1%	$54,878	47.7%	2.98
City of Industry	0.0%	$75,521	31.9%	3.10
City of Diamond Bar	-1.3%	$85,163	81.2%	3.10
Source: U.S. Census Bureau, 2000 and 2010 census.				

[12] Southern California Association of Governments. 2011. *Profile of the City of Industry.* May.

Between 2000 and 2010, both cities, as well as the county, experienced an increase in median household income, although at different paces. Los Angeles County's median household income increased from $42,189 to $54,878, an increase of over 30 percent. The City of Industry's median household income increased from $49,423 to $75,521, a 53 percent increase, and the City of Diamond Bar's median household income increased from $68,871 to $85,163, a 24 percent increase.

Homeownership rates of the cities vary compared with homeownership rates of the county. The City of Industry's homeownership rate of almost 32 percent is below the Los Angeles County rate of almost 48 percent. The City of Diamond Bar's homeownership rate is significantly higher than the City of Industry and Los Angeles County at over 81 percent.

Poverty

Table 2-6, Persons Below Poverty, shows the percentage of persons below poverty for the county, the City of Industry, the City of Diamond Bar, and the six study area census tracts. Census tract level data was included for the purpose of Environmental Justice (low-income populations) analysis. As shown in Table 2-6, the poverty rates of both cities vary substantially from the poverty rate of the county. The City of Industry's poverty rate is twice the poverty rate of the county, whereas the City of Diamond Bar's poverty rate is about one-third that of the county. Poverty rates within the six study area census tracts range from a low of 2.4 percent in tract 4033.16 to a high of 8.6 percent in tract 4033.12; however, poverty levels in all tracts are well below the rates of the county and the City of Industry, and are similar to Diamond Bar's rate of 5.6 percent.

Table 2-6. Persons Below Poverty (2010 Census)

	Percent of Persons Below Poverty
Los Angeles County	16.3%
City of Industry	37.3%
City of Diamond Bar	5.6%
Census Tract 4033.12	8.6%
Census Tract 4033.16	2.4%
Census Tract 4033.19	8.0%
Census Tract 4033.21	4.8%
Census Tract 4033.22	3.8%
Census Tract 4033.23	3.2%
Source: U.S. Census Bureau, 2010 census.	

Housing

Data relative to housing characteristics is based on data from the U.S. Census Bureau, as well as the City of Industry General Plan and the City of Diamond Bar General Plan. The study area consists of a variety of urbanized land uses within the cities of Industry and Diamond Bar, and non-residential uses represent the majority of the study area. The portion of the study area that is in the City of Industry is located entirely within an industrial (planned development overlay) land

use designation; thus, there are no residential uses for the portion of the study area in the City of Industry. The portion that is in the City of Diamond Bar is located within multiple land use designations, including commercial, industrial, office, and open space (Diamond Bar Golf Course) through most of the study area's mid-portion, with small areas of single-family residential land use designations at the northeast end of the study area.

The figures for owner-occupied and renter-occupied units within the state, county, cities, and study area census tracts are shown in Table 2-7, Housing Characteristics, below. Overall, the rates of owner-occupied units in the City of Diamond Bar are significantly higher than those of the state and the county. The average home price in the study area (City of Diamond Bar only) was $417,000 as of February 2012,[13] which is higher than Los Angeles County's average home price of $336,400 (average home prices within the City of Industry are not available; however, the census cites the city's median home value at $366,700, which is slightly lower than the county's median home value of $370,900). The City of Industry has a lower percentage of owner-occupied housing units (33.8 percent) than the county (46.9 percent), whereas the percentage of owner-occupied housing units in the City of Diamond Bar (82.9 percent) is significantly higher than both the City of Industry's and Los Angeles County's percentage.

Table 2-7. Housing Characteristics (2010 Census)

	Total Housing Units	Housing Units Occupied	Owner-Occupied Housing Units	Renter-Occupied Housing Units	Median Home Value
California	13,682,976	12,406,475	6,903,175 (55.6%)	5,503,175 (44.4%)	$370,900
Los Angeles County	3,444,870	3,202,353	1,501,448 (46.9%)	1,700,905 (53.1%)	$429,500
City of Industry	75	71	24 (33.8%)	47 (66.2%)	$366,700
City of Diamond Bar	18,127	17,453	14,466 (82.9%)	2,987 (17.1%)	$541,900
Source: U.S. Census Bureau, 2010 census.					

Housing policies and programs have been adopted by both the cities of Industry and Diamond Bar to ensure sufficient planning for future growth and housing needs. These policies and programs are included in the cities' General Plan Housing Elements, as described below.

The City of Industry

The City of Industry General Plan Housing Element aims to provide a sufficient amount of new or additional housing units to meet or exceed the city's share of regional housing needs projected by SCAG and develop housing within reasonable proximity of, and with access to, employment opportunities, community facilities, and services. The city has seven housing programs developed to support these provisions:[14]

[13] Zillow. 2012. Zillow Real Estate Network web site. Available: <http://www.zillow.com>. Accessed: April 11, 2012.
[14] City of Industry. 1999. City of Industry General Plan Housing Element, pp. 24–26. October.

- Program 1: *Redevelopment Tax Increment Funds* – The city will continue to transfer 20 percent of all redevelopment tax increment funds to the Los Angeles County Housing Authority for use in constructing low- and moderate-income and special needs housing within 15 miles of the city, as stipulated in SB 1718. The Housing Authority will continue to have responsibility for actual construction of these units.
- Program 2: *Code Enforcement* – The city will continue to contract with the County of Los Angeles for building plan check and permit services. City staff will continue to enforce zoning code provisions on a complaint basis.
- Program 3: *Infrastructure Maintenance* – The city will continue to maintain infrastructure (e.g., streets, curbs, gutters, sidewalks) and provide public services to existing residential areas in a manner that enhances neighborhood stability.
- Program 4: *Housing Maintenance and Rehabilitation Assistance* – The city will provide matching grants or low-interest loans to low- and moderate-income homeowners or landlords for maintenance and minor repairs such as roofing, plumbing, electrical or other code violations. Room additions may also be eligible under this program to alleviate overcrowding. The city will also prepare an informational brochure for homeowners and landlords identifying other potential sources of financial assistance for property maintenance and repairs and will participate in available rehabilitation grant programs.
- Program 5: *Energy Conservation* – The city will maintain and distribute federal and state literature on energy conservation, including solar, additional insulation, and subsidies available from utility companies, and will encourage homeowners and landlords to incorporate these features into construction and remodeling projects.
- Program 6: *Equal Housing Opportunity* – The California Department of Fair Employment and Housing administers the state's laws related to housing discrimination. The Fair Housing Congress of Southern California provides a range of fair housing services, including housing discrimination response, landlord-tenant relations, housing information and counseling, and community education programs. The city will publicize the availability of fair housing services provided by these and other organizations through brochures distributed at City Hall, and will provide referrals upon request.
- Program 7: *Senior Citizen Roommate Referrals* – The city will provide senior citizens with information and referrals to organizations that offer housing information and roommate matching services.

The City of Diamond Bar

It is the overall goal of the City of Diamond Bar 2008 Housing Element that there be adequate housing in the city, both in quality and quantity, to provide appropriate shelter for all without discrimination. The following fourteen housing programs offered through the city's Community Development Department were developed to implement the city's goals and policies to address the development, maintenance, and improvement of the housing stock:[15]

[15] City of Diamond Bar. 2008. City of Diamond Bar General Plan Housing Element, pp.V1–V3.

- Conserving the Existing Supply of Affordable Housing
  - Residential Code Enforcement Program – Proactive program that conducts neighborhood inspections on a regular basis throughout the entire city.
  - Minor Home Repair Program – Improve neighborhoods evidencing deferred maintenance through property maintenance and rehabilitation.
  - Single-Family Rehabilitation Program – Provide loans to lower-income homeowners to help them rehabilitate their homes.
  - Section 8 Rental Assistance Program – Provide rental subsidies to very low-income households.
  - Preservation of Assisted Housing – Preserve the existing stock of subsidized housing.
  - Mobile Home Park Preservation – Support the preservation of the city's two mobile home parks as affordable housing.
- Assisting in the Provision of Housing
  - First-time Homebuyer Assistance Programs – Expand homeownership opportunities for low- and moderate-income homebuyers.
  - Senior and Workforce Housing Development – Provide additional senior and affordable rental housing to address the city's growing senior population, and housing overpayment among renters.
- Providing Adequate Residential Sites
  - Land Use Element – Provide adequate sites at varying densities for future housing development.
  - Mixed-Use Development – Provide expanded areas for mixed-use residential development in places to close to employment.
  - Second Units – Provide opportunities for scattered second unit rentals integrated in single-family neighborhoods.
- Removing Governmental Constraints
  - Affordable Housing Incentives/Density Bonus – Facilitate the production of affordable housing through provision of regulatory and financial assistance.
  - Efficient Project Processing – Provide efficient development processing procedures.
- Promoting Equal Housing Opportunities
  - Fair Housing Program – Further fair housing practices in the community.

Employment

City of Industry and City of Diamond Bar employment statistics are shown in Table 2-8, Employment by Occupation by County and City, in comparison to the Los Angeles County average.

Table 2-8. Employment by Occupation by County and City (2010 Census)

	Los Angeles County	City of Industry	City of Diamond Bar
Management, business, science and arts	1,572,201 (34.9%)	30 (29.1%)	13,190 (48.8%)
Service	822,298 (18.2%)	19 (18.4%)	3,239 (12.0%)
Sales and office	1,157,849 (25.7%)	43 (41.7%)	7,877 (29.2%)
Natural resources, construction and maintenance	370,745 (8.2%)	0 (0.0%)	1,191 (4.4%)
Production, transportation and material moving	585,975 (13.0%)	11 (10.7%)	1,525 (5.6%)
TOTAL	4,509,068	**103**	**27,022**
Source: U.S. Census Bureau, 2010 census.			

The City of Industry

The City of Industry has provided and preserved a center for industry and commerce for the San Gabriel Valley and the Los Angeles metropolitan area.[16] There are several factors contributing to the city's strong industrial employment base.

The city's land use plays a large part in its commerce. As discussed previously, the City of Industry is unique in that it is predominately developed with industrial, office, and commercial uses and has no land zoned for residential use within its boundaries.

The city's location and accessibility to major freeways is also a significant consideration. There are few areas in Southern California that offer the accessibility that the City of Industry provides. For almost the whole of its 15-mile length, the city is bounded by freeways. The city is served directly by 13 interchanges from the San Gabriel River and Pomona freeways and indirectly by seven interchanges from the San Bernardino (I-10) Freeway. This accessibility to the existing freeway system and to programmed major freeway developments provides the City of Industry with "unmatched distribution potential."[17]

Also, the city has access to rail. Both the Southern Pacific and Union Pacific railroads, like the freeway system, serve the entire length of the city. There are major switching facilities maintained within the city providing "quick" access to the national rail network.[18]

Table 2-8, Employment by Occupation by County and City, shows the percentages of workers in the production, transportation, and material moving occupations to be similar at 10.7 percent to that of Los Angeles County at 13 percent, and the City of Diamond Bar is at 5.6 percent. The city's service worker percentage was also similar (nearly identical) at 18.4 percent to Los Angeles County at 18.2 percent, and the City of Diamond Bar is lower than both City of Industry and the County at 12.0 percent. In addition, the city's management, professional, and related occupation percentage was below the other areas of the study area at 29.1 percent; Los Angeles County was higher at 34.9 percent, and the City of Diamond Bar was significantly higher at 48.8 percent.

[16] City of Industry. 1971. City of Industry General Plan, p. 12. May.
[17] Ibid.
[18] Ibid.

The City of Diamond Bar

In contrast to the size of its population, the City of Diamond Bar has a relatively small employment base. In 2000, there were approximately 16,000 jobs in the city compared with about 18,000 housing units. Major employers include Allstate Insurance, Travelers Insurance, South Coast Air Quality Management District, and the Walnut Valley Unified School District. While the city actually lost jobs during the early 1990s like many California communities hit by recession, the Southern California Association of Governments (SCAG) projects a significant increase in employment through 2020.[19]

In 2010, 48.8 percent of the city's working residents were employed in management and professional occupations. A significant percentage of workers (29.2 percent) were employed in sales and office-related occupations. Approximately 12 percent were employed in service-related occupations such as food servers and beauticians. Blue-collar occupations such as machine operators, assemblers, farming, transportation, handlers, and laborers constituted 10 percent of the workforce.

Ethnicity

Table 2-9, Race and Ethnic Composition by County and City for 2000 and 2010, shows the race and ethnic composition of Los Angeles County, the City of Industry, and the City of Diamond Bar for both 2000 and 2010, including the percentage of composition change from 2000 to 2010; Table 2-10, Race and Ethnic Composition by Census Tract for 2010, shows the same information broken out by census tract. Census tract-level data was included for the purpose of Environmental Justice analysis.

It should be noted that the federal government considers race and Hispanic origin to be two separate and distinct concepts. For the 2000 and 2010 census, there were two minimum categories for ethnicity: Hispanic or Latino and Not Hispanic or Latino. Hispanics and Latinos may be of any race; therefore, the Hispanic category overlaps with other categories. Thus, in Tables 2-9 and 2-10, both "race" and "ethnicity" are included to ensure inclusion of all categories, and for the purposes of this analysis, "race" includes the categories of White, Black, American Indian, Asian, Hawaiian/Other Pacific Islander, and Other/Two or More Races, whereas "ethnicity" includes the Hispanic category.

Race and ethnicity in the cities of Industry and Diamond Bar have gone through significant changes since 2000, with a general increase in the number and proportion of residents who identified themselves as Asian/Pacific Islander or Hispanic/Latino. The White population decreased by 19 percent in the City of Diamond Bar, while the Asian population increased by 22.7 percent. Likewise, the Asian population increased by 110.3 percent in the City of Industry, and 15.1 percent overall in Los Angeles County. The Hispanic population increased by 8.6 percent in the City of Diamond Bar and 7 percent in the county.

Compared with Los Angeles County, the City of Industry has the highest White, Other/Two of More Races, and Hispanic population, whereas the City of Diamond Bar has the highest Asian population. The cities' Black, American Indian, and Hawaiian/Other Pacific Islander populations were fairly consistent with each other, while differing somewhat from that of the county.

[19] City of Diamond Bar. 2008. City of Diamond Bar General Plan Housing Element, p. I-1.

Table 2-9. Race and Ethnic Composition by County and City for 2000 and 2010

White	Black	American Indian	Asian	Hawaiian/Other Pacific Islander	Other/Two or More Races	Hispanic Ethnicity[20]
Los Angeles County						
2000						
48.7%	9.8%	0.8%	11.9%	0.3%	28.4%	44.6%
2010						
50.3%	8.7%	0.7%	13.7%	0.3%	26.3%	47.7%
Percent Change						
+3.3	-11.2	-12.5	+15.1	0.0	-7.4	+7.0
City of Industry						
2000						
54.8%	4.2%	2.7%	3.9%	0.0%	34.4%	60.2%
2010						
58.9%	0.5%	0.0%	8.2%	0.0%	32.5%	52.5%
Percent Change						
+7.5	-88.1	-100.0	+110.3	0.0	-5.5	-12.8
City of Diamond Bar						
2000						
41.0%	4.8%	0.3%	42.8%	0.1%	11.0%	18.5%
2010						
33.2%	4.1%	0.3%	52.5%	0.2%	9.7%	20.1%
Percent Change						
-19.0	-14.6	0.0	+22.7	100.0	-11.8	+8.6
Source: U.S. Census Bureau, 2000 and 2010 census.						

Table 2-10. Race and Ethnic Composition by Census Tract for 2010

White	Black	American Indian	Asian	Hawaiian/Other Pacific Islander	Other/Two or More Races	Hispanic Ethnicity[21]
Census Tract 4033.12						
43.6%	4.7%	0.8%	35.4%	0.3%	16.1%	33.8%
Census Tract 4033.16						
44.6%	6.9%	0.4%	34.6%	0.1%	13.4%	27.3%
Census Tract 4033.19						
36.5%	6.1%	0.3%	48.0%	0.1%	9.0%	22.3%
Census Tract 4033.21						
40.8%	5.8%	0.2%	40.3%	0.3%	12.6%	26.3%
Census Tract 4033.22						
37.9%	2.7%	0.7%	48.6%	0.2%	9.9%	20.5%
Census Tract 4033.23						
26.1%	2.9%	0.1%	65.7%	0.1%	5.1%	11.8%
Source: U.S. Census Bureau, 2010 census.						

[20] The federal government considers race and Hispanic origin to be two separate and distinct concepts. Hispanics and Latinos may be of any race; therefore, the Hispanic category overlaps with other categories. As a result, percentages do not add to 100 percent due to this overlap. The White, Black, American Indian, Hawaiian, and Other categories include persons identified with only one race.

[21] City of Diamond Bar. 2008. City of Diamond Bar General Plan Housing Element, p. I-1.

City of Industry

The race and ethnic distribution of the city's residents as reported in the 2010 census indicated that 58.9 percent of the city's population was White, up slightly from 54.8 percent in 2000. The proportion that identified themselves as Hispanic decreased slightly from just over 60 percent in 2000 to 52.5 percent in 2010.

City of Diamond Bar

The City of Diamond Bar 2008 Housing Element also confirms that the ethnic composition of Diamond Bar is distinctly different from Los Angeles County as a whole. As noted above, the 2000 and 2010 censuses revealed that the city's demographic makeup includes a higher Asian population and lower Hispanic population than the county.[22]

Environmental Consequences

Community cohesion is the degree to which residents have a "sense of belonging" to their neighborhood, a level of commitment of the residents to the community, or a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Cohesion refers to the degree of interaction among the individuals, groups, and institutions that make up a community. Roadway improvements may affect communities and neighborhoods in ways other than direct property acquisition and displacements. Roadway improvement projects have the potential to physically or psychologically divide neighborhoods, separate resident children from schools, or fragment the edges of cohesive groups of people, thereby adversely affecting how a community or neighborhood functions.

Construction Impacts

Alternative 1, No-Build Alternative

While there are no cohesive neighborhoods present within the study area due to the predominance of industrial and commercial land uses, the No-Build Alternative will maintain the existing conditions as is, which will continue to result in queue spillback onto the freeway at the eastbound off-ramp at Grand Avenue, and congestion and accident rates resulting from the existing short weave conditions on SR-57/SR-60. However, no impacts would occur to cohesive neighborhoods because none are present.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

There are no cohesive neighborhoods present within the proposed project study area due to the prominence of industrial and commercial land uses. Residential areas within the City of Industry are small and are interspersed throughout the city. The portion of the proposed project located within the City of Industry is entirely within an industrial land use designation. The portion of the proposed project located within the City of Diamond Bar is located within multiple land use designations and uses. Because the proposed project improvements are not located within cohesive neighborhoods, construction activities would not adversely affect neighborhood cohesion.

[22] Ibid. Revised draft: April 17, 2009.

Construction activities would require multiple, short-term freeway and connector closures to remove existing structures and erect falsework. During these closures, detours would be required. Construction-related impacts would occur to public and community facilities and emergency services such as fire and police protection and school bus service for the duration of construction. The nearest fire station is located 0.75 miles southeast of the Grand Avenue interchange (Los Angeles County Fire Department [LACFD], Station 120, Battalion Headquarters at 1051 South Grand Avenue in the City of Diamond Bar), and the nearest police station is located 1.5 miles north of the Grand Avenue interchange (Los Angeles County Sheriff's Department at 21695 Valley Boulevard in the City of Walnut). Emergency vehicles responding to calls from these stations would experience decreased response times when calls require them to traverse the Grand Avenue overcrossing.

In addition, the Pomona Unified School District has school bus routes that utilize the Grand Avenue overcrossing. The time to transport students to and from schools within the vicinity of the project area would increase and delays would be experienced for the duration of construction. The use of alternate routes may be required for emergency service vehicles and school buses, and a detailed Transportation Management Plan (TMP) would be prepared to reduce these impacts. The TMP would be prepared during the PA/ED and PS&E phases for implementation during construction to mitigate the traffic impacts caused by construction of the proposed project. The TMP will identify potential measures as public awareness, changeable message signs (CMS), and Construction Zone Enhanced Enforcement Program (COZEEP)[23] because night closure of SR-60/SR-57 would be required.

Pedestrian paths on Grand Avenue would not be substantially disrupted by construction activities because construction would occur in stages and allow for continued access.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction of Alternative 3 would have impacts similar to construction of Alternative 2 (see discussion above). The project would be required to develop and implement a detailed TMP to reduce construction-related traffic impacts on public services, community facilities, and pedestrian circulation.

Operational Impacts

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Beneficial impacts, such as improved safety, would be experienced with implementation of Alternative 2. Motor vehicles traveling along the SR-57/SR-60 confluence would benefit from additional safety due to the increased weaving distances offered by the proposed project. Because there are no cohesive neighborhoods and Alternative 2 would result in improvements related to travel time and pedestrian enhancements, no adverse operational impacts would result from implementation of this alternative. Alternative 2 would not divide a community, nor would it create barriers to access for motorists; rather, it would improve an existing transportation facility as well as improve access for motorists.

[23] COZEEP involves the presence of the CHP in certain construction zones to serve as a reminder to the motoring public to slow down, observe construction zone signs, and use care while driving through the work zone.

Alternative 3, Partial Cloverleaf Interchange Configuration

Similar to Alternative 2, Alternative 3 would not divide a community or create barriers to access. Rather, it would improve safety and access for motorists. No operational impacts regarding community cohesion would occur with implementation of Alternative 3.

Avoidance, Minimization and/or Mitigation Measures

COM-1: The project shall develop and implement a Transportation Management Plan (TMP) to reduce construction-related traffic impacts on public services, community facilities, and pedestrian circulation. The TMP would be prepared during the PA/ED and PS&E phases for implementation during construction to mitigate the traffic impacts caused by construction of the proposed project. The TMP shall identify potential measures such as public awareness, changeable message signs (CMS), and Construction Zone Enhanced Enforcement Program (COZEEP) because night closure of SR-60/SR-57 would be required.

2.1.3.2 Relocations and Real Property Acquisition

Regulatory Setting

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

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix C for a copy of Caltrans' Title VI Policy Statement.

Affected Environment

Please see the Affected Environment description in the Community Character and Cohesion subsection, above.

Environmental Consequences

Implementation of the proposed project would not require acquisition of any private residences; however, partial acquisition of property would occur on a total of 12 parcels (four parcels from the Diamond Bar Golf Course; four parcels from three hotels; two parcels containing three restaurants; and two parcels from vacant land within the City of Industry) would be required. This analysis identifies properties affected by the proposed project, and was conducted using aerial photographs of the study area, parcel data, and the proposed right-of-way boundary.

Two types of effects to properties are considered:

- Full acquisition of a property occurs if the entire parcel is within the footprint (right-of-way) of an alternative or if the majority of the buildings lies within the footprint of the alternative.
- Partial acquisition of a property occurs if any part of a parcel is within the footprint (right-of-way) of the alternative but does not require the displacement of the entire property. These impacts range from a sliver or edge of a parcel within the right-of-way preservation area to substantial portions that fall short of entire displacement.

Construction Impacts

Alternative 1, No-Build Alternative

No partial or full acquisitions would occur, and existing land use would not be affected by the No-Build Alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Right-of-way property acquisition would be required from a total of 12 parcels (four parcels from the Diamond Bar Golf Course; four parcels from three hotels; two parcels containing three restaurants; and two parcels from vacant land within the City of Industry). No existing use would be displaced as a result of these partial property acquisitions (please refer to the Land Use section for more information regarding the Diamond Bar Golf Course). Construction of the proposed project would not require acquisition of private residential properties. Partial acquisition of several private commercial and city-owned properties would occur; however, these acquisitions are minor and would not render the affected businesses inoperable. Access to these businesses would be maintained during construction with implementation of measures contained in the TMP. Therefore, no adverse construction impacts would occur. The affected parcels are described in Table 2-11, Properties to Be Acquired (Partial Acquisition), below. The same properties would be acquired for both Alternative 2 and Alternative 3. However, the amount of property that would be acquired varies slightly between the two build alternatives. These properties are also shown in Figure 2-5, Parcel Acquisitions.

Operational Impacts

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

As with Alternative 2, operation of Alternative 3 would not require acquisition of private residential properties, and no residential displacements would occur. The same private commercial and city-owned property acquisition that would occur for Alternative 2 would also occur for Alternative 3, and these minor acquisitions would not render the affected businesses inoperable. Therefore, operation of Alternatives 2 and 3 would not result in adverse impacts with respect to relocations or real property acquisition.

Figure 2-5
Parcel Acquisitions
State Route 57/State Route 60 Confluence at Grand Avenue Project

Table 2-11. Properties to Be Acquired (Partial Acquisition)

Assessor Parcel No. (APN)	Existing Use	Land Use Designation
8293-050-032	Holiday Inn	Commercial
8293-050-003	Holiday Inn	Commercial
8717-001-006	Ayres Suites Hotel	Commercial
8717-001-907	Diamond Bar Golf Course	Open Space
8717-001-908	Diamond Bar Golf Course	Open Space
8717-002-905	Diamond Bar Golf Course	Open Space
8717-002-906	Diamond Bar Golf Course	Open Space
8717-008-184	Best Western Hotel	Commercial
8281-024-053	East 180 Restaurant	Commercial
8719-007-907	Vacant land (City of Industry)	Industrial
8717-007-917	Vacant land (City of Industry)	Industrial
8717-008-039	Scribbles Bar and Grill; Aashiana Restaurant	Commercial
Source: WKE, Inc.		

Avoidance, Minimization and/or Mitigation Measures

No relocations would occur with project implementation; therefore, no avoidance or minimization measures are required.

2.1.3.3 Environmental Justice

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 effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2010, this 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.

Affected Environment

Please see the Affected Environment description in the Community Character and Cohesion subsection, above. The study area is the same.

The environmental justice analysis was conducted using census tract information from the 2010 census. The following analysis provides a comparison of four measures with which to evaluate environmental justice:

- Percentage of non-white minority residents, including Hispanic/Latino
- Percentage of population below poverty level
- Median household income

Minority Population

The percentage of minority residents was calculated by subtracting the number of White residents (one race only, as identified by the 2010 census) from 100 percent. As identified in Table 2-9, Race and Ethnic Composition by County and City for 2000 and 2010, earlier in this section, the study area census tracts all contain a relatively high percentage of minority populations ranging from 55.4 percent to 73.9 percent; more than half the populations in all tracts are minority populations. Also, there is a concentration of Asian residents in the study area census tracts, ranging from a low of 34.6 percent to a high of 65.7 percent, and also in the City of Diamond Bar at 52.5 percent. These figures are high compared with Asian populations in the City of Industry (8.2 percent) and Los Angeles County (13.7 percent).

Poverty

As identified in Table 2-5, General Demographics, earlier in this section, both cities in the project study area have higher median household incomes than the Los Angeles County median of $54,878, with the City of Industry having a 37.6 percent higher median of $75,521, and the City of Diamond Bar having a 55.2 percent higher median of $85,163. As identified in Table 2-6, Persons Below Poverty, the percentage of persons below the poverty level is fairly low in the City of Diamond Bar (5.6 percent) and in Los Angeles County (16.3 percent). The percentage of persons below the poverty level is somewhat higher in the City of Industry at 37.3 percent, just over one-third of the city's total population. However, the poverty levels in all six study-area census tracts are low, ranging from 2.4 to 8.6 percent.

Because the study area does include a higher percentage of minority populations compared with the cities and county and also pockets of low-income individuals, an environmental justice analysis is warranted.

Environmental Consequences

Construction Impacts

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no roadway construction associated with reconfiguration of the overcrossing would occur. The No-Build Alternative would maintain existing conditions, and there would be no permanent impacts. The exiting congestion conditions would continue to affect the general and Environmental Justice populations. Therefore, no temporary construction-related or long-term operational environmental justice impacts would occur with project implementation.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Construction of either of the proposed Alternatives would result in temporary impacts such as short-term traffic congestion resulting from lane closures, and air quality impacts from construction activities (please see Section 2.2.6, Air Quality, for further discussion of air quality impacts). These impacts would occur for all drivers and pedestrians traversing the project area and would not be limited to minority or low-income populations. Therefore, impacts to minority and low-income populations within the project area would not be disproportionate or adverse. Construction impacts would be temporary in nature. Construction-related traffic impacts would be reduced with implementation of mitigation measure COM-1, above, development of a TMP, which would be implemented for the duration of construction. Mitigation measure COM-1 would be effective for all populations in the study area, including minority and low-income populations. Construction-related air quality impacts would be reduced through compliance with South Coast Air Quality Management District's (SCAQMD) Rule 403 requirements, adherence to all best management practices (BMPs) and construction guidelines of all applicable jurisdictions, and compliance with adopted 2007 Air Quality Management Plan (AQMP) emissions control measures.

Minority or low-income populations identified in the project area would not be disproportionately affected by construction of the proposed project, as determined above.

Operational Impacts

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

As identified above, there are higher levels of minority populations (Asian populations), within the study area, specifically, in the City of Diamond Bar (52.5 percent) and all the study area census tracts (ranging from 34.6 percent to 65.7 percent). The low-income populations are low within the City of Diamond Bar (5.6 percent) and county (16.3 percent), and are somewhat higher in the City of Industry (37.3 percent). However, it is not anticipated that the proposed project would result in disproportionately high or adverse impacts to those areas containing higher levels of minority and low-income populations. On the contrary, the project addresses existing circulation problems within the vicinity of the community, and would result in beneficial impacts to the community as a result of the proposed freeway improvements. Increased weaving distances would also be a beneficial impact, particularly in the portions of the project currently experiencing queue spillback onto the freeway at the eastbound off-ramp at Grand Avenue, and congestion and accident rates resulting from the existing short weave conditions on SR-57/SR-60. The proposed project would not result in any displacements; therefore, would not divide a minority population or impact the economic vitality of these populations. The proposed project is expected to reduce congestion and improve safety for all populations within the study area.

Minority or low-income populations identified in the project area would not be disproportionately affected by operation of the proposed project, as determined above.

Avoidance, Minimization and/or Mitigation Measures

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

2.1.4 Utilities/Emergency Services

2.1.4.1 Affected Environment

Water Supply

The City of Industry is served by five water districts: San Gabriel Valley Water, Suburban Water Systems, Rowland Water District, La Puente Valley Water District, and Walnut Valley Water District. The City of Diamond Bar is served by the Walnut Valley Water District. The project site is within the Walnut Valley Water District[24] service area. The Walnut Valley Water District's water supply consists of imported water purchased from the Metropolitan Water District (MWD) of Southern California, a regional wholesaler of imported surface water. MWD owns and operates the Weymouth Water Treatment Plant located in the city of La Verne. The Walnut Valley Water District, through its designated wholesale agency Three Valleys Municipal Water District (TVMWD), purchases a blend of treated Colorado River and State Water Project (SWP) water from the Weymouth plant. When surplus water is available, the District is also able to purchase water treated by TVMWD at its Miramar Water Treatment Plant located in the city of Claremont. TVMWD purchases raw SWP water from MWD and treats and sells it to retail water purveyors.

The City of Industry's Water Efficient Landscape Guidelines (Chapter 13.18) include water conservation requirements regarding landscaping, irrigation, cleaning, and water recreational facilities. City of Diamond Bar Municipal Code 8.14 details landscape water conservation standards to promote water conservation in accordance with Assembly Bill 1881, which mandates all local agencies to adopt the water-efficient landscape ordinance prepared by the California Department of Water Resources.

Solid Waste

In the City of Diamond Bar, solid waste collection for residential properties is provided by Waste Management, Inc. Waste collection for business properties is provided by Valley Vista Services.[25] Valley Vista Services also provides solid waste collection services for the City of Industry.[26] Solid waste collection for residential properties as well as the commercial and industrial establishments within the City of Industry and the City of Diamond Bar is currently provided by the Sanitation Districts of Los Angeles County (LACSD). The LACSD recycling

[24] Walnut Valley Water District. 2012. District web site. Available: <http://wvwd.com/>. Accessed: May 23, 2012.
[25] City of Diamond Bar. 2009. *Storm Water*. Available: <http://www.ci.diamond-bar.ca.us/Index.aspx?page=432>. Accessed: June 20, 2012.
[26] Valley Vista Services. n.d. Company web page. Available: < http://www.valleyvista.net>. Accessed: June 20, 2012.

facilities nearest the project site are located at Puente Hills Landfill in Whittier. This is the primary receiving landfill for waste from both the City of Industry and the City of Diamond Bar. Presently, Puente Hills Landfill currently accepts 6,700 tons per day and is estimated to have approximately 16.6 million cubic yards of remaining capacity, with an expected closure date of October 2013.[27] This is equal to 53 months of disposal capacity.

Green waste represents a significant portion of the residential waste stream. Diversion of this material to a beneficial reuse continues to be an important program at the Puente Hills Landfill for conserving use of onsite soil for cover, for conserving landfill capacity, and for supporting cities efforts to achieve AB 939 waste diversion goals. Currently, over 75 cities participate in the Puente Hills Landfill's green waste program to meet state-mandated waste diversion goals.

An asphalt recovery program has been in place at Puente Hills Landfill for many years. Asphalt is compacted and reused as road base or as base for winter deck operating areas. Approximately 252,500 tons of asphalt were recovered and reused during the period of July 1, 2010, through June 30, 2011.

Storm Drains

The storm drain system in the City of Industry is made up of pipes and channels owned by the city and the county. Surface runoff from most of the city drains to the storm drain system. It is later discharged into the Pacific Ocean. Similarly, the City of Diamond Bar maintains a storm drain system that has been designed to prevent flooding by carrying rainwater away from city streets and directly to the ocean and/or surface water bodies and courses. Flood control for the City of Diamond Bar is provided by the Los Angeles County Flood Control District.

Stormwater runoff from the project site presently drains to Diamond Bar Creek, which confluences with San Jose Creek approximately 2.7 miles downstream. San Jose Creek is tributary to the San Gabriel River, which is approximately 10.2 miles downstream from the Diamond Bar Creek confluence. The San Gabriel River flows through the San Gabriel Estuary and into San Pedro Bay from the Los Angeles/Long Beach Harbor and then into the Pacific Ocean. The San Gabriel River's headwaters are in the San Gabriel Mountains. The river, which traverses through the San Gabriel and Morris Reservoirs, collects runoff from a highly urbanized watershed before emptying into the Pacific Ocean. Currently, stormwater runoff from within the project limits is untreated, flowing directly to the ocean. Drainage facilities in the project area are discussed in greater detail in Section 2.2.2, Water Quality and Stormwater Runoff.

Electricity

Electricity is supplied to the project area by Southern California Edison (SCE). SCE provides power to approximately 14 million individuals; 285,000 commercial, industrial, and non-profit customers; and 180 cities in 11 counties, encompassing 50,000 square miles in central,

[27] Sanitation Districts of Los Angeles County. 2012. District web site. Available: <http://www.lacsd.org/civica/filebank/blobdload.asp?BlobID=6872>. Accessed: May 24, 2012.

coastal, and Southern California. SCE is the largest subsidiary of Edison International, with a system of 16 utility interconnections, 4,990 transmission and distribution circuits maintained by 425 transmission and distribution crews and more than 15,500 employees. Currently, 16.7 percent of the electrical power that SCE provides is from alternative and renewable energy sources.[28]

Police Protection

The Los Angeles County Sherriff's Department provides police protection and traffic enforcement services in the City of Industry and the City of Diamond Bar. The project site is served by the Walnut/Diamond Bar Sheriff's Station, which is the nearest station to the project site. The station, which is located 1.5 miles north of the Grand Avenue interchange at 21695 Valley Boulevard in the City of Walnut, has a staff of 111 sworn deputies and 40 professional personnel. In addition, the California Highway Patrol (CHP) serves the state highway system, including SR-57 and SR-60. The sheriff's secondary responding unit in the project area is the City of Industry station, located approximately 7.75 miles west of the project site at 150 North Hudson Avenue. That station has a staff of 200 sworn deputies and 50 professional personnel. Response time to the project site and its vicinity is typically several minutes but well within established, acceptable response times, which are as follows: Emergency Response: 10 minutes; Priority Response: 20 minutes; and Routine Response: 30 minutes (Los Angeles County Sherriff's Department).

Fire Protection

The Los Angeles County Fire Department (LACFD) provides all fire protection and paramedic services for the City of Industry and the City of Diamond Bar. LACFD Station No. 120, located approximately 0.75 mile southeast of the project site at 1051 South Grand Avenue, is the primary responder to the project area. Station No. 120 is in Battalion 19 and is LACFD's headquarters for the Diamond Bar, Walnut, and Pomona area. The station houses one engine, one patrol unit, one water tender, and one vehicle for the battalion chief. A total of 15 firefighters work at the station over three separate shifts.[29] The average response time for Station No. 120 is approximately 5 minutes, which is in accordance with national guidelines for the first responding unit for fire and emergency medical services (EMS) responses; 8 minutes is the standard for advanced life support (paramedic) units in urban areas.[30] Depending upon availability and severity of the emergency, the secondary responding unit to the project area would be Station No. 121, located approximately 2.5 miles northeast of the project site at 346 Armitos Place.[31] There are also plans to build a new LACFD station approximately 1.2 miles north of the project site at Garcia Lane and Grand Avenue. These plans are contingent upon continued LACFD negotiations with the City of Industry.

[28] Southern California Edison. 2012. *About SCE*. Available: <http://www.sce.com/AboutSCE/CompanyOverview/default.htm>. Accessed: May 21, 2012.
[29] Engineer Bob Ladjevic, Battalion 19, Station No. 120. Telephone interview conducted August 2009.
[30] Frank Vidales, Acting Chief, Forestry Division, Prevention Services Bureau, Los Angeles County Fire Department. Response to questionnaire dated October 22, 2009.
[31] Ibid.

Environmental Consequences

Alternative 1, No-Build Alternative

Water Supply

The No-Build Alternative would not result in freeway improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange and, therefore, would not affect water supplies or conveyance systems because no water consuming activities related to alteration of the freeway confluence would take place.

Solid Waste

The No-Build Alternative would not result in the generation of solid waste. Activities related to alteration of the freeway confluence would not take place; therefore, landfill and solid waste disposal sites would not be affected.

Storm Drains

The No-Build Alternative would not result in freeway improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange. No construction would take place; therefore, reduced-quality runoff would not result. Storm drains would not be affected.

Electricity

The No-Build Alternative would not result in freeway improvements to the SR-57/SR-60 confluence. No construction would occur; therefore, this alternative would not increase the use of electricity. The supply of electricity and the electrical distribution systems would not be affected.

Police Protection

The No-Build Alternative would not result in construction activities that would close the freeway confluence at Grand Avenue Interchange; therefore, there would be no temporary effect on existing police vehicle access and response times. The No-Build Alternative does not propose any improvements and therefore, would not result in any impacts to police protection. However, continued congestion on the project segment of SR-57/SR-60 under the No-Build Alternative would potentially result in increased delays for emergency services providers in the future.

Fire Protection

The No-Build Alternative would not result in construction activities that would close the freeway confluence at Grand Avenue Interchange; therefore, there would be no temporary effect on existing fire and emergency vehicle access and response times. The No-Build Alternative does not propose any improvements and therefore, would not result in any impacts to fire protection. However, continued congestion on the project segment of SR-57/SR-60 under the No-Build Alternative would potentially result in increased delays for emergency services providers in the future.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Water Supply

Construction

Alternative 2 would result in improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange. Construction would require the occasional use of water for mixing concrete, washing equipment and vehicles, dust control, and other activities. The amount of water used during construction on a daily basis would be minimal.

Construction would require relocation of a total of 800 feet of 12-inch asbestos cement pipe (ACP) water lines in 20-inch steel casings for the Grand Avenue bridge construction. ACP would be replaced with polyvinyl chloride (PVC) lines. Furthermore, a total of 700 feet of 12-inch PVC water lines in 20-inch steel casings and 2,000 feet of 12-inch PVC reclaimed water lines in 20-inch steel casings would be relocated for Grand Avenue bridge construction. Existing fire hydrants and water meters would be relocated as appropriate.

During construction, the water line would be protected in place to prevent damage or disruption. With such protection, construction would not adversely affect water supplies or conveyance systems. Implementation of construction-period measures UT-1 through UT-3 would ensure that impacts on utilities would not occur during construction. Therefore, no substantial adverse utility impacts are expected.

Operation

Operation of the improved SR-57/SR-60 freeway confluence at the Grand Avenue interchange would not require new water supplies. The proposed project would not result in a net increase in landscaped area within the project area. The proposed project would require landscaping to be removed along Golden Springs Drive, on the slopes of SR-60 by the Ayers Hotel, and on the slopes and the median on Grand Avenue. New landscaped areas would include the eastbound loop ramp and the bio-swale along SR-60. Therefore, there would be no net increase in the amount of water used for landscaping within the project area. Existing fire hydrants and water meters would be relocated where appropriate. However, the relocated pipes, fire hydrants, and water meters would function as they do currently. Alternative 2 would not result in long-term substantial adverse effects on water supply.

Solid Waste

Construction

Construction under Alternative 2 would generate solid waste from bridge structure and pavement demolition.

The proposed project would comply with any diversion requirement and haul diverted waste to the City of Industry's contracted construction and demolition recycling facility. Puente Hills Landfill has sufficient capacity to accommodate the remaining solid waste not diverted to a recycler. This facility helps Los Angeles County meet the 50 percent diversion rate required under California law.

Provided that the project would comply with the solid waste standards set forth by the City of Industry, it is not expected that construction of the proposed project would result in any substantial adverse effects on landfills or solid waste disposal systems.

Operation

The improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange would operate as a transportation facility and would not generate solid waste. As previously stated, the proposed project would not result in an increase in the total landscaped area; therefore, no increase in landscape waste would occur as a result of the project. Thus, no long-term adverse effects related to solid waste disposal or landfill capacity would occur.

Storm Drains

Construction

Construction activities would not demolish or disrupt any part of the City of Industry's existing storm drain system. Additionally, as discussed in Section 2.2.2, Water Quality and Stormwater Runoff, BMPs would be implemented to control discharges into the storm drain system during construction. With avoidance and implementation of BMPs, no substantial adverse impacts on storm drains or the City of Industry's storm drain system would occur.

Operation

The drainage system that would serve the proposed project improvements would be the same system that currently serves the area. Stormwater runoff from the freeway improvements would drain to an existing storm drain inlet, which presently drains to Diamond Bar Creek. Runoff at the westbound off-ramp and the loop on-ramp currently drains directly into Diamond Bar Creek through a series of drainage inlets in the shoulders. The proposed project would incorporate an Austin sand filter to pre-treat runoff from Grand Avenue and portions of the off-ramp and loop on-ramp. The existing inlets currently discharge into Diamond Bar Creek. The proposed project would divert this flow to be pre-treated with use of an existing bio-swale before discharging to Diamond Bar Creek.

The type and amount of stormwater generated would not be substantially different from existing conditions. Existing storm drains would have sufficient capacity to accommodate the surface drainage needs of the freeway improvements; therefore, no new storm drains would be constructed. Operation of the improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange would not adversely affect storm drains.

Electricity

The proposed project would require relocation of overhead and underground distribution lines and an overhead transmission line.

Construction

Minimal amounts of electricity would be consumed to construct the improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange. No new off-site power sources would be required to provide the energy needed for the proposed project. However, electrical infrastructure improvements would be minor and include the following:

- A 66-kilovolt (kV) overhead transmission pole located south of the freeway and west of the Grand Avenue interchange would be relocated because of the proposed eastbound SR-60 Grand Avenue off-ramp.
- A total of 800 feet of underground 12 kV distribution lines along southbound Grand Avenue would be relocated for Grand Avenue bridge construction.
- A total of 650 feet of underground 12 kV distribution lines along Grand Avenue and north of the westbound freeway ramps would be relocated to the edge of Grand Avenue.
- A total of 1,550 feet underground 12 kV distribution lines located south of the eastbound SR-57/SR-60 Grand Avenue on-ramp, along northbound Grand Avenue south of the interchange and along westbound Golden Springs Drive, would be relocated to the edge of proposed roadway.
- A total of 2,700 feet overhead distribution lines located south of the eastbound SR-57/SR-60 Grand Avenue on-ramp would be relocated south outside of the Caltrans right-of-way.
- A total of 800 feet of overhead distribution lines located south of the freeway and west of the Diamond Bar Boulevard interchange would be relocated because of the proposed bypass connector to SR-60.
- A total of 900 feet of overhead distribution lines located south of the freeway and east of the Diamond Bar Boulevard interchange would be relocated because of the proposed bypass connector to SR-60.

During relocation of the above-mentioned electrical lines, outages may occur at residences and businesses served by the power grid. It is anticipated that the outages would not exceed 4 hours. It would be the responsibility of the project contractor to notify residents and business owners in advance of any outages that may occur.

None of the electrical conduits would require protection in place. Implementation of construction-period measures UT-1 through UT-3 would ensure that impacts on electrical services would be minimized during construction. Therefore, no substantial adverse effects related to electricity would occur.

Operation

Operation of the improvements to the SR-57/SR-60 confluence at the Grand Avenue interchange would not introduce substantial energy-consuming features. Twelve additional traffic signals and 30 new light fixtures would be installed. In terms of total energy consumption on a regional

scale, electricity consumed by the proposed light fixtures would represent a negligible increase. Consequently, operation of the freeway improvements would not result in substantial adverse effects related to electricity or electrical infrastructure.

Police Protection

Construction

During construction of the proposed project, local road, ramp, and freeway closures would intermittently affect through traffic over a period of approximately 36 months. Any temporary closures could limit access to adjacent areas because of increased traffic from construction-related vehicle trips, demolition, and construction activities.

Police services could be minimally affected should congestion and/or traffic incidents occur. Furthermore, nighttime lane and ramp closures related to the proposed project are anticipated. Should they occur adjacent to residences or businesses, emergency access to those locations could be impaired. However, Los Angeles County Sherriff's Department personnel would be informed of the construction schedule and any proposed lane closures prior to construction. As part of the proposed project, consultation with the Los Angeles County Sherriff's Department would occur to ensure that road closures would not substantially disrupt emergency services in the surrounding area. Additionally, as described in Section 2.1.5, Traffic and Transportation/ Pedestrian and Bicycle Facilities, the proposed project would include the preparation of a traffic management plan to address emergency access during construction. Implementation of construction-period measure UT-4 would ensure that impacts on police protection and emergency services would be minimized during construction. Consequently, construction impacts on community police protection services would not be substantial.

Operation

The proposed project would not result in additional demand for police services. The proposed project is designed to correct existing deficiencies in the existing roadway system. To the extent that this alternative achieves these objectives, the operational impacts on police protection, and emergency service access and response times in the local project area would be beneficial. As such, impacts would be limited to the construction period and no operational impacts would occur related to utilities and emergency services. The Los Angeles County Sherriff's Department would continue to provide the same level of protection on a per capita basis as what currently exists. Therefore, no permanent police protection or emergency service impacts are expected. Thus, operation of the proposed project would not adversely affect police protection services.

Fire Protection

Construction

During construction of the proposed project, there would be intermittent local road, ramp and freeway closures over the course of the 36-month construction schedule. The limited road closures could affect fire and paramedic emergency access and response times. Temporary road closures could affect LACFD Station No. 120. However, as part of the proposed project, consultation with LACFD would occur to ensure that road closures would not substantially

disrupt emergency services in the surrounding area. Additionally, as described in Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, and discussed below, the proposed project would include the preparation of a TMP to address emergency access during construction.

The TMP will detail detour routes and other measures to manage traffic during construction (please see Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of this EIR/FONSI). Prior to construction, and for the duration of the road closures, detour routes would be coordinated with the LACFD. Given that all project-related traffic disruptions would be temporary, lasting only for the period of construction, and that alternate routes are available, impacts on fire protection services would be minor. Implementation of construction-period measure UT-4 would ensure that impacts on fire protection and emergency services would be minimized.

Operation

Operation of the improvements to the SR-57/SR-60 confluence at Grand Avenue Interchange would not affect the provision of fire protection services or emergency medical services, nor would it affect response times. The proposed project does not include the construction of new residential, commercial, or industrial land uses that would require additional fire protection/ emergency services or utilities. No permanent fire protection or emergency service impacts are expected. The proposed project is designed to correct existing deficiencies in the existing roadway system. To the extent that this alternative achieves these objectives, the operational impacts on fire protection, and emergency service access and response times in the local project area would be beneficial. Thus, there would be no long-term adverse effects on fire protection services.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction and Operation

Construction and operation impacts related to water supply, solid waste, storm drains, electricity, police protection, and fire protection would be similar to the impacts anticipated to occur under Alternative 2.

Avoidance, Minimization, and/or Mitigation Measures

Adverse impacts to utilities or emergency services would not occur as a result of operation of the proposed project. Construction-period measures UT-1 through UT-4 (below), which outline standard practice for all Caltrans projects, would minimize the potential for impacts to utilities and emergency services during the construction of either build alternative.

Water Supply

> **UT-1**: Design, construction, and inspection of utilities that will need to be relocated for the project shall be undertaken in accordance with Caltrans requirements. The Department shall coordinate with the affected service provider in each instance to ensure that work is during times of low demand and in accordance with the appropriate requirements and criteria. Affected businesses and residents shall be notified prior to disruption.

UT-2: Coordination with the utility providers shall be initiated during the through final design and construction, consistent with Caltrans requirements.

UT-3: Coordination efforts shall include planning utility rerouting, identifying potential conflicts, ensuring that construction of the proposed project minimizes disruption to utility operations, and formulating strategies for any unanticipated problems that may arise during construction.

Solid Waste

No mitigation measures are required.

Storm Drains

No mitigation measures are required.

Electricity

See UT-1 through UT-3, above.

Police Protection

UT-4: Caltrans will coordinate with emergency service providers to avoid emergency service delays by ensuring that all providers are aware well in advance of temporary road closures and detours.

Fire Protection

See UT-4, above.

2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.5.1 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 Code of Federal Regulations [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 users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility is federally-assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA

has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to Federal-aid projects, including Transportation Enhancement Activities.

2.1.5.2 Affected Environment

A traffic study was prepared for the proposed project in December 2011. The analysis that follows is based on that traffic study. The traffic study analyzed intersection and freeway segment operations for existing conditions as well as 2017 and 2037 conditions under each of the three alternatives.

The project area consists of the SR-57/SR-60 confluence at the Grand Avenue interchange in Los Angeles County. A more detailed discussion of the project area is provided below.

State Route 57

SR-57 (Orange Freeway) is a major north/south freeway. SR-57 originates in the City of Orange in Orange County and terminates in the City of Glendora in Los Angeles County. The route spans approximately 25 miles and serves ten cities, including Orange, Anaheim, Fullerton, Brea, Diamond Bar, Industry, Walnut, Pomona, San Dimas, and Glendora. In general, SR-57 is an eight-lane freeway. It also provides carpool lanes in both directions south of SR-60. In the project area, it has the same alignment as SR-60. This combined route has 12 to 14 travel lanes, depending on the location.

State Route 60

SR-60 (Pomona Freeway) is included in the National Highway System (NHS) and has been recognized as an essential link of a multi-modal transportation network. SR-60 is an interregional freeway, originating at Interstate 5 in the East Los Angeles area of Los Angeles County and extending to Interstate 10 in Riverside County. The route spans approximately 68 miles. In general, SR-60 is an eight-lane freeway; however, the segment of SR-60 in the vicinity of Grand Avenue is a 12- to 14-lane freeway. Carpool lanes extend from the confluence area west to Interstate 605.

Grand Avenue

Grand Avenue is a major north/south arterial road that serves the cities of Industry, Diamond Bar, Walnut, Chino Hills, and West Covina. The existing SR-60/Grand Avenue interchange has a diamond configuration on the south side of the interchange and a cloverleaf configuration in the northeast quadrant. Grand Avenue is currently a four-lane arterial north of the interchange with SR-60 and a six-lane arterial to the south, but plans call for it to be a six- to eight-lane arterial highway upon completion of the proposed improvements.

To the north of the SR-57/SR-60 overcrossing, Grand Avenue has four travel lanes before reaching the southbound ramps, at which point it widens to 84 feet to accommodate two left-turn lanes. Currently, a southbound vehicle on Grand Avenue must use one of two-left turn lanes to

access the southbound SR-57/westbound SR-60 on-ramp. Land adjacent to Grand Avenue is largely vacant north of SR-57/SR-60. Grand Avenue extends north over two railroad crossings to a major intersection with Valley Boulevard, then continues north to the City of West Covina and beyond. On-street parking is not allowed on Grand Avenue.

South of the interchange, Grand Avenue maintains six lanes to Diamond Bar Boulevard. It reduces to four lanes southeast of Diamond Bar Boulevard, then continues east to the City of Chino Hills. Both legs of Grand Avenue are strategically located to serve relatively long trips. It is one of the few arterials that pass through the Industry Hills to the north and the Chino Hills to the south and east. Grand Avenue carries significant traffic volumes from the SR-60 interchange area to the City of Chino Hills, providing an alternative route to SR-60.

The existing lane geometry for the SR-60/Grand Avenue interchange is shown in Figure 2-6.

Existing Interchange Capacity

Presently Grand Avenue over SR-60 has a compact diamond interchange configuration on the eastbound direction of SR-60, and a cloverleaf interchange configuration on the westbound direction of SR-60. The Grand Avenue Interchange is currently approaching capacity and experiencing level of service deficiencies at ramp intersections that would adversely affect the mainline flows in the future.

Existing Freeway Capacities

SR-60 and SR-57 are major interregional freeways linking the San Gabriel Valley cities and the Inland Empire with Los Angeles County and Orange County. The forecasted population and employment growth between the years 2008 and 2035 on SR-60 is expected to result in traffic growth approximately 25 percent higher than the existing volumes for the mainline and proposed/new HOV lanes based on the 2008 traffic forecast from the SCAG travel forecasting model. The 2035 forecasted traffic would result in further deficiencies in the mainline freeway demand to capacity ratio and an estimated LOS on the mainline of F westbound and F eastbound.

SR-57 terminates as it approaches SR-60 from Orange County and resumes approximately one mile east of the Grand Avenue Interchange on SR-60, heading north to Pomona. Along the 2-mile segment of the SR-60 confluence segment that carries traffic for both routes through the Grand Avenue interchange, SR-60 is heavily congested during the AM and PM peak periods.

Short Weaves

There are operational deficiencies on SR-60 between the merge and diverge points with SR-57. The deficiencies are primarily due to the short weaving length provided between the Grand Avenue interchange and merges and diverges of the two freeways. The Grand Avenue interchange is located 1,800 feet east of the merge between northbound SR-57 and eastbound SR-60. The eastbound SR-60 traffic headed for the Grand Avenue exit ramp must make a three-lane weave in this distance across lanes that are heavily used by SR-57 traffic in the confluence area. The forecast traffic for the eastbound off-ramp at Grand Avenue is expected to increase the length of the queue that would exceed the length of the single exit lane to Grand Avenue.

A similar short weaving condition exists at the eastbound on-ramp from Grand Avenue to SR-60/SR-57. The on-ramp traffic from Grand Avenue must make a three-lane weave across traffic lanes that serve SR-57 to continue eastbound on SR-60, thus creating a bottleneck for northbound SR-57 traffic. In the westbound direction of SR-60, a lane drop occurs on the SR-57 connector just before the merge with the westbound SR-60 mainline. The westbound SR-60 traffic exiting on Grand Avenue must make a two-lane weave across the traffic on this connector in order to exit at Grand Avenue. The added weaving traffic further reduces the capacity of the two-lane connector for SR-57.

Existing Lane Drop

This segment of SR-60 maintains four through lanes in each direction. The northbound SR-57 is reduced from three lanes to two lanes as it merges with the eastbound SR-60 at the west end of the project, thus providing a total of six lanes on eastbound SR-60 at the Grand Avenue Interchange. Similarly, southbound SR-57 is reduced from three lanes to two lanes as it merges with westbound SR-60, thus westbound mainline SR-60 carries a total of six lanes through the Grand Avenue Interchange. At the peak AM and PM hours, the lane drops on SR-57 cause bottleneck conditions on SR-60 and SR-57 which result in long delays beyond the confluence segment on both freeways. The mainline freeway overcapacity results in travel delays, with a level of service (LOS) of F over many hours of the day (approximately LOS F westbound and eastbound). PM peak-hour mainline queues frequently back up south of Pathfinder Road on SR-57 and west of Fairway Drive on SR-60 for three to four hours per day due to deficiencies at the confluence of SR-57 and SR-60. The existing geometric and operational deficiencies present potential safety concerns. Existing deficient weaving distances between the ramps and SR-57 connectors, plus the lack of storage capacity on the ramps contribute to operational deficiencies.

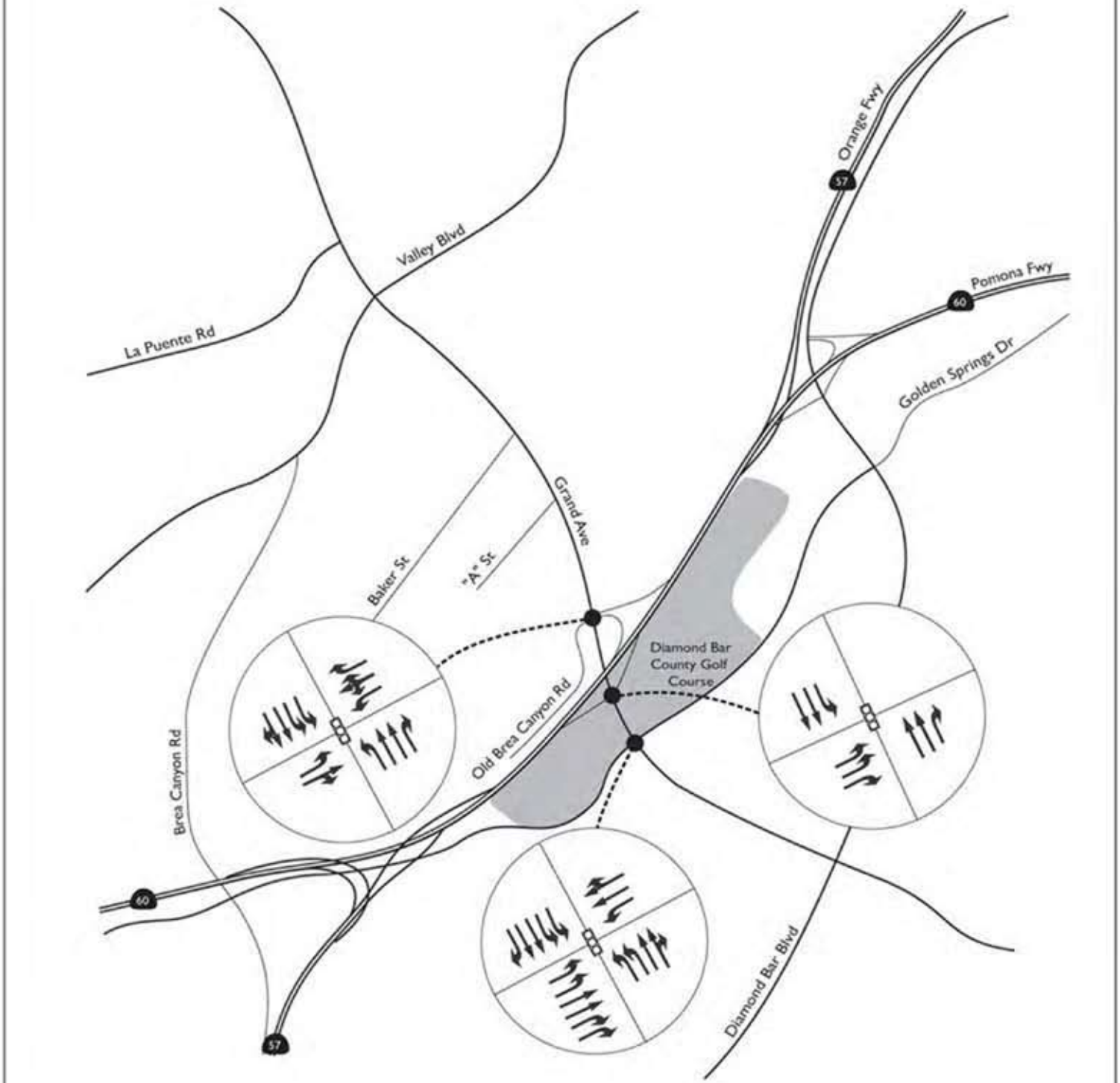
The traffic analysis identified the area intersections that would be most likely to be affected by implementation of the various project alternatives. Those intersections are listed below:

- Grand Avenue at SR-60 Eastbound Ramps
- Grand Avenue at SR-60 Westbound Ramps
- Grand Avenue at Golden Springs Drive

Mainline traffic and weaving conditions were analyzed using a freeway simulation model. The AM model focused on SR-60 from Philips Ranch Road to Brea Canyon Road and along SR-57 from Sunset Crossing to Pathfinder Road. The PM model focused on a longer freeway in order to properly simulate more extensive queuing. The PM model included SR-60 from Azusa Avenue to Phillips Ranch Road and alongSR-57 from Tonner Canyon Road to Temple Avenue.

Existing Turning Movement Volumes

Existing turning movement volumes for the AM and PM peak periods were obtained at all project intersections (see Figures 2-7 and 2-8). The existing turning movement volumes were collected by a traffic counting specialist firm, National Data and Surveying Services. Average Daily Traffic (ADT) volumes were also collected for this project on Grand Avenue immediately north of the freeway interchange. The 2009 ADT volumes for Grand Avenue, SR-60, and SR-57 in the project vicinity are shown in Table 2-12.



LEGEND

- Study Intersection
- Signalized Intersection
- Lane Geometry

N

Not to Scale

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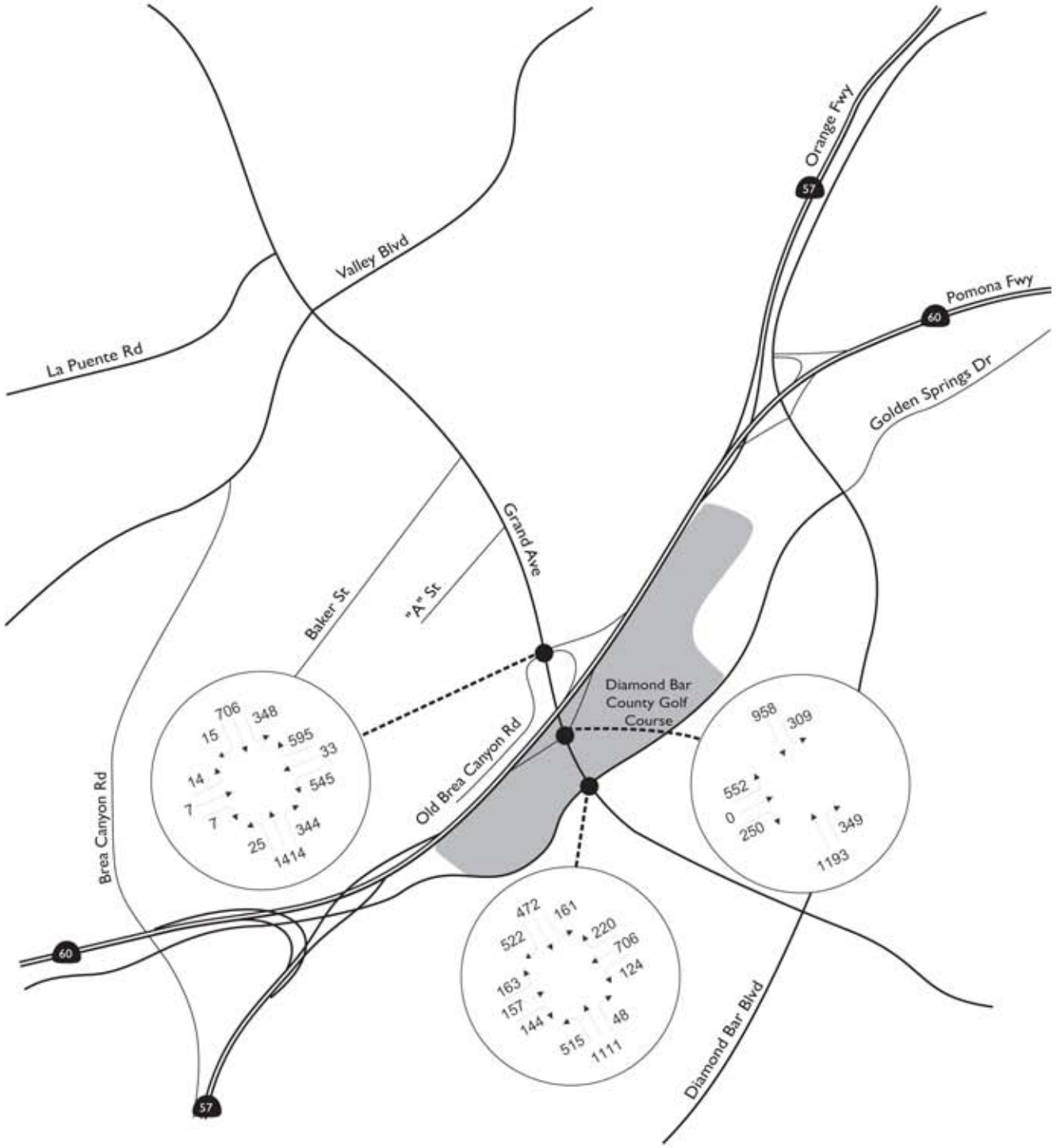
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-6

City of Diamond Bar/City of Industry

Existing Lane Geometry



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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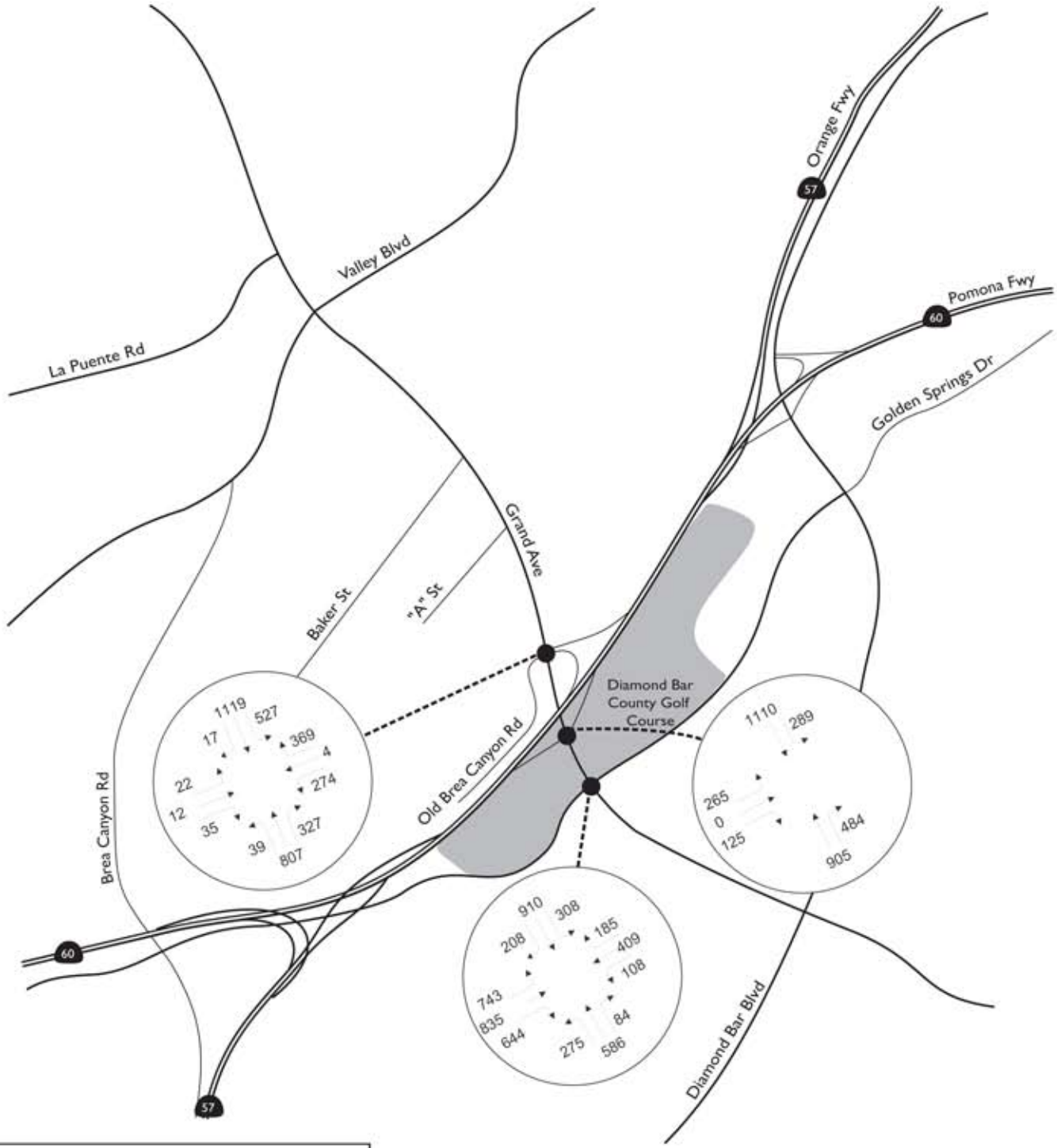
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-7

City of Diamond Bar/City of Industry

Existing Traffic Volumes, AM Peak Hour



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-8

City of Diamond Bar/City of Industry

Existing Traffic Volumes, PM Peak Hour

Table 2-12: Existing Daily Traffic Volumes

	Average Daily Traffic	AM Peak Hour	PM Peak Hour
Grand Avenue, North of SR-60 WB Ramps	30,920	3,092	2,861
Grand Avenue, Between SR-60 WB and SR-60 EB Ramps	31,500	3,150	2,572
Grand Avenue, South of SR-60 EB Ramps	27,500	2,697	2,815
SR-60 Freeway west of SR-57	213,000	9,135	10,245
SR-60 Freeway between Grand Avenue Ramps	340,000	17,946	18,272
SR-60 Freeway east of SR-57	223,000	11,453	10,394
SR-57 South of SR-60	202,000	10,312	9,293
SR-57 North of SR-60	129,000	8,324	9,317
WB = westbound; EB = eastbound Source: Traffic Study Report, 2011			

Safety

A detailed discussion of existing safety conditions is included in Chapter 1, Section 1.1.2.1, under the System Safety Needs subheading. Traffic Accident Surveillance and Analysis System (TASAS) data, provided by Caltrans District 7, cover the 36-month period from October 1, 2007, to September 30, 2010. Table 1-12 compares fatal, fatal-plus-injury, and total accident rates with the average rate for the mainline per million vehicle miles as well as for the ramps and connectors per million vehicles. In addition, data for potential investigation locations along northbound SR-57 (post mile R4.296 to post mile R4.496) are included in Table 1-13.

Freeway mainline and ramp counts were obtained by traffic count specialist firms, Traffic Data Services of Santa Ana and True Counts of San Diego. Existing traffic volume data and truck survey data can be found in the traffic study Appendix G of this report.

Table 2-13 shows existing traffic conditions. As shown in Table 2-13, the three intersections currently operate at acceptable levels of service at all study time periods. Level of service calculation worksheets for existing traffic condition can be found in the traffic study Appendix G.

Traffic data used in the traffic analysis for the freeway mainline and supplemental interchanges were obtained from a variety of sources. Freeway mainline counts were obtained by Traffic Data Services and True Counts at appropriate locations on each freeway to precisely determine flow rates at the model entry and exit points and to calibrate to existing flow rates near the confluence. Ramp data was obtained from traffic counts taken for the Industry Business Center/NFL stadium EIR at relevant interchanges, and additional data for the mainline and for ramps was obtained from the UC Berkeley/Caltrans PEMS online traffic database. Both freeway models require input of counts in 15-minute interval time slices to properly reflect the build-up and dissipation of traffic queues throughout the peak period. Level of service results for freeway mainline and weaving conditions were obtained from the VISSIM model for each modeled project alternative. The model was also used to refine project geometrics in areas with intense lane changing and weaving.

For freeway segments and merge/diverge areas, Caltrans uses the level of service thresholds derived from the Highway Capacity Manual (HCM) as shown in Table 2-14, below.

Table 2-13: Existing Traffic Conditions

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay[c]	Level of Service	Queue Length	Delay[c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp[a]	283 ft	42.2	D	192 ft	20.1	C
Grand Ave. at SR-60 EB Off-Ramp[a]	220 ft	16.2	B	88 ft	11.3	B
Grand Ave. at Golden Springs Drive [b]	349 ft	38.6	D	306 ft	54.0	D

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011

Table 2-14: Freeway Segment Levels of Service

Level of Service	Weaving Segment Density (veh/mi/ln)[a]	Merge/Diverge Segment Density (veh/mi/ln)[a]
A	< 10.0	< 10.0
B	10.0–20.0	10.0–20.0
C	20.0–28.0	20.0–28.0
D	28.0–35.0	28.0–35.0
E	35.0–43.0	> 35.0
F	> 43.0	Demand > Capacity

[a] Expressed in vehicles per mile per lane
Source: Traffic Study Report, 2011

Existing Weaving Conditions, Eastbound

Tables 2-15 and 2-16 show the results of the weaving level of service analysis for eastbound SR-60 and northbound SR-57 traffic under existing conditions. The weaving analysis shows that the weave between Grand Avenue and the freeway split to the east is deficient, Level of Service F, in the PM peak period. Field observations showed extremely poor traffic conditions eastbound in the PM peak, and the traffic density generally appeared to be much higher than indicated in the analysis.

Table 2-15: Eastbound SR-60 Existing Traffic Conditions

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,296	56	19	B
SR-57 SB Connector Ramp to HOV Lane Start	BF	5,055	60	17	B
HOV Lane Start to SR-57 Merge	BF	5,055	62	20	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	9,371	61	21	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	8,569	52	29	D
Grand Avenue On-Ramp Merge Segment	WS	9,227	45	34	D
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	9,227	49	32	D
Additional Lane Opening to SR-57 NB Diverge	WS	9,227	56	23	C
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	4,791	61	20	C

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	6,439	57	20	B
SR-57 SB Connector Ramp to HOV Lane Start	BF	5,374	59	18	C
HOV Lane Start to SR-57 NB Merge	BF	5,374	61	22	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	9,805	17	85	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,415	14	117	F
Grand Avenue On-Ramp Merge Segment	WS	10,188	14	108	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	10,188	24	72	F
Additional Lane Opening to SR-57 NB Diverge	WS	10,188	47	32	D
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	5,215	61	23	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
NB = northbound; SB = southbound
Source Traffic Study Report, 2011.

Table 2-16: Northbound SR-57 Existing Traffic Conditions

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,316	60	22	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	9,371	61	21	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	8,569	52	29	D
Grand Avenue On-Ramp Merge Segment	WS	9,227	45	34	D
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	9,227	49	32	D
Additional Lane Opening to SR-60 Diverge	WS	9,227	56	23	C
SR-60 EB Diverge to Four-Lane Opening	BF	3,976	62	20	C
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,431	18	89	F
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	9,805	17	85	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,415	14	117	F
Grand Avenue On-Ramp Merge Segment	WS	10,188	14	108	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	10,188	24	72	F
Additional Lane Opening to SR-60 Diverge	WS	10,188	47	32	D
SR-60 EB Diverge to Four-Lane Opening	BF	4,444	61	25	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

In contrast, conditions are not observed to be a serious problem in the AM peak for eastbound traffic. The weaving calculations suggest that there should be significant slowing approaching the SR-57 north leg, however this approach is normally free flowing at satisfactory density and speeds in the AM peak hours. These observations in combination suggest that the weaving methodology applied to the segments may not be accurate or precise. It may also suggest that the weaving behavior is not the primary factor that determines level of service in the area, especially in the PM peak.

According to the traffic observation, a large queue of eastbound vehicles regularly extends back for approximately 10 miles on SR-60 and for about 5 miles on SR-57 during the PM peak period. Analysis suggests that the queue may be due primarily to the configuration of the SR-57 northbound exit from the combined route. While three lanes are provided on the SR-57 northbound connector, the three lanes are fed by only two lanes on the SR-57/SR-60 roadway until only about 500 feet before the divergence. Due to the short length of auxiliary lane present, the SR-57 connector functions generally as a two lane exit. However the observed volumes using the SR-57 connector are higher than a two-lane exit can efficiently serve. These traffic levels result in a mainline deficiency approaching this exit. The deficiency is more strongly attributed to the lack of capacity than it is to the Grand Avenue weave. This deficiency cannot be calculated by level of service procedures, unless the SR-57 connector is presumed to have only two lanes.

The PM traffic congestion caused by the SR-57 connector east of Grand Avenue also aggravates the weave condition west of Grand. The freeway operates in heavy stop-and-go traffic between the south leg of SR-57 and the Grand Avenue off-ramp. The congestion requires vehicles on SR-60 that need to exit at Grand Avenue to weave through two lanes of dense traffic from the south leg of SR-57 freeway to reach the Grand Avenue off-ramp.

There is a clear bottleneck and chokepoint on the merged SR-57/SR-60 segment in the project vicinity. Traffic generally decongests about 1,500 feet east of the Grand Avenue interchange during the PM peak period. Downstream from the chokepoint, traffic is generally free flowing, both on SR-60 eastbound to beyond SR-71 and on SR-57 northbound to I-10.

The weave from the Grand Avenue eastbound on-ramp to SR-57/SR-60 aggravates the mainline and connector deficiencies in the area by requiring entering vehicles to weave across the two lanes that approach the SR-57 exit in order to reach the SR-60 eastbound through-lanes. The effect of this weave on capacity reduction is less than the effects of the mainline and connector deficiencies. The effects of the eastbound Grand Avenue on-ramp weave are not thought to be as detrimental to overall traffic flow based on the observation that when the on-ramp was temporarily closed for nearby construction, mainline conditions did not improve significantly. PM traffic counts in the confluence area indicate that the six-lane eastbound cross section is carrying less than 80 percent of its theoretical six-lane capacity due to the bottleneck and stop-and-go conditions. According to the traffic analysis, the effective two-lane off-ramp for northbound SR-57 is the primary bottleneck in the vicinity resulting in the 5 to 10 miles of mainline back up to the west and south along the two routes, and is aggravated less consequentially by the Grand Avenue eastbound on-ramp traffic.

Existing Weaving Conditions, Westbound

Tables 2-17 and 2-18 show existing westbound and southbound weaving conditions for SR-60 and SR-57 traffic, respectively. The tables indicate that both segments are at LOS F in the AM peak hour. The westerly segment (near SR-57 south leg) is at LOS F in the AM while the easterly segment (near SR-57 north leg) is at LOS E in the PM. Observed conditions prior to construction match these analysis results reasonably.

Table 2-17: Westbound SR-60 Existing Traffic Conditions

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	6,202	13	107	F
SR-57 SB Merge to Additional Lane Opening	WS	10,550	17	83	F
Additional Lane Opening to Grand Avenue On-Ramp	WS	9,377	37	44	F
Grand Avenue On-Ramp to Additional Lane Opening	WS	10,076	52	28	C
Additional Lane Opening to SR-57 SB Diverge	WS	10,076	55	23	C
SR-57 SB Diverge to HOV Lane Merge	BF	4,080	62	16	B
PM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	4,650	61	17	B
SR-57 SB Merge to Lane Drop	WS	9,523	40	35	D
Land Drop to Grand Avenue On-Ramp	WS	8,867	54	26	C
Grand Avenue On-Ramp to Additional Lane Opening	WS	9,733	61	21	C
Additional Lane Opening to SR-57 SB Diverge	WS	9,733	61	18	B
SR-57 SB Diverge to HOV Lane Merge	BF	4,871	62	17	B

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2010

Table 2-18: Southbound SR-57 Existing Traffic Conditions

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	4,348	13	109	F
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	10,550	17	83	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,377	37	44	F
Grand Avenue On-Ramp to Additional Lane Opening	WS	10,076	52	28	C
Additional Lane Opening to SR-60 WB Diverge	WS	10,076	55	23	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	5,996	60	34	D
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	4,873	53	31	E
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	9,523	40	35	D
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	8,867	54	26	C
Grand Avenue On-Ramp to Additional Lane Opening	WS	9,733	61	21	C
Additional Lane Opening to SR-60 WB Diverge	WS	9,733	61	18	B
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	4,862	61	25	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

2.1.5.3 Environmental Consequences

Alternative 1, No-Build Alternative

Construction

No construction would occur under Alternative 1. Therefore, no adverse construction effects would occur.

Operation

Under Alternative 1 (No Project) no project improvements would occur. Lane geometry for the SR-60/Grand Avenue interchange under Alternative 1 is shown in Figure 2-9. Figures 2-10 through 2-13 illustrate expected AM and PM traffic volumes under the no-build scenario for years 2017 and 2037. The No-Build Alternative would create undesirable traffic conditions in the PM peak period at both ramp intersections.

Table 2-19 shows the summary results of the AM and PM peak-hour intersection LOS calculations for buildout conditions without project (Alternative 1). Queue lengths for off-ramps and critical movements were also evaluated for this analysis. As shown in Table 2-19, two of the intersections would operate at LOS F while one would operate at LOS D. Table 2-20 shows the results of the AM and PM peak-hour intersection level of service calculations for Alternative 1 by approach.

Alternative 1, No-Build Alternative

Intersection Analysis

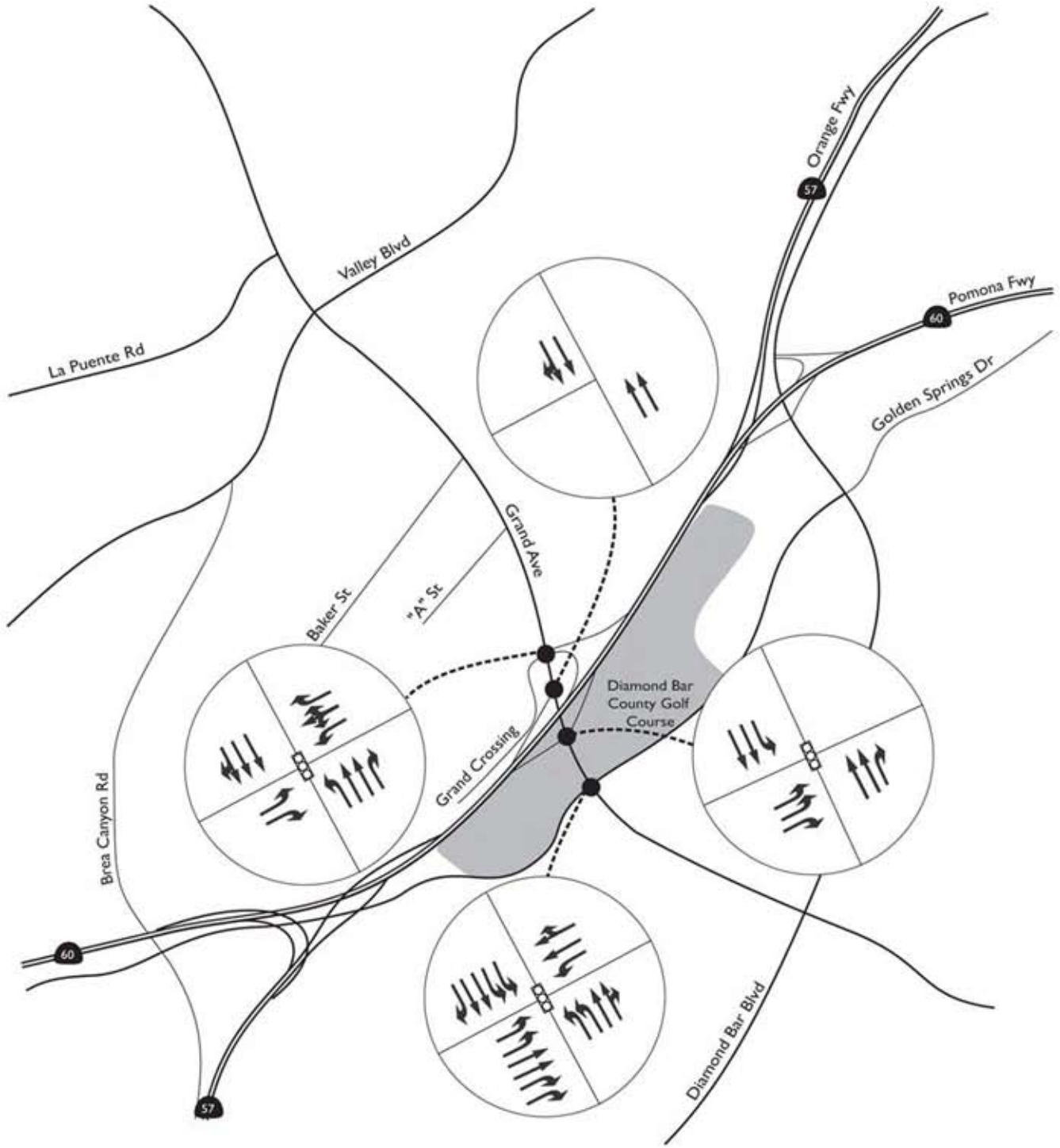
Intersection analysis was completed for the Alternative 1 (No Project) scenario for 2017 and 2037.

Tables 2-19 and 2-20 show forecast intersection conditions under Alternative 1 for 2017 aggregated and by approach. In 2017, all intersections are expected to operate at an acceptable LOS during the AM peak hour and two of the three intersections are anticipated to operate at LOS F during the PM peak hour.

Table 2-19: Year 2017 Summary of Traffic Conditions for Alternative 1 (No Project)

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay[c]	Level of Service	Queue Length	Delay[c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp [a]	461 ft	29.7	C	303 ft	33.4	C
Grand Ave. at SR-60 EB Off-Ramp [a]	257 ft	27.8	C	87 ft	17.6	B
Grand Ave. at Golden Springs Drive [b]	466 ft	54.9	D	433 ft	48.3	D

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.



LEGEND

- Study Intersection
- Signalized Intersection
- Lane Geometry

N

Not to Scale

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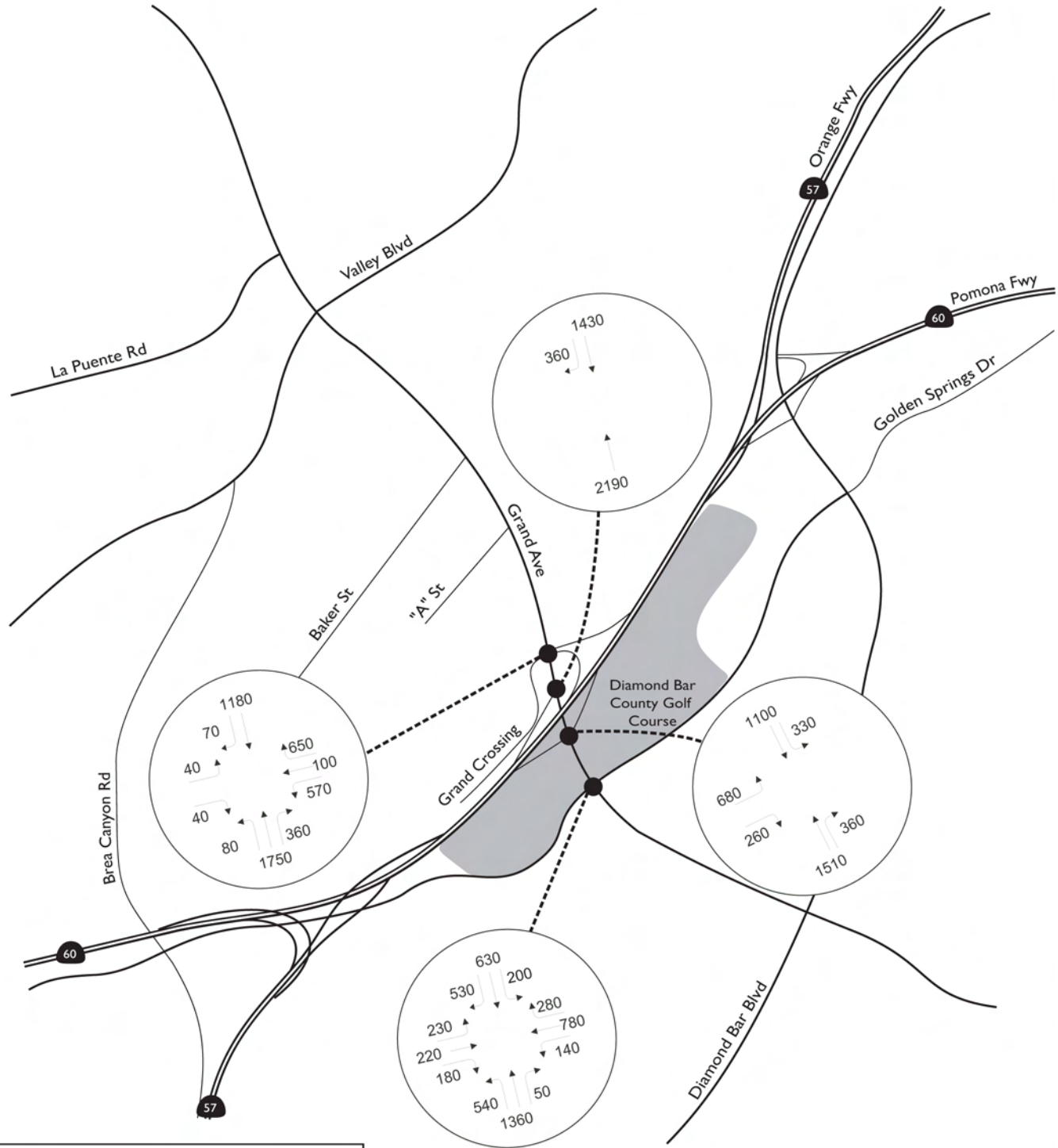
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-9

City of Diamond Bar/City of Industry

Alternate 1 Lane Geometry



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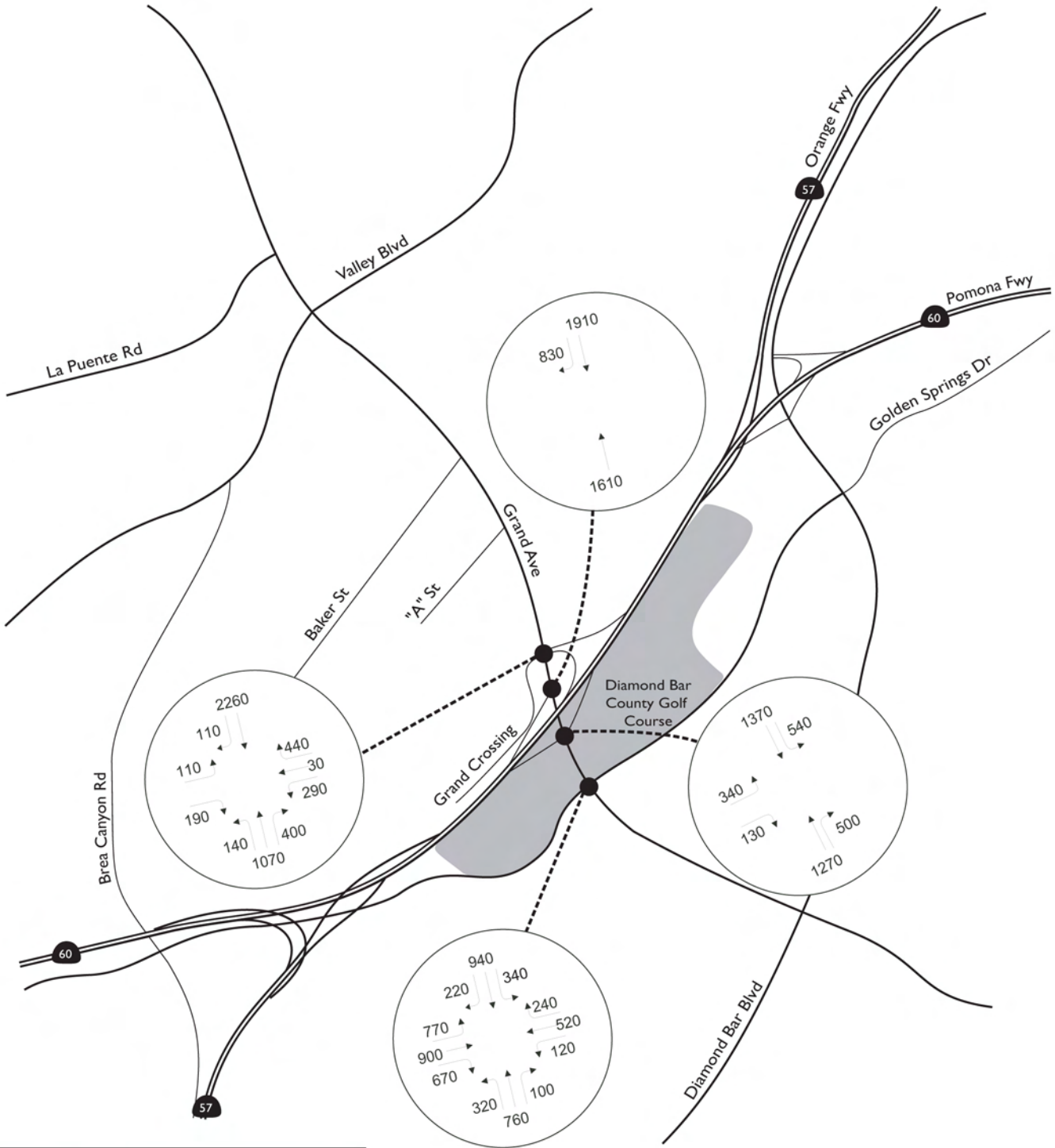
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-10

City of Diamond Bar/City of Industry

2017 Alternate 1 Traffic Volumes, AM Peak Hour



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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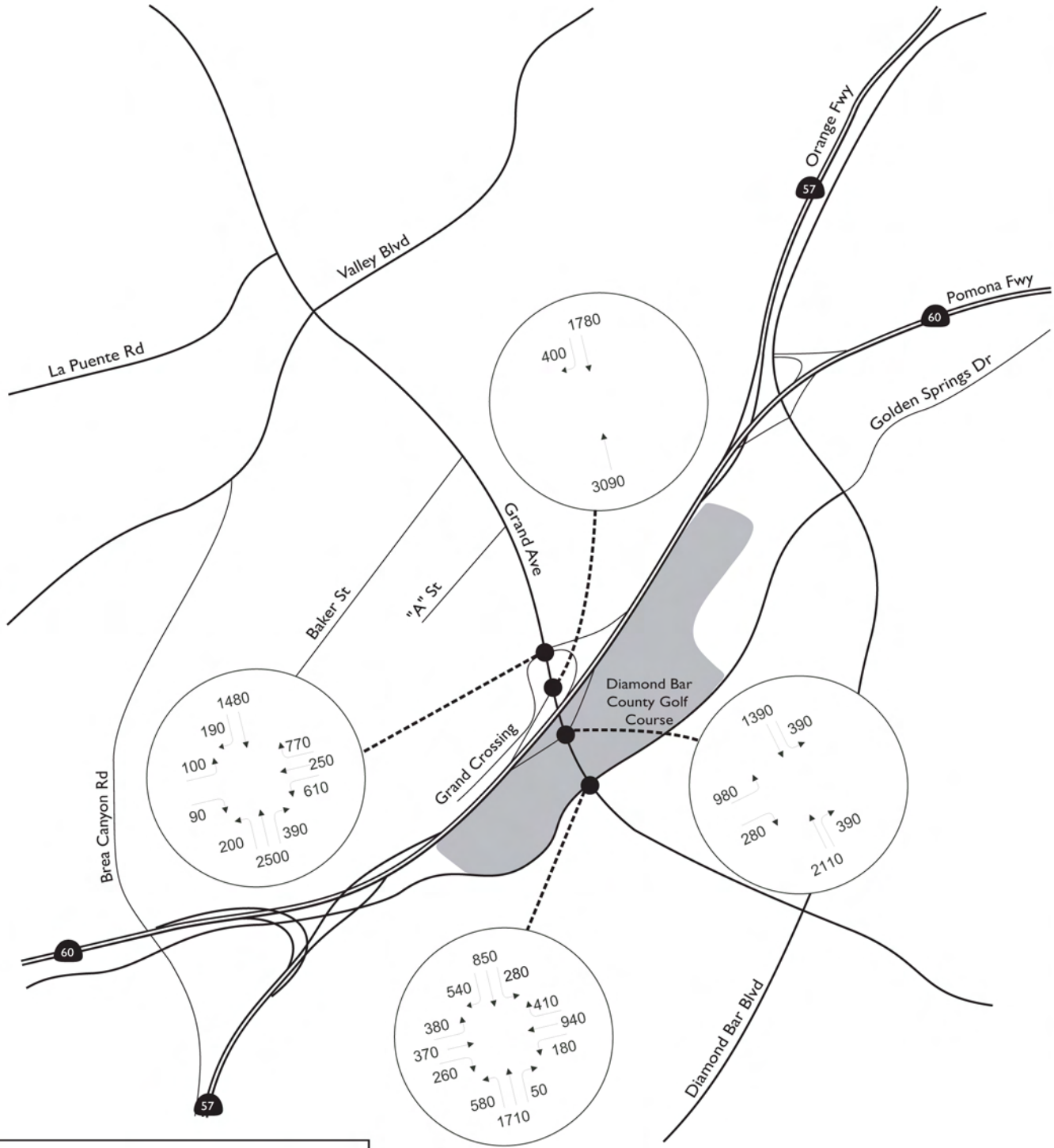
Traffic Study for SR-57/SR-60 Grand Ave Confluence **Figure 2-11**

City of Diamond Bar/City of Industry 2017 Alternate 1 Traffic Volumes, PM Peak Hour



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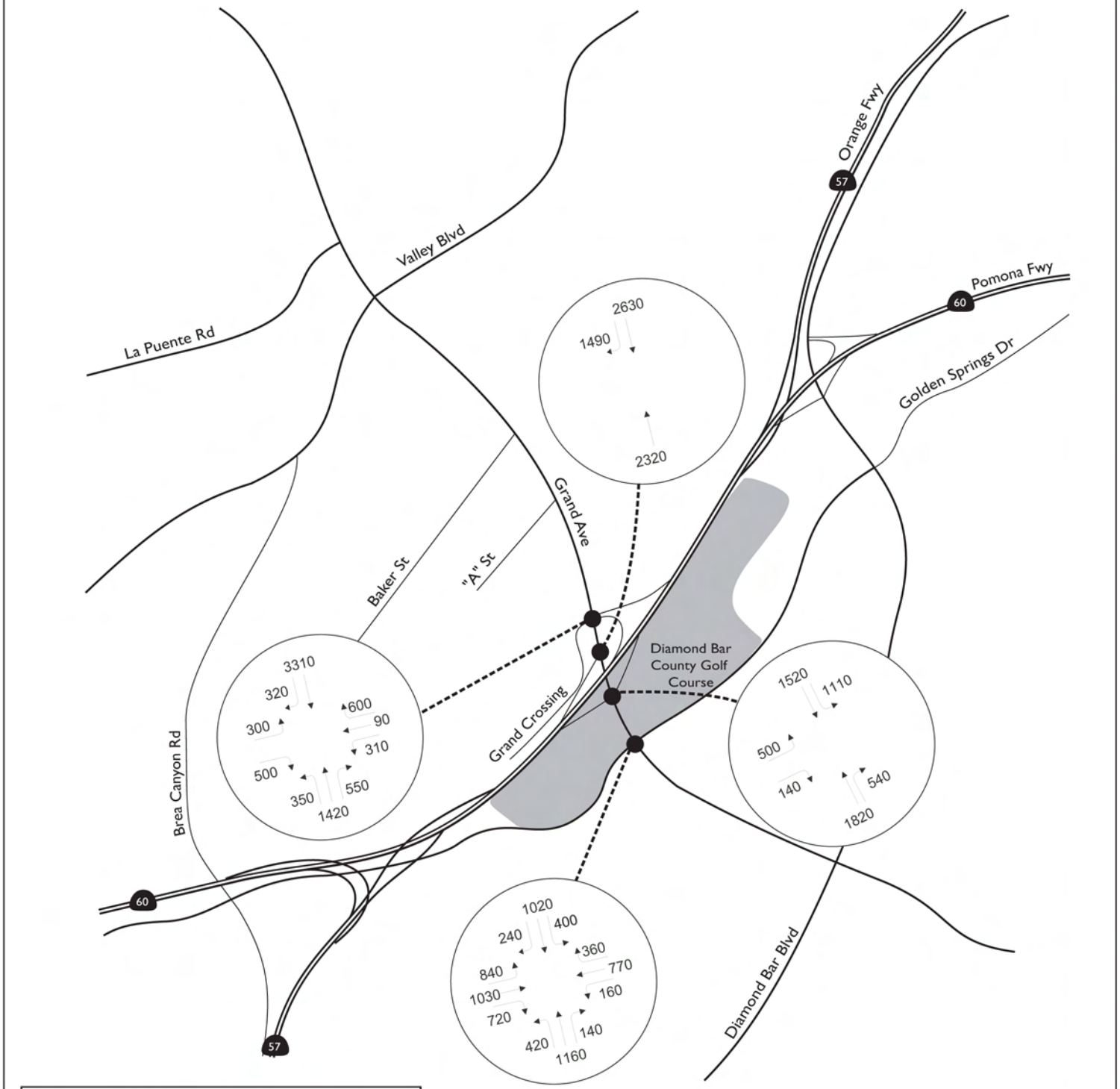
Traffic Study for SR-57/SR-60 Grand Ave Confluence **Figure 2-12**

City of Diamond Bar/City of Industry 2037 Alternate 1 Traffic Volumes, AM Peak Hour



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-13

City of Diamond Bar/City of Industry

2037 Alternate 1 Traffic Volumes, PM Peak Hour

Table 2-20: Year 2017 Traffic Conditions by Approach for Alternative 1 (No Project)

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	660 ft	24.7	C	186 ft	10.8	B
	SB	273 ft	21.8	C	593 ft	29.2	C
	EB	50 ft	36.4	D	111 ft	36.2	D
	WB	461 ft	45.2	D	303 ft	93.1	F
Intersection Average		N/A	29.7	C	N/A	33.4	C
Grand Ave. at SR-60 EB Off-Ramp	NB	462 ft	28.9	C	362 ft	26.6	C
	SB	109 ft	8.5	A	159 ft	10.2	B
	EB	257 ft	54.9	D	87 ft	13.8	B
Intersection Average		N/A	27.8	C	N/A	17.6	B
Grand Ave. at Golden Springs Drive	NB	772 ft	65.1	E	327 ft	35.4	D
	SB	466 ft	39.7	D	433 ft	45.5	D
	EB	138 ft	38.8	D	403 ft	47.9	D
	WB	588 ft	64.0	E	366 ft	71.2	E
Intersection Average		N/A	54.9	D	N/A	48.3	D

[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Tables 2-21 and 2-22 show forecast intersection conditions under Alternative 1 for 2037 aggregated and by approach. While all three of the intersections are expected to perform at LOS F overall, not all approaches would fare equally, as indicated in Table 2-22.

Alternative 1, No-Build Alternative

Freeway Segment Analysis

Alternative 1 (No Project) was analyzed at 2017 and 2037 traffic levels using the HCM-2000 weave methodology for the eastbound and westbound directions along SR-60 and the northbound and southbound direction along SR-57.

Table 2-21: Year 2037 Summary of Traffic Conditions for Alternative 1 (No Project)

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay[c]	Level of Service	Queue Length	Delay [c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp [a]	1,005 ft	99.7	F	700 ft	178.9	F
Grand Ave. at SR-60 EB Off-Ramp [a]	628 ft	81.9	F	268 ft	84.3	F
Grand Ave. at Golden Springs Drive [b]	615 ft	111.6	F	673 ft	103.6	F

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Table 2-22: Year 2037 Traffic Conditions by Approach for Alternative 1 (No Project)

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	1,672 ft	107.0	F	646 ft	45.9	D
	SB	558 ft	37.4	D	1,793 ft	218.1	F
	EB	184 ft	73.7	E	672 ft	301.3	F
	WB	1,005 ft	152.8	F	700 ft	247.3	F
Intersection Average		N/A	99.7	F	N/A	178.9	**F**
Grand Ave. at SR-60 EB Off-Ramp	NB	1,288 ft	118.4	F	1,140 ft	111.8	F
	SB	365 ft	22.4	C	736 ft	70.3	E
	EB	628 ft	93.5	F	268 ft	40.2	D
Intersection Average		N/A	81.9	F	N/A	84.3	**F**
Grand Ave. at Golden Springs Drive	NB	1,364 ft	143.7	F	918 ft	132.7	F
	SB	615 ft	71.0	E	673 ft	87.7	F
	EB	339 ft	74.2	E	654 ft	88.1	F
	WB	1,025 ft	131.3	F	777 ft	116.6	F
Intersection Average		N/A	111.6	F	N/A	103.6	**F**

[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Table 2-23 shows the eastbound SR-60 freeway segment calculations for 2017 Alternative 1 (No Project) conditions. Four segments in the AM peak hour are expected to have long delays resulting in inadequate levels of service (LOS F). The same four segments are also expected to operate at LOS F in the PM peak hour, as shown in Table 2-23. All other segments are expected to operate at LOS C or better.

Table 2-23: Eastbound SR-60 Year 2017 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,400	57	21	C
SR-57 SB Connector Ramp to HOV Lane Start	BF	5,600	60	19	B
HOV Lane Start to SR-57 Merge	BF	5,600	56	26	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	10,100	19	76	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,200	18	83	F
Grand Avenue On-Ramp Merge Segment	WS	9,900	24	58	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	9,900	36	46	F
Additional Lane Opening to SR-57 NB Diverge	WS	9,900	53	27	C
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	5,200	61	23	C

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	6,700	59	20	B
SR-57 SB Connector Ramp to HOV Lane Start	BF	5,600	60	19	B
HOV Lane Start to SR-57 NB Merge	BF	5,600	61	23	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	10,000	17	87	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,500	12	123	F
Grand Avenue On-Ramp Merge Segment	WS	10,500	13	107	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	10,500	28	59	F
Additional Lane Opening to SR-57 NB Diverge	WS	10,500	56	26	C
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	5,300	61	24	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011.					

Table 2-24 shows the northbound SR-57 freeway segment calculations for 2017 Alternative 1 (No Project) conditions. Five of the seven freeway segments studied are expected to operate deficiently at LOS F during both the AM and PM peak hours.

Table 2-24: Northbound SR-57 Year 2017 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,500	12	120	F
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	10,100	19	76	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,200	18	83	F
Grand Avenue On-Ramp Merge Segment	WS	9,900	24	58	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	9,900	36	46	F
Additional Lane Opening to SR-60 Diverge	WS	9,900	53	27	C
SR-60 EB Diverge to Four-Lane Opening	BF	4,100	62	22	C
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,400	38	51	F
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	10,000	17	87	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,500	12	123	F
Grand Avenue On-Ramp Merge Segment	WS	10,500	13	107	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	10,500	28	59	F
Additional Lane Opening to SR-60 Diverge	WS	10,500	56	26	C
SR-60 EB Diverge to Four-Lane Opening	BF	4,700	62	23	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011					

Table 2-25 shows the westbound SR-60 freeway segment calculations for 2017 Alternative 1 (No Project) conditions. Four segments are expected to operate at LOS F during the AM peak hour and two segments would perform at LOS F during the PM peak hour.

Table 2-25: Westbound SR-60 Year 2017 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd. On-Ramp Merge Lane End to SR-57 SB Merge	BF	6,100	13	109	F
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	10,700	17	83	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,400	34	52	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,800	36	45	F
Additional Lane Opening to SR-57 SB Diverge	WS	10,100	51	25	C
SR-57 SB Diverge to WB Connector	BF	4,100	62	15	C
PM Peak Hour					
Diamond Bar Blvd. On-Ramp Merge Lane End to SR-57 SB Merge	BF	5,100	60	24	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	10,200	29	52	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,400	38	48	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,800	60	25	C
Additional Lane Opening to SR-57 SB Diverge	WS	10,600	61	23	C
SR-57 SB Diverge to WB Connector	BF	5,400	61	20	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011

Table 2-26 shows the southbound SR-57 freeway segment calculations for 2017 Alternative 1 (No Project) conditions. Four segments are expected to operate at LOS F during the AM peak hour and three segments would perform at LOS F during the PM peak hour.

Table 2-26: Southbound SR-57 Year 2017 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	4,600	15	108	F
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	10,700	17	83	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,400	34	52	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,800	36	45	F
Slip On-Ramp to SR-60 WB Diverge	WS	10,200	51	25	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,300	60	36	E
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,100	15	112	F
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	10,200	29	52	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,400	38	48	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,800	60	25	C
Slip On-Ramp to SR-60 WB Diverge	WS	10,600	61	23	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	5,600	60	31	D

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2010

Table 2-27 shows the eastbound SR-60 freeway segment calculations for 2037 Alternative 1 (No Project) conditions. During the AM peak hour, two segments would operate at LOS E and two segments would operate at LOS F. These same four segments are expected to operate at LOS F during the PM peak hour.

Table 2-27: Eastbound SR-60 Year 2037 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	9,600	48	31	D
SR-57 SB Connector Ramp to HOV Lane Start	BF	7,100	56	25	C
HOV Lane Start to SR-57 Merge	BF	7,100	56	30	D
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	12,100	22	73	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,800	36	47	F
Grand Avenue On-Ramp Merge Segment	WS	11,600	38	42	E
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	11,600	50	37	E
Additional Lane Opening to SR-57 NB Diverge	WS	11,600	60	26	C
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	6,500	60	27	C
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,900	58	20	B
SR-57 SB Connector Ramp to HOV Lane Start	BF	6,000	59	20	B
HOV Lane Start to SR-57 NB Merge	BF	6,000	59	24	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	10,200	14	98	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,600	12	124	F
Grand Avenue On-Ramp Merge Segment	WS	11,300	12	115	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	11,300	26	63	F
Additional Lane Opening to SR-57 NB Diverge	WS	11,300	51	28	C
SR-57 NB Diverge to Diamond Bar Blvd On-Ramp	BF	5,500	61	24	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-28 shows 2037 freeway segment conditions for northbound SR-57 under the no-build scenario (Alternative 1). Three of the seven segments analyzed are expected to have an LOS of F and two other segments would operate at LOS E during the AM peak hour. These same five segments would all operate at LOS F during the PM peak hour.

Table 2-28: Northbound SR-57 Year 2037 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	5,000	13	116	F
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	12,100	22	73	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,800	36	47	F
Grand Avenue On-Ramp Merge Segment	WS	11,600	38	42	E
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	11,600	50	37	E
Additional Lane Opening to SR-60 Diverge	WS	11,600	60	26	C
SR-60 EB Diverge to Four-Lane Opening	BF	4,600	62	23	C

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,300	15	99	F
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	10,200	14	98	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,600	12	124	F
Grand Avenue On-Ramp Merge Segment	WS	11,300	12	115	F
Grand Avenue Merge Lane Drop to Additional Lane Opening	WS	11,300	26	63	F
Additional Lane Opening to SR-60 Diverge	WS	11,300	51	28	C
SR-60 EB Diverge to Four-Lane Opening	BF	5,200	61	22	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011					

Table 2-29 summarizes the findings of the freeway segment analysis for westbound SR-60 conditions in 2037 under the Alternative 1 (No Project) scenario. Three segments are expected to perform deficiently at LOS F in the AM peak hour, and two are expected to perform at the same level in the evening. All other segments are expected to exhibit adequate levels of service of C or better.

Table 2-29: Westbound SR-60 Year 2037 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd. On-Ramp Merge Lane End to SR-57 SB Merge	BF	5,900	9	115	F
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	11,100	21	95	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,500	27	55	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,900	60	20	B
Additional Lane Opening to SR-57 SB Diverge	WS	10,300	61	18	B
SR-57 SB Diverge to WB Connector	BF	6,100	62	13	B
PM Peak Hour					
Diamond Bar Blvd. On-Ramp Merge Lane End to SR-57 SB Merge	BF	6,400	58	26	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	11,900	26	59	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,900	31	56	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	11,400	60	25	C
Additional Lane Opening to SR-57 SB Diverge	WS	12,900	60	23	C
SR-57 SB Diverge to WB Connector	BF	6,800	61	20	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011					

In Table 2-30, the results of the freeway segment analysis are shown for 2037 southbound SR-57 conditions under Alternative 1 (No Project). Three segments are expected to operate at LOS F during the AM peak hour, and two segments would operate at LOS F during the PM peak hour. Each segment not performing at LOS F is expected to have an LOS of B, C, or D.

Table 2-30: Southbound SR-57 Year 2037 Traffic Conditions, Alternative 1 (No Project)

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,200	11	115	F
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	11,100	21	95	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,500	27	55	F
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	9,900	60	20	B
Slip On-Ramp to SR-60 WB Diverge	WS	10,300	61	18	B
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,100	61	28	C
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,500	13	114	F
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	11,900	26	59	F
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,900	31	56	C
Grand Avenue Loop On-Ramp to Slip On-Ramp	WS	11,400	60	25	C
Slip On-Ramp to SR-60 WB Diverge	WS	12,900	60	23	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,100	60	31	D

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2010

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction

Construction of Alternative 2 would result in temporary lane closures and associated traffic delays. Construction activities are anticipated to begin in the summer of 2013 and end by the fall of 2016. The proposed project would involve clearing, excavation, grading, and other site preparation activities prior to structural work and paving. On-site construction staging would occur just north of the westbound SR-60/southbound SR-57 Grand Avenue on- and off-ramps. Construction of Alternative 2 would not affect pedestrian walkways on other local roads. A traffic management plan would be prepared to coordinate road and ramp closures and delays. No substantial adverse effects on transportation are expected to occur as a result of construction of Alternative 2.

Operation

Lane geometry for the SR-60/Grand Avenue interchange under Alternative 2 is shown in Figure 2-14.

Figures 2-15 and 2-16 show expected AM and PM peak-hour traffic volumes under Alternative 2 for 2017, and Figures 2-17 and 2-18 show expected AM and PM peak-hour traffic volumes under Alternative 2 for 2037.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Intersection Analysis

An intersection analysis was performed for affected intersections under 2017 and 2037 Alternative 2 conditions.

Tables 2-31 and 2-32 show the findings of this effort for 2017, with Table 2-31 showing a summary of the entire intersection and Table 2-32 breaking down the queue length, length of delay, and level of service by each approach. The two SR-60 ramp intersection with Grand Avenue are anticipated to perform at an LOS of C or better for the AM and PM peak hours, and the Grand Avenue intersection with Golden Springs Drive is expected to perform is expect to perform at LOS D during the AM and PM peak hours. All three intersections are projected to have shorter queue lengths and delays in 2017 under Alternative 2 conditions than under Alternative 1 (No Project).

Table 2-31: Year 2017 Summary of Traffic Conditions for Alternative 2

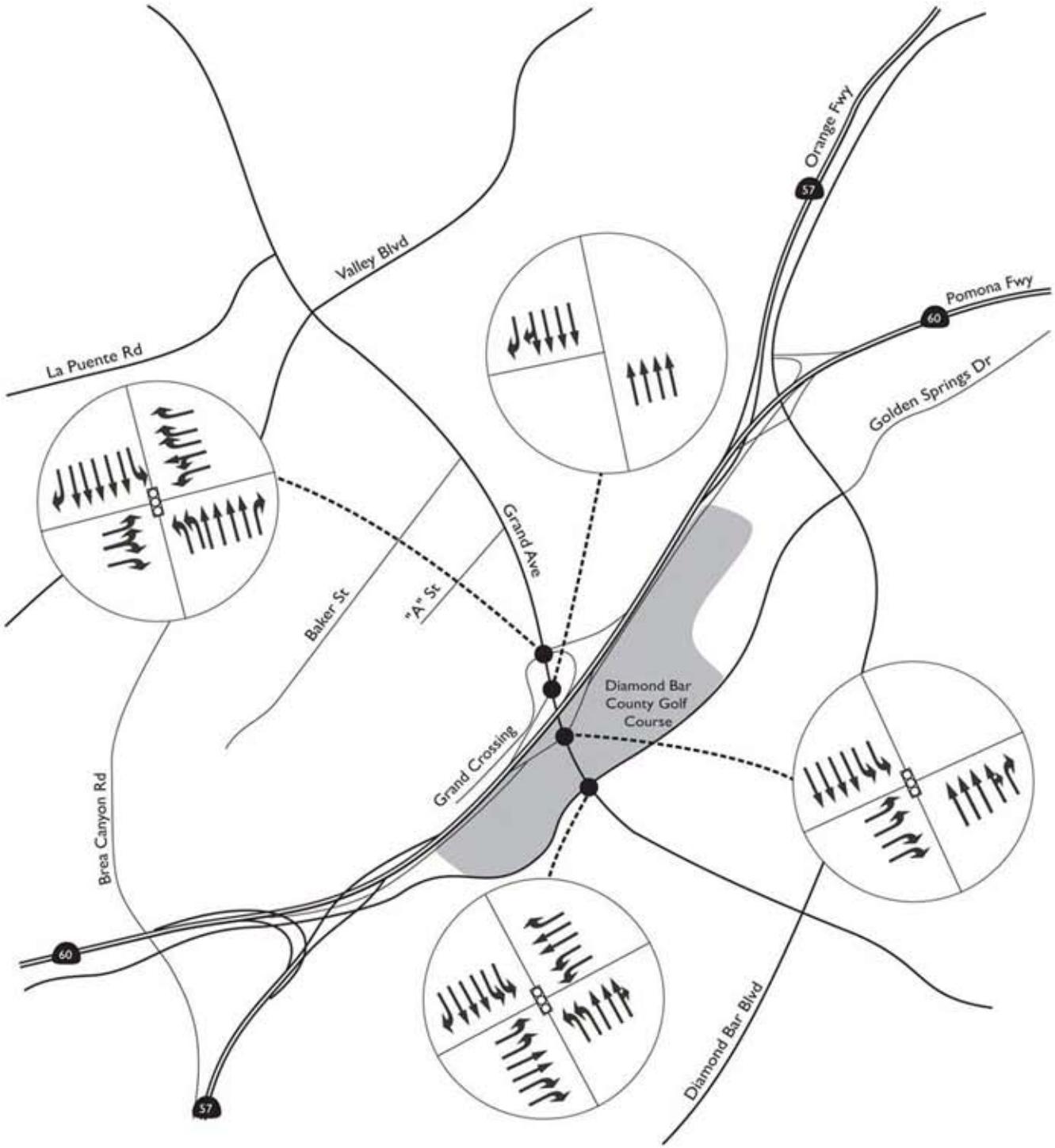
Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay [c]	Level of Service	Queue Length	Delay [c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp [a]	331 ft	21.0	C	149 ft	17.9	B
Grand Ave. at SR-60 EB Off-Ramp [a]	186 ft	15.9	B	101 ft	12.6	B
Grand Ave. at Golden Springs Drive [b]	493 ft	35.7	D	400 ft	38.7	D

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Table 2-32: Year 2017 Traffic Conditions by Approach for Alternative 2

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	304 ft	20.1	C	155 ft	16.2	B
	SB	150 ft	15.5	B	313 ft	15.5	B
	EB	39 ft	34.4	C	83 ft	30.0	C
	WB	331 ft	27.0	C	149 ft	24.5	C
Intersection Average		N/A	21.0	C	N/A	17.9	B
Grand Ave. at SR-60 EB Off-Ramp	NB	241 ft	20.7	C	175 ft	16.2	B
	SB	112 ft	10.8	B	157 ft	9.2	A
	EB	186 ft	14.4	B	101 ft	13.2	B
Intersection Average		N/A	15.9	B	N/A	12.6	B
Grand Ave. at Golden Springs Drive	NB	460 ft	40.6	D	344 ft	44.7	D
	SB	493 ft	35.0	D	400 ft	44.7	D
	EB	127 ft	28.9	C	531 ft	30.7	C
	WB	310 ft	31.3	C	246 ft	39.8	D
Intersection Average		N/A	35.7	D	N/A	38.7	D

[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.



LEGEND

- Study Intersection
- Signalized Intersection
- Lane Geometry

N

Not to Scale

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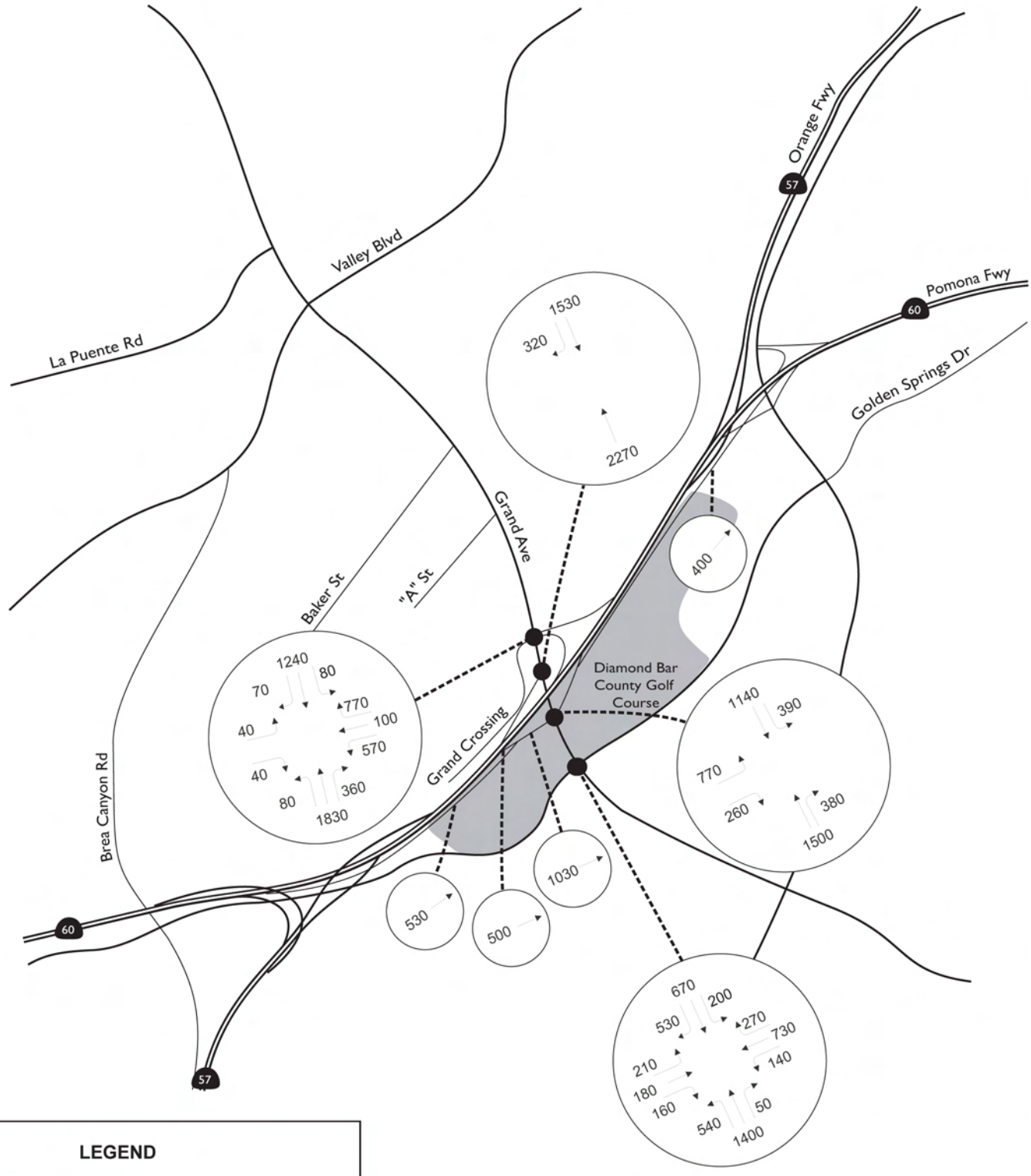
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-14

City of Diamond Bar/City of Industry

Alternate 2 Lane Geometry



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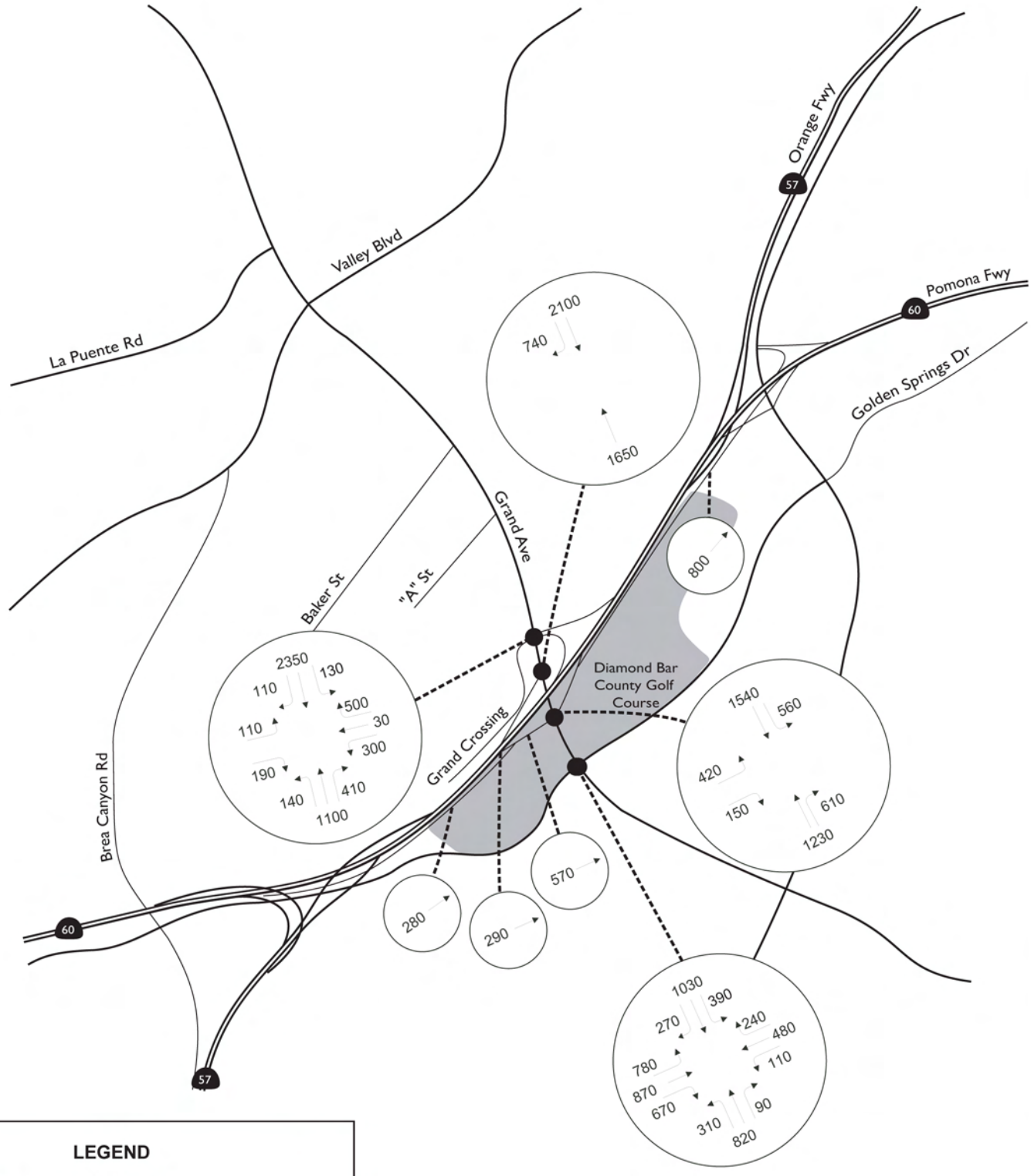
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-15

City of Diamond Bar/City of Industry

2017 Alternative 2 Traffic Volumes, AM Peak Hour



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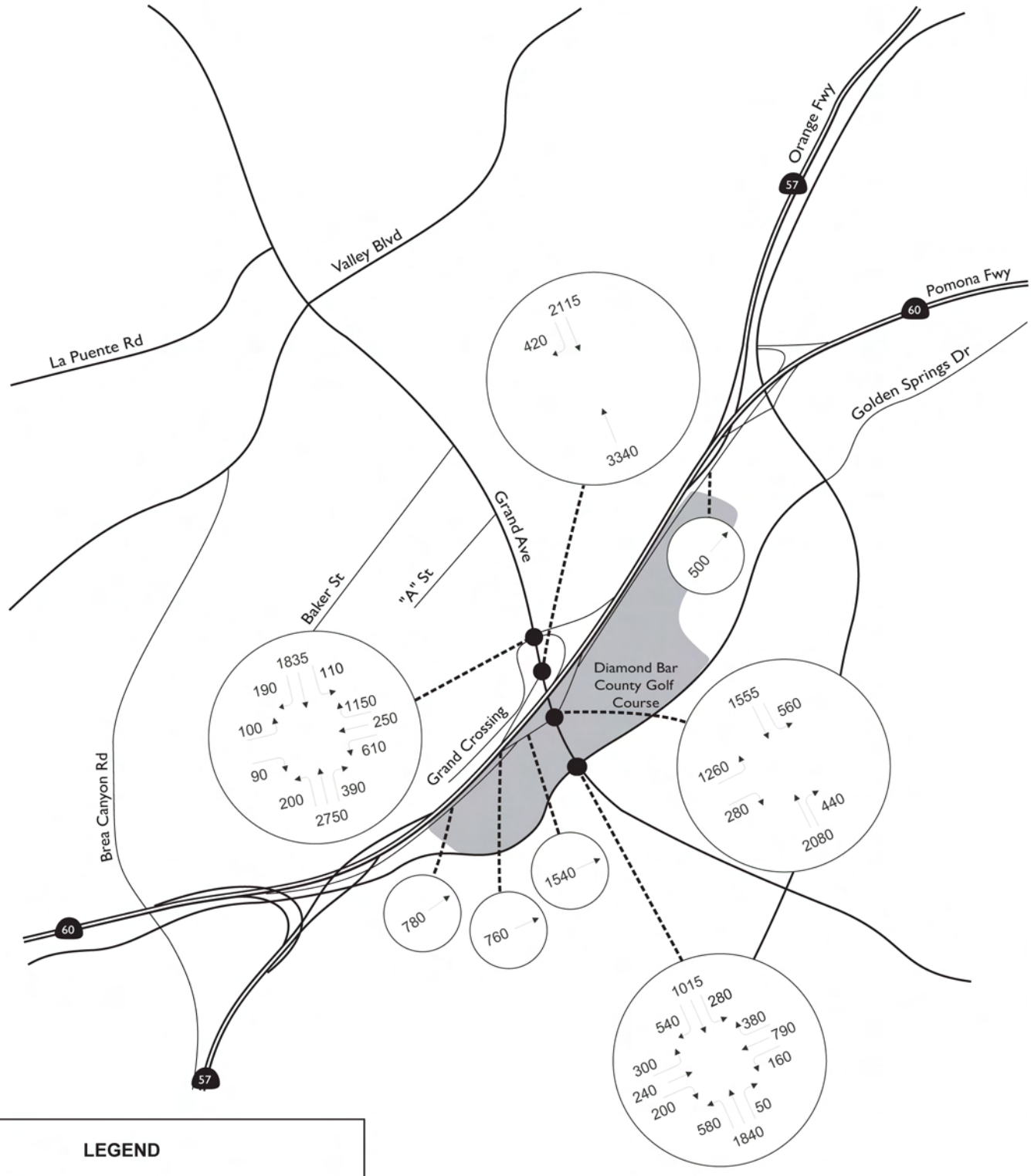
Traffic Study for SR-57/SR-60 Grand Ave Confluence **Figure 2-16**

City of Diamond Bar/City of Industry 2017 Alternative 2 Traffic Volumes, PM Peak Hour



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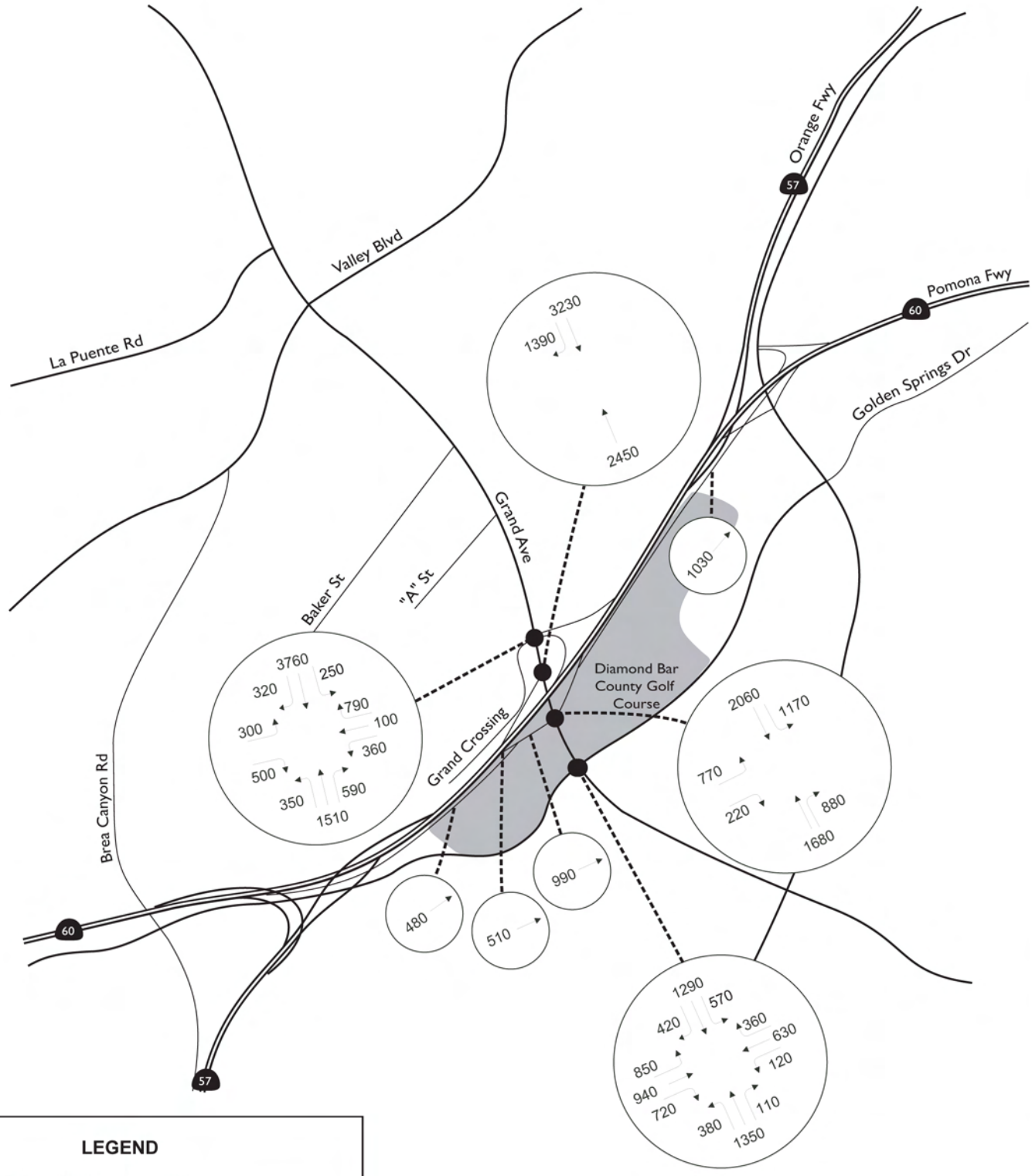
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-17

City of Diamond Bar/City of Industry

2037 Alternative 2 Traffic Volumes, AM Peak Hour



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-18

City of Diamond Bar/City of Industry

2037 Alternative 2 Traffic Volumes, PM Peak Hour

Tables 2-33 and 2-34 show the intersection analysis results for 2037 under Alternative 2 conditions, with Table 2-33 showing a summary of the entire intersection and Table 2-34 breaking down the queue length, length of delay, and level of service by approach. Of the three intersections studied, none are expected to perform at LOS F. Only one approach (the northbound movement at the Grand Avenue and SR-60 eastbound ramps) is expected to operate at LOS F during the PM peak hour. When compared with 2037 Alternative 1 (No Project) conditions, all three intersections had shorter queue lengths and delays under Alternative 2 conditions, equating to more favorable levels of service.

Table 2-33: Year 2037 Summary of Traffic Conditions for Alternative 2

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay [c]	Level of Service	Queue Length	Delay [c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp [a]	508 ft	35.7	D	361 ft	46.8	D
Grand Ave. at SR-60 EB Off-Ramp [a]	635 ft	49.6	D	432 ft	55.4	E
Grand Ave. at Golden Springs Drive [b]	523 ft	50.6	D	558 ft	64.6	E

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Table 2-34: Year 2037 Traffic Conditions by Approach for Alternative 2

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	620 ft	38.5	D	300 ft	29.8	C
	SB	260 ft	23.1	C	817 ft	49.4	D
	EB	75 ft	42.0	D	351 ft	73.4	E
	WB	508 ft	44.0	D	361 ft	53.9	D
Intersection Average		N/A	35.7	D	N/A	46.8	D
Grand Ave. at SR-60 EB Off-Ramp	NB	618 ft	68.9	E	767 ft	89.6	F
	SB	336 ft	31.6	C	682 ft	32.1	C
	EB	635 ft	42.7	D	432 ft	43.3	D
Intersection Average		N/A	49.6	D	N/A	55.4	E
Grand Ave. at Golden Springs Drive	NB	741 ft	72.9	E	721 ft	79.0	E
	SB	523 ft	37.8	D	558 ft	64.4	E
	EB	211 ft	37.6	D	680 ft	62.3	E
	WB	340 ft	34.1	C	362 ft	46.3	D
Intersection Average		N/A	50.6	D	N/A	64.6	E

[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Intersection conditions under the Alternative 2 scenario are anticipated to be favorable for both 2017 and 2037 when compared with Alternative 1 (No Project). As a result of the project, intersections would be more efficient. Therefore, implementation of Alternative 2 is expected to result in beneficial effects with respect to intersection LOS.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Freeway Segment Analysis

Alternative 2 was analyzed at 2017 and 2037 traffic levels using the HCM-2000 weave methodology for the eastbound and westbound directions along SR-60 and the northbound and southbound direction along SR-57.

Table 2-35 shows the eastbound SR-60 freeway segment analysis for 2017 under Alternative 2. All segments are projected to operate at LOS C or better during both peak hours. Although the segments studied vary slightly between the different alternatives, when compared with 2017 Alternative 1 (No Project) conditions on eastbound SR-60, Alternative 2 would result in higher speeds and lower vehicle densities, equating to better levels of service. The weaving segments would perform at LOS C under Alternative 2 compared with LOS F under Alternative 1 (No Project).

Table 2-35: Eastbound SR-60 Year 2017 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,500	61	22	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	5,750	60	21	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	5,200	62	23	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	9,800	62	24	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,300	60	24	C
Grand Avenue On-Ramp to SR-57 NB Diverge	M/D	10,100	60	23	C
SR-57 NB Diverge to EB Bypass Connector	M/D	5,900	62	24	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5,800	62	24	C
Diamond Barr Off-Ramp to Diamond Bar On-Ramp	BF	5,300	62	24	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	5,600	63	19	B
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	5,700	63	19	B
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,000	56	22	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	6,100	60	19	B
EB Bypass Off-Ramp to SR-57 NB Merge	BF	5,800	63	21	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	10,300	62	22	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,000	61	22	C
Grand Avenue On-Ramp to SR-57 NB Diverge	M/D	11,200	62	23	C
SR-57 NB Diverge to EB Bypass Connector	M/D	6,200	62	20	B
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5,900	62	20	B
Diamond Barr Off-Ramp to Diamond Bar On-Ramp	BF	5,400	62	20	B
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6,500	62	22	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	6,800	62	22	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011

Table 2-36 shows the results of the northbound SR-57 freeway segment analysis for 2017 under Alternative 2. All segments are forecasted to operate at LOS C or better. The northbound SR-57 segments studied are anticipated to operate more efficiently under Alternative 2 than under Alternative 1 (No Project), particularly the weaving segments.

Table 2-36: Northbound SR-57 Year 2017 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,600	62	24	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	9,800	62	24	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	9,300	60	24	C
Grand Avenue On-Ramp to SR-60 EB Diverge	WS	10,100	60	23	C
SR-60 EB Diverge to EB Bypass Connector	BF	4,400	62	19	B
EB Bypass Connector to Four-Lane Opening	BF	4,300	62	23	C
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,500	62	23	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	10,300	62	22	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	10,000	61	22	C
Grand Avenue On-Ramp to SR-60 EB Diverge	WS	11,200	62	23	C
SR-60 EB Diverge to EB Bypass Connector	BF	5,500	61	24	C
EB Bypass Connector to Four-Lane Opening	BF	5,200	61	27	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011

Table 2-37 shows the results of the westbound SR-60 freeway segment analysis for 2017 under Alternative 2. All segments are forecasted to operate at LOS C or better. The westbound SR-60 segments studied are anticipated to operate more efficiently under Alternative 2 than under Alternative 1 (No Project), particularly the weaving segments.

Table 2-37: Westbound SR-60 Year 2017 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	6,200	59	21	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	11,000	50	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	62	22	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,000	61	20	B
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	10,300	61	18	B
SR-57 SB Diverge to HOV Lane Merge	BF	4,200	64	13	B
PM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	5,100	62	19	B
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	10,400	61	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	60	24	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,100	62	23	C
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	10,800	62	22	C
SR-57 SB Diverge to HOV Lane Merge	BF	5,600	63	19	B

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-38 shows the findings of southbound SR-57 freeway segment analysis for 2017 under Alternative 2 conditions. All segments are expected to perform at LOS C or better with the exception of the segment spanning from the end of the Sunset Crossing on-ramp merge lane to the merge with westbound SR-60, which is projected to have an LOS of D during both the PM peak hour. The southbound SR-57 segments studied are anticipated to operate more efficiently under Alternative 2 than under Alternative 1 (No Project), particularly the weaving segments.

Table 2-38: Southbound SR-57 Year 2017 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	4,800	61	28	C
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	11,000	60	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	62	22	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,000	61	20	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	10,300	61	18	B
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,300	61	12	B
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,300	61	29	D
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	10,400	61	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	60	24	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,100	62	26	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	10,800	62	22	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	5,700	63	19	B

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011

Table 2-39 shows the SR-60 eastbound freeway segment analysis for 2037 under Alternative 2. All but one of the segments is expected to operate at LOS C. The one exception is the segment from the Grand Avenue off-ramp to the Grand Avenue off-ramp, which is projected to perform at LOS D during the AM peak hour but at LOS C during the PM peak hour. When compared with the 2037 Alternative 1 (No Project) conditions, all segments studied perform better under Alternative 2, except for the segment from the Brea Canyon Road on-ramp to the SR-57 southbound connector ramp. This segments is forecasted to operate at LOS C under Alternative 2 rather than at LOS B under Alternative 1 (No Project).

Table 2-39: Eastbound SR-60 Year 2037 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	9,700	59	26	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	7,500	58	25	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	6,800	61	27	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	12,100	61	28	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	11,300	55	30	D
Grand Avenue On-Ramp to SR-57 NB Diverge	M/D	12,300	60	26	C
SR-57 NB Diverge to EB Bypass Connector	M/D	7,400	61	27	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	7,000	61	27	C
Diamond Barr Off-Ramp to Diamond Bar On-Ramp	BF	6,400	61	27	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6,700	62	23	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	7,200	62	23	C
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	8,900	57	24	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	7,700	54	25	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	7,200	63	24	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	11,800	60	27	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	11,300	60	26	C
Grand Avenue On-Ramp to SR-57 NB Diverge	M/D	13,300	61	27	C
SR-57 NB Diverge to EB Bypass Connector	M/D	6,800	61	24	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5,800	61	24	C
Diamond Barr Off-Ramp to Diamond Bar On-Ramp	BF	5,100	61	24	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6,600	61	26	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	7,600	61	26	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source: Traffic Study Report, 2011.

Table 2-40 shows the northbound SR-57 freeway segment analysis for 2037 under Alternative 2. All segments are projected to operate at LOS C or D during both peak hours. Although the segments studied vary slightly between the alternatives, Alternative 2 would result in higher vehicle speeds, lower vehicle densities, and LOS would be equal to, or an improvement upon, freeway segment conditions under Alternative 1 (No Project).

Table 2-40: Northbound SR-57 Year 2037 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	5,300	61	28	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	12,100	61	28	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	11,300	56	30	D
Grand Avenue On-Ramp to SR-60 EB Diverge	WS	12,300	60	26	C
SR-60 EB Diverge to EB Bypass Connector	BF	5,400	62	22	C
EB Bypass Connector to Four- Lane Opening	BF	4,900	61	27	C

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,700	60	29	D
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	11,800	60	27	C
Grand Avenue Off-Ramp to Grand Avenue On-Ramp	WS	11,300	60	26	C
Grand Avenue On-Ramp to SR-60 EB Diverge	WS	13,300	60	27	C
SR-60 EB Diverge to EB Bypass Connector	BF	7,500	59	29	D
EB Bypass Connector to Four- Lane Opening	BF	6,500	60	33	D
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011					

Table 2-41 shows the results of the westbound SR-57 freeway segment analysis for 2037 under Alternative 2. All segments are forecasted to operate at LOS D or better. Segments are generally expected to operate more efficiently in the AM peak hour, when only one of the six studied intersections is expected to perform at LOS D, whereas three of the six intersections are projected to perform at LOS D during the PM peak hour. Although the segments studied vary slightly between alternatives, freeway segments are expected to exhibit similar or improved levels of service under Alternative 2 when compared with Alternative 1 (No Project).

Table 2-41: Westbound SR-60 Year 2037 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	6,300	58	25	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	12,100	57	34	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,100	61	26	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	60	23	C
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	11,000	60	21	C
SR-57 SB Diverge to HOV Lane Merge	BF	4,800	63	15	B
PM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 Merge	BF	6,400	61	23	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	12,700	61	29	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,400	56	32	D
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12,300	60	29	D
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	13,700	60	27	C
SR-57 SB Diverge to HOV Lane Merge	BF	7,600	62	24	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011					

Table 2-42 shows the findings of southbound SR-57 freeway segments for 2037 under Alternative 2 conditions. All segments are expected to perform at LOS D or better with the exception of the segment from the end of the Sunset Crossing on-ramp merge lane to the merge with SR-60, which is projected to have an LOS of E during both the AM and PM peak hours.

Although the segments studied vary slightly between the alternatives, when compared with Alternative 1 (No Project) projections, all segments are expected to operate more efficiently under Alternative 2, except for two segments during each of the peak hours. During the AM peak hour, the two segments between the slip on-ramp and the eastbound connector ramp would operate at LOS C under Alternative 2 rather than LOS B under Alternative 1 (No Project). During the PM peak hour, the segment from the Grand Avenue off-ramp to the Grand Avenue on-ramp would operate at LOS D under Alternative 2 and LOS C under Alternative 1 (No Project). similarly, the segment between the Grand Avenue loop on-ramp and the slip on-ramp would operate at LOS D under Alternative 2 versus LOS C under Alternative 1 (No Project). Neither of these would result in a substantial deterioration of traffic conditions.

Table 2-42: Southbound SR-57 Year 2037 Traffic Conditions, Alternative 2

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,800	56	36	E
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	12,100	57	34	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,100	61	26	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	60	23	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	11,000	60	21	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,200	60	33	D
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	6,400	60	37	E
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	12,700	61	29	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,400	56	32	D
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12,300	60	29	D
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	13,700	60	27	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,100	60	34	D

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011

The proposed project would result in improvements in traffic conditions along freeway segments, including increasing speeds, reducing vehicle, and improving LOS. Nearly all segments would operate more efficiently under Alternative 2 than they would under Alternative 1 (No Project). In the few instances in which freeway segments perform better under Alternative 1 (No Project), the changes are not substantial and would not result in an overall deterioration of traffic conditions. No adverse effects would occur as a result of the implementation of Alternative 2.

ADA

Alternative 2 would involve the replacement of the existing SR-57/SR-60 overcrossing with a new overcrossing. All pedestrian amenities would be constructed in conformance with the ADA, including sidewalks with curb ramps at intersections. No adverse effects on those with disabilities would occur as a result of implementation of Alternative 2.

Public Transit Service

Foothill Transit operates six bus lines within a mile of the site of the project. These lines include the 286, 482, 493, 497, 853, and 854 lines, which would continue to operate during and after construction of proposed project. All of these lines except for lines 497 and 853 cross under SR-60 at Diamond Bar Boulevard, which would be replaced as result of implementation of Alternative 2. Lines 482, 493, 853, and 854 operate on Golden Springs Boulevard, which would be widened under Alternative 2. Construction would occur in phases and would limit closures to non-peak hours to prevent serious delays to public transportation. Implementation of Alternative 2 would have no adverse effects with respect to public transit service.

Safety

Implementation of Alternative 2 would offer safety improvements. Construction of a new eastbound SR-60 bypass off-ramp and a new bypass connector would result in fewer vehicle conflicts and reduced weaving, thereby improving safety. Implementation of Alternative 2 would result in beneficial effects with respect to safety.

Non-Motorized Vehicle and Pedestrian Features

Construction of the new overcrossing structures above Prospectors Road and Diamond Bar Boulevard as well as the Grand Avenue overcrossing structure would occur in stages to limit road closures, so access for non-motorized vehicle users and pedestrians would be maintained.

There are no existing or planned amenities for bicycles or other non-motorized vehicles along Grand Avenue. While people using these modes are capable of traveling along Grand Avenue, the cities of Industry and Diamond Bar have not designated Grand Avenue as a non-motorized transportation corridor. Implementation of Alternative 2 would not add any amenities for users of bicycles or other non-motorized vehicles.

Pedestrians are currently able to negotiate the Grand Avenue overcrossing along walkways on both sides of the street. However, given the considerable distances between destination points, walking is unlikely to become a major mode of transportation in the area. Nevertheless, implementation of Alternative 2 would create ADA-compliant sidewalks on either side of the new overcrossing. In addition, Alternative 2 would involve the installation of an 8-foot-wide sidewalk on the east side of Grand Avenue to the north of the SR-57/SR-60 overcrossing. Currently, there is continuous sidewalk only on the west side of Grand Avenue north of the overcrossing.

No adverse effects on non-motorized vehicle and pedestrian travel would occur as a result of implementation of Alternative 2.

Alternative 3

Construction

Similar to Alternative 2, construction of Alternative 3 would result in temporary lane closures, and associated traffic delays. Construction activities are anticipated to begin in the summer of 2013 and end by the fall of 2016. Proposed construction would involve clearing, excavation, grading, and other site preparation activities prior to structural work and paving. On-site construction staging would occur just north of the westbound SR-60/southbound SR-57 Grand Avenue on- and off-ramps. Construction of Alternative 3 would not affect pedestrian walkways on other local roads. Additionally, construction activities would not alter the use of the facility as a golf course. A traffic management plan would be prepared to coordinate road and ramp closures and delays. No substantial adverse effects on transportation are expected to occur as a result of construction of Alternative 3.

Operation

Lane geometry for the SR-60/Grand Avenue interchange under Alternative 3 is shown in Figure 2-19.

Figures 2-20 and 2-21 show expected AM and PM peak-hour traffic volumes under Alternative 3 for 2017, and Figures 2-22 and 2-23 show expected AM and PM peak-hour traffic volumes.

Alternative 3, Partial Cloverleaf Interchange Configuration

Intersection Analysis

An intersection analysis was performed for affected intersections under 2017 and 2037 Alternative 3 conditions.

Tables 2-43 and 2-44 show the findings of this effort for 2017, with Table 2-43 showing a summary of the entire intersection and Table 2-44 breaking down the queue length, delay, and level of service by approach. All three intersections studied are projected to operate at LOS C or better. In addition, all three intersections are expected to have shorter queue lengths and delays and better LOS values in 2017 under Alternative 3 conditions than under Alternative 1 (No Project).

Table 2-43: Year 2017 Summary of Traffic Conditions for Alternative 3

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay [c]	Level of Service	Queue Length	Delay [c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp[a]	285 ft	20.2	C	144 ft	17.7	B
Grand Ave. at SR-60 EB Off-Ramp[a]	201 ft	9.8	A	89 ft	6.2	A
Grand Ave. at Golden Springs Drive	250 ft	31.3	C	274 ft	31.6	C

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Table 2-44: Year 2017 Traffic Conditions by Approach for Alternative 3

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	332 ft	21.2	C	150 ft	16.1	B
	SB	145 ft	14.7	B	302 ft	15.7	B
	EB	35 ft	30.4	C	84 ft	28.2	C
	WB	285 ft	23.2	C	144 ft	23.8	C
Intersection Average		N/A	20.2	C	N/A	17.7	B
Grand Ave. at SR-60 EB Off-Ramp	NB	195 ft	9.6	A	136 ft	6.0	A
	SB	113 ft	6.2	A	117 ft	4.5	A
	EB	201 ft	15.6	B	89 ft	12.8	B
Intersection Average		N/A	9.8	A	N/A	6.2	A
Grand Ave. at Golden Springs Drive	NB	331 ft	30.3	C	235 ft	35.2	D
	SB	250 ft	33.4	C	274 ft	34.5	C
	EB	890 ft	22.7	C	344 ft	27.5	C
	WB	325 ft	34.8	C	201 ft	31.9	C
Intersection Average		N/A	31.3	C	N/A	31.6	C

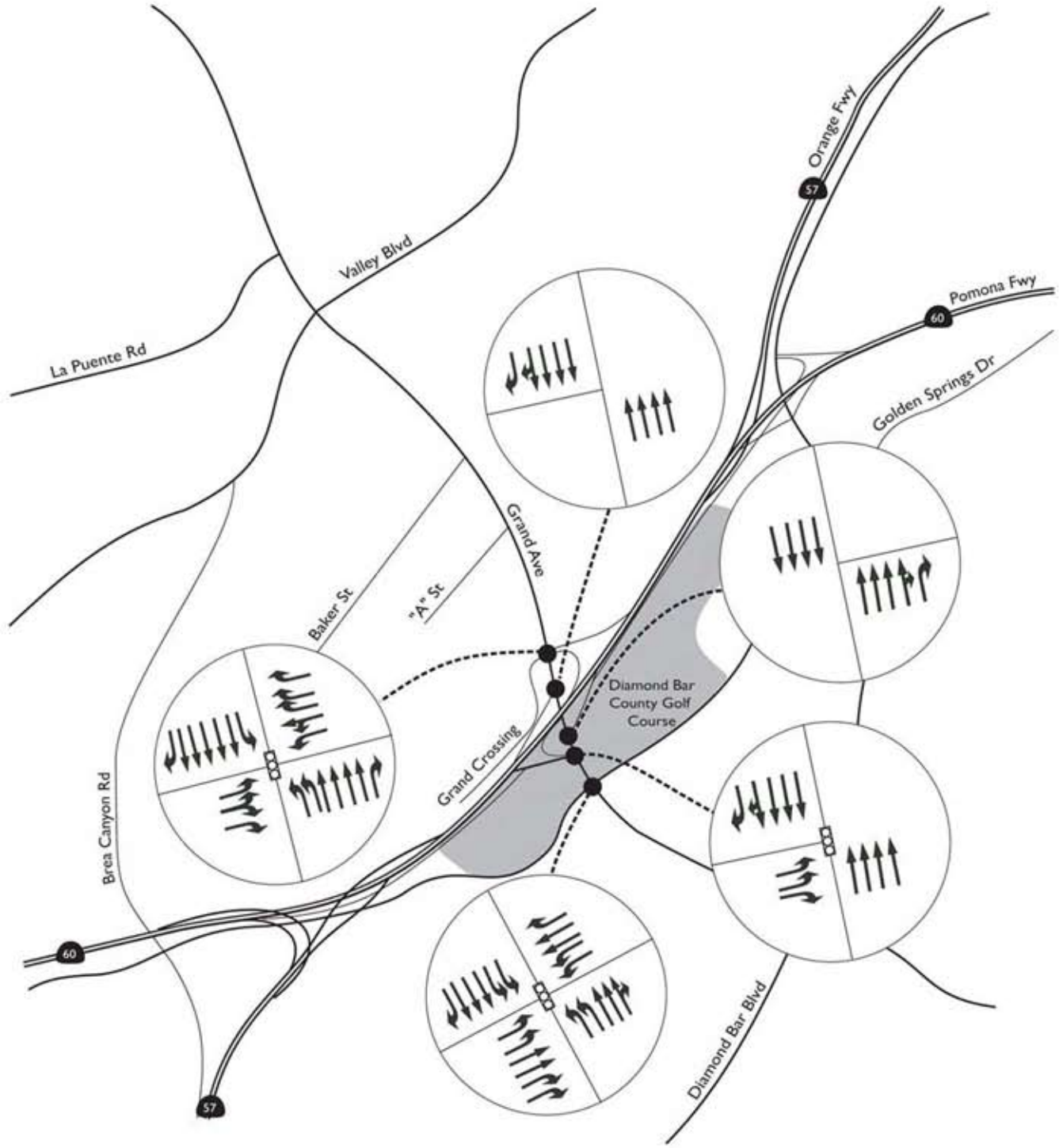
[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Tables 2-45 and 2-46 show the intersection analysis results for 2037 under Alternative 3 conditions, with Table 2-45 showing a summary of the entire intersection and Table 2-46 breaking down the queue length, delay, and level of service by approach. Of the three intersections studied, all are expected to perform at LOS D or better. Two approaches in each peak period are expected to operate at LOS E, with all other approaches exhibiting an LOS of D or better. When compared with 2037 Alternative 1 (No Project) conditions in which all three intersections are expected to perform at LOS F during the AM and PM peak hours, the three intersections have shorter queue lengths and delays under Alternative 3 conditions, equating to more favorable levels of service.

Table 2-45: Year 2037 Summary of Traffic Conditions for Alternative 3

Intersection	AM Peak Hour			PM Peak Hour		
	Queue Length	Delay [c]	Level of Service	Queue Length	Delay [c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp[a]	552 ft	38.0	D	305 ft	51.4	D
Grand Ave. at SR-60 EB Off-Ramp[a]	443 ft	20.0	C	172 ft	10.3	B
Grand Ave. at Golden Springs Drive	372 ft	49.6	D	500 ft	53.0	D

[a] Queue length in feet on freeway off-ramp approach
[b] Queue length in feet on southbound approach
[c] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.



LEGEND

- Study Intersection
- Signalized Intersection
- Lane Geometry

N

Not to Scale

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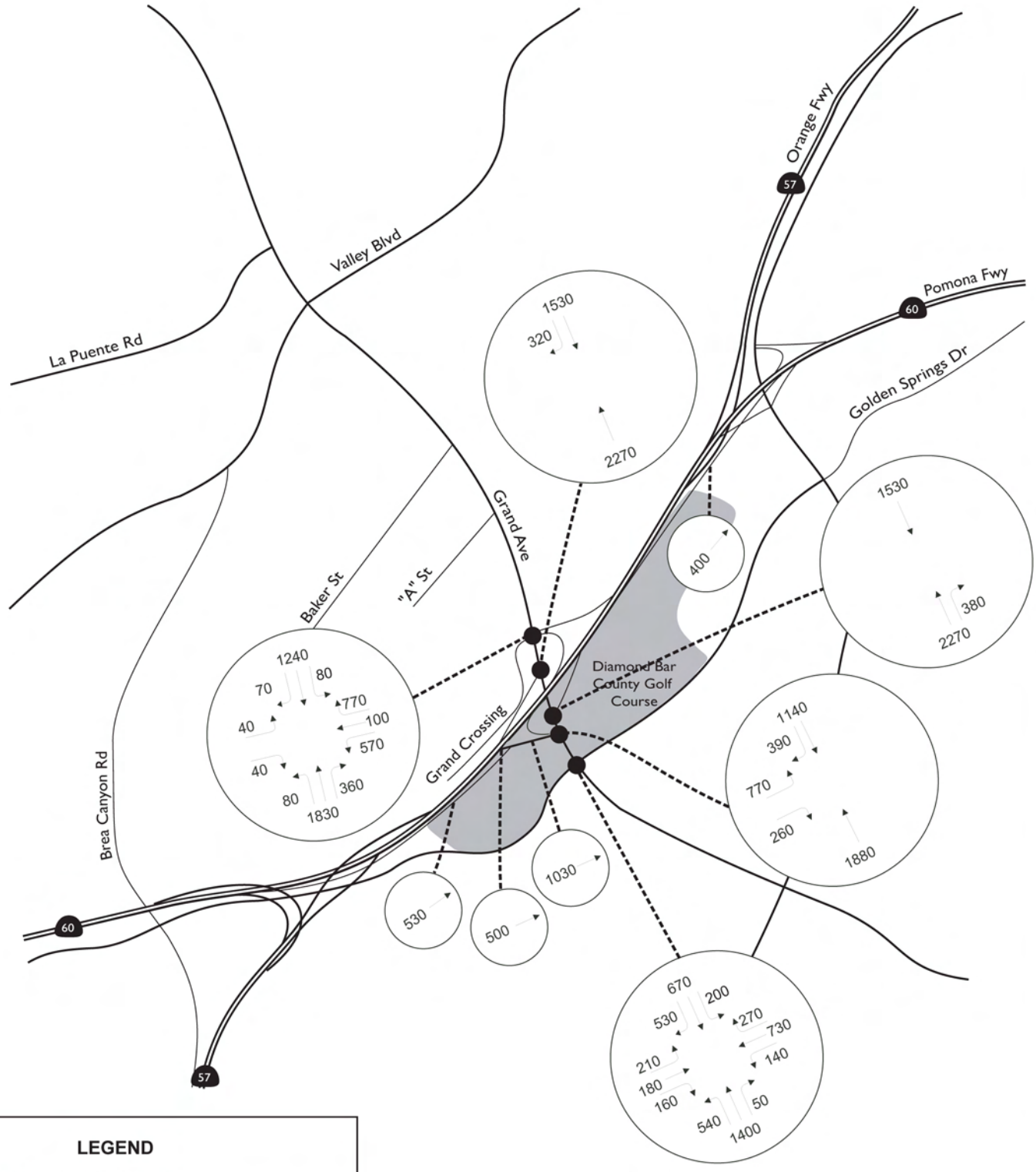
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-19

City of Diamond Bar/City of Industry

Alternate 3 Lane Geometry



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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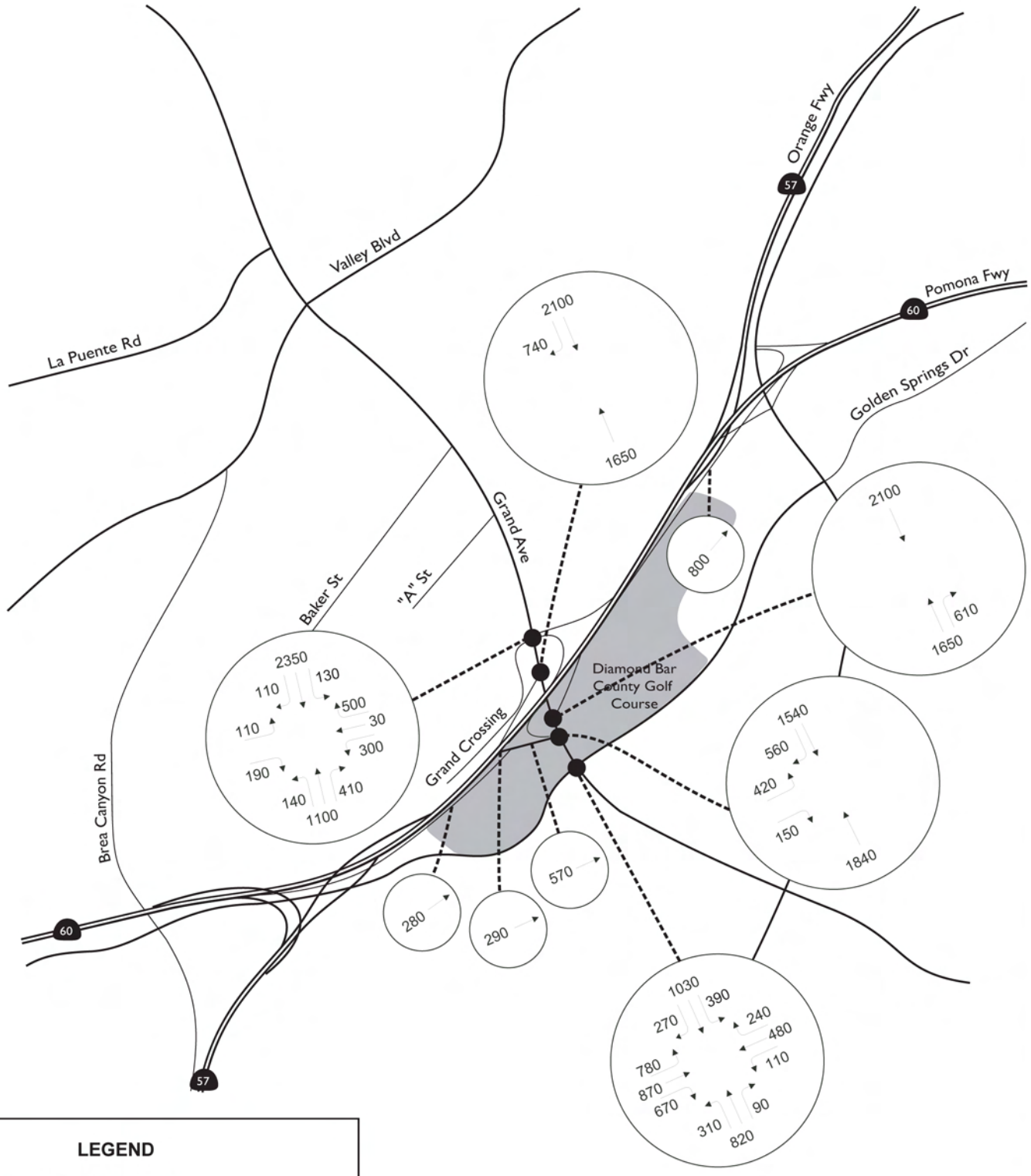
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-20

City of Diamond Bar/City of Industry

2017 Alternative 3 Traffic Volumes, AM Peak Hour



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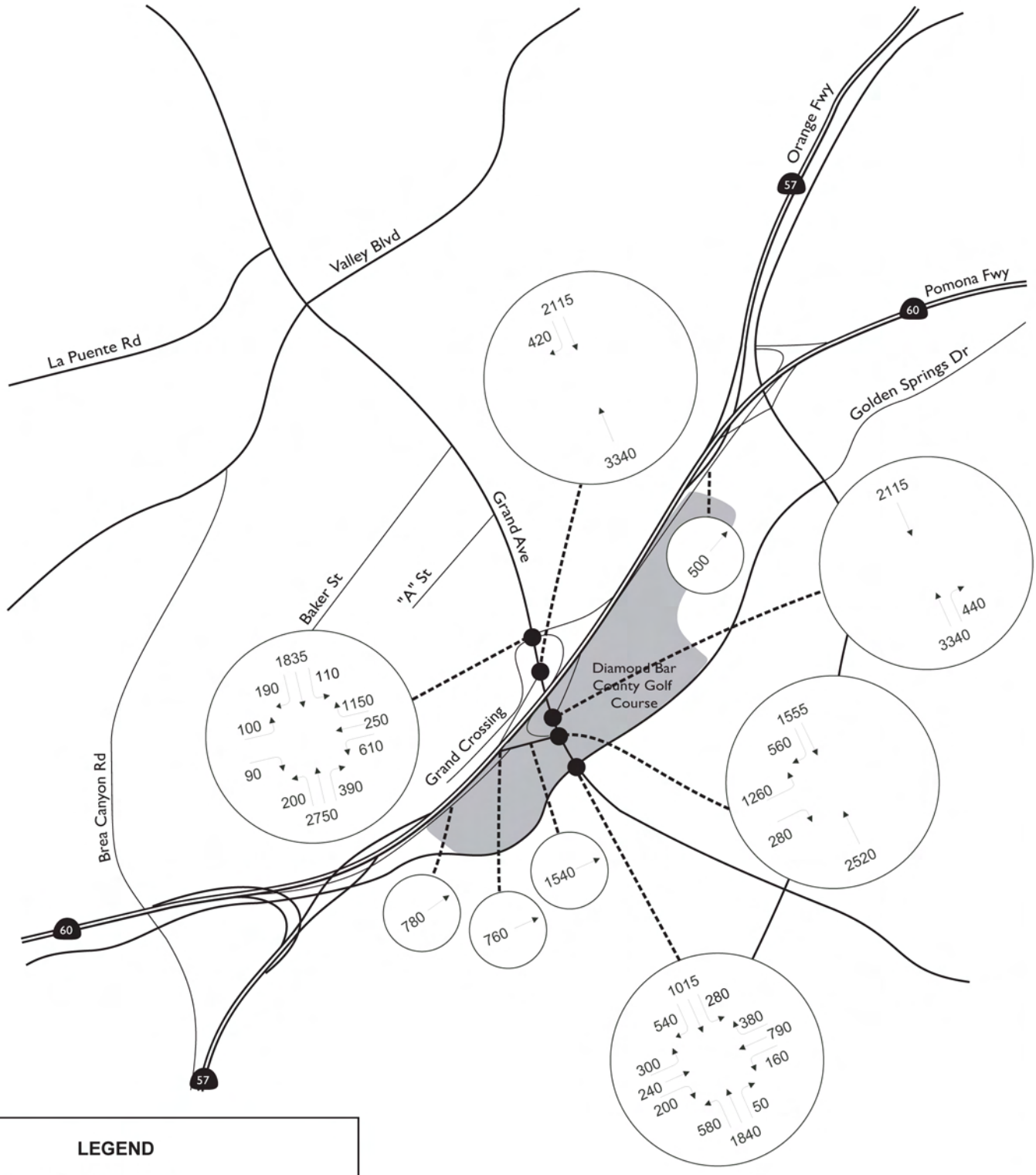
Traffic Study for SR-57/SR-60 Grand Ave Confluence

Figure 2-21

City of Diamond Bar/City of Industry

2017 Alternative 3 Traffic Volumes, PM Peak Hour



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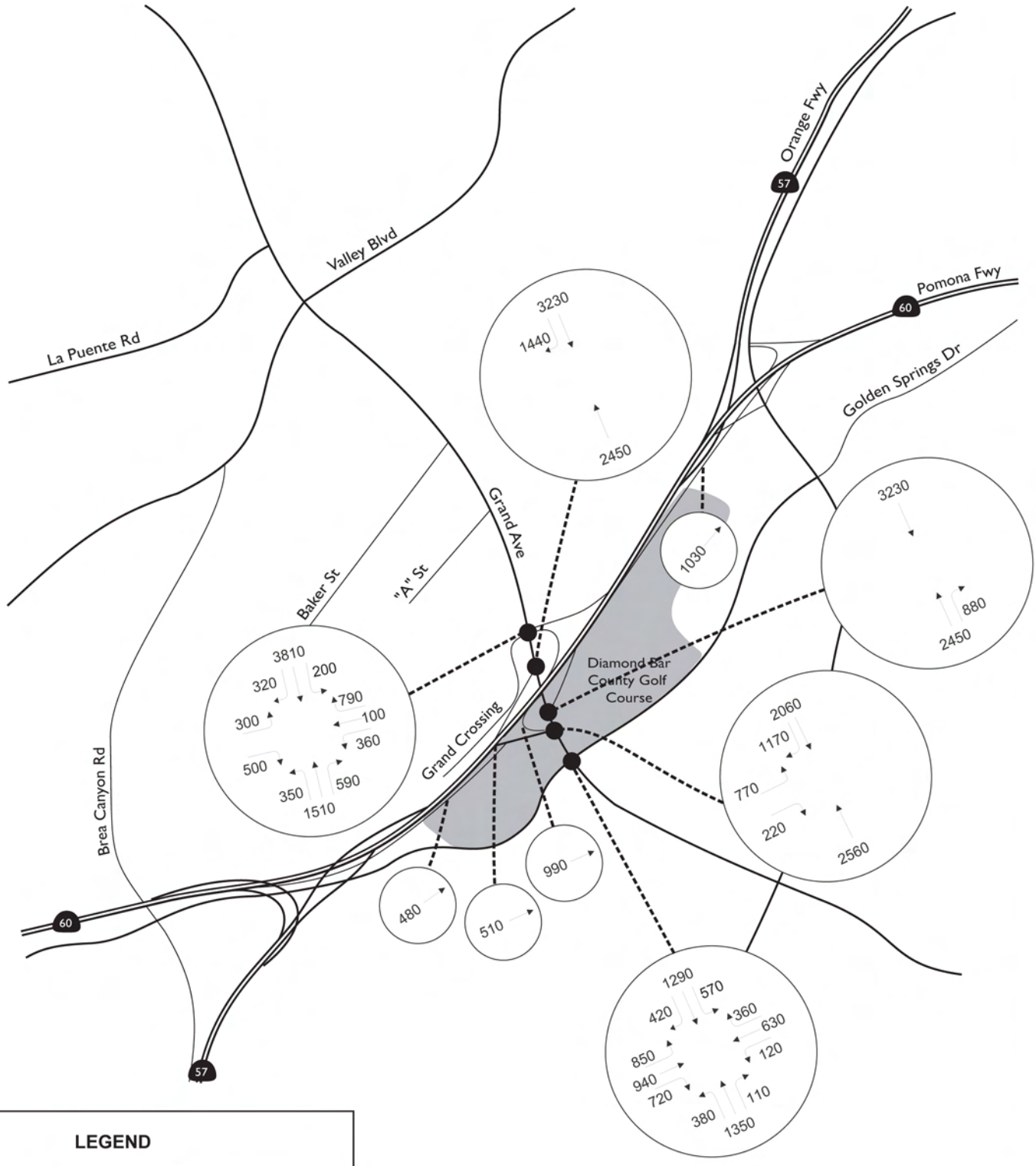
Traffic Study for SR-57/SR-60 Grand Ave Confluence **Figure 2-22**

City of Diamond Bar/City of Industry 2037 Alternative 3 Traffic Volumes, AM Peak Hour



LEGEND

- Study Intersection
- Major Street
- Minor Street
- XX Peak Hour Turning Movement Volume

N

Not to Scale

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Traffic Study for SR-57/SR-60 Grand Ave Confluence **Figure 2-23**

City of Diamond Bar/City of Industry 2037 Alternative 3 Traffic Volumes, PM Peak Hour

Table 2-46: Year 2037 Traffic Conditions by Approach for Alternative 3

Intersection		AM Peak Hour			PM Peak Hour		
		Queue Length[a]	Delay [b]	Level of Service	Queue Length	Delay [b]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp	NB	743 ft	36.9	D	251 ft	26.5	C
	SB	338 ft	27.9	C	739 ft	68.2	E
	EB	106 ft	59.4	E	333 ft	48.7	D
	WB	552 ft	48.5	D	305 ft	43.6	D
Intersection Average		N/A	38.0	D	N/A	51.4	D
Grand Ave. at SR-60 EB Off-Ramp	NB	446 ft	22.8	C	231 ft	10.2	B
	SB	242 ft	12.3	B	216 ft	8.2	A
	EB	443 ft	26.1	C	172 ft	17.3	B
Intersection Average		N/A	20.0	C	N/A	10.3	B
Grand Ave. at Golden Springs Drive	NB	667 ft	43.1	D	653 ft	59.4	E
	SB	372 ft	65.8	E	500 ft	53.0	D
	EB	236 ft	44.9	D	626 ft	49.6	D
	WB	406 ft	41.9	D	351 ft	50.3	D
Intersection Average		N/A	49.6	D	N/A	53.0	D

[a] 95th percentile, expressed in feet
[b] Delay in seconds per vehicle average
Source: Traffic Study Report, 2011.

Implementation of Alternative 3 is expected to improve traffic conditions at intersections for both 2017 and 2037 when compared with Alternative 1 (No Project). Alternative 3 would have a beneficial effect on traffic efficiency at intersections.

Alternative 3, Partial Cloverleaf Interchange Configuration

Freeway Segment Analysis

Alternative 3 was analyzed at 2017 and 2037 traffic levels using the HCM-2000 ramp diverge and merge methodologies.

Table 2-47 shows the eastbound SR-60 weaving section LOS calculations for 2017 under the Alternative 3 scenario. All but one segment would perform at LOS C or better during both the AM and PM peak hours. The one exception, the segment from the Brea Canyon Road on-ramp to the southbound SR-57 connector ramp is anticipated to operate at LOS D during the PM peak hour only. Although the segments studied vary slightly based on the different alternatives, when compared with 2017 Alternative 1 (No Project) conditions, the freeway segments under Alternative 3 generally perform more efficiently, resulting in no unacceptable segments (LOS F).

Table 2-47: Eastbound SR-60 Year 2017 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,500	61	28	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	5,750	61	22	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	5,200	63	21	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	9,800	61	23	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,300	61	24	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	9,700	59	23	C
Grand Avenue Slip On-Ramp to SR-57 NB Diverge	M/D	10,100	59	23	C
SR-57 NB Diverge to EB Bypass Connector	M/D	5,900	62	24	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5,800	62	24	C
Diamond Bar Off-Ramp to Diamond Bar On-Ramp	BF	5,300	62	24	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	5,600	63	20	B
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	5,700	63	20	B
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	7,000	52	30	D
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	6,100	55	24	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	5,800	63	24	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	10,300	61	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,000	59	24	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	61	23	C
Grand Avenue Slip On-Ramp to SR-57 NB Diverge	M/D	11,200	61	23	C
SR-57 NB Diverge to EB Bypass Connector	M/D	6,200	61	24	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5,900	61	24	C
Diamond Bar Off-Ramp to Diamond Bar On-Ramp	BF	5,400	62	18	B
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6,500	62	23	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	6,800	62	23	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-48 shows the results of the northbound SR-57 freeway segment analysis for 2017 under Alternative 3. During the AM peak hour, all seven of the segments analyzed are expected to operate at LOS C or better. Alternative 3 conditions compare favorably to the Alternative 1 (No Project) scenario in which five of the seven freeway segments studied are anticipated to operate at LOS F.

Table 2-48: Northbound SR-57 Year 2017 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,600	62	24	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	9,800	61	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,300	61	23	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	9,700	59	23	C
Grand Avenue Slip On-Ramp to SR-60 EB Diverge	WS	10,100	59	23	C
SR-60 EB Diverge to EB Bypass Connector	BF	4,400	61	19	B
EB Bypass Connector to Four-Lane Opening	BF	4,300	62	23	C
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,500	62	23	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	10,300	61	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,000	59	24	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	61	23	C
Grand Avenue Slip On-Ramp to SR-60 EB Diverge	WS	11,200	61	23	C
SR-60 EB Diverge to EB Bypass Connector	BF	5,500	61	23	C
EB Bypass Connector to Four-Lane Opening	BF	5,200	61	27	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-49 shows the westbound SR-60 weaving section analysis for 2017 under Alternative 3. All segments are expected to perform at LOS C or better during both AM and PM peak hours. Each segment under Alternative 3 is expected to perform as well as, or better than, the corresponding segment under the Alternative 1 (No Project) scenario.

Table 2-49: Westbound SR-60 Year 2017 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 SB Merge	BF	6,200	59	21	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	11,000	60	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	62	22	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,000	62	20	B
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	10,300	61	18	B
SR-57 SB Diverge to HOV Lane Merge	BF	4,200	64	12	B

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 SB Merge	BF	5,100	62	19	B
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	10,400	62	22	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	61	23	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,100	62	21	C
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	10,800	62	21	C
SR-57 SB Diverge to HOV Lane Merge	BF	5,600	63	19	B
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011.					

In Table 2-50, the findings of the SR-57 southbound weaving section analysis are shown. All but one of the six freeway segments studied are forecasted to operate at LOS C or better during both peak hours. The segment spanning from the Grand Avenue slip on-ramp to the SR-60 eastbound connector ramp is expected to perform at LOS D. Each segment under Alternative 3 is expected to perform as well as, or better than, the corresponding segment under the Alternative 1 (No Project) scenario.

Table 2-50: Southbound SR-57 Year 2017 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	4,800	61	28	C
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	11,000	60	24	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	62	22	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,000	62	20	B
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	10,300	61	18	B
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,300	61	29	D
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,300	62	26	C
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	10,400	62	22	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	9,600	61	23	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,100	62	21	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	10,800	62	21	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	5,700	62	24	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011.					

Table 2-51 shows the findings of the SR-60 eastbound weaving section analysis for 2037. All 12 freeway segments are anticipated to perform at LOS C during both the AM and PM peak hours. Although the segments studied vary by alternative, the segments studied under Alternative 3 generally perform as well as, or better than, those studied under Alternative 1 (No Project).

Table 2-51: Eastbound SR-60 Year 2037 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	9700	59	26	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	7500	58	25	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	6800	62	27	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	12100	60	28	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11300	57	28	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	11900	56	27	C
Grand Avenue Slip On-Ramp to SR-57 NB Diverge	M/D	12300	56	27	C
SR-57 NB Diverge to EB Bypass Connector	M/D	7400	61	27	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	7000	61	27	C
Diamond Bar Off-Ramp to Diamond Bar On-Ramp	BF	6400	61	27	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6700	62	23	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	7200	62	23	C
PM Peak Hour					
Brea Canyon On-Ramp to SR-57 SB Connector Ramp	WS	8900	58	24	C
SR-57 SB Connector Ramp to EB Bypass Off-Ramp	BF	7700	55	25	C
EB Bypass Off-Ramp to SR-57 NB Merge	BF	7200	63	24	C
SR-57 NB Merge to Grand Avenue Off-Ramp	WS	11800	59	28	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11300	58	27	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12400	60	26	C
Grand Avenue Slip On-Ramp to SR-57 NB Diverge	M/D	13300	60	26	C
SR-57 NB Diverge to EB Bypass Connector	M/D	6800	61	25	C
EB Bypass Connector to Diamond Bar Off-Ramp	BF	5800	61	25	C
Diamond Bar Off-Ramp to Diamond Bar On-Ramp	BF	5100	62	24	C
Diamond Bar On-Ramp to EB Bypass Connector	M/D	6600	61	25	C
EB Bypass Connector to Phillips Ranch Off-Ramp	BF	7600	61	25	C

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-52 shows the results of the northbound SR-57 freeway segment analysis for 2037 under Alternative 3 conditions. During the AM peak hour, all seven of the segments analyzed are expected to operate at LOS C. During the PM peak hour, three of the segments are forecasted to perform in a less efficient manner at LOS D while the others would operate at LOS C. Although the segments studied vary by alternative, the segments studied under Alternative 3 generally perform as well as, or better than, the corresponding segments studied under Alternative 1 (No Project).

Table 2-52: Northbound SR-57 Year 2037 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	5,300	61	28	C
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	12,100	60	28	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,300	57	28	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	11,900	56	27	C
Grand Avenue Slip On-Ramp to SR-60 EB Diverge	WS	12,300	56	27	C
SR-60 EB Diverge to EB Bypass Connector	BF	5,400	61	22	C
EB Bypass Connector to Four-Lane Opening	BF	4,900	61	27	C
PM Peak Hour					
SR-60 WB Connector Ramp to SR-60 EB Merge	BF	4,700	60	30	D
SR-60 EB Merge to Grand Avenue Off-Ramp	WS	11,800	59	28	C
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,300	58	27	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12,400	60	26	C
Grand Avenue Slip On-Ramp to SR-60 EB Diverge	WS	13,300	60	26	C
SR-60 EB Diverge to EB Bypass Connector	BF	7,500	59	29	D
EB Bypass Connector to Four-Lane Opening	BF	6,500	60	34	D

[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge
Source Traffic Study Report, 2011.

Table 2-53 shows the westbound SR-60 weaving section analysis for 2037 under Alternative 3. All segments are expected to perform at LOS D or better during both AM and PM peak hours. Unlike the Alternative 1 (No Project) scenario, no segments are expected to operate at LOS F under Alternative 3. During the AM peak hour, two segments (the segments from the Grand Avenue loop on-ramp to the southbound SR-57 diverge point) are expected to perform marginally better under Alternative 1 (No Project) than under Alternative 3 (LOS B versus LOS C), but all other segments are expected to operate more efficiently under Alternative 3 than under Alternative 1 (No Project).

Table 2-53: Westbound SR-60 Year 2037 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 SB Merge	BF	6,300	62	23	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	12,100	57	29	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,100	60	26	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	60	23	C
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	11,000	60	22	C
SR-57 SB Diverge to HOV Lane Merge	BF	4,800	64	14	B

Freeway Segment	Freeway Type [a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
PM Peak Hour					
Diamond Bar Blvd On-Ramp Merge Lane End to SR-57 SB Merge	BF	6,400	60	24	C
SR-57 SB Merge to Grand Avenue Off-Ramp	WS	12,700	56	31	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,400	56	31	D
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12,300	60	27	C
Grand Avenue Slip On-Ramp to SR-57 SB Diverge	WS	13,700	60	26	C
SR-57 SB Diverge to HOV Lane Merge	BF	7,600	62	24	C
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011.					

In Table 2-54, the findings of the SR-57 southbound weaving section analysis are shown. All of the six freeway segments studied are forecasted to operate at LOS C or D during both peak hours.

Table 2-54: Southbound SR-57 Year 2037 Traffic Conditions, Alternative 3

Freeway Segment	Freeway Type[a]	Volume	Speed (mph)	Density (Veh/Mi/Ln)	LOS
AM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	5,800	58	33	D
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	12,100	57	29	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	10,100	60	26	C
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	10,600	60	23	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	11,000	60	22	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,200	60	33	D
PM Peak Hour					
Sunset Crossing On-Ramp Merge Lane End to SR-60 WB Merge	BF	6,400	60	33	D
SR-60 WB Merge to Grand Avenue Off-Ramp	WS	12,700	56	31	D
Grand Avenue Off-Ramp to Grand Avenue Loop On-Ramp	WS	11,400	56	31	D
Grand Avenue Loop On-Ramp to Grand Avenue Slip On-Ramp	WS	12,300	60	27	C
Grand Avenue Slip On-Ramp to SR-60 WB Diverge	WS	13,700	60	26	C
SR-60 WB Diverge to SR-60 EB Connector Ramp	BF	6,100	61	30	D
[a] BF=Basic Freeway, WS=Weaving Segment, M/D=Merge/Diverge Source Traffic Study Report, 2011.					

For the vast majority of freeway segments analyzed for both 2017 and 2037, implementation of Alternative 3 would result in improved traffic operations when compared with the Alternative 1 (No Project) scenario. In the limited number of cases where LOS under Alternative 1 would result in better traffic performance than Alternative 3, the difference in performance would not be substantial, and would not create deficient operations (LOS E or F). No adverse effects would occur with respect to freeway segment operations under Alternative 3.

ADA

Similar to Alternative 2, Alternative 3 would involve the replacement of the existing SR-57/SR-60 overcrossing with a new overcrossing. All pedestrian amenities would be constructed in conformance with the ADA, including sidewalks with curb ramps at intersections. No adverse effects on those with disabilities would occur as a result of implementation of Alternative 3.

Public Transit Service

Foothill Transit operates six bus lines within a mile of the site of the project. These include the 286, 482, 493, 497, 853, and 854 lines, which would continue to operate during and after construction of proposed project. All of these lines except for lines 497 and 853 cross under SR-60 at Diamond Bar Boulevard, which would be replaced as result of implementation of Alternative 3. Lines 482, 493, 853, and 854 operate on Golden Springs Drive, which would be widened under Alternative 3. Construction would occur in phases and would limit closures to non-peak hours to prevent serious delays to public transportation. Implementation of Alternative 3 would have no adverse effects with respect to public transit service.

Safety

Implementation of Alternative 3 would offer safety improvements. Construction of a new eastbound SR-60 bypass off-ramp and a new bypass connector would result in fewer vehicle conflicts and reduced weaving, thereby improving safety. Implementation of Alternative 3 would result in beneficial effects with respect to safety.

Non-Motorized Vehicle and Pedestrian Features

Construction of the new overcrossing structures above Prospectors Road and Diamond Bar Boulevard as well as the Grand Avenue overcrossing structure would occur in stages to limit road closures, so access for non-motorized vehicle users and pedestrians would be maintained.

There are no existing or planned amenities for bicycles or other non-motorized vehicles along Grand Avenue or elsewhere in the vicinity of the project. While people using these modes are capable of traveling along Grand Avenue, the cities of Industry and Diamond Bar have not designated Grand Avenue as a non-motorized transportation corridor. Implementation of Alternative 3 would not add any amenities for users of bicycles or other non-motorized vehicles.

Pedestrians are currently able to negotiate the Grand Avenue overcrossing along walkways on both sides of the street. However, given the considerable distances between destination points, walking is unlikely to become a major mode of transportation in the area. Nevertheless, implementation of Alternative 3 would create ADA-compliant sidewalks on either side of the new overcrossing. In addition, Alternative 3 would involve the installation of an 8-foot-wide sidewalk on the east side of Grand Avenue to the north of the SR-57/SR-60 overcrossing. Currently, there is continuous sidewalk only on the west side of Grand Avenue north of the overcrossing.

No adverse effects on non-motorized vehicle and pedestrian travel would occur as a result of implementation of Alternative 3.

2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

Neither of the build alternatives (Alternatives 2 and 3) would result in adverse effects on transportation. No avoidance or minimization measures are required. However, the following measures shall be implemented to further minimize the potential for disruptions to circulation during construction of the project.

- As a part of the proposed project, a comprehensive multi-agency traffic management plan (TMP) will be prepared that will coordinate sufficient access for motorists on the freeway and on local streets. In addition, emergency responders will be notified of any potential lane closures or access restrictions during construction, to ensure emergency response times are not affected and there is sufficient access at all times for emergency vehicles. Finally, the TMP will also seek to coordinate construction activities with public transit providers in the area, including Foothill Transit, so they are aware of any potential impacts to routes and transit stops ahead of time, and are able to communicate any changes to existing transit routes and stops, if necessary.

2.1.6 Visual/Aesthetics

2.1.6.1 Regulatory Setting

NEPA 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 USC 4331(b)(2)]. To further emphasize this point, FHWA in its implementation of NEPA [23 USC 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.

Likewise, CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (California Public Resources Code [PRC] Section 21001[b]).

State Designated Scenic Highways

California's Scenic Highway Program, which was created by the legislature in 1963, serves the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors through special conservation treatments. According to the California Department of Transportation, a state route must be included on the list of highways eligible for the California Scenic Highway Program, which is found in Streets and Highways Code Section 263. The status of a proposed state scenic highway changes from eligible to officially designated when the local governing body applies for scenic highway approval, adopts a corridor protection program, and receives notification that the highway has been officially designated as a Scenic Highway.

The project site does not include any eligible or officially designated state scenic highways.

2.1.6.2 Affected Environment

A visual impact assessment (VIA) was prepared for the proposed project in June 2012. The information contained in this section is based on the analysis conducted for the VIA report. The VIA was conducted in accordance with guidance provided by FHWA and satisfies the requirements of NEPA and CEQA.

Visual Setting, Viewshed, and Sensitive Viewers

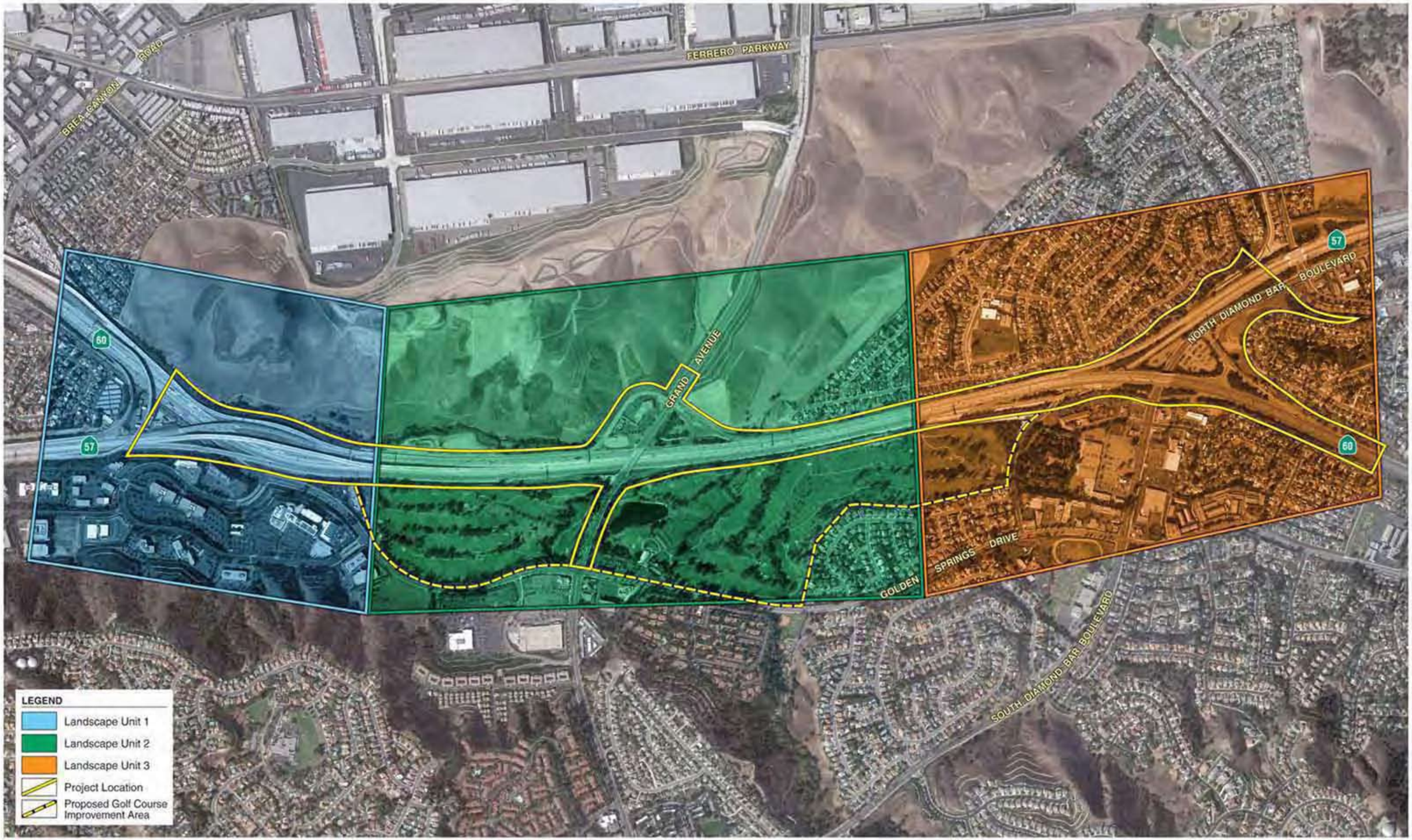
Project Setting

The regional landscape establishes the general visual environment of the project; however, the specific visual environment upon which this assessment focuses is determined by defining landscape units and the project viewshed.

The regional landscape of the southeastern portion of the county is characterized by rolling hills and distant mountains. Ridgetops associated with the Angeles National Forest (Sunset Peak, 5,796 feet above mean sea level [msl]; Stoddard Peak, 4,624 feet above msl) are visible north of the project area. The San Jose Hills are also located north of the project area (Buzzard Peak, 1,375 feet above msl). The Chino Hills and the Puente Hills are visible south of the project area (ranging in elevation from approximately 700 to 1,300 feet above msl). The project site, which is located in a shallow valley area of the county (approximately 600 to 770 feet above msl), provides views of hilltops within the San Jose Hills, Chino Hills, and Puente Hills. However, more distant views of Angeles National Forest are also afforded. The project site is also surrounded by a mix of developed uses, including commercial, residential, recreational, institutional, and transportation uses.

Landscape Units

A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit often corresponds to a place or district that is commonly known among local viewers. The project site can be separated into three distinct landscape units, according to the different views and the character experienced within each (see Figure 2-24, Landscape Units).



not to scale

Figure 2-24
Landscape Units
State Route 57/State Route 60 Confluence at Grand Avenue Project

Landscape Unit 1: Southern SR-57/SR-60 Connector

Landscape Unit 1 (LU1) is located in the southern portion of the project area, in the cities of Industry and Diamond Bar. LU1 lies within a section of land along SR-57/SR-60 stretching from the southern boundary of the project site (between Brea Canyon Road and the SR-57/SR-60 connector) to a point approximately 1,500 north of the SR-57/SR-60 connector. LU1 is located within a valley that gently slopes to the southeast. Therefore, the elevations of the freeway mainline range from approximately 600 to 660 feet above msl, while elevations of the terrain to the east and west are approximately 700 feet above msl.

LU1 consists of the SR-57/SR-60 connector and surrounding areas, Diamond Bar Creek, undeveloped land in the City of Industry, commercial uses within the City of Diamond Bar, and some residential uses. The commercial uses within the eastern portion of LU1 account for the majority of land uses within LU1. Although man-made features (e.g., residential and commercial development) exist within LU1, the surrounding rolling hills to the west are also prominent features. Other hardscape features (e.g., overcrossings, barriers) are also present within LU1. Several mature trees and other ornamental landscaping features are located within LU1 and along the SR-57/SR-60 corridor.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Landscape Unit 2 (LU2) is located within the central portion of the project site. It extends from the southern boundary of LU1 to the SR-57 off-ramp in the City of Diamond Bar. LU2 is located within a valley that gently slopes to the southeast. Therefore, the elevations of the freeway mainline range from approximately 640 to 700 feet above msl, while elevations of the terrain to the east and west are approximately 700 to 800 feet above msl. LU2 is surrounded by commercial, residential, and undeveloped hillside uses to the west and recreational (golf course), commercial, and some residential uses to the east. Diamond Bar Golf Course, which has a substantial number of trees, along with other vegetation, is the dominant use in LU2. The project site, within LU2, is surrounded by commercial, residential, and recreational uses. Other man-made features within LU2 include roadways, soundwalls, retaining walls, and barriers.

Landscape Unit 3: Northern SR-57/SR-60 Split

Landscape Unit 3 (LU3) is located within the northern portion of the project site. It extends from the boundary of LU2 to a point approximately 1,700 feet north of the SR-57/SR-60 split in the City of Diamond Bar. LU3 is surrounded by residential and institutional units to the north, east, and west and commercial, recreational, and institutional uses to the east. LU3, which is built out, includes mainly residential and commercial development. Man-made features within LU3 include residential, commercial, and institutional structures; soundwalls; retaining walls; and barriers. LU3 is located in a sloping area, with elevations ranging from approximately 700 to 800 feet above msl.

Project Viewshed

A viewshed is a subset of a landscape unit. It comprises all of the surface areas visible from an observer's viewpoint. The extent of the viewshed is defined as the farthest point visible from the project site. The viewshed also includes the locations of viewers who are likely to be affected by visual changes brought about by project features.

A site visit conducted on July 13, 2010, determined that scattered views of the project site are afforded from surrounding urban land uses within a 1-mile radius of the project site. Views of the project site are also afforded from adjoining residential, commercial, and institutional uses. Views from the project site are afforded to motorists on SR-57/SR-60 (see Figure 2-25, Viewshed Map – Alternative 2 and Alternative 3).

Landscape Unit 1: Southern SR-57/SR-60 Connector

Views of the project site within LU1 are afforded to some residents located at higher elevations to the east, south, and west. Views of the project site are also afforded from adjacent commercial uses to the east, which are located at higher elevations than the freeway mainline. Views of the project site are afforded to travelers on SR-57/SR-60. Views within LU1 consist of the SR-57/SR-60 travel lanes, surrounding residential and commercial uses, valleys, and surrounding hillsides. The ridgetops of the Angeles National Forest are visible from the northbound/ eastbound travel lanes, and distant views to the Puente Hills and Chino Hills are afforded from the southbound/westbound travel lanes.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Within LU2, the project site is visible to residential, commercial, and recreational (golf course) uses east of SR-57/SR-60. Views from the project site are afforded to travelers on SR-57/SR-60 and the Grand Avenue overcrossing. Views within LU2 generally consist of the SR-57/SR-60 travel lanes, soundwalls, retaining walls, barriers, surrounding undeveloped hillsides, and surrounding recreational and residential uses. The ridgetops of the Angeles National Forest are also visible from the northbound/eastbound travel lanes, and distant views to the Puente Hills and Chino Hills are afforded from the southbound/westbound travel lanes.

Landscape Unit 3: Northern SR-57/SR-60 Split

Within LU3, the project site is visible to the adjacent residential, commercial, institutional, and recreational (golf course) uses. Views from the project site are afforded to travelers on SR-57/SR-60. Views within LU3 generally consist of the SR-57/SR-60 travel lanes; surrounding residential, commercial, and institutional structures; soundwalls; retaining walls; and hillsides. The ridgetops of the Angeles National Forest are visible from the northbound/eastbound travel lanes, and distant views to the Puente Hills and Chino Hills are afforded from the southbound/westbound travel lanes.

Existing Visual Character

Existing visual resources within the project area include the surrounding hillsides and valleys. Vegetation in the project area consists of ornamental trees and landscaping along the freeway and local roadways as well as within the surrounding commercial areas. Diamond Bar Golf Course, which is located east of the project site, contains mature trees and vegetation. The visible form and line of the valley and the distant ridgelines of the Angeles National Forest to the north, the Chino Hills and Puente Hills to the south, and the color and texture of the vegetated adjacent hillsides to the east enhance the visual character in the area. Man-made features consist of urban development. Signage associated with the freeway and the various commercial uses is also visible.

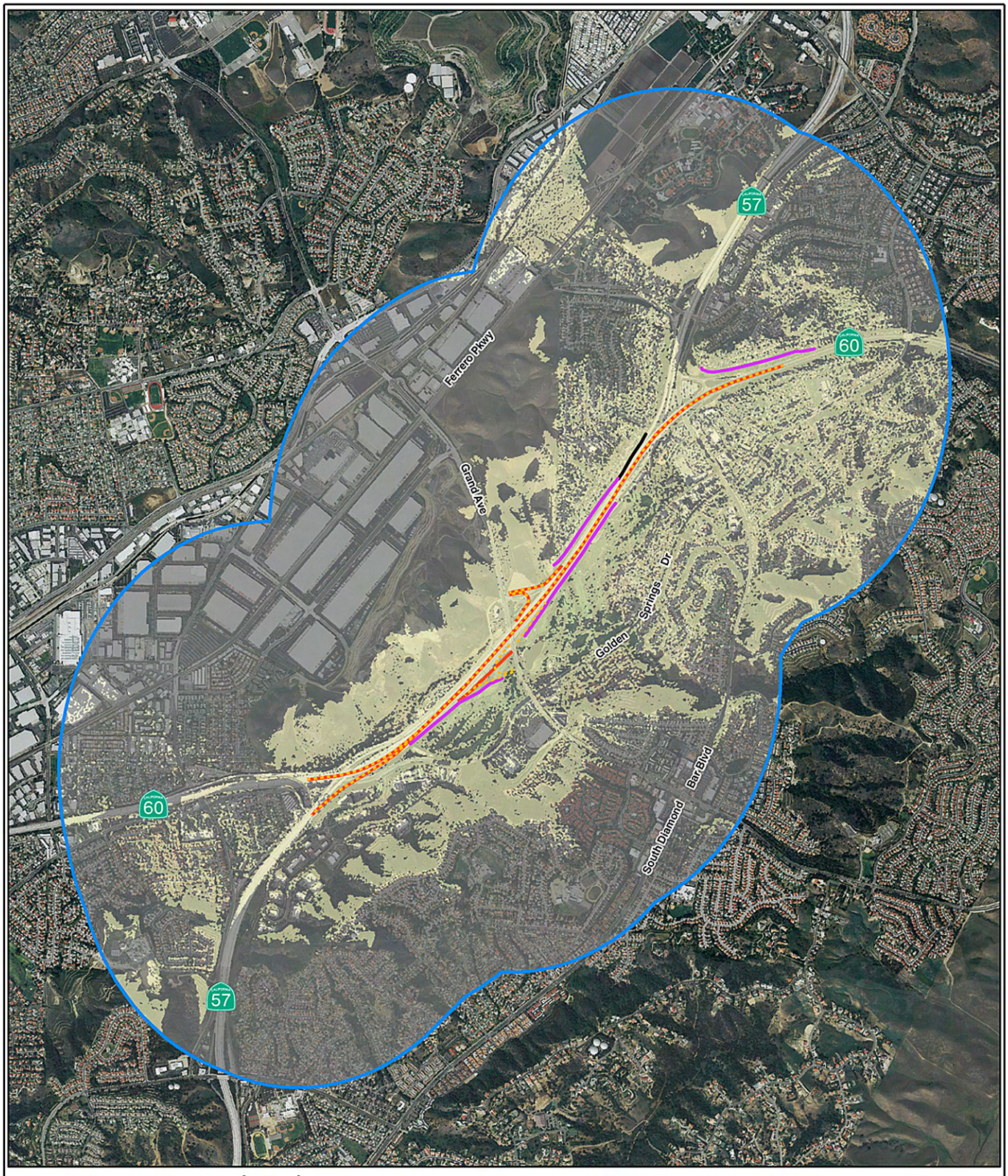


Figure 2-25

Viewshed Map, Alternative 2 and Alternative 3

State Route 57/State Route 60 Confluence at Grand Avenue Project

Landscape Unit 1: Southern SR-57/SR-60 Connector

Existing visual resources within LU1 include Diamond Bar Creek as well as the surrounding hillsides and valleys. Vegetation within LU1 consists of ornamental trees and landscaping along the east and west sides of SR-57/SR-60 as well as along local roadways and within surrounding commercial and residential areas. Mature vegetation located along Diamond Bar Creek, just west of the project site, is partially visible.

The visible form and line of the valley and the distant ridgelines of the Angeles National Forest and the Puente Hills and Chino Hills to the north and south as well as the color and texture of the surrounding hillsides adjacent to the east and west enhance the visual character of LU1. Man-made features within LU1 consist of urban development to the east and the south. Freeway signage is also visible within LU1.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Visual resources within LU2 include the surrounding hillsides and Diamond Bar Creek. Mature ornamental landscaping is present along SR-57/SR-60 and within the residential and recreational (golf course) land uses in LU2. Hillsides and mature trees are present along the west side of SR-57/SR-60 in LU2. These features increase the vividness within this view. Hillside residential development to the east creates an increased sense of vividness and unity between the natural and urban landscape. Views of ornamental landscaping along local roadways are also afforded in LU2.

Landscape Unit 3: Northern SR-57/SR-60 Split

Visual resources within LU3 include the surrounding hillsides to the east. Mature trees and ornamental vegetation are located along the SR-57/SR-60 mainline. The presence of mature vegetation increases intactness in the project area. Residential uses atop hillsides to the east as well as commercial structures are visible from several locations throughout LU3. The varying line, form, and texture of the hillsides and the mature vegetation along SR-57/SR-60 create an increased sense of intactness and unity throughout LU3.

Existing Visual Quality

Existing visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed. FHWA states that this method should correlate with the public's judgment of visual quality well enough to predict such judgment. This approach is particularly useful in highway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating each adverse impact that may occur as a result of a project. The three criteria for evaluating visual quality can be defined as follows:

- **Vividness** is the visual power or memorability of landscape components as they combine in distinctive visual patterns.
- **Intactness** is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-maintained urban and rural landscapes as well as in natural settings.

- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual man-made components in the landscape.

Visual quality within the project area is considered to be moderately high. Distant background views are afforded of the ridgetops associated with the Angeles National Forest, which is located north of the project site. Such views create a distinctive visual pattern for northbound travelers. Stoddard Peak (elevation 4,624 feet), Sunset Peak (elevation 5,796 feet), and Frankish Peak (elevation 4,198 feet) are among the ridgetops visible north of the project site. The Puente Hills and Chino Hills are visible south of the project site, providing southbound travelers with distant views of ridgetops and hillsides.

Commercial uses to the east and freeway signage appear to encroach on the views of travelers on SR-57/SR-60. Visual unity is increased by the presence of mature trees and landscaping along the SR-57/SR-60 corridor and on the hillsides to the east and west.

Landscape Unit 1: Southern SR-57/SR-60 Connector

The average visual quality within LU1 is considered to be moderate to moderately high. Drivers who use SR-57/SR-60 generally have views of roadway uses, adjacent commercial development, surrounding hillsides, valleys, and distant mountains. The commercial uses are located in an area with varied topography and substantial ornamental landscaping. The existing commercial signage throughout LU1 detracts from the project area's intactness. Distant background views are afforded of the vivid ridgetops associated with the Angeles National Forest. Such views create a distinctive visual pattern for northbound/eastbound travelers. Puente Hills and Chino Hills ridgetops are visible from the southbound/westbound travel lanes within LU1.

Diamond Bar Creek is located within the western portion of LU1; however, it is not visible from travel lanes within LU1. Motorists traveling on SR-57/SR-60 have views to hillsides and ornamental landscaping east and west of the freeway. Commercial uses to the east as well as the hardscape of the various SR-57/SR-60 ramps encroach on views of travelers on SR-57/SR-60. Visual unity is inhibited by the varying character of development east (commercial uses) and west (undeveloped hillsides) of SR-57/SR-60 within LU1.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

The average existing visual quality within LU2 is considered to be high. LU2 consists of recreational (golf course) and residential uses as well as undeveloped hillsides. Visual quality is increased in LU2 by the trees and vegetation within the golf course and the landscaped medians within local roadways. Northbound/eastbound travelers on SR-57/SR-60 have background views of the vivid ridgetops associated with the Angeles National Forest. Puente Hills and Chino Hills ridgetops are also visible from southbound/westbound travel lanes within LU2. Diamond Bar Creek is located west of LU2; however, it is not visible from the project site because of intervening topography. Mature trees and ornamental landscaping are visible along the east and west sides of SR-57/SR-60, which increases unity throughout LU2. The Grand Avenue overcrossing and the large freeway signage within LU2 encroach on views of SR-57/SR-60 motorists.

Landscape Unit 3: Northern SR-57/SR-60 Split

The average existing visual quality within LU3 is considered to be moderately high. LU3 is characterized by residential, commercial, recreational, and institutional uses. The residential uses are located in an area with varying topography and mature trees. Commercial uses within LU3 are located in a flat area with some ornamental landscaping. Motorists traveling on SR-57/SR-60 have views of surrounding mature trees and ornamental landscaping as well as the vivid ridgetops of the Angeles National Forest to the north, the Puente Hills and Chino Hills to the south, and rolling hillsides to the east. Soundwalls, which encroach on views in the project area, are visible along the west side of SR-57/SR-60 throughout LU3.

Viewer Sensitivity

Viewer sensitivity is defined as both as the viewers' concern for scenic quality and the viewers' response to changes in the visual resources that make up the view. Local values and objectives may confer visual significance on landscape components and areas that would otherwise appear unexceptional in a visual resource analysis. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of its visual goals. Analysts can learn about these special resources and community aspirations for visual quality through citizen participation procedures as well as from local publications and planning documents.

Multiple sensitive viewers adjoin the project site, the majority of which consist of residential, commercial, and recreational uses. Although portions of the southern and eastern areas of the project site are located within the City of Industry, the city's general plan does not identify any visual resources or policies to protect visual resources. The City of Diamond Bar, however, has developed policies and objectives pertaining to scenic resources within its general plan. Views of designated visual resources within the city are protected through a combination of development review, zoning, design programs, design review, and proper management of hillside and open space areas. According to the City of Diamond Bar General Plan, designated visual resources within the city include natural slopes and ridgelines. The City of Diamond Bar General Plan includes the following goals, objectives, and strategies within the Resources Management Element regarding visual resources:

> *Goal 1*: ". . . create and maintain an open space system that will preserve scenic beauty, protect important biological resources, provide open space for outdoor recreation and the enjoyment of nature, conserve natural resources, and protect public health and safety."
>
> > *Objective 1.1*: Preserve significant visual features that are within or are visible from the City of Diamond Bar, with an emphasis on the preservation of remaining natural hillside areas.
> >
> > > *Strategy 1.1.1*: Develop regulations for the protection of ridgelines, slope areas, canyons, and hilltops. Require contour or landform grading, clustering of development, or other means to minimize visual and environmental impacts on ridgelines or prominent slopes.
> > >
> > > *Strategy 1.1.4*: Preserve to the maximum extent feasible existing vegetation within undeveloped hillside areas.
> > >
> > > *Strategy 1.1.6*: Pursue the preservation of areas within Diamond Bar and its Sphere of Influence of outstanding scenic, historic, and cultural value.

The City of Diamond Bar also includes hillside development standards and guidelines within Section 22.22.050 of its municipal code. The hillside development standards and guidelines are intended to ensure the appropriate management of hillside areas within the City of Diamond Bar. These standards are requirements for the use, development, or alteration of land in hillside areas.

The following is a discussion of designated visual resources located within each landscape unit of the project site.

Landscape Unit 1: Southern SR-57/SR-60 Connector

The southern portion of the project site (LU1) is located in the cities of Diamond Bar and Industry. The City of Diamond Bar values natural slopes and ridgelines and considers them to be the city's most prominent visual resources. No visual resources have been identified within the City of Industry. Within LU1, views of slopes and ridgelines are afforded east and west of SR-57/SR-60. Views of the project site within LU1 are afforded to travelers on SR-57/SR-60 and Golden Springs Drive as well as viewers at commercial uses. Views from adjacent residential uses south of the project site in LU1 are limited because of intervening structures, soundwalls, and mature trees. Viewer sensitivity of these groups is considered to be moderate.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

The central portion of the project site (LU2) is located within the cities of Diamond Bar and Industry. Natural slopes and ridgelines are visible east and west of SR-57/SR-60 from several locations within LU2. Views of the project site within LU2 are afforded to freeway travelers, recreational users, and residents atop the hillsides east of the project site. Viewer sensitivity of freeway travelers is considered to be moderate, while viewer sensitivity of recreational users and residents is considered to be high.

Landscape Unit 3: Northern SR-57/SR-60 Split

The northern portion of the project site (LU3) is located in the City of Diamond Bar. Hills and ridgelines are visible east and west of SR-57/SR-60 within LU3. Views of the project site within LU3 are afforded to freeway travelers, recreational users, and residents. Viewer sensitivity of freeway travelers is considered to be moderate, while viewer sensitivity of recreational users and residents is considered high.

Viewer Exposure

Viewer exposure is typically assessed by measuring the number of viewers exposed to the resource change, the type of viewer activity, the duration of the view, the speed at which the viewer moves, and the position of the viewer. High viewer exposure heightens the importance of early consideration of design, art, and architecture, along with their roles in managing the visual resource effects of a project.

Freeway Travelers

Freeway travelers view the project site through all three landscape units. Drivers on SR-57/SR-60 in the project area have moderate-duration direct views of the project site. The existing daily traffic volume on Grand Avenue (west of the SR-60 westbound ramps) totals approximately 26,450 vehicles, with peak-hour volumes ranging from 2,342 to 2,645 vehicles. Existing daily traffic volumes on SR-57 within the project site range from approximately 99,000 to 131,000 vehicles, with peak-hour volumes ranging from 7,300 to 9,600 vehicles. Existing daily traffic volumes on SR-60 within the project site range from approximately 339,000 to 352,000 vehicles, with peak-hour volumes ranging from 22,400 to 23,800 vehicles.

SR-57/SR-60 serves as the primary regional transportation corridor in the project area. Motorists on SR-57/SR-60 would have direct views of the project site. Visible designated visual resources include natural slopes and ridgelines. Daily commuters along SR-57/SR-60 may have an increased awareness of the project because of daily exposure to the project area. These travelers would be moderately sensitive to project changes.

Community Residents

Landscape Unit 1: Southern SR-57/SR-60 Connector

Residents in the vicinity of LU1 adjacent to and south of SR-57/SR-60 would have long-duration or no views of the project area. Most views of SR-57/SR-60 from nearby residences are blocked by structures and mature trees. However, those residents with partial views of the project site would have long-duration views. Because viewer exposure would be minimal, most residents in LU1 are likely to have a low concern for the project and its effect on views from their homes and neighborhoods.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Some residents are located within the northern portion of LU2, both east (along Golden Prados Drive) and west (along Rock River Road) of SR-57/SR-60. However, residents would have limited views of the project site because of topographic obstructions, intervening structures, and mature vegetation. Because viewer exposure would be minimal, these residents are likely to have a moderately low concern for the project and its effect on views from their location.

Landscape Unit 3: Northern SR-57/SR-60 Split

There are numerous residents in the vicinity of LU3, both east (along Golden Prados Drive and Palomino Drive) and west (along Rock River Road and Rock River Drive) of SR-57/SR-60 as well as north of the SR-57/SR-60 split (along Decorah Road). Residents within LU3 have limited views of SR-57/SR-60 because of intervening topography, structures, soundwalls, and mature vegetation. These residents are likely to have a moderately low concern for the project and its effect on their views because viewer exposure would be minimal.

Commercial Area Employees and Customers

Landscape Unit 1: Southern SR-57/SR-60 Connector

A variety of commercial uses, ranging from highway services to neighborhood commercial uses, are located in the vicinity of LU1. Employees and clientele at the commercial uses would most likely have short- to moderate-duration views and moderate awareness of the project because views of the project site are afforded from commercial uses east of SR-57/SR-60.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Within LU2, commercial uses (i.e., highway services) are located west of SR-57/SR-60. Employees and clientele at the commercial uses in LU2 would most likely have short- to moderate-duration views and moderate awareness of the project because some views of the project site are afforded.

Landscape Unit 3: Northern SR-57/SR-60 Split

Within LU3, commercial uses (i.e., a Vons shopping center and fast-food restaurants) are located east of SR-57/SR-60. Employees and clientele east of SR-57/SR-60 would most likely have short- to moderate-duration views and moderate awareness of the project.

Local Street Users

Landscape Unit 1: Southern SR-57/SR-60 Connector

Golden Springs Drive and Gateway Center Drive, which are located west of SR-57/SR-60 in LU1, are heavily traveled roadways that provide access to commercial uses adjacent to the freeway. Motorists on Golden Springs Drive and Gateway Center Drive would have direct short- to moderate-duration views of the project site. Within LU1, Golden Springs Drive contains a Class II bike lane. Therefore, cyclists on Golden Springs Drive would have views of the project site. Those who use the local streets in LU1 would have moderately high awareness of the project.

Landscape Unit 2: SR-57/SR-60 and Grand Avenue Interchange

Within LU2, direct moderate-duration views of the project site are afforded from Golden Springs Drive. Also, direct moderately long-duration views are afforded to those traveling on Grand Avenue within LU2. Within LU2, Golden Springs Drive contains Class II bike lane. Cyclists on Golden Springs Drive would have direct views of the project site. Those who use Grand Avenue in LU2 would have moderately high awareness of the project, while cyclists would have low awareness.

Landscape Unit 3: Northern SR-57/SR-60 Split

Motorists on South Prospectors Road, South Diamond Bar Boulevard, South Gentle Springs Lane, and Palomino Drive would have direct moderate-duration views of the site. Views from surrounding roadways in LU3 would be limited because of intervening structures and mature

trees and vegetation. A Class II bike lane exists on South Diamond Bar Boulevard and passes under the SR-57/SR-60 split. Views of the project site from the bike lane would be limited because of intervening topography, structures, and mature trees and vegetation. Visible designated visual resources include hillsides and ridgelines. Those who use the local streets in LU3 would have a moderate awareness of the project.

Recreational Users

Recreational users in the project vicinity include those who use Diamond Bar Golf Course, which is located east of SR-57/SR-60. The golf course is located within LU2 and LU3. Recreational users within LU2 and LU3 would be afforded moderate- to long-duration views of the project site. Therefore, recreational users would have high awareness of the project. There are no recreational uses within LU1.

Key Views and Resources

The visual impacts of project alternatives are determined by assessing the visual resource change due to the project and predicting viewer response to that change.

Visual resource change is the sum of the change in visual character and the change in visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the project is constructed.

Viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project as determined in the preceding section. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to be adversely affected by the change.

For the purpose of this assessment, project impacts were assessed for each key view selected. Visual resource change was measured by using the Visual Quality Evaluation Form, as administered by FHWA (see Appendix B [Visual Quality Evaluation Forms] in the VIA). The Visual Quality Evaluation Form allows the analyst to assign a numerical value to existing visual conditions as well as assess the resulting visual quality upon project implementation. A scaled rating system of 1 through 7 was used to assign a numerical value. The numerical value of 1 represents a very low unit of measurement, and 7 represents a very high unit of measurement. A numerical value for vividness, intactness, and unity was given for existing and proposed conditions within each key view selected.

The potential for an adverse impact depends upon the severity of resource change and the degree to which people are likely to be adversely affected by the change. Therefore, the following criteria are used to determine the resulting visual impacts at each key view (i.e., by comparing the difference in visual quality with the predicted viewer response):

- **Low** – Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require avoidance or minimization measures.

- **Moderate** – Moderate adverse change to the visual resource, with moderate viewer response. Impact can be mitigated within 5 years by using conventional practices (i.e., landscaping, architectural treatments, a variety of building materials, directional lighting techniques).
- **Moderately High** – Moderate adverse visual resource change, with high viewer response, or high adverse visual resource change, with moderate viewer response. Extraordinary avoidance or minimization practices may be required. Landscape treatment required will generally take longer than 5 years to mitigate.
- **High** – A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

Because it is not feasible to analyze all views of the proposed project, it is necessary to select a number of key views that clearly display the visual effects of the project. Key views represent the views of the primary viewer groups (i.e., groups that could be affected by the project. Key views are generally situated within the viewshed of major project features (e.g., proposed walls, ramp reconfiguration areas, areas of roadway widening). Seven key view locations were selected after completion of site reconnaissance on July 13, 2010.

Key View 1 (Viewers of the Road)

Orientation – Key View 1 is from the southbound lanes of Golden Springs Drive, just west of SR-57/SR-60. This south-facing view is along Golden Springs Drive, looking toward the SR-57/SR-60 connector within LU1 (see Figure 2-26a: Key View 1 Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 5, intactness was rated 5, and unity was rated 4, resulting in an overall quality rating of 4.7. The existing visual quality and character of this view are considered moderately high (generally rated at 5).

Golden Springs Drive and ornamental landscaping are visible within the foreground of this key view. Middleground views include ornamental landscaping as well as a hotel (Holiday Inn) atop a hillside to the east, mature trees, streetlights, and SR-57/SR-60. The topography varies but consists primarily of grassy hillsides on the west side of Golden Springs Drive and a gently sloping valley along SR-57/SR-60. Background views from this key view are afforded of the Chino Hills and Puente Hills.

Ornamental vegetation varies in color, texture, and height throughout this key view. The hotel consists of concrete and stucco materials that vary in color and texture. Streetlights along Golden Springs Drive encroach minimally on views. The hardscape features of the hotel and SR-57/SR-60 encroach on the middleground views. However, the varying topography, grassy hillsides, and ornamental landscaping minimize these features. The travel lanes of SR-57/SR-60 interrupt the unity of this view; however, the varying topography, ornamental landscaping, mature trees, and distant ridgetops in background reduce the appearance of hardscape features and increase the unity of this view.

Direction of Photo
Key View Location
1 Key View Number

Figure 2-26a
Key View 1, Existing Condition

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Direction of Photo
Key View Location
Key View Number

Figure 2-26b
Key View 1, Proposed Condition - Alternatives 2 and 3

State Route 57/State Route 60 Confluence at Grand Avenue Project

10/22/10 JN 10-104260-10989 MAS

Key View 2 (Viewers from the Road)

Orientation – Key View 2 was taken from the northbound lanes of Grand Avenue, adjacent to Diamond Bar Golf Course. This view looks to the north, toward the Grand Avenue/SR-57/SR-60 interchange within LU2 (see Figure 2-27a: Key View 2 Existing Condition).

Existing Visual Quality/Character – According to the visual quality evaluation conducted at this key view, vividness was rated 6, intactness was rated 6, and unity was rated 6, resulting in an overall quality rating of 6. The existing visual quality and character of the site are moderately high (generally rated at 6).

Vividness in this view is considered to be moderately high. Foreground views include the Grand Avenue travel lanes, a landscaped median, a sidewalk, a small retaining wall along the north side of the roadway, and mature trees. Middleground views are afforded of mature trees, ornamental landscaping, a landscaped median, streetlights, and rolling hills. Landscape features visible in the foreground and middleground views vary in height, color, and texture. Intactness is considered to be moderately high. Development within this key view consists of the Grand Avenue roadway, a sidewalk, and one small retaining wall. Streetlights and one freeway on-ramp sign are visible, which minimally encroach on the middleground views. The effects of encroaching features are minimized by the presence of the streetscape (including planted medians) and the mature trees found throughout this key view. This key view is dominated by the ornamental landscaping and rolling hills that unify this key view.

Key View 3 (Viewers of the Road)

Orientation – Key View 3 was taken from Diamond Bar Golf Course, just east of SR-57/SR-60 and within LU2. This key view is looking west (toward the proposed project) along the cart path in the vicinity of the golf course clubhouse (see Figure 2-28a: Key View 3 Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 6, intactness was rated 6, and unity was rated 6, resulting in an overall quality rating of 6. The existing visual quality and character of the views are high (generally rated at 6).

Overall vividness in this key view appears to be moderately high. Foreground views include grass, trees, and a lake feature, all of which are associated with Diamond Bar Golf Course. Middleground views consist of ornamental landscaping and mature trees, the Grand Avenue overcrossing, rolling hills, and freeway commercial uses. The existing mature trees and vegetation vary in form, color, and texture and provide high visual contrast within this view. Background views are afforded of ridgetops associated with the Angeles National Forest. Intactness within this key view is considered to be moderately high. The freeway commercial uses and Grand Avenue overcrossing in the middleground views encroach on views from Diamond Bar Golf Course. However, the existing ornamental landscaping, grasses, mature trees, and rolling hills minimize these encroaching features. Unity in this key view is high because varying landscape features dominate this view. Although unity is slightly reduced by the hardscape features of the overcrossing and commercial uses, the presence of mature ornamental trees and vegetation allows unity within this key view to remain high.

Key View 4 (Viewers from the Road)

Orientation – Key View 4 was taken from the SR-57/SR-60 southbound/westbound lanes. This view is looking south in the area of the proposed project within LU3 (see Figure 2-29a: Key View 4 – Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 4, intactness was rated 5, and unity was rated 4, resulting in an overall quality rating of 4.3. The existing visual quality and character of the views are considered moderately high (generally rated at 4).

Vividness in this key view would be considered moderate. Foreground views include the SR-57/SR-60 southbound/westbound travel lanes and ornamental landscaping along the west shoulder of the freeway. Middleground views consist of travel lanes, mature trees, vegetation, streetlights, and signage. Vegetation varies in form, color, texture, and height, with increasing vividness within this view. Background views are afforded of distant hillsides (i.e., the Puente Hills and Chino Hills). Overall intactness within this key view is considered to be moderately high. Encroaching features consist of the SR-57/SR-60 travel lanes, residential structures, freeway signage, and a retaining wall/soundwall to the west. The existing mature trees and vegetation reduce encroachment. Overall unity is moderate. Although vegetative features are present within this key view (reducing encroachment), the presence of freeway signage, Diamond Bar Golf Course netting, and other hardscape features minimize the appearance of unity.

Key View 5 (Viewers of the Road)

Orientation – Key View 5 was taken from South Diamond Bar Boulevard (see Figure 2-30a: Key View 5 Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 4, intactness was rated 3, and unity was rated 4, resulting in an overall quality rating of 3.7. The existing visual quality and character of the views are considered moderate (generally rated at 4).

This key view has moderate vividness. Foreground and middleground views consist of commercial uses (i.e., a fast-food restaurant and a gas station), Diamond Bar Boulevard, a landscaped median, trees, ornamental landscaping, and streetlights. The trees and vegetation visible throughout the view vary in color, height, and texture, thereby increasing vividness. The SR-57/SR-60 overcrossing structure is also visible in the middleground views. Limited background views are afforded of the ridgetops associated with the Angeles National Forest. Intactness in this key view is moderately low. Encroaching features within this view include a strip mall and parking lots along Diamond Bar Boulevard. However, the continuous presence of ornamental trees and landscaping throughout the view reduce the visual intrusion. Unity is moderate because of the amount of visible hardscape features as well as the streetscape in the foreground and middleground and mature trees in the background.

Direction of Photo
Key View Location
2 Key View Number

Figure 2-27a
Key View 2, Existing Condition

For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project.

Direction of Photo
Key View Location
2 Key View Number

Figure 2-27b
Key View 2, Proposed Condition - Alternative 2

S:\T\12 JN 10-104260-16999 MAS

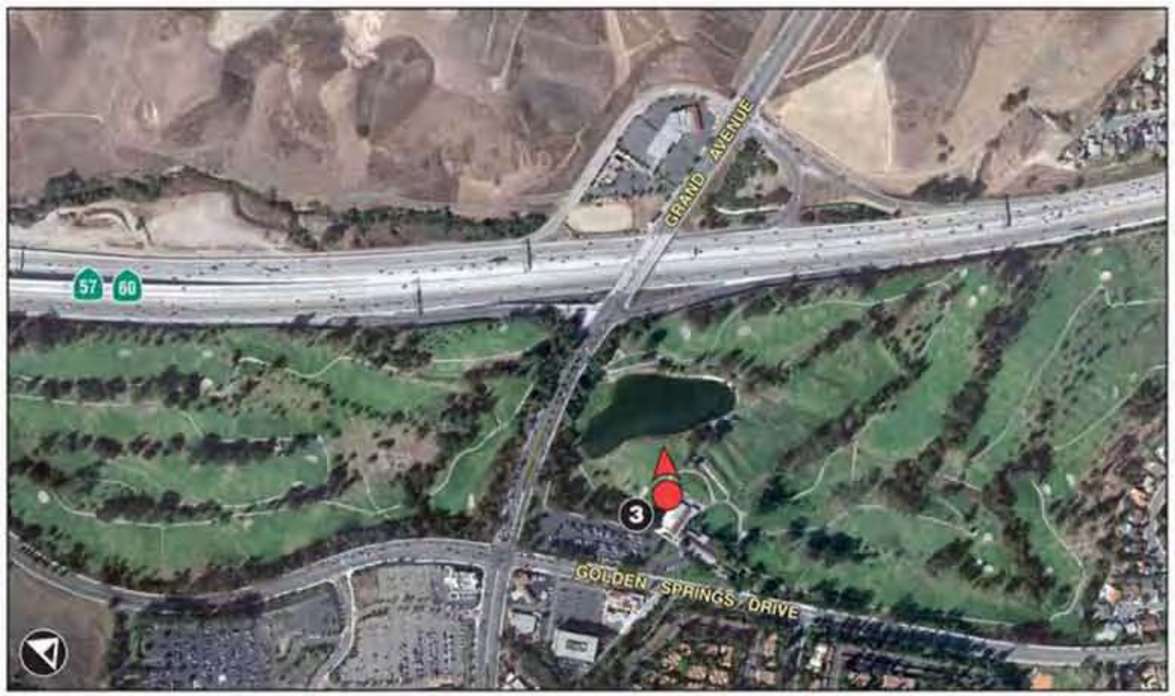
State Route 57/State Route 60 Confluence at Grand Avenue Project

Direction of Photo
Key View Location
2 Key View Number

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Figure 2-27c

Key View 2, Proposed Condition - Alternative 3



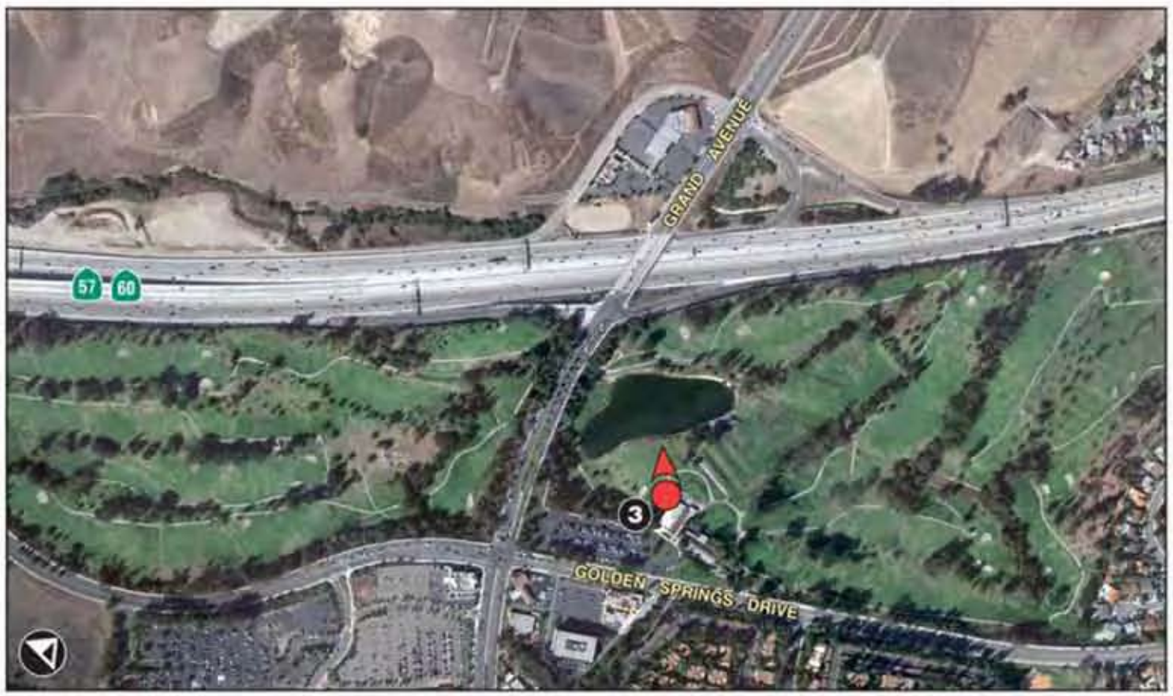
Direction of Photo
Key View Location
3 Key View Number

Figure 2-28a
Key View 3, Existing Condition

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Direction of Photo
Key View Location
3 Key View Number

Figure 2-28b
Key View 3, Proposed Condition - Alternative 2

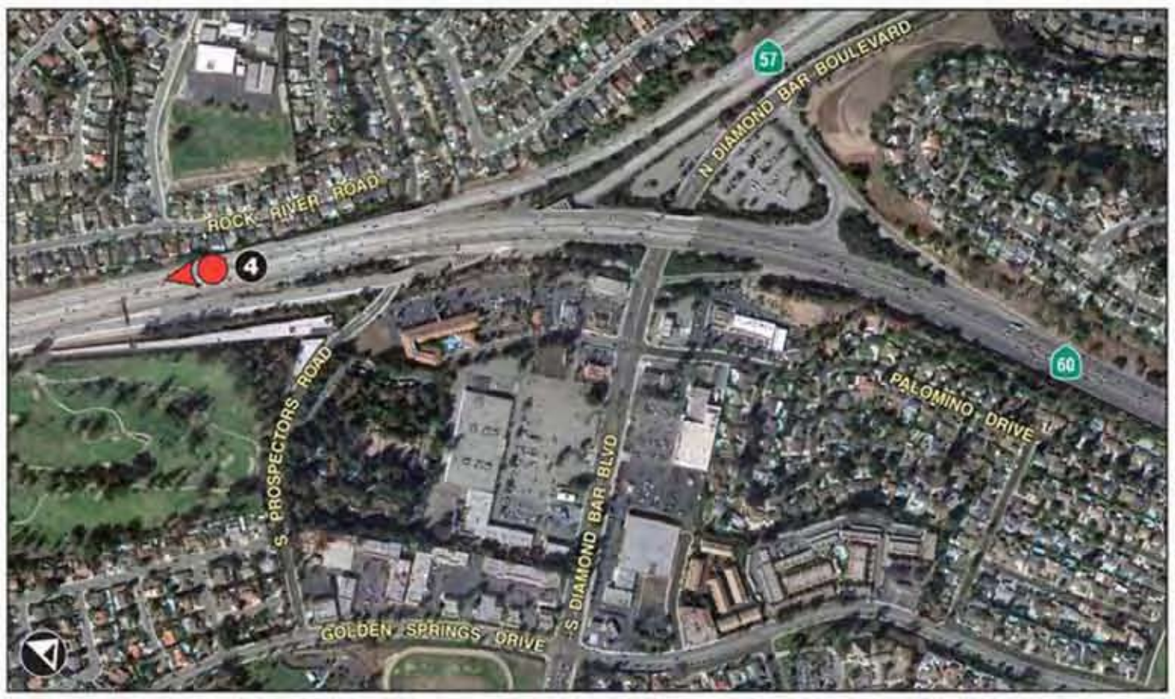


Direction of Photo
Key View Location
3 Key View Number

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Figure 2-28c
Key View 3, Proposed Condition - Alternative 3

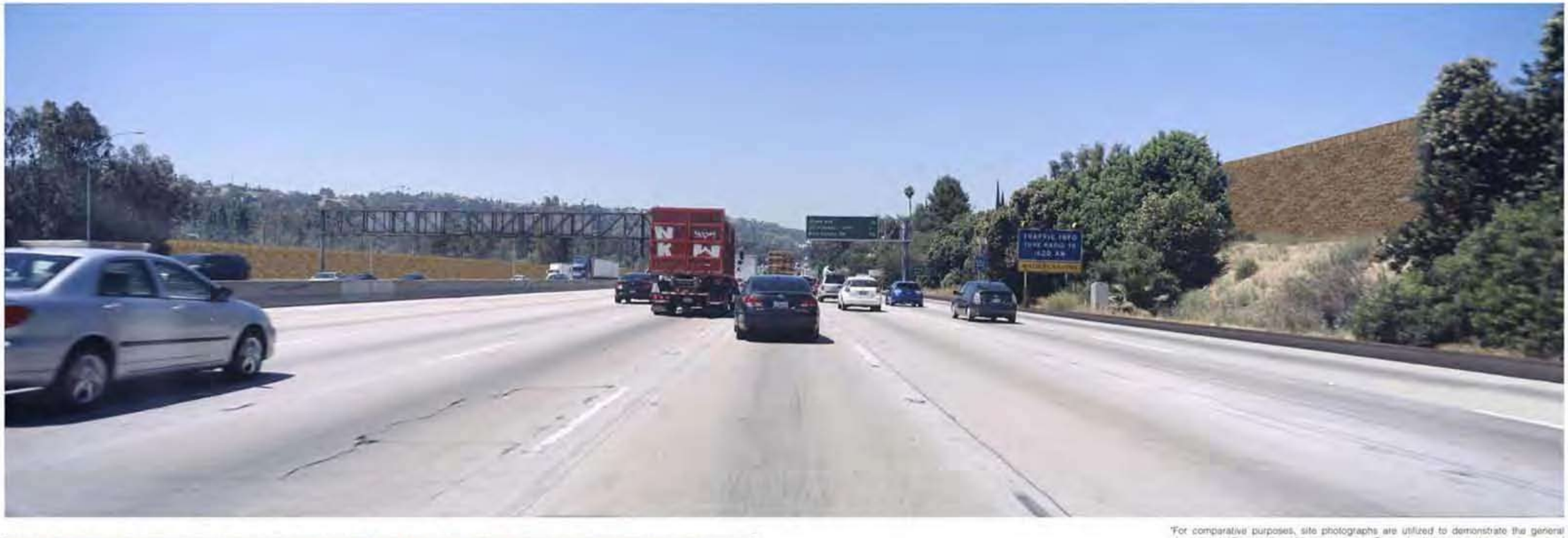
5/4/11 JN 10-104260-16999 MAS



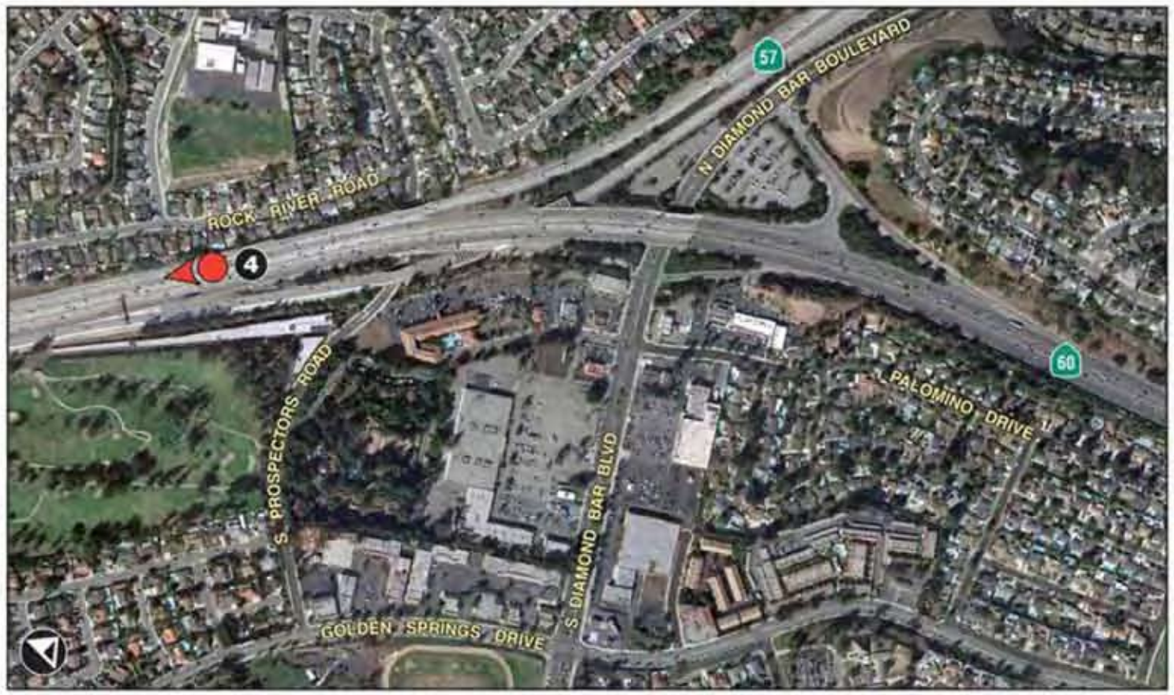
▲ Direction of Photo
● Key View Location
❹ Key View Number

Figure 2-29a
Key View 4, Existing Condition

10/7/10 JN 10-104200-16980 MAS



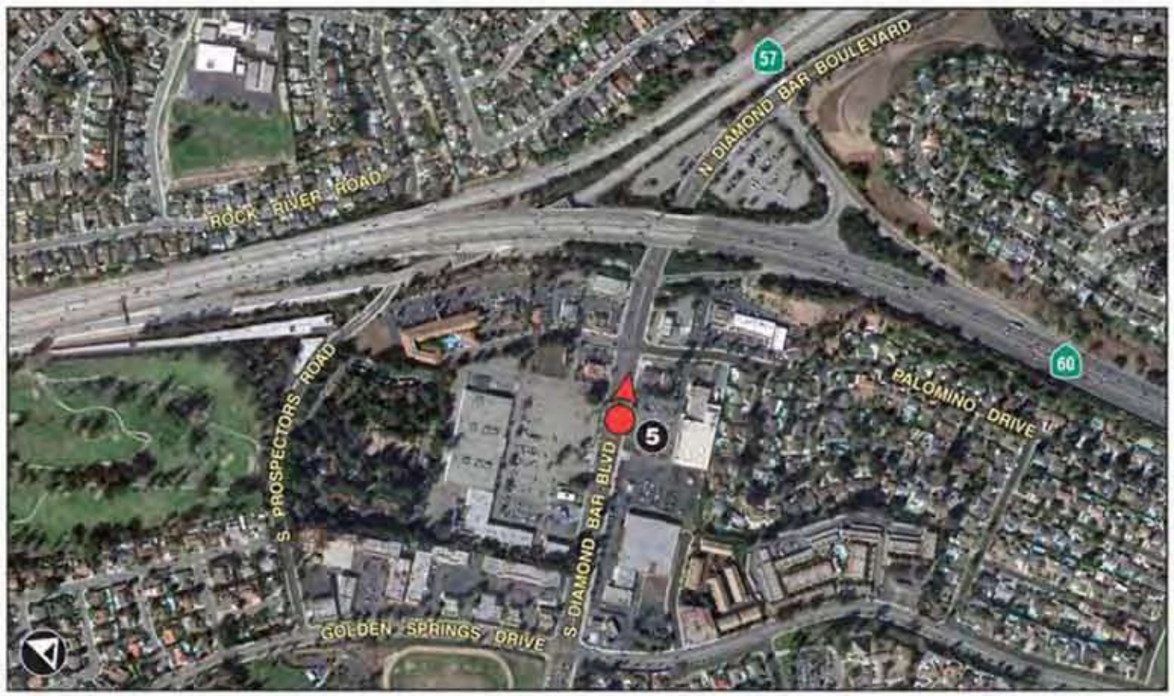
"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."



Direction of Photo
Key View Location
4 Key View Number

Figure 2-29b
Key View 4, Proposed Condition - Alternatives 2 and 3

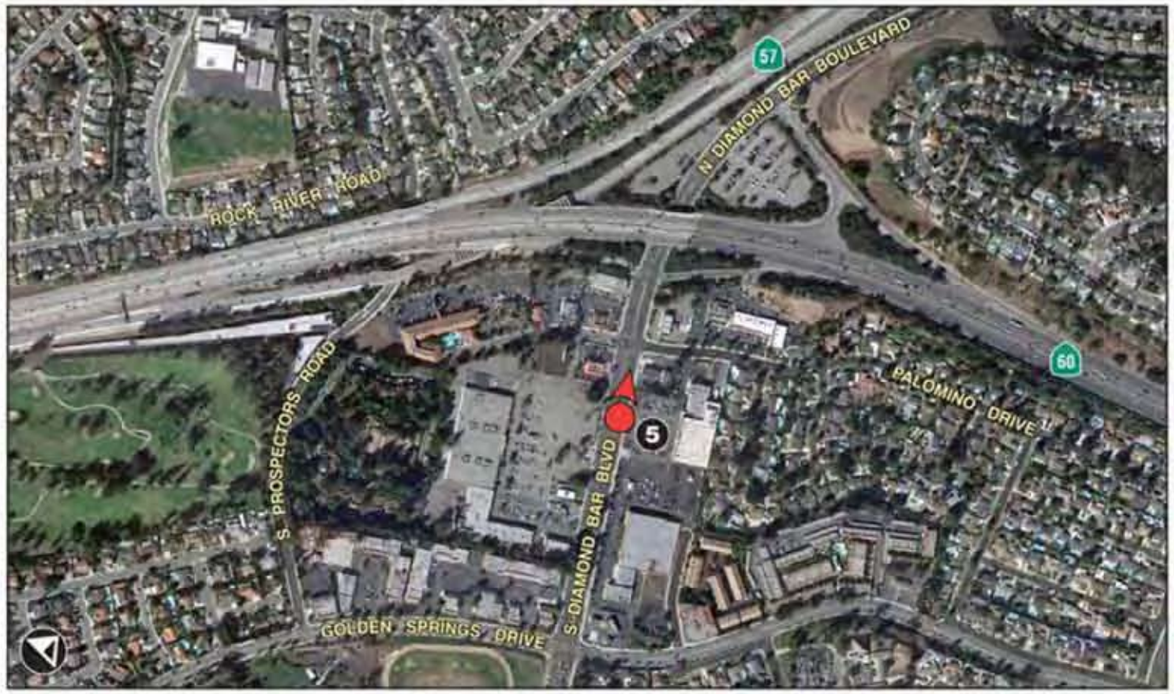
4/4/12 JN 10-104280-16069 MAS



▲ Direction of Photo
● Key View Location
❺ Key View Number

Figure 2-30a
Key View 5, Existing Condition

10/7/10 JN 10-104260-16980 MAS



Direction of Photo
Key View Location
5 Key View Number

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Figure 2-30b
Key View 5, Proposed Condition - Alternatives 2 and 3

1G22/10 JN 10-134360-16986 MAS

Key View 6 (Viewers of the Road)

Orientation – Key View 6 was taken from Palomino Road near La Bonita Road, just west of SR-57/SR-60 and within the residential uses in LU3. This view is looking west toward the proposed project (see Figure 2-31a: Key View 6 Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 5, intactness was rated 5, and unity was rated 5, resulting in an overall quality rating of 5. The existing visual quality and character of the views are considered moderate (generally rated at 5).

Vividness in this key view is moderate. Palomino Drive, residential uses, overhead power lines, and streetlights are visible within the foreground and middleground of this key view. The dominance of existing mature trees and the amount of ornamental landscaping contribute to the vividness. No background views are afforded from this key view. The visible residential structures have varying colors and textures. Overall intactness within this key view is moderate. Overhead power lines and streetlights encroach slightly on this view. However, the abundance of mature trees and vegetation minimizes these visual intrusions. The varying colors and the mature trees and ornamental landscaping unify this view and substantially reduce the appearance of hardscape features. Overall unity is moderate.

Key View 7 (Viewers from the Road)

Orientation – Key View 7 was taken from the southbound /westbound travel lanes of SR-57/SR-60, just north of the Grand Avenue interchange. This view is looking south along the proposed project (see Figure 2-32a: Key View 7 Existing Condition).

Existing Visual Character – According to the visual quality evaluation conducted at this key view, vividness was rated 5, intactness was rated 4, and unity was rated 5, resulting in an overall quality rating of 4.7. The existing visual quality and character of the views are considered moderately high (generally rated at 5).

Vividness in this key view is moderately high. Freeway travel lanes, mature trees, and vegetation are visible within the foreground of this key view. Middleground views include the southbound lanes, trees and vegetation, and freeway signage. The vividness of this view is enhanced by the presence of mature trees and vegetation along the east and west sides of the freeway. Background views are afforded of vegetated hillsides. Overall intactness within this key view is moderate as a result of the large freeway signage and the amount of visible hardscape. The varying colors and the mature trees and ornamental landscaping increase unity in this view by detracting from the hardscape features. Overall unity is moderate.

2.1.6.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative would maintain the existing roadway and interchange configurations and, therefore, would not alter existing views. Existing visual/aesthetic resources would not be affected by the No-Build Alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange/Alternative 3, Partial Cloverleaf Interchange Configuration

Construction Impacts

Implementation of the proposed project would expose sensitive uses to views of the project site. Construction vehicles and staging areas for materials would be present within the Caltrans right-of-way and on disturbed or developed areas over the length of the project site. Project construction would expose surfaces, construction debris, equipment, and truck traffic to nearby sensitive viewers. Construction vehicles and staging areas would be visible to recreational users, motorists traveling through the project site, as well as residents located in the vicinity at higher elevations.

Construction would occur at the golf course to accommodate the on- and off-ramps for the SR-57/SR-60 confluence, widen the Grand Avenue overcrossing, and make street improvements along the north side of Golden Springs Drive, west of Grand Avenue. Construction work would last approximately 36 months, during which time vegetation clearing, excavation, and grading would take place on those portions of the golf course that would be permanently acquired or temporarily acquired under construction easements.

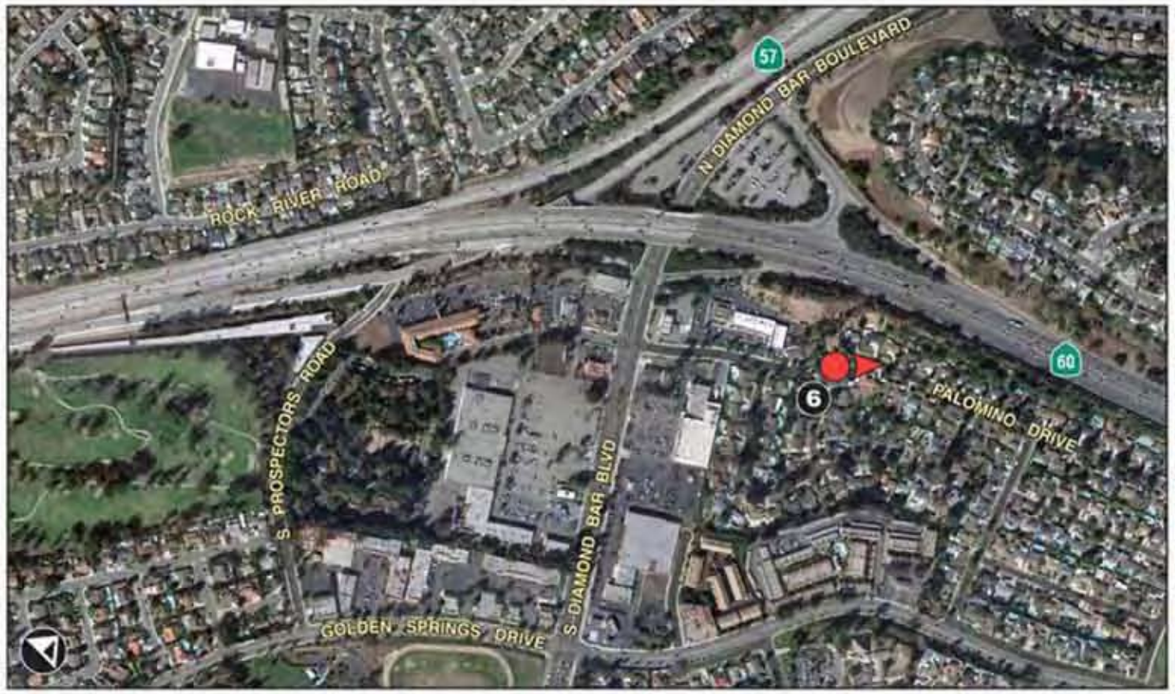
To accommodate construction and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established (as required per the programmatic Section 4(f) evaluation, dated April 2012). If construction at the golf course were to occur in two phases, with only half of the course closed at any one time (nine holes), a total of 16 months would be required for construction (8 months to reconfigure holes 1, 2, 3, 4, 5 and 9). If the golf course construction were to occur at the same time, the closure would last 10 months.

Construction-related impacts would be short term and would cease upon project completion. Adherence to Caltrans' Standard Specifications for Construction as well as measures required per the programmatic Section 4(f) evaluation would minimize visual impacts (e.g., through the use of opaque temporary construction fencing around staging and construction areas).

Light and Glare

The proposed project may require nighttime construction activities in select portions of the project area. Light and glare from nighttime construction could create a nuisance for nearby residents and motorists traveling through the project area. These activities may take place over several months. However, the project area contains existing sources of light (e.g., vehicle headlights, streetlights, commercial and residential lights, etc.).

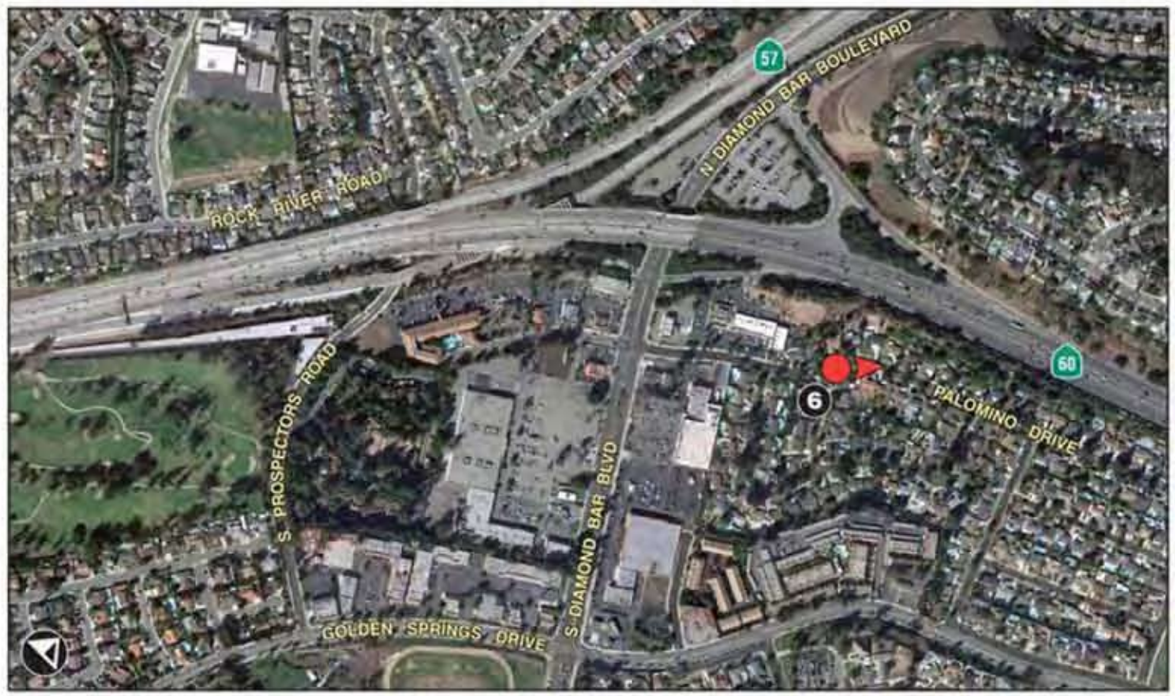
Night closures would be required throughout the duration of the project, and all work intervals would be defined by the district traffic operations manager. Any work requiring a temporary lane, ramp, or freeway closure would be allowed only during nighttime hours. One or two travel lanes may need to be closed during nighttime construction to protect the safety of the construction workers and expedite the project. Nighttime construction would be conducted in accordance with Caltrans regulations. Necessary lighting for safety and construction purposes would be directed away from land uses outside the project area and contained and directed



▲ Direction of Photo
● Key View Location
6 Key View Number

Figure 2-31a
Key View 6, Existing Condition

10/7/10 JN 10-104260-16980 MAS



Direction of Photo
Key View Location
6 Key View Number

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Figure 2-31b
Key View 6, Proposed Condition - Alternatives 2 and 3

1G22/10 JN 10-104260-16989 MAS

Direction of Photo
Key View Location
7 Key View Number

Figure 2-32a
Key View 7, Existing Condition

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Direction of Photo
Key View Location
7 Key View Number

Figure 2-32b
Key View 7, Proposed Condition - Alternative 2

4/4/12 JN 10-104260-16999 MAS

State Route 57/State Route 60 Confluence at Grand Avenue Project

"For comparative purposes, site photographs are utilized to demonstrate the general character at different points of the project area. These simulations are subject to change and are intended to provide the reader with information on the form, size, and scale of the proposed improvements within the project area. Specific project design features are subject to change during the plans, specifications, and estimates (PS&E) phase for the project."

Direction of Photo
Key View Location
7 Key View Number

Figure 2-32c
Key View 7, Proposed Condition – Alternative 3

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State Route 57/State Route 60 Confluence at Grand Avenue Project

toward the specific area of construction. With implementation of VIS-5, construction lighting types, plans, and placement would be reviewed at the discretion of the Caltrans District Landscape Architect. Implementation of VIS-5 would ensure that appropriate lighting controls would be applied to reduce light and glare impacts.

Long-Term Operational Impacts

Key Views and Resources

Figures showing the existing condition for each key view, immediately followed by figures showing the proposed condition for each key view, are located at the end of the Environmental Consequences discussion (Figures 2-26a through 2-32c).

Key View 1 (Viewers of the Road)

Proposed Project Features: Alternatives 2 and 3 propose to realign the northbound SR-57 lanes and construct a new eastbound bypass ramp.

Changes to Visual Quality/Character: Visual changes to quality and character at key view 1 under Alternatives 2 and 3 would be considered moderate because of the similarity of the hardscape features (resulting in an overall quality rating of 4 after implementation of the proposed project) (see Figure 2-26b: Key View 1 Proposed Condition).

Vividness in this key view would be moderate. Ornamental grasses and shrubs along the west side of Golden Springs Road would be removed to accommodate the new eastbound bypass. Views to the hotel, mature trees, ornamental landscaping, streetlights, and varying topography in the middleground remain. Background views to the Puente Hills and Chino Hills remain similar to existing conditions. Intactness in this view is considered to be moderate because of the increased perception of encroaching features. Construction of the new eastbound bypass and removal of ornamental landscaping would increase the appearance of hardscape features in the foreground and middleground views because the new bypass would bring the hardscape and vehicles closer to viewers at Key View 1. Unity in this view would remain moderate because of the lack of trees and vegetation throughout the view.

Viewer Response: Sensitivity to visual change would be moderate for Golden Springs Drive and SR-57/SR-60 travelers as well as hotel users. Under Alternatives 2 and 3, travelers on Golden Springs Drive and SR-57/SR-60 would have short-duration views of the project features, while hotel users would have moderate- to long-duration views of the proposed project features (e.g., the new bypass structure). Viewers would be moderately aware of the project features. The resultant viewer response from motorists traveling on Golden Springs Drive and SR-57/SR-60, as well as commercial users, would be moderate under Alternatives 2 and 3.

Resulting Visual Impact: Project improvements would result in a moderate change in the landscape of this key view under Alternatives 2 and 3 (rated difference of -0.7). However, this moderate change would not be considered adverse because the proposed freeway improvements would generally appear similar in character to the existing freeway uses within this view. Sensitive viewers would have a moderate viewer response to project changes because the

proposed condition would increase the appearance of hardscape features. Thus, because the project would result in minor adverse, moderate changes, viewer response, impacts would be less than significant.

Key View 2 (Viewers from the Road)

Proposed Project Features: Under Alternative 2, visible project features would include the widened Grand Avenue as well as partial views of the proposed combination cloverleaf/diamond configuration interchange improvements.

Under Alternative 3, Visible project features would be similar to those under Alternative 2, above, but would also include traffic signals and streetlights. Alternative 3 proposes a partial cloverleaf interchange configuration.

Changes to Visual Quality/Character under Alternative 2: Visual changes to the quality and character at this key view would be moderate (resulting in an overall quality rating of 4 after implementation of the proposed project) (see Figure 2-27b: Key View 2 Proposed Condition – Alternative 2).

Vividness in this view is moderate. Hardscape features in this key view would increase as a result of the widened roadway and the removal of mature trees. Foreground and middleground views include the widened Grand Avenue, a partially landscaped median, and new guard rails along the east and west sides of Grand Avenue. A substantial number of mature trees, as well as ornamental landscaping, would be removed from the foreground and middleground views. Therefore, intactness would decrease because of the increase in visible hardscape features. Overall, unity in this key view is moderate because views to rolling hills are unobstructed.

Under Alternative 3, visual changes to the quality and character at this key view would be moderate (resulting in an overall quality rating of 4 after implementation of the proposed project) (see Figure 2-27c: Key View 2 Proposed Condition – Alternative 3).

Vividness and unity in this key view for Alternative 3 would be similar to that described under Alternative 2. Under Alternative 3, the new intersection of Grand Avenue, the new eastbound off-ramp and eastbound loop on-ramp, and the new traffic signal would be visible in the middleground views.

Viewer Response: Under Alternative 2, sensitivity to visual change for travelers on Grand Avenue would be moderate. Those traveling on Grand Avenue would have short- to moderate-duration views of the widened roadway, median, and guard rails. Overall, motorists would be moderately aware of project changes. The resulting viewer response for those traveling on Grand Avenue would be moderately high.

Under Alternative 3, Sensitivity to visual change for travelers on Grand Avenue would be similar to that described for Alternative 2, above.

Resulting Visual Impact Under Alternative 2: Project improvements would affect existing views of the project from this key view (rated difference of -2), and sensitive viewers would have a moderate viewer response to project changes. Implementation of the proposed project would

remove existing mature trees and ornamental landscaping and increase hardscape features within the area. Grand Avenue would be widened, and new guard rails, fencing, and a partially landscaped median would be installed. Because mature trees and landscaping along Grand Avenue (within Diamond Bar Golf Course) would be removed to widen the roadway, replacement landscaping would be planted within the golf course that is compatible with the existing landscaping. This would reduce the hardscape appearance of the widened roadway (VIS-1). However, this vegetation would take longer than 5 years to minimize the effects of the surrounding hardscape. Implementation of landscaping within the Grand Avenue median and along sidewalks would further reduce the hardscape appearance of the widened roadway (VIS-2). Because viewer response to these changes would be moderate, with implementation of VIS-1 and VIS-2, impacts would be minor adverse.

The resulting visual impact of Alternative 3 is generally consistent with that described in Alternative 2. However, project improvements under Alternative 3 would further affect existing views of the project site from this key view (rated difference of -1.3). Sensitive viewers would have a moderate viewer response to project changes. Implementation of Alternative 3 would introduce a new intersection and associated traffic signaling in the middleground views. Because mature trees and landscaping along Grand Avenue (within Diamond Bar Golf Course) would be removed to widen the roadway, replacement landscaping would be planted within the golf course to reduce the hardscape appearance of the widened roadway (VIS-1). However, this vegetation would take longer than 5 years to minimize the effects of the surrounding hardscape. Also, landscaping within the Grand Avenue median and along the sidewalks would further reduce the hardscape appearance of the widened roadway (VIS-2). Because viewer response to these changes would be moderate, with implementation of VIS-1 and VIS-2, impacts would be minor adverse.

Key View 3 (Viewers of the Road)

Proposed Project Features: Under Alternative 2, visible project features would include the north side of the widened Grand Avenue, the realigned eastbound on-ramp, and the modified Grand Avenue overcrossing structure.

Visible project features under Alternative 3 would be similar to those proposed under Alternative 2 in this key view. Also visible in Alternative 3 would be the intersection of the proposed eastbound loop on-ramp and Grand Avenue.

Changes to Visual Quality/Character: Project changes under Alternative 2 would consist of widening Grand Avenue, realigning the eastbound on-ramp, and modifying the Grand Avenue overcrossing (see Figure 2-28b: Key View 3 Proposed Condition – Alternative 2). Visual changes to the quality and character in this key view would be moderate because of the increase in hardscape features (resulting in an overall quality rating of 4.7 after implementation of the proposed project).

The widened Grand Avenue, the new on-ramp, and the modified overcrossing would increase the dominance of hardscape features in this key view. Although mature trees and ornamental landscaping would remain visible in the foreground and middleground views, a substantial amount would be removed to accommodate project improvements. Therefore, vividness in this key view would decrease. Intactness would be considered moderate. Encroaching features

would increase because of the widened Grand Avenue, the new on-ramp, and the new overcrossing, as well as the removed trees and vegetation. Middleground views of hillsides and background views of ridgetops would remain. Unity would decrease because of the removal of trees and vegetation.

Under Alternative 3, visible project changes would be consistent with those described in Alternative 2, above (see Figure 2-28c: Key View 3 Proposed Condition – Alternative 3 and the discussion above).

Viewer Response: Viewer sensitivity of recreational users of Diamond Bar Golf Course would be high. Under Alternative 2, recreational users would have moderate-duration views to the widened Grand Avenue, the new on-ramp, and the modified overcrossing. Recreational users of Diamond Bar Golf Course would be aware of the widened Grand Avenue roadway, the new on-ramp, and the removal of mature trees and landscaping. Because of distance and the intervening trees, the new Grand Avenue overcrossing would be minimally perceptible from this key view location. Overall viewer response of recreational users would be high.

Viewer response to project changes under Alternative 3 would be consistent with that described in Alternative 2.

Resulting Visual Impact: Project improvements would alter the existing views of the project site from this key view (rated difference of -1.3). Recreational users of Diamond Bar Golf Course would have high sensitivity to the proposed changes. The widened Grand Avenue roadway, realigned on-ramp, and Grand Avenue overcrossing would increase visible hardscape from Diamond Bar Golf Course. Views from recreational users to the project features would be moderate in duration. However, implementation of VIS-1 would reduce the hardscape appearance of project features (i.e., widened Grand Avenue and the realigned on-ramp). VIS-1 would include the installation of replacement landscaping (which would appear similar to the existing golf course landscaping) along the new hardscape features (VIS-1). Impacts in this regard would be minor adverse.

The resulting visual impact of Alternative 3 would be consistent with that described in Alternative 2.

Key View 4 (Viewers from the Road)

Proposed Project Features: Under Alternatives 2 and 3, visible project features in this key view would include a potential soundwall (up to 16 feet in height) to the west (which would replace an existing wall) along the property lines of the residential uses along Rock River Road, adjacent to the freeway, and a soundwall (up to 16 feet in height) to the east along Diamond Bar Golf Course.

Changes to Visual Quality/Character: Visual changes to quality and character within Key View 4 under Alternatives 2 and 3 would be considered minimal (resulting in an overall quality rating of 4 after implementation of the proposed project) (see Figure 2-29b: Key View 4 Proposed Condition – Alternatives 2 and 3).

Vividness would remain moderate in this key view because the majority of the mature trees and ornamental landscaping would remain visible. Middleground and background views of rolling hills of the Chino Hills and Puente Hills would remain similar to existing conditions. Overall intactness within this key view would be moderate because the introduction of a larger soundwall to the west and a soundwall along Diamond Bar Golf Course to the east would increase hardscape features in this key view. Overall unity would be moderate because of the removal of some ornamental landscaping to the west (groundcover and shrubbery).

Viewer Response: Viewer sensitivity of freeway travelers would be moderate. Under Alternatives 2 and 3, freeway travelers would have short-duration views of the new soundwall. Views to the Chino Hills and Puente Hills would not be obstructed by the proposed soundwall. Freeway travelers would be minimally aware of project changes. Overall, viewer response to change would be moderately low.

Resulting Visual Impact: Project improvements would moderately alter the existing views of the project site from this key view (rated difference of -0.7). Freeway travelers would have moderate sensitivity to project changes in this key view. The hardscape appearance of the potential new soundwall to the west would appear similar to the existing condition, although the proposed wall would be higher. Implementation of the soundwalls to the east and west would increase the hardscape in this key view slightly; however, the majority of mature trees and vegetation along Diamond Bar Golf Course and along the freeway to the west would remain visible. Therefore, freeway travelers would be minimally affected by the proposed soundwalls, and impacts would be minor adverse from Key View 4.

Key View 5 (Viewers of the Road)

Proposed Project Features: Visible changes from proposed project features under Alternatives 2 and 3 would consist of the new eastbound bypass structure in the middleground views.

Changes to Visual Quality/Character: Under Alternatives 2 and 3, visible project changes would be minimal in this key view. Vividness and unity in this key view would remain similar to existing conditions (see Figure 2-30b: Key View 5 Proposed Condition – Alternatives 2 and 3). The new bypass structure would appear similar to the existing SR-57/SR-60 overcrossing structure in middleground views.

Viewer Response: Under Alternatives 2 and 3, Diamond Bar Boulevard travelers and commercial users in this key view would have low sensitivity to project changes. The duration of views toward the project site for travelers would be short to moderate, depending on the traffic signalization, and short to moderate for commercial users. However, travelers along Diamond Bar Avenue and commercial users would be minimally aware of project changes because of the similarity of the existing and proposed conditions. Overall viewer response to change would be low.

Resulting Visual Impact: Project improvements would minimally affect existing views of the project site from this key view under Alternatives 2 and 3 (rated difference of 0). Sensitive viewers would be minimally aware of project changes, and the resultant impacts would not require avoidance or minimization measures. Impacts would be minor adverse.

Key View 6 (Viewers of the Road)

Proposed Project Features: Project features under Alternatives 2 and 3 would be not visible in this key view. However, a change in topography as a result of proposed grading activities would be visible.

Changes to Visual Quality/Character: Visual changes to quality and character in Key View 6 under Alternatives 2 and 3 would be considered moderately low because changes would be minimally perceptible at this key view location (resulting in an overall quality rating of 4 after implementation of the proposed project) (see Figure 2-31b: Key View 6 Proposed Condition – Alternatives 2 and 3). The new eastbound bypass on-ramp north of this key view location would not be visible because of intervening mature trees. However, some mature trees would be removed to accommodate the new bypass on-ramp, which would reduce vividness in this view slightly. There would be no new encroaching features in the key view. Although the vegetated slopes would be reduced, unity would remain moderate.

Viewer Response: Residential uses east of SR-57/SR-60 would have moderate sensitivity to project changes in this key view. Middleground views of mature trees would be slightly reduced, although much of the existing landscaping would remain visible. Although the new bypass on-ramp would not be visible, residential uses in the vicinity of Palomino Drive would experience long-duration views of areas where mature trees would be removed as well as altered topography. These residents would be moderately aware of project changes. Overall viewer response to change from these residential uses would be considered moderately low because tree and vegetation removal would be minimal.

Resulting Visual Impact: Project improvements under Alternatives 2 and 3 would minimally affect existing views from this key view (rated difference of -0.7). The removal of some mature trees and altered topography would reduce vividness in this view slightly; however, mature trees and vegetation would remain the dominant features of this key view. Sensitive viewers would have moderately low viewer response to project changes. Project changes would generally appear similar to existing conditions, and no avoidance or minimization measures would be required. Impacts would be minor adverse.

Key View 7 (Viewers from the Road)

Proposed Project Features: Alternative 2 proposes a combination cloverleaf/diamond interchange. Visible features would include the widened Grand Avenue overcrossing, realigned southbound off-ramp, realigned eastbound on-ramp, and the new soundwall (up to 16 feet in height) along Diamond Bar Golf Course. The proposed soundwall along the residential property lines west of the freeway would not be visible in this key view because Key View 7 is located just south of this proposed soundwall.

Alternative 3 proposes a partial cloverleaf interchange configuration. Visible project features under Alternative 3 within this key view would be similar to those discussed under Alternative 2.

Changes to Visual Quality/Character: Visual changes to quality and character in Key View 7 under Alternative 2 would be considered moderate because hardscape features would increase in this key view (resulting in an overall quality rating of 3.7 after implementation of the proposed project) (see Figure 2-32b: Key View 7 Proposed Condition – Alternative 2). Vividness in this key view would be slightly reduced because of the obstruction of views of mature trees. Foreground views of ornamental landscaping along the west side of the freeway would remain similar to existing conditions. However, mature trees would be removed to accommodate the realigned southbound off-ramp, and mature trees and landscaping within Diamond Bar Golf Course to the east would be partially blocked by the proposed soundwall. The proposed soundwall would encroach on freeway travelers. Intactness would decrease in this view because of the hardscape features of the new Grand Avenue overcrossing and the new eastbound on-ramp east of the overcrossing. Unity would decrease slightly because some views of mature trees and landscaping would be obstructed by the proposed soundwall.

Visible changes to visual quality and character in Key View 7 under Alternative 3 would be similar to those discussed above under Alternative 2 (see Figure 2-32c: Key View 7 Proposed Condition – Alternative 3).

Viewer Response: Viewer sensitivity of southbound/westbound freeway travelers would be moderate. Under Alternative 2, freeway travelers would have short-duration views of the realigned southbound off-ramp, eastbound on-ramp, new overcrossing, and soundwall. Freeway travelers would be moderately aware of the removed trees and new soundwall to the west as well as partially blocked views of trees and landscaping within Diamond Bar Golf Course to the east. Views of the Chino Hills and Puente Hills would not be obstructed by the project features. Freeway travelers would be moderately aware of project changes. Overall, viewer response to change would be moderate.

Viewer response to project changes under Alternative 3 would be consistent with those described in Alternative 2.

Resulting Visual Impact: Project improvements would minimally alter the existing views of the project site from this key view (rated difference of -1). Freeway travelers would have moderate viewer response to project changes in this key view. Some views of trees and landscaping would remain in the foreground and middleground. Travelers would be less sensitive to the realigned southbound off-ramp, eastbound on-ramp, and modified overcrossing because these features currently exist. However, freeway travelers would be aware of increased hardscape features because of the new soundwall along the golf course to the east. Currently, there is no soundwall at this location; the new wall would obstruct views of trees and landscaping. VIS-3 would install compatible landscaping along the disturbed areas of the freeway. Also, to decrease the appearance of hardscape freeway features and enhance the driver's experience through the project site, implementation of VIS-4 would require landscape and/or architectural treatments (i.e., color, texture) for the proposed soundwall (freeway-facing side only). Therefore, with implementation of VIS-3 and VIS-4, impacts would be minor adverse.

The resulting visual impact of Alternative 3 would be consistent with that described in Alternative 2.

Long-term Impacts on Landscape Units

Table 2-55 presents a summary of the resulting long-term operational impacts for each key view analyzed. Long-term impacts from the project would be experienced differently in each landscape unit. LU1 includes motorists and commercial users that would have low to moderate viewer sensitivity to project changes. Commercial users, recreational users (Diamond Bar Golf Course), motorists, and some residents located within LU2 would have moderate to high viewer response to project changes. LU3 includes commercial users, residents, motorists, and some recreational users (Diamond Bar Golf Course) that would have moderate to high viewer response to project changes.

Table 2-55: Key View Impact Summary

Key View	Existing Visual Quality Rating	Proposed Visual Quality Rating	Impact (difference from existing)	Viewer Group/Sensitivity	Viewer Response	Resultant Impact
Key View 1 (LU1)						
Alternatives 2 and 3	4.7	4	-0.7	Motorists/Moderate	Moderate	Minor Adverse
				Commercial Users/Moderate		
Key View 2 (LU2)						
Alternative 2	6	4	-2	Motorists/Moderate	Moderately High	Minor Adverse with Minimization Measures
Alternative 3	6	4	-2	Motorists/Moderate	Moderately High	Minor Adverse with Minimization Measures
Key View 3 (LU2)						
Alternative 2	6	4.7	-1.3	Recreational Users/High	High	Minor Adverse with Minimization Measures
Alternative 3	6	4.7	-1.3	Recreational Users/High	High	Minor Adverse with Minimization Measures
Key View 4 (LU3)						
Alternatives 2 and 3	4.3	4	-0.3	Motorists/Moderate	Moderate	Minor Adverse
Key View 5 (LU3)						
Alternatives 2 and 3	3.7	3.7	0	Motorists/Moderate	Low	Minor Adverse
				Commercial Users/Moderate	Low	
Key View 6 (LU3)						
Alternatives 2 and 3	5	4.3	-0.7	Motorists/Moderate	Moderate	Minor Adverse
				Residents/High	Moderate	
Key View 7 (LU2)						
Alternative 2	4.7	3.7	-1	Motorists/Moderate	Moderate	Minor Adverse with Minimization Measures
Alternative 3	4	3.3	-1	Motorists/Moderate	Moderate	Minor Adverse with Minimization Measures

Landscape Unit 1

Changes in LU1 are represented in Key View 1.

Alternatives 2 and 3 propose to realign northbound SR-57 (shifting the freeway to the east) and construct a new SR-60 eastbound bypass ramp within LU1. New retaining walls would be added along portions of the relocated mainline and the new bypass.

Visual Change Experienced by Residential Uses: The majority of residential uses within LU1 south of the project site would not have views of changes because of intervening wall structures and differences in topography. Residents with partial views of the project site would not be adversely affected by the proposed project because the proposed condition would appear similar to existing conditions. Therefore, impacts on residents in LU1 would be minor adverse. No avoidance, minimization, or mitigation measures are required.

Visual Change Experienced by Commercial Uses: Views from commercial uses east of the project site would be moderately affected by the proposed realignment and new bypass ramp. The realigned northbound SR-57 mainline and new SR-60 eastbound bypass ramp would be closer to commercial uses to the east. Although these structures would appear similar to the existing freeway structures, locating the SR-60 eastbound bypass ramp near commercial uses would increase encroachment and require the removal of existing freeway landscaping. However, these impacts would be minor, and viewer response would be moderate. Therefore, this moderate change would not be considered adverse because the proposed freeway improvements would generally appear similar in character to existing freeway uses within LU1. No avoidance, minimization, or mitigation measures are required.

Visual Change Experienced by Freeway Travelers: Freeway travelers in LU1 would have short- to moderate-duration views of project changes. Those traveling along southbound SR-57, the new connector, and eastbound and westbound SR-60 would have short- to moderate-duration views to the realigned northbound SR-57 and eastbound bypass ramp. These travelers would be moderately aware of the proposed project. Freeway travelers would also be aware of landscaping that would be removed to accommodate the proposed project features. Travelers would be moderately aware of project changes. However, because the proposed freeway improvements would generally appear similar in character to the existing freeway uses within LU1, no avoidance, minimization, or mitigation measures are required.

Landscape Unit 2

Changes in LU2 are represented in Key Views 2, 3, and 7.

Alternative 2: Alternative 2 in LU2 proposes the construction of a new eastbound bypass off-ramp at the SR-57/SR-60 confluence, the construction of a seventh lane between the Grand Avenue off-ramp and the added lane near the eastern SR-57 diverge, the construction of an auxiliary lane connecting the new three-lane on-ramp at Grand Avenue to the new connector, the replacement of the Grand Avenue overcrossing, the widening and restriping of Grand Avenue and Golden Springs Drive, the realignment and widening of the SR-60 westbound off-ramp, and construction of two new soundwalls along Diamond Bar Golf Course and a soundwall along the property lines of the residential uses along Rock River Road adjacent to the freeway. Alternative 2 would also require retaining walls along the freeway mainline widening, auxiliary lanes, and on- and off-ramps.

Visual Change Experienced by Residential Uses: Views from residential uses within the northern portion of LU2 west of the freeway could be affected by the proposed project features if a new soundwall is proposed at this location. Several residents along Rock River Road have constructed private decks in their rear yards, which overlook the freeway and surrounding hills. Those residents with private views from backyard areas would be aware of the new soundwall, which is proposed along the rear property lines of these residences. No feasible mitigation measures are available to reduce, minimize, or avoid these substantial adverse impacts.

According to the project's draft Noise Abatement Decision Report (NADR) (prepared by Caltrans, dated April 2012), the project would not be required to construct the new soundwall at the residences along Rock River Road because it was determined to be "not reasonable." As determined by the draft NADR, neither build alternative would result in construction of this soundwall, which was considered as part of the noise study report.

The existing hardscape condition for residents to the west would not change substantially as a result of project implementation. Thus, with implementation of the NADR recommendation for soundwalls, project implementation would not result in substantial adverse impacts on these residents. No avoidance, minimization, or mitigation measures are required.

Residents east of the freeway in the northern portion of LU2 would have partial views of the proposed changes. These residents would be moderately aware of changes because of distance and intervening trees, vegetation, and structures. Therefore, VIS-1 would be required to plant compatible landscaping in disturbed areas to reduce the appearance of new hardscape features. VIS-2 would replace removed trees and landscaping within the golf course to decrease the appearance of the proposed hardscape features (i.e., widened Grand Avenue, soundwall, and realigned on-ramp). With implementation of VIS-1 and VIS-2, impacts on residential uses to the east would be minor adverse.

Visual Change Experienced by Recreational Users – Recreational users of Diamond Bar Golf Course, east of the freeway, would have direct views of project improvements and would be highly aware of the project. The portions of the golf course adjoining Grand Avenue would experience the most visual change as a result of the project. Substantial numbers of mature trees and a large amount of landscaping would be removed to accommodate the widened Grand Avenue, modified Grand Avenue overcrossing, and the realigned eastbound on- and off-ramps. Tree and landscaping removal would increase views of hardscape features proposed by the project and would degrade the quality of views from Diamond Bar Golf Course. The proposed soundwalls along Diamond Bar Golf Course (north and south of Grand Avenue) would also require the removal of mature trees and landscaping along the western boundary of the golf course, north of Grand Avenue. Therefore, recreational users of Diamond Bar Golf Course would have views of the proposed soundwalls.

The viewer response of recreational users to proposed changes would be high. Therefore, VIS-2 would be required to replace removed trees and landscaping within the golf course (including along the proposed soundwall and widened Grand Avenue) with landscaping similar to existing conditions. Installation of replacement trees and landscaping would block views from Diamond Bar Golf Course to the proposed soundwall. With implementation of VIS-2, impacts would be minor adverse.

According to the project's draft NADR, the project (under both build alternatives) would construct only a 12-foot soundwall along Diamond Bar Golf Course (north of Grand Avenue). As determined by the draft NADR, neither build alternative would result in construction of the new soundwall along Diamond Bar Golf Course south of Grand Avenue.

Project impacts would be reduced with implementation of the NADR project-proposed soundwall compared with that analyzed for the noise study report. Construction of the NADR project-proposed soundwall would result in reduced visible hardscape because the northern wall would be reduced by 4 feet in height, compared with that analyzed for the noise study report, and the southern wall would not be constructed. The project would be required to comply with VIS-2 regarding replacement landscaping. With implementation of VIS-2, resultant impacts from implementation of the NADR would be considered minor adverse.

Visual Change Experienced by Freeway Travelers: Proposed changes in LU2 would be visible by freeway travelers along SR-57/SR-60. These changes would include the northbound and southbound lane restriping and realignment, the additional auxiliary lane, the realigned eastbound on- and off-ramps, realigned westbound on- and off-ramps, two new soundwalls proposed along Diamond Bar Golf Course east of the freeway, and a new soundwall proposed along the residential uses adjacent to Rock River Road and the freeway. Freeway travelers would have short- to moderate-duration views of project changes. In general, the realigned on- and off-ramps, freeway mainline, and overcrossing would appear similar to the existing conditions because these facilities currently exist. However, freeway travelers would notice an increase in hardscape features because of the installation of the soundwalls along Diamond Bar Golf Course, a soundwall adjacent to residential uses along Rock River Road west of the freeway, and the removal of some ornamental landscaping. Therefore, to decrease the appearance of hardscape freeway features and enhance the driver's experience along the project site, VIS-3 would require the installation of compatible landscaping along disturbed areas of the freeway. Further, implementation of VIS-4 would require landscape and/or architectural treatments (e.g., color, texture) of the proposed soundwalls (freeway side only). With implementation of VIS-3 and VIS-4, impacts on freeway travelers would be minor adverse.

Visual Change Experienced by Local Street Users: Alternative 2 proposes improvements along Golden Springs Drive and Grand Avenue in LU2. These improvements would require the removal of mature trees and ornamental landscaping within Diamond Bar Golf Course that is visible to local street users along Golden Springs Drive and Grand Avenue. The landscaped median within Grand Avenue would be reduced in size because of the proposed street widening. The viewer response of local street users to proposed changes would be moderate. However, implementation of VIS-2 would replace removed trees and landscaping within the golf course (including those visible from Golden Springs Drive and Grand Avenue) with landscaping that would be similar to existing conditions. With implementation of VIS-2, impacts would be minor adverse.

Alternative 3: Alternative 3 in LU2 proposes a partial cloverleaf interchange configuration at the Grand Avenue interchange, the reconfiguration of the eastbound SR-60 on- and off-ramps at Grand Avenue, a new SR-60 eastbound bypass ramp, the realignment of the existing northbound SR-57/eastbound SR-60 connector, the construction of a seventh lane between the Grand Avenue off-ramp and the added lane near the eastern SR-57 diverge, the construction of an auxiliary lane

connecting the new three-lane on-ramp at Grand Avenue to the new connector, a new intersection of Grand Avenue and the eastbound on- and off-ramps, a new eastbound loop on-ramp, realignment of the existing eastbound on-ramp, the widening of Grand Avenue, reconstruction of the Grand Avenue overcrossing, the widening of Golden Springs Drive, two soundwalls along Diamond Bar Golf Course (north and south of Grand Avenue), and a soundwall adjacent to residential uses along Rock River Road west of the freeway.

Although more change would occur under Alternative 3, visual impacts on residents, commercial users, freeway travelers, and local street users in Alternative 3 would be similar to those discussed under Alternative 2, above. However, under Alternative 3, the proposed partial cloverleaf interchange at Grand Avenue would require a larger take from Diamond Bar Golf Course, requiring more tree and vegetation removal. Therefore, recreational users would experience more visual change (increase in hardscape and removed trees and vegetation) under Alternative 3. However, VIS-2 would be required to replace removed trees and landscaping within the golf course (including along the proposed soundwall and widened Grand Avenue) with landscaping similar to existing conditions. Installation of replacement trees and landscaping would block views from Diamond Bar Golf Course to the proposed partial cloverleaf interchange. With implementation of VIS-2, impacts on recreational users would be minor adverse.

Landscape Unit 3

Changes in LU3 are represented in Key Views 4, 5, and 6.

Alternatives 2 and 3 in LU3 propose the realigned northbound SR-57 mainline, the new eastbound bypass ramp in the central portion of LU3, the realigned SR-60 eastbound on-ramp from South Diamond Bar Boulevard, a soundwall along the property lines of the residential uses along Rock River Road adjacent to the freeway (in the southern portion of LU3), and a soundwall along the property lines of the residential uses atop the bluff along Decorah Road in the northern portion of LU3.

Visual Change Experienced by Residential Uses: Views from residential uses within LU3 (i.e., those along Rock River Road in the southern portion of LU3 and those along Decorah Road atop the bluff in the northern portion of LU3) would be similar to those described above under "Landscape Unit 2, Alternative 2, Visual Change Experienced by Residential Uses." Thus, no feasible mitigation measures are available to reduce, minimize, or avoid the substantial adverse impacts from the introduction of the new soundwalls.

According to the project's draft NADR, the project would not be required to construct the new soundwalls adjacent to residences (at Rock River Road and Decorah Road) because the soundwalls were determined to be "not reasonable." As determined by the draft NADR, neither build alternative would result in the construction of the soundwalls considered as part of the noise study report. With implementation of the NADR recommendation for soundwalls, project implementation would not result in substantial adverse impacts on these residences. No avoidance, minimization, or mitigation measures are required.

Limited views of the proposed realignments and bypass ramp would be afforded from the residential uses within the eastern (i.e., those off of Golden Springs Drive) and northeastern (i.e., those along Palomino Drive) portions of LU3, which are higher in elevation than the project site. The majority of views from these residents would be obstructed by intervening structures and trees. Overall, residents within the eastern and northeastern portions of LU3 would respond moderately to the proposed project features. Because the freeway would appear similar to existing conditions with project implementation, residents who are higher in elevation than the project site would not experience adverse visual changes, and impacts would not be substantial. Because views of the project site would be limited and views of mature trees would remain, impacts on residents within the eastern and northeastern portions of LU3 would be minor. No avoidance, minimization, or mitigation measures are required.

Visual Change Experienced by Recreational Uses – Recreational users of the northern portion of Diamond Bar Golf Course east of the freeway would have limited views of project improvements because of intervening structures (i.e., U-Store-It Self-Storage). These recreational viewers would be minimally aware of the project. Some mature trees and landscaping between the freeway and the storage structures would be removed to accommodate the realigned northbound SR-57 off-ramp. Viewer response by recreational users to proposed changes would be high. However, because of the minimal amount of visible change experienced by recreational users in LU3, impacts would not be substantial.

Visual Change Experienced by Commercial Uses – Views from commercial uses located east of the project site would be minimally affected by the proposed realignment and new bypass. The realigned northbound SR-57 off-ramp and new eastbound bypass ramp would be visible from commercial uses to the east. Although these structures would appear similar to existing freeway structures, construction would require the removal of existing mature trees and ornamental landscaping along the east side of the freeway. Therefore, VIS-1, which would require typical freeway landscaping (e.g., shrubs and groundcover) along the freeway in disturbed areas, would reduce visual impacts on nearby commercial users.

Visual Change Experienced by Freeway Travelers – Proposed changes in LU3 would be visible by freeway travelers on SR-57/SR-60. These changes would include the new eastbound bypass, the mainline lane restriping and realignment, and the new soundwall along the west side of the freeway. Freeway travelers would have short- to moderate-duration views of project changes. In general, the realigned freeway mainline, northbound SR-57 off-ramp, and the eastbound SR-60 on-ramp would appear similar to the existing conditions. Freeway travelers would notice an increase in hardscape because of the new eastbound bypass structure and the soundwall along the west side of the freeway. However, because these changes would appear similar to the existing freeway structures and existing soundwalls, visual changes would not be substantial. Further, implementation of VIS-4 would require landscape and/or architectural treatments (i.e., color, texture) for the proposed soundwall (freeway side only). Thus, the resulting impacts would be minor.

The draft NADR determined the soundwall adjacent to the residential area would not be "reasonable." Therefore, a soundwall is not proposed or required in accordance with Caltrans guidelines. As determined by the NADR, neither build alternative would result in

the construction of the soundwall considered as part of the noise study report. Thus, project implementation would not result in substantial adverse impacts on these residents. No avoidance, minimization, or mitigation measures are required.

Light and Glare

Implementation of the proposed project would introduce additional sources of light and glare associated with vehicle headlights. No additional traffic signals or street lighting would be installed. Glare impacts from new soundwalls and retaining walls would be introduced along portions of SR-57/SR-60. With implementation of VIS-2, walls would be required to apply a treatment (which may include a vine treatment) to reduce or eliminate reflective light and glare impacts. Residents in the vicinity of the project site would generally experience sources of light and glare similar to existing conditions. Impacts would be minor.

Commercial uses along SR-57/SR-60 would not experience a considerable increase in light and glare. Upon project completion, light and glare in this area would appear similar to the existing condition. In this regard, impacts would not be significant.

Resultant Impact Summary

Table 2-56 describes the resultant visual impacts of the proposed project given the conclusions presented above. As depicted in Table 2-56, with implementation of the proposed project and construction of the soundwalls recommended in the noise study report, significant impacts would result for residential uses west of the freeway. However, according to the project's draft NADR, these soundwalls are not considered reasonable. Therefore, they may not be constructed as part of the project. Thus, with implementation of the proposed project, the recommendations of the NADR, and the recommended avoidance, minimization, and/or mitigation measures, no significant visual impacts would result.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans and FHWA mandate that a qualitative approach be taken to avoid or minimize the loss of visual quality in the project area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality that would occur in the project viewshed when the project is implemented. It also constitutes avoidance and minimization that can more readily generate public acceptance of the project.

Avoidance and minimization measures for adverse project impacts discussed in the key view assessments and summarized in the previous section would consist of the design requirements listed below. The requirements are arranged by project feature and include design options in order of effectiveness. All visual avoidance and minimization would be designed and implemented with the concurrence of the Caltrans District Landscape Architect.

Table 2-56: Resultant Project Impact Summary

Sensitive Viewer Group	Build Alternative	Landscape Unit	Visual Impact	Avoidance, Minimization, and/or Mitigation Measures	Resultant Impact	Implementation of the NADR Recommendations	Mitigation Measures	Resultant Impact
Residential Uses West of the Freeway	2 and 3	1	Minor Adverse	None Required	Minor Adverse	Minor Adverse	None Required	Minor Adverse
	2 and 3	2	Substantial Adverse	None Feasible	Substantial Adverse	Minor Adverse	None Required	Minor Adverse
	2 and 3	3	Substantial Adverse	None Feasible	Substantial Adverse	Minor Adverse	None Required	Minor Adverse
Residential Uses East of the Freeway	2 and 3	1	Minor Adverse	None Required	Substantial Adverse	Minor Adverse	None Required	Minor Adverse
	2 and 3	2	Substantial Adverse	VIS-1 and VIS-2	Minor Adverse	Substantial Adverse	VIS-1 and VIS-2	Minor Adverse
	2 and 3	3	Minor Adverse	None Required	Minor Adverse	Minor Adverse	None Required	Minor Adverse
Freeway Travelers	2 and 3	1	Minor Adverse	None Required	Minor Adverse	Minor Adverse	None Required	Minor Adverse
	2 and 3	2	Substantial Adverse	VIS-3 and VIS-4	Minor Adverse	Substantial Adverse	VIS-3 and VIS-4	Minor Adverse
	2 and 3	3	Substantial Adverse	VIS-4	Minor Adverse	Minor Adverse	None Required	Minor Adverse
Recreational Users	2 and 3	1	--	--	--	--	--	--
	2	2	Substantial Adverse	VIS-2	Minor Adverse	Substantial Adverse	VIS-2	Minor Adverse
	3	2	Substantial Adverse	VIS-2	Minor Adverse	Substantial Adverse	VIS-2	Minor Adverse
	2 and 3	3	Minor Adverse	None Required	Minor Adverse	Minor Adverse	None Required	Minor Adverse

Sensitive Viewer Group	Build Alternative	Landscape Unit	Visual Impact	Avoidance, Minimization, and/or Mitigation Measures	Resultant Impact	Implementation of the NADR Recommendations	Mitigation Measures	Resultant Impact
Local Street Users	2 and 3	1	--	--	--	--	--	--
	2 and 3	2	Substantial Adverse	VIS-2	Minor Adverse	Substantial Adverse	VIS-2	Minor Adverse
		3	--	--	--	--	--	--
Commercial Users	2 and 3	1	Minor Adverse	None Required	Minor Adverse	Minor Adverse	None Required	Minor Adverse
	2 and 3	2	--	--	--	--	--	--
	2 and 3	3	Substantial Adverse	VIS-1	Minor Adverse	Substantial Adverse	VIS-1	Minor Adverse

VIS-1 Removed trees and vegetation within Diamond Bar Golf Course shall be replaced with landscaping that is compatible to the surrounding area and similar to the existing landscaping. Landscaping shall also be installed along the golf course face of the proposed soundwall and along the Diamond Bar Golf Course edges of the freeway and Grand Avenue interchange to buffer views. The City of Diamond Bar, County of Los Angeles Department of Parks and Recreation, and the Caltrans District Landscape Architect shall cooperatively determine the landscape reconfiguration of Diamond Bar Golf Course in this area.

VIS-2 Landscaping shall be installed within the Grand Avenue median and along the disturbed portions of Grand Avenue and Golden Springs Road, where feasible. Landscaping shall be compatible with that of the surrounding area and selected in consultation with the City of Diamond Bar and the Caltrans District Landscape Architect.

VIS-3 To maintain the context of the project area (e.g., color, form, and texture), the project shall install landscaping that is compatible with the existing landscaping along disturbed portions of SR-57/SR-60 through the project site. Landscaping shall include shrub/groundcover mass planting (where feasible) and landscape treatment along walls (where feasible) to soften the hardscape features from the walls. The landscape concept, plan, and plant palette shall be determined in consultation with, and approved by, the Caltrans District Landscape Architect during the Plans, Specifications, and Estimate (PS&E) phase and shall be consistent with all water quality treatment requirements for the project. The Caltrans District Landscape Architect shall review and approve the planting plan to avoid the use of invasive plant species. Erosion control plant species utilized shall be determined in consultation with, and approved by, the Caltrans District Landscape Architect to ensure that the mix and application strategy is appropriate for the specific soil composition of the area.

VIS-4 To increase the unity of the freeway corridor, landscape and/or architectural treatments (e.g., color, texture) for the freeway-facing side of the proposed soundwall along Diamond Bar Golf Course shall be applied and determined in consultation with the Caltrans District Landscape Architect during the PS&E phase.

VIS-5 Construction lighting types, plans, and placement shall be reviewed at the discretion of the Caltrans District Landscape Architect to minimize light and glare impacts on surrounding sensitive uses.

2.1.7 Cultural Resources

2.1.7.1 Regulatory Setting

The term *"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.

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 (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on such properties and allow the Advisory Council on Historic Preservation an 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, 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. FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

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 Appendix B for specific information regarding Section 4(f).

Historical resources are considered under CEQA as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet NRHP listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. PRC Sections 5024(f) and 5024.5 require state agencies notify 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 NRHP or are registered or eligible for registration as California Historical Landmarks.

2.1.7.2 Affected Environment

Completed Cultural Resources Studies

The information for this section was synthesized from the January 2010 historic property survey report (HPSR), which includes an archaeological survey report that documents archaeological resource conditions in the project area of potential effects (APE).

The HPSR was prepared in compliance with Section 106 of the NHPA. The HPSR implements the standard regulations of the ACHP (36 CFR 800, effective August 15, 2004). More specifically, it identifies and evaluates historic properties (36 CFR 800.4). The purpose of the HPSR is to document the identification and evaluation efforts and request concurrence from the SHPO regarding FHWA's determination(s) of NRHP eligibility or ineligibility for evaluated cultural resources.

Cultural Setting

The project area is located on the coastal side of the cismontane[32] portion of the Peninsular Ranges geomorphic province of Southern California. From north to south, the San Jacinto Mountains, Santa Rosa Mountains, and Laguna Mountains are located along the main ridge of the Peninsular Ranges (Schoenerr 1992). The Santa Ana Range, an uplifted feature along the Whittier-Elsinore fault, is a prominent part of the skyline between Orange and Riverside counties. The highest point, at 5,678 feet, is Santiago Peak. This peak and its near neighbor, Modjeska Peak, form a saddle-shaped prominence known as Saddleback Mountain (Schoenerr 1992). The Puente Hills are southeast of the project area, and the San Jose Hills are to the northwest. Diamond Bar Creek is located within the project area on the west side of SR-60. It flows in a general northeast–southwest direction, with blue-line tributaries meandering eastward across the highway.

Surface deposits in the lower-lying portions of the project area consist of younger Quaternary alluvium, which is derived from fluvial deposits from Diamond Bar Creek. Exposures of the marine Late Miocene[33] Puente Formation, also known as the Monterey Formation, are found in the elevated portions of the project area (McLeod 2009). The dominant vegetation consists of chaparral, with urbanized areas containing landscape vegetation.

Ethnography

The project area lies within the territory of the Gabrieleno Native American people (Bean and Smith 1978). The Gabrieleno are characterized as one of the most complex societies in native Southern California, second perhaps only to the Chumash, their coastal neighbors to the northwest. This complexity derives from their overall economic, ritual, and social organization (Bean and Smith 1978; Kroeber 1925).

The Gabrieleno, a Uto-Aztecan (or Shoshonean) group may have entered the Los Angeles Basin as recently as 1500 B.C. In early protohistoric times, the Gabrieleno occupied a large territory that included the entire Los Angeles Basin. This region encompasses the coastal area from Malibu to Aliso Creek; parts of the Santa Monica Mountains, the San Fernando Valley, the San Gabriel Valley, and the San Bernardino Valley; the northern part of the Santa Ana Mountains; and much of the middle to lower Santa Ana River. The Gabrieleno also occupied the islands of Santa Catalina, San Clemente, and San Nicolas. Within this large territory were more than 50 residential communities, with populations ranging from 50 to 150 individuals. The Gabrieleno had access to a broad and diverse resource base. This wealth of resources, coupled with an effective subsistence technology, well-developed trade network, and elaborate ritual system, resulted in a society that was among one of the most materially wealthy and sophisticated cultural groups in California at the time of contact.

[32] Cismontane refers to the nearer side of a mountain range.

[33] The Miocene Epoch, 23.03 to 5.3 million years ago, was a time of warmer global climates than those in the preceding Oligocene or the following Pliocene, and it's notable in that two major ecosystems made their first appearances: kelp forests and grasslands. University of California Museum of Paleontology. 2012. Available: <http://www.ucmp.berkeley.edu/tertiary/miocene.php>. Accessed: June 14, 2012.

Prehistory

The prehistoric occupation of Southern California is divided chronologically into four temporal phases, or horizons (Moratto 1984). Horizon I, or the Early Man Horizon, began at the first appearance of people in the region, approximately 12,000 years ago, and continued until about 5000 B.C. Although little is known about these people, it is assumed that they were semi-nomadic, subsisting primarily on game.

Horizon II, also known as the Millingstone Horizon or Encinitas Tradition, began around 5000 B.C. and continued until about 1500 B.C. The Millingstone Horizon is characterized by widespread use of milling stones (manos and metates) and core tools but few projectile points or bone or shell artifacts. This horizon appears to represent a diversification of subsistence activities and a more sedentary settlement pattern. Archaeological evidence suggests that hunting became less important and that reliance on shellfish and vegetal resources increased (Moratto 1984).

Horizon III, the Intermediate Horizon or Campbell Tradition, began around 1500 B.C. and continued until about A.D. 600–800. Horizon III is defined by a shift from the use of milling stones to increased use of mortar and pestle, indicating a greater reliance on acorns as a food source. Projectile points become more abundant and, together with faunal remains, indicate increased use of both land and sea mammals (Moratto 1984).

Horizon IV, the Late Horizon, which began around A.D. 600–800 and terminated with the arrival of Europeans, is characterized by dense populations; diversified hunting and gathering subsistence strategies, including intensive fishing and sea mammal hunting; extensive trade networks; use of the bow and arrow; and a general cultural elaboration (Moratto 1984).

History

Spanish occupation of California began in 1769 at San Diego. Mission San Gabriel was established in the Los Angeles Basin in 1771, and the Los Angeles pueblo was established as a civilian settlement on September 4, 1781. The Spanish colonization effort of present-day California in the mid-18th century focused on three institutions: the presidio, the pueblo, and the mission.

The presidio was a military base. The Spanish government sent military expeditions to California to explore the region for harbors that could provide secure sites for the presidios, which would be important for colonization of the area and the protection of settlers. Pueblos were civil settlements that supplied agricultural products and provided an example of proper Spanish society to the natives. The missions were the central economic units of the colonial system. The goals of the mission system were to convert the native peoples to Catholicism, gain control of the native population, and establish self-sufficient communities. The presidios, with their military presence, supported the missions with a force of arms that helped control the native people. Despite a high death rate among the native population, the mission priests and military personnel worked together to make the missions productive institutions for many years. In 1776, Franciscan missionaries established Mission San Juan Capistrano, though construction of the mission did not begin until 1797. It was completed in 1806.

By the early 1800s, Spanish army officers and veterans received large land grants, from which they built cattle ranches, or ranchos. In 1809, Jose Antonio Yorba and Juan Pablo Peralta were granted the land east of the Santa Ana River known as Rancho Santiago de Santa Ana. The Yorba and Peralta families raised cattle on their land for half a century.

In 1821, Mexico won independence from Spain and subsequently became a republic. In 1833, the Mexican government secularized the missions and began to redistribute their land holdings through land grants to individuals who promised to work the land, primarily by raising cattle. Although secularization was intended to distribute the mission lands to settlers and the native population, few Native Americans received land grants. The large-scale cattle ranchers claimed the bulk of the resources. These cattle ranches became the driving force in the economy.

In 1840, Jose de la Luz Linares received the 4,340-acre Rancho Los Nogales (Ranch of the Walnut Trees) through a land grant from Governor Juan Alvarado. The land grant included Brea Canyon and eastern Walnut Valley, an area that encompasses the project area.

At the end of the war between Mexico and the United States in 1848, the Treaty of Guadalupe Hidalgo was signed, giving control of California to the United States. In 1850, California was admitted into the Union.

On April 4, 1850, the City of Los Angeles was incorporated as a municipality. The history of Los Angeles County through most of the 19th and 20th century is one of remarkable urban growth. The motion picture industry and manufacturing sector created numerous jobs and supported new businesses. As a result of the opportunities created by these industries, the population of Los Angeles grew from 102,000 in 1900 to 576,000 in 1920. By 1930, it had reached 1.2 million (Jones & Stokes 2006).

To prevent surrounding cities from annexing industrial land for tax revenue, the City of Industry was incorporated on June 18, 1957. As of the 2010 census, the population was 219. The City of Industry has no business taxes. It relies on retail sales tax revenue from shopping centers located within the city limits.

Rancho Los Nogales was eventually divided into multiple ranches, the largest of which was the Diamond Bar Ranch. The entire Diamond Bar Ranch was acquired by Transamerica Corporation in the 1950s to develop one of the nation's first master-planned communities. The first tract homes went up in 1960 in areas adjacent to the corridor that SR-60 would later occupy. Subsequently, development and population grew at a rapid rate. On April 18, 1989, the City of Diamond Bar was incorporated.

Methodology

The APE for the proposed project was established as the limits of the current right-of-way along with temporary construction easements, takes, and staging areas. Construction activities would include widening the existing SR-60 westbound and eastbound lanes, resurfacing the roadway within the entire widened area, reconstructing the Grand Avenue interchange, restriping Grand Avenue at its intersection with the westbound and eastbound SR-60 ramps, and restriping both sides of Golden Springs Drive at its intersection with Grand Avenue. A field survey was conducted by a Professionally Qualified Staff (PQS) architectural historian and archaeologist on October 6, 2009.

A records search was conducted at the Eastern Information Center (EIC) of the University of California, Riverside on May 19, 2009. Archival research included a review of historic registers, including California Historic Landmarks (CHL), NRHP, CRHR, California Points of Historical Interest (PHI), California Inventory of Historic Resources, and the California State Historic Resources Inventory (HRI).

This record search revealed that 27 cultural resource surveys have been conducted within a 1-mile radius of the project APE. Of these surveys, seven are located within the project APE. Five prehistoric cultural resource sites have been identified within a 1-mile radius of the project APE, and one historic site has been identified within a 1-mile radius of the project APE (see Table 2-57). Currently, there are no listings for the PHI, CHL, CRHR, NRHP, or HRI within a 1-mile radius of the project APE.

Table 2-57. Cultural Resource Sites Recorded Within a 1-Mile Radius

Primary Number	Trinomial	Description	Author and Year	Status
19-000522	CA-LAN-522	Prehistoric campsite	Sanburg, 1973	Outside the APE
19-000852	CA-LAN-852	Prehistoric lithic scatter	Whitley, 1976	Outside the APE
19-000853	CA-LAN-853	Prehistoric lithic scatter	Whitley, 1976	Outside the APE
19-000854	CA-LAN-854	Prehistoric lithic scatter	Whitley, 1976	Outside the APE
19-001414	CA-LAN-1414	Prehistoric lithic scatter	White and Van Horn 1988; McKenna et al., 1999 and 2003a	Outside the APE
19-186112	NA	Union Pacific Railroad, Southern Pacific Railroad	Ashkar, 1999	Outside the APE

The cultural materials discussed below were found just north of the APE. A survey was conducted in 1974, and according to the report, "a number of crude, percussion-formed artifacts were found approximately 300 yards northeast and southwest of the Grand Avenue off-ramp, along the Diamond Bar Creek bed" (Van Buren 1974). No site records are on file at the SCCIC for these resources. The area was revisited in 1981, and although the previous prehistoric artifacts identified in the 1974 survey were not relocated, three new prehistoric isolated artifacts were identified. Of the three isolates identified during the 1981 survey, one was located south of the Grand Avenue off-ramp along the creek bed (Banks and Harley 1981). No site records are on file at the SCCIC for these resources.

In 1988, prehistoric site 19-001414 was identified on the north bank of Diamond Bar Creek near the SR-57/SR-60 confluence within the vicinity of the previous finds from the 1974 and 1981 surveys (White and Van Horn 1988). In 1999, the site was relocated, and in 2003 a test excavation was made at the site (McKenna et al. 1999 and 2003a). However, the test excavations "failed to yield the artifact content or archaeological context originally described by White in 1988…the excavations, profile examinations, and artifact yields failed to show that this site area has the potential to yield significant archaeological data and…does not meet the minimum requirements for significance under Criterion D" (McKenna et al. 2003b). Even

though the excavations "failed to yield the evidence necessary to conclude that CA-LAN-1414 is a significant resource…it should be noted that the sampling conducted…was limited and there is still a potential for evidence of significant resources in buried contexts. Therefore… archaeological monitoring of CA-LAN-1414 is recommended if or when activities associated with the alterations of Diamond Bar Creek or subsequent industrial developments affect the area" (McKenna et al. 2003b).

A letter to the Native American Heritage Commission (NAHC) was sent on May 18, 2009, requesting a review of the sacred lands file as well as a list of Native American representatives to be contacted for information regarding sacred sites within the project area (see HPSR Attachment C). According to the NAHC response dated May 19, 2009, no known sacred sites are located within the project area. The NAHC also provided a list of eight local Native Americans, representing eight different Native American groups in Southern California, to be contacted for information. A letter describing the proposed project and requesting information regarding resources important to Native Americans was sent to each representative on May 18, 2009.

2.1.7.3 Environmental Consequences

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no modifications to existing structures or the land would occur; therefore, no effects on historical or archaeological cultural resources would result.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction

No resources that would require evaluation were identified within the project APE; therefore, there was a finding of No Historic Properties Affected. Native American consultation revealed that existing sacred sites are located near the project area but outside of the APE. After reviewing the results of the survey and the records search, it has been determined that a finding of No Adverse Effect with Standard Conditions would be appropriate. The standard conditions would include archaeological monitoring of all initial grading activities for the proposed project, as described in measures CUL-1 and CUL-2.

Operation

After construction, operation of the proposed project, under Alternative 2, would not be expected to affect any historic or archaeological resources because the proposed project would be a traffic operations improvement project, and no additional excavation or building demolition would be necessary during operation.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction

The same APE that was used to analyze cultural resources under Alternative 2 was used for Alternative 3. Therefore, a finding of No Historic Properties Affected for historic resources and No Adverse Effect with Standard Conditions for archaeological resources would also apply to Alternative 3. Similarly, measures CUL-1 and CUL-2 would also apply to the construction of Alternative 3.

Operation

Similar to Alternative 2, once constructed, Alternative 3 would not be expected to affect any historic or archaeological resources during operation because the proposed project would be a traffic operations improvement project, and no additional excavation or building demolition would be necessary during operations.

2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

Minimization measures CUL-1 and CUL-2, which are standard measures for all Caltrans projects, are recommended to ensure that potential effects on cultural resources would be avoided.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

CUL-1: A qualified professional archaeologist shall monitor the initial phase of ground disturbing activities for the project. If buried cultural resources, such as flaked or ground stone, historic debris, building foundations, or non-human bone, are inadvertently discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find. Caltrans District 7 shall be immediately notified. At the direction of Caltrans, a qualified archaeologist shall assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures typically include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. If required, recovery of significant archaeological deposits shall occur using standard archaeological techniques, including manual or mechanical excavations, monitoring, soils testing, photography, mapping, or drawing to adequately recover scientifically consequential information from and about the archaeological resource. If, during cultural resources monitoring, the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist shall specify that monitoring be reduced or eliminated.

CUL-2: If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. Construction must halt in the area of the discovery of human remains, the area must be

protected, and consultation and treatment must occur as prescribed by law. If the coroner determines the remains to be Native American, the coroner must contact the NAHC within 24 hours. If Native American human remains are discovered during project construction, it will be necessary to comply with state laws related to Native American burials, which are under the jurisdiction of the NAHC (PRC Section 5097). For remains of Native American origin, no further excavation or disturbance shall take place until the most likely descendant of the deceased Native American(s) makes a recommendation to the landowner or the person responsible for the excavation work regarding the means of treating or disposing of the human remains and any associated grave goods, with appropriate dignity, as provided in PRC Section 5097.98, or the NAHC is unable to identify a most likely descendant or the descendant fails to make a recommendation within 48 hours after being notified by the commission. In consultation with the most likely descendant, the project archaeologist and the project proponent shall determine a course of action regarding preservation or excavation of Native American human remains, and this recommendation shall be implemented expeditiously. If a most likely descendent cannot be located or does not make a recommendation, the project archaeologist and the project proponent shall determine a course of action regarding preservation or excavation of Native American human remains, which shall be submitted to the NAHC for review prior to implementation.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 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. FHWA 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 affected 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.”

2.2.1.2 Affected Environment

This section is based upon the Location Hydraulic Study Form, dated September 14, 2010, and the Water Quality Assessment Report, dated May 2012; refer to Appendix G.

The main drainage feature in the project area is Diamond Bar Creek, which confluences with San Jose Creek approximately 2.7 miles downstream. Surface water from the project generally flows southwest toward Diamond Bar Creek. San Jose Creek is tributary to the San Gabriel River approximately 10.2 miles downstream from the Diamond Bar Creek confluence. The San Gabriel River flows through the San Gabriel Estuary into San Pedro Bay through the Los Angeles/Long Beach Harbor, and into the Pacific Ocean, draining approximately 682 square miles of eastern Los Angeles County. San Gabriel Creek's headwaters are in the San Gabriel Mountains, traversing through the San Gabriel and Morris reservoirs, and collecting runoff from a highly urbanized watershed before emptying into the Pacific Ocean.

As shown in Figure 2-33, the project is located outside the 100-year flood plain (Zone X), in which there is a 0.2 percent chance of flooding annually (Flood Insurance Rate Maps September 26, 2008 – 06037C1725F covering the project area).

2.2.1.3 Environmental Consequences

Construction Impacts

Alternative 1, No-Build Alternative

Because no construction activities would occur under the No-Build Alternative, no changes to the existing hydrological or floodplain conditions would result. As such, there would be no adverse effects.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

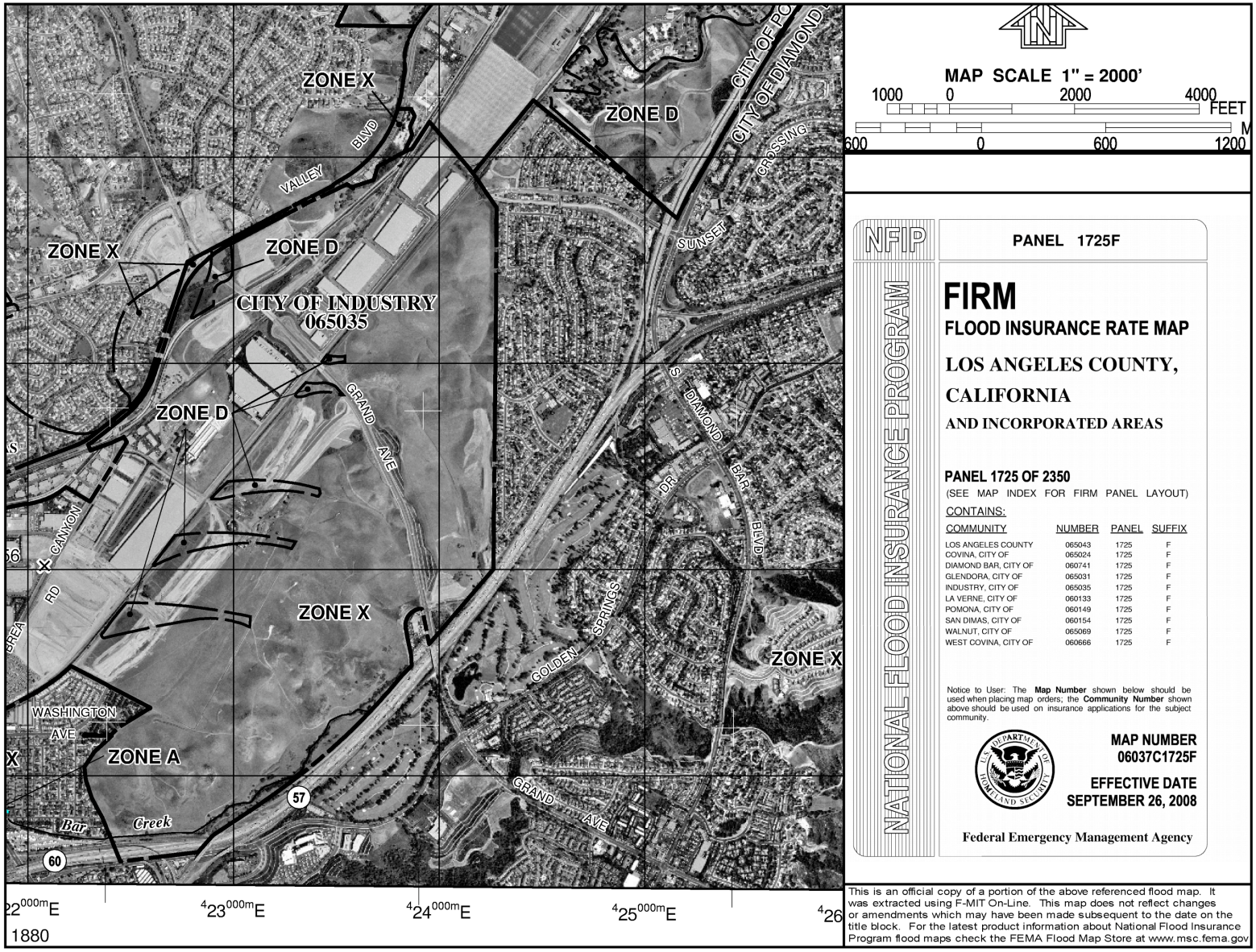
Under either of the build alternatives, the existing drainage pattern on the project site would be maintained during construction activities. When existing drainage facilities are impeded by construction activities, storm flows would be temporarily detoured as necessary, but would not result in altering the existing drainage pattern. Therefore, existing hydrological and flood conditions would not be modified and no substantial adverse effects would occur.

Operational Impacts

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no changes to the existing hydrological and/or floodplain conditions would occur. In addition, no encroachment upon a floodplain would result. As such, there would be no adverse effects.

Figure 2-33: Flood Insurance Rate Map



Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Neither of the Build Alternatives would encroach upon nor affect a 100-year floodplain as identified by FEMA, nor would the Build Alternatives support incompatible floodplain development.

Drainage components will be designed to maintain the existing flow patterns through the project limits consistent with applicable Caltrans and city design criteria and ordinances. This will be achieved by the inclusion of various drainage facilities as specified and approved on detailed engineering plans so as not to induce downstream flooding nor deflect flows from their natural course.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

HYD-1: In order to minimize impacts from the build alternatives, the project will include drainage facilities so as not to induce downstream flooding nor deflect flows from their natural course.

2.2.2 Water Quality and Stormwater Runoff

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to waters of the United States (WoUS) 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, which may result in a discharge to WoUS to obtain certification from the State that the discharge will comply with other provisions of the act. (This is 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 WoUS. Regional Water Quality Control Boards (RWQCBs) 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 WoUS. 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 the U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) guidelines (U.S. Environmental Protection Agency Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) guidelines (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 United States) 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. According to the 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 United States (WoUS [e.g., groundwater and surface waters not considered WoUS]). Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin

Plan. In California, Regional Boards 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, the SWRCB 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 or non-point source controls, (NPDES permits or WDRs), 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, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. 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 Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, 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 pursuant to federal regulations. The Department's MS4 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 update, 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.
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the 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 BMPs. The proposed project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-0009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that 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 Stormwater Pollution Prevention Plan (SWPPP). In accordance with Caltrans' 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 Clean Water Act (CWA), any project requiring a federal license or permit that may result in a discharge to a water of the U.S. 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 the 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 (i.e., WDRs) under the State Water Code (Porter-Cologne Act) 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.

2.2.2.2 Affected Environment

This section is based on the *Water Quality Assessment Report*, dated May 2012, included in Appendix G.

The project is located within a NPDES-permitted area in Los Angeles County owned by Caltrans (NPDES Order 2012-0011-DWQ). Drainage from the project would drain to the City of Industry, which is covered by the urban MS4 NPDES permit issued to the Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities (collectively referred to as "permittees"). Caltrans developed a Statewide Stormwater Management Plan (SWMP) to implement its program. The plan describes the responsibilities, procedures, and practices Caltrans uses to protect water quality. This includes reducing or eliminating pollutants discharged from storm drainage systems Caltrans owns or operates through the selection and implementation of BMPs. The project would be designed and developed to meet the requirements of Caltrans' SWMP and the July 2010 *Stormwater Quality Handbook – Project Planning and Design Guide* (PPDG).

The project drains to Diamond Bar Creek, which confluences with San Jose Creek approximately 2.7 miles downstream. San Jose Creek is tributary to the San Gabriel River approximately 10.2 miles downstream from the Diamond Bar Creek confluence. The San Gabriel River flows through the San Gabriel Estuary into San Pedro Bay through the Los Angeles/Long Beach Harbor, and into the Pacific Ocean, draining approximately 682 square miles of eastern Los Angeles County. San Gabriel Creek's headwaters are in the San Gabriel Mountains, traversing through the San Gabriel and Morris reservoirs, and collecting runoff from a highly urbanized watershed before emptying into the Pacific Ocean (see Figure 2-34, San Gabriel River Watershed Map, which shows the project location in the watershed).

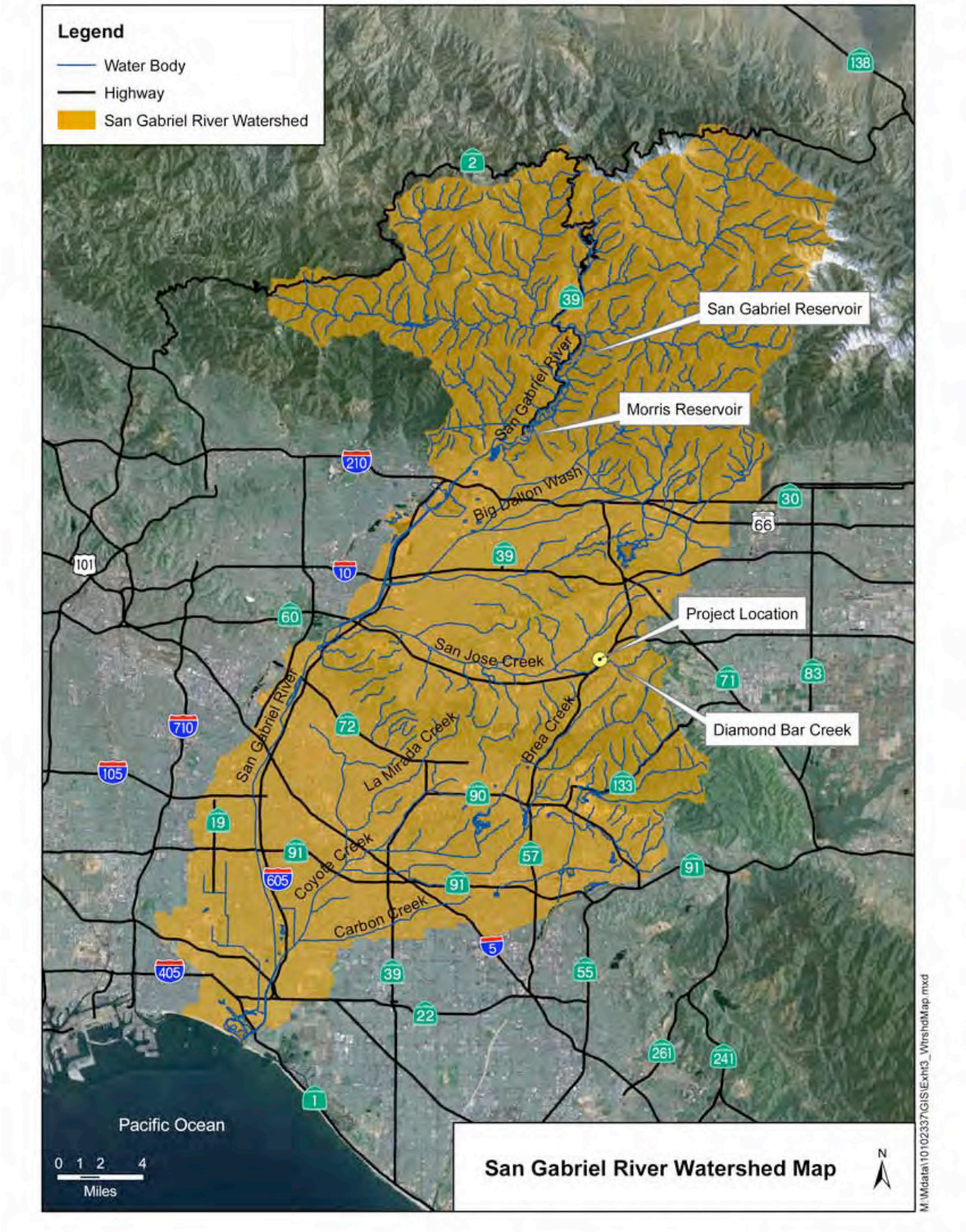
Part of and appended to the SWMP is the Stormwater Data Report (SWDR) and its associated checklists. The SWDR documents the relevant storm water design decisions made regarding project compliance with the MS4 NPDES permit. The preliminary information in the SWDR prepared during the Project Initiation 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.

The proposed project is located within the San Gabriel River watershed. Portions of the San Gabriel River watershed are listed on the 2010 CWA Section 303(d) list of impaired water bodies priority list of pollutants being addressed by a TMDL.

Established TMDL: The Trash TMDL for the East Fork of the San Gabriel River has been in effect since April 17, 2001. Caltrans is not a responsible party.

Future TMDL: The San Gabriel River and Impaired Tributaries Metals and Selenium TMDL was adopted by the Los Angeles RWQCB on July 13, 2006; it is expected to become effective in the near future. The TMDL assigns dry-weather waste-load allocations to MS4 permittees and Caltrans for copper in the San Gabriel River estuary, Reach 1, and Coyote Creek as well as

Figure 2-34: San Gabriel River Watershed Map



selenium in San Jose Creek, Reaches 1 and 2. The TMDL assigns wet-weather waste-load allocations to MS4 permittees and Caltrans for lead in the San Gabriel River, Reach 2, as well as upstream reaches and tributaries, and copper, lead, and zinc in Coyote Creek and its tributaries.

The *Water Quality Control Plan, Los Angeles Region* (Basin Plan) includes water quality standards to protect beneficial uses including maintaining aquatic ecosystems and the resources those systems provide to society. The Basin Plan also requires projects that drain to the San Gabriel River watershed to address the requirements of TMDL standards. This project drains to Diamond Bar Creek, which is not currently 303(d) listed nor has a TMDL been developed.

2.2.2.3 Environmental Consequences

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no changes to the existing condition would occur. As such, there would be no increase in run-off flow velocities, volumes, or peak flow rates. Therefore, no adverse impacts to water quality would result from this alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

When the project is ultimately developed, the proposed storm drain improvements will be built adjacent to the roadway improvements. The potential and anticipated pollutants from a roadway project such as this project may include the following:

- Particulate and dissolved metals
- Total suspended solids
- Litter
- Biochemical oxygen demand

The project would drain to Diamond Bar Creek, which has no impairments. However, because Diamond Bar Creek ultimately drains to the San Gabriel River, which is an impaired water body, the targeted design constituents for this project would be nitrogen, copper, lead, zinc, and general metals. As such, the SWDR will describe the analysis and selection of BMPs to treat the targeted design constituents and require that they be included as part of the project. Caltrans will be working with groups of responsible agencies to comply with the TMDL. The project engineer will consider treatment controls for the project and consult with the district NPDES stormwater coordinator.

Construction Impacts

During construction, the total disturbed area from the proposed project is estimated to be 42.1 acres. The pollutants of concern during construction typically include:

- Sediment
- Litter
- Petroleum products

- Concrete waste (dry and wet)
- Sanitary waste
- Chemicals

Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Under the Construction General Permit, the project is required to prepare a stormwater pollution prevention plan (SWPPP) and implement erosion and sediment control BMPs detailed in the SWPPP during construction. If construction BMPs are properly designed, implemented, and maintained, then no adverse water quality impacts would occur during construction of the proposed project.

There are no sole-source aquifers in the project area. Based on the overlying soil types and underlying strata, groundwater may be encountered during excavation associated with the project. Groundwater and any other non-stormwater dewatering activities would be subject to the requirements of the Dewatering Permit (Order Number R4-2008-0032). Compliance with this permit and compliance with required measures would avoid adverse impacts to water quality from dewatering activities.

Operational Impacts

Because the project consists of new roadway and on-ramp areas, it would result in a maximum permanent increase of impervious surfaces of 14.1 acres (12.9 acres within Caltrans right-of-way, and 1.2 acres outside of Caltrans right-of-way) and a permanent increase in runoff and pollutant loading. Operation of the project is subject to the requirements of Caltrans' NPDES Permit. As part of these requirements, the design of the project must:

1. Consider approved structural treatment control and non-structural source control BMPs for the project site; and
2. Construct structural treatment control BMPs where feasible.

Currently, stormwater runoff from within the project limits is untreated. Under all of the build alternatives, structural treatment control BMPs must be implemented to target the anticipated constituents (particulate and dissolved metals, total suspended solids, litter, and biochemical oxygen demanding substances) in stormwater, as well as non-stormwater sources, in runoff from the project area. Where feasible, structural treatment control and non-structural source control BMPs will be incorporated into the project. In addition, the structural treatment control and non-structural source control BMPs will be used to maximize pollutant treatment where feasible. With the implementation of these minimization measures, operation of proposed project facilities would result in no substantial adverse impacts to water quality.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures would be implemented during project construction.

Construction BMPs

WQ-1: In order to minimize potential water quality impacts, Caltrans' SWMP and NPDES permit require that all projects incorporate BMPs into their design to address pollutants of concern. During the construction of the project, the following BMPs shall be considered for implementation:

- Temporary Sediment Control
  - Silt Fence
  - Sandbag Barrier
  - Straw Bale Barrier
  - Fiber Rolls
  - Gravel Bag Berm
  - Check Dam
  - Desilting Basin
  - Sediment Trap
  - Sediment/Desilting Basin
- Temporary Soil Stabilization
  - Hydraulic Mulch
  - Hydroseeding
  - Soil Binders
  - Straw Mulch
  - Geotextiles, Mats/Plastic Covers and Erosion Control Blankets
  - Wood Mulching
- Scheduling
- Preservation of Existing Vegetation
- Temporary Concentrated Flow Conveyance Controls
  - Earth Dikes/Drainage Swales and Lined Ditches
  - Outlet Protection/Velocity Dissipation Devices
  - Slope Drains
  - Streambank Stabilization
- Temporary Stream Crossing
- Clear Water Diversion
- Wind Erosion Control
- Paving Operations
- Sediment Tracking Control
  - Street Sweeping and Vacuuming
  - Stabilized Construction Roadway
  - Entrance/Outlet Tire Wash
- Waste Management
  - Spill Prevention and Control
  - Solid Waste Management
  - Hazardous Waste Management
  - Contaminated Soil Management
  - Concrete Waste Management
  - Sanitary/Septic Waste Management
  - Liquid Waste Management
- Materials Handling
  - Material Delivery, and Storage
  - Material Use
- Vehicle and Equipment Operations
  - Vehicle and Equipment Cleaning
  - Vehicle and Equipment Fueling
  - Vehicle and Equipment Maintenance
- Stockpile Management
- Water Conservation Practices
- Potable Water/Irrigation
- Dewatering Operations

- Illicit Connection/Illegal Discharge Detection and Reporting
- Stabilized Construction Entrance/Exit
- Storm Drain Inlet Protection

The following minimization measures would be incorporated into the design of the project.

Treatment Control BMPs

WQ-2: In order to minimize operational impacts, and in compliance with Caltrans' NPDES Permit, treatment control BMPs shall be designed per the guidance in the Caltrans PPDG. The technologies to address the anticipated constituents for the project (particulate and dissolved metals, total suspended solids, litter, and biochemical oxygen demanding substances) shall be considered in the following order:

- Infiltration devices
- Biofiltration Strips
- Dry Weather Flow Diversions
- Gross Solids Removal Devices (GSRDS)
- Media Filters (Austin Sand Filter and Delaware Filter)
- Wet Basin
- Biofiltration Swale
- Detention Device
- Multi-Chamber Treatment Trains

As the project progresses through the design phase, the above list of treatment control BMPs shall be evaluated per the PPDG process. Treatment control BMPs shall be proposed based on their technical feasibility, the site conditions, and geotechnical conditions.

2.2.3 Geology/Soils/Seismicity/Topography

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in

California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

A series of geotechnical reports were prepared for different components of the proposed project. Three July 2010 reports investigated geotechnical conditions for the proposed eastbound bypass connector, replacement of the Golden Springs Drive undercrossing, and replacement of the Grand Avenue overcrossing. A September 2011 report analyzed the geotechnical implications of installing retaining walls along the SR-57/SR-60 alignment. The following analysis is based on the above geotechnical reports, which are included in Appendix G. In addition, this analysis refers to technical reports completed by Leighton Consulting, Inc., in 2002 as part of the Industry Business Complex project.

The project site is located in the northern part of the Puente Hills, a northwesterly trending range of low elevation, rounded hills at the northern edge of the Peninsular Ranges. The project site is in the valley of Diamond Bar Creek between the Los Angeles basin to the west and the Upper Santa Ana River Valley on the east, and the San Gabriel Valley and Mountains on the north. Diamond Bar Valley is a small, narrow valley with a flat floor ranging from about 550 feet on the west to 700 feet in elevation in the northeast. The Diamond Bar Valley is bounded by a ridge on the north that rises to about 800 feet elevation, and hills on the south that rise to about 1,000 feet before descending into Tonner Canyon on the south. The project site is located on the valley floor; Diamond Bar Creek is located to the north.

According to the geotechnical reports, the valley floor is underlain by late to middle Holocene[34] age stream channel, alluvial basin, and alluvial fan sediments. These deposits are approximately 45 to 50 feet thick and overlie Miocene[35] age rocks of the Puente Formation.

The Puente formation consists of siltstone, sandstone, and conglomerate. Depending largely on the relative amounts of these sedimentary rock types, the unit is divided into members called the Sycamore Canyon, Yorba, Soquel, and La Vida members.[36] The slopes of the adjacent ridge north of the site are predominantly Yorba and Soquel members and the slopes on the south are predominantly La Vida members. In the project site area, these members are composed primarily of siltstone and sandstone, ranging from soft to very hard in areas where cemented by calcium carbonate.

[34] The Holocene is the name given to the last 11,700 years of the earth's history, the time since the end of the last major glacial epoch, or "ice age" (University of California Museum of Paleontology, 2012). Available: <http://www.ucmp.berkeley.edu/quaternary/holocene.php>. Accessed: June 14, 2012.

[35] The Miocene Epoch, 23.03 to 5.3 million years ago, was a time of warmer global climates than those in the preceding Oligocene or the following Pliocene, and it's notable in that two major ecosystems made their first appearances: kelp forests and grasslands. University of California Museum of Paleontology. 2012. Available: <http://www.ucmp.berkeley.edu/tertiary/miocene.php>. Accessed: June 14, 2012.

[36] A *member* is a sub-unit of a rock formation.

Regional Faulting and Seismicity

Southern California is a geographically complex area that includes several types of faults, including strike-slip,[37] oblique thrust,[38] and blind thrust[39] faults. Any specific area is subject to seismic hazards of varying degree, depending on the proximity and earthquake potential of nearby active faults, and to the local geologic and topographic conditions, which can either amplify or attenuate the seismic waves. Seismic hazards include primary hazards from surface rupturing of rock and soil materials along active fault traces and secondary hazards resulting from strong ground shaking.

Fault-Induced Ground Rupture

To protect structures from the hazard of surface ground rupture along a fault line, the California Geological Survey (CGS), under the state-mandated Alquist-Priolo Act of 1972, has delineated "Earthquake Fault Zones" along active or potentially active faults (Hart and Bryant, 1997). A fault is considered active if there is evidence of movement along one or more of its segments in the last 11,000 years that is either directly observable or inferred. A well-defined fault is one in which "its trace can be clearly detected by a trained geologist as a physical feature at or just below the ground surface." A well-defined fault may be identified by either direct or indirect methods. If a site is located within an Earthquake Fault Zone, a detailed fault investigation is required prior to construction.

According to the geotechnical reports prepared for proposed project components, the Valley of Diamond Bar Creek may be controlled by a fault under the axis of the valley. The northeast-southwest linearity of the valley may be due to erosion along the fractured rocks along the fault. However, this fault is only inferred and not exposed. If there is a fault, it is not known to be active. No Alquist-Priolo Earthquake Fault Zones requiring special studies are located in the immediate project area. Therefore, the risk for ground surface rupture is low.

Seismic Ground Shaking

The probability that the project site will be subject to strong seismic shaking from a moderate to large earthquake on a major active fault in the Los Angeles region is high. The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, faulting mechanism, distance from the source (epicenter), and the site response characteristics. The intensity of the shaking is generally amplified in areas underlain by deep deposits of loose, unconsolidated soils. Ground shaking is also known to be enhanced by topographic highs, but this phenomenon is poorly understood at this time. The most common effects of strong seismic shaking include liquefaction and its related ground deformations, dynamic settlement, and landslides.

[37] A *strike-slip fault* is a fault in which surfaces on opposite sides of the fault plane have moved horizontally and parallel to the strike of the fault.
[38] An *oblique thrust fault* is a fault that features movement in both directions as strike-slip and dip-slip faults.
[39] A *blind thrust fault* is a fault that does not rupture all the way up to the surface, so there is no evidence of it on the ground. It is "buried" under the uppermost layers of rock in the crust.

Numerous faults have been mapped within the Southern California region, several of which are within about 62 miles, or 100 kilometers, of the site (CGS requires those faults within 100 kilometers that could affect the site or the proposed project to be identified). The major active and potentially active fault systems that could produce significant ground shaking at the site include the San Andreas, San Jose, Whittier, Chino, Puente Hills blind-thrust, and Sierra Madre-Cucamonga. These faults and their distances to the site are shown in Table 2-58. Further information on the potential effects of these faults on the project site is included in the impacts discussion below. As stated above, no active faults are known to be present on the project site.

Table 2-58. Earthquake Faults

Fault Name	Distance from Project Site (miles)
San Jose	2.4
Chino	4.3
Whittier	4.5
Puente Hills Thrust	5.7
Sierra Madre	10.4
Cucamonga	10.9
Raymond	15.3
Elsinore – Glen Ivy	15.5
Upper Elysian Park	16.2
Clamshell – Sawpit	16.9
Verdugo	20.3
Newport-Inglewood	23.5
San Joaquin Hills	23.8
San Jacinto	24.5
San Andreas	24.5
Cleghorn	26.2
Palos Verdes	26.2
San Gabriel	26.7

Source: Leighton, 2003; Earth Mechanics, 2010.

Secondary Effects of Seismicity

Slope Stability

According to the geotechnical reports prepared for the proposed project, the Puente Formation typically has abundant landslides, generally as a result of low-angle, out-of-slope bedding orientation. The Seismic Hazard Map of the San Dimas quadrangle does not identify the project site as having a potential for landslides during an earthquake. However, the materials at the site are underlain by late to middle Holocene age stream channel, alluvial basin, and alluvial fan sediments, which may be susceptible to running or caving in temporary excavations.

Several landslides and suspected landslides have been mapped within the project area. One of these landslides was encountered during the previous grading of Grand Avenue. To stabilize the roadway, a gravity buttress was placed on the south side of the road.[40] The gravity buttress, which was located at the intersection of Grand Avenue and Ferrero Parkway, did not remove the slide plane. In addition, a landslide shear key was constructed on the north side of Grand Avenue.[41] Aerial photographic analysis and initial site reconnaissance indicate that there are two landslide areas on the west-facing slopes and two on the east-facing slopes along Diamond Bar Creek south of Grand Avenue.

Liquefaction

Liquefaction occurs when water-saturated sandy soils are subjected to seismic shaking. When soil liquefies, it behaves as a viscous liquid rather than a solid and can cause surface subsidence, slope failures, lateral spreading, ground cracking, and sand blows. Liquefaction can also cause structures to tilt or sink into the surface.

Eastbound Bypass Connector

According to the July 2010 geotechnical analysis, using the design groundwater elevation of 700 feet, loose to medium dense granular materials below this groundwater elevation are susceptible to liquefaction. This finding will be confirmed during the plans, specifications, and estimate (PS&E) phase using site-specific soil boring data (please see the Avoidance, Minimization, and/or Mitigation Measures section, below).

Golden Springs Drive Undercrossing

Because the subsurface material encountered at the bridge location is predominantly weathered siltstone or sandstone bedrock, liquefaction potential is considered very low.

Grand Avenue Overcrossing

The design groundwater table is at 665 feet. Granular materials susceptible to liquefaction were encountered below the groundwater table. Therefore, the liquefaction potential at the bridge site is anticipated to be high. Soil liquefaction will be further evaluated once site-specific borings are drilled during the PS&E phase.

Retaining Walls

The September 2011 geotechnical investigation indicated that the liquefaction potential is high. Further evaluations will be conducted during the PS&E phase.

Seismically Induced Settlement

Eastbound Bypass Connector

Because liquefaction potential is high, seismic settlement of on-site soils is anticipated.

[40] A gravity buttress means that fill was placed on top of the toe of the slide to hold it in place by the weight of the fill.
[41] A shear key is a large trench-like excavation that cuts through the landslide, thereby removing a portion of the slide plane and replacing it with compacted fill.

Golden Springs Undercrossing

Because liquefaction potential is very low at this location, seismic settlement of on-site soils is expected to be minimal.

Grand Avenue Overcrossing

Because liquefaction potential is high, seismic settlement of onsite soils is anticipated.

Retaining Walls

Because liquefaction potential may be high, seismic settlement of onsite soils is anticipated. Further evaluation of seismic settlement hazards will occur during drilling of site-specific borings.

Lateral Spreading

Lateral spreading is a phenomenon where large blocks of intact nonliquefied soil move downslope on a liquefied substrate of large areal extent (Yeats et al. 1997; Tinsley et al. 1985). The mass moves toward an unconfined area, such as a descending slope or stream-cut bluff, on slope gradients as gentle as 1 degree. Given that portions of the project area are underlain by liquefiable alluvial soils, there is the potential for lateral spreading.

Flooding From Earthquake-Induced Dam Failure

There are three dams located in the surrounding area. Puddingstone Dam is located approximately 8.5 miles to the north, Santa Fe Basin is located about 11 miles to the northwest, and Whittier Narrows Dam is located approximately 15 miles to the west. However, the Los Angeles County General Plan (1990) indicates that the project site is not located within a potential inundation area from an earthquake-induced failure.

Soil Characteristics

Eastbound Bypass Connector

According to the July 2010 geotechnical report, the deepest boring was advanced to about 630 feet. Existing grades at the borehole locations at the time of the investigation were between approximately 710 and 720 feet. The existing ground line along northbound SR-57 and along SR-60 varies between 710 and 730 feet.

The subsurface soil condition in the immediate project area is predominantly medium-dense to dense granular materials underlain by interbedded shale and sandstone bedrock. Generally, the bedrock contact along SR-60 dips down from west to east and south to north. Bedrock contact along the vicinity of the proposed eastbound bypass connector varies from approximately 684 feet near Prospectors Road to 648 feet near Diamond Bar Boulevard.

Golden Springs Drive Undercrossing

According to the July 2010 geotechnical analysis, five penetration borings and one rotary wash boring was performed in December 1967. The deepest boring was advanced to 606 feet. Existing grades at the borehole locations at the time of the investigation were between approximately 625 and 685 feet. Meanwhile, the existing ground line along northbound SR-57 varies between 620 and 660 feet within the area of investigation.

Weathered siltstone or sandstone bedrock was encountered in the borings. The bedrock contact was encountered between 620 and 630 feet along the northbound SR-57 line. The rotary-wash boring, which was performed 87 feet to the southeast of the northbound SR-57 line, encountered bedrock at 684 feet.

Grand Avenue Overcrossing

According to the July 2010 geotechnical report, three rotary-wash borings were drilled in April 1965 for construction of the existing Grand Avenue Overcrossing. The deepest boring was advanced to 606 feet. Existing grades at the borehole locations at the time of the investigation were at 672 feet. The current surface elevation of the Grand Avenue overcrossing is at approximately 700 feet, and at the SR-60 mainline, it is between 650 and 675 feet.

One auger boring was also drilled in July 1986 for the wingwall repair near the western end of Abutment 3. The boring was performed at the bridge approach at 698.2 feet down to an elevation of approximately 650 feet.

The subsurface soil condition below the SR-60 mainline at this location is predominantly loose to medium dense granular materials underlain by interbedded shale and sandstone bedrock. The bedrock contact varies approximately from 619 to 625 feet. Furthermore, the 1965 borings show a uniform layer of soft silt and very loose silty sand to sand between elevations 635 and 655 feet. However, the 1986 boring contradicts the soil type classification of the 1965 borings and classify this same soil layer as soft sandy silt and silty clay. According to the geotechnical report, the low Standard Penetration Test (SPT) blowcounts near and between elevations 635 and 655 feet appear to confirm that the soil type of the weak soil layer above is most likely silt and silty clay.

Retaining Walls

Subsurface conditions would be similar to those described for the Grand Avenue Overcrossing and Undercrossing above.

Subsidence

In California, subsidence related to human activities has been attributed to the withdrawal of subsurface fluids such as oil and groundwater, oxidation of subsurface organic material such as peat and coal, and hydroconsolidation (from excessive irrigation) of loose, dry soils in a semi-arid climate. Withdrawal of groundwater has occurred in the project area for agricultural purposes; however, this practice has been greatly reduced in recent years because of changes in

the predominant land uses, which have transitioned from growing crops to raising cattle. As a result, groundwater elevations in the vicinity of the site have risen. With respect to oxidation of organic soils, the numerous borings drilled on the site in the past (up to 50 feet deep in the alluvial area) have not encountered highly organic soils such as peat. Furthermore, borings indicate that soils are moist almost up to the ground surface. Consequently, future occurrences of subsidence resulting from human activities are unlikely.

Groundwater

Eastbound Bypass Connector

According to the July 2010 geotechnical study prepared for the proposed eastbound bypass connector bridge, groundwater was encountered in the as-built borings at an approximate elevation of 680 feet. Given CGS historical data, the recorded highest groundwater at the project site is between 15 and 20 feet below the ground surface. The average ground surface elevation is about 715 feet. Therefore, a conservative historical high groundwater elevation of 700 feet could be used as the design groundwater table.

Golden Springs Drive Undercrossing

According to the July 2010 geotechnical study prepared for the Golden Springs Drive undercrossing, groundwater was encountered at the rotary-wash boring at an elevation of 610 feet.

Grand Avenue Overcrossing

According to the July 2010 geotechnical study prepared for the Grand Avenue Overcrossing, groundwater was encountered in the as-built borings at an elevation of approximately 660 feet. Given CGS data, the recorded highest historical groundwater at the project site is between 15 and 20 feet below the ground surface. The average ground surface elevation along SR-60 in the study area is about 680 feet. Therefore, the CGS highest historical groundwater elevation is approximately 660 feet, which is consistent with the measured groundwater level. Given the measured and historical highest groundwater elevations, a groundwater elevation of 665 feet can be used for liquefaction assessment.

Retaining Walls

According to the September 2011 geotechnical report prepared for the proposed retaining walls, it is likely that groundwater will be encountered during pile construction. There is high potential to encounter groundwater during drilling activities. The depth to historically highest groundwater beneath the project site ranges between 15 feet and 20 feet below natural ground surface.

Mineral Resources

Oil exploration and production has occurred in the San Jose and Puente Hills. The Brea-Olinda and Puente oil fields are south and southeast of the project site, and the Walnut field is north and northwest of the project site (Woodford et al. 1944; Olmstead 1950; Durham and Yerkes 1964). However, oil production is not known to have occurred on the project site.

Sand and gravel are important mineral resources in Southern California. Most of the sand and gravel is mined from active river channels and alluvial fans emanating from the San Gabriel and San Bernardino Mountains. These deposits are the easiest to access, have the highest quality, and are periodically replenished by storms. The sandstone unit of the Tertiary Puente Formation is considered an acceptable crushed-rock alternative for aggregate. Although the project area is underlain by the Puente Formation, it has not been identified as a resource for sand and gravel (Miller 1987).

2.2.3.3 Environmental Consequences

Regional Faulting and Seismicity

Fault-Induced Ground Rupture

Construction and Operational Impacts

Alternative 1No-Build Alternative

The No-Build Alternative would not involve construction or long-term operational changes that would affect existing conditions. Therefore, no adverse effects would occur.

Alternatives 2 and 3

No Alquist-Priolo Earthquake Fault Zones have been designated in the site vicinity. The nearest active or potentially active fault is the San Jose fault, located approximately 2.4 miles away. Several faults have been mapped in the Puente Formation during previous grading of the Grand Avenue extension through the Puente Hills, but none of these faults is designated as active. Therefore, the possibility of ground rupture along a fault line at the site is considered low, and no substantial adverse impacts are anticipated.

Seismic Ground Shaking

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or long-term operational changes that would affect existing conditions. Therefore, no adverse effects would occur related to seismic ground shaking.

Alternatives 2 and 3

As indicated in Table 2-58, several active faults are located in the surrounding area, including the San Jose, Chino, and Whittier faults, which occur within a 5-mile radius of the proposed project. Fault movement at the San Jose fault in particular would result in a peak horizontal ground acceleration of 0.58g (g is the acceleration of gravity, equal to 32 feet per second squared) with an earthquake of moment magnitude 6.5. Smaller events on the San Jose fault and other faults in the area may be expected to produce peak horizontal ground accelerations at

the site of up to 0.52g. In addition, the Puente Hills blind thrust fault, an active fault that lies roughly 6 miles below and west of the project site, has the potential to rupture in an earthquake event with a moment magnitude greater than 7 (Dolan et al. 2003; Christofferson et al. 2001). The level of hazard posed by seismic shaking in the area is considered high because of the proximity to these known active faults. Therefore, there is the potential for adverse effects related to seismic shaking to occur. There is no realistic way to avoid hazards related to seismic shaking entirely; however, risks related to exposure to future ground shaking would be no greater than risks at other sites in the vicinity. With the implementation of measure GEO-1, effects related to seismic ground shaking would be minimized and would not be considered substantially adverse.

Secondary Effects of Faulting Seismicity

Slope Stability

Construction Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction that would affect existing slope stability on the project site. Therefore, no adverse effect would occur.

Alternatives 2 and 3

As indicated above, the project area is composed of hilly and flat terrains. Graded embankments consisting of retaining walls and fill slopes would be constructed at the approaches. These graded embankments, if properly constructed, should be stable at a gradient of 2:1 (H:V). Nonetheless, effects related to temporary slope instability would be potentially adverse. With implementation of measures GEO-2 through GEO-9, however, effects related to slope stability would be minimized and no substantial adverse impacts would occur.

Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve any long-term operational effects that would affect existing slope stability on the project site. Therefore, no adverse effect would occur.

Alternatives 2 and 3

Marginally stable slopes (including those with existing landslides) may be subject to landslides during or shortly after prolonged heavy rainfall or strong seismic shaking. In most cases, these would be limited to relatively shallow soil failures on the steeper natural slopes. As discussed above in the affected environment discussion, the Puente Formation has abundant landslides, generally a result of the low-angle, out-of-slope bedding orientation. The seismically induced landslide hazard depends on many factors, including existing slope stability, shaking potential, and the presence of existing landslides. Given that the project site is characterized by low hills

and moderately steep slopes with previous landslides, effects related to seismically induced landslides would be potentially adverse. With the implementation of measure GEO-2, no substantial adverse slope stability impacts would occur.

Liquefaction

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or long-term operational changes that would affect existing conditions. Therefore, no adverse effects related to liquefaction would occur.

Alternatives 2 and 3

Liquefaction occurs when loose, water-saturated soils that lack cohesion (generally fine-grained sand and silt) are subjected to strong seismic ground motion of significant duration. The behavior of these soils is similar to that of liquids. Because they lose bearing strength, structures built on these soils may tilt or sink when the soils liquefy. Liquefaction more often occurs in earthquake-prone areas underlain by young alluvium where the groundwater table is within 50 feet of the ground surface. CGS has identified the Puente Valley as a potential liquefaction area (California Department of Conservation 1998). The area around the project site is underlain by alluvium and could have high groundwater levels due to the proximity of this area to the Diamond Bar Creek riverbed. These factors suggest that the potential for liquefaction in the project area is high and that adverse effects related to liquefaction could result. With implementation of measure GEO-10, however, hazards posed by liquefaction would be minimized.

Seismically Induced Settlement

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects would occur.

Alternatives 2 and 3

As described above in the affected environment discussion, because there is a high liquefaction potential in some locations within the project area, there is the potential for adverse settlement effects.

Strong ground shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing pore space. Unconsolidated loosely packed granular alluvial deposits are especially susceptible to this phenomenon. Poorly compacted artificial fills may

also experience seismically induced settlement. Because unconsolidated soils and uncompacted fill are present in the area, adverse effects related to seismically induced settlement could occur. This seismic settlement would generate downdrag forces on the proposed pile foundations. However, implementation of measure GEO-10 would minimize hazards. Furthermore, once the site-specific borings are drilled during the PS&E phases, additional evaluation, as part of pile capacity analysis, of seismic settlement and the corresponding downdrag forces will be conducted.

Lateral Spreading

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects would occur with respect to lateral spreading.

Alternatives 2 and 3

Lateral spreading occurs when large blocks of intact nonliquefied soil move downslope on a liquefied substrate of large areal extent. The mass moves toward an unconfined area, such as a descending slope or stream-cut bluff, on slope gradients as gentle as 1 degree. In areas within the project site covered by soils that are underlain with liquefiable alluvium (e.g., along Diamond Bar Creek), adverse impacts due to lateral spreading hazards could occur. Implementation of measure GEO-10 would minimize lateral spreading hazards.

Flooding from Earthquake-Induced Dam Failure

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects would occur with respect to earthquake-induced dam failure.

Alternatives 2 and 3

The project area is not located in a potential dam inundation area; therefore, proposed project improvements would not be exposed to flooding from earthquake-induced dam failures.

Soil Characteristics

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or long-term operational changes that would affect existing conditions. Therefore, no adverse effects related to soil engineering characteristics would occur.

Alternatives 2 and 3

Most native soils on site, as well as fill slopes constructed with native soils, have a moderate level of susceptibility to erosion. These materials would be particularly prone to erosion during the grading phase, especially during heavy rains. Therefore, effects related to erosion at the site would be potentially adverse. With implementation of measures GEO-11 through GEO-15, however, these effects would be minimized.

Subsidence

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects related to subsidence would occur.

Alternatives 2 and 3

Subsidence from human activities is generally attributed to withdrawal of subsurface fluids such as oil and groundwater, oxidation of organic materials such as peat and coal, and hydroconsolidation (from excessive irrigation) of loose, dry soils. In the project area, groundwater withdrawal is no longer prevalent, organic materials do not make up a high percentage of the soil, and soils are moist almost to the surface. As a result, future occurrences of subsidence are unlikely, and implementation of Alternatives 2 or 3 would not result in adverse effects.

Groundwater

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects related to groundwater would occur.

Alternatives 2 and 3

CGS historical data indicate that the highest recorded groundwater levels in the project vicinity occurred approximately 15 to 20 feet below the surface. Although the borings conducted for the July 2010 and September 2011 geotechnical studies show groundwater levels below their historical highs, the September 2011 geotechnical report regarding the construction of retaining walls concludes that it is likely that crews drilling piles for the proposed retaining walls would encounter groundwater. Given the likelihood of encountering groundwater, Alternative 2 or 3 would result in potentially adverse effects. However, with implementation of measure GEO-16, effects would be minimized.

Mineral Resources

Construction and Operational Impacts

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or operational changes that would affect existing conditions. Therefore, no adverse effects related to mineral resources would occur.

Alternatives 2 and 3

Mineral resources in the general vicinity of the project include: 1) petroleum, which is withdrawn from several oil fields on the south flank of the Puente Hills, and 2) sand and gravel, which are mined from larger river channels and along the base of the San Gabriel and San Bernardino Mountains. The Puente Valley has never been developed for petroleum extraction, and the sediments deposited by San Jose Creek and Diamond Bar Creek contain concentrations of fine-grained soils (silts and clays) that are too high to make the alluvium a viable source of sand and gravel. Therefore, no adverse effects related to the loss of mineral resources would occur as a result of implementation of the build alternatives.

There are no natural landmarks designated by the National Natural Landmarks Program in the area surrounding the proposed project. The proposed project would not result in changes to natural landmarks and landforms, and no adverse effects to these resources would occur.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

Alternative 1, No-Build Alternative

No measures are required.

Alternatives 2 and 3

The following measure will be implemented to reduce potential adverse impacts:

Seismic Ground Shaking

There is no realistic way to avoid hazards related to seismic shaking totally; however, risks related to exposure to future ground shaking would be no greater than risks at other sites in the vicinity. Furthermore, it should be recognized that it is not considered feasible to build structures that are completely resistant to seismic shaking (they are, however, required to be collapse-proof).

Any adverse effects on structures would be reduced through conformance with the following measure:

> **GEO-1:** The project shall comply with local and state building codes, such as Caltrans' Seismic Design Criteria, to ensure that damage in a large earthquake event is minimized.

Secondary Effects of Ground Shaking

Depending on the degree of risk associated with possible liquefaction, dynamic settlement, and seismically induced landslides, minimization measures during design and construction of the project may be needed.

The measures below shall be implemented to ensure that the aforementioned effects would not be adverse.

Slope Stability

> **GEO-2**: Stabilizing measures, such as constructing sediment diversion or collection devices, shall be implemented as needed to reduce landslide impacts.
>
> **GEO-3**: To reduce the potential for localized slope failures during construction, the locations of excavations in native soils shall be evaluated by the project geologist and geotechnical engineer prior to and during construction.
>
> **GEO-4**: Areas where excavation into the water-bearing zone is required shall be temporarily dewatered.
>
> **GEO-5**: Excavation walls shall be flattened to safe gradients.
>
> **GEO-6:** In areas where bedding is adversely oriented, the walls of the excavation shall be shored, with shoring that has been designed to withstand additional loads, or the walls of the excavation shall be flattened to a gradient that is slightly flatter than the dip of the bedding.
>
> **GEO-7**: Excavation spoils shall not be placed immediately adjacent to the excavation walls unless the excavation is shored to support the added load.
>
> **GEO-8:** Excavations shall be cut and backfilled in sections to reduce the potential for slope failure.
>
> **GEO-9:** Temporary excavations shall not be left open for long periods of time.

Liquefaction/ Seismically Induced Settlement/Lateral Spreading

GEO-10: Ground improvement methods, such as soil densification and/or dewatering, shall be implemented as needed to reduce liquefaction and settlement impacts.

Soil Characteristics

The potential for erosion would be reduced by a variety of techniques, including those listed below.

GEO-11: Slopes shall be landscaped or terraced to minimize the velocity attained by runoff.

GEO-12: Berms or v-ditches shall be placed at the tops of slopes.

GEO-13: Adequate storm drain systems shall be installed.

GEO-14: Graded slopes shall be sprayed with polymers, or other temporary measures may be taken, to protect them until landscaping is established.

GEO-15: Temporary erosion-control measures shall be provided during the grading phase as required by current grading codes, which typically include temporary catchment basins and/or sandbagging to control runoff and contain sediment transport within the project site.

Groundwater

The potential for groundwater impacts would be reduced by the following minimization measure:

GEO-16: The groundwater elevation shall be confirmed by the site-specific geotechnical field investigation, which would be conducted during the plans, specifications, and estimates stage of the project.

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. Fossils are classified as non-renewable resources. They furnish information about the kinds of plants and animals that existed in the past, when they appeared and vanished, where and how they lived, and the type of environments they preferred. Fossils help us to learn how species evolved, how some descended from others, and how groups of organisms are related.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (e.g., Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1960 [23 USC 305]), and the Omnibus

Public Land Management Act of 2009 [16 USC 470aaa]). Under California law, paleontological resources are protected under CEQA. The Society of Vertebrate Paleontology (SVP) has established professional standards for assessment and mitigation of adverse impacts on paleontological resources. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements. State regulatory agencies with paleontological regulations and standards typically accept and use the professional standards set forth by the SVP.

As defined by the SVP (1995:26), significant nonrenewable paleontological resources are:

> Fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or paleobotanical fossils except when present within a given vertebrate assemblage. Certain invertebrate and plant fossils may be defined as significant by a project paleontologist, local paleontologist, specialists, or special interest groups, or by lead agencies or local governments.

As defined by the SVP (1995:26), significant fossiliferous deposits are:

> A rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small and any associated invertebrate and plant fossils, traces and other data that provide taphonomic, taxonomic, phylogenetic, ecologic and stratigraphic information. Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years, BP [before present].

A geologic unit known to contain significant fossils is considered to be sensitive to adverse impacts if there is a high probability that earthmoving or ground-disturbing activities in that rock unit will either disturb or destroy fossil remains directly or indirectly. The limits of the entire rock formation, both areal and stratigraphic, define the scope of the paleontologic potential in each case (SVP 1995). Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are contained within surficial sediments or bedrock and are therefore not observable or detectable unless exposed by erosion or human activity. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken to prevent adverse impacts on these resources.

2.2.4.2 Affected Environment

The following analysis is based on a paleontological record search and sensitivity assessment prepared by the Natural History Museum of Los Angeles County (LACM) (2009) and information in geotechnical reports prepared for components of the proposed project, as summarized in the geology section.

The project site is located in the northern part of the Puente Hills, a northwesterly trending range of low elevation, and the rounded hills at the northern edge of the Peninsular Ranges. The project site is located on the southeastern edge of these hills, in the drainage of Diamond Bar Creek. Diamond Bar Creek flows west into San Jose Creek. The project area is situated between the Los Angeles Basin to the west, the Upper Santa Ana River Valley on the east, and the San Gabriel Valley and Mountains on the north. Diamond Bar Valley is a small, narrow valley with a

level floor, ranging in elevation from about 550 feet on the west to 700 feet in the northeast. The valley is bounded by a ridge on the north that rises to about 800 feet elevation and hills on the south that rise to about 1,000 feet before descending into Tonner Canyon on the south. Portions of the project cross Diamond Bar Valley and encompass a portion of these hills as well.

The valley floor is underlain by a Quaternary-age stream channel alluvial basin and alluvial fan sediments. Geotechnical reports indicate that these deposits are approximately 45 to 50 feet thick and overlie Miocene[42] age rocks of the Puente Formation (also referred to as the Monterey Formation in this area). Surface deposits consist of younger Holocene-age[43] alluvium that usually does not contain vertebrate fossils (McLeod 2009). However, at varying depths below this Holocene alluvium, usually at least 5 feet, older Pleistocene-age[44] alluvium is present. This older alluvium is likely to encompass significant vertebrate fossil remains and considered highly sensitive for fossil resources.

Puente Formation bedrock, as well as underlying the alluvial sediment if the Diamond Bar Creek valley, also forms the surrounding low hills where bedrock in places is exposed at the ground surface. In the project area, the Puente Formation consists of siltstone, sandstone, and conglomerate. Depending largely on the relative amounts of these sedimentary rock types, the unit is divided into members called the Sycamore Canyon, Yorba, Soquel, and La Vida members. The slopes of the adjacent ridge north of the site are predominantly Yorba and Soquel members, and the slopes on the south are predominantly La Vida members. In the project site area, these members are predominantly siltstone and sandstone that range from soft to very hard rocks where cemented by calcium carbonate. The Puente Formation is highly sensitive for fossil resources.

A review of the records of the Natural History Museum of Los Angeles County and a sensitivity analysis of the project area and surroundings for paleontological resources was requested in 2009. The response (McLeod 2009) indicated that no fossils localities are known within the proposed project's APE. According to the records search, surficial deposits in the lower lying portions of the project area adjacent to SR-60 and Grand Avenue consist of younger Quaternary alluvium derived as fluvial deposits from Diamond Bar Creek. These younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, and there are no vertebrate fossils localities nearby from such deposits. The remainder of the project area in the upland portions has exposures of marine late Miocene Puente Formation. Fossils have been recovered in two localities nearby, both within bedrock of the Puente Formation. LACM 7190, which is west of the project location, yielded several fossil fish,

[42] The Miocene Epoch, 23.03 to 5.3 million years ago, was a time of warmer global climates than those in the preceding Oligocene or the following Pliocene, and it's notable in that two major ecosystems made their first appearances: kelp forests and grasslands. University of California Museum of Paleontology. 2012. Available: <http://www.ucmp.berkeley.edu/tertiary/miocene.php>. Accessed: June 14, 2012.

[43] Holocene is the name given to the last 11,700 years of earth's history, the time since the end of the last major glacial epoch, or "ice age" (University of California Museum of Paleontology, 2012). Available: <http://www.ucmp.berkeley.edu/quaternary/holocene.php>. Accessed: June 14, 2012.

[44] The Pleistocene Epoch spanned from 2.6 million to 11,700 years ago. It was during the Pleistocene that the most recent episodes of global cooling, or ice ages, took place. Much of the world's temperate zones were alternately covered by glaciers during cool periods and uncovered during the warmer interglacial periods when the glaciers retreated The Pleistocene also saw the evolution and expansion of our own species, Homo sapiens, and by the close of the Pleistocene, humans had spread through most of the world. Available: < http://www.ucmp.berkeley.edu/quaternary/pleistocene.php>. Accessed: June 14, 2012.

including deep sea smelts (*Bathylagidae*), lantern fish (*Myctophidae*), jacks (*Carangidae*), herring (*Ganolytes*), and *Etringus*. A second locality farther to the north, LACM 7153, produced many specimens of fossil pipefish, including the holotype of the pipefish, *Syngnathus emeritus*, the name-bearing specimen of a species that is new to science.

2.2.4.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction or implementation of long-term operational changes that would affect existing conditions. Therefore, no impact or adverse effect would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative 3, Partial Cloverleaf Interchange Configuration

Construction

Construction of Alternatives 2 and 3 will require grading and excavation. Therefore, there is the potential for the proposed project to affect significant paleontological resources present within deeper Pleistocene alluvium or in the Puente Formation. Mitigation measures are proposed (see below), which would reduce or avoid these potential impacts.

Operation

After construction, operation of Alternatives 2 and 3 would not result in any ground disturbance. Therefore, operation of the proposed project would have no impact or effect on paleontological resources.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

Alternative 1, No-Build Alternative

No mitigation measures are required.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Mitigation measure CUL-3 shall be implemented to ensure that impacts remain less than significant. This mitigation measure has been developed in accordance with SVP (1995) standards and guidelines and meets the paleontological requirements of CEQA. This mitigation measure has been used throughout California and has been demonstrated to be successful in protecting paleontological resources while allowing timely completion of construction.

> **CUL-3:** A qualified paleontologist shall produce a Paleontological Monitoring and Mitigation Plan for the proposed project and supervise monitoring of construction excavations. Paleontological resource monitoring shall include inspection of exposed rock units during active excavations within geologically sensitive sediments. Surface

grading or shallow excavation in the younger Quaternary alluvium exposed in the lower lying portions of the proposed project area is unlikely to encounter any significant vertebrate fossils. However, deeper excavations in those areas, as well as any excavations in the bedrock Puente Formation deposits exposed in the elevated portions of the proposed project area, will, in all likelihood, uncover significant fossil vertebrate remains. Most of the fossil fish from the Puente Formation are quite small, so monitoring shall include close inspection of the rocks.

The qualified paleontologist shall retain the option of reducing monitoring if, in his or her professional opinion, the sediments being monitored were previously disturbed. Monitoring may also be reduced if the potentially fossiliferous units, previously described, are not present or, if present, are determined by qualified paleontological personnel to have a low potential to contain fossil resources.

The monitor shall have authority to temporarily divert grading away from exposed fossils to professionally and efficiently recover the fossil specimens and collect associated data. All efforts to avoid delays in project schedules shall be made. If potentially significant paleontological resources are discovered during ground-disturbing activities, work shall stop within 50 feet of the find.

To prevent construction delays, paleontological monitors shall be equipped with the necessary tools for the rapid removal of fossils and retrieval of associated data. This equipment would include handheld global positioning system receivers and digital cameras as well as a tool kit with specimen containers, matrix sampling bags, field labels, field tools (awls, hammers, chisels, shovels, etc.), and plaster kits. At each fossil locality, field data forms would be used to record pertinent geologic data, stratigraphic sections would be measured, and appropriate sediment samples would be collected and submitted for analysis.

The collected fossils shall be transported to a paleontological laboratory for processing where they would be prepared to the point of identification, identified by qualified experts, and listed in a database to facilitate analysis. Significant specimens shall be deposited in a designated paleontological curation facility, such as the Natural History Museum of Los Angeles County.

The qualified paleontologist shall prepare a final monitoring and mitigation report to be filed, at a minimum, with the project proponent, Caltrans, and the repository. The final report shall include a discussion of the results of the mitigation and monitoring program; an evaluation and analysis of the fossils collected, including an assessment of their significance, age, and geologic context; an itemized inventory of fossils collected; a confidential appendix of locality and specimen data with locality maps and photographs; an appendix of curation agreements and other appropriate communications; and a copy of the project-specific paleontological monitoring and mitigation plan.

2.2.5 Hazardous Waste/Materials

2.2.5.1 Regulatory Setting

Hazardous materials including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA) and. The purpose of CERCLA, often referred to as "Superfund" is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

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

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards,* mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA and Safety Code and is also authorized by the federal government to implement RCRA in the state California laws that affect hazardous waste are specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean-up of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is encountered, disturbed during, or generated during project construction.

2.2.5.2 Affected Environment

Site visits were performed on February 13, 2007. The following discussion is based on the Phase I Initial Site Assessment (ISA), dated January 2009, and the Supplemental Hazardous Materials Update to Technical Memorandum (Supplemental Memorandum), dated April 17, 2012 (Appendix G). The Supplemental Memorandum was prepared as a result of changes to the build alternatives that occurred subsequent to the 2009 ISA as well as the need to verify that the adjoining land uses had not changed since 2009.

The changes that occurred in the project design resulted from the addition of one through lane along the confluence. These changes resulted in a reduction in the areas of disturbance and right-of-way, particularly to the south, within the golf course's maintenance yard. The revised areas of right-of-way acquisition proposed by the updated project alternative designs would no longer include the golf course maintenance yard area. Under either of the build alternatives for the project, the Southern California Edison (SCE) easement would be realigned; however, no modifications to the maintenance yard would occur.

The following sections provide a discussion of the original findings of the approved ISA and, where applicable, updated findings provided in the Supplemental Memorandum.

Site Assessments

Site visits were preformed on February 13, 2007, August 15, 2007, April 8, 2008, and September 13, 2011, to obtain information indicating the likelihood of identifying recognized environmental conditions (RECs),[45] including hazardous substances and petroleum projects in connection with the property (including soils, surface water, and groundwater). The site visits were conducted to make visual observations, identify transformer locations, verify on-site conditions, and visually inspect the on-site golf course area.

The site visits for the approved ISA (and Supplemental Memorandum) identified that the project site consists of transportation and recreational land uses. Acquired right-of-way currently consists of ornamental vegetation, areas of the golf course, and vacant land. Roadways located within the site consist of Grand Avenue, SR-60, SR-57, Diamond Bar Boulevard, Golden Springs Drive, and associated on-and off- ramps. Six on-site bridge structures were identified. Five structures were noted within the boundaries of the golf course, including a pro shop and coffee shop, two restrooms, and structures within the maintenance yard (including one storage structure, two aboveground storage tanks [ASTs], and one closed [filled] underground stage tank [UST]).

Project limitations associated with the site assessment excluded the examination of the interiors of the on-site structures.

[45] As defined in American Standards for Testing and Materials (ASTM) Standard Practice E 1527-05, an REC is "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property." The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include "de minimis" conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be "de minimis" are not RECs.

Interviews

Interviews with key site personnel at Diamond Bar Country Club and Golf Course regarding current and previous uses of the site (particularly activities involving hazardous materials and petroleum products) were conducted. In addition, interviews and/or email correspondence was conducted with LACFD, the County of Los Angles Public Health Investigation, Health Hazardous Materials Division, and the Los Angeles County Public Works Department. No limitations were encountered during the interview process.

Document Review

Historical subject site use information was obtained from 1889 to the present through a review of the following available historical documentation:

- File record reviews (regulatory agency reports, public agency reports [i.e., Department of Toxic Substances Control [DTSC], Los Angeles County Public Health Investigation], registrations, and consultant's reports);
- Building department records;
- Land title records;
- Property data (provided by RealQuest Property Data);
- City directory searches;
- Sanborn fire insurance maps;
- Historical topographic maps (dating from 1898 through 1972);
- Historical county planning maps;
- Aerial maps (dating from 1928 to 2002);
- Wildcat map (provided by the California Department of Oil, Gas, and Geothermal Resources [DOGGR]);
- EnviroStor Database (developed by DTSC); and,
- Commercial database summary (provided by Environmental Data Resources, Inc. [EDR]).

One data gap was encountered during the document review. A reported on-site spill that occurred approximately 15 years ago is considered de minimus;[46] however, files related to this reported spill were not located through the site assessment or document review.

Building records for proposed right-of-way acquisitions were requested from both the City of Industry and the City of Diamond Bar. However, no building records were identified for rights-of-way within the City of Industry.

No Sanborn maps were available for the subject site or immediate vicinity.

[46] In risk assessment, this term refers to a level of risk that is minimal or too small to be concerned with.

Findings and Results

Existing Sources of Lead

Six bridge structures (overcrossing, flyovers, and undercrossing) are located within the boundaries of the site. Due to the age of the on-site structures (prior to 1978), the potential exists for lead-based paints (LBPs) to be found on-site. Additionally, yellow paint on thermoplastic traffic stripes is located within the project area.

Due to the age of the SR-57/SR-60 confluence and Grand Avenue crossing and the volumes of vehicles that have utilized these transportation facilities, there is the potential that lead contamination exists within on-site soils.

Asbestos Containing Materials

Given the age of the six bridge structures (the overcrossing, flyovers, and undercrossing) and the golf course (constructed prior to 1978), the potential for asbestos-containing materials (ACMs) to be found on-site is considered likely. Evidence of exposed ACMs was not observed during any of the site inspections. Therefore, the potential presence of ACMs at the site is considered de minimus. However, the interiors of the on-site structures were not examined during any of the site visits, and a determination of whether ACMs are present in the interior of the on-site structures (including bridges) could not be made.

Groundwater

The off-site regulatory properties (206 South Diamond Bar Boulevard, 301 South Diamond Bar Boulevard, 22628 East Golden Springs Drive, and 23525 East Palomino Drive [dry cleaner facility], and 525 Grand Avenue) have most likely created groundwater contamination under the project site, resulting in an REC. Subsequent to the ISA, documentation from Los Angeles County shows that the associated 525 Grand Avenue UST was never installed, and the permit from the county expired in 2005. Thus, there is no longer the potential for groundwater contamination at the 525 Grand Avenue site.

During the PS&E phase, a site investigation will be completed for the project footprint to determine if any groundwater contamination plumes have affected the project area or have the potential to affect the project area. The potential for required dewatering will be determined with use of the foundation soil boring test results, which were gathered during the PS&E phase.

Pole-Mounted Transforms and Electrical Boxes

Pole-mounted transformers located over bare soil have a high potential to result in releases of polychlorinated biphenyls (PCBs). However, no evidence of di-electric fluid or staining was noted on-site. In addition, visible transformers were identified on-site during the field investigations conducted on August 15, 2007, and April 8, 2008. The September 13, 2011, site visit confirmed that the conditions had not changed from the previous site visits.

Chemical Storage Tanks (ASTs and USTs)

The on-site golf course currently maintains two ASTs within the maintenance/storage yard, located in the vicinity of the closed (filled) UST. This storage area, including the on-site ASTs and UST, are located outside of the areas of proposed improvement. No known releases of hazardous materials have occurred in association with this maintenance/storage yard.

Historical Conditions

Three historical RECs (reported spills) have been identified within the project site. Two of the reported spills have been reported by the appropriate regulatory agency as being "complete." However, a third spill that occurred in 1991 has not received "complete" status. Reported spills are maintained by Caltrans for 5 years after an incidence occurs, after which the files are discarded. Therefore, the above-referenced incidence (which occurred in 1991) is no longer maintained by Caltrans and assumed to be considered de minimis. Therefore, the presence of a current REC as a result of these past spills is considered to be low.

2.2.5.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative would not result in any changes to the existing use of the site. In addition, construction activities that have the potential to release hazardous materials would not occur. Therefore, there would be no adverse effects.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Construction

Lead-Based Paints

Under either build alternative, the age of the existing traffic stripping on the project site is unknown; therefore, the potential exists for elevated levels of lead and chromium to be present on-site and in association with on-site traffic striping and releases during construction activities. Exposure of humans to lead and chromium could result in a substantial adverse effect if not tested or handled properly and, therefore, would require measures to minimize potential adverse effects.

Aerially Deposited Lead in Soils

Under either build alternative, there is a potential for lead contained in on-site soils to be released into the air during grading and construction activities. Exposure of humans to aerially deposited lead could result in a substantial adverse effect if not tested or handled properly. Therefore, measures to minimize potential adverse effects would be required.

Asbestos-Containing Materials

Under either build alternative, and as previously stated, the interiors of the on-site structures, such as the Grand Avenue interchange, were not examined during any of the site visits. Demolition of these structures could expose humans to asbestos and thereby result in a substantial adverse effect if not tested or handled properly. Therefore, measures to minimize potential adverse effects would be required.

Groundwater

The improper handling, exposure, or accidental release of the contaminated groundwater could result in a substantial adverse impact on construction workers. Therefore, measures to minimize potential adverse effects would be required.

Pole-Mounted Transforms and Electrical Boxes

The release of PCBs into bare soil would be considered an environmental hazard. In addition, exposure of the environment and humans to PCBs could result in a substantial adverse effect. Therefore, measures to minimize potential adverse effects would be required.

Operations

Alternatives 2 and 3 would not result in a change to existing conditions at the project site with regards to hazardous waste or materials. Alternatives 2 and 3 may actually improve conditions in the sense that with the proposed project's improvements to safety, vehicles carrying hazardous waste or materials would travel along a safer transportation facility.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

Alternative 1, No-Build Alternative

There would be no effects associated with the No-Build Alternative. No measures are required.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

In addition to the specific measures listed below, Caltrans will require a site investigation to be performed during design (PS&E phase) of the new right-of-way, which will be acquired from Diamond Bar Golf Course and transferred to Caltrans after completion of the project. To minimize the potential for substantial adverse effects associated with the project, the following minimization measures would be required:

Lead-Based Paints/Aerially Deposited Lead

> **HAZ-1:** Prior to construction (during PS&E), aerially deposited lead surveys and testing shall be conducted so that special handling, treatment, or disposal provisions associated with aerially deposited lead may be included in construction documents (if any aerially

deposited lead is present), to ensure compliance with applicable regulations. If aerially deposited lead is found to be above minimum regulatory levels, Lead Compliance Plan requirements will be incorporated into the PS&E specifications.

HAZ-2: Because of the age of the on-site structures (including bridge structures), LBPs may be present and shall be tested during the PS&E phase of the project. In addition, should construction activities result in the removal of yellow paint or thermoplastic traffic stripes, the age of the traffic striping will be determined prior to construction. It will also be determined whether lead and/or chromium are present. If present, Lead Compliance Plan requirements will be incorporated into the PS&E specifications. LBPs shall be disposed of at an appropriate permitted disposal facility should renovation or demolition occur. If, during demolition of the bridge structure(s), paint is separated from the building material (e.g., chemically or physically), the paint waste shall be evaluated independently from the building material to determine its proper management. According to the DTSC, if paint is not removed from the building material during demolition (and is not chipping and peeling), the material could be disposed of as construction debris (a non-hazardous waste). It is recommended that the landfill operator be contracted in advance to determine any specific requirements they may have regarding the disposal of LBP projects.

Asbestos-Containing Materials

HAZ-3: Should renovation or demolition occur, pursuant to SCAQMD regulations, an asbestos survey shall be conducted by an Asbestos Hazard Emergency Response Act– (AHERA-) and Cal/OSHA-certified building inspector to determine the levels of asbestos in structures (including bridge structures) during the PS&E phase.

Groundwater

HAZ-4: A groundwater and soil site investigation shall be conducted during the design (PS&E) phase. Following the site investigation, a comprehensive site mitigation work plan for handling contaminated groundwater and soil will be incorporated into the construction guidance document.

Pole-Mounted Transforms and Electrical Boxes

HAZ-5: Relocation of any transformers and/or high-voltage power boxes during site construction/demolition shall be conducted under the purview of the local utility purveyor to identify proper handling procedures regarding potential PCBs. The underlying soils shall be sampled by a qualified hazardous materials specialist during the PS&E phase.

General

HAZ-6: Treated wood from removed sign posts, guardrail posts, etc., shall be handled in accordance with Caltrans Special Provision 14-11.09. Furthermore, a hazardous waste contingency plan for handling unknown materials discovered during construction shall be prepared and included as part of the construction document.

HAZ-7: A project-specific (site-wide) site investigation (SI) will be conducted during the PS&E phase. The SI shall include the proposed comprehensive aerially deposited lead testing as well as any recognized environmental conditions (RECs) or impacts identified on any properties in existing Caltrans rights-of-way or on properties dedicated to Caltrans. The scope of the SI will include sampling and analysis of soil within the construction footprint as well as research of existing regulatory documentation to determine if any groundwater contamination plumes have affected the project area or have the potential to affect the project area. Any RECs identified must be remediated prior to dedicating the property to Caltrans.

2.2.6 Air Quality

This section describes the environmental setting (existing conditions and regulatory setting) for air quality as it relates to the proposed project, discusses the potential effects on air quality that may result from the proposed project, and outlines the minimization measures to reduce such effects, where applicable.

2.2.6.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended in 1990, is the federal law that governs air quality, while the California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the U.S. EPA and the California Air Resources Board (CARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six 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, which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM10) and particles of 2.5 micrometers and smaller (PM2.5); lead (Pb); and sulfur dioxide (SO_2). In addition, state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at a level that protects public health with a margin of safety. These standards are subject to periodic review and revision. Both the state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel "conformity" requirement under the FCAA also applies.

FCAA Section 176(c) prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to the State Implementation Plan (SIP) for achieving the goals of FCAA 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 CO, NO_2, O_3, particulate matter (PM10 and PM2.5), and, in some areas, SO_2. California has attainment or maintenance areas for all of these transportation-related "criteria pollutants," except SO_2, and a nonattainment area for lead. However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on RTPs and federal TIPs. For RTPs, this includes all transportation projects planned for a region over a period of at least 20 years (4 years for TIPs). RTP and TIP conformity relies on travel demand and air quality models to determine whether implementation of a project will conform to emission budgets or other tests to show that the requirements of the FCAA and the SIP will be met. If the conformity analysis is successful, MPO, FHWA, and Federal Transit Administration (FTA) determinations will confirm that the RTP and TIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or TIP 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 the TIP, 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 a nonattainment or maintenance area for CO and/or particulate matter (PM10 or PM2.5). A region is a nonattainment area if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area as a nonattainment area. Areas that were previously designated as nonattainment areas but subsequently met the standard may be officially redesignated to attainment status by the U.S. EPA. These areas are then called maintenance areas. For technical purposes, hot-spot analysis is essentially the same as the CO or particulate matter analysis performed for NEPA purposes. However, 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 or an 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).

2.2.6.2 Affected Environment

The information in this section is based on the air quality report (July 2012) prepared for the project, which was approved by Caltrans' Office of Environmental Engineering Corridor Studies, Air Quality Branch. The report addresses issues related to compliance with state and federal Clean Air Act regulations.

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The following describes the relevant characteristics of the air basin and offers an overview of conditions that affect the ambient air concentrations of pollutants.

Climate and Meteorology

The project site is located within the Los Angeles County portion of the South Coast Air Basin (Basin), an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin

includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The greatest air pollution effects occur throughout the Basin from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert.

The average project area summer (July) high and low temperatures are 89°F and 58°F, respectively. The average project area winter (December) high and low temperatures are 66°F and 39°F, respectively (Western Regional Climate Center 2012a). Annual average rainfall for the project area is 16.98 inches (Western Regional Climate Center 2012b).

Wind patterns in the project vicinity display a unidirectional flow, with winds arising primarily from the west at an average speed of 1.71 meters per second. Calm wind conditions are present 17.48 percent of the time (Servin 2003).

Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants (see Table 2-59) and the monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The nearest air quality monitoring station in the vicinity of the project area is the Pomona monitoring station, located at 924 North Garey Avenue in Pomona, California, which is approximately 6 miles away from the project area. The Pomona station monitors for ozone, CO, and NO_2. The next-closest monitoring station to the project area is the Azusa monitoring station, located at 803 North Loren Avenue in Azusa, California, which is approximately 11 miles away from the project area. The Azusa station monitors for ozone, CO, NO_2, PM10, and PM2.5.

Through consultation with SCAQMD, it was found that the most important factors when choosing a representative monitoring station for a particular project area are topography and meteorology. Furthermore, in the March 2006 qualitative particulate matter analysis guidance document, the U.S. EPA and FHWA indicated that it is very important for traffic conditions at any surrogate monitoring station to be similar to conditions at the project location. According to 2010 Caltrans traffic data, the annual average daily traffic (AADT) volume along the SR-57/SR-60 confluence was 343,000, with 6.9 percent truck traffic. This compares to the AADT volume of 245,000, with 6.7 percent truck traffic, along the portion of I-10 located north of the Pomona monitoring station and 265,000, with 6.8 percent truck traffic, along the portion of I-210 located south of the Azusa monitoring station (California Department of Transportation 2010).

Table 2-59. Ambient Air Quality Standards Applicable in California and the Attainment Status of the South Coast Air Basin

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of the South Coast Air Basin	
			California	National	California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA	Extreme nonattainment	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is greater than the standard	Nonattainment	Extreme nonattainment
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment/ maintenance
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment/ maintenance
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA	Attainment	NA
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Attainment/ unclassified
		1 hour	0.18	0.100	339	188	If exceeded	If the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Nonattainment	Attainment/ unclassified
Sulfur dioxide	SO_2	Annual arithmetic mean	NA	0.030	NA	78	NA	If exceeded	NA	Attainment
		24 hours	0.04	NA	105	NA	If exceeded	NA	Attainment	NA
		3 hours	NA	NA	NA	NA	NA	NA	Attainment	NA
		1 hour	0.25	0.075	655	196	If exceeded	If the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Attainment	Attainment/ unclassified
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA	Unclassified	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA	No information available	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of the South Coast Air Basin	
			California	National	California	National	California	National	California	National
Inhalable particulate matter	PM10	Annual arithmetic mean	NA	NA	20	NA	If exceeded	NA	Nonattainment	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Serious nonattainment
	PM2.5	Annual arithmetic mean	NA	NA	12	15.0	If exceeded	If the 3-year average of the weighted annual mean from single or multiple community-oriented monitors exceeds the standard	Nonattainment	Nonattainment
		24 hours	NA	NA	NA	35	NA	If less than 98% of the daily concentrations, averaged over 3 years, is equal to or less than the standard	NA	Nonattainment
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA	Attainment	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year	NA	NA
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA	Nonattainment	NA
		Rolling 3-month average	NA	NA	NA	0.15	NA	Averaged over a rolling 3-month period	Nonattainment (Los Angeles County only)	Nonattainment (Los Angeles County only)

Notes:
National standards shown are the primary (public health) standards. All equivalent units are based on a reference temperature of 25°C and a reference pressure of 760 torr.
Parts per million (ppm) in this table refers to ppm by volume or micromoles of pollutant per mole of gas.
NA = not applicable.
Sources: California Air Resources Board 2010a; California Air Resources Board 2010b; U.S. Environmental Protection Agency 2010a.

Of all the monitoring stations in the Basin, the Pomona and Azusa monitoring stations are most representative of the project area because they are 1) located in the same unique geographic location as the proposed project (i.e., north of the Chino Hills), 2) located in proximity to major freeways that have similar percentages for truck traffic volumes, and 3) closest to the project area.

Air quality monitoring data from the Pomona and Azusa monitoring stations are summarized in Table 2-60. Monitoring values for ozone and CO were obtained from the Pomona monitoring station; monitoring values for PM10 and PM2.5 were obtained from the Azusa monitoring station. These data represent air quality monitoring results for the last three years (2008–2010) from which complete data are available.

Table 2-60. Ambient Air Quality Monitoring Data Measured at the Pomona and Azusa Monitoring Stations

Pollutant Standards	2008	2009	2010
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.141	0.138	0.115
1-hour California designation value	0.15	0.14	0.13
1-hour expected peak-day concentration	0.145	0.137	0.133
Number of days standard exceeded[a]			
CAAQS 1-hour (> 0.09 ppm)	32	25	9
8-Hour Ozone			
National maximum 8-hour concentration (ppm)	0.110	0.099	0.082
National second-highest 8-hour concentration (ppm)	0.104	0.098	0.081
State maximum 8-hour concentration (ppm)	0.110	0.100	0.082
State second-highest 8-hour concentration (ppm)	0.104	0.099	0.081
8-hour national designation value	0.103	0.099	0.090
8-hour California designation value	0.120	0.110	0.104
8-hour expected peak-day concentration	0.122	0.115	0.108
Number of days standard exceeded[a]			
NAAQS 8-hour (> 0.075 ppm)	35	21	4
CAAQS 8-hour (> 0.070 ppm)	47	37	17
Carbon Monoxide (CO)			
National[b] maximum 8-hour concentration (ppm)	1.81	1.83	1.80
National[b] second-highest 8-hour concentration (ppm)	1.79	1.80	1.72
California[c] maximum 8-hour concentration (ppm)	1.98	2.21	1.80
California[c] second-highest 8-hour concentration (ppm)	1.81	1.80	1.72
Maximum 1-hour concentration (ppm)	2.6	—	—
Second-highest 1-hour concentration (ppm)	2.6	—	—
Number of days standard exceeded[a]			
NAAQS 8-hour (≥ 9 ppm)	0	0	0
CAAQS 8-hour (≥ 9.0 ppm)	0	0	0
NAAQS 1-hour (≥ 35 ppm)	0	—	—
CAAQS 1-hour (≥ 20 ppm)	0	—	—

Pollutant Standards	2008	2009	2010
Particulate Matter (PM10)[d]			
National[b] maximum 24-hour concentration (μg/m^3)	98.0	74.0	70.0
National[b] second-highest 24-hour concentration (μg/m^3)	75.0	65.0	59.0
State[c] maximum 24-hour concentration (μg/m^3)	96.0	72.0	68.0
State[c] second-highest 24-hour concentration (μg/m^3)	74.0	64.0	58.0
State annual average concentration (μg/m^3)[e]	—	—	—
Number of days standard exceeded[a]			
NAAQS 24-hour (> 150 μg/m^3)[f]	0	0	0
CAAQS 24-hour (> 50 μg/m^3)[f]	12	7	5
Particulate Matter (PM2.5)			
National[b] maximum 24-hour concentration (μg/m^3)	53.0	72.0	44.4
National[b] second-highest 24-hour concentration (μg/m^3)	48.1	46.9	35.4
State[c] maximum 24-hour concentration (μg/m^3)	53.0	72.0	44.4
State[c] second-highest 24-hour concentration (μg/m^3)	48.1	46.9	35.4
National annual designation value (μg/m^3)	15.1	—	—
National annual average concentration (μg/m^3)	14.0	—	—
State annual designation value (μg/m^3)	—	—	—
State annual average concentration (μg/m^3)[e]	—	—	—
Number of days standard exceeded[a]			
NAAQS 24-hour (> 35 μg/m^3)	5	6	1

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard-conditions data and samplers that use federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin where statistics are based on standard-conditions data. In addition, state statistics are based on California-approved samplers.

[d] Measurements are usually collected every 6 days.

[e] The state criteria for ensuring that the data for calculating valid annual averages are complete are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2011c; U.S. Environmental Protection Agency 2011b.

Attainment Status

The U.S. EPA has classified the Basin as an extreme nonattainment area for the federal 8-hour ozone standard. For both the 1-hour and 8-hour federal CO standard, the U.S. EPA has classified the Basin as an attainment/maintenance area. The U.S. EPA has classified the Basin as a serious nonattainment area for the federal PM10 standard and a nonattainment area for to the federal PM2.5 standard. CARB has classified the Basin as an extreme nonattainment area for the state 1-hour ozone standard and a nonattainment area for the state 8-hour ozone standard. For the state CO standard, CARB has classified the Basin as an attainment area. CARB has classified the Basin as a nonattainment area for the state PM10 and PM2.5 standards. The Basin's attainment status for each of these pollutants relative to the NAAQS and CAAQS is summarized in Table 2-59.

Carbon Monoxide

The proposed project is located in an attainment/maintenance area under the federal CO standard (Table 2-59). Consequently, an evaluation of transportation conformity as it relates to CO is required. The CO transportation conformity analysis is based on the CO Protocol, which was developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). The CO Protocol details a qualitative step-by-step procedure to determine whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO.

Particulate Matter

The proposed project is located in a serious nonattainment area for the federal PM10 standard and a nonattainment area for the federal PM2.5 standard (Table 2-59). On March 10, 2006, the U.S. EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality effects in PM10and PM2.5 nonattainment and maintenance areas. The final rule requires PM10 and PM2.5 hot-spot analyses to be performed for any project of air quality concern (POAQC) or any other project identified by the PM2.5 SIP as a localized air quality concern.

Mobile-Source Air Toxics/Toxic Air Contaminants

Toxic air contaminants (TACs) are pollutants that may increase mortality or serious illness or pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a TAC. Compared with other air toxics CARB has identified and controlled, diesel particulate matter (DPM) emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk (California Air Resources Board 2000).

Through the 1990 Clean Air Act amendments, Congress mandated the U.S. EPA to regulate 188 air toxics, which are also known as hazardous air pollutants (HAPs). In the U.S. EPA's latest final rule (2007) regarding the control of hazardous air pollutants from mobile sources (72 Federal Register 8430), the agency identified 93 compounds that are emitted from mobile sources. These compounds are listed in the U.S. EPA's Integrated Risk Information System. From this list of 93 compounds, the U.S. EPA has identified seven as priority mobile-source air toxics (MSATs). The high priority for regulation of these seven MSATs was based on the U.S. EPA's 1999 National Air Toxics Assessment (Federal Highway Administration 2009a).

The seven priority MSATs are as follows:

- Acrolein
- Benzene
- 1,3-butadiene
- DPM/diesel exhaust organic gases

- Formaldehyde
- Naphthalene
- Polycyclic organic matter (POM)

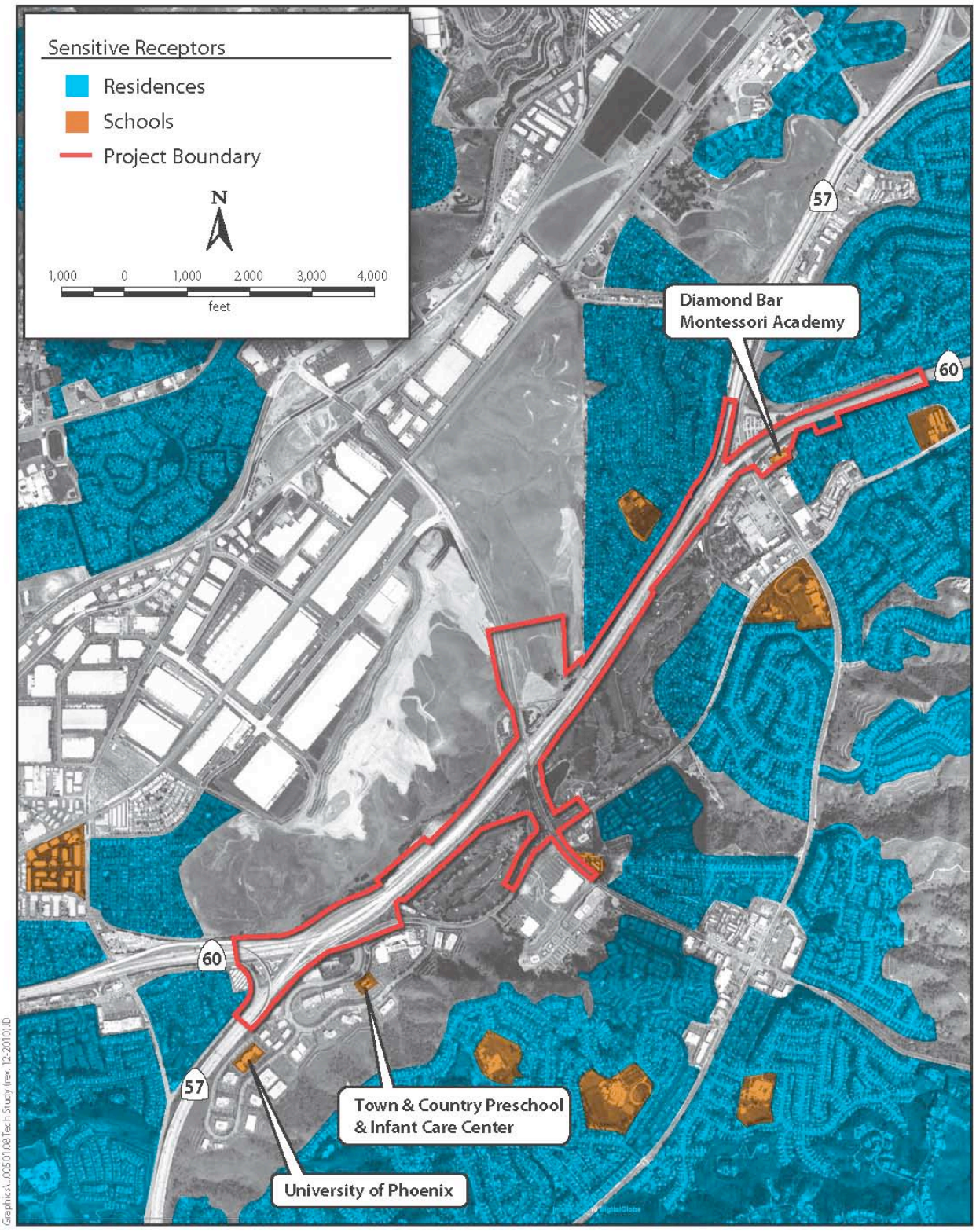
The 2007 rule mentioned above requires controls to decrease MSAT emissions dramatically through cleaner fuels and engines. According to a FHWA analysis that used the U.S. EPA's MOBILE6.2 model, even if vehicle activity (i.e., vehicle miles traveled [VMT]) increases by 145 percent, as assumed, a combined reduction of 72 percent in the total annual emissions rate for priority MSATs is projected from 1999 to 2050 (Federal Highway Administration 2009a).

Sensitive Receptors

Caltrans defines *sensitive receptors* (aka: sensitive land uses) as schools, medical centers and similar health care facilities, child care facilities, parks, and playgrounds (California Department of Transportation 2008). The area surrounding the project site consists of open space and residential uses west and northwest of the SR-57/SR-60 confluence; residential uses west and northwest of the southwest project limit; residential uses northwest, north, and east of the northeast project limit; and recreational uses (a golf course) south of the SR-57/SR-60 confluence. A fast-food restaurant and an auto dealership that is no longer in business are located southwest of the Grand Avenue/SR-60 westbound off-ramp intersection, and a Target store is located southwest of the Grand Avenue/Golden Springs Drive intersection. The fast-food restaurant has a former children's playground area that faces the freeway. The playground area has been closed for some time and will not be reopened, according to restaurant management (Aragues pers. comm.). The restaurant manager said on a site visit on June 2, 2009, and in a subsequent telephone conversation on June 12, 2009, that the playground equipment will not be replaced and that no other sensitive uses are planned for the area currently occupied by the playground.

The closest sensitive receptors to the project area are residences located approximately 100 feet northwest of the SR-57/SR-60 confluence; residences approximately 150 feet southwest of the northeast project limit; a private preschool, La Petite Academy, located approximately 200 feet south of the Grand Avenue/Golden Springs Drive intersection (approximately 50 feet west of Grand Avenue); and the Diamond Bar Montessori Academy, located approximately 200 feet southwest of SR-60 and about 0.20 mile northeast of the SR-57/SR-60 split. There are numerous other schools within 0.50 mile of the project site. Some of the residences northwest of the SR-57/SR-60 confluence are located on a hill. Residences in this area that are not elevated above the freeway are separated by a soundwall. The residences located southwest of the northeast project limit and the Diamond Bar Montessori Academy are separated from the freeway by dense trees. The La Petite Academy is not separated from Grand Avenue by any intervening barriers or trees (see Figure 2-35 for the general locations of sensitive receptors in the project vicinity). Other schools in the project vicinity include California Intercontinental University, the University of Phoenix – Diamond Bar Learning Center, the University of California, and Towne and Country Preschool and Infant Care Center.

Figure 2-35: Air Quality Sensitive Receptors



2.2.6.3 Environmental Consequences

Alternative 1, No-Build Alternative

Construction Impacts

No improvements to the SR-57/60 Confluence would occur under the No-Build Alternative. As such, no regional or localized construction-period emissions, or related impacts, would occur.

Operational Impacts

No changes to existing conditions would occur under the No-Build Alternative. As such, no changes in regional or localized emissions would occur under the No-Build Alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange and Alternative 3, Partial Cloverleaf Interchange Configuration

Construction Impacts

There would be no material difference in short-term regional or localized air quality impacts under Alternative 2 or Alternative 3. As such, the following impact discussion characterizes potential impacts that would occur under Alternatives 2 or B 3.

Criteria Pollutant Emissions

Implementation of either build alternative would result in the construction of widened roads, overcrossings, interchange reconfigurations, as well as bypass connectors. Construction is anticipated to begin in fall 2014 and end by fall 2017. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utility/subgrade construction, paving, and the commuting patterns of construction workers. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

During construction, short-term degradation of air quality may occur because of the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment are also anticipated. These would include CO, oxides of nitrogen (NO_X), reactive organic gas (ROG), directly emitted particulate matter (PM10 and PM 2.5), and toxic air contaminants (i.e., MSATs), such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_X and ROG in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM10, PM2.5, and small amounts of CO, SO_2, NO_X, and ROG. Sources of fugitive dust would include disturbed soils at the construction site and trucks that carry uncovered loads of soil. Unless

properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM10 emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM10 emissions would depend on soil moisture, the silt content of the soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed greater distances from the construction site.

In addition to dust-related PM10 emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_X, ROG, and some soot particulate (PM10 and PM2.5) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 ppm of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel; therefore, SO_2-related issues due to diesel exhaust would be minimal.

Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases.

Construction-period criteria pollutant emissions were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Model, version 6.3.2 (Sacramento Metropolitan Air Quality Management District 2009). Although the model was developed for Sacramento-area conditions in terms of fleet emission factors, silt loading, and other modeling assumptions, it is considered adequate by the San Joaquin Valley Air Pollution Control District for estimating road construction emissions under its indirect source regulations and SCAQMD in its CEQA guidance. As such, it is used for that purpose in this project analysis.

A summary of emissions estimates is provided in Table 2-61. Modeling assumptions are detailed in the air quality report. Implementation of the exhaust and fugitive dust emissions control measures discussed below would avoid and/or minimize any impacts on air quality.

Naturally Occurring Asbestos

Although naturally occurring asbestos (NOA) is common in certain counties of California, it is not likely to be found in Los Angeles County (California Department of Conservation 2000). As such, impacts related to NOA disturbance during construction activities are not anticipated. The discussion that follows is provided for informational purposes.

NOA is a fibrous material found in certain types of rock formations. It is the result of natural geologic processes and commonly found near earthquake faults in California. Some rock types known to produce asbestos fibers are varieties of chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite.

Table 2-61. Estimate of Criteria Pollutant Emissions during Construction (pounds per day)

Construction Phase	ROG	CO	NO_X	PM10	PM2.5
Grubbing and Clearing	6	23	35	52	12
Grading/Excavation	6	27	37	52	12
Drainage/Utilities/Sub-Grade	5	22	29	52	12
Paving	4	17	18	2	1
Daily Maximum Regional Emissions	6	27	37	52	12
SCAQMD Regional Emissions Daily Significance Threshold	75	550	100	150	55
Daily Maximum Localized Emissions[a]	N/A	23	33	52	12
SCAQMD Localized Emissions Daily Significance Threshold[b]	N/A	2,158	265	36	9

Source: Detailed calculation assumptions provided in Appendix E of the air quality study in Appendix G.
[a] ROG emissions have no SCAQMD localized emissions threshold.
[b] SCAQMD Source Receptor Area (SRA) 10, 5-acre site, 50-meter receptor distance.

Asbestos is harmless when it is left undisturbed in the soil, but if it becomes airborne, it can cause serious health problems. Human disturbance, or natural weathering, can break down asbestos into microscopic fibers that are easily inhaled. Inhalation of asbestos fibers can cause lung cancer, mesothelioma (a rare form of cancer found in the lining of internal organs), and asbestosis (a progressive, non-cancerous disease of the lungs involving a buildup of scar tissue that inhibits breathing).

Both the U.S. EPA and CARB have issued guidance for reducing exposures to NOA. The U.S. EPA's suggested measures include leaving NOA material undisturbed, covering or capping NOA material, limiting dust-generating activities, or excavating and disposing of NOA material. CARB has adopted Airborne Toxic Control Measures (ATCMs), which are required for road construction and maintenance projects, unless the project is found to be exempt. These ATCMs include stabilizing unpaved surfaces subject to vehicle traffic, reducing vehicle speeds, wetting or chemically stabilizing storage piles, and eliminating track-out material from equipment.

Operational Impacts

Regional Conformity

With respect to regional conformity, there would be no material difference in long-term regional emissions under Alternative 2 or Alternative 3. As such, the following impact discussion characterizes potential impacts that would occur under either alternative.

The proposed project is located in an extreme nonattainment area for the federal 8-hour ozone standard (Table 2-59). Because ozone and its precursors are regional pollutants, the proposed project must be evaluated under the transportation conformity requirements described earlier, and an affirmative regional conformity determination must be made before the proposed project can proceed. A determination of conformity can be made if the proposed project is described in an approved RTP and TIP and has not been significantly altered in design concept or scope.

The proposed project is included in the modeling lists for both SCAG 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and SCAG 2013 TIP under project number LA0D450. Within the currently conforming 2012–2035 RTP/SCS and 2013 TIP documents, the proposed project (LA0D450) is described as "*RECONSTRUCT SR 60/GRAND AV INTERCHANGE - WIDEN GRAND AV: SB ADD 1THRU LN (2 EXSTNG); NB ADD 1 THRU LN (3 EXSTNG), REPLACE GRAND AV OC, ADD EB LOOP ON-RAMP, CONSTRUCT ADDITIONAL EB THRU LN FROM GRAND AVE TRAP LN TO SR57 ADD LN, ADD TWO BYPASS RAMP CONNECTORS, ADD AUX LNS EB AND WB FROM EAST TO WEST JUNCTION OF THE CONFLUENCE.*" The project as currently proposed is consistent with this description.

The 2012–2035 RTP/SCS was adopted by SCAG on April 4, 2012, and approved by FHWA on June 4, 2012. The 2011 TIP was adopted by SCAG on September 2, 2010, and approved by FHWA on December 14, 2010. In addition, Amendment #11-24 to the 2011 TIP was adopted by SCAG on April 4, 2012. The latest conformity determination for the 2012–2035 RTP/SCS and for the 2013 FTIP was approved by FHWA and the Federal Transit Administration (FTA) on December 14, 2012.

Because the currently conforming 2012–2035 RTP/SCS and 2013 TIP model lists include the proposed project (LA0D450), the proposed project's regional conformity requirements have been satisfied. Air quality modeling conducted by SCAG for the 2012–2035 RTP/SCS and 2013 TIP indicates that emissions are within the allowable budgets for criteria pollutants. Consequently, the proposed project has met regional transportation conformity requirements for regional nonattainment pollutants. The design concept and scope of the proposed project have not changed from what was analyzed for air quality conformity.

The regional emissions analysis found that regional emissions would not exceed the SIP's emissions budgets for 1) mobile sources in the build year, 2) a horizon year at least 20 years from when conformity analysis started, and 3) additional years meeting conformity regulation requirements for periodic analysis. The regional emissions analysis was based on the latest population and employment projections for Los Angeles County adopted by SCAG at the time the conformity analysis was started.[47] The modeling used current and future population, employment, traffic, and congestion estimates. The traffic data, including the fleet mix data, were based on the most recent available vehicle registration data included in the EMFAC2007 model. Because this project is included in the most recently adopted RTP and TIP and has not changed significantly in terms of design, concept, and scope; fewer than 3 years have passed since the most recent step to advance the project; and a supplemental environmental document for air quality purposes has not been initiated, regional transportation conformity requirements have been met.

Project-Level Conformity

With respect to project-level conformity, there would be no material difference in long-term localized emissions under Alternatives 2 or 3. As such, the following impact discussion characterizes potential impacts that would occur under these alternatives.

[47] These assumptions are less than 5 years old.

As previously noted, if a project is located in a nonattainment or maintenance area for a given pollutant, then additional air quality analysis and reduction measures for that pollutant are required. This type of hot-spot analysis is most frequently done for CO and particulate matter.

Carbon Monoxide

The proposed project is located in an attainment/maintenance area for the federal CO standard (Table 2-59). Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on the CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). The CO Protocol details a qualitative step-by-step procedure for determining whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO. Through this process, it was determined that the build alternatives would not be expected to result in a new or more severe exceedance of either the NAAQS or CAAQS.

The *Final 2007 Air Quality Management Plan* is the most recent AQMP. However, no additional regional or hot-spot CO modeling was conducted to demonstrate further attainment of the 8-hour average ozone standard. This is because SCAQMD submitted a request to the U.S. EPA that asked the agency to redesignate the Basin as an attainment area for the 8-hour federal CO standard (South Coast Air Quality Management District 2007). Therefore, the 2003 AQMP was used as the basis for the following analysis. The 2003 AQMP did not provide model input assumptions. Instead, it referred to a 1992 CO plan where a general description of input assumptions was provided (South Coast Air Quality Management District 2003).Per the CO Protocol evaluation methodology (documented in the *Air Quality Study Report, State Route 57/State Route 60 Confluence Project*, Section 3.2.2, Conformity Determinations and Emissions Analysis), the project is satisfactory, and no further analysis is needed. Because project implementation would not result in CO concentrations that would exceed the 1-hour or 8-hour ambient air quality standards, on the basis of CO Protocol analysis methodology, the build alternatives would not be expected to result in a new or more severe exceedance of either the NAAQS or CAAQS.

Particulate Matter

The proposed project is located in a serious nonattainment area for the federal PM10 standard and a nonattainment area for the federal PM2.5 standard (Table 2-59). On March 10, 2006, the U.S. EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality effects in PM2.5 and PM10 nonattainment and maintenance areas. The final rule requires PM10 and PM2.5 hot-spot analyses to be performed for any POAQC or any other project identified by the PM2.5 SIP as a localized air quality concern.

In March 2006, FHWA and the U.S. EPA issued a guidance document titled *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* (Federal Highway Administration and U.S. Environmental Protection Agency 2006). This guidance identifies examples of projects that are most likely projects of air quality concern and details a qualitative step-by-step screening procedure to determine whether project-related particulate emissions have the potential to generate new air quality violations,

worsen existing violations, or delay attainment of the NAAQS for PM2.5 or PM10. In addition to the 2006 guidance, the U.S. EPA approved guidance for *quantitative* analysis in PM2.5 and PM10 nonattainment and maintenance areas on December 20, 2010 (75 Federal Register 79370). In the Federal Register announcement, the U.S. EPA provides a two-year grace period before use of the quantitative guidance is *required* for project-level particulate matter conformity determinations. Therefore, project-level conformity determinations made using the 2006 qualitative guidance are allowed until December 20, 2012 (U.S. Environmental Protection Agency 2010c). As such, the methodology described in the 2006 qualitative guidance document was used to evaluate this proposed project.

The U.S. EPA's transportation conformity rules stipulate that a transportation project that is considered a POAQC, or any other project that is identified by the PM2.5 SIP as a localized air quality concern, must undergo hot-spot analysis in PM2.5 nonattainment and maintenance areas. For areas without approved conformity SIPs, a PM10 hot-spot analysis is to be performed only for a POAQC. For areas with an approved conformity SIP, the 2006 Particulate Matter Conformity Final Rule does not apply, and an analysis must be performed that meets the requirements in the approved PM10 SIP until the SIP is updated and subsequently approved by the U.S. EPA. The CFR indicates that a conformity SIP for particulate matter has not been approved for the Basin by the U.S. EPA (40 CFR 52.223). Consequently, if the project is a POAQC, it must undergo PM10 (and PM2.5) hot-spot conformity determinations (O'Connor pers. comm.). Because the project area is in a serious nonattainment area with respect to the PM10 standard and a nonattainment area with respect to the PM2.5 standard (see Table 2-59) and violations of the NAAQS currently exist, a hot-spot analysis must be performed for PM10 and PM2.5.

Based on the guidance provided by FHWA and the U.S. EPA (Federal Highway Administration and U.S. Environmental Protection Agency 2006), average daily traffic (ADT) on SR-57 and SR-60 is projected to exceed the FHWA and U.S. EPA POAQC criterion of 125,000 at the interim year (2017) and future year (2037). As such, a qualitative PM10 and PM2.5 hot-spot evaluation was performed. The analysis concluded that it is unlikely that the proposed project would generate new air quality violations, worsen existing violations, or delay attainment of the NAAQS for PM2.5 and PM10. The SCAG Transportation Conformity Working Group (TCWG) concurred with this determination on January 24, 2012, and agreed that the particulate matter conformity documentation prepared for the proposed project is acceptable for NEPA circulation.[48,49] Furthermore, FHWA concurred with the project-level conformity determination analysis in its letter dated June 26, 2013 (included in Appendix D). Therefore, the Clean Air Act, 40 CFR Part 93.116, requirements have been met.

[48] The outcome from the January 24, 2012, meeting supersedes the outcome from the meeting held on October 26, 2010, when the TCWG concurred that the proposed project was not a POAQC. Changes in project scope that occurred since that date required the project to be resubmitted to the TCWG for review. As such, the October 26, 2010, finding is no longer valid.

[49] A copy of this finding, as well as the qualitative particulate matter conformity hot-spot analysis completed for the project, is provided in Appendix C of the air quality report prepared for the proposed project.

Mobile-Source Air Toxics

MSAT emissions were evaluated using a combination of FHWA's *Interim Guidance Update on Mobile-Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2009a) and preliminary California-specific guidance from Caltrans. At this time, the California-specific guidance is identical to FHWA's guidance, except for the California-specific criteria pertaining to performing qualitative and quantitative analysis (Brady pers. comm.). The California-specific criteria are found in CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Brady pers. comm.; California Air Resources Board 2005). FHWA's interim guidance uses a tiered approach with respect to how MSATs should be addressed in NEPA documents for highway projects (Federal Highway Administration 2009a). Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1. No analysis for exempt projects or projects with no potential for meaningful MSAT effects.
2. Qualitative analysis for projects with a low potential for MSAT effects.
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For the analysis of potential MSAT effects, Table 2-62 summarizes total mainline ADT, and Table 2-63 summarizes total ADT on Grand Avenue and Golden Springs Drive. In addition, Tables 2-64 and 2-65 list the anticipated diesel truck percentages provided by the traffic engineers for the mainline and arterials.

Table 2-62. Mainline ADT on SR-57 and SR-60

SR-57							
	Existing (2009)	2017 Interim			2037 Future		
Segment		Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3
Diamond Bar Blvd and Pathfinder Rd	139,046	142,400	141,300	141,300	149,900	146,300	146,300
Pathfinder Rd and SR-60	119,500	127,100	127,700	127,700	144,000	145,800	145,800
SR-60 on-/off-ramps and SR-60 split	117,600	120,900	122,300	122,300	127,900	132,700	132,700
SR-60 and Temple Ave	105,800	112,300	117,500	117,500	126,800	143,200	143,200
SR-60							
	Existing (2009)	2017 Interim			2037 Future		
Segment		Alt 1	Alt 2	Alt 3	Alt 1	Alt 2	Alt 3
Brea Canyon Rd and SR-57	124,600	136,700	140,269	140,269	163,600	174,900	174,900
SR-57 and Grand Ave	168,800	177,900	183,400	183,400	198,200	216,000	216,000
Between Grand Ave on-/off-ramps	226,800	231,700	237,800	237,800	242,800	262,400	262,400
Grand Ave and SR-57 split	226,000	240,600	248,900	248,900	273,200	299,900	299,900
SR-57 split and Diamond Bar Blvd	125,100	132,200	132,100	132,100	147,900	147,900	147,900
Diamond Bar Blvd and Philips Ranch Rd	130,600	139,100	141,600	141,600	158,000	166,000	166,000
Adapted from: Traffic Study Report 2011.							

Table 2-63. Arterial ADT on Grand Avenue and Golden Springs Drive

Grand Avenue							
		2017 Interim			2037 Future		
Segment	Existing	Alt 1 (No Project)	Alt 2	Alt 3	Alt 1 (No Project)	Alt 2	Alt 3
Grand Ave north of SR-60 WB on-/off-ramps	29,800	37,600	40,800	40,800	55,000	65,300	65,300
Grand Ave between SR-60 WB on-ramp and EB ramps	28,100	37,600	36,700	36,700	58,600	55,700	55,700
Grand Ave between SR-60 EB ramps and Golden Springs Dr	27,600	31,800	33,300	33,300	41,000	46,000	46,000
Grand Ave between Golden Springs Dr and Chardonay Dr	25,100	28,500	29,400	29,400	36,300	39,100	39,100
Golden Springs Drive							
		2017 Interim			2037 Future		
Segment	Existing	Alt 1 (No Project)	Alt 2	Alt 3	Alt 1 (No Project)	Alt 2	Alt 3
Golden Springs Dr between Grand Ave and Lavender Dr	24,100	27,700	26,800	26,800	35,500	33,000	33,000
Golden Springs Dr between Grand Ave and Racquet Club Dr	16,800	19,400	18,700	18,700	25,500	23,200	23,200

EB = eastbound; WB = westbound.
Adapted from: Traffic Study Report 2011.

Table 2-64. Diesel Truck Percentages on SR-57 and SR-60

SR-57	
Segment	**Truck Percentage[a, b]**
Diamond Bar Blvd and Pathfinder Rd	5.3
Pathfinder Rd and SR-60	5.4
SR-60 on-/off-ramps and SR-60 split	3.6
SR-60 and Temple Ave	6.2
SR-60	
Segment	**Truck Percentage[a, b]**
Brea Canyon Rd and SR-57	6.8
SR-57 and Grand Ave	6.1
Between Grand Ave on-/off-ramps	6.7
Grand Ave and SR-57 split	6.6
SR-57 split and Diamond Bar Blvd	6.8
Diamond Bar Blvd and Philips Ranch Rd	6.6

[a] Truck percentages are anticipated to be the same for existing (2009), interim (2017), and future (2037) scenarios (Knox pers. comm. [A]).
[b] To determine the appropriate truck percentage for the total ADT for each segment, the weighted average was calculated with the directional ADT and the directional truck percentages summarized in Table 2-63.
Adapted from Traffic Study Report 2011.

Table 2-65. Diesel Truck Percentages on Grand Avenue and Golden Springs Drive

Grand Avenue	
Segment	**Truck Percentage[a, b]**
Grand Ave north of SR-60 WB on-/off-ramps	10.0
Grand Ave between SR-60 WB on-ramp and EB ramps	10.0
Grand Ave between SR-60 EB ramps and Golden Springs Dr	2.0
Grand Ave between Golden Springs Dr and Chardonay Dr	2.0
Golden Springs Drive	
Segment	**Truck Percentage[a, b]**
Golden Springs Dr between Grand Ave and Lavender Dr	2.0
Golden Springs Dr between Grand Ave and Racquet Club Dr	2.0

[a] Truck percentages are anticipated to be the same for existing (2009), interim (2017), and future (2037) scenarios (Knox pers. comm. [A]).
[b] To determine the appropriate truck percentage for the total ADT for each segment, the weighted average was calculated with the directional ADT and the directional truck percentages summarized in Table 2-64.
Adapted from: Traffic Study Report 2011.

As shown in Table 2-62, mainline ADT on SR-57 is anticipated to change under Alternatives 2 and 3 compared with the No-Build Alternative, as follows:

- Along the Diamond Bar Boulevard to the Pathfinder Road segment, ADT is expected to decrease by 1,100, from 142,400 to 141,300, at opening year 2017 and decrease by 3,600, from 149,900 to 146,300, at horizon year 2037.
- Along the Pathfinder Road to the SR-60 segment, ADT is expected to increase by 600, from 127,100 to 127,700, at opening year 2017 and increase by 1,800, from 144,000 to 145,800, at horizon year 2037.
- Along the SR-60 on-/off-ramps to the SR-60 split segment, ADT is expected to increase by 1,400, from 120,900 to 122,300, during opening year 2017 and increase by 4,800, from 127,900 to 132,700, at horizon year 2037.
- Along the SR-60 to the Temple Avenue segment, ADT is expected to increase by 5,200, from 112,300 to 117,500, during opening year 2017 and increase by 16,400, from 126,800 to 143,200, at horizon year 2037.

Also shown in Table 2-62, mainline ADT on SR-60 is anticipated to change under Alternatives 2 and 3 compared with the No-Build Alternative, as follows:

- Along the Brea Canyon Road to the SR-57 segment, ADT is expected to increase by 3,569, from 136,700 to 140,269, at opening year 2017 and increase by 11,300, from 163,600 to 174,900, at horizon year 2037.
- Along the SR-57 to the Grand Avenue segment, ADT is expected to increase by 5,500, from 177,900 to 183,400, during opening year 2017 and increase by 17,800, from 198,200 to 216,000, at horizon year 2037.
- Between the Grand Avenue on-/off-ramp segment, ADT is expected to increase by 6,100, from 231,700 to 237,800, during opening year 2017 and increase by 19,600, from 242,800 to 262,400, at horizon year 2037.

- Along the Grand Avenue to the SR-57 split segment, ADT is expected to increase by 8,300, from 240,600 to 248,900, during opening year 2017 and increase by 26,700, from 273,200 to 299,900, at horizon year 2037.
- Along the SR-57 split to the Diamond Bar Boulevard segment, ADT is expected to decrease by 100, from 132,200 to 132,100, during opening year 2017 and remain unchanged, at 147,900, during horizon year 2037.
- Along the Diamond Bar Boulevard to the Philips Ranch Road segment, ADT is expected to increase by 2,500, from 139,100 to 141,600, during opening year 2017 and increase by 8,000, from 158,000 to 166,000, at horizon year 2037.

At horizon year 2037, it is estimated that mainline ADT on SR-57 and SR-60 will exceed the 140,000 ADT criterion established by FHWA for all segments, except one, under Alternative 2 or 3. In addition, as mentioned under the Sensitive Receptors discussion, the project is proposed to be located in proximity to populated areas.

As discussed above, in addition to the federal criteria, California has its own criteria for instances when a project is considered to have higher potential MSAT effects. California considers freeway projects and high-traffic roads (urban roads with 100,000 vehicles per day or rural roads with 50,000 vehicles per day) located 500 to 1,000 feet from sensitive land uses to have higher potential MSAT effects (Brady pers. comm.; California Air Resources Board 2005). California considers the following to be sensitive land uses: residences, schools, day care centers, playgrounds, and medical facilities (California Air Resources Board 2005). Grand Avenue and Golden Springs Drive would be considered "urban roads," according to CARB's land use handbook, but as shown in Table 2-62, ADT on these roads would not exceed the 100,000 criterion California uses for higher potential MSAT effects. SR-60 would be considered a freeway according to California criteria, and as noted previously, there are residences approximately 100 feet northwest of the SR-57/SR-60 confluence. Therefore, under California's criteria, the proposed project is considered to be a project with higher potential MSAT effects, and MSAT emissions must be quantified and evaluated further.

An evaluation of MSAT emissions for existing (2009), interim-year (2017), and design-year (2037) conditions was performed using the CT-EMFAC model and the traffic data presented in Table 2-66. Table 2-67 presents modeled MSAT emissions for the conditions analyzed. The differences in emissions between with- and without-project conditions represent emissions generated directly as a result of implementation of the proposed project.

Table 2-67 indicates that implementation of the proposed alternatives would result in slight increases in DPM, benzene, acrolein, and butadiene at the opening year (2017) and horizon year (2037) compared with the No-Build Alternative. Given the associated *decrease* in VMT anticipated to occur under the build alternatives compared with the No-Build Alternative at the horizon year (2037), a brief explanation of the results is warranted. A parabolic relationship is typically observed between emission rates and vehicle speeds when speeds are from 0 to 25 mph or above 55 mph; the lowest rates are typically observed at 45 mph.

Table 2-66. Vehicle Miles Traveled (VMT) and Speed Data

Peak Period															
Speed Bin	Actual Bin	Existing (2009)		2017 No Project		2017 Alternative 2		2017 Alternative 3		2037 No Project		2037 Alternative 2		2037 Alternative 3	
		VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	0.0-4.99	0	0	0	0	0	0	0	0	6,039	< 1	0	0	0	0
10	5.0-9.99	2,814	< 1	2,522	< 1	4,747	< 1	2,511	< 1	8,747	< 1	6,203	< 1	4,521	< 1
15	10.0-14.99	3,232	< 1	21,568	1	27,623	1	22,489	1	55,454	2	39,115	2	33,509	1
20	15.0-19.99	46,377	2	150,887	8	33,557	2	32,010	2	159,645	7	50,525	2	59,534	3
25	20.0-24.99	106,642	6	126,771	6	121,544	6	125,782	6	295,064	13	227,367	10	222,194	10
30	25.0-29.99	368,227	20	448,362	22	416,178	20	422,302	21	447,627	20	437,396	19	443,609	19
35	30.0-34.99	371,147	20	283,481	14	281,204	14	231,124	11	362,647	16	203,107	9	203,107	9
40	35.0-39.99	159,467	9	197,935	10	179,847	9	89,865	4	146,199	6	202,994	9	202,994	9
45	40.0-44.99	19,543	1	10,455	1	12,168	1	102,150	5	150,401	7	14,247	1	14,247	1
50	45.0-49.99	24,463	1	142,576	7	53,187	3	53,187	3	97,595	4	63,553	3	63,553	3
55	50.0-54.99	62,650	3	32,471	2	0	0	0	0	10,695	< 1	0	0	0	0
60	55.0-59.99	45,646	2	7,880	< 1	9,212	< 1	-	0	53,008	2	231,840	10	341,243	15
65	60.0-64.99	659,186	35	573,658	29	904,983	44	964,275	47	501,568	22	857,489	37	748,087	32
70	65.0-69.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	70.0-74.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,869,394	100	1,998,566	100	2,044,250	100	2,045,695	100	2,294,689	100	2,333,836	100	2,336,598	100
Off-Peak Period															
Speed Bin	Actual Bin	Existing (2009)		2017 No Project		2017 Alternative 2		2017 Alternative 3		2037 No Project		2037 Alternative 2		2037 Alternative 3	
		VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	0.0-4.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	5.0-9.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	10.0-14.99	0	0	0	0	0	0	0	0	4,026	< 1	4,034	< 1	4,034	< 1
20	15.0-19.99	3,637	< 1	145,192	8	3,992	< 1	3,773	< 1	34,482	2	41,505	2	10,194	1
25	20.0-24.99	21,809	1	25,866	1	24,164	1	24,384	1	51,634	3	30,608	2	85,413	5
30	25.0-29.99	61,906	4	87,722	5	73,525	4	73,525	4	74,687	4	103,829	5	119,086	6
35	30.0-34.99	152,281	9	195,665	11	149,707	9	150,997	9	264,736	14	201,567	11	248,128	13
40	35.0-39.99	233,981	13	410,173	23	312,921	18	251,493	14	574,954	30	346,298	18	264,961	14
45	40.0-44.99	132,693	8	106,582	6	147,421	8	98,222	6	128,833	7	98,436	5	97,491	5
50	45.0-49.99	9,438	1	138,674	8	18,359	1	50,807	3	0	0	0	0	0	0
55	50.0-54.99	81,400	5	33,570	2	0	0	32,452	2	82,067	4	0	0	0	0
60	55.0-59.99	149,112	9	7,730	< 1	169,283	10	176,535	10	0	0	94,148	5	254,867	13
65	60.0-64.99	895,682	51	646,456	36	857,350	49	895,826	51	720.849	37	970,184	51	809,465	43
70	65.0-69.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	70.0-74.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,741,939	100	1,797,630	100	1,756,722	100	1,758,014	100	1,936,268	100	1,890,609	100	1,893,639	100

Source: KOA Corporation 2011.

Table 2-67. MSAT Emissions (grams per day)

Scenario	Daily VMT[a]	Grams per Day							
		DPM	Benzene	Acrolein	Acetaldehyde	Formaldehyde	Butadiene	Naphthalene	POM
Existing (2009)	3,611,333	40,395	17,841	768	7,466	20,291	3,425	7,593	1,033
2017 No-Build Alternative	3,796,197	22,810	8,873	342	4,213	10,840	1,549	6,903	955
2017 Alternative 2	3,800,971	23,525	8,713	346	4,123	10,673	1,565	6,794	941
2017 Alternative 3	3,803,708	23,749	8,721	348	4,114	10,670	1,575	6,816	944
2037 No-Build Alternative	4,230,956	11,277	5,422	209	2,312	6,066	944	7,023	982
2037 Alternative 2	4,224,446	11,686	5,578	227	2,244	6,042	1,018	6,960	974
2037 Alternative 3	4,230,237	11,624	5,514	223	2,233	5,994	1,002	6,906	966
Alternative Increase/(Decrease) Compared with Existing 2009									
Scenario	**Daily VMT**	**DPM**	**Benzene**	**Acrolein**	**Acetaldehyde**	**Formaldehyde**	**Butadiene**	**Naphthalene**	**POM**
2017 Alternative 2 vs. Existing	189,638	(16,870)	(9,128)	(422)	(3,343)	(9,618)	(1,860)	(799)	(92)
2017 Alternative 3 vs. Existing	192,375	(16,646)	(9,120)	(420)	(3,352)	(9,621)	(1,850)	(777)	(89)
2037 Alternative 2 vs. Existing	613,113	(28,709)	(12,263)	(541)	(5,222)	(14,249)	(2,407)	(633)	(59)
2037 Alternative 3 vs. Existing	618,904	(28,771)	(12,327)	(545)	(5,233)	(14,297)	(2,423)	(687)	(67)
Alternative Increase/(Decrease) Compared with Respective No-Build Alternative at 2017 and 2037									
Scenario	**Daily VMT**	**DPM**	**Benzene**	**Acrolein**	**Acetaldehyde**	**Formaldehyde**	**Butadiene**	**Naphthalene**	**POM**
2017 Alternative 2 vs. No Build	4,774	715	(160)	4	(90)	(167)	16	(109)	(14)
2017 Alternative 3 vs. No Build	7,511	939	(152)	6	(99)	(170)	26	(87)	(11)
2037 Alternative 2 vs. No Build	(6,510)	409	156	18	(68)	(24)	74	(63)	(8)
2037 Alternative 3 vs. No Build	(719)	347	92	14	(79)	(72)	58	(117)	(16)

[a] Daily VMT was obtained by summing peak- and off-peak-period VMT, which is summarized in Table 2-66.

Compared with the No-Build Alternative, implementation of either build alternative would result in a significantly higher proportion of VMT occurring above the 55 mph speed bin at horizon year 2037. As a result, the emissions decreases typically observed with VMT reductions are masked by the higher proportion of vehicles traveling above 55 mph.

The traffic impact analysis conducted for the project suggests that, under the build alternatives, the proposed improvements would result in some arterial surface street VMT shifting to the freeway. This shift to the freeway is noteworthy because surface street MSAT emissions occur near sensitive receptors. As such, MSAT exposure at sensitive receptors may be reduced under the build alternatives compared with the No-Build Alternative. In addition, all MSAT emissions are expected to decrease below existing conditions (2009) under both build alternatives at the opening year (2017) and the horizon year (2037), as shown in Table 2-67.

Criteria Pollutant Emissions

Long-term air quality effects are those associated with motor vehicles operating on the roadway network, predominantly those in the project vicinity. Emissions of total organic gases (TOG), NO_X, CO, PM10, PM2.5, and CO_2 for existing (2009), interim-year (2017), and design-year (2037) conditions were evaluated through modeling conducted using Caltrans' CT-EMFAC model and the U.S. EPA's *Compilation of Air Pollutant Emission Factors,* AP-42, Section 13.2.1. CT-EMFAC does not calculate ROG emissions but instead calculates TOG emissions. Therefore, emissions of ROG were calculated from CT-EMFAC-estimated TOG emissions by multiplying the TOG emissions by a factor of 0.92.

To analyze potential effects of projects, NEPA requires a comparison of a project's emissions with no-build conditions at the opening year and horizon year. CT-EMFAC-modeled daily emissions are summarized in Table 2-68. As shown therein, vehicular emissions rates, in general, are anticipated to decrease in future years because of continuing improvements in engine technology and the retirement of older, higher emitting vehicles. Daily emissions of entrained dust are summarized in Table 2-69.

Table 2-68. Summary of CT-EMFAC-Modeled Operational Emissions

Scenario	Daily VMT[a]	Pounds per Day for All, Except CO_2, which Is Tons per Day						
		ROG	CO	NO_X	SO_X	CO_2	PM10[b]	PM2.5[b]
Existing (2009)	3,611,333	1,694	25,304	5,517	33	1,694	186	170
2017 No Build	3,796,197	964	13,784	2,892	34	1,785	172	160
2017 Alternative 2	3,800,971	920	13,450	3,005	34	1,800	170	158
2017 Alternative 3	3,803,708	916	13,411	3,031	35	1,809	170	158
2037 No Build	4,230,956	569	7,029	1,087	39	1,997	177	163
2037 Alternative 2	4,224,446	559	6,939	1,115	39	2,029	176	160
2037 Alternative 3	4,230,237	556	6,922	1,109	38	2,017	174	159
Alternative Increase/(Decrease) Compared with Existing 2009								
Scenario	**Daily VMT[a]**	**ROG**	**CO**	**NO_X**	**SO_X**	**CO_2**	**PM10[b]**	**PM2.5[b]**
2017 Alternative 2 vs. Existing	189,638	(774)	(11,853)	(2,512)	1	106	(16)	(12)
2017 Alternative 3 vs. Existing	192,375	(778)	(11,893)	(2,485)	2	115	(16)	(12)
2037 Alternative 2 vs. Existing	613,113	(1,135)	(18,365)	(4,402)	6	335	(10)	(10)
2037 Alternative 3 vs. Existing	618,904	(1,138)	(18,381)	(4,408)	5	323	(12)	(11)

Alternative Increase/(Decrease) Compared with Respective No Build at 2017 and 2037								
Scenario	**Daily VMT[a]**	**ROG**	**CO**	**NO_X**	**SO_X**	**CO_2**	**PM10[b]**	**PM2.5[b]**
2017 Alternative 2 vs. No Build	4,774	(44)	(334)	113	<1	15	(2)	(2)
2017 Alternative 3 vs. No Build	7,511	(47)	(373)	139	1	24	(2)	(2)
2037 Alternative 2 vs. No Build	(6,510)	(11)	(90)	28	<1	32	(1)	(3)
2037 Alternative 3 vs. No Build	(719)	(14)	(107)	22	(1)	20	(3)	(4)

[a] Daily VMT was obtained by summing peak- and off-peak-period VMT, which is summarized in Table 2-66.
[b] Particulate matter emissions include exhaust, tire wear, and brake wear only. Re-entrained dust emissions are provided in Table 2-69.

Table 2-69. Entrained Paved Road Dust (tons/year)

	PM10 Tons/Year			PM2.5 Tons/Year		
Alternative	**Freeway**	**Arterial**	**Total**	**Freeway**	**Arterial**	**Total**
Existing (2009)	52.3	115.5	167.8	12.8	28.3	41.2
2017 No-Build	54.4	123.3	177.8	13.4	30.3	43.6
2017 Build Alternative 2	55.0	121.8	176.8	13.5	29.9	43.4
2017 Build Alternative 3	55.0	122.1	177.0	13.5	30.0	43.5
2037 No-Build	59.8	140.7	200.4	14.7	34.5	49.2
2037 Build Alternative 2	60.2	138.7	198.9	14.8	34.0	48.8
2037 Build Alternative 3	60.2	139.2	199.3	14.8	34.2	48.9
Alternative Increase/(Decrease) Compared with Existing 2009						
Alternative	**Freeway**	**Arterial**	**Total**	**Freeway**	**Arterial**	**Total**
2017 Alternative 2 vs. Existing	2.7	6.3	9.0	0.7	1.6	2.2
2017 Alternative 3 vs. Existing	2.7	6.6	9.2	0.7	1.7	2.3
2037 Alternative 2 vs. Existing	7.9	23.2	31.1	2.0	5.7	7.6
2037 Alternative 3 vs. Existing	7.9	23.7	31.5	2.0	5.9	7.7
Alternative Increase/(Decrease) Compared with Respective No Build at 2017 and 2037						
Alternative	**Freeway**	**Arterial**	**Total**	**Freeway**	**Arterial**	**Total**
2017 Alternative 2 vs. No Build	0.6	(1.5)	(1.0)	0.1	(0.4)	(0.2)
2017 Alternative 3 vs. No Build	0.6	(1.2)	(0.8)	0.1	(0.3)	(0.1)
2037 Alternative 2 vs. No Build	0.4	(2.0)	(1.5)	0.1	(0.5)	(0.4)
2037 Alternative 3 vs. No Build	0.4	(1.5)	(1.1)	0.1	(0.3)	(0.3)

As detailed in Table 2-68, both build alternatives would result in decreases in ROG, CO, PM10, and PM2.5 exhaust emissions but increases in NO_X, SO_X and CO_2 emissions at the opening year (2017) and horizon year (2037) when compared with the no-build condition. Alternative 2 NO_X emissions are anticipated to increase by 113 pounds per day and 28 pounds per day at future years 2017 and 2037, respectively, when compared with the No-Build Alternative. Build Alternative 3 NO_X emissions are anticipated to increase by 139 pounds per day and 22 pounds per day at future years 2017 and 2037, respectively, when compared with the No-Build Alternative. Alternative 2 SO_X emissions are anticipated to increase by less than 1 pound per day at future years 2017 and 2037 compared with the No-Build Alternative. Alternative 3 SO_X emissions are anticipated to increase by 1 pound per day at future year 2017, then decrease by 1 pound per day at future year 2037 compared with the No-Build Alternative. Alternative 2 CO_2 emissions are anticipated to increase by 15 pounds per day and 32 pounds per day at future years 2017 and 2037, respectively, compared with the No-Build Alternative. Alternative 3 CO_2 emissions are anticipated to increase by 24 pounds per day and 20 pounds per day at future years 2017 and 2037, respectively, compared with the No-Build Alternative. When combined with re-entrained road dust emissions, PM10 and PM2.5 emissions are anticipated to decrease by approximately 1 percent under both build alternatives at opening year 2017 and horizon year 2037.

As shown in Table 2-69, entrained dust in the study area is anticipated to decrease with implementation of either build alternative when compared with no-build conditions. The traffic impact analysis conducted for the project suggests that, under the build alternatives, the proposed improvements would result in some arterial surface street VMT shifting to the freeway. This shift is noteworthy because of the difference in silt load factors on surface arterials compared with freeways. The AP-42 re-entrained dust calculation formula worksheets accommodate each of these project-specific factors (i.e., VMT, average vehicle weight, annual precipitation rate, roadway type). Because no increase in entrained dust is expected to occur with implementation of either build alternative, compared with no-build conditions, the proposed project is not anticipated to contribute to new violations of the NAAQS or CAAQS.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following measures would minimize air quality effects from construction activities.

Implement California Department of Transportation Standard Specifications

Most of the construction impacts on air quality would be short term. Therefore, they would not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes, such as stormwater pollution control, would reduce any air quality impacts resulting from construction activities:

AQ-1: The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 (2010).

- Section 14-9.01 specifically requires the contractor to comply 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, refer to the material specifications contained in Section 18.
- Apply water or dust palliative on the site and equipment as frequently as necessary to control fugitive dust emissions. Generally, fugitive emissions 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 in 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 California 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 on existing communities.
- Locate equipment and material storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Establish Environmentally Sensitive Areas or their equivalent near sensitive air receptors. Construction activities involving extended idling for diesel equipment would be prohibited, to the extent feasible, in such areas.
- 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 emissions of dust (particulate matter) during transportation.
- Promptly and regularly remove dust and mud on paved public roads resulting from 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 on 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 emissions issues. Controls, such as dampened straw, may be needed.

Comply with SCAQMD's Rule 403 Requirements to Control Construction Emissions of Fugitive Dust

To control the generation of construction-related fugitive dust emissions, Caltrans would require construction contractors to comply with SCAQMD's Rule 403 requirements, which are summarized in Table 2-70. Compliance with SCAQMD's Rule 403 is required for all construction projects.

Table 2-70. South Coast Air Quality Management District's Best Available Control Measures

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	✓ Mix backfill soil with water prior to moving ✓ Dedicate water truck or high-capacity hose to backfilling equipment ✓ Empty loader bucket slowly so that no dust plumes are generated ✓ Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	✓ Maintain live perennial vegetation where possible ✓ Apply water in sufficient quantity to prevent the generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	✓ Use of high-pressure air to clear forms may cause an exceedance of rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	✓ Follow permit conditions for crushing equipment ✓ Pre-water material prior to loading into crusher ✓ Monitor opacity of crusher emissions ✓ Apply water to crushed material to prevent dust plumes
Cut and fill	05-1 Pre-water soils prior to cut-and-fill activities; and 05-2 Stabilize soil during and after cut-and-fill activities.	✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration ✓ Use water trucks/pulls to water soil to depth of cut prior to subsequent cuts
Demolition – mechanical/manual	06-1 Stabilize wind-erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with SCAQMD Rule 1403.	✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures.	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Earthmoving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and ensure that visible emissions do not exceed a distance of 100 feet in any direction; and 08-3 Stabilize soils once earthmoving activities are complete.	✓ Grade each project phase separately and time to coincide with construction phase ✓ Upwind fencing can prevent material movement on-site ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least 6 inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with California Vehicle Code (CVC) Section 23114.	✓ Use tarps or other suitable enclosures on haul trucks ✓ Check seals on belly dump trucks regularly and remove any trapped rocks to prevent spillage ✓ Comply with track-out prevention/mitigation requirements ✓ Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	✓ Apply water to materials to stabilize ✓ Maintain materials in a crusted condition ✓ Maintain effective cover over materials ✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes ✓ Hydroseed prior to rainy season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing maintenance on road shoulder.	✓ Install curbing and/or paving ✓ Shoulders can reduce recurring maintenance costs ✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to the standards for opacity and plume length; and 12-3 Stabilize material immediately after screening.	✓ Dedicate water truck or high-capacity hose to screening operation ✓ Drop material through the screen slowly and minimize drop height ✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	✓ Limit size of staging area ✓ Limit vehicle speeds to 15 miles per hour ✓ Limit number and size of staging area entrances/exits
Stockpiles/bulk material handling	14-1 Stabilize stockpiled materials; and 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be higher than 8 feet, must have a road bladed to the top to allow water truck access, or must have an operational water irrigation system that is capable of complete stockpile coverage.	✓ Add or remove material from the downwind portion of the storage pile ✓ Maintain storage piles to avoid steep sides or faces
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	✓ Apply gravel/paving to all haul routes and, as soon as possible, to all future roadway areas ✓ Barriers can be used to ensure that vehicles are restricted to established parking areas/haul routes

Source Category	Control Measure	Guidance
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches, soak soils via the pre-trench, and resume trenching ✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds 6 inches (CVC Section 23114)	✓ Empty loader bucket so no visible dust plumes are created ✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading
Turf overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	✓ Haul waste material immediately off-site
Unpaved roads/ parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger, with a cumulative area of 500 square feet or more, and driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures.	
Source: South Coast Air Quality Management District 2005a.		

2.2.7 Noise

2.2.7.1 Regulatory Setting

CEQA and NEPA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between CEQA and NEPA.

California Environmental Quality Act

CEQA requires a baseline versus build analysis to determine whether a proposed project will have a noise impact. Under CEQA, if it is determined that a proposed project will have a significant noise impact, then CEQA requires mitigation measures to be incorporated into the project unless such measures are not feasible.

The rest of this section will focus on the NEPA 23 CFR 772 noise analysis. Please see Chapter 3, California Environmental Quality Act Evaluation, of this document for further information regarding noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require potential noise impacts in areas of frequent human use to be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC), which are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2-71 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Table 2-71. Noise Abatement Criteria

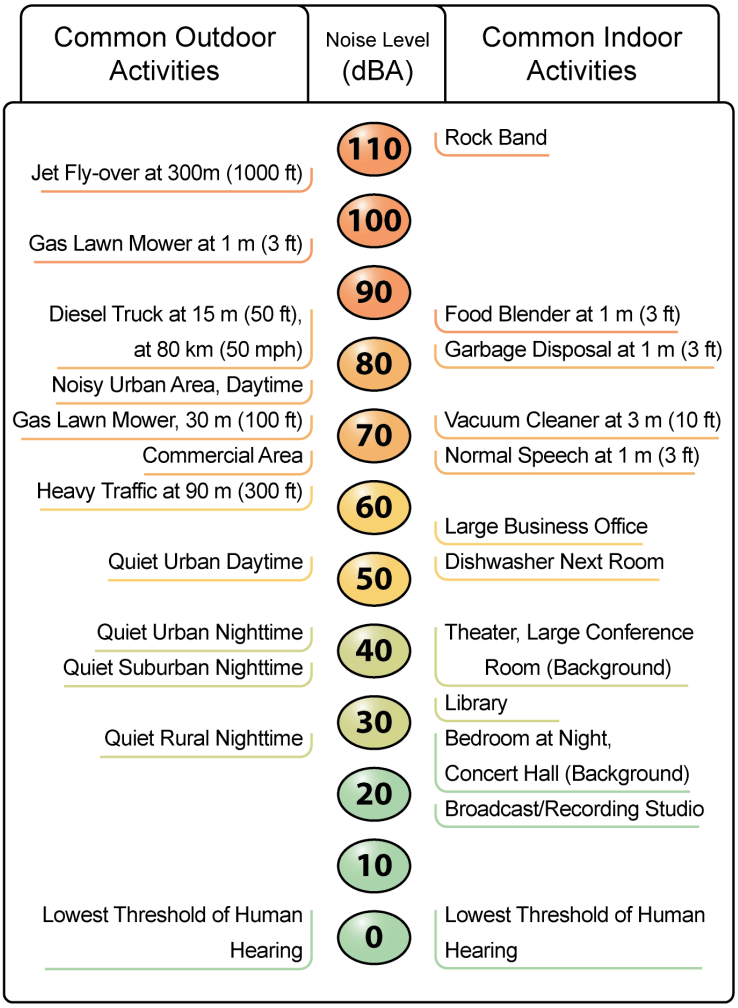
Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of Activity Category
A	57 (exterior)	Lands where serenity and quiet have extraordinary significance. The preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (exterior)	Residential.
C[1]	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools, and television studios.

Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of Activity Category
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and developed lands, properties, or activities not included in categories A through D or category F.
F	No NAC (reporting only)	Airports, bus yards, maintenance facilities, rail yards, retail facilities, shipyards, and areas that support agriculture, emergency services, industrial uses, logging, manufacturing, mining, utilities (water resources, water treatment facilities, electrical facilities, etc.), and warehousing.
G	No NAC (reporting only)	Undeveloped lands that are not permitted.

[1] Includes undeveloped lands permitted for this activity category.
$L_{eq}(h)$ = hourly equivalent sound level.

Figure 2-36 lists the noise levels of common activities so that the reader can compare the actual and predicted highway noise levels discussed in this section with such activities.

Figure 2-36. Noise Levels of Common Activities



In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (Protocol) (2011), a noise impact occurs when the future noise level with the project results in a substantial increase in noise (defined as an increase of 12 dBA or more) or when the future noise level with the project approaches or exceeds the NAC. *Approaching* the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design would be incorporated into the project's plans and specifications. This document discusses noise abatement measures that would most likely be incorporated into the project.

Caltrans' Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is an engineering concern. A minimum reduction of 7 dBA in the future noise level must be achieved for an abatement measure to be considered feasible. Topography, access requirements, other noise sources, and safety considerations are also considered. The reasonableness determination involves a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

2.2.7.2 Affected Environment

The following information is derived from the State Route 57/State Route 60 Confluence Project Noise Study Report (NSR), completed May 2012 (Caltrans 2012a), and the State Route 57/State Route 60 Confluence Project Noise Abatement Decision Report (NADR), completed May 2012 (Caltrans 2012b).

Field investigations to identify land uses that could be subject to traffic and construction noise impacts resulting from the proposed project were conducted on March 15 and 16, 2010, and January 26, 2012. Although all land uses were evaluated in the NSR, as required by Caltrans' Protocol, noise abatement was considered only for areas of frequent human use that would benefit from a lower noise level. Accordingly, the impact analysis focused on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

Land uses in the project area were grouped into a series of analysis areas, which are shown in Figure 2-37.

- **Area A: Area east of South Diamond Bar Boulevard.** This area includes all locations in the study area east of Diamond Bar Boulevard (where SR-57 and SR-60 diverge). In this area, SR-60 is a 10-lane roadway with one HOV lane in each direction and paved shoulders. The SR-60 eastbound on-ramp extends along the southeast quadrant of the interchange. Land uses in this area consist of single-family residences (Activity Category B) and commercial uses (Activity Category F). Outdoor areas considered areas of frequent human use include the private yards associated with the residences.

- **Area B: South of SR-60, South Prospectors Road to South Diamond Bar Boulevard.** This area is near the eastern convergence of SR-57 and SR-60. In this area, northbound SR-57 passes under SR-60, which is a 10-lane roadway with one HOV lane in each direction and paved shoulders. Land uses in this area consist of multi-family residences (Activity Category B), a hotel (Activity Category E), and commercial uses (Activity Category F). Outdoor areas considered areas of frequent human use include the tennis courts and swimming pool within the multi-family residential development. The hotel includes a swimming pool, which would be considered an area of frequent outdoor use.
- **Area C: North of SR-57/SR-60, Grand Avenue to Rock River Drive.** This area is north of the SR-57/SR-60 confluence. In this area, SR-57/SR-60 is 14-lane roadway with one HOV lane in each direction and paved shoulders. SR-57 transitions to eight lanes after it diverges from SR-60. Land uses in this area consist of single-family residences (Activity Category B) and Armstrong Elementary School (Activity Category C). Outdoor areas of frequent human use include the private yards associated with the residences and the school playground. This area also includes a commercial use (Activity Category F) and undeveloped use (Activity Category G) adjacent to Grand Avenue.
- **Area D: South of SR-57/SR-60, project western terminus to the intersection of Golden Springs Drive and Copley Drive.** This area is south of the SR-57/SR-60 confluence. In this area, SR-57/SR-60 transitions from a 14-lane roadway with one HOV lane in each direction to a roadway with a varying number of lanes as the ramps for SR-57 and SR-60 separate from the confluence at the western end of the project area. Land uses in this area consist of hotels with outdoor swimming pools (Activity Category E), which are considered outdoor areas of frequent human use. There is also an outdoor use area associated with a day-care facility (Activity Category C). The hotel properties with outdoor swimming pools and the day-care facility are located on elevated terrain that faces the SR-57/SR-60 confluence.
- **Area G: South of SR-57/SR-60, between Golden Springs Drive and South Prospectors Road.** Diamond Bar Golf Course is considered an outdoor area of frequent human use in this area and therefore evaluated as an Activity Category C land use. Area G also contains a residential neighborhood adjacent to the golf course (Activity Category B).

Field noise measurements were conducted in accordance with the recommended procedures in Caltrans' Technical Noise Supplement (TeNS). Two long-term measurement sites were selected to capture the diurnal noise level pattern from traffic in the project area near the SR-57/SR-60 confluence. Short-term measurement locations, representing each major land use in the project area, were also selected.

Figure 2-37 shows the long- and short-term monitoring locations.

Long-term Measurements

Long-term monitoring was conducted at two locations (marked LT-1 and LT-2 in Figure 2-37) to quantify daily noise level trends and identify the peak noise hour, or "loudest" hour, for traffic. The results of this monitoring were used to describe variations in sound levels

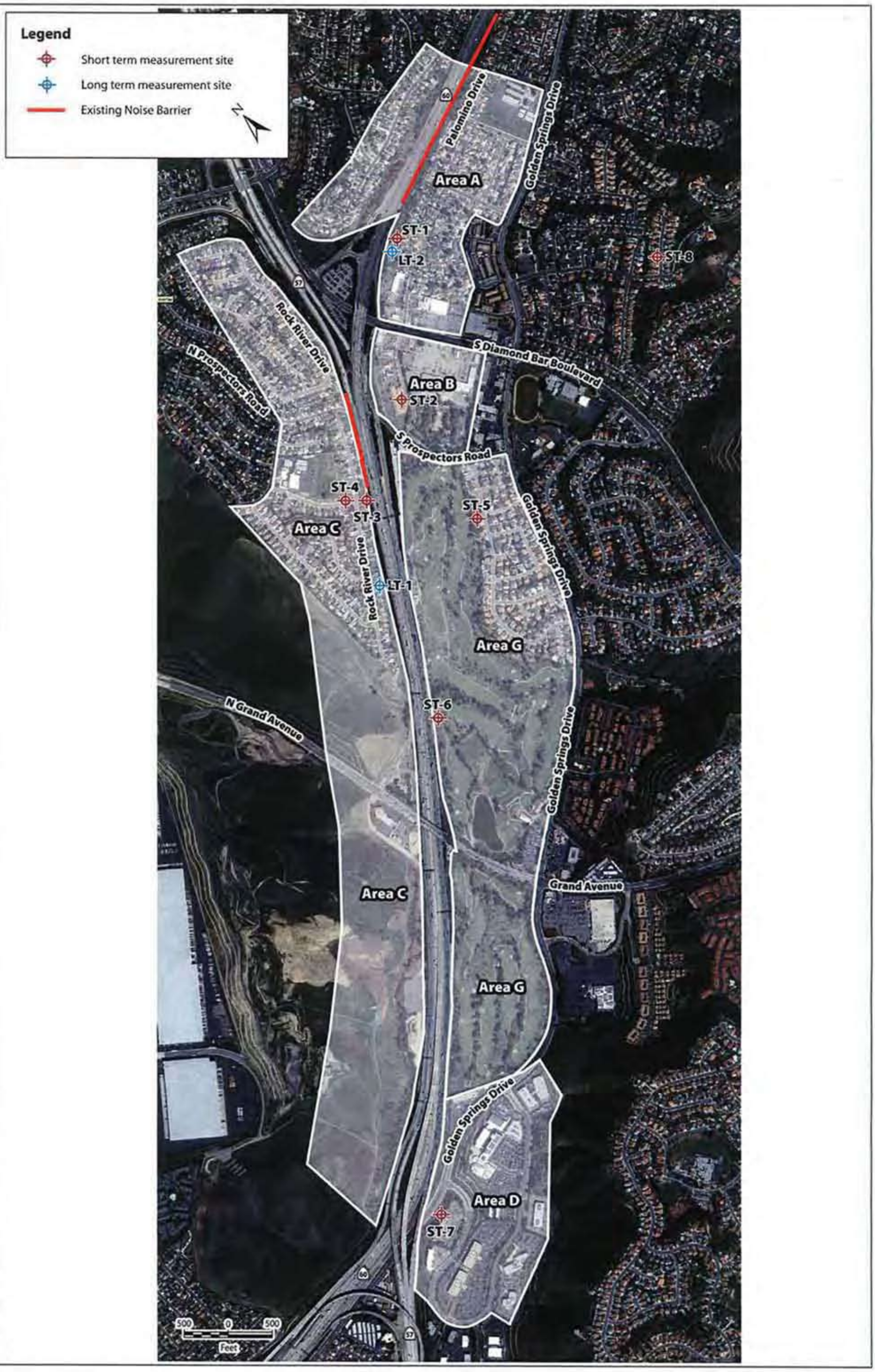


Figure 2-37
Noise Monitoring Locations and Existing Noise Barriers

throughout the day rather than absolute sound levels at a specific receptor of concern. The long-term sound level data were collected over 24-hour periods on March 15 and 16, 2010 (LT-1), and January 26, 2012 (LT-2), using a Rion NL-22 Type 2 sound level meter.

Long-term monitoring location LT-1 is the backyard of a residence on the north side of SR-57/SR-60 (408 Rock River Road), approximately 100 feet from the westbound lanes. A microphone was placed at a height of about 3 feet above the surrounding ground. Noise levels were monitored for a 24-hour period on March 15 and 16, 2010. Hourly average noise levels ranged from a minimum of 75.5 dBA L_{eq}(h) during the 2 a.m. hour to a maximum of 81.0 dBA L_{eq}(h) during the 2 p.m. hour. The graph in Figure 2-38a summarizes the results of long-term monitoring.

Long-term monitoring location LT-2 is the backyard of a residence on the south side of SR-60 (23603 Palomino Drive), approximately 100 feet from the eastbound lanes. A microphone was placed at a height of about 3 feet above the surrounding ground. Noise levels were monitored for a 24-hour period on January 26, 2012. Hourly average noise levels ranged from a minimum of 52.1 dBA L_{eq}(h) during the 1 a.m. hour to a maximum of 59.3 dBA L_{eq}(h) during the 7 p.m. hour. The graph in Figure 2-38b summarizes the results of long-term monitoring.

Short-term Measurements

Short-term noise measurements were taken at seven locations on Tuesday, March 16, 2010, using a Larson Davis LD812 Precision Type 1 sound level meter. The short-term monitoring locations are shown in Figure 2-37.

Table 2-72 summarizes the results of short-term noise monitoring conducted in the project area. The short-term monitoring sites are shown in Figure 2-37. Measured noise levels ranged from 50 dBA L_{eq} (ST-8) to 78 dBA L_{eq} (ST-6) when rounded to the nearest whole number.

Figure 2-38a: Long-term Noise Monitoring, Site LT-1, March 15–16, 2010

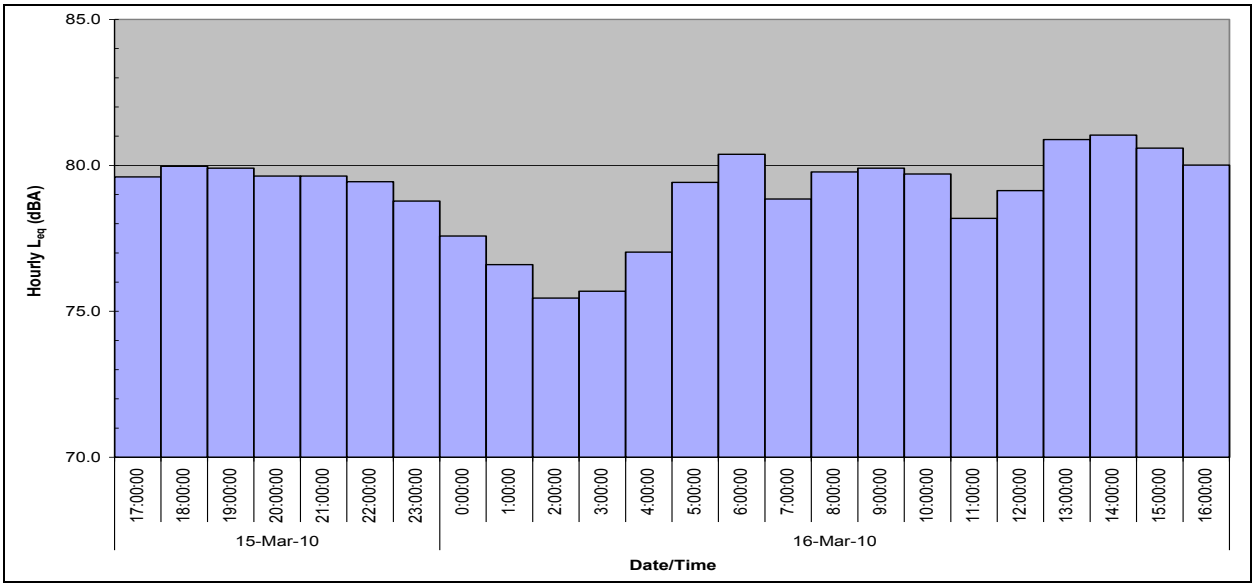


Figure 2-38b: Long-term Noise Monitoring, Site LT-2, January 26, 2012

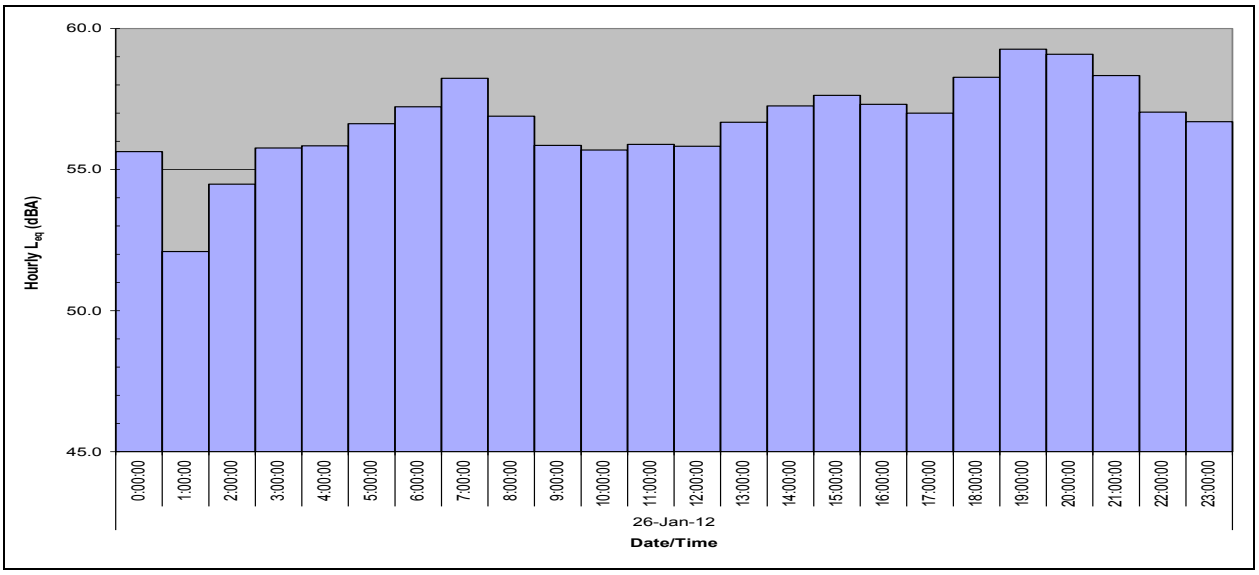


Table 2-72. Summary of Short-term Measurements

Location	Address	Area	Shielding	Start Time	Duration (minutes)	Measured L_{eq}
ST-1	Residence, 23619 Palomino Drive	A	20-foot berm	9:00 a.m.	10	61.2
ST-2	Best Western Hotel, South Gentle Springs Lane	B	hotel building	9:40 a.m.	10	57.3
ST-3	First-row residence, 300 South Rock River Road	C	4-foot privacy wall	1:10 p.m.	10	73.9
ST-4	Second-row residence, 293 South Rock River Road	C	4-foot privacy wall	1:40 p.m.	10	58.6
ST-5	Residence, 465 Golden Prados Drive	G	none	10:40 a.m.	10	59.1
ST-6	Diamond Bar Golf Course, 75 feet from SR-57/SR-60	G	none	11:30 a.m.	10	78.2
ST-7	Holiday Inn Select, Gateway Center Drive	D	6-foot privacy wall	2:40 p.m.	10	71.5
ST-8[a] (background measurement)	23617 Meadcliff Place	A	none	12:00 p.m.	10	50.1

[a] Receiver ST-8, was analyzed to document other sources (background noise) that contribute to noise levels in the project area.

2.2.7.3 Environmental Consequences

Build Alternatives

Short-Term (Construction)

Temporary Increase in Community Noise Levels during Construction Activities

During construction of the proposed project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans' provisions in Section 14-8.02, "Noise Control," of the *Draft 2010 Standard Specifications and Special Provisions*.

Table 2-73 summarizes noise levels produced by the types of construction equipment that are commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 decibels (dB) at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 2-73. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006.

Pile driving, if necessary, generates sounds that are unique in terms of noise level, audibility characteristics, and time pattern. The louder impact sounds are heard very briefly (e.g., a "bang" or "clang") and typically concentrated over a 10- to 30-minute period when an individual pile is being driven. These types of impact sounds attenuate with distance in the same manner as regular construction noise such that the maximum levels would be 99 dBA at 100 feet, 93 dBA at 200 feet, 87 dBA at 400 feet, etc.

Support machinery associated with pile driving produces lower noise levels and corresponds to the regular construction activity described above. The discussion above pertains to both impact-type pile driving and vibratory pile driving, although, depending on the pile type being driven, vibratory pile driving can be noticeably quieter. Measurements taken for a pilot project indicate that vibratory pile driving can be as much as 15 dBA quieter than the impact method when driving H-piles. Vibratory methods are not always suitable for the soil conditions, however, and thus may not be a feasible alternative. A potential alternative to pile driving is the use of drilled cast-in-place columns.

Construction noise would be short-term, intermittent, and overshadowed by local traffic noise. Additionally, construction would be conducted in accordance with applicable local noise standards and Caltrans' provisions in Section 14-8.02, "Noise Control," of the *Draft 2010 Standard Specifications and Special Provisions*. Consequently, no substantial adverse construction noise impacts are anticipated.

Alternative 1, No-Build Alternative. Under Alternative 1, No-Build Alternative, future noise levels in the project area associated with non-traffic sources may increase or decrease slightly from changes in surrounding land uses and/or densities. Table 2-74 indicates that future noise levels generated by traffic at the SR-57/SR-60 confluence would be expected to increase by 0 to 2 dB compared with existing noise conditions resulting from changes in traffic volumes. Therefore, Alternative 1, No-Build Alternative, would not result in substantial adverse effects under NEPA.

Build Alternatives

Long-Term (Operations)

The following is a discussion of the noise abatement considered for each evaluation area within the project area. Evaluation areas and noise prediction locations are shown in Figures 2-39a through 2-39d and listed below.

Area A – Area east of South Diamond Bar Boulevard.

Area B – South of SR-60, South Prospectors Road to South Diamond Bar Boulevard.

Area C – North of SR-57/SR-60, Grand Avenue to Rock River Drive.

Area D – South of SR-57/SR-60, project western terminus to the intersection of Golden Springs Drive and Copley Drive.

Area G – South of SR-57/SR-60, between Golden Springs Drive and South Prospectors Road.

Traffic noise impacts, which were evaluated against Caltrans/FHWA noise impact criteria, were estimated for 84 representative noise-sensitive receptors, representing 144 equivalent dwelling units. Caltrans/FHWA NAC for Activity Category B land uses would be approached or exceeded at 65 of the 84 modeled representative noise-sensitive receptors, and the NAC for Activity Category C land uses would be exceeded at 16 of the 84 receptors. Those 81 affected receptors represent a total of 144 noise-affected dwelling units. Increases in noise levels with the project would range from 0 to 6 dB compared with existing conditions and 0 to 5 dB compared with the future no-build case. None of the 124 modeled receptors would experience a substantial (12 dB or greater) increase in noise compared with the existing case.

Table 2-74 identifies the existing noise levels at each receptor and provides the predicted noise levels in 2037 for the build and no-build alternatives. Unabated future (2037) noise levels at representative noise-sensitive receptors exceeding the NAC are predicted to range from 66 dBA $L_{eq}(h)$ to 82 dBA $L_{eq}(h)$ during the peak noise hour. Traffic noise abatement measures in the form of noise walls were considered for the noise-sensitive land use areas predicted to exceed the

Table 2-74. Summary of Modeled Traffic Noise Levels and Noise Abatement

Receiver	Area	Dwelling Units	Modeled Noise Levels (peak-hour L_{eq}, dBA)			Noise Increase (1-hr L_{eq}, dBA)		Extent of Noise Impact		
			Existing	2037 No-Build	2037 Build	2037 Build Minus 2037 No-Build	2037 Build Minus Existing	Type of Impact	Affected Dwelling Units	Noise Abatement Considered
A1	A – Area east of South Diamond Bar Boulevard	2	61	62	64	+ 2	+ 3	None	0	Noise Barrier A
A2		1	61	62	67	+ 5	+ 6	NAC	0	Noise Barrier A
ST1		0	61	62	67	+ 5	+ 6	NAC	0	Noise Barrier A
A3		2	61	62	65	+ 3	+ 4	None	0	Noise Barrier A
A4		2	62	63	63	0	+ 1	None	0	Noise Barrier A
A5		1	62	63	63	0	+ 1	None	0	Noise Barrier A
A6		4	62	63	64	+ 1	+ 2	None	0	Noise Barrier A
A7		3	64	65	64	- 1	0	None	0	Noise Barrier A
A8		9	62	63	63	0	+ 1	None	0	Noise Barrier A
A09		2	64	64	64	0	0	None	0	Not Applicable
A10		2	63	64	64	0	+ 1	None	0	Not Applicable
A11		2	62	63	63	0	+ 1	None	0	Not Applicable
A12		2	61	62	63	+ 1	+ 2	None	0	Not Applicable
A13		2	62	63	63	0	+ 1	None	0	Not Applicable
A14		2	62	63	63	0	+ 1	None	0	Not Applicable
A15		2	62	63	63	0	+ 1	None	0	Not Applicable
A16		2	62	63	63	0	+ 1	None	0	Not Applicable
A17		2	62	63	63	0	+ 1	None	0	Not Applicable
A18		10	62	63	63	0	+ 1	None	0	Not Applicable
A19		8	62	63	63	0	+ 1	None	0	Not Applicable
A20		2	65	66	66	0	+ 1	NAC	2	Noise Barrier A-2
A21		2	69	70	70	0	+ 1	NAC	2	Noise Barrier A-2
A22		2	68	69	69	0	+ 1	NAC	2	Noise Barrier A-2
A23		2	69	70	70	0	+ 1	NAC	2	Noise Barrier A-2
A24		2	69	70	70	0	+ 1	NAC	2	Noise Barrier A-2
A25		2	70	71	71	0	+ 1	NAC	2	Noise Barrier A-2
A26		2	71	71	71	0	0	NAC	2	Noise Barrier A-2
A27		2	71	72	72	0	+ 1	NAC	2	Noise Barrier A-2
A28		2	71	72	72	0	+ 1	NAC	2	Noise Barrier A-2

Receiver	Area	Dwelling Units	Modeled Noise Levels (peak-hour L_{eq}, dBA)			Noise Increase (1-hr L_{eq}, dBA)		Extent of Noise Impact		
			Existing	2037 No-Build	2037 Build	2037 Build Minus 2037 No-Build	2037 Build Minus Existing	Type of Impact	Affected Dwelling Units	Noise Abatement Considered
A29		2	71	72	72	0	+ 1	NAC	2	Noise Barrier A-2
A30		2	72	73	73	0	+ 1	NAC	2	Noise Barrier A-2
A31		2	72	73	73	0	+ 1	NAC	2	Noise Barrier A-2
A32		2	72	73	73	0	+ 1	NAC	2	Noise Barrier A-2
A33		2	72	73	73	0	+ 1	NAC	2	Noise Barrier A-2
A34		2	72	73	73	0	+ 1	NAC	2	Noise Barrier A-2
A35		2	71	72	72	0	+ 1	NAC	2	Noise Barrier A-2
A36		2	70	71	71	0	+ 1	NAC	2	Noise Barrier A-2
A43		4	63	65	64	- 1	+ 1	None	0	Noise Barrier A-2
A44		5	65	66	66	0	+ 1	NAC	5	Noise Barrier A-2
A45		5	63	64	63	- 1	0	None	0	Noise Barrier A-2
A46		6	57	58	58	0	+ 1	None	0	Noise Barrier A-2
A47		11	60	61	61	0	+ 1	None	0	Noise Barrier A-2
B1	Area B – South of SR-60, South Prospectors Road to South Diamond Bar Boulevard	1	58	59	58	- 1	0	None	0	Not Applicable
ST2		0	59	60	60	0	+ 1	None	0	Not Applicable
B2		1	59	60	60	0	+ 1	None	0	Not Applicable
B3		1	59	60	60	0	+ 1	None	0	Not Applicable
B4		1	61	62	62	0	+ 1	None	0	Not Applicable
B5		1	56	58	58	0	+ 2	None	0	Not Applicable
C1	Area C – North of SR-57/SR-60, Grand Avenue to Rock River Drive	2	67	68	68	0	+ 1	NAC	2	Noise Barrier C
C2		2	66	67	67	0	+ 1	NAC	2	Noise Barrier C
C3		2	67	68	68	0	+ 1	NAC	2	Noise Barrier C
C4		1	68	70	69	- 1	+ 1	NAC	1	Noise Barrier C
C5		2	69	70	70	0	+ 1	NAC	2	Noise Barrier C
C6		1	70	71	71	0	+ 1	NAC	1	Noise Barrier C
C7		1	70	71	71	0	+ 1	NAC	1	Noise Barrier C
C8		1	69	71	70	- 1	+ 1	NAC	1	Noise Barrier C
C9		1	69	70	70	0	+ 1	NAC	1	Noise Barrier C
C10		2	73	74	74	0	+ 1	NAC	2	Noise Barrier C
ST3		0	76	77	77	0	+ 1	NAC	0	Noise Barrier C
C11		2	75	77	77	0	+ 2	NAC	2	Noise Barrier C

Receiver	Area	Dwelling Units	Modeled Noise Levels (peak-hour L_{eq}, dBA)			Noise Increase (1-hr L_{eq}, dBA)		Extent of Noise Impact		
			Existing	2037 No-Build	2037 Build	2037 Build Minus 2037 No-Build	2037 Build Minus Existing	Type of Impact	Affected Dwelling Units	Noise Abatement Considered
C12		1	75	76	76	0	+ 1	NAC	1	Noise Barrier C
C13		2	74	75	75	0	+ 1	NAC	2	Noise Barrier C
C14		1	74	75	75	0	+ 1	NAC	1	Noise Barrier C
C15		1	74	75	75	0	+ 1	NAC	1	Noise Barrier C
C16		1	73	74	74	0	+ 1	NAC	1	Noise Barrier C
C17		2	72	73	73	0	+ 1	NAC	2	Noise Barrier C
C18		2	71	72	72	0	+ 1	NAC	2	Noise Barrier C
C19		2	71	72	73	+ 1	+ 2	NAC	2	Noise Barrier C
C20		2	70	71	71	0	+ 1	NAC	2	Noise Barrier C
C21		2	70	71	71	0	+ 1	NAC	2	Noise Barrier C
LT1		0	68	69	70	+ 1	+ 2	NAC	0	Noise Barrier C
C22		2	69	70	70	0	+ 1	NAC	2	Noise Barrier C
C23		2	69	70	70	0	+ 1	NAC	2	Noise Barrier C
C24		2	69	70	70	0	+ 1	NAC	2	Noise Barrier C
C25		2	68	69	70	+ 1	+ 2	NAC	2	Noise Barrier C
C26		2	68	69	69	0	+ 1	NAC	2	Noise Barrier C
C27		2	68	69	69	0	+ 1	NAC	2	Noise Barrier C
C28		2	68	69	69	0	+ 1	NAC	2	Noise Barrier C
C29		1	68	69	69	0	+ 1	NAC	1	Noise Barrier C
C30		4	60	61	61	0	+ 1	None	0	Noise Barrier C
C31		4	61	62	62	0	+ 1	None	0	Noise Barrier C
C32		3	62	63	63	0	+ 1	None	0	Noise Barrier C
C33		6	64	65	65	0	+ 1	None	0	Noise Barrier C
C34		6	64	66	66	0	+ 2	NAC	6	Noise Barrier C
C35		6	64	65	65	0	+ 1	None	0	Noise Barrier C
C36		5	64	65	65	0	+ 1	None	0	Noise Barrier C
C37		5	65	66	66	0	+ 1	NAC	5	Noise Barrier C
ST4		0	61	62	62	0	+ 1	None	0	Noise Barrier C
C38		1	70	72	71	- 1	+ 1	NAC	1	Noise Barrier C
C39		0	73	74	74	0	+ 1	NAC	0	Not Applicable
C40		0	73	74	74	0	+ 1	NAC	0	Not Applicable

Receiver	Area	Dwelling Units	Modeled Noise Levels (peak-hour L_{eq}, dBA)			Noise Increase (1-hr L_{eq}, dBA)		Extent of Noise Impact		
			Existing	2037 No-Build	2037 Build	2037 Build Minus 2037 No-Build	2037 Build Minus Existing	Type of Impact	Affected Dwelling Units	Noise Abatement Considered
C41		0	71	72	72	0	+ 1	NAC	0	Not Applicable
C42		2	65	66	66	0	+ 1	NAC	2	Noise Barrier C-2
C43		2	78	80	79	- 1	+ 1	NAC	2	Noise Barrier C-2
C44		2	78	80	79	- 1	+ 1	NAC	2	Noise Barrier C-2
C45		2	75	76	76	0	+ 1	NAC	2	Noise Barrier C-2
C46		2	74	75	75	0	+ 1	NAC	2	Noise Barrier C-2
C47		2	72	73	73	0	+ 1	NAC	2	Noise Barrier C-2
C48		2	71	72	72	0	+ 1	NAC	2	Noise Barrier C-2
C49		2	70	71	71	0	+ 1	NAC	2	Noise Barrier C-2
C50		2	70	71	71	0	+ 1	NAC	2	Noise Barrier C-2
C60		12	64	65	65	0	0	None	0	Noise Barrier C-2
C61		2	70	71	71	0	+ 1	NAC	2	Noise Barrier C-2
D1	Area D – South of SR-57/SR-60, project western terminus to the intersection of Golden Springs Drive and Copley Drive	1	65	67	68	+ 1	+ 3	None	0	Not Applicable
D2		1	67	68	68	0	+ 1	None	0	Not Applicable
ST7		0	74	75	75	0	+ 1	None	0	Not Applicable
D3		0	59	60	60	0	+ 1	None	0	Not Applicable
G1	Area G – South of SR-57/SR-60, between Golden Springs Drive and South Prospectors Road	1	74	75	75	0	+ 1	NAC	1	Noise Barrier G
G2		1	67	69	68	- 1	+ 1	NAC	1	Noise Barrier G
G3		1	64	65	66	+ 1	+ 2	NAC	1	Noise Barrier G
G4		1	62	63	67	+ 4	+ 5	NAC	1	Noise Barrier G
G5		1	62	64	64	0	+ 2	None	0	Noise Barrier G
G6		1	71	72	63	- 9	- 8	None	0	Noise Barrier G
G7		1	79	80	81	+ 1	+ 2	NAC	1	Noise Barrier G
G8		1	62	63	66	+ 3	+ 4	NAC	1	Noise Barrier G
G9		1	62	64	66	+ 2	+ 4	NAC	1	Noise Barrier G
G10		1	60	62	64	+ 2	+ 4	None	0	Noise Barrier G
G11		1	60	62	64	+ 2	+ 4	None	0	Noise Barrier G
G12		1	75	76	76	0	+ 1	NAC	1	Noise Barrier G
G13		1	78	79	77	- 2	- 1	NAC	1	Noise Barrier G

Receiver	Area	Dwelling Units	Modeled Noise Levels (peak-hour L_{eq}, dBA)			Noise Increase (1-hr L_{eq}, dBA)		Extent of Noise Impact		
			Existing	2037 No-Build	2037 Build	2037 Build Minus 2037 No-Build	2037 Build Minus Existing	Type of Impact	Affected Dwelling Units	Noise Abatement Considered
G14		1	69	70	72	+ 2	+ 3	NAC	1	Noise Barrier G
G15		1	60	61	65	+ 4	+ 5	None	0	Noise Barrier G
G16		1	61	62	64	+ 2	+ 3	None	0	Noise Barrier G
G17		1	70	71	71	0	+ 1	NAC	1	Noise Barrier G
G18		1	73	75	76	+ 1	+ 3	NAC	1	Noise Barrier G
G19		1	75	76	77	+ 1	+ 2	NAC	1	Noise Barrier G
G20		1	63	64	67	+ 3	+ 4	NAC	1	Noise Barrier G
ST6		0	79	80	82	+ 2	+ 3	NAC	1	Noise Barrier G
G21		10	62	64	68	+ 4	+ 6	NAC	10	No
ST5		0	63	64	68	+ 4	+ 5	NAC	0	No

NAC. FHWA's Traffic Noise Model (TNM) was used to predict noise wall performance (insertion loss or noise reduction) for barrier heights ranging from 6 to 24 feet for the future design year.

Preliminary site reconnaissance was conducted at all locations where noise walls were evaluated for this study. In no case were physical site conditions found that would preclude construction of a noise wall. In particular, none of the considered abatement locations would require the wall to be penetrated by a driveway to a noise-affected home.

Existing peak-hour traffic noise levels at all modeled receivers are listed in Table 2-74. As listed in Table 2-74, some receivers already are exposed to peak-hour traffic noise that approach or exceed the NAC. Modeling results in Table 2-74 indicate that predicted traffic noise levels for the design-year with-project conditions approach (i.e., come within 1 dBA) or exceed the NAC of 67 dBA $L_{eq}(h)$ for Activity Category B land uses at residences within areas A, C, and G. Modeled receptors in Area B would not approach or exceed the NAC. Modeled future with-project noise levels show undeveloped locations within Area C (receptors C38 through C40) that fall within Category F and Category G. These are modeled for reporting purposes only. Receptors located within Area D fall within Category E (receptors D1, D2, and D3) and Category F (receptor ST-7). Neither receiver approaches or exceeds the Category E NAC of 72 dBA L_{eq}. Traffic noise impacts are predicted to occur at Activity Category B and Category C land uses within areas A, C, and G. Therefore, noise abatement must be considered.

Reasonableness cost allowance calculations were carried out for barriers that were found to be acoustically feasible. The reasonableness allowances were subsequently used in the NADR, with the allowances compared with the estimated costs for each of the acoustically feasible noise walls.

Additional non-acoustical factors, such as utility relocation, preservation of minimum sight distances, and geotechnical considerations, were also addressed as part of the NADR reasonableness determination process. Reasonableness recommendations and determinations for each of the evaluated noise walls were made by the project engineer and presented in the NADR.

Given the findings in the NADR, presented in Table 2-75, none of the analyzed walls was found to be both reasonable and feasible. The noise wall for Area A along Palomino Drive would not meet the design goal of 7dB noise reduction, and is not recommended for this project. Noise wall A-2 along Decorah Road was determined to be acoustically feasible; however, the wall is deemed not reasonable because the estimated construction costs exceed the reasonable allowance. Noise wall A-2 is not recommended for this project. Noise walls for Areas B are not required for this project as they do not approach or exceed the noise abatement criteria. Noise wall C and C-2 were determined to be acoustically feasible, but not cost reasonable. The noise walls would not meet the reasonableness criteria because estimated construction costs exceed the reasonable allowances (see Appendix B for a discussion of a noise wall proposed adjacent to the Diamond Bar Golf Course, as a measure to minimize harm to the 4(f) property). Noise wall C and C-2 are not recommended for this project. Noise wall for Area D would not meet the design goal of 7dB noise reduction. Noise wall D is not acoustically feasible, and is not recommended for this project. Noise wall G-1 is proposed as part of the project that would be constructed on

Figure 2-39a
Noise Prediction Locations
(Sheet 1 of 4)
State Route 57/State Route 60 Confluence at Grand Avenue Project

Figure 2-39b
Noise Prediction Locations
(Sheet 2 of 4)
State Route 57/State Route 60 Confluence at Grand Avenue Project

Figure 2-39c
Noise Prediction Locations
(Sheet 3 of 4)
State Route 57/State Route 60 Confluence at Grand Avenue Project

Figure 2-39d
Noise Prediction Locations
(Sheet 4 of 4)
State Route 57/State Route 60 Confluence at Grand Avenue Project

Table 2-75. Summary of Modeled Traffic Noise Levels and Noise Abatement

Receiver	Area	Dwelling Units	Modeled Noise Levels (Peak-Hour L_{eq}, dBA)			Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement										Reasonable and Feasible
			Existing	2035 No-Build	2035 Build		6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	
A1	A – Areas east of South Diamond Bar Boulevard	1	61	62	64	No	64	63	63	63	63	62	62	62	62	62	--
A2		1	61	62	67	Yes	66	65	65	64	63	63	63	62	62	62	No
ST1		1	61	62	67	Yes	66	65	64	64	63	63	63	62	62	62	No
A3		1	61	62	65	No	64	64	64	63	63	62	62	62	62	61	--
A4		1	62	63	63	No	63	63	63	63	63	63	63	62	62	62	--
A5		1	62	63	63	No	63	63	63	63	63	63	63	63	63	62	--
A6		1	62	63	64	No	63	63	63	63	63	62	62	62	62	62	--
A7		1	64	65	64	No	64	64	64	64	64	64	64	64	64	64	--
A8		1	62	63	63	No	63	63	62	62	62	62	62	62	62	62	--
A09		2	64	64	64	No	--	--	--	--	--	--	--	--	--	--	--
A10		2	63	64	64	No	--	--	--	--	--	--	--	--	--	--	--
A11		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A12		2	61	62	63	No	--	--	--	--	--	--	--	--	--	--	--
A13		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A14		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A15		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A16		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A17		2	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A18		10	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A19		8	62	63	63	No	--	--	--	--	--	--	--	--	--	--	--
A20		2	65	66	66	Yes	65	65	65	64	64	64	--	--	--	--	No
A21		2	69	70	70	Yes	65	64	64	63	63	63	--	--	--	--	No
A22		2	68	69	69	Yes	63	63	62	61	61	61	--	--	--	--	No
A23		2	69	70	70	Yes	65	64	63	61	60	60	--	--	--	--	No
A24		2	69	70	70	Yes	64	63	62	61	60	59	--	--	--	--	No
A25		2	70	71	71	Yes	64	62	61	60	59	59	--	--	--	--	No
A26		2	71	71	71	Yes	63	62	61	60	59	59	--	--	--	--	No
A27		2	71	72	72	Yes	64	63	62	61	60	59	--	--	--	--	No
A28		2	71	72	72	Yes	64	62	61	60	59	59	--	--	--	--	No
A29		2	71	72	72	Yes	64	62	61	61	60	59	--	--	--	--	No
A30		2	72	73	73	Yes	64	63	62	61	60	59	--	--	--	--	No
A31		2	72	73	73	Yes	64	63	62	61	60	59	--	--	--	--	No
A32		2	72	73	73	Yes	66	64	63	62	61	60	--	--	--	--	No
A33		2	72	73	73	Yes	67	66	64	63	61	60	--	--	--	--	No

Receiver	Area	Dwelling Units	Modeled Noise Levels (Peak-Hour L_{eq}, dBA)			Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement										Reasonable and Feasible
			Existing	2035 No-Build	2035 Build		6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	
A34		2	72	73	73	Yes	65	63	61	60	59	58	--	--	--	--	No
A35		2	71	72	72	Yes	65	63	61	60	59	58	--	--	--	--	No
A36		2	70	71	71	Yes	64	62	61	60	59	58	--	--	--	--	No
A43		4	63	65	64	No	59	59	58	58	57	57	--	--	--	--	--
A44		5	65	66	66	Yes	64	64	63	63	62	61	--	--	--	--	No
A45		5	63	64	63	No	63	63	62	62	61	60	--	--	--	--	--
A46		6	57	58	58	No	57	57	56	56	56	56	--	--	--	--	--
A47		11	60	61	61	No	60	60	60	60	60	60	--	--	--	--	--
B1	Area B – South of SR-60, South Prospectors Road to South Diamond Bar Boulevard	1	58	59	58	No	--	--	--	--	--	--	--	--	--	--	--
ST2		0	59	60	60	No	--	--	--	--	--	--	--	--	--	--	--
B2		1	59	60	60	No	--	--	--	--	--	--	--	--	--	--	--
B3		1	59	60	60	No	--	--	--	--	--	--	--	--	--	--	--
B4		1	61	62	62	No	--	--	--	--	--	--	--	--	--	--	--
B5		1	56	58	58	No	--	--	--	--	--	--	--	--	--	--	--
C1	Area C – North of SR-57/SR-60, Grand Avenue to Rock River Drive	2	67	68	68	Yes	68	68	68	68	67	67	--	--	--	--	No
C2		2	66	67	67	Yes	67	67	67	67	67	66	--	--	--	--	No
C3		2	67	68	68	Yes	68	68	68	68	67	66	--	--	--	--	No
C4		1	68	70	69	Yes	69	69	69	69	68	68	--	--	--	--	No
C5		2	69	70	70	Yes	70	70	70	70	69	68	--	--	--	--	No
C6		1	70	71	71	Yes	71	71	71	71	69	68	--	--	--	--	No
C7		1	70	71	71	Yes	71	71	71	71	70	69	--	--	--	--	No
C8		1	69	71	70	Yes	70	70	70	70	69	68	--	--	--	--	No
C9		1	69	70	70	Yes	70	70	70	70	69	67	--	--	--	--	No
C10		2	73	74	74	Yes	72	71	70	70	68	67	--	--	--	--	No
ST3		0	76	77	77	Yes	74	72	72	71	70	70	--	--	--	--	No
C11		2	75	77	77	Yes	73	72	71	70	69	69	--	--	--	--	No
C12		1	75	76	76	Yes	73	71	70	69	68	67	--	--	--	--	No
C13		2	74	75	75	Yes	72	70	69	68	67	66	--	--	--	--	No
C14		1	74	75	75	Yes	72	70	69	68	67	66	--	--	--	--	No
C15		1	74	75	75	Yes	72	71	69	68	67	66	--	--	--	--	No
C16		1	73	74	74	Yes	71	70	69	67	66	65	--	--	--	--	No
C17		2	72	73	73	Yes	71	70	69	67	66	65	--	--	--	--	No
C18		2	71	72	72	Yes	70	69	68	66	66	64	--	--	--	--	No
C19		2	71	72	73	Yes	70	69	68	67	66	65	--	--	--	--	No
C20		2	70	71	71	Yes	69	68	67	66	65	64	--	--	--	--	No
C21		2	70	71	71	Yes	69	68	67	65	65	64	--	--	--	--	No

Receiver	Area	Dwelling Units	Modeled Noise Levels (Peak-Hour L_{eq}, dBA)			Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement										Reasonable and Feasible
			Existing	2035 No-Build	2035 Build		6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	
LT1		0	68	69	70	Yes	68	67	66	66	65	64	--	--	--	--	No
C22		2	69	70	70	Yes	69	67	66	65	64	64	--	--	--	--	No
C23		2	69	70	70	Yes	68	67	66	65	64	63	--	--	--	--	No
C24		2	69	70	70	Yes	68	67	66	65	64	63	--	--	--	--	No
C25		2	68	69	70	Yes	68	67	66	64	64	63	--	--	--	--	No
C26		2	68	69	69	Yes	68	67	66	64	64	63	--	--	--	--	No
C27		2	68	69	69	Yes	68	67	65	64	64	63	--	--	--	--	No
C28		2	68	69	69	Yes	68	66	65	64	64	62	--	--	--	--	No
C29		1	68	69	69	Yes	68	66	65	64	64	63	--	--	--	--	No
C30		4	60	61	61	No	61	61	60	60	60	59	--	--	--	--	--
C31		4	61	62	62	No	62	61	61	61	60	60	--	--	--	--	--
C32		3	62	63	63	No	63	63	62	62	62	61	--	--	--	--	--
C33		6	64	65	65	No	64	64	63	63	62	62	--	--	--	--	--
C34		6	64	66	66	Yes	65	65	65	64	63	63	--	--	--	--	No
C35		6	64	65	65	No	65	65	65	65	64	63	--	--	--	--	--
C36		5	64	65	65	No	65	65	65	65	65	64	--	--	--	--	--
C37		5	65	66	66	Yes	66	66	66	66	65	65	--	--	--	--	No
ST4		0	61	62	62	No	62	62	62	62	60	60	--	--	--	--	--
C38		1	70	72	71	Yes	71	71	71	71	70	69	--	--	--	--	No
C39		0	73	74	74	No	--	--	--	--	--	--	--	--	--	--	--
C40		0	73	74	74	No	--	--	--	--	--	--	--	--	--	--	--
C41		0	71	72	72	No	--	--	--	--	--	--	--	--	--	--	--
C42		2	65	66	66	Yes	65	64	63	63	63	62	--	--	--	--	No
C43		2	78	80	79	Yes	73	71	70	69	68	67	--	--	--	--	No
C44		2	78	80	79	Yes	71	69	67	66	65	64	--	--	--	--	No
C45		2	75	76	76	Yes	70	68	67	66	65	65	--	--	--	--	No
C46		2	74	75	75	Yes	69	68	66	66	65	64	--	--	--	--	No
C47		2	72	73	73	Yes	68	67	66	65	64	64	--	--	--	--	No
C48		2	71	72	72	Yes	67	66	65	64	63	63	--	--	--	--	No
C49		2	70	71	71	Yes	66	65	64	63	63	62	--	--	--	--	No
C50		2	70	71	71	Yes	66	65	64	64	63	63	--	--	--	--	No
C60		12	64	65	65	No	63	62	62	62	61	61	--	--	--	--	--
C61		2	70	71	71	Yes	69	69	69	69	68	68	--	--	--	--	No

Receiver	Area	Dwelling Units	Modeled Noise Levels (Peak-Hour L_{eq}, dBA)			Noise Impact Requiring Abatement Consideration	Predicted Noise Level with Abatement										Reasonable and Feasible
			Existing	2035 No-Build	2035 Build		6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	
D1	Area D – South of SR-57/SR-60, project western terminus to the intersection of Golden Springs Drive and Copley Drive.	1	65	66	66	No	--	--	--	--	--	--	--	--	--	--	--
D2		1	78	80	79	No	68	68	68	68	68	68	68	68	68	67	No
ST7		0	78	80	79	No	75	75	75	75	75	75	75	75	74	74	No
D3		0	75	76	76	No	--	--	--	--	--	--	--	--	--	--	--
G1	Area G – South of SR-57/SR-60, between Golden Springs Drive and South Prospectors Road.	1	74	75	75	Yes	74	73	71	69	68	67	--	--	--	--	No
G2		1	72	73	73	Yes	67	66	66	65	65	64	--	--	--	--	No
G3		1	71	72	72	Yes	66	65	65	65	64	64	--	--	--	--	No
G4		1	70	71	71	Yes	67	67	67	66	66	65	--	--	--	--	No
G5		1	70	71	71	Yes	64	64	64	64	64	63	--	--	--	--	No
G6		1	64	65	65	No	63	63	63	63	63	63	--	--	--	--	--
G7		1	70	71	71	Yes	81	79	75	72	70	69	--	--	--	--	No
G8		1	65	67	68	Yes	65	65	65	65	65	65	--	--	--	--	No
G9		1	67	68	68	Yes	66	66	66	65	65	65	--	--	--	--	No
G10		1	74	75	75	Yes	64	64	64	64	63	63	--	--	--	--	No
G11		1	59	60	60	No	64	64	64	63	63	63	--	--	--	--	--
G12		1	74	75	75	Yes	73	71	70	68	67	66	--	--	--	--	No
G13		1	67	69	68	Yes	72	70	69	68	67	66	--	--	--	--	No
G14		1	64	65	66	Yes	69	69	68	66	65	64	--	--	--	--	No
G15		1	62	63	67	Yes	64	64	64	63	63	62	--	--	--	--	--
G16		1	62	64	64	No	64	64	64	64	64	63	--	--	--	--	--
G17		1	71	72	63	No	69	68	67	66	65	64	--	--	--	--	--
G18		1	79	80	81	Yes	73	72	70	69	68	67	--	--	--	--	No
G19		1	62	63	66	Yes	73	73	71	70	68	67	--	--	--	--	No
G20		1	62	64	66	Yes	66	66	66	66	66	66	--	--	--	--	No
ST6		NA	60	62	64	--	--	--	--	--	--	--	--	--	--	--	No
G21		NA	60	62	64	--	--	--	--	--	--	--	--	--	--	--	No
ST5		NA	75	76	76	--	--	--	--	--	--	--	--	--	--	--	No

the edge of shoulder with a soundwall height of 12 feet above the roadway. Noise wall G-2 was determined to be acoustically feasible, but not cost reasonable. The estimated construction costs would exceed the reasonable allowance, and is not recommended for this project.

Therefore, no walls are currently anticipated to be constructed as part of this project.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

The proposed project is not located within 2 miles of an airport or within an airport land use plan. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with an airport. No impacts would occur.

2.2.7.4 Avoidance, Minimization, and/or Abatement Measures

The contractor would adhere to the following measures, which are standard measures associated with all Caltrans projects, to ensure noise that effects would be minimized during the construction period:

NOI-1: Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of Caltrans' *Draft 2010 Standard Specifications and Special Provisions,* which states the following: "Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws. Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler." This requirement in no way relieves the contractor from responsibility for complying with local ordinances regulating noise levels. The noise level requirement shall apply to the equipment on the job or related to the job, including trucks, transit mixers or transient equipment that may or may not be owned by the contractor. The use of loud signals shall be avoided in favor of light warnings, except those required by safety laws for the protection of personnel. Full compensation for conforming to the requirements of this section shall be considered as included in the prices for the various contract items of work involved, and no additional compensation will be allowed. As directed by Caltrans, the contractor will implement appropriate additional noise abatement measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

The following Standard Special Provision (SSP) will be edited specifically for this project during the PS&E phase. The content of SSP-S5-310 is shown below or can be found at the following link: http://pd.dot.ca.gov/env/noise/html/noise_sp.htm.

SSP-S5-310

Noise Control

General

This section applies to equipment on the project or associated with the project, including trucks, transit mixers, stationary equipment, and transient equipment. Do not exceed 86 dBA at 50 feet from the project limits from __ p.m. to __ a.m.; you may perform the following activities during the hours and the days shown in the following table:

Noise Restriction Exceptions

Activity	Hours		Days	
	From	To	From	Through

Do not operate construction equipment or run the engines from 7:00 p.m. to 7:00 a.m. or on Sundays; you may operate equipment within the project limits during these hours to:

1. Service traffic control facilities
2. Service construction equipment

Noise Monitoring

Provide one Type 1 sound level meter and one acoustic calibrator for use by Caltrans until contract acceptance. Provide training from a person trained in noise monitoring to one Caltrans employee designated by the engineer. The sound level meter must be calibrated and certified by the manufacturer or other independent acoustical laboratory before delivery to Caltrans. Provide annual recalibration by the manufacturer or other independent acoustical laboratory. The sound level meter must be capable of taking measurements using the A-weighting network and the slow response settings. The measurement microphone must be fitted with a windscreen. Caltrans will return the equipment to you at contract acceptance.

The contract lump-sum price paid for noise monitoring includes full compensation for furnishing all labor, material, tools, equipment, and incidentals and for doing all work involved in noise monitoring.

2.2.8 Energy

2.2.8.1 Regulatory Setting

The State CEQA Guidelines, Appendix F, Energy Conservation, state that environmental impact reports (EIRs) are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts on the environment, including energy impacts.

2.2.8.2 Affected Environment

Petroleum and natural gas are the two main fuel sources for California's energy system. In 2010, Californians consumed more than 18 billion gallons of gasoline and diesel fuel on the state's roadways.[50] This has resulted in the estimated emission of more than 200 million metric tons of greenhouse gas equivalence. According to the latest inventory of statewide greenhouse gas emissions values, in 2008, the transportation sector represented 36 percent of statewide greenhouse gas emissions.

Natural gas is California's preferred fuel because of its clean-burning capabilities. Natural gas is also used to generate electricity.

The production of electricity requires the consumption of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources. Most of these resources are used as heat sources for steam turbines that drive electric generators. The electricity generated is distributed via a network of transmission and distribution lines, commonly known as a power grid. Table 2-76 shows California's gross system electricity production for 2010.

Table 2-76. California 2010 Gross System Electricity Production

Resource Type	Gigawatt Hours	Percentage
Coal	3,406	1.7
Large Hydro	29,861	14.6
Natural Gas	109,481	53.4
Nuclear	32,214	15.7
Renewables	30,005	14.6
Biomass	5,745	2.8
Geothermals	12,740	6.2
Small Hydro	4,441	2.2
Solar	908	0.4
Wind	6,172	3.0
Total	205,018	100

Source: California Energy Commission.2011. Fuels and Transportation Division. http://energyalmanac.ca.gov/electricity/total_system_power.html Accessed November 30, 2011.

Fuel for automobiles is a large portion of oil consumption. The California Energy Commission (CEC) has projected that 45.5 million Californians will have 31.5 million registered vehicles by 2020, consuming 23.8 billion gallons of gasoline and diesel fuel.[51] The CEC's forecast projects on-road gasoline demand to increase from 14.2 billion gallons in 2000 to 17.2 billion gallons in 2010 and 19.6 billion gallons by 2020. Jet fuel demand is projected to increase from 5.1 billion gallons in 2000 to 7.3 billion gallons in 2010 and 9.2 billion gallons by 2020. Diesel demand is

[50] California Energy Commission. 2010. *Fuels and Transportation Division.* Available: <http://www.energy.ca.gov/transportation/index.html>. Accessed: May 14, 2012.
[51] California Energy Commission. 2010. *Fuels and Transportation Division.* Available: <http://www.energy.ca.gov/transportation/index.html>.

projected to increase from 2.6 billion gallons in 2000 to 3.6 billion gallons in 2010 and 4.2 billion gallons by 2020.[52] These forecasts translate to an average increase of about 1.6 percent per year for gasoline, 3.4 percent for jet fuel, and about 2.4 percent for diesel.

The California Public Utilities Commission (PUC) regulates privately owned electric, telecommunications, natural gas, water, and transportation companies as well as household goods movers. It also oversees rail safety. In addition, the PUC regulates local natural gas distribution facilities and services, natural gas procurement, intrastate pipelines, and intrastate production and gathering. It works to provide opportunities for competition when in the interest of consumers, takes the lead in the environmental review of natural gas-related projects, recognizes the growing interaction of electric and gas markets, and monitors gas energy efficiency and other public-purpose programs. The PUC's Energy Division works to set electric rates, protect consumers, and promote energy efficiency, electric system reliability, and utility financial integrity.

2.2.8.3 Environmental Consequences

Alternative 1, No-Build Alternative

Construction

No construction would occur under the No-Build Alternative. Therefore, no effect on energy consumption would occur. Current levels of energy consumption would not be expected to change under this scenario.

Operation

The No-Build Alternative would result in no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange. Under this alternative, the existing deficient capacity, congestion, and short weaving sections on SR-57, SR-60, and Grand Avenue, would not change. As projected in the traffic analysis, without the project, operational conditions would continue to increase congestion and delay in the area. This would result in vehicle queuing and an inefficient use of fuel. Even when considering the improved fuel efficiency of newer vehicles, increased queuing would result in increased fuel consumption, fuel that comes from the finite reserves of available fossil fuel. Therefore, with implementation of the No-Build Alternative, the potential exists for adverse effects on energy resources.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction

Construction under this alternative would result in short-term energy consumption related to the manufacture of construction materials, the use of construction equipment that requires petroleum fuels, and the use of construction workers' motor vehicles as they travel to and from the site. Construction activities would last approximately 24 months. Thus, construction-related energy consumption anticipated under Alternative 2 would be finite and limited and would have an incremental impact on area energy supplies.

[52] Ibid.

Operation

Alternative 2 would result in improvements and enhancements to SR-57, SR-60, and the Grand Avenue interchange. The proposed enhancements are anticipated to result in increased safety, less weaving, and improved accessibility. In general, the improved operational efficiency attributed to less weaving would contribute to local and regional traffic congestion relief. With respect to energy consumption, automobiles and heavy trucks are least efficient at stop-and-go speeds (i.e., 0 to 25 miles per hour). Energy consumption would be reduced to the extent that the proposed project relieves congestion by enhancing road system efficiency.

Operation of Alternative 2 would not introduce new energy-consuming features. This alternative would not include additional lighting, additional street signals, or any other energy-consuming features. Consequently, operation of Alternative 2 would not result in substantial adverse effects on energy or energy infrastructure.

When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction

Similar to Alternative 2, the construction activities proposed under Alternative 3 would use minimal amounts of energy for the proposed enhancements to SR-57, SR-60, and the Grand interchange. Impacts would be similar to those anticipated to occur under Alternative 2.

Operation

Alternative 3 would result in improvements and enhancements to SR-57, SR-60, and the Grand Avenue interchange. The proposed enhancements are anticipated to result in increased safety, less weaving, and improved accessibility. Similar to Alternative 2, operation of Alternative 3 would not introduce new energy-consuming features. Impacts would be similar to those anticipated to occur under Alternative 2.

2.2.8.4 Avoidance, Minimization, and/or Mitigation Measures

As indicated above, no substantial adverse energy impacts are anticipated to occur under construction or operation of Alternatives 2 or 3. No further discussion regarding avoidance, minimization, or mitigation is required.

2.3 Biological Environment

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project on natural communities is based on the 2010 natural environment study.

2.3.1 Natural Communities

This section discusses natural communities of concern. The focus of this section is on biological communities and not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value. Regulations that pertain to the natural communities are discussed (i.e. Oak Woodland protection, California Fish and Game Code, etc.).

Habitat areas that have been designated as critical habitat under the federal Endangered Species Act (FESA) are discussed in Section 2.3.5, Threatened and Endangered Species. Wetlands and other waters are discussed in Section 2.3.2.

Several biological technical reports have been prepared for the SR-57/SR-60 Confluence at Grand Avenue Project. These include a biological reconnaissance survey, jurisdictional delineation, native tree inventory, and focused plant and animal surveys.

A biological reconnaissance survey was conducted in spring 2008 for the overall SR-57/SR-60 confluence study area. Based on the reconnaissance survey findings, a focused plant survey for Braunton's milk-vetch (*Astragalus brauntonii*) was conducted along the northern portion of the SR-57/SR-60 confluence study area in 2008, 2010, and 2011. A native tree inventory and a jurisdictional delineation were completed in winter 2007, and the findings were reconfirmed in 2011.

As part of the early consultation process conducted for the SR-57/SR-60 Confluence at Grand Avenue Project, in 2007 the United States Fish and Wildlife Service (USFWS) recommended focused surveys be conducted for the southwestern willow flycatcher (*Empidonax traillii extimus*) (SWWFC) and least Bell's vireo *(Vireo bellii pusillus)* (LBV) within suitable habitat areas located within the project study area (Medak pers. comm.). Based on the USFWS recommendation, two years of protocol surveys have been conducted. An additional LBV survey was conducted in 2011 per USFWS recommendation (Brown pers. comm.

The biological study area (BSA) for the SR-57/SR-60 Confluence at Grand Avenue Project encompasses an approximately 2.6-mile segment along the SR-57/SR-60 confluence and an approximately 3,000-foot segment of Grand Avenue from the existing SR-60 westbound on-ramp to Golden Springs Drive. The BSA also includes an additional 50-foot buffer outside the existing roadway right-of-way. The limits of the BSA include the current Caltrans right-of-way and adjacent private/public property required for the widening and ancillary improvements, including retaining walls, drainage facility extensions, utility relocation, water quality treatment BMPs, temporary construction easements, and staging areas.

The data and analysis contained in this EIR/FONSI is based on the biological technical report findings and is specific to the SR-57/SR-60 Confluence at Grand Avenue Project BSA.

2.3.1.1 Regulatory Setting

This section discusses natural communities and habitat not listed as critical habitat under the FESA discussed later in Section 2.3.5, Threatened and Endangered Species, and not discussed later in Section 2.3.2, Wetlands and Other Waters. There is no specific regulatory setting for natural communities, but it is an important component of understanding the context of the biological setting for the proposed project.

The City of Diamond Bar's Tree Preservation and Protection Ordinance (Municipal Code, Title 22 *Development Code*, Article 3 *Site Planning and General Development Standards*, Chapter 22.38 *Tree Preservation and Protection*) (Ordinance) is designed to protect native oak (*Quercus* sp.), walnut (*Juglans* sp.), western sycamore (*Platanus racemosa*), and willow (*Salix* sp.) measuring 8 inches or more in diameter at breast height (DBH). According to the Ordinance, no person will remove or relocate a protected tree or develop within the protection zone of a protected tree without first obtaining a Tree Removal Permit from the Director of the city's Community and Development Services Department. In accordance with the Ordinance, replacement trees will be planted at a minimum of 3:1 for residential parcels greater than 20,000 square feet and commercial and industrial properties; however, the director or commission has final approval.

2.3.1.2 Affected Environment

The area surrounding the project site is primarily composed of residential, recreational (golf course), and industrial development, as well as open space. The open space occurs along the north and west sides of the Grand Avenue/SR-57 interchange. This open space is historically grazed and now exhibits remnant patches of coastal sage scrub surrounded by a dominance of ruderal vegetation. A mature, mixed riparian woodland extends from Grand Avenue adjacent to the northwest side of SR-57/SR-60 downstream to beyond the limits of the proposed project within Diamond Bar Creek. A number of drainages flow into Diamond Bar Creek from the south and east of SR-57/SR-60. At the SR-57/SR-60 Grand Avenue interchange, a few business enterprises are also present.

The existing SR-57/SR-60 confluence area is relatively flat, ranging from approximately 600–770 feet (183–235 meters) in elevation. The existing Grand Avenue overcrossing is approximately 700 feet (213 meters) in elevation at its highest point. The majority of the study area has been altered by humans and is composed of ruderal, ornamental, and developed areas. Vegetation communities identified and mapped within the BSA include 20.25 acres of ruderal vegetation, 37.00 acres of ornamental vegetation, and 119.46 acres of developed area as described in detail below.

No natural communities of concern are located within the BSA. However, there are a few individual native riparian trees and shrubs located within and around the tributaries to Diamond Bar Creek and within the existing SR-60 right-of-way near Diamond Bar Boulevard that may be subject to the City of Diamond Bar's Tree Preservation and Protection Ordinance, as discussed below.

Ruderal Vegetation

Ruderal vegetation generally occurs in the margins along the sides of the paved roads and on the disked and/or former hillsides within the BSA. Ruderal areas typically have heavily compacted or frequently disturbed soils. These areas are dominated by pioneering herbaceous plants, grasses (i.e., *Bromus* and *Avena* spp.), and noxious weeds, including mustards (i.e., *Brassica* spp., *Hirschfeldia incana*), thistles (i.e., *Silybum marianum*, *Carduus pycnocephaluus*, *Centaurea melitensis*), and fennel (*Foeniculum vulgare*).

Ornamental/Developed

Ornamental vegetation includes commonly found non-native landscape species used within the Diamond Bar Golf Course and roadway landscaped areas. Developed areas within the study area display man-made structures such as houses, roads, businesses, and the fairways of Diamond Bar Golf Course. The common vegetation type within these ornamental/developed areas consists of exotic landscaping.

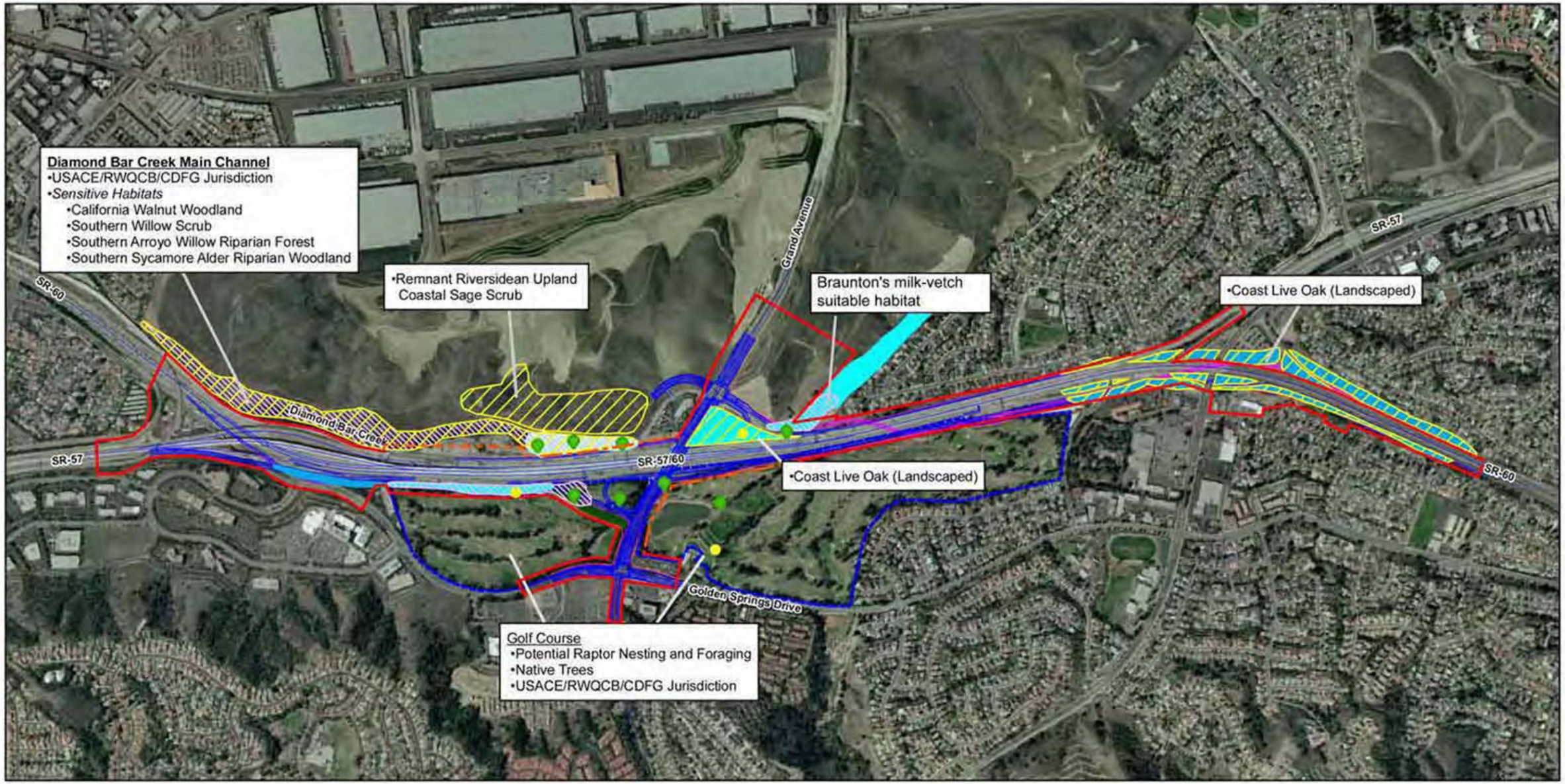
Native Trees

Although not separate communities, there are a few individual native riparian trees and shrubs located within and around the tributaries to Diamond Bar Creek within the BSA and within the existing SR-60 right-of-way near Diamond Bar Boulevard. These native trees include coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), California sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia* Nutt.), and California walnut (*Juglans californica*). It is noted that all but one coast live oak individuals were landscaped specimens along the freeway rights-of way. Based on review of the 2008 Biological Reconnaissance Survey tree inventory and the proposed site plans, approximately 96 native trees are located within the proposed project's construction footprint. Of these, 69 are located within the existing Caltrans right-of-way. The native trees identified in the BSA are provided in Table 2-77 and Figure 2-40, Biological Study Area and Sensitive Biological Resources.

Wildlife and Wildlife Corridors

Wildlife corridors provide specific opportunities for individual animals to disperse or migrate between other areas. Adequate cover, minimum physical dimensions, and tolerably low levels of disturbance and mortality (e.g., limited night lighting and noise, low vehicular traffic levels) are common requirements for corridors.

The BSA is characterized by ruderal and ornamental vegetation. The drainage tributaries located within the BSA are either piped underground or are concrete channels with high steep walls, and freeway noise and night lighting are currently present. Given some of the physical man-made constraints present for mammals, it is likely that the project site does not provide an important value to the movement of mammals. There is little opportunity for movement of mammal species from the adjacent Diamond Bar Creek to the golf course located across the freeway. However, there may be a potential for animals to move from the golf course to the Puente Hills, an open space located to the southwest.



Legend

- Biological Study Area
- USACE/RWQCB/CDFG Jurisdiction (JD 2007)
- RWQCB/CDFG Jurisdiction (JD 2007)
- Potential USACE/RWQCB/CDFG Jurisdiction
- Potential Vireo/Flycatcher Habitat
- Native Tree(s)
- Other Sensitive Habitats
- Golf Course
- NAP - Westbound On-ramp Project
- Yellow Warbler

0 500 1,000 2,000 3,000 Feet

Figure 2-40

Biological Study Area and Sensitive Biological Resources

State Route 57/State Route 60 Confluence at Grand Avenue Project

Table 2-77. Native Trees Located within the BSA

Common Name	Scientific Name	Within Caltrans ROW	Outside of Caltrans ROW
Coast live oak	*Quercus agrifolia*	51	1
Red willow	*Salix laevigata*	0	6
Arroyo willow	*Salix lasiolepis*	1	8
Black willow	*Salix gooddingii*	3	2
California sycamore	*Platanus racemosa*	0	8
California walnut	*Juglans californica*	14	0
White alder	*Alnus rhombifolia Nutt.*	0	2
Subtotal		69	27
TOTAL		96	

Within the context for bird movement, the golf course may function as a linkage and/or corridor for species present by providing a potential visual and physical connection to some degree to open space areas in the region, including San Jose Hills, Puente Hills, and Whittier Narrows. Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) were observed on site. These species appear to utilize the BSA for wintering and foraging only.

2.3.1.3 Environmental Consequences

Vegetation Communities

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to vegetation communities.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

The build alternatives would result in temporary and permanent impacts on ruderal, ornamental, and developed areas.

Implementation of Alternative 2 would result in temporary impacts on 18.39 acres of ruderal vegetation, 28.00 acres of ornamental vegetation, and 7.85 acres of developed area; and permanent impacts on 1.86 acres of ruderal vegetation, 9.00 acres of ornamental vegetation, and 3.92 acres of developed area. None of these communities are considered to be natural communities of concern. Therefore, no adverse impact under NEPA would occur.

Implementation of Alternative 3 would result in temporary impacts on 18.29 acres of ruderal vegetation, 27.63 acres of ornamental vegetation, and 7.85 acres of developed area; and permanent impacts on 1.96 acres of ruderal vegetation, 9.37 acres of ornamental vegetation, and 3.93 acres of developed area. None of these communities are considered to be natural communities of concern. Therefore, no adverse impact under NEPA or significant impact under CEQA would occur.

Native Trees

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to native trees.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

The proposed project would result in the removal of existing native trees located within the BSA. Up to 96 trees may be affected as listed in Table 2-77, Native Trees Located within the BSA. As the design of the project is finalized and the extent of the widening is precisely defined, field review to determine the extent of impacts on native trees would be conducted, with removal of native trees avoided to the greatest extent possible. Mitigation measures BIO-1 and BIO-2 would reduce the potentially adverse impacts under NEPA to minor adverse.

Wildlife and Wildlife Corridors

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to wildlife movement or wildlife corridors.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

A number of man-made physical constraints exist in the project area in relation to the movement of mammals. However, there may be a potential for animals to move from the Diamond Bar Golf Course to the Puente Hills open space located to the southwest. Within the context for bird movement, the golf course and the Diamond Bar Creek riparian corridor located adjacent to the BSA may function as a potential linkage to open space areas in the region.

The build alternatives would avoid and minimize encroachment into the existing golf course to the extent possible. Permanent impacts are limited to the minor relocation of existing drainage channels within the Caltrans right-of-way to accommodate the roadway widening. The value of the golf course to continue to function as a potential corridor and/or linkage for mammals and birds moving between the Puente Hills, San Jose Hills, and Whittier Narrows would not be substantially altered by the proposed project. Therefore, no substantially adverse impact under NEPA would occur.

2.3.1.4 Avoidance, Minimization, and/or Mitigation Measures

The following mitigation measures are proposed to reduce impacts of the proposed project on native trees.

BIO-1: Native trees, including coast live oak present within the existing Caltrans landscaped areas, that require removal shall be replaced in proximity to the BSA as follows: Mark and replace all native trees greater than 6 inch diameter at breast height (dbh) (4.5 feet above surrounding grade) with the same species at a 1:1 ratio. Source materials should be of the same subspecies and/or variety locally present and from seeds or cuttings gathered within coastal southern California to ensure local provenance. Locations for the tree planting include the Caltrans right-of-way, Diamond Bar Golf Course, and the downstream portion of Diamond Bar Creek owned by the City of Industry.

BIO-2: The City of Diamond Bar's Tree Removal Permit process shall be applicable for the removal of any native trees outside of the freeway right-of-way. All removed native trees located outside of Caltrans landscaped areas shall be replaced as follows: Mark and replace all native trees greater than 6 inch diameter at breast height (dbh) (4.5 feet above surrounding grade) with the same species at a 2:1 ratio. Source materials should be of the same subspecies and/or variety locally present and from seeds or cuttings gathered within coastal southern California to ensure local provenance. Locations for the tree planting include the Caltrans right-of-way, Diamond Bar Golf Course, and the downstream portion of Diamond Bar Creek owned by the City of Industry.

The project impacts on ruderal and ornamental/developed vegetation communities do not require mitigation.

2.3.2 Wetlands and Other Waters

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project on wetlands and other waters is based on the NES and the 2007 Jurisdictional Delineation, Existing Conditions.

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (CWA, 33 USC 1344) is the primary law regulating wetlands and waters. The Clean Water Act (CWA) regulates the discharge of dredged or fill material into WoUS, including wetlands. Waters of the United States (WoUS) include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by USACE with oversight by the 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 the U.S. EPA's Section 404(b)(1) guidelines (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 (WoUS) only if there is no practicable alternative that would have less adverse effects. The guidelines state that USACE may not issue a permit if there is an LEDPA to the proposed discharge that would have lesser effects on WoUS, and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as FHWA and/or 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), SWRCB, and the RWQCBs. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would 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 RWQCB also issues water quality certifications for impacts on wetlands and waters in compliance with Section 401 of the CWA. Please see Section 2.2.2, Water Quality and Stormwater Runoff, for additional details.

2.3.2.2 Affected Environment

The 2007 Jurisdictional Delineation indicated the presence of 1.18 acres of WoUS and 1.62 acres of waters of the state, including 0.38 acre of wetlands located within the BSA. Current engineering design plans indicate relocation of the existing southerly SR-60 concrete-lined channel and minor culvert extensions that would affect other drainage features as shown Figure 2-40, Biological Study Area and Sensitive Biological Resources.

2.3.2.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to jurisdictional waters.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

The build alternatives avoid and minimize permanent impacts on jurisdictional waters and wetlands to the extent feasible. Existing concrete-line drainage features within Caltrans right-of way would be affected by the roadway widening. Relocation and/or extension of these features is proposed in lieu of under-grounding these faculties. Culvert extension is designed as the minimum extension necessary to accommodate roadway widening.

Implementation of Alternative 2 would result in the permanent loss of 0.12 acre of wetlands due to culvert extensions to accommodate the widening of SR-60 and Grand Avenue. Measures BIO 3 through BIO-8 are proposed to reduce these impacts minor adverse under NEPA.

Implementation of Alternative 3 would result in the permanent loss of 0.16 acre of WoUS and waters of the state, including 0.12 acre of wetlands, due to culvert extensions to accommodate the widening of SR-60 and Grand Avenue, and installation of the new SR-60/Grand Avenue eastbound loop on-ramp. Measures BIO 3 through BIO-8 are proposed to reduce these impacts to minor adverse under NEPA.

Indirect effects on wetlands and other waters may include: 1) changes in hydrology from increased sediment entering drainage areas after vegetation clearing, and/or 2) invasive, nonnative plants transported into areas along the roadway with the movement of soil and/or placement of fill material that is present on construction equipment brought on site or taken off site and is inadvertently included in seed mixes. These indirect effects would only last during construction and, therefore, are not considered adverse under NEPA.

It is anticipated that resource agency permits would be required for the proposed relocation and culvert extensions from the USACE, RWQCB, and the CDFG under Sections 404 and 401 of the federal CWA and Section 1600 of the State Fish and Game Code, respectively.

Determination of Least Environmentally Damaging Practicable Alternative

In an analysis of key balancing factors, Caltrans has not only formally selected the Build Alternative as the “preferred alternative” but also as the Least Environmentally Damaging Practical Alternative, or LEDPA, despite the potential harm to wetlands, as described above in this section. Although the No-Build Alternative would not affect wetlands in the project vicinity, it would not achieve the objective of the project, which is to improve safety and operational deficiencies along the SR-57/SR-60 confluence at the Grand Avenue interchange. Proposed construction of the Build Alternative would help alleviate traffic congestion and delays

associated with existing conditions as well as reduce weaving movements and weaving distances along the SR-57/SR-60 confluence. The inclusion of mitigation measures BIO-3 through BIO-8 would minimize harm to wetlands from the proposed action to the extent practicable.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

In addition to the minimization measures described in Section 2.2.2, Water Quality and Stormwater Runoff, the following measures would substantially reduce impacts of the proposed project on jurisdictional waters.

Minimization Measures

BIO-3: To the extent feasible, construction activities shall occur outside the rainy season (October to May) to ensure that erosion caused by construction activities does not occur and that sedimentation is not deposited within the storm drain system or any adjacent drainages. If construction occurs during the rainy season, appropriate erosion and storm water control devices shall be in place and maintained throughout the rainy season.

Additional measures may be imposed subject to the concurrence of the resource agencies (including USACE, CDFG, and RWQCB) and may entail one or more of the following options in order of preference: 1) onsite creation or enhancement of riparian habitat; 2) offsite creation or enhancement of riparian habitat; and/or 3) participation in an established offsite mitigation bank program. The appropriate mitigation ratio would be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be affected.

Mitigation Measures

BIO-4: Concurrent with the initiation of construction, permanent impacts on WoUS and wetlands shall be offset through replacement within the downstream portion of Diamond Bar Creek owned by the City of Industry at a minimum ratio of 2:1. As a secondary option, if downstream replacement is not adequate or appropriate, Caltrans shall participate in an in-lieu fee program.

BIO-5: A Habitat Mitigation Monitoring Plan (HMMP) shall be prepared and approved by USACE and CDFG prior to the commencement of construction within jurisdictional waters. At a minimum, the HMMP will meet the following criteria:

- The habitat shall be replaced and/or enhanced at a minimum 2:1 ratio.
- The HMMP shall identify a success criterion of at least 80 percent cover of native riparian vegetation for replaced habitat.
- Further criteria specified in the HMMP shall include a 5-year establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan.

BIO-6: A nationwide permit shall be obtained through the USACE prior to obtaining grading permits, pursuant to Section 404 of the Clean Water Act.

BIO-7: A streambed alteration notification shall be submitted and authorization from the CDFG shall be obtained prior to obtaining grading permits.

BIO-8: A certification or waiver from the Region 4 RWQCB shall be obtained prior to the initiation of construction.

2.3.2.5 Wetlands Only Practicable Finding

Executive Order 11990 mandates agencies to avoid, to the extent possible, long- and short- term adverse impacts associated with the destruction of wetlands as well as the direct or indirect support of new construction in wetlands wherever there is a practicable alternative. In accordance with Executive Order 11990, the preferred alternative (the Build Alternative) is proposed for adoption as the only practicable alternative, despite the potential harm to wetlands, as described in Section 2.3.2.3. Although the No-Build Alternative would not affect wetlands in the project vicinity, it would not achieve the objective of the project, which is to improve safety and operational deficiencies along the SR-57/SR-60 confluence at the Grand Avenue interchange. Proposed construction of the Build Alternative would help alleviate traffic congestion and delays associated with existing conditions as well as reduce weaving movements and weaving distances along the SR-57/SR-60 confluence. The inclusion of mitigation measures BIO-3 through BIO-8 would minimize harm to wetlands from the proposed action to the extent practicable.

To mitigate wetland impacts, Caltrans proposes to provide funding to the SR-57/SR-60 Confluence at Grand Avenue Project to purchase mitigation from an off-site mitigation bank. If all of the appropriate sites at mitigation banks happen to be expended, Caltrans shall instead participate in an in-lieu fee program.

Given the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

2.3.3 Plant Species

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project on plant species is based on the NES and the Focused Plant Survey for the federally listed endangered Braunton's milk-vetch. Potential impacts on threatened and endangered plant species are discussed later in Section 2.3.5, Threatened and Endangered Species.

2.3.3.1 Regulatory Setting

The USFWS and CDFG share regulatory responsibility for the protection of special-status plant species. Special-status species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under FESA and/or the California Endangered Species Act (CESA). Section 2.3.5, Threatened and Endangered Species, provides detailed information regarding these species.

This section discusses potential impacts of the proposed project on other special-status plant species, including CDFG fully protected species and species of concern, USFWS candidate species, and nonlisted California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA are at 16 USC, Section 1531, et seq. (refer also to 50 CFR Part 402). The regulatory requirements for CESA are at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act at Fish and Game Code, Sections 1900 to 1913, and CEQA, Sections 2100 to 21177.

2.3.3.2 Affected Environment

Much of the vegetation adjacent to the existing SR-60 and Grand Avenue road surfaces consists of ruderal and ornamental vegetation, including landscaped coast live oak and California walnut.

A literature review resulted in a list of 10 special-interest plant species that have a potential to occur in or within the vicinity of the BSA as determined by federal, state, or CNPS data. The special-interest plant species identified as potentially occurring in the BSA are:

- Plummer's mariposa lily (*Calochortus plummerae*)
- Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)
- Southern tarplant (*Centromadia parryi* ssp. *australis*)
- Smooth tarplant (*Centromadia pungens* ssp. *laevis*)
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*)
- California satintail (*Imperata brevifolia*)
- Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*)
- White rabbit-tobacco (*Gnaphalium leucocephalum*)
- San Bernardino aster (*Symphyotrichum defoliatum*)

No special-interest plant species were observed or otherwise detected in the BSA at the time of the 2008 biological reconnaissance survey and focused plant surveys. Therefore, these species are considered absent from the BSA.

2.3.3.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to plant species.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

No impacts on special-interest plant species would occur as a result of implementation of the build alternatives. Therefore, there would be no impact under NEPA.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed SR-57/SR-60 Confluence at Grand Avenue Project would not result in adverse impacts related to special-interest plant species. No avoidance, minimization, or mitigation measures are required.

2.3.4 Animal Species

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project on animal species is based on the 2010 NES and subsequent 2011 least Bell's vireo survey. The NES is on file and available for review at the cities of Industry and Diamond Bar, and the Caltrans District 7 offices. Potential impacts on threatened and endangered animal species are discussed later in Section 2.3.5, Threatened and Endangered Species.

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts on wildlife. The USFWS, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), and CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the state or federal Environmentally Sensitive Areas. Wildlife species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, below. All other special-status animal species, including CDFG fully protected species and species of concern, and USFWS and NOAA candidate species are discussed here.

Federal laws and regulations pertaining to wildlife include the following: NEPA, the Migratory Bird Treaty Act (MBTA), and the Fish and Wildlife Coordination Act.

State laws and regulations pertaining to wildlife include the following: CEQA, and Sections 1601–1603 and Sections 4150 and 4152 of the Fish and Game Code.

2.3.4.2 Affected Environment

A literature review identified 32 special-interest animal species that have a potential to occur in or within the vicinity of the BSA for the proposed project:

- Orange-throated whiptail (*Aspidoscelis hyperythra*)
- Coastal western whiptail (*Aspidoscelis tigris stejnegeri*)
- Coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*)
- Northern red-diamond rattlesnake (*Crotalus ruber ruber*)
- Cooper's hawk (*Accipiter cooperii*) (nesting)
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- Golden eagle (*Aquila chrysaetos*)

- Short-eared owl (*Asio flammeus*)
- Long-eared owl (*Asio otus*)
- Burrowing owl (*Athene cunicularia*)
- Ferruginous hawk (*Buteo regalis*)
- Northern harrier (*Circus cyaneus*)
- Black swift (*Cypseloides niger*)
- White-tailed kite (*Elanus leucurus*)
- Merlin (*Falco columbarius*)
- Yellow-breasted chat (*Icteria virens*)
- Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Western mastiff bat (*Eumops perotis californicus*)
- Hoary bat (*Lasiurus cinereus*)
- Western yellow bat (*Lasiurus xanthinus*)
- Yuma myotis (*Myotis yumanensis*)
- Tricolored blackbird (*Agelaius tricolor*)
- Vaux's swift (*Chaetura vauxi*)
- Big free-tailed bat (*Nyctinomops macrotis*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Yellow warbler (*Dendroica petechia*)

The following three sensitive species were confirmed **present** within the SR-57/SR-60 Confluence at Grand Avenue BSA. All three species are federally protected under the MBTA.

- Cooper’s hawk (*Accipiter cooperii*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Yellow warbler (*Dendroica petechia*)

2.3.4.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to animal species.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

Based on the 2008 general biological reconnaissance, and the 2007, 2008, and 2011 focused LBV surveys, sensitive wildlife species documented as present within the BSA are limited to raptors and other species protected by the MBTA. Within the BSA, direct impacts on the yellow warbler (*Dendroica petechia*) are not anticipated, as this species currently utilizes the site for wintering and foraging only. Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) were observed on site. These species appear to utilize the BSA for wintering and foraging only. No federally designated critical habitat is present within the BSA.

Impacts on nesting birds could occur if an active nest is removed or if nesting birds are disturbed as a result of construction activities to the extent that they abandon the nest. The MBTA and California Fish and Game Code prohibit impacts that cause nest failure of most species of birds, and the mitigation measure described below is anticipated to ensure that no nest loss would occur. Mitigation measure BIO-9 and BIO-10 would reduce the potentially adverse impacts on nesting birds under NEPA and CEQA to minor adverse and less than significant, respectively.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following mitigation would be implemented to protect nesting birds during project construction:

> **BIO-9:** Grubbing of vegetation shall occur outside of the raptor nesting season, generally defined as January 15 to September 15, to avoid potential impacts on nesting birds. However, work may occur during the nesting season if a preconstruction nest survey is conducted by a qualified biologist. The surveys shall be conducted no more than 3 days prior to the start of work to protect native nesting birds. The survey shall be conducted within the proposed impact area and adjacent suitable habitat up to 500 feet outside the BSA. Should nesting raptors be present, no work shall be conducted in that area until the young have fledged and will no longer be affected by the project, as determined by the qualified biologist.
>
> **BIO-10:** On-site construction staging would occur just north of westbound SR-60/southbound SR-57 Grand Avenue, near the on- and off-ramps. Additional equipment storage may occur north of the westbound SR-60/southbound SR-57 Grand Avenue direct on-ramp; however, to avoid potential adverse noise impacts on birds nesting along Diamond Bar Creek, no rock crushing would occur at this location.

As discussed in Section 2.3.1.4 of this document, impacts on mature native trees would be offset in accordance with the requirements of the Caltrans and/or City of Diamond Bar's Tree Preservation Ordinance through the Tree Removal Permit process. No additional compensatory mitigation would be required.

2.3.5 Threatened and Endangered Species

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project on the threatened and endangered species is based on the NES, supporting focused surveys, and a subsequent 2011 least Bell's vireo survey included herein as Appendix G. Focused surveys included USFWS protocol surveys for SWWFC and LBV conducted in 2007 and 2008, focused plant surveys for Braunton's milk-vetch conducted in 2008 and 2011, and focused surveys for LBV conducted in 2011.

2.3.5.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the FESA: 16 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 FHWA, are required to consult with the USFWS and NOAA Fisheries Service 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 CESA, California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts on 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 take 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 on 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.

2.3.5.2 Affected Environment

The literature review indicated the potential occurrence in the BSA of one plant and three animal species that are state- and/or federally listed as threatened or endangered.

These threatened and endangered species are:

- Braunton's milk-vetch (*Astragalus brauntonii*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Least Bell's vireo *(Vireo bellii pusillus)*
- California gnatcatcher (*Polioptila californica californica*)

No threatened and endangered animal or plant species were observed or otherwise detected in the BSA at the time of the 2007, 2008, and 2011 field surveys. No federally designated critical habitat is present within the BSA.

2.3.5.3 Environmental Consequences

Alternative 1, No-Build Alternative

Because no threatened and endangered animal or plant species were observed or otherwise detected in the BSA and no federally designated critical habitat is present within the BSA, no adverse impacts on threatened and endangered species would occur as a result of implementation of the No-Build Alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

Because no threatened and endangered animal or plant species were observed or otherwise detected in the BSA and no federally designated critical habitat is present within the BSA, no adverse impacts on threatened or endangered species would occur as a result of implementation of the build alternatives.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed SR-57/SR-60 Confluence at Grand Avenue Project would not result in adverse impacts related to threatened or endangered species. No avoidance, minimization, or mitigation measures are required.

2.3.6 Invasive Species

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue Project related to invasive species is based on the NES. The NES is on file and available for review at the cities of Industry and Diamond Bar, and the Caltrans District 7 offices.

2.3.6.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's invasive species list, currently maintained by the California Invasive Species Council (Cal-IPC), to define the invasive species that must be considered as part of the NEPA analysis for a proposed project.

2.3.6.2 Affected Environment

As discussed earlier in Section 2.3.1, Natural Communities, the dominant habitat types in the BSA consist of nonnative ruderal vegetation and developed areas dominated by ornamental vegetation (Developed/Ornamental).

During the 2008 reconnaissance surveys, 9 exotic plants on the Cal-IPC Invasive Plant Inventory were identified in the BSA. Each plant in the inventory is given an overall rating of high, moderate, limited, or unknown. Plants with a rating of high have severe ecological impacts. Plants with a rating of moderate have a substantial and apparent but not severe ecological impact.

Plants with a limited rating are invasive, but their ecological impacts are minor on a statewide level. The invasive species identified in the BSA and the applicable Cal IPC rating are provided in Table 2-78.

Table 2-78. Invasive Plants Located within the BSA

Common Name	Scientific Name	Cal-IPC Rating
Wild oat	*Avena* sp.	Moderate
Ripgut grass	*Bromus diandrus*	Moderate
Italian thistle	*Carduus pycnocephaluus*	Moderate
Tocalote	*Centaurea melitensis*	Moderate
Fennel	*Foeniculum vulgare*	High
Tree tobacco	*Nicotina glauca*	Moderate
Castor bean	*Ricinis communis*	Limited
Milk thistle	*Silybum marianum*	Limited
Mexican fan palm	*Washingtonia robusta*	Moderate
Source: Cal-IPC Invasive Plant Inventory (www.cal-ipc.org/ip/inventory/weedlist.php. accessed 2009).		

2.3.6.3 Environmental Consequences

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose any construction and, therefore, would result in no adverse impacts related to invasive plant species.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange Alternative and Alternative 3, Partial Cloverleaf Interchange Configuration (Construction and Operation)

The construction of the build alternatives has the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed of invasive species is spread along the highway. Minimization measures BIO-11 and BIO-12 would reduce the potentially adverse impacts under NEPA to minor adverse.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would minimize the potential project impacts related to invasive species.

> **BIO-11:** Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds (before mobilizing to arrive at the site and before leaving the site).
>
> **BIO-12:** Trucks with loads carrying vegetation shall be covered, and vegetative materials removed from the site shall be disposed of in accordance with all applicable laws and regulations.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions when combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts that take place over a period of time.

Cumulative impacts on resources in the project area may result from residential, commercial, industrial, and transportation projects. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and the introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

State CEQA Guidelines Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the State CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 CFR Section 1508.7 of the CEQ regulations.

The project alternatives would have no effect on coastal zones, wild and scenic rivers, agricultural resources, or mineral resources. Therefore, under the alternatives, the project would not contribute either directly or indirectly to a cumulatively considerable impact in these resource areas. The alternatives would not have the potential to result in a cumulative impact that would affect the health or sustainability of any of these resources.

The cumulative impact analyses included in this section considered projects that are currently proposed, approved, or under construction within the cities of Diamond Bar and Industry in the project vicinity. The list of projects included in the analyses is presented in Table 2-1. The project limits are shown in Chapter 1, Proposed Project. Figures 2-41a through 2-41c show the Resource Study Area (RSA) for cumulative impacts on various resources. Figure 2-3 shows the location of the related projects.

2.4.2 Land Use

2.4.2.1 Affected Environment

Resource Study Area: The geographic RSA boundary used in the assessment of cumulative impacts involving land use and/or community resources includes the City of Diamond Bar and the City of Industry, as shown in Figure 2-41b.

Existing Conditions within RSA: The project limits include approximately 2.5 miles of existing transportation-related (freeway) uses in the City of Industry and the City of Diamond Bar at the confluence of SR-57 and SR-60 at Grand Avenue. The portion of SR-57 within the project area is located in the Pomona Valley. The 2.5-mile stretch of SR-57 and SR-60 that encompasses the project site is located within Caltrans right-of-way.

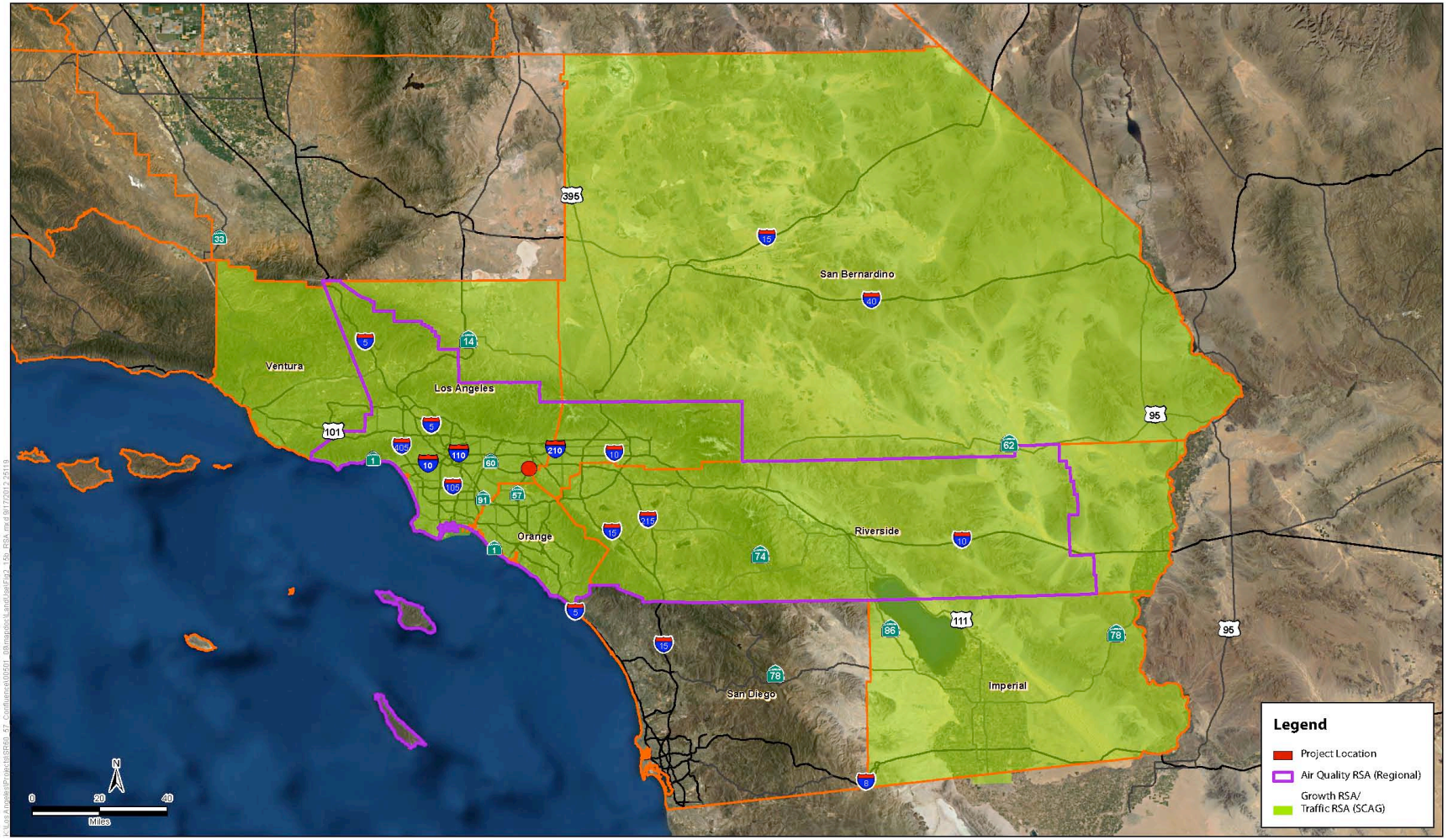
Surrounding land uses include a mix of commercial, retail, recreational (golf course), and residential uses. Land along Diamond Bar Creek is undergoing ecological restoration. The creek is located north of SR-60; Diamond Bar Golf Course and Sycamore Canyon Park are located south of the project site. Retail and restaurant uses are located along Golden Springs Drive. Commercial office buildings are located in the surrounding area.

Residential areas are located south and east of the project area at varying distances, ranging anywhere from immediately adjacent near the eastern limits of the City of Diamond Bar to more than 1 mile away near the southern city limits.

A large part of this portion of the project area is bordered by Diamond Bar Golf Course and several eating and lodging establishments, which serve the regional population and SR-57/SR-60 commuters. These uses do not constitute neighborhood uses or contain any traits that are characteristic of neighborhoods or communities.

Along the SR-57 and SR-60 corridors, single-family lots are generally less than 10,000 square feet. In these areas, detached single-family developments, accounting for more than half of the city's housing stock, have been built with three to five dwelling units per acre. Although single-family housing is the predominate type of development, multi-family projects can be found south of Grand Avenue along Diamond Bar Boulevard, approximately two miles away, and north of Diamond Bar Boulevard along Golden Springs Drive, approximately one mile away. These developments, which usually occupy small sites along major roadways, are built with 10 to 20 units per acre.

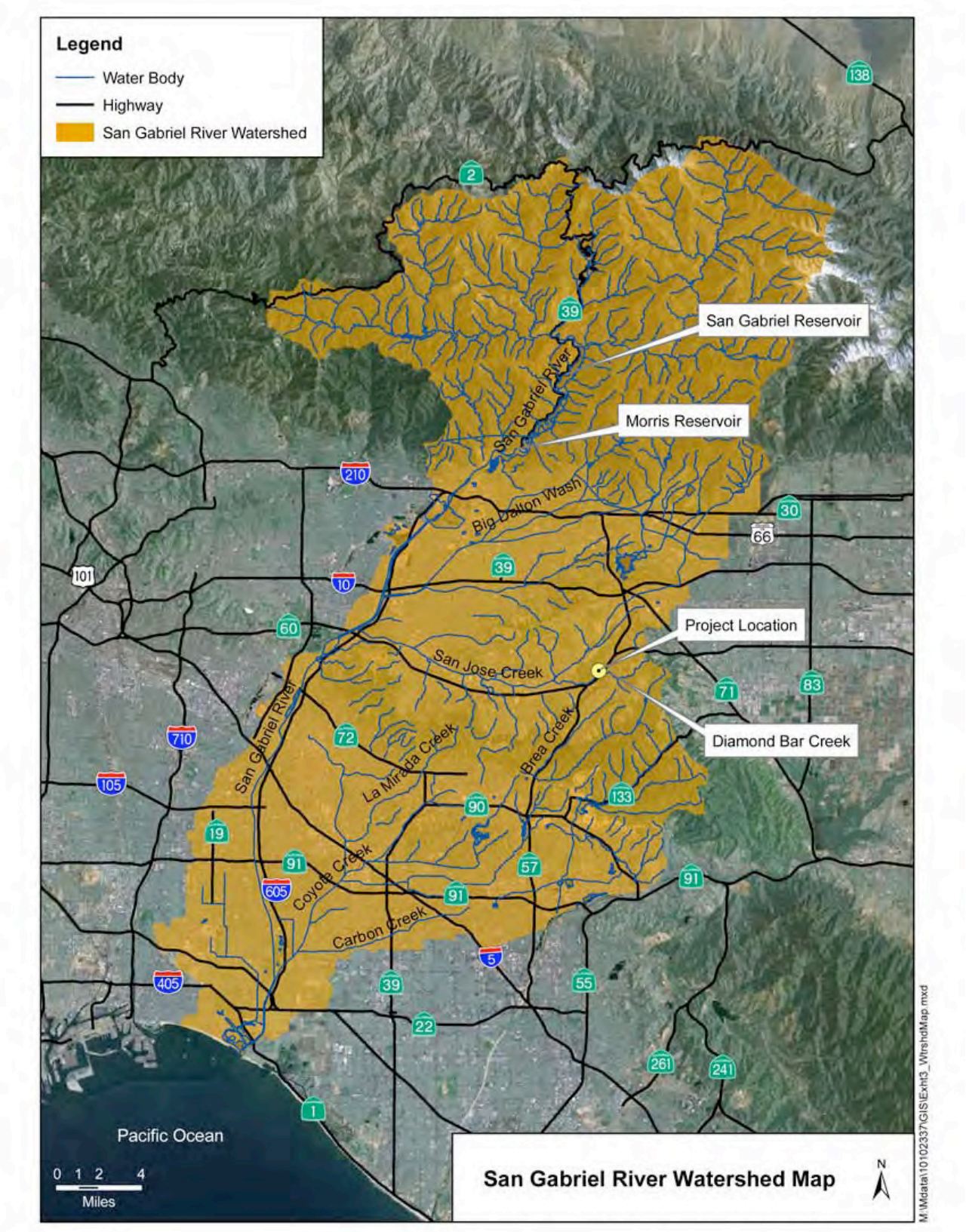
Figure 2-41a: Resource Study Area for Cumulative Impacts



SOURCE: ESRI Streetmap USA (2008), ESRI Imagery (2007)

Figure 2-41b: Resource Study Area for Cumulative Impacts

Figure 2-41c: Resource Study Area for Cumulative Impacts



2.4.2.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Construction activities would not occur, and there would be no disruption to existing land uses on the project site or in the surrounding area. Alternative 1 would not result in construction impacts on existing and planned land uses. Because no structural or physical changes to SR-57, SR-60, or the Grand Avenue interchange would occur under this alternative, no operational impacts on existing and planned land uses would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction activities proposed under Alternative 2 would not divide an existing community or result in new land uses or incompatible development. Access disruptions at adjacent commercial, industrial, and golf course uses during construction would be temporary and would follow all applicable local guidelines.

Alternative 2 would require the acquisition of land from Diamond Bar Golf Course to construct the widened eastbound on- and off-ramps as well as the auxiliary lane. These acquisitions would result in 7.3 acres of golf course property being permanently incorporated into the alternative. However, Diamond Bar Golf Course would remain an 18-hole golf course, with only minor changes made to the configuration, fairway distances, and par at holes 1, 2, 8, and 9. The acquisition of 7.3 acres from the existing golf course would not result in permanent disruptions to recreational use of the golf course facility. Although the acquired land would convert recreational uses to transportation-related uses, under Alternative 2, the golf course would continue to operate as an 18-hole course. To accommodate construction activities and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established.

Alternative 2 would be consistent with applicable 2012 RTP, City of Industry General Plan, and City of Diamond Bar General Plan land use goals. Specifically, proposed enhancements to the freeway confluence would help maximize mobility, accessibility, and safety. It would not result in any change in zoning and would comply with the pertinent general plan policies.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential land use impacts within the RSA under Alternative 3 would be similar to those anticipated to occur under Alternative 2. However, under Alternative 3, proposed acquisitions would result in 10.1 acres of golf course property being permanently incorporated into this alternative. Similar to Alternative 2, although the acquired land would convert recreational uses to transportation-related uses, the golf course would continue to operate as an 18-hole course. To accommodate construction activities and minimize any potential effects that construction may have on golf course users, a screened construction zone with restricted access would be established.

Current and Reasonably Foreseeable Projects within RSA: Table 2-1 provides a list of 44 related projects. These represent a variety of uses, including retail, business, institutional (police, religious, hospital), office, residential, and park uses. However, the majority of the projects are transportation-related roadway improvement projects. These projects, including the roadway improvement projects, would be located in an area that is already developed. Specifically, of the 44 projects, 24 are transportation related, including the roadway improvement projects; three are utility and/or electrical substation projects. Related projects in proximity to the proposed project include the High-Occupancy Vehicle Lanes on SR-60 (completed), Industry Business Center, Grand Avenue Widening, Diamond Bar-Grand Crossing-Sopipe 66 kV Reconductor (utility pole replacement project), Westbound On-Ramp at Grand Avenue/SR-60 Interchange Improvements, and Sycamore Canyon Park Improvements projects. Construction of these projects, similar to the proposed project, could result in temporary access disruptions for local land uses. None of the related projects would directly affect Diamond Bar Golf Course.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

Construction activities would not occur, and there would be no disruption to existing land uses on the project site or in the surrounding area. No land use impacts related to consistency with local plans or compatibility with surrounding uses would occur. Therefore, this alternative would not result in any cumulatively considerable land use and planning or community impacts.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

The potential for impacts on land use and planning and the community at large as a result of implementation of this alternative is low. Disruption of access to nearby land uses due to lane or road closures during construction of this alternative would be temporary. Additionally, with the possible exception of the Industry Business Center, none of the related projects would be constructed at the same time as the proposed project. Consequently, the proposed project and related projects would not result in cumulatively considerable access disruption impacts.

Although Alternative 2 would require land acquisition from Diamond Bar Golf Course and convert a portion of the golf course property to transportation use, the golf course would remain and continue to operate as an 18-hole golf course facility. Furthermore, as stated in minimization measure PARK-1, the acquisition of land from the golf course would require compensation; either an in-lieu payment or replacement property of equal value. Therefore, the change in land use would not be a substantial adverse impact. The related projects in proximity to the proposed project would not require land from the golf course or affect operation of the golf course; therefore, the proposed project and related projects would not result in cumulatively considerable land use impacts on Diamond Bar Golf Course.

Alternative 3, Partial Cloverleaf Interchange Configuration

The cumulative impact potential within the RSA under Alternative 3 would be similar to what is anticipated to occur under Alternative 2.

2.4.2.3 Avoidance, Minimization, and/or Mitigation Measures

No adverse cumulative impacts related to land use and planning are anticipated as a result of the project, and no additional avoidance, minimization, and/or mitigation measures are proposed.

2.4.3 Community Impacts

Resource Study Area: For community impacts, the appropriate RSA is identified as the project limits and immediately surrounding communities (see Figure 2-41b).

Existing Conditions within RSA: The study area is generally highly developed and urbanized, with multiple cohesive communities containing a wide range of population demographics within the cities of Diamond Bar and Industry. Growth is occurring in an organized and steady manner within each of the local and regional planning areas, as prescribed in the Growth Elements of the general plans.

2.4.3.1 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Construction activities would not occur, and there would be no disruption to community resources in the surrounding area. Alternative 1 would not result in construction or operational community impacts.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Section 2.1.3, Community Impacts, of this document analyzes potential project-related impacts on community character and cohesion, relocations and real property acquisitions, and environmental justice. In summary, the following conclusions were made: There are no cohesive neighborhoods in the project area that could be affected by the project, partial acquisitions would occur as part of the project (however, no relocations of residences or businesses would occur), and although there are both minority and low-income populations in the project area, these populations would not be disproportionately or adversely affected by implementation of the proposed project. The proposed improvements (project number LA0D450) would be consistent with the project description in the 2013 FTIP and the 2012 RTP.

This alternative would result in temporary construction-period impacts, including the temporary loss of the golf course use, lane closures, the presence of construction equipment, personnel, and construction signage. For construction traffic impacts, a traffic management plan would be prepared to minimize these project impacts. For golf course impacts, measures to minimize harm and enhance the golf course would be identified and coordinated with the Los Angeles County Department of Recreation and Parks, resulting in an overall beneficial impact on the golf course.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential community impacts within the RSA under Alternative 3 would be similar to those anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: Other future actions anticipated at this time are generally related to continued urban growth (i.e., infill) within the City of Diamond Bar, including supporting infrastructure development as well as improvements to the SR-57/SR-60 corridor. Of the 44 related projects identified in Table 2-1, 24 are transportation related, including roadway improvement projects; three are utility and/or electrical substation projects. The status of the related transportation projects varies, from design phase, to under construction, to completed. Of these projects, projects 14 (Sycamore Canyon Park improvements), 35 (HOV lanes on SR-60), and 42 (Diamond Bar-Grand Crossing Reconductor Project) are located in the immediate vicinity.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

Construction activities would not occur, and there would be no disruption to community resources in the surrounding area. Alternative 1 would not result in cumulatively considerable adverse community impacts.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

The projects that would occur in the immediate vicinity of the proposed project have the potential to result in similar community impacts, such as lane closures and the presence of construction equipment and personnel. However, not all of these projects would be constructed at the same time, and with the possible exception of the Industry Business Center development, none would be constructed concurrently with the proposed project. As part of the TMP, the proposed project would work with local cities so that construction activities requiring lane closures or detours would be coordinated amongst the various projects. None of the related projects would require the closure of Diamond Bar Golf Course or result in any other impacts on the golf course. Therefore, Alternative 2 and the related projects would not result in any cumulatively considerable community impacts.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential community impacts within the RSA under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Specifically, under Alternative 3, the proposed project would not result in any cumulatively considerable community impacts.

2.4.3.2 Avoidance, Minimization, and/or Mitigation Measures

As described in Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, the TMP would minimize construction-period traffic impacts. The measures to minimize harm outlined in the Section 4(f) evaluation and other enhancement measures would reduce adverse impacts on the golf course. No substantial adverse cumulative impacts related to the community are anticipated as a result of the project, and no additional avoidance, minimization, and/or mitigation measures are proposed.

2.4.4 Growth

2.4.4.1 Affected Environment

Resource Study Area: The geographic RSA boundary used in the assessment of cumulative impacts involving growth is defined as the extent of regional plans, such as the RTIP and RTP (shown in Figure 2-41a). SCAG is the metropolitan planning organization (MPO) in the region for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial and responsible for forecasting population trends and growth scenarios. The area covered by the related projects identified in Table 2-1 and shown in Figure 2-2 is included within the regional plan area identified as the RSA for growth.

Existing Conditions within RSA: The SCAG region is the second most-populous metropolitan region in the nation. According to the 2010 Census, the SCAG region is now home to 18 million people, or approximately 5.8 percent of the U.S. population and 49 percent of California's population. (SCAG 2012). Although the latest 2010 Census data indicates slower growth in population, households, and employment than forecasted in the 2008 RTP, the region is still expected to grow over the RTP/SCS planning period—adding four million new residents by 2035 (SCAG 2012).

2.4.4.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

No changes to accessibility would occur, and the confluence area would continue to operate in a congested state for existing and future traffic volumes. The No-Build Alternative would not result in substantial impacts on existing or future conditions related to growth because no project-related activity would occur. Furthermore, the surrounding area, with the exception of the Industry Business Center site, is largely built out, with minimal opportunities for growth.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Implementation of Alternative 2 would occur independent of planned and approved development. The proposed improvements are a direct result of existing congestion and weaving problems within the confluence area. The improvements would not have a major influence on the implementation of future projects because such projects could occur independently should the interchange improvements not occur. Alternative 2 would not have a substantial adverse impact with respect to growth inducement. Therefore, it is neither intended nor expected to induce substantial change related to the location, distribution, or rate of population and housing growth. Alternative 2 would not result in any substantial adverse direct or indirect impacts on growth.

Alternative 3, Partial Cloverleaf Interchange Configuration

Impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: In the current RTP and RTIP, many roadway improvement projects are proposed to decrease travel times and reduce congestion on existing roadways in the region, which could also result in beneficial air quality impacts. The regional plans have analyzed the cumulative impacts of all projects in the area and identified feasible avoidance, minimization, and mitigation measures. SCAG has forecast foreseeable growth in the region until 2035 and analyzed impacts related to population increases.

Given the general lack of developable land, most of the local related development projects are infill projects. The largest development project, Industry Business Center, includes plans for up to 4.8 million square feet of industrial, professional, and commercial uses on 592 acres.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, under this alternative, no changes to accessibility would occur, and the confluence area would continue to operate in a congested state for existing and future traffic volumes. As such, Alternative 1 would not contribute to adverse cumulative growth impacts in the region.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

The potential for impacts related to growth inducement under this alternative is low. The majority of development near the project area has occurred over the past 40 years. Providing improvements to relieve existing traffic conditions at this location would not substantially change the direction or location of future development. In addition, the land use patterns of surrounding areas were established as the areas developed; therefore, improved travel times would not result in changes to existing land use patterns. Also, regional plans have accounted for growth. Such plans consider strategies to accommodate growth and identify measures to minimize adverse impacts (e.g., an AQMP). Therefore, Alternative 2 would not contribute to substantial adverse cumulative growth impacts in the region.

Alternative 3, Partial Cloverleaf Interchange Configuration

Similar to Alternative 2, Alternative 3's potential for impacts related to growth inducement would be low. Therefore, Alternative 3 would not contribute to substantial adverse cumulative growth impacts in the region.

2.4.4.3 Avoidance, Minimization, and/or Mitigation Measures

No substantial cumulative impacts related to growth resulting from the project are anticipated, and no avoidance, minimization, and/or mitigation measures are proposed.

2.4.5 Utilities/Emergency Services

2.4.5.1 Affected Environment

Resource Study Area: The RSA for utilities/emergency services is the area covered by the project and the related projects (shown in Figure 2-2).

Existing Conditions within RSA: The RSA is highly urbanized and well served by utility and emergency services providers. All areas of the RSA are equally served by fire and police personnel, and the service ratios for fire and police services are acceptable. No issues related to a lack of utilities or emergency services are known.

2.4.5.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Alternative 1 would not result in freeway improvements at the SR-57/SR-60 confluence. Impacts related to utilities and emergency services would not occur under this alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

During construction of the project, the potential for direct and indirect impacts on emergency services providers would exist. Although SR-57 and SR-60 would remain open throughout construction, construction activities could affect emergency response times in some parts of the study area because of lane or road closures.

This alternative would include preparation of a TMP. It would also include notifying local emergency services providers in advance of proposed construction activities, thereby ensuring that emergency personnel have adequate information when planning detour routes. In the long term, the project would benefit emergency services providers by reducing congestion and improving travel times.

With respect to utility impacts during construction, such as impacts related to relocation of ACP water lines, mitigation measures UT-1 through UT-4 would reduce such impacts. In addition, construction activities would be coordinated with utility providers, and residents and businesses in the area affected by service disruptions would be notified in advance. Such impacts would be minor and temporary. In the long term, this alternative would not result in any substantial adverse impacts pertaining to utilities.

Alternative 3, Partial Cloverleaf Interchange Configuration

Construction and operational impacts related to water supply, solid waste, storm drains, electricity, police protection, and fire protection would be similar to the impacts anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: Table 2-1 provides a list of the approved related projects. Of the 44 projects, 24 are transportation related, including roadway improvement projects; three are utility and/or electrical substation projects. The remaining projects are commercial, retail, office, park, hotel, and institutional projects. Although construction schedules have not been finalized for several of the projects, some of the related projects, (1, 7, 8, 9, 10, 11, 17, and 39) may be under construction at the same time as the proposed project. These projects may require utility disruptions or relocations. However, only one of the projects, Industry Business Center (Project #1), is located in the immediate vicinity of the proposed project.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

No substantial adverse cumulative impacts would occur under this alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction of one or more of the related projects in the area could result in temporary, localized, site-specific disruptions, including partial and/or complete street and lane closures and detours. If construction activities were to occur at the same time, the cumulative effect could increase response times for emergency vehicles. Potential disruptions for utility and emergency services providers could be avoided through implementation of a TMP and mitigation measures UT-1 through UT-4. The TMP would take into consideration other projects in the area. Simultaneous construction of this alternative and the related projects could result in temporary utility disruptions. However, efforts would be made to coordinate with affected utility providers and notify affected residents and businesses in advance of any service disruption. Therefore, the cumulative impacts of construction, should they occur, would be minor and temporary.

Alternative 3, Partial Cloverleaf Interchange Configuration

Impacts related to utilities/emergency services anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Therefore, no substantial adverse cumulative impacts would occur.

2.4.5.3 Avoidance, Minimization, and/or Mitigation Measures

No adverse cumulative impacts on utilities/emergency services are anticipated as a result of the project, and no avoidance, minimization, and/or mitigation measures are proposed.

2.4.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.4.6.1 Affected Environment

Resource Study Area: Transportation is both a local and regional issue because it involves both short-distance trips, made primarily on local roads, as well as relatively long-distance trips, made primarily on freeways and highways. Therefore, the study area for cumulative

traffic impacts due to long-distance trips encompasses the region defined in the RTP. This study area can be seen in Figure 2-41a. For local impacts, the study area is limited to the intersections in the immediate vicinity of the proposed project that were evaluated in the project traffic study. This study area boundary can be seen in Figure 2-41b.

Existing Conditions within RSA

Local RSA

Three intersections were studied as a part of the December 2011 traffic study report:

- Grand Avenue at the SR-60 westbound off-ramp,
- Grand Avenue at the SR-60 eastbound off-ramp, and
- Grand Avenue at Golden Springs Drive.

Existing levels of service for each of the intersections studied is shown in the table below.

Table 2-79: Existing (2011) Traffic Conditions

	AM Peak Hour			PM Peak Hour		
Intersection	Queue Length	Delay[c]	Level of Service	Queue Length	Delay[c]	Level of Service
Grand Ave. at SR-60 WB Off-Ramp[a]	283 ft	42.2	D	192 ft	20.1	C
Grand Ave. at SR-60 EB Off-Ramp[a]	220 ft	16.2	B	88 ft	11.3	B
Grand Ave. at Golden Springs Drive[b]	349 ft	38.6	D	306 ft	54.0	D

[a] Queue length in feet on freeway off-ramp approach.
[b] Queue length in feet on southbound approach.
[c] Delay in seconds per vehicle average.
Source: Traffic Study Report, 2011.

Operational deficiencies exist on SR-60 between the merge and diverge points for SR-57. The deficiencies are primarily due to the short weaving distance provided between the Grand Avenue interchange and the merge and diverge points of the two freeways. The Grand Avenue interchange is located 1,800 feet east of the merge point between northbound SR-57 and eastbound SR-60. Eastbound SR-60 traffic headed for the Grand Avenue off-ramp must make a three-lane weave over this distance, crossing lanes that are heavily used by SR-57 traffic in the confluence area. According to forecasts, eastbound off-ramp traffic at Grand Avenue is expected to increase the length of the queue. This would exceed the length of the single exit lane to Grand Avenue.

A similar short weaving condition exists at the eastbound on-ramp from Grand Avenue to SR-57/SR-60. On-ramp traffic from Grand Avenue must make a three-lane weave across SR-57 traffic lanes to continue eastbound on SR-60, thus creating a bottleneck for northbound SR-57 traffic. For westbound SR-60, a lane drop occurs on the SR-57 connector just before merging with the westbound SR-60 mainline. Westbound SR-60 traffic exiting to Grand Avenue must make a two-lane weave across this connector to exit at Grand Avenue. The addition of weaving traffic further reduces the capacity of the two-lane connector for SR-57.

The existing weaving conditions reduce the efficiency of the SR-57/SR-60 corridor. Given that SR-57 and SR-60 are major inter-regional freeways, linking the San Gabriel Valley and the Inland Empire to Los Angeles and Orange Counties, the decrease in efficiency that currently occurs as a result of weaving has implications for the regional transportation network. These inefficiencies result in delays for commuters and other users of the corridor who reside in various parts of the region. For the existing conditions on the SR-57 and SR-60 mainlines, please refer to Tables 2-15 through 2-18 in Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities.

2.4.6.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

No proposed improvements would occur under this alternative. According to the intersection analysis conducted for this alternative, and summarized in Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, levels of service in 2017 would be similar to existing conditions, with no intersection performing below LOS D. All three studied intersections would perform in a deficient manner (LOS F) in 2037 under Alternative 1.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Temporary construction impacts within the local RSA would occur under Alternative 2. Demolition and reconstruction of the Grand Avenue overpass is likely to involve delays on local roads. The overpass would be constructed in stages, however, and would maintain two lanes for traffic in each direction during most of the construction period. During demolition and between construction stages, the Grand Avenue overpass may be closed over several weekends. Overnight or weekend closures are also expected at the westbound off-ramp (i.e., Golden Springs Drive at the SR-57 connector) and the Diamond Bar Boulevard on- and off-ramps. Local traffic would experience delays as a result of these closures, but impacts would be confined to non-peak travel times. These impacts would be considered temporary, and implementation of the TMP, as prescribed in the alternative, would reduce these impacts.

Implementation of Alternative 2 would result in beneficial impacts with respect to intersection LOS because of expanded capacity. No adverse effects on non-motorized vehicle and pedestrian travel would occur as a result of implementation of this alternative. No substantial adverse effects on traffic and transportation would occur.

Alternative 3, Partial Cloverleaf Interchange Configuration

Similar to Alternative 2, Alternative 3 would not result in substantial adverse traffic impacts within the RSA. In addition, all three project intersections are expected to have shorter queue lengths and delays and better LOS values in 2017 under Alternative 3 than under Alternative 1 (No Project).

Current and Reasonably Foreseeable Projects within RSA: Table 2-1 provides a list of the approved related projects. Of the 44 projects, 24 are transportation related, including roadway improvement projects; three are utility and/or electrical substation projects. The other projects are primarily development projects, mostly infill projects; however, the Industry Business Center, which is just north of the proposed project, includes plans to develop 4.8 million square feet of industrial, professional, and commercial uses on 592 acres. The status of the related transportation projects varies, from under construction to completed. The Nogales grade-separation and San Jose widening projects are anticipated to be completed in 2015. The Grand Crossing substation is expected to be completed in the second quarter of 2013. Construction of the HOV I-10 at Citrus project is scheduled to begin in 2014. Construction of the proposed project is scheduled to begin in 2014 and be completed in 2017. Of the related projects in the immediate vicinity of the proposed project, only construction of the Industry Business Center may overlap with construction of the proposed project.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

No improvements to the SR-57/SR-60 confluence would occur under this alternative; therefore, this alternative would not contribute to cumulative transportation impacts.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

The only reasonably foreseeable project adjacent to the proposed project and the only project likely to contribute to cumulative construction traffic impacts in the local RSA, concurrently with the proposed project, is the Industry Business Center project. The precise schedule for construction of planned development at the Industry Business Center, including the proposed football stadium, is not known at this time, but if construction coincides with that of the proposed project, appropriate coordination and implementation of the TMP will ensure that traffic disruptions will not result in a substantial adverse cumulative effect.

In terms of traffic operations, the IBC's commercial and industrial projects would increase the number of vehicular trips primarily during peak weekday hours because of employees' schedules, whereas the proposed football stadium, if built, would generate trips primarily when Sunday and occasional Monday games, as well as other weekend events, are occurring.

The proposed project would increase local roadway capacity in the area, which would help to accommodate the increase in vehicular traffic. Consequently, operation of the build alternatives would not result in a substantial adverse cumulative effect with respect to local vehicular traffic.

At the regional level, this alternative is included in the 2012 RTP and 2011 TIP. Thus, cumulative impacts at the regional level have been accounted for under the program environmental impact report prepared for the RTP. Alternative 2 would not result in substantial adverse cumulative effects at the regional level.

Alternative 3, Partial Cloverleaf Interchange Configuration

The cumulative impact potential under this alternative related to traffic and transportation would be similar to what would be expected to occur under Alternative 2. Similar to Alternative 2, Alternative 3 would not result in substantial adverse cumulative effects within the RSA.

Avoidance, Minimization, and/or Mitigation Measures

During construction, implementation of a TMP would minimize the project's contribution to any cumulative traffic disruptions due to lane or road closures.

No substantial adverse cumulative effects related to traffic and transportation/pedestrian and bicycle facilities are anticipated as a result of project operations, and no avoidance, minimization, and/or mitigation measures are proposed.

2.4.7 Visual/Aesthetics

2.4.7.1 Affected Environment

Resource Study Area: The RSA for visual resources is identified as the area within an approximately 1.5-mile radius of the project site (i.e., the area in which elevated structures constructed under the proposed project might be visible).

Existing Conditions within RSA: The project area is highly developed; land uses in the project vicinity include a mix of commercial, residential, recreational (Diamond Bar Golf Course), institutional, and transportation uses.

2.4.7.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

No improvements to the SR-57/SR-60 confluence would occur under this alternative. No direct or indirect substantial adverse visual effects would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Implementation of the proposed project would expose sensitive uses to views of the project site. Construction-related vehicle access and staging areas for materials would occur within Caltrans right-of-way and in disturbed or developed areas along the length of the project site. Construction activities at the golf course would be associated with on- and off-ramp work at the SR-57/SR-60 confluence, widening the Grand Avenue overcrossing, and street improvements along the north side of Golden Springs Drive, west of Grand Avenue. Construction would last approximately 36 months, during which time vegetation clearing, excavation, and grading would take place on those portions of the golf course that would be permanently acquired or temporarily acquired under construction easements.

Construction-related impacts would be short term and would cease upon project completion. Adherence to Caltrans' Standard Specifications for Construction, as well as measures required per the programmatic Section 4(f) evaluation, dated April 2012, would minimize visual impacts through the use of opaque construction fencing around temporary staging and construction areas.

Nighttime construction would be conducted in accordance with Caltrans regulations. Any lighting necessary for safety and construction purposes would be directed away from land uses outside the project area and contained within the construction area. With implementation of measure VIZ-5, construction lighting types, plans, and placement would be reviewed at the discretion of the Caltrans District Landscape Architect. Implementation of measure VIZ-5 would ensure that appropriate lighting controls would be applied to reduce light and glare impacts.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential direct and indirect visual impacts would be similar to those anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: One project in the City of Diamond Bar was identified in the SCAG RTIP:

- **Related Project 14:** Sycamore Canyon Park Trail Phase IV – Recommended for funding under the non-motorized element of the Recreational Trails Program.

The Sycamore Canyon Park Trail Phase IV project would be located approximately 0.25 mile east of the project site but would not be visible from any portion of the site because of distance, topography, and intervening trees and structures. Therefore, as viewed from SR-57/SR-60 and local streets in the vicinity, the RTIP project would not be readily visible.

Other projects in the RSA, as indicated in Table 2-1, include the following:

- **Related Project 6**: Grand Avenue Widening – Widen Grand Avenue from Baker Parkway to the intersection with the Old Brea Canyon Road/SR-60 westbound on- and off-ramps.
- **Related Project 35**: Pomona Freeway (SR-60) HOV Lane– Construct HOV lanes, retaining walls, and improvements to ramps in both directions along SR-60 between SR-57 and I-605.
- **Related Project 41**: SR-60 Cold Plane and RAC Overlay – Rehabilitate the pavement on SR-60 within the project limits by cold planing 60 millimeters of existing asphalt concrete pavement and placing 60 millimeters of rubberized asphalt concrete, type G, on the mainline, all ramps, and shoulders.
- **Related Project 42:** Diamond Bar-Grand Crossing-Sopipe 66 Kilovolt (kV) Reconductor Project – Retail uses, including a Target store and a restaurant.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

No improvements to the SR-57/SR-60 confluence would occur under this alternative. No direct or indirect substantial visual impacts would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

With the exception of the Industry Business Center, the related projects are located predominately in developed areas and are not expected to result in substantial adverse changes to the visual environment within the study area.

The Industry Business Center would result in visual changes in the project area because of the size and scale of the project and the amount of light and glare. Although the NFL stadium, if constructed, would change the character and quality of the area, the proposed SR-57/SR-60 confluence project would not contribute cumulatively to these impacts. With implementation of VIS-1 through VIS-5 (see Section 2.1.6, Visual Resources), the project area would remain generally similar in character to the existing built environment. Furthermore, selected landscape palettes for the proposed project would be consistent with the nature of the project area. With implementation of the recommended minimization measures (VIS-1 through VIS-5), the proposed project's contribution to cumulative impacts would be reduced. Therefore, the extent of the project's cumulative impacts is considered to be minimal.

Alternative 3, Partial Cloverleaf Interchange Configuration

Substantial cumulative impacts anticipated to occur under this alternative would be similar to those anticipated to occur under Alternative 2.

2.4.7.3 Avoidance, Minimization, and/or Mitigation Measures

No adverse cumulative impacts on visual resources are anticipated as a result of the project, and no additional avoidance, minimization, and/or mitigation measures beyond those identified above are proposed.

2.4.8 Cultural Resources

2.4.8.1 Affected Environment

Resource Study Area: The RSA for cultural resources is the APE identified for the proposed project. The APE for the proposed project was established as the limits of the current right-of-way, along with temporary construction easements, takes, and staging areas. The APE extends 2.5 miles along the SR-57/SR-60 confluence on a northeast/southwest axis and compensates for proposed on- and off-ramp reconfigurations. In addition, the APE extends on a north/south axis along Grand Avenue, passing over the SR-57/SR-60 confluence to accommodate proposed ramps and striping along Golden Springs Drive. The project APE is shown in Figure 2-3.

Existing Conditions within RSA: As stated in Section 2.1.7, Cultural Resources, a survey was conducted in 1974 and, according to the report, "a number of crude, percussion-formed artifacts were found within the APE." However, no site records are on file at the SCCIC for these resources. The area was revisited in 1981, and although the previous prehistoric artifacts identified in the 1974 survey were not relocated, three new prehistoric isolated artifacts were identified. Of the three isolates identified during the 1981 survey, one was located within the APE. No site records are on file at the SCCIC for these resources.

In 1988, a prehistoric site was identified within the APE near the SR-57/SR-60 confluence and within the vicinity of the previous finds from the 1974 and 1981 surveys (White and Van Horn 1988). In 1999, the site was relocated, and in 2003 a test excavation was made at the site (McKenna et al. 1999 and 2003a). No other sites are known to exist within the APE. However, archaeological monitoring of the site is recommended if or when activities associated with alterations in Diamond Bar Creek or subsequent industrial developments affect the area (McKenna et al. 2003b).

Five prehistoric cultural resource sites have been identified within a 1-mile radius of the project APE, and one historic site has been identified within a 1-mile radius of the project APE. Currently, there are no PHI, CHL, CRHR, NRHP, or HRI listings within a 1-mile radius of the project APE.

2.4.8.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Under the No-Build Alternative, no modifications to existing structures or the land would occur; therefore, no effects on historical or archaeological cultural resources would result.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

No resources that would require evaluation were identified within the project APE; therefore, a finding of "No Historic Properties Affected" was made. Native American consultation revealed that existing sacred sites are located near the project area but outside of the APE. After reviewing the results of the survey and the records search, it has been determined that a finding of "No Adverse Effect with Standard Conditions" would be appropriate. The standard conditions would include archaeological monitoring of all initial grading activities for Alternative 2, as described in measures CUL-1 and CUL-2.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential adverse effects would be similar to those anticipated to occur under Alternative 2. Similar to Alternative 2, Alternative 3 would reduce any impacts anticipated to occur by implementing mitigation measures.

Current and Reasonably Foreseeable Projects within RSA: A few of the related projects in Table 2-1 are located within or near the APE. This includes projects 35 (High-Occupancy Vehicle [HOV] Lanes on SR-60) and 42 (Diamond Bar-Grand Crossing Reconductor Project). Of these two projects, construction has been already been completed for project 35.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, under the No-Build Alternative, no modifications to existing structures or the land would occur; therefore, no substantial cumulative impacts on historical or archaeological cultural resources would result.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction activities associated with this alternative and related projects located within the APE could unearth unanticipated cultural resources and result in an adverse cumulative impact. Construction of related project 42 would also require construction activities within the project APE. Implementation of minimization measures CUL-1 and CUL-2 would ensure that any cumulative impacts, should they occur, would be minimized. Thus, cumulative impacts from construction and implementation of Alternative 2 would not be substantially adverse.

Alternative 3, Partial Cloverleaf Interchange Configuration

Cumulative impacts would be similar to those anticipated to occur under Alternative 2.

2.4.8.3 Avoidance, Minimization, and/or Mitigation Measures

No substantial cumulative impacts on cultural resources are anticipated as a result of the project, and no additional avoidance, minimization, and/or mitigation measures beyond those identified above are proposed.

2.4.9 Hydrology, Floodplain, Water Quality, and Stormwater Runoff

2.4.9.1 Affected Environment

Resource Study Area: The proposed project is located within the San Gabriel River watershed, which drains directly into Los Angeles Harbor/Long Beach Harbor and encompasses the cities of Diamond Bar, La Puente, West Covina, Hacienda Heights, Whittier, Pico Rivera, Montebello, Downey, Norwalk, Bellflower, Lakewood, Cypress, Los Alamitos, and Long Beach. An appropriate RSA for water quality and stormwater runoff has been identified as the entire San Gabriel River watershed, including the project limits from the northeastern confluence of SR-57 and SR-60 to the point where San Jose Creek drains into the San Gabriel River. The water quality and stormwater runoff RSA is shown in Figure 2-41c.

Existing Conditions within RSA: This project drains to Diamond Bar Creek, which is not listed as an impaired water body or listed for TMDL development on the 2006 Section 303(d) list. However, the Los Angeles RWQCB's *Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the San Gabriel River and Impaired Tributaries Metals and Selenium TMDL* applies the lead wet-weather TMDL to San Gabriel River Reach 2, its upstream reaches, and its tributaries.

Currently, stormwater runoff from within the project limits is untreated.

Though parts of the RSA may be located within a 100-year floodplain, the project site is located outside the 100-year floodplain (Zone X). Within Zone X, there is a 0.2 percent chance of flooding annually.[53]

2.4.9.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

As previously stated, under the No-Build Alternative, no improvements to the SR-57/SR-60 confluence would occur; therefore, no substantial cumulative impacts on hydrology would result.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Under Alternative 2, the proposed project has the potential to result in an increase in contaminants from vehicles on road surfaces. Excessive stream and channel erosion may occur if runoff volumes and rates increase as a result of an increase in impervious area. Standard Caltrans BMPs, as listed in the *Statewide Stormwater Quality Practice Guidelines* (California Department of Transportation 2003); Construction General Permit requirements; and mitigation measures WQ-1 and WQ-2 would be implemented to reduce or avoid water quality impacts.

Alternative 2 would increase the impervious area at the project site by 14.1 acres, which would increase the amount of runoff from the interchange and Grand Avenue within the project limits. Currently, runoff is untreated at the project site. However, as part of Caltrans' Stormwater Management Program and described in the Stormwater Management Plan, selected structural and non-structural source-control BMPs would be incorporated into the design of the proposed project to pre-treat the runoff at the project site. Approved structural control BMPs could include biofiltration systems, infiltration devices, detention devices, media filters, multi-chamber treatment trains, or wet basins. The selection of specific BMPs would be subject to identifying suitable locations and evaluating their feasibility. By incorporating accepted engineering practices and BMPs, impacts on the quality of surface or groundwater during construction or operation would be minimized.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential direct and indirect impacts on hydrology would be similar to those anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: Construction and operation of related projects and cumulative development within the RSA could contribute pollutants to surface waters within the watershed. The Los Angeles RWQCB has adopted a water quality control plan. The regional inland surface water quality objectives contained in the Basin Plan pertain to ammonia; coliform bacteria; biochemical oxygen demand; color; nitrogen (nitrate, nitrite); oil and grease; dissolved oxygen; pH; polychlorinated biphenyls; solid, suspended, or settleable materials; temperature; toxicity; and turbidity.

[53] Flood insurance rate maps (September 26, 2008 – 06037C1725F) covering the project area.

Basin plans provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every three years in accordance with Article 3 of the Porter-Cologne Act and CWA Section 303(c). NPDES permits issued under CWA Section 402 to control pollution must implement requirements of the applicable regional basin plans. It is assumed that all construction projects within the basin subject to local, state, and federal water quality regulations will obtain required permits, comply with permit requirements, and implement appropriate water quality control measures.

As required for all projects within the RSA, drainage components will be designed to be consistent with Caltrans and city design criteria and ordinances, as applicable. Projects will be required to include various drainage facilities, as specified and approved on detailed engineering plans, so as not to induce downstream flooding or deflect flows from their natural course and result in significant impacts.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, under the No-Build Alternative, no improvements to the SR-57/SR-60 confluence would occur. Therefore, no cumulative impacts on hydrology and water quality would occur under Alternative 1.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Under Alternative 2, the proposed project and related projects would comply with BMPs and accepted engineering practices; therefore, the project's potential to contribute to any cumulatively considerable impacts would be low.

Alternative 3, Partial Cloverleaf Interchange Configuration

Potential cumulative impacts on hydrology would be similar to those anticipated to occur under Alternative 2.

2.4.9.3 Avoidance, Minimization, and/or Mitigation Measures

Implementation of measures WQ-1 and WQ-2 would minimize the proposed project's contribution to any cumulative water quality impacts. No additional avoidance, minimization, and/or mitigation measures are proposed.

2.4.10 Geology/Soils/Seismicity/Topography

2.4.10.1 Affected Environment

Resource Study Area: The RSA for geology and soils encompasses the immediate project area.

Existing Conditions within RSA: The project site is located in the northern part of the Puente Hills, a northwesterly trending range of low-elevation rounded hills at the northern edge of the Peninsular Ranges. The project site is in the valley of Diamond Bar Creek, between the Los Angeles Basin to the west, the valley of the Upper Santa Ana River to the east, and the San Gabriel Valley and Mountains to the north. Diamond Bar Valley is a small, narrow valley with a flat floor, ranging from about 550 feet in elevation on the west to 700 feet to the northeast. The valley is bounded by a ridge on the north that rises to about 800 feet and hills on the south that rise to about 1,000 feet before descending into Tonner Canyon to the south. The project site is located on the valley floor; Diamond Bar Creek is located to the north.

A series of geotechnical reports were prepared for different components of the proposed project. Three July 2010 reports investigated geotechnical conditions related to construction of the proposed eastbound bypass connector, replacement of the Golden Springs Drive undercrossing, and replacement of the Grand Avenue overcrossing. A September 2011 report analyzed the geotechnical implications of installing retaining walls along the SR-57/SR-60 alignment. The following analysis is based on the above geotechnical reports. In addition, this analysis refers to technical reports completed by Leighton Consulting in 2002 as part of the Industry Business Center project.

According to the July 2010 geotechnical reports, the valley floor is underlain by late to middle Holocene[54] age stream channel, alluvial basin, and alluvial fan sediments. These deposits are approximately 45 to 50 feet thick and overlie Miocene[55] age rocks of the Puente Formation.

According to the geotechnical reports prepared for proposed project components, the valley of Diamond Bar Creek may be controlled by a fault under the axis of the valley. The northeast/southwest linearity of the valley may be due to erosion along the fractured rocks of the fault. However, this fault is only inferred and not exposed. If there is a fault, it is not known to be active. No Alquist-Priolo Earthquake Fault Zones, which would require special studies, are located in the immediate project area. Therefore, the risk for ground surface rupture is low.

2.4.10.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction activities or long-term operational changes that would affect existing conditions. Therefore, no impacts would occur.

[54] Holocene is the name given to the last 11,700 years of earth's history, the time since the end of the last major glacial epoch, or "ice age" (University of California Museum of Paleontology, 2012). Available: <http://www.ucmp.berkeley.edu/quaternary/holocene.php>. Accessed: June 14, 2012.

[55] The Miocene Epoch, 23.03 to 5.3 million years ago, was a time of warmer global climates than those in the preceding Oligocene or the following Pliocene; it is notable in that two major ecosystems made their first appearances: kelp forests and grasslands. University of California Museum of Paleontology. 2012. Available: <http://www.ucmp.berkeley.edu/tertiary/miocene.php>. Accessed: June 14, 2012.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

The possibility of ground rupture along a fault line at the site is considered low; therefore, no substantial fault rupture impacts are anticipated. The level of hazard posed by seismic shaking in the area is considered high because of the proximity to known active faults Therefore, there is the potential for adverse effects related to seismic shaking. However, the project would be designed per Caltrans seismic design criteria and other applicable guidelines. Impacts related to temporary slope instability would be potentially adverse. Given that the project site is characterized by low hills and moderately steep slopes with previous landslides, impacts related to seismically induced landslides would be potentially adverse. Because there is a high liquefaction potential at some locations within the project area, there is the potential for settlement effects. Although the borings conducted for the July 2010 and September 2011 geotechnical studies show groundwater levels below their historical highs, the September 2011 geotechnical report regarding the construction of retaining walls concludes that it is likely that crews drilling piles for the proposed retaining walls would encounter groundwater.

Measures GEO-1 through GEO-16 would address issues related to seismic ground shaking, slope stability, seismically induced ground shaking, liquefaction, soils, and groundwater. Implementation of these measures would ensure that impacts would not be adverse.

Alternative 3, Partial Cloverleaf Interchange Configuration

Impacts related to geology, soils, seismicity, or topography would be similar to those anticipated to occur under Alternative 2. Similar to Alternative 2, Alternative 3's substantial adverse effects would be reduced with implementation of mitigation measures GEO-1 through GEO-16.

Current and Reasonably Foreseeable Projects within RSA: Similar to the proposed project, other projects in the RSA could be exposed to similar geological hazards and risks. All related projects would be required by law to comply with the applicable Uniform Building Code and local building code regulations.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, the No-Build Alternative would not involve construction activities or long-term operational changes that would affect existing conditions. No cumulative adverse effects would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

As a result of compliance with building and structural codes, the proposed project under Alternative 2 and related projects would not contribute to significant adverse cumulative impacts related to geology, soils, seismicity, or topography. There are no related projects in the immediate vicinity of the project that, when combined with the proposed project, would cumulatively increase hazards in the project area.

Alternative 3, Partial Cloverleaf Interchange Configuration

Cumulative impacts would be similar to those anticipated to occur under Alternative 2. As a result of compliance with building and structural codes, the proposed project under Alternative 3 and related projects would not result in an adverse impact related to geology, soils, seismicity, or topography and would not contribute to any adverse cumulative impacts in these areas.

2.4.10.3 Avoidance, Minimization, and/or Mitigation Measures

Measures GEO-1 through GEO-16 would minimize geologic, soil, and seismic hazards created by the proposed project. No additional avoidance, minimization, and/or mitigation measures are proposed or necessary.

2.4.11 Paleontology

2.4.11.1 Affected Environment

Resource Study Area: The RSA for paleontology is the area encompassing a number of identified fossil sites in upland geological deposits, roughly falling within a 1.5-mile radius of the project site. The APE map is included in the cultural resources report prepared for the proposed project, which is included in Appendix G.

Existing Conditions within RSA: Surficial deposits in the lower lying portions of the project area adjacent to SR-60 and Grand Avenue consist of younger Quaternary alluvium derived as fluvial deposits from Diamond Bar Creek. These younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, and there are no vertebrate fossil localities nearby from such deposits. The remainder of the project area in the upland portions has exposures of marine late Miocene Puente Formation. Fossils have been recovered in two localities nearby, both within bedrock of the Puente Formation.

2.4.11.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

The No-Build Alternative would not involve construction activities or long-term operational changes that would affect existing conditions. Therefore, no impact would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction of Alternative 2 would require grading and excavation. Therefore, the potential exists for Alternative 2 to affect paleontological resources present within deeper Pleistocene alluvium or in the Puente Formation. This could result in a substantial adverse impact. However, implementation of mitigation measure CUL-3, which would require preparation of a paleontological monitoring and mitigation plan and on-site paleontological monitoring, would minimize or avoid potential impacts.

Alternative 3, Partial Cloverleaf Interchange Configuration

Impacts on cultural resources under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Mitigation measure CUL-3 would minimize or avoid potential adverse impacts.

Current and Reasonably Foreseeable Projects within RSA: Other projects proposed within the RSA (i.e., projects 3, 4, 6, 8, 9, 11, 14, 15, 16, 35, 41, 42) may also have the potential to affect paleontological resources should construction grading and excavation activities extend into fossil-bearing soils.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, the No-Build Alternative would not involve construction activities or long-term operational changes that would affect existing conditions. Therefore, no cumulative impact would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Construction activities associated with Alternative 2 could contribute to a progressive loss of paleontological resources and result in an adverse cumulative impact. However, implementation of measure CUL-3 would ensure that cumulative impacts, if they should occur, would be minimized. Other projects may also implement similar mitigation measures to minimize adverse impacts on paleontological resources within the RSA.

Alternative 3, Partial Cloverleaf Interchange Configuration

Cumulative impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2.

2.4.11.3 Avoidance, Minimization, and/or Mitigation Measures

Substantial adverse cumulative impacts on paleontological resources would not occur. Furthermore, measure CUL-3 would minimize the potential for effects of the proposed project on paleontological resources.

2.4.12 Hazardous Waste/Materials

2.4.12.1 Affected Environment

Resource Study Area: The RSA for hazardous waste and materials is the project area defined in the ISA and supplemental hazardous materials update prepared for the project. The RSA is located within the cities of Industry and Diamond Bar (Sections 3, 9, 10, 15, and 17; R.9W; T.2S [San Bernardino Base and Meridian]). The RSA encompasses the proposed project's

limits of disturbance, which include the SR-57/SR-60 confluence, the associated on- and off-ramps, and approach areas to the ramps at Grand Avenue, Golden Springs Drive, and Diamond Bar Boulevard. Project limitations associated with the site assessment excluded the examination of the interiors of the on-site structures. Acquired rights-of-way currently consist of areas with ornamental vegetation, areas of the golf course, and vacant land. Roadways in the area include Grand Avenue, SR-60, SR-57, Diamond Bar Boulevard, Golden Springs Drive, and associated on-and off-ramps. Six on-site bridge structures were identified, and five structures were noted within the boundaries of the golf course, including a pro shop and coffee shop, two restrooms, and structures within the maintenance yard (including one storage structure, two ASTs, and one closed UST).

Existing Conditions within RSA: Three historical RECs (i.e., reported spills) have been identified within the project site. Two of the spills have been reported by the appropriate regulatory agency as being "complete." However, a third spill that occurred in 1991 has not received "complete" status. Reported spills are maintained by Caltrans for 5 years after an incidence occurs, after which time the files are discarded. Therefore, the above-referenced incidence (which occurred in 1991) is no longer maintained by Caltrans and assumed to be considered de minimis. Therefore, the presence of a current REC as a result of these past spills is considered to be low.

Pole-mounted transformers located over bare soil have a high potential to result in releases of PCBs. However, no evidence of di-electric fluid or staining was noted on-site. In addition, visible transformers were identified on-site during the field investigations conducted on August 15, 2007, and April 8, 2008. The September 13, 2011, site visit confirmed that conditions had not changed since the previous site visits.

The on-site golf course currently maintains two ASTs within the maintenance/storage yard; these are located in the vicinity of the closed (filled) UST. This storage area, including the on-site ASTs and UST, are located outside of the areas of proposed improvement. No known releases of hazardous materials have occurred in association with this maintenance/storage yard.

The off-site regulatory properties (206 South Diamond Bar Boulevard, 301 South Diamond Bar Boulevard, 22628 East Golden Springs Drive, and 23525 East Palomino Drive [dry cleaner facility], and 525 Grand Avenue) have most likely created groundwater contamination under the project site, resulting in an REC.

Evidence of exposed asbestos-containing materials (ACMs) was not found during any of the site inspections. Therefore, the potential presence of ACMs at the site is considered de minimis. However, the interiors of the on-site structures were not examined during any of the site visits, and a determination of whether ACMs are present in the interior of the on-site structures (including bridges) could not be made.

2.4.12.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

The No-Build Alternative would not result in any changes to the existing use of the site. In addition, construction activities that have the potential to release hazardous materials would not occur. Therefore, no impact would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Under Alternative 2, the potential would exist for the release or upset of hazardous materials, including lead, asbestos, and PCBs during construction activities. With implementation of mitigation measures HAZ-1 through HAZ-7, any potential adverse effects associated with asbestos, lead-based paint, pole-mounted transformers, or groundwater would be minimized.

Alternative 3, Partial Cloverleaf Interchange Configuration

Impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Mitigation measures included under Alternative 2 would also reduce adverse effects anticipated to occur under Alternative 3.

Current and Reasonably Foreseeable Projects within RSA: Many of the related projects within the RSA have similar potential with respect to resulting in the disturbance or release of hazardous materials. Specifically, similar roadway improvements, such as the Clark Avenue Reconstruction Project or the SR-60 Cold Plane and Rubberized Asphalt Concrete Overlay Project, would have the greatest potential to result in the upset of lead, asbestos, or PCBs.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

The No-Build Alternative would not result in any changes to the existing use of the site. In addition, construction activities that have the potential to release hazardous materials would not occur. Therefore, no impact would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Alternative 2 would comply with Caltrans and all applicable local, state, and federal regulations related to hazardous wastes. Prior to the start of construction, all necessary investigations would be conducted, and remediation would be undertaken if contaminated soil or material is found.

Alternative 3, Partial Cloverleaf Interchange Configuration

Similar to Alternative 2, this alternative would comply with all Caltrans and all applicable local, state, and federal regulations related to hazardous wastes. Prior to the start of construction, all necessary investigations would be conducted, and remediation would be undertaken if contaminated soil or material is found. Consequently, cumulative impacts are not anticipated.

2.4.12.3 Avoidance, Minimization, and/or Mitigation Measures

Implementation of mitigation measures HAZ-1 through HAZ-7 would minimize the potential for project and cumulative impacts. No further measures are proposed or are necessary.

2.4.13 Air Quality

2.4.13.1 Affected Environment

Resource Study Area: The proposed project is located in the South Coast Air Basin. The Basin is the appropriate RSA for evaluating cumulative impacts at a regional level (see Figure 2-41a). For localized construction effects, an area within a 1,000-foot radius of the project site is considered the RSA (see Figure 2-41b).

Existing Conditions within RSA: The U.S. EPA has classified the Basin as an extreme nonattainment area for the federal 8-hour ozone standard, serious nonattainment area for the federal standard regarding PM10, a nonattainment area for the federal standard regarding PM2.5, and an attainment/maintenance area for the federal CO and NO_2 standards. In addition, the Los Angeles County portion of the Basin has been designated a nonattainment area for the federal lead standard.

CARB has classified the Basin as an extreme nonattainment area for the state 1-hour ozone standard and a nonattainment area for the state 8-hour ozone, PM10, and PM2.5 standards.

2.4.13.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Construction Impacts

No construction activities would occur under the No-Build Alternative. As such, no regional or localized construction-period emissions, including related impacts, would occur.

Operational Impacts

No changes to existing conditions would occur under the No-Build Alternative. As such, no changes in regional or localized emissions would occur under the No-Build Alternative.

Alternatives 2 and 3 (Build Alternatives)

With regard to air quality impacts, there would be no material difference between impacts that would occur under Build Alternative 2 (Combination Cloverleaf/Diamond Configuration Interchange) and those that would occur under Build Alternative 3 (Partial Cloverleaf Interchange Configuration). As such, the impacts of the build alternatives are summarized together.

Construction Impacts

Implementation of either build alternative would result in the construction of widened roads, overcrossings, interchange reconfigurations, as well as bypass connectors. Construction is anticipated to begin in fall 2014 and end by fall 2017. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utility/subgrade construction, paving, and the commuting patterns of construction workers. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather conditions.

Construction-period criteria pollutant emissions were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Model, version 6.3.2, which is considered adequate by SCAQMD for evaluation of CEQA impacts. A summary of emissions estimates is provided in Table 2-80. Modeling assumptions are detailed in the air quality report. Implementation of the exhaust and fugitive dust emissions control measures identified below under Avoidance, Minimization, and/or Mitigation Measures would avoid and/or minimize any impacts on air quality.

Table 2-80. Estimate of Criteria Pollutant Emissions during Construction (pounds per day)

Construction Phase	ROG	CO	NO_X	PM10	PM2.5
Grubbing and Clearing	6	23	35	52	12
Grading/Excavation	6	27	37	52	12
Drainage/Utilities/Sub-Grade	5	22	29	52	12
Paving	4	17	18	2	1
Daily Maximum Regional Emissions	6	27	37	52	12
SCAQMD Regional Emissions Daily Significance Threshold	75	550	100	150	55
Daily Maximum Localized Emissions[a]	N/A	23	33	52	12
SCAQMD Localized Emissions Daily Significance Threshold[b]	N/A	2,158	265	36	9

Source: Detailed calculation assumptions provided in Appendix E of the air quality study in Appendix G.
[a] ROG emissions have no SCAQMD localized emissions threshold.
[b] SCAQMD Source Receptor Area (SRA) 10, 5-acre site, 50-meter receptor distance.

Regional Conformity

The proposed project is included in the modeling lists for both the SCAG 2012–2035 RTP/SCS and SCAG 2011 TIP under project number LA0D450. Within the currently conforming 2012–2035 RTP/SCS and 2011 TIP documents, the proposed project (LA0D450)

is described as "Reconstruct SR 60/Grand Av Interchange-Widen Grand Ave: SB add 1 thru Ln (2 Exstng); NB Add 1 Thru LN (3 Exstng), Replace Grand Av OC, Add EB Loop on-ramp Construct additional EB thru Ln from Grand Ave Trap Ln to SR57 Add LnN, Add Two Bypass Ramp connectors, add AUX Lns EB and WB from east to west junction of the confluence." The project as currently proposed is consistent with this description.

The 2012–2035 RTP/SCS was adopted by SCAG on April 4, 2012, and approved by FHWA on June 4, 2012. The 2011 TIP was adopted by SCAG on September 2, 2010, and approved by FHWA on December 14, 2010. In addition, Amendment #11-24 to the 2011 TIP was adopted by SCAG on April 4, 2012. This is the latest TIP consistency amendment approved by FHWA, which granted approval on June 4, 2012.

Because the currently conforming 2012–2035 RTP/SCS and 2011 TIP model lists include the proposed project (LA0D450), the proposed project's regional conformity requirements have been satisfied. Air quality modeling conducted by SCAG for the 2012–2035 RTP/SCS and 2011 TIP indicates that emissions are within the allowable budgets for criteria pollutants. Consequently, the proposed project has met regional transportation conformity requirements for regional nonattainment pollutants. The design concept and scope of the proposed project have not changed from what was analyzed for air quality conformity.

Project-level Carbon Monoxide Hot-spot Analysis

The project-level CO hot-spot analysis was performed using the CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). The CO Protocol details a qualitative step-by-step procedure for determining whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO. Through this process, as detailed in the air quality technical report, it was determined that the build alternatives would not be expected to result in a new or more severe exceedance of either the NAAQS or CAAQS.

Project-level Particulate Matter Hot-Spot Analysis

A qualitative PM2.5 and PM10 hot-spot evaluation was performed using FHWA and U.S. EPA evaluation criteria (Federal Highway Administration and U.S. Environmental Protection Agency 2006). The analysis concluded that it is unlikely that the proposed project would generate new air quality violations, worsen existing violations, or delay attainment of the NAAQS for PM2.5 and PM10. The SCAG TCWG concurred with this determination on January 24, 2012, and agreed that the particulate matter conformity documentation prepared for the proposed project is acceptable for NEPA circulation.[56] A copy of this finding, as well as the qualitative particulate matter conformity hot-spot analysis completed for the project, is provided in Appendix C of the air quality report prepared for the proposed project. The Clean Air Act, 40 CFR Part 93.116, requirements are met.

Mobile-Source Air Toxics Assessment

MSAT emissions were evaluated using a combination of FHWA's *Interim Guidance Update on Mobile-Source Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2009a) and preliminary California-specific guidance from Caltrans. As part of the analysis, MSAT

[56] The outcome from the January 24, 2012, meeting supersedes the outcome from the meeting held on October 26, 2010, when the TCWG concurred that the proposed project was not a POAQC. Changes in project scope that occurred since that date required the project to be resubmitted to the TCWG for review. As such, the October 26, 2010, finding is no longer valid.

emissions for existing-year (2009), interim-year (2017), and design-year (2037) conditions were quantified using the CT-EMFAC emissions inventory model. The analysis indicated that implementation of the proposed alternatives would result in slight increases in DPM, benzene, acrolein, and butadiene at the opening year (2017) and horizon year (2037) compared with the No-Build Alternative. The traffic impact analysis conducted for the project suggests that, under the build alternatives, the proposed improvements would result in some arterial surface street VMT shifting to the freeway. This shift to the freeway is noteworthy because surface-street MSAT emissions occur near sensitive receptors. As such, MSAT exposure at sensitive receptors may be reduced under the build alternatives compared with the No-Build Alternative. In addition, all MSAT emissions are expected to decrease below existing conditions (2009) under both build alternatives at the opening year (2017) and the horizon year (2037), as detailed in Table 2-68.

Current and Reasonably Foreseeable Projects within RSA

All related projects located within 1,000 feet of the project site, with the possible exception of the Industry Business Center project, will have completed all construction activity prior to start of construction activity for the proposed project (see Table 2-1). With respect to the construction- and operations-period air quality emissions from projects within the Basin, SCAQMD has developed strategies to reduce criteria pollutant emissions, as outlined in the AQMP, pursuant to federal Clean Air Act mandates. As such, the projects within the Basin, including all of the related projects, would comply with SCAQMD Rule 403 requirements, among other SCAQMD requirements. In addition, the projects would comply with adopted AQMP emissions control measures. Per SCAQMD rules and mandates as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide, which would include each of the related projects.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

No changes to existing conditions would occur under the No-Build Alternative. As such, no changes in regional or localized emissions would occur under the No-Build Alternative. Therefore, there would be no cumulative impact potential.

Alternatives 2 and 3 (Build Alternatives)

The approach for assessing cumulative impacts on air quality from transportation projects is based on identifying whether the project, as currently proposed, is properly identified in the region's conforming RTP and TIP transportation documents. This is because, in accordance with federal and state Clean Air Act requirements, the transportation conformity budget is a sub-set of the Basin's overall AQMP attainment demonstration strategy. As discussed above under Regional Conformity, the proposed project is properly identified in the currently conforming 2012–2035 RTP/SCS and 2011 TIP transportation planning documents. As such, no substantial adverse cumulative impacts on regional air quality would occur.

Only one identified related project in the immediate project vicinity, the Industry Business Center project, may be constructed concurrently with the proposed project and therefore could contribute to cumulative localized construction air quality impacts. However, the proposed project's compliance with Caltrans' Standard Specifications as well as SCAQMD rules and regulations to control construction emissions and related project's compliance with applicable SCAQMD rules would minimize the potential for substantial adverse cumulative construction air quality impacts on any sensitive receptors in the immediate project vicinity.

2.4.13.3 Avoidance, Minimization, and/or Mitigation Measures

Implementation of Caltrans' Standard Specifications and compliance with SCAQMD's Rule 403 requirements to control construction emissions of fugitive dust would minimize the project's contribution to short-term cumulative construction air quality impacts. No further measures are proposed or warranted.

2.4.14 Noise

2.4.14.1 Affected Environment

Resource Study Area: The RSA for noise is defined as the project area of the noise study report, which includes surrounding properties along the alignment that may be affected by noise during construction and operation of the project (see Figure 2-2). Although all land uses were evaluated in the NSR, as required by Caltrans' Protocol, noise abatement was considered only for areas of frequent human use that would benefit from a lower noise level. Accordingly, the impact analysis focused on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

Existing Conditions within RSA: Measured noise levels ranged from 50 dBA L_{eq} (ST-8) to 78 dBA L_{eq} (ST-6) when rounded to the nearest whole number. A summary of the noise measurements is presented in Table 2-72 of Section 2.2.7, Noise.

The general areas that make up the RSA are shown in Figure 2-37. The long- and short-term monitoring locations are shown in Figure 2-37.

2.4.14.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

Under Alternative 1, future noise levels in the project area associated with non-traffic sources may increase or decrease slightly from changes in surrounding land uses and/or densities. The analysis indicates that future noise levels generated by traffic at the SR-57/SR-60 confluence would be expected to increase by 0 to 2 dB compared with existing noise conditions resulting from changes in traffic volumes. Therefore, Alternative 1, No-Build Alternative, would not result in adverse effects under NEPA or significant noise impacts under CEQA.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Although construction activities would temporarily and intermittently increase noise levels in the immediate project vicinity, no substantial adverse noise impacts from construction are anticipated because construction would be conducted in accordance with applicable local noise standards and Caltrans' *Draft 2010 Standard Specifications and Special Provisions*, Section 14-8.02, "Noise Control." Implementation of mitigation measure NOI-1 would also ensure that impacts would not be adverse.

Traffic noise impacts are predicted to occur at Activity Category B and C land uses within areas A, C, and G. Therefore, noise abatement must be considered. None of the analyzed walls was found to be both reasonable and feasible. Therefore, no walls are currently anticipated to be constructed as part of this project. If pertinent parameters change substantially during final project design, the preliminary noise abatement decision may be changed or eliminated. A final decision to construct noise abatement will be made upon completion of the project design.

Alternative 3, Partial Cloverleaf Interchange Configuration

Adverse noise effects anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2.

Current and Reasonably Foreseeable Projects within RSA: The NSR took into account future traffic growth associated with related projects and development in the RSA. Predicted traffic noise levels would approach or exceed the NAC of 67 dBA $L_{eq}(h)$ for Activity Category B and C land uses under design-year with-project conditions. Therefore, noise abatement must be considered as part of the proposed project. The results in Table B-1 of the NSR also indicate that predicted traffic noise levels under design-year with-project conditions would not approach or exceed the NAC of 72 dBA $L_{eq}(h)$ for Activity Category E land uses in the project area. A substantial increase in noise levels (12 dBA, as determined in the Protocol) is not predicted for any land uses in the project area.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, this alternative would not result in substantial adverse noise impacts. No cumulative adverse noise effects would occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

None of the related projects in the immediate project vicinity, with the possible exception of the Industry Business Center project, would generate construction or operation noise that would cumulatively contribute to the noise levels generated by construction activities associated with the proposed project. Additionally, implementation of mitigation measure NOI-1 would ensure that the proposed project's construction noise impacts would be minimized.

Under long-term (2037) cumulative conditions, the proposed project would result in increases in traffic noise levels at the measurement locations shown in Figure 2-37. Noise increases would be widely variable. Cumulative noise increases would range from -9 dBA at receiver G-6 to 5 dBA at receiver A2. Noise levels associated with the proposed project and future projects would result in traffic noise levels approaching or exceeding the NAC. Therefore, Alternative 2 and cumulative development would result in cumulative traffic noise impacts. However, the potential increases in noise levels would be less than the 12 dBA increase considered substantial by Caltrans.

Traffic noise impacts predicted to occur at Activity Category B and C land uses within areas A and C were analyzed for abatement. However, no walls were found to be both reasonable and feasible. Therefore, no walls are currently anticipated to be constructed as part of this project, and impacts would be considered cumulatively considerable. If pertinent parameters change substantially during final project design, the preliminary noise abatement decision may be changed or eliminated. A final decision to construct noise abatement will be made upon completion of the project design.

Vibration, impacts associated with construction activities would be cumulatively considerable only if located close to the project alignment. Because no nearby projects would be constructed at the same time as the proposed project, the cumulative effect from past, present, and reasonably foreseeable future projects would be less than cumulatively significant.

Alternative 3, Partial Cloverleaf Interchange Configuration

Cumulative construction noise impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Implementation of mitigation measure NOI-1 would reduce the project's contribution to any cumulative construction noise impacts.

Similar to Alternative 2, Alternative 3 would result in cumulative traffic noise impacts since projected noise levels would approach or exceed the NAC. However, the potential increases in noise levels would be less than the 12 dBA increase considered substantial by Caltrans.

2.4.14.3 Avoidance, Minimization, and/or Mitigation Measures

Implementation of mitigation measure NOI-1 would ensure that adverse project-related construction noise effects would be minimized.

2.4.15 Biological Environment

2.4.15.1 Affected Environment

Resource Study Area: The RSA for cumulative impacts on plant and wildlife resources would be the same as the RSA identified for the proposed project (see Figure 2-41a). The biological study area for the proposed project encompasses an approximately 2.6-mile-long segment of the SR-57/SR-60 confluence and an approximately 3,000-foot-long segment of Grand Avenue from the existing SR-60 westbound on-ramp to Golden Springs Drive. The RSA also includes an

additional 50-foot buffer outside the existing freeway right-of-way. The limits of the RSA include the current Caltrans right-of-way and adjacent private/public property required for widening and ancillary improvements, including retaining walls, drainage facility extensions, utility relocation, water quality treatment BMPs, temporary construction easements, and staging areas.

Existing Conditions within RSA: The area surrounding the project site contains residential, recreational (golf course), and commercial development as well as open space. The open space occurs on the north and west sides of the SR-57/SR-60 interchange at Grand Avenue. This open space, which, historically, was grazed, now exhibits remnant patches of coastal sage scrub surrounded by ruderal vegetation. No natural communities of concern are located within the RSA. However, there are a few individual native riparian trees and shrubs within and around tributaries to Diamond Bar Creek and within the existing SR-60 right-of-way near Diamond Bar Boulevard. These native trees include coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), California sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia* Nutt.), and California walnut (*Juglans californica*).

Drainage tributaries located within the RSA are either piped underground or within concrete channels with high, steep walls. Given some of the man-made constraints that are present, including freeway noise and night lighting, it is unlikely that the project site provides important value to the movement of mammals. There is little opportunity for mammal species to move from the adjacent Diamond Bar Creek to the golf course located across the freeway. However, there may be some potential for animals to move from the golf course to the Puente Hills, an open space located to the southwest.

The 2007 jurisdictional delineation indicated that 1.18 acres of Waters of the United States (WoUS) and 1.62 acres of waters of the state, including 0.38 acre of wetlands, were located within the RSA. Current engineering design plans indicate that the existing southerly SR-60 concrete-lined channel and minor culvert extensions would be relocated, which would affect other drainage features.

Much of the vegetation adjacent to SR-60 and Grand Avenue (e.g., coast live oak and California walnut trees) is ruderal or ornamental. A literature review, including federal, state, and CNPS data, yielded a list of 10 special-interest plant species that have the potential to occur in or within the vicinity of the RSA.

2.4.15.2 Environmental Consequences

Potential Direct and/or Indirect Impacts within RSA

Alternative 1, No-Build Alternative

The No-Build Alternative does not propose construction. Therefore, no impacts on biological resources are anticipated to occur.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Alternative 2 would result in the removal of existing native trees located within the BSA. Up to 96 trees may be affected (see Table 2-77). Implementation of this alternative would also result in the permanent loss of wetlands due to culvert extensions. Impacts on nesting birds could occur if an active nest is removed or nesting birds are disturbed as a result of construction activities and a nest is abandoned. The MBTA and California Fish and Game Code prohibit impacts that cause nest failure for most species of birds. Impacts on jurisdictional waters would occur.

Alternative 3, Partial Cloverleaf Interchange Configuration

Direct and indirect impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2. Mitigation measures included under Alternative 2 would also minimize impacts anticipated to occur under Alternative 3.

Current and Reasonably Foreseeable Projects within RSA: Within the immediate vicinity of the proposed project, the only related project that would have impacts on WoUS is the Grand Avenue widening project. Several projects, including the Grand Avenue widening and the Kaiser Permanente medical office building projects, have the potential to result in the removal of trees, which may affect nesting birds. Other projects within the RSA could also affect nesting birds as a result of tree removal.

Cumulative Impact Potential

Alternative 1, No-Build Alternative

As previously stated, no construction would occur under this alternative. No cumulative impacts on biological resources would occur under this alternative.

Alternative 2, Combination Cloverleaf/Diamond Configuration Interchange

Because impacts on mature native trees within the BSA would be offset by planting like-in-kind trees at a 1:1 or 2:1 ratio in proximity to the BSA, Alternative 2 is not expected to contribute to cumulative effects on native trees in the region. The Grand Avenue widening project would have impacts on jurisdictional waters similar to those of the proposed project; however, because impacts on jurisdictional waters within the BSA would be offset by the expansion of contiguous waters and wetlands at a 2:1 ratio immediately adjacent to the BSA along Diamond Bar Creek, Alternative 2 is not expected to contribute to cumulative effects on waters and wetlands in the region. This alternative would not result in adverse impacts related to special-interest plant species or threatened or endangered species.

Project impacts on nesting birds would be limited to the removal of trees and shrubs along active roadways in the project area. These resources are less suitable for nesting than other resources in the region because of their proximity to roadways and the resulting noise and human disturbance. Potential impacts from tree removal would be minimized and avoided by planting replacement trees. Related projects within the RSA could also result in the removal of trees that could support nesting birds; however, related projects may also be subject to compliance with state and federal

laws to protect biological resources, including the MBTA. Therefore, temporary impacts on these resources are not anticipated to result in a cumulatively considerable contribution to impacts on nesting sites in the region.

Alternative 3, Partial Cloverleaf Interchange Configuration

Cumulative impacts anticipated to occur under Alternative 3 would be similar to those anticipated to occur under Alternative 2.

2.4.15.3 Avoidance, Minimization, and/or Mitigation Measures

No substantial adverse cumulative impacts on biological resources are anticipated. Therefore, no additional mitigation measures beyond those identified above are required or proposed.

Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance Under CEQA

The project is subject to federal and state environmental review requirements because the City of Industry proposes the use of federal funds and/or the project requires federal and local discretionary approval actions. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). 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 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 environmental impact statement (EIS), or some lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an environmental impact report (EIR) or a mitigated negative declaration must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list 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 project and CEQA significance.

3.2 Discussion of Significance of Impacts

The following subsections (3.2.1 through 3.2.4) include an analysis of the proposed project's impacts per Appendix G of the State CEQA Guidelines (included as Appendix A of this document). The subsections have been organized as follows: Subsection 3.2.1 includes those topic areas where no impacts would occur, Subsection 3.2.2 describes those impacts that have been determined to be less than significant, Subsection 3.2.3 discusses those impacts would be less than significant with mitigation, and Subsection 3.2.4 identifies those impacts that are significant and unavoidable. To reduce redundancy within the effect determinations, the build alternatives, Alternatives 2 and 3, have been grouped where appropriate.

For a comparative discussion of the impacts of the No-Build Alternative and build alternatives under NEPA, please see Chapter 2.

3.2.1 No Impact

Aesthetics (CEQA Checklist Item 1(b))

(b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The project area does not include any scenic highways listed under the California Scenic Highway Program or other significant scenic resources. Therefore, no impact on scenic resources would occur.

Agricultural and Forest Resources (CEQA Checklist Items 2(a)–(e)): *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?

(b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

(c) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

(d) Result in the loss of forestland or conversion of forestland to non-forest use?

(e) Involve other changes in the existing environment that, because of their location or nature, could result in the conversion of farmland to non-agricultural use?

The project site is located predominantly within an existing transportation corridor right-of-way in a developed part of Los Angeles County. No land near the project site is classified as important farmland according to the California Department of Conservation's Farmland Mapping and Monitoring Program. No area within or near the project site is under Williamson Act contract. There are no forests or timberlands located near the project. No impact on agricultural and forest resources would occur as a result of construction and operation of the build alternatives.

Biological Resources (CEQA Checklist Item 4(f))

(f) Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The proposed project site is not part of an adopted Habitat Conservation Plan, or a Natural Community Conservation Plan. The project site is not part of a Significant Ecological Area determined by the County of Los Angeles. No impact on such areas would occur as a result of construction and operation of the build alternatives.

Hazards and Hazardous Materials (CEQA Checklist Items 8(e), (f), and (h))

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?

(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?

The proposed project would not occur within or near an airport of airstrip. The nearest facility for air travel is located approximately 10 miles to the northeast of the project site at the Brackett Field public airport. The project would not result in any safety hazards with respect to air travel, and no impact would occur during construction or operation of the build alternatives.

(h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including in areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The proposed project would not increase risks to people or structures related to wildland fires. With the exception of the grass-covered hillsides along the north side of the project alignment, which are planned for development under the Industry Business Center (IBC) and football stadium project, the area is developed. The build alternatives would modify existing transportation facilities and would not increase the susceptibility of the area to wildland fires. No impact related to wildland fires would occur as a result of construction and operation of the build alternatives.

Hydrology and Water Quality (CEQA Checklist Items 9(b), (g), and (h))

(b) Would the project 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 that would not support existing land uses or planned uses for which permits have been granted)?

The proposed project would not draw groundwater supplies, nor would it prevent groundwater recharge. No impact on the level of the water table would occur as a result of construction and operation of the build alternatives.

(g) Would the project 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?

(h) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

The project is not within a 100-year FEMA floodplain or the boundaries of flood hazard area or Flood Insurance Rate Map. The project involves the modification of existing transportation facilities and does not contain a housing component. The project would not impede or redirect flood flows. No impact would result from the construction and operation of the build alternatives.

Land Use and Planning (CEQA Checklist Items 10(a) and (c))

(a) Would the project physically divide an established community?

The proposed project involves the modification of existing transportation facilities and would not displace any residences. The project would not physically divide a geographically cohesive neighborhood, and no impact would occur as a result of construction and operation of the build alternatives.

(c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

According to the July 2010 Natural Environment Study, there are no active habitat conservation plans or natural community conservation plans within or adjacent to the project site. A mitigation bank established as part of the IBC project would be located in the vicinity of the proposed project improvements, but the proposed project would not affect the designated mitigation bank area. No impact on habitat conservation plan or natural community conservation plan areas would occur as a result of construction or operation of the build alternatives.

Mineral Resources (CEQA Checklist Items 11(a) and (b))

(a) Would the project 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?

(b) Would the project 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?

Oil exploration and production has occurred historically in the San Jose and Puente Hills. The Brea-Olinda and Puente oil fields are located south and southeast of the project site, and the Walnut field is located northwest of the project site. No oil production is known to have occurred on the site, and the project would not result in the loss of oil availability. Sand and gravel resources are not available at the project site. The project area has not been identified as containing mineral resources of state or local importance, according to the Conservation and Natural Resources Element of the 2012 Los Angeles County Draft General Plan. No impact on mineral resources would occur as a result of construction and operation of the build alternatives.

Noise (CEQA Checklist Items 12(e) and (f))

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?

(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?

The project site is not within 2 miles of a public airport, public use airport, or in the vicinity of a private airstrip, nor is it located with an airport land use plan. Furthermore, the proposed project involves the modification of an existing transportation corridor for automobiles, and would not increase exposure of residents and workers to air traffic noise. No impact would occur as a result of construction and operation of the build alternatives.

Population and Housing (CEQA Checklist Items 13(b) and (c))

(b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

(c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed project involves the modification of existing transportation facilities and would not require the permanent or temporary displacement of housing or residents. The project would not necessitate the construction of replacement housing and no impact on housing would occur as a result of construction and operation of the build alternatives.

Public Services (CEQA Checklist Item 14(a))

(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

i. Fire protection?

ii. Police protection?

iii. Schools?

iv. Parks?

v. Other public facilities?

Construction and operation of the build alternatives would involve modification of an existing freeway facility and reconfiguration of freeway on- and off-ramps. The build alternatives would not increase the supply of housing, and would not increase the population in the area. Therefore, construction and operation of the build alternatives

would not require new or physical alteration of existing governmental facilities in order to provide services. No impact would occur with respect to the provision of public service facilities as a result of construction and operation of either of the build alternatives.

Recreation (CEQA Checklist Item 15(b))

(b) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?

The proposed project does not include the construction of housing. Therefore, the proposed project would not increase population or result in increased use of parks or other recreational facilities. No impact with respect to use levels of recreation resources would occur as a result of construction or operation of the project.

Transportation/Traffic (CEQA Checklist Items 16(c))

(c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks?

The proposed project, which involves modification of an existing highway transportation corridor, would not affect air traffic patterns. No impact related to air traffic patterns would occur as result of construction or operation of the proposed project.

Utilities and Service Systems (CEQA Checklist Item 16(a), (b), and (f))

(a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No wastewater would be generated as a result of operation of the build alternatives. During construction of the proposed project, the contractor(s) would be responsible for providing portable toilet facilities for use by workers and ensuring appropriate off-site sewage disposal in accordance with local, state, and federal requirements. The proposed project would not require the expansion of any sewer collection or wastewater treatment facilities. Therefore, there would be no impact on wastewater treatment requirements or the capacity of existing wastewater treatment facilities as a result of the proposed project.

(b) Would the project require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?

The build alternatives would not would not require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities. There would be no impact.

(f) Would the project result in a determination by the wastewater treatment provider that 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?

No wastewater would be generated as a result of construction or operation of the build alternatives. The project would not require the relocation of any existing wastewater facilities. No impact on wastewater treatment would occur during construction and operation of the build alternatives.

3.2.2 Less-than-Significant Impact

Air Quality (CEQA Checklist Items 3(a), (b), (c), (d), and (e))

(a) Would the project conflict with or obstruct the implementation of the applicable air quality plan?

Construction
The project would comply with all South Coast Air Quality Management District (SCAQMD) Rules and Regulations regarding construction materials and methods identified in the region's Air Quality Management Plan (AQMP). For example, all architectural coating and asphalt pavement materials would meet Rule 1113 (Architectural Coatings) and Rule 1108 (Cutback Asphalt) requirements, respectively, for volatile organic compounds (VOC) content. In addition, all site disturbance activities would comply with Rule 403 (Fugitive Dust) requirements for fugitive dust suppression.

Operation
The project site is located within the Los Angeles County portion of the South Coast Air Basin (Basin). The SCAQMD is required, pursuant to the Federal Clean Air Act, to reduce emissions of criteria pollutants for which the Basin is in nonattainment (i.e., ozone, particulate matter [PM10 and PM2.5] and lead). As such, the project would be subject to the SCAQMD's AQMP. The AQMP contains emissions inventory reduction goals for mobile sources, stationary sources, and area/fugitive sources. Long-term emissions from project operations would be part of the mobile source inventory budget, which is managed via the transportation conformity process detailed in Chapter 2 (Regional Conformity). As detailed therein, the proposed project (and related air pollutant emissions) would meet transportation conformity determination requirements. Therefore, all project-related emissions would be accounted for in the regional AQMP.

(b) Would that project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction
Short-term construction emissions are quantified and presented in Chapter 2; implementation of the exhaust emissions and fugitive dust control measures identified in Chapter 2 would avoid and/or minimize any impacts on air quality during short-term construction.

Operation
As detailed in Chapter 2, project emissions during long-term operations occurring under either Build Alternative would not violate any air quality standard or substantially contribute to any existing or project air quality violation with respect to criteria pollutant or mobile-source air toxics (MSAT) emissions.

(c) Would the project 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)?

Construction
Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, the same emissions control requirements imposed on the proposed project (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide that are subject to those same rules and regulations. As such, short-term construction emissions would not be cumulatively considerable.

Operation
The SCAQMD approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed earlier under Air Quality response (a), the proposed project would be consistent with the AQMP, which is intended to bring the Basin into attainment for all criteria pollutants. As such, project-related emissions would not be considered cumulatively considerable.

(d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction
Short-term construction emissions are quantified and presented in Chapter 2; implementation of the exhaust emissions and fugitive dust control measures identified in Chapter 2 would avoid and/or minimize any impacts on localized air quality during short-term construction. The project would comply with all SCAQMD Rules and Regulations regarding construction materials VOC content for asphalt pavement and architectural coatings, as well as fugitive dust control measures (i.e., Rule 403) identified in the region's AQMP. As such, sensitive receptors would not be subject to substantial pollutant concentrations during short-term construction.

Operation
As detailed in Chapter 2, project emissions would not result in or contribute to any regional air quality violation. Furthermore, the analysis in Chapter 2 demonstrates that overall MSAT emissions are expected to decrease below existing conditions (2009) under both build alternatives at the opening year (2017) and the horizon year (2037). As such, sensitive receptors would not be subject to substantial pollutant concentrations during long-term project operation.

(e) Would the project create objectionable odors affecting a substantial number of people?

Construction

Odors resulting from the construction of the proposed project are not likely to affect a substantial number of people due to the fact that construction activities do not usually emit offensive odors. Potential odor emitters during construction activities include asphalt paving and the use of architectural coatings and solvents. SCAQMD Rules 1108 and 1113 limit the amount of VOCs from cutback asphalt and architectural coatings and solvents, respectively. Given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors.

Operation

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project would not include any of the types of uses identified by the SCAQMD as being associated with odor complaints.

Biological Resources (CEQA Checklist Items 4(a), (b) and (d))

(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?

The analysis of potential impacts of the SR-57/SR-60 Confluence at Grand Avenue project on threatened and endangered species is based on the Natural Environment Study, supporting focused surveys, and a subsequent 2011 least Bell's vireo survey. Focused surveys included USFWS protocol surveys for southwestern willow flycatcher and least Bell's vireo conducted in 2007 and 2008, focused plant surveys for Braunton's milk-vetch conducted in 2008 and 2011, and focused surveys for least Bell's vireo conducted in 2011. A literature review indicated the potential occurrence of one plant and three animal species in the biological study area (BSA) that are state- and/or federally listed as threatened or endangered. These threatened and endangered species are:

- Braunton's milk-vetch (*Astragalus brauntonii*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Least Bell's vireo *(Vireo bellii pusillus)*
- California gnatcatcher (*Polioptila californica californica*)

No threatened or endangered animal or plant species were observed or otherwise detected in the BSA at the time of the 2007, 2008, and 2011 field surveys. No federally designated critical habitat is present within the BSA. Since no threatened and endangered animal or plant species were observed or otherwise detected in the BSA

and no federally designated critical habitat is present within the BSA, impacts on threatened or endangered species occurring as a result of implementation of the build alternatives would be less than significant.

Impacts on locally protected native trees are discussed in Item 4(e) below.

(b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Construction

Implementation of Alternative 2 would result in temporary impacts on 18.39 acres of ruderal vegetation, 28.00 acres of ornamental vegetation, and 7.85 acres of developed area. Implementation of Alternative 3 would result in temporary impacts on 18.29 acres of ruderal vegetation, 27.63 acres of ornamental vegetation, and 7.85 acres of developed area. None of the vegetation that would be affected with the implementation of the build alternatives is considered a natural community of concern. Construction-related impacts on riparian habitats and natural communities would be less than significant.

Operation

Implementation of Alternative 2 would result in permanent impacts on 1.86 acres of ruderal vegetation, 9.00 acres of ornamental vegetation, and 3.92 acres of developed area. Implementation of Alternative 3 would result in permanent impacts on 1.96 acres of ruderal vegetation, 9.37 acres of ornamental vegetation, and 3.93 acres of developed area. None of the vegetation that would be permanently affected with the implementation of the build alternatives is considered a natural community of concern. Operational impacts on riparian habitats and natural communities would be less than significant.

(d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or the use of established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?

The project area is not formally identified as a wildlife corridor, although some areas may serve as informal wildlife corridors. A number of man-made physical constraints exist in the project area in relation to the movement of large mammals. However, there may be a potential for smaller animals to move from the Diamond Bar Golf Course to the Puente Hills open space located to the southwest. Within the context for bird movement, the golf course and the Diamond Bar Creek riparian corridor located adjacent to the BSA may function as a potential linkage to open space areas in the region. The build alternatives would require the acquisition of portions of the Diamond Bar Golf Course, but the golf course could continue to function as a potential wildlife corridor between the Puente Hills, San Jose Hills, and Whittier Narrows. Impacts related to migratory patterns that would occur as a result of the construction and operation of the build alternatives would be less than significant.

Cultural Resources (CEQA Checklist Item 5(a) and (b))

(a) Would the project cause a substantial adverse change in the significance of a historical resource, as defined in California Code of Regulations Section 15064.5?

Construction
There are no California Points of Historical Interest, California Historical Landmarks, California Register of Historical Resources, National Register of Historic Places, or state Historical Resources Inventory listings within a 1-mile radius of the project APE. Because there are no historical resources located within the APE, impacts occurring as a result of construction of the build alternatives would be less than significant.

Operation
Following the completion of construction of the build alternatives, there would be no ground disturbances associated with project operation and no indirect impacts on historical resources in the vicinity of the project site. Therefore, operation of the build alternatives would have no impact related to historical resources.

(b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations Section 15064.5?

Construction
No resources that would require evaluation were identified within the project APE. Native American consultation revealed that existing sacred sites are located near the project area but outside of the APE. After reviewing the results of the survey and the records search, it has been determined that there is one archaeological resource adjacent to the project APE; an impact finding of less than significant with standard conditions would be appropriate. The standard conditions would include archaeological monitoring of all initial grading activities for the proposed project, as described in mitigation measures CUL-1 and CUL-2 (please refer to Section 2.1.7).

Operation
After construction, operation of the build alternatives is not expected to affect any historic or archaeological resources because the proposed project would be a traffic operations improvement project. No additional excavation or building demolition would be necessary during operation.

Geology and Soils (CEQA Checklist Items 6(a)(i) and (e))

(a) (i) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

The project site is not located within an Alquist-Priolo Earthquake Fault Zone and the risk of ground surface rupture is low and would be less than significant during construction and operation.

(e) Would the project have soils that are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No septic tanks or alternative wastewater disposal systems would be used as part of the proposed project. No impact related to the ability of soils to support such systems would occur during construction or operation of the project.

Hydrology and Water Quality (CEQA Checklist Items 9(c), (f), (i), and (j))

(c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

Drainage components will be designed to maintain the existing flow patterns through the project limits consistent with applicable Caltrans and municipal design criteria and ordinances. This will be achieved through the inclusion of various drainage facilities as specified and approved on detailed engineering plans so as not to induce downstream flooding or deflect flows from their natural course. Impacts related to drainage patterns would be less than significant.

(f) Otherwise substantially degrade water quality?

The build alternatives would not generate wastewater. Aside from the potential for runoff with associated contaminants discussed for Items 9 (a), (d), and (e), no reasonably foreseeable sources of water quality degradation have been identified. Impacts occurring as a result of construction and operation of the build alternatives would be less than significant.

(i) Would the project 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?

The project site is not located within a FEMA 100-year floodplain or within an inundation area. In addition, implementation of either of the build alternatives would not significantly change the existing drainage patterns of the site. Impacts related to flooding that would occur as a result of construction and operation of the build alternatives would be less than significant.

(j) Would the project expose people or structures to a significant risk of loss, injury, or death from inundation by seiche, tsunami, or mudflow?

Seiches are large waves created in enclosed bodies of water that overflow their enclosures. Puddingstone Reservoir located approximately six miles north of the project site is the nearest water body that could produce seiches. Given the lack of proximity to the project area, the risk of harm from seiches is extremely low. The project is located approximately 25 miles from the nearest ocean, making it extremely unlikely that it would be inundated by a tsunami. With respect to mudflows, please refer to the discussion of landslides and soil stability. Impacts would be less than significant.

Land Use and Planning (CEQA Checklist Items 10(b))

(b) Would the project conflict with any applicable land use plan, policy, or regulation (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?

The project would be consistent with the land use policies of the cities of Diamond Bar and Industry. In addition, the project is consistent with the 2012 SCAG RTP. Impacts resulting from construction and operation of either of the build alternatives would be less than significant. Please refer to the Land Use section in Chapter 2, Section 2.1.1, for further discussion.

Noise (CEQA Checklist Items 12(a), (b), and (c))

(a) Would the project result in the 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?

Construction

During the construction phase of the proposed project, noise from construction activities may intermittently dominate the noise environment at surrounding land uses. Construction noise is regulated by Caltrans' provisions in Section 14-8.02, "Noise Control," of the *Draft 2010 Standard Specifications and Special Provisions*, which states that construction noise will not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m., alternative warning method instead of a sound signal unless required by safety laws will be used, internal combustion engine will be equipped with a manufacturer-recommended muffler, and internal combustion engines on the job site will not be operated without the appropriate muffler. Although the construction period is scheduled to last approximately 36 months, construction noise would be short-term, intermittent, and generally overshadowed by local traffic noise. Given that the project would comply with Caltrans standards and local noise ordinances, construction noise-related impacts resulting from implementation of the build alternatives would be less than significant.

Operation

Existing peak-hour traffic noise levels at all modeled receivers are listed in the Noise section in Chapter 2. Given that the proposed project involves improvements to an existing transportation facility, some receivers already are exposed to peak-hour traffic noise levels that approach or exceed the noise abatement criteria (NAC). Modeling results outlined discussed in Chapter 2 indicate that predicted traffic noise levels for the design-year with-project conditions approach (i.e., come within 1 dBA) or exceed the NAC of 67 dBA for residential land uses at residences within areas A, C, and G (please refer to Figure 2-37). Modeled receptors in Area B would not approach or exceed the NAC. Modeled future with-project noise levels show undeveloped locations within Area C (receptors C38 through C40) that fall within Category F and Category G (commercial/industrial areas and undeveloped lands, respectively). These are modeled for

reporting purposes only. Receptors located within Area D fall within Category E (hotels, offices, and retail uses) and Category F. No receivers approach or exceed the Category E NAC of 72 dBA. Traffic noise impacts are predicted to occur for Category B and Category C land uses within areas A, C, and G.

A 12-foot-high soundwall would be constructed along the western edge of Diamond Bar Golf Course, north of Grand Avenue, as a component of the project and a measure to minimize harm to a Section 4(f) property.

In light of the forecast noise, noise abatement was considered. Reasonableness cost allowance calculations were carried out for barriers that were found to be acoustically feasible (providing a 5 dBA reduction at an impacted receiver). The reasonableness allowances calculation presented in the Noise Abatement Decision Report (NADR) were compared with the estimated costs of noise walls found to be acoustically feasible. Additional non-acoustical factors, such as utility relocation, preservation of minimum sight distances, and geotechnical considerations, were also addressed as part of the NADR reasonableness determination process. Reasonableness recommendations and determinations for each of the evaluated noise walls were made by the project engineer and presented in the NADR.

(b) Would the project result in the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Construction

During construction of either of the build alternatives, noise and vibration would be created. However, given the short-term, intermittent nature of construction activities and compliance with Section 14-8.02, "Noise Control," of the *Draft 2010 Standard Specifications and Special Provisions*, noise related to construction would not be excessive, and would be a less-than-significant impact.

Operation

The project area currently contains a major transportation corridor; modifications to local roads, ramps, and freeway mainline segments may marginally increase ground-borne noise and vibration, but any increase stemming from implementation of the build alternatives would be less than significant due to the limited expansion of an existing transportation facility proposed under the build alternatives.

(c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

As noted above, in the NSR, modeled operational design year with project noise related changes range from -8 dBA up 6 dBA over existing noise levels. As referenced in the Traffic Noise Analysis Protocol (Protocol) a substantial increase is defined as a difference of 12 dBA or more between the design year with project worst noise hour and the existing worst noise hour. The proposed project would not cause an increase of 12 dBA over existing noise levels at any land use surrounding the project site. Impacts would be less than significant.

Population and Housing (CEQA Checklist Items 13(a))

(a) Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

The proposed project is located in an area that serves as a major transportation corridor, and is bordered by residential and commercial land uses. No new housing is included as part of the project. The project would involve modifications to existing infrastructure rather than the creation of new infrastructure in previously undeveloped areas. Neither construction nor operation would induce substantial population growth, and impacts would be less than significant.

Transportation/Traffic (CEQA Checklist Items 16(a), (b), (d), (e), and (f))

(a) Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

The proposed project does not conflict with any applicable plan, ordinance, or policy related to the performance of the circulation system. The proposed project would improve circulation along the confluence of SR-57 and SR-60, an important regional transportation facility. The project would improve local circulation and safety for vehicles. With respect to non-motorized travel, the project would not interfere with the ability of pedestrians and bicyclists to travel on local roads. Impacts related to consistency with existing transportation plans would be less than significant.

(b) Would the project conflict with an applicable congestion management program, including level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?

When compared to the No-Build Alternative, the build alternatives increase intersection efficiency and improve levels of service. Implementation of the build alternatives would not conflict with any congestion management program or local level-of-service standard. Impacts related to the construction and operation of either build alternative would be less than significant.

(d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The build alternatives are intended to reduce weaving movements in the SR-57/SR-60 confluence area, which would make vehicular travel in the area safer. A northbound/ eastbound loop ramp would be added as a component of Alternative 3 and the southbound/westbound loop ramp would be reconfigured under both build alternatives. Other than these ramps, no sharp curves would be added and intersection safety would be improved under the build alternatives. No incompatible uses would endanger users. Impacts would be less than significant.

(e) Would the project result in inadequate emergency access?

Construction

The project would be constructed in stages to limit local road closures, ramp closures, and freeway closures. In addition, a Transportation Management Plan (TMP) specific to the project would be developed and implemented to ensure that closures would be coordinated and substantial delays would be avoided. The Grand Avenue overpass would be constructed in two stages to maintain four lanes of traffic throughout construction. Grand Avenue may be closed over several weekends between stages and during removal of the existing bridge. Other overnight or weekend closures would affect the westbound off-ramp, Golden Springs Drive at the SR-57 connector, and the Diamond Bar Boulevard on- and off-ramps. Mainline SR-60 would be closed overnight for demolition of the Grand Avenue overpass and erection of falsework over the freeway. All freeway lanes would be open for weekday peak-hour traffic. Longer term ramp closures would be required for the westbound loop on-ramp and the westbound direct on-ramp as well as access from southbound Grand Avenue to the eastbound SR-60 on-ramp. Emergency service providers would be notified of construction activities and closures that may hinder emergency access. Impacts related to emergency access during construction would be less than significant.

Operation

Following construction, full, uninterrupted access to emergency providers would be returned to pre-project levels. No operational impact would occur with respect to operational emergency access under the build alternatives.

(f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?

Construction

Foothill Transit operates six bus lines within a mile of the site of the project. These lines include the 286, 482, 493, 497, 853, and 854 lines, and would operate during and after construction of the proposed project. All of these lines except for lines 497 and 853 cross under the proposed SR- 60 eastbound connector above Diamond Bar Boulevard, which would be constructed as a component of the build alternatives. Lines 482, 493, 853, and 854 operate on Golden Springs Boulevard, which would be widened under Alternative 2. Construction would occur in phases and would limit closures to non-peak hours to prevent serious delays to public transportation. Implementation of the build alternatives would have a less-than-significant impact with respect to public transit service. Closures along Grand Avenue and other local roads would be limited and would allow for pedestrian and bicycle travel, and impacts on these modes would also be less than significant.

Operation

Following the completion of construction, local roads would be fully accessible to bicycle and pedestrian traffic. No new bicycle infrastructure would be created as a result of implementation of the build alternatives, but bicycles would not be prohibited from

using Grand Avenue. An eight-foot pedestrian walkway would be constructed along the east side of Grand Avenue under both build alternatives, which would result in greater pedestrian access.

Utilities and Service Systems (CEQA Checklist Items 17(d), (f), and (g))

(d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

Construction
Water needed for construction would be obtained off-site and quantities used for activities such as cement mixing and for dust control would be small, and would not require new or expanded entitlements. Impacts related to water supplies resulting from construction of the build alternatives would be less than significant.

Operation
No water service is required for operation of the build alternatives. No impact would occur as result of operation of either of the build alternatives.

(f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Construction
Construction of the build alternatives would generate construction waste material from demolished structures. The waste would include concrete, asphalt, vegetation, soil, rebar, and other similar materials. The construction contractors would be required to divert construction waste material (by reduction, recycling, reuse, and composting) from landfills within Los Angeles County. As a result of these reduction and recycling activities, the total amount of construction waste material anticipated to be disposed of in area landfills under the build alternatives would be limited and is not expected to exceed the permitted capacity of the regional landfills.

Operation
During operation of the build alternatives, waste material would be generated as part of landscape maintenance and collection of litter along the roadside. Vegetative material generated during landscape maintenance would be disposed of at a composting facility. Trash and other waste material collected along the road would be disposed at area recycling facilities and in landfills. The total amount of litter generated under the build alternatives would not be substantial, and because of the composting and recycling activities, it is not expected to exceed the permitted capacity of regional landfills. Therefore, impacts on landfills would be less than significant.

(g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Construction waste from the build alternatives would be limited to debris such as materials from demolished structures within the project right-of-way. Operational solid waste material would be generated as part of landscape maintenance and picking up of

litter along the road. All of the solid waste generated by the build alternatives would be disposed of in accordance with federal, state, and local regulations related to recycling. Therefore, the build alternatives would not result in significant impacts related to federal, state, or local statutes and regulations related to solid waste.

3.2.3 Less-than-Significant with Mitigation

Aesthetics (CEQA Checklist Items 1(a), (c), and (d))

(a) Would the project have a substantial adverse effect on a scenic vista?

The project corridor is not officially designated as a Scenic Highway, but the segment of SR-57 immediately to the south of the SR-57/SR-60 confluence is eligible for official designation. From the project area, ridgelines and peaks within the Angeles National Forest located to the north are visible in the distance. Southbound travelers have distant views of hillsides and ridges of the Puente Hills and Chino Hills. Mature trees, hillsides, and landscaping along the confluence right-of-way also enhance the visual environment. Commercial uses to the east of the right-of-way and signage reduce the visual integrity in the project area. The visual quality within the project area is considered to be moderately high.

Construction
Construction of the build alternatives would involve the removal of landscaping and ornamental trees along Grand Avenue and Diamond Bar Golf Course. However, with the implementation of mitigation measures VIS-1 through VIS-4, landscaping and trees from areas disturbed by construction would be replaced or enhanced. Impacts related to the removal of landscaping and trees would be less than significant following the implementation of VIS-1 through VIS-4 (please refer to Section 2.1.6). Construction of the build alternatives would not alter the distant views of peaks and ridgelines to the north and south of the project area.

Operation
Following the completion of construction and the implementation of mitigation measures VIS-1 through VIS-4, modifications to landscaping would not be considered a significant impact. A soundwall 12 feet in height would be constructed along the western edge of Diamond Bar Golf Course to the north of Grand Avenue. Freeway travelers would notice an increase in hardscape features, but with the implementation of VIS-4, impacts related to the appearance of the soundwall during operation would be less than significant.

(c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Construction of the project would involve the removal of landscaping and mature trees at various points along the alignment, which would be replaced or enhanced through the implementation of VIS-1 through VIS-4. Construction period impacts would be temporary and would not change the visual character of the area, and therefore would be less than significant. With respect to the operation of the build alternatives, the visual character of the corridor would not be degraded, as construction of the build alternatives

would not change the function of the project area as a transportation corridor. A soundwall would be installed along the northbound/eastbound on-ramp, but the introduction of additional hardscape would not be considered a significant impact with the implementation of VIS-4. The build alternatives would not affect views in the distance. Impacts on the visual character and quality during construction and operation of the build alternatives would be less than significant with the implementation of VIS-1 through VIS-4.

(d) Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction
During the construction period, the proposed project may require nighttime construction activities in select portions of the project area. Light and glare from nighttime construction lighting would potentially cause a nuisance to nearby residents and motorists traveling along the project site. These activities may be required to take place for several months. However, the project area contains existing sources of light (i.e., vehicle headlights, street lights, commercial and residential lights, etc.). With implementation of VIS-5 (please refer to Section 2.1.6), impacts from construction-related light and glare would be less than significant.

Operation
The project site serves as a transportation corridor with light from vehicle headlights, street lights, and commercial and residential lights. The project would not substantially increase the level of lighting in the area. Operational impacts associated with the implementation of the build alternatives would be less than significant.

Biological Resources (CEQA Checklist Items 4(c) and (e))

(c) Would the project have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act, including marsh, vernal pool, and coastal areas, through direct removal, filling, hydrological interruption, or other means?

According to the 2007 Jurisdiction Delineation, 0.38 acres of wetlands are located within the BSA. Under each of the build alternatives, the project would result in the permanent loss of 0.12 ac (0.05 ha) of wetlands due to culvert extensions to accommodate the widening of SR-60 and Grand Avenue. Measures BIO 3 through BIO-8 (please refer to Section 2.3) would reduce these impacts to a less-than-significant level. Additional measures may be imposed subject to the concurrence of the resource agencies (including USACE, CDFG, and RWQCB) and may entail one or more of the following options in order of preference: 1) on-site creation or enhancement of riparian habitat; 2) off-site creation or enhancement of riparian habitat; and/or 3) participation in an established off-site mitigation bank program. The appropriate mitigation ratio would be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be affected.

Indirect effects on wetlands and other waters may include: 1) changes in hydrology from increased sediment entering drainage areas after vegetation clearing, and/or 2) invasive, nonnative plants transported into areas along the roadway with the movement of soil and/or placement of fill material that is present on construction equipment brought on-site or taken off-site and is inadvertently included in seed mixes. With the water quality protection measures outlined in mitigation measures WQ-1 and WQ-2, these indirect effects, which would occur only during construction, would be less than significant.

(e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The build alternatives would involve the removal of as many as 96 trees. As the design of the project is finalized and the extent of the widening is precisely defined, field review to determine the extent of impacts on native trees would be conducted, with removal of native trees avoided to the extent possible. Implementation of measures BIO-1 and BIO-2 (please refer to Section 2.3) would ensure that impacts on native trees related to the construction and operation of the build alternatives would be less than significant.

Cultural Resources (CEQA Checklist Items 5(c) and (d))

(c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction
Construction of the build alternatives would require grading and excavation. Therefore, there is the potential to affect paleontological resources present within deeper Pleistocene alluvium or in the Puente Formation. Mitigation measure CUL-3 (please refer to Section 2.1.7) would reduce these potential impacts to a less-than-significant level.

Operation
Following the completion of construction of the build alternatives, there would be no ground disturbance. Therefore, operation of the build alternatives would have no impact related to paleontological resources.

(d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction
No human remains, including those interred outside of formal cemeteries, are known to occur in the APE. Given that construction involves grading and excavation, there is the possibility that workers could expose previously undiscovered human remains. With the implementation of measure CUL-2, however, impacts on human remains related to construction of the build alternatives would be less than significant.

Operation
Following the completion of construction of the build alternatives, operation would not involve ground disturbance. No impact on human remains would occur as a result of operation of the build alternatives.

Geology and Soils (CEQA Checklist Items 6(a)(ii), (a)(iii), (a)(iv), (b), (c), and (d))

(a) (ii) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

The probability that the project site will be subject to strong seismic shaking from a moderate to large earthquake on a major active fault in the Los Angeles region is high. The level of hazard posed by seismic shaking in the area is considered high (please refer to Table 2-58) because of the proximity to these known active faults. Therefore, there is the potential for adverse effects related to seismic shaking to occur. There is no realistic way to avoid hazards related to seismic shaking entirely; however, risks related to exposure to future ground shaking would be no greater than risks at other sites in the vicinity. With the implementation of Measure GEO-1 (please refer to Section 2.2.3), impacts related to seismic ground shaking would be minimized to the extent practicable and would be less than significant.

(a) (iii) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismically related ground failure, including liquefaction?

Fault-Induced Ground Rupture
According to the geotechnical reports prepared for proposed project components, the Valley of Diamond Bar Creek may be controlled by a fault under the axis of the valley. The northeast-southwest linearity of the valley may be due to erosion along the fractured rocks along the fault. However, this fault is only inferred and not exposed. If there is a fault, it is not known to be active. No Alquist-Priolo Earthquake Fault Zones requiring special studies are located in the immediate project area. Therefore, the risk for ground surface rupture is low, and risk of loss, injury, or death occurring as a result of construction and operation of the build alternatives would be less than significant.

Liquefaction
Liquefaction occurs when water-saturated sandy soils are subjected to seismic shaking. When soil liquefies, it behaves as a viscous liquid rather than a solid and can cause surface subsidence, slope failures, lateral spreading, ground cracking, and sand blows. Liquefaction can also cause structures to tilt or sink into the surface. According to the geotechnical analyses prepared for the project components, the areas in which the eastbound bypass connector, Grand Avenue overcrossing, and retaining walls are located are all susceptible to liquefaction. With implementation of Measure GEO-10 (please refer to Section 2.2.3), however, hazards posed by liquefaction would be minimized and would be less than significant for construction and operation of the build alternatives.

(a) (iv) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The project area is composed of hilly and flat terrain. Graded embankments consisting of retaining walls and fill slopes would be constructed at the approaches. These graded embankments, if properly constructed, should be stable at a gradient of 2:1 (H:V). Nonetheless, effects related to temporary slope instability would be potentially adverse. With implementation of Measures GEO-2 through GEO-9 (please refer to Section 2.2.3), however, impacts related to slope stability would be minimized and would be less than significant for construction and operation of the build alternatives.

(b) Would the project result in substantial soil erosion or the loss of topsoil?

Construction

During the construction period, soil erosion and topsoil loss is likely to occur as a result of having exposed soil from grading and excavation activities. However, with the implementation of GEO-2 through GEO-9 to stabilize slopes, soil loss resulting from construction of the build alternatives would be less than significant.

Operation

Operation of the build alternatives would not involve exposure of soil, and substantial erosion is not expected to occur, because the project would result in the operation of an existing freeway and associated on- and off-ramps. In addition, new landscaping planted as a component of the build alternatives would reduce the potential for soil erosion. Impacts related to soil erosion and topsoil loss during operation of the build alternatives would be less than significant.

(c) Would the project be located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The project site is located in the valley of Diamond Bar Creek, which has elevations ranging from 550 to 700 feet, and is bounded by a ridge on the north that rises to about 800 feet elevation, and hills on the south that rise to about 1,000 feet before descending into Tonner Canyon to the south. Given the range in elevations and factors explained in the geotechnical analyses of project components, there is the possibility of landslide, lateral spreading, subsidence, and liquefaction occurring in the project area. However, with implementation of GEO-11 through GEO-16 (please refer to Section 2.2.3) in addition to GEO-1 through GEO-9 discussed above, impacts resulting from unstable soils would be less than significant for construction and operation of the build alternatives.

(d) Would the project 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?

The Structure Preliminary Geotechnical Report (SPGR) for the replacement of the Grand Avenue overcrossing found that the soil types beneath the SR-60 mainline are most likely silt and silty clay. In addition, the SPGR for the retaining walls identified

clay and clayey soils beneath the proposed retaining wall locations. The soils within the project area are considered expansive, but are not anticipated to create substantial risks to life or property with the implementation of mitigation measure GEO-17. By implementing mitigation measure GEO-17 (please refer to Section 2.2.3) impacts related to the presence of expansive soils as a result of construction and operation of the build alternatives would be less than significant.

Hazards and Hazardous Materials (CEQA Checklist Items 8(a), (b), (c), (d), and (g))

(a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

The materials used in traffic striping and aerially deposited lead along the side of the confluence could pose risks during the construction phase. The age of the existing traffic striping on the project site is unknown. Since the age cannot be determined, there is potential for elevated levels of lead and chromium to be present on-site associated with on-site traffic striping and releases during construction activities. Exposure of humans to lead and chromium could result in a substantial adverse effect if not tested or handled properly and, therefore, would require measures to minimize potential adverse effects. In addition, exposure of humans to aerially deposited lead could result in a substantial adverse effect if not tested or handled properly. The improper handling, exposure, or accidental release of contaminated groundwater could result in a substantial adverse impact on construction workers. Therefore, measures to minimize potential adverse effects would be required.

In addition to the potential hazards posed by traffic striping and aerially deposited lead, there is also the potential for workers to encounter PCBs in the soils around the project site from the pole-mounted transformers. Although site visits in August 2007, April 2008, and September 2011 did not yield evidence that fluid from transformers had been released into the soils below, the release of PCBs into bare soil is considered an environmental hazard. In addition, exposure of the environment and humans to PCBs could result in a substantial adverse effect. Therefore, measures to minimize potential adverse effects would be required. Implementation of mitigation measures HAZ-1 through HAZ-7 (please refer to Section 2.2.5) would reduce the risks associated with hazardous materials used and transported during construction to a less-than-significant level.

Operation

Under existing conditions, the SR-57/SR-60 confluence carries passenger cars and vehicles involved in the movement of goods, which includes the transport of hazardous wastes. Operation of each of the build alternatives would involve the same types of vehicles using the ramps, local roads, and freeway segments. There is a potential for accidents to occur, and if accidents involving vehicles transporting hazardous wastes occur, it is likely that hazardous materials would be released into the environment. This risk is not a new risk associated with the operation of the SR-57/SR-60 confluence, as there is potential for vehicle accidents to occur at present. Given that the project improves

safety by reducing weaving and that existing emergency response procedures are designed to deal with such scenarios, operation of the build alternatives would result in a less-than-significant impact with respect to the release of hazardous materials.

(b) Would the project 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?

Construction

As discussed for Item 8(a), above, during construction of the build alternatives, lead-based paints, soils contaminated with aerially deposited lead, asbestos-containing materials, contaminated groundwater, and PCBs have the potential to be released into the environment. Given that the project will comply with all applicable rules and regulation related to the handling of hazardous materials and that measures HAZ-1 through HAZ-7 will be implemented, impacts from construction of the build alternatives would be less than significant.

Operation

Under existing conditions, the SR-57/SR-60 confluence carries passenger cars and vehicles involved in the movement of goods, which includes the transport of hazardous wastes. Operation of each of the build alternatives would involve the same types of vehicles using the ramps, local streets, and freeway segments. There is a potential for accidents to occur, and if accidents involving vehicles transporting hazardous wastes occur, it is likely that hazardous materials would be released into the environment. This risk is not a new risk associated with the operation of the SR-57/SR-60 confluence, as there is potential for vehicle accidents to occur at present. Given that the project improves safety by reducing weaving and that existing emergency response procedures are designed to deal with such scenarios, operation of the build alternatives would result in a less-than-significant impact with respect to the release of hazardous materials.

(c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Construction

There is a private preschool, La Petite Academy, located approximately 200 feet south of the Grand Avenue/Golden Springs Drive intersection. In addition, a public school, Armstrong Elementary School, is located on the opposite side of the freeway from the northernmost point of the Diamond Bar Golf Course, and is approximately 0.10 mile north of the freeway. Given the likely presence of hazardous materials during the construction period, there is a potential for the emission of hazardous materials, which would be a significant impact. By complying with applicable regulations and implementing measures HAZ-1 through HAZ-7, impacts on schools would be reduced to a level that is less than significant.

Operation

Under existing conditions, the SR-57/SR-60 confluence carries passenger cars and vehicles involved in the movement of goods, which includes the transport of hazardous wastes. Operation of each of the build alternatives would involve the same

types of vehicles using the ramps, local streets, and freeway segments. Risks to school facilities and children are dependent on the traffic levels of vehicles transporting hazardous materials, but existing emergency response plans ensure that risks associated with hazardous material accidents are minimized. Hazardous material impacts on schools resulting from the operation of the build alternatives would be less than significant.

(d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?

Construction

According to the January 2009 Phase I Initial Site Assessment and the April 2012 Supplemental Memorandum, there are 35 sites listed within ¼-mile of the project site, including three gas stations included on the Cortese List at 206 S Diamond Bar Boulevard, 301 S Diamond Bar Boulevard, and 22628 E Golden Springs Drive. Construction of the build alternatives has the potential to expose contaminated groundwater or soil, which would be a significant impact. With the implementation of mitigation measures HAZ-1 and HAZ-7, impacts related to construction of the build alternatives would be less than significant.

Operation

Following completion of construction, operation of the build alternatives would not involve excavation of potentially contaminated soils. Therefore, impacts related to operation of the build alternatives would be less than significant.

(g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction

Under both build alternatives, local road closures, ramp closures, and freeway closures would be limited. The Grand Avenue overpass would be constructed in two stages to maintain four lanes of traffic throughout construction. Grand Avenue may be closed over several weekends between stages and during removal of the existing bridge. Other overnight or weekend closures would affect the westbound off-ramp, Golden Springs Drive at the SR-57 connector, and the Diamond Bar Boulevard on- and off-ramps. Mainline SR-60 would be closed overnight for demolition of the Grand Avenue overpass and erection of falsework over the freeway. All freeway lanes would be open for weekday peak-hour traffic. Longer-term ramp closures would be required for the westbound loop on-ramp and the westbound direct on-ramp as well as access from southbound Grand Avenue to the eastbound SR-60 on-ramp. Construction has the potential to delay the response time of emergency providers, which would result in potentially significant effects. However, implementation of mitigation measure UT-4 (please refer to Section 2.1.4) would reduce impacts to less-than-significant levels.

Operation
Following the completion of construction, full access at freeway ramps and along local roads would be fully restored for emergency service providers. No impact on emergency response or evacuation plans would occur during operation of either of the build alternatives.

Hydrology and Water Quality (CEQA Checklist Items 9(a), (d), and (e))

(a) Would the project violate any water quality standards or waste discharge requirements?

Construction
During construction, the total disturbed area under the build alternatives is estimated to be 42.1 acres. The pollutants of concern during construction typically include sediment, litter, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Under the Construction General Permit, the project is required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement erosion and sediment control BMPs detailed in the SWPPP during construction. If construction BMPs listed under mitigation measure WQ-1 are properly designed (please refer to Section 2.2.2), implemented, and maintained, then water quality impacts during construction of the build alternatives would be less than significant.

There are no sole-source aquifers in the project area. Based on the overlying soil types and underlying strata, the presence of groundwater being encountered is probable. As such, during construction, groundwater may be encountered during excavation associated with the project. Groundwater and any other non-stormwater dewatering activities are subject to the requirements of the Dewatering Permit (Order Number R4-2008-0032). Compliance with this permit would avoid significant impacts on water quality via dewatering because the permit prohibits discharges that would result in significant impacts.

As the project progresses through the design phase, the above list of treatment control BMPs shall be evaluated per the PPDG process. Treatment control BMPs will be proposed based on their technical feasibility, the site conditions, and geotechnical conditions.

Operation
Because the project consists of new roadway and on-ramp areas, it would result in a permanent increase of impervious surfaces of 14.1 acres under the build alternatives (12.9 acres within Caltrans right-of-way, and 1.2 acres outside of Caltrans right-of-way) and a permanent increase in runoff and pollutant loading. Operation of the project is subject to the requirements of Caltrans' NPDES Permit. As part of these requirements, the design of the project must:

- Consider approved structural treatment control and non-structural source control BMPs for the project site; and
- Construct structural treatment control BMPs where feasible.

Currently, stormwater runoff from within the project limits is untreated. Under all of the build alternatives, structural treatment control BMPs must be implemented to target the anticipated constituents (particulate and dissolved metals, total suspended solids, litter, and biochemical oxygen demanding substances) in stormwater, as well as non-stormwater sources, in runoff from the project area. Where feasible, structural treatment control and non-structural source control BMPs will be incorporated into the project. In addition, the structural treatment control and non-structural source control BMPs will be used to maximize pollutant treatment where feasible. With the implementation of the BMPs contained in mitigation measure WQ-2, operation of the build alternatives would result in less-than-significant impacts on water quality.

(d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?

Construction

Under either of the build alternatives, the existing drainage pattern on the project site would be maintained during construction activities. When existing drainage facilities are impeded by construction activities, storm flows would be temporarily detoured as necessary, but would not result in altering the existing drainage pattern. Therefore, existing hydrological and flood conditions would not be modified and impacts would be less than significant.

Operation

Neither of the build alternatives would be located within, nor would it encroach upon a 100-year floodplain as identified by FEMA, nor would the build alternatives support incompatible floodplain development.

Drainage components will be designed to maintain the existing flow patterns through the project limits consistent with applicable Caltrans and City design criteria and ordinances. This will be achieved by the inclusion of various drainage facilities as specified and approved on detailed engineering plans so as not to induce downstream flooding nor deflect flows from their natural course. With the implementation of minimization measure HYD-1 (please refer to Section 2.2.1), impacts on flooding and drainage resulting from operation of the build alternatives would be less than significant.

(e) Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Since the build alternatives consist of new roadway and on-ramp areas, there would be a 14.1-acre increase in impervious surfaces, which would result in a permanent increase in runoff. The amount of increase would not be substantial, and is unlikely to result in flooding. With the implementation of WQ-1, WQ-2, and HYD-1, the build alternatives would not create or contribute runoff that exceeds stormwater drainage system capacity. Impacts resulting from construction and operation of the build alternatives would be less than significant.

Noise (CEQA Checklist Item 12(d))

(d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction

During construction of the proposed project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans' provisions in Section 14-8.02, "Noise Control," of the *Draft 2010 Standard Specifications and Special Provisions*. With adherence to minimization measure NOI-1 (please refer to Section 2.2.7) during construction of the build alternatives, impacts would be less than significant.

Operation

Traffic noise impacts, which were evaluated against Caltrans/FHWA noise impact criteria, were estimated for 130 representative noise-sensitive receptors, representing 282 equivalent dwelling units. Caltrans/FHWA NAC for Activity Category B (residential) land uses would be approached or exceeded at 65 of the 98 modeled representative noise-sensitive receptors, and the NAC for Activity Category C land uses would be exceeded at 24 of the 130 receptors. Those 98 affected receptors represent a total of 257 noise-affected dwelling units. Increases in noise levels with the project would range from 0 to 6 dB compared with existing conditions and 0 to 5 dB compared with the future no-build case. None of the 130 modeled receptors would experience a substantial (12 dB or greater) increase in noise compared with the existing conditions. Operation of the build alternatives, despite increasing noise levels in the area, would not constitute a substantial increase. Therefore, noise impacts related to operation of the build alternatives would be less than significant.

Recreation (CEQA Checklist Item 15(b))

(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The project would not increase the supply of housing in the area and therefore would not increase population and necessitate the construction of new recreational facilities. Construction and operation of each of the build alternatives, however, would require acquisition of portions of the publicly owned Diamond Bar Golf Course in order to accommodate the eastbound ramps at Grand Avenue. Under Alternative 2, construction and operation of the project would involve the acquisition of 7.3 acres of the golf course and under Alternative 3, construction and operation of the project would involve the acquisition of 10.1 acres of the golf course. Under each of the build alternatives, the loss of recreation area would be a significant impact of the project. However, with the implementation of mitigation measures PARK-1and PARK-2 (please refer to Section 2.1.1.3), impacts would be reduced to a less-than-significant level. Furthermore, with the implementation of enhancement measures and measures to minimize harm under Section 4(f) proposed for the golf course, the build alternatives would result in an overall net benefit on the golf course.

Utilities and Service Systems (CEQA Checklist Item 17(c))

(c) Would the project require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?

The build alternatives may require the implementation of the treatment control BMPs outlined in minimization measure WQ-2. If BMPs are determined to be feasible, they would be incorporated within the project boundaries and would not require new or modified off-site facilities for the treatment of stormwater. BMPs would not require extensive excavation, and therefore would have a less-than-significant impact.

3.2.4 Significant and Unavoidable

The build alternatives would have no significant and unavoidable impacts.

3.2.5 Growth-Inducing Impacts

State CEQA Guidelines Section 15126.2(d) requires a discussion of the potential growth-inducing impacts of a project. This discussion addresses how implementation of the proposed project and design options would foster economic or population growth, or the construction of additional housing, either directly or indirectly upon the surrounding environment.

Additionally, the CEQ regulations, which established the steps necessary to comply with NEPA, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The majority of the City of Industry and area surrounding the interchange is built out. As such, the availability of land suitable for development is limited. The vacant land located along both sides of Grand Avenue, north of the interchange area, has approved plans for a large commercial development. Although this future development may benefit from improved traffic conditions and a reduction in congestion, the proposed project is proposed to address existing traffic congestion and safety concerns. The proposed project does not provide new transportation linkage to an area where none exists now.

Between 2000 and 2010, population growth in the City of Diamond Bar has decreased at a rate of 1.3 percent.[1] Between 2000 and 2008, the population growth rate for the City of Industry was 0.0 percent.[2] The population growth rate for both of these cities was below that of Los Angeles County (i.e., 3.1 percent). Based on existing conditions, including the lack of

[1] http://www.scag.ca.gov/resources/pdfs/2011LP/LosAngeles/DiamondBar.pdf.
[2] http://www.scag.ca.gov/resources/pdfs/LosAngeles/Industry.pdf.

available undeveloped land and a declining or stagnate population, well below that of Los Angeles County, improving the travel time through the area is not anticipated to result in changes to the overall rate of growth in the surrounding area.

Although there is existing infrastructure and a strong regional economy in this area, the potential for growth is limited by the availability of land. In addition, the interchange improvements would not provide a new mechanism for growth in this area. Rather, they are a direct consequence of existing populations and congestion in the area. The City of Industry's General Plan, dated May 1971, set the vision for development in this area. Part of the goals and polices set forth in the City of Industry's General Plan include the development activity that is seen today. The City of Diamond Bar recognizes the existing deficiency in the traffic operations at the confluence and has included in its general plan, dated July 25, 1995, a goal to permanently fix the circulation issues at the SR-57/SR-60 confluence.[3]

The project alternatives would result in capacity-increasing operations through the SR-57/ SR-60 interchange. However, the improvements to the confluence area are being proposed to relieve existing congestion and improve the safety of travel. The availability of land for future developments is limited when compared to the city's overall footprint, and the project is in a developed area that has exceeded the existing capacity of the interchange.

The majority of development near the project has occurred over the past 40 years. Providing improvements at this location to relieve existing traffic conditions would not result in a substantial change in the direction or location of future development. In addition, the land use patterns for surrounding areas have been established through the development of the area; as such, improving the travel time through the area would not result in changes to existing land use patterns.

The project is located within an existing urban area, on an existing intrastate facility near existing roadways, providing access to existing and planned development. The build alternatives have been designed to accommodate present and future traffic volumes and improve flow expected as a result of previously implemented and planned development in the area; therefore, the proposed project would not induce substantial growth.

3.3 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 gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

Although 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 in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are concerned primarily with the

[3] http://www.cityofdiamondbar.com/Index.aspx?page=556.

emissions of GHGs, including those from carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); tetrafluoromethane; hexafluoroethane; sulfur hexafluoride (SF_6); fluoroform (HFC-23); s, s, s, 2-tetrafluoroethane (HFC-134a); and difluoroethane (HFC-152a), generated by human activity.

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty and other trucks, buses, and motorcycles) make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse gas mitigation" refers to reducing GHG emissions or "mitigating" the impacts of climate change. "Adaptation" refers to planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).[4]

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing the growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies. To be most effective, all four strategies should be pursued cooperatively. The following Regulatory Setting section outlines state and federal efforts to reduce GHG emissions from transportation sources.

3.3.1 Regulatory Setting

3.3.1.1 State

With the passage of several pieces of legislation, including state senate and assembly bills and executive orders, California has launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill (AB) 1493 (Pavley, Vehicular Emissions: Greenhouse Gases, 2002) requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light-truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year. In June 2009, the U.S. 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 emissions 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 through 2025.

The goal of Executive Order (EO) S-3-05, signed on June 1, 2005, by former Governor Arnold Schwarzenegger, 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 2050. In 2006, this goal was further reinforced with the passage of AB 32.

[4] http://climatechange.transportation.org/ghg_mitigation/.

AB 32, the Global Warming Solutions Act of 2006 (Núñez and Pavley,) sets the same overall GHG emissions-reduction goals as outlined in EO S-3-05 while further mandating that CARB create a scoping plan that includes market mechanisms and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06, signed on October 18, 2006, by former Governor Arnold Schwarzenegger, further directs state agencies to begin implementing AB 32, including the recommendations made by California's Climate Action Team.

Executive Order S-01-07, signed on January 18, 2007, by former Arnold Governor Schwarzenegger, sets forth a low-carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill (SB) 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 GHG emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30), Climate Change, approved June 22, 2012, is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities. This policy contributes to Caltrans' stewardship goal of preserving and enhancing California's resources and assets.

3.3.1.2 Federal

Although climate change and GHG reduction are concerns at the federal level, no regulations or pieces of legislation have been enacted regarding GHG emissions reductions and climate change at the project level. Neither the U.S. EPA nor FHWA has promulgated explicit guidance or methodology regarding project-level GHG analysis. As stated on FHWA's website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level and inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change. The strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours traveled.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance.

EO 13514 focuses on reducing GHGs internally in federal agency missions, programs, and operations but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHGs. The court held that the U.S. EPA administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The administrator found that current and projected concentrations of the six key, well-mixed GHGs (i.e., CO_2, CH_4, N_2O, HFCs, SF_6, and perfluorocarbons [PFCs]) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009. On May 7, 2010, the final light-duty vehicle GHG emissions standards and corporate average fuel economy standards were published in the Federal Register.

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a presidential memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile (equivalent to 35.5 mpg if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons and save 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012 through 2016).

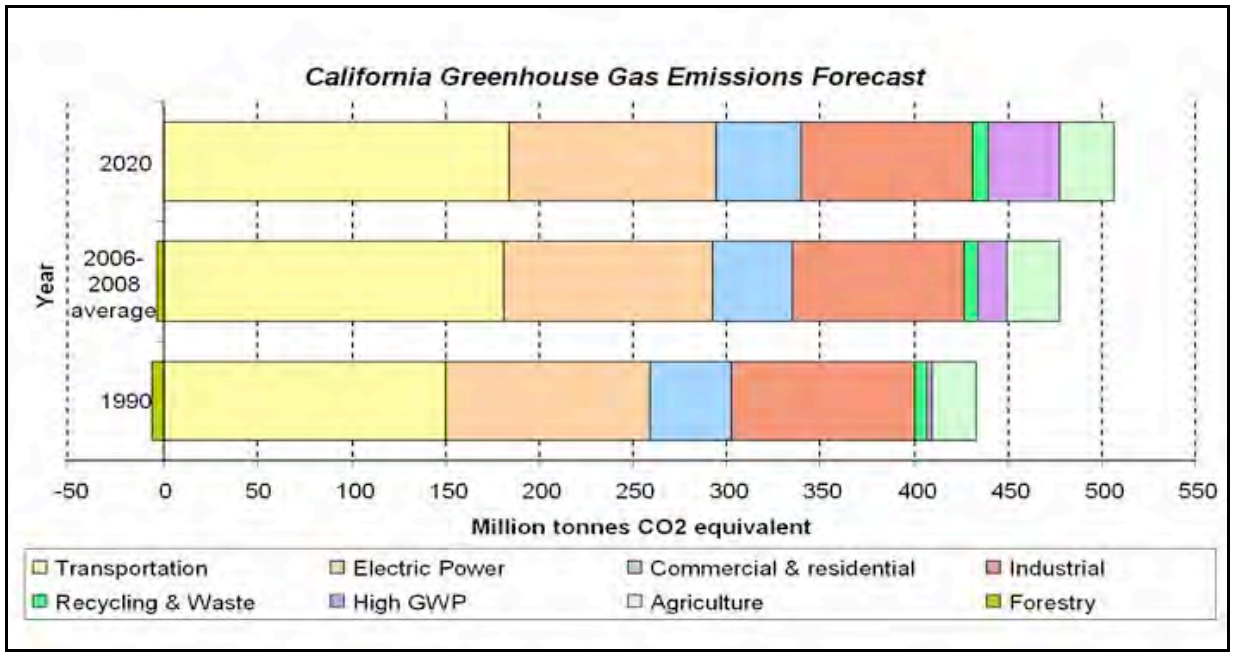
On November 16, 2011, the U.S. EPA and NHTSA issued a joint proposal to extend this national program of coordinated GHG and fuel economy standards to passenger vehicles from model years 2017 through 2025.

3.3.2 Project Analysis

An individual project does not generate enough GHG emissions to influence global climate change significantly. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[5] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (State 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. However, gathering information regarding all past, current, and future projects on a global scale would be a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the draft scoping plan, CARB released the GHG inventory for California, which is provided below in Figure 3-1 (forecast last updated October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the measures included in the scoping plan are implemented. The base year used for forecasting emissions represents the average of the statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 3-1: California GHG Emissions (1990, 2002–2004 [Average], and 2020 [Projected])



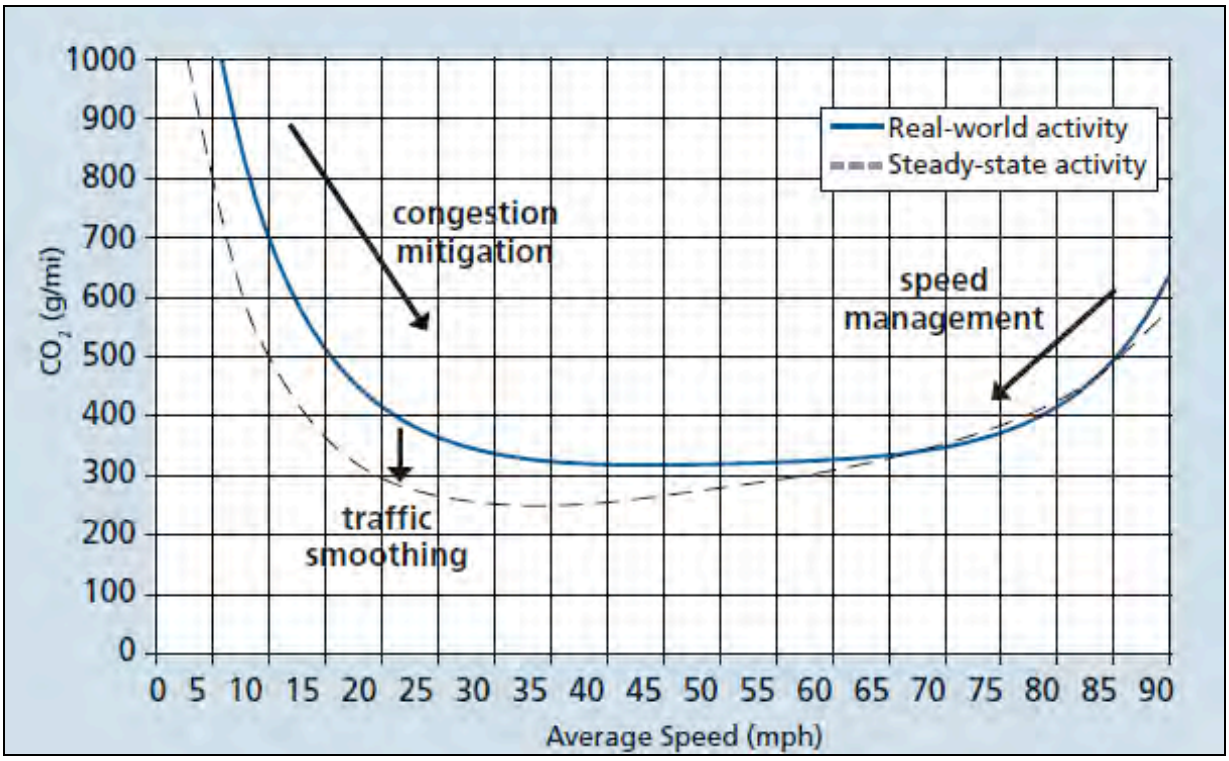
Source: California Air Resources Board 2009.[6]

[5] This approach is supported by the Association of Environmental Professionals (*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 South Coast Air Quality Management District (Chapter 6: The CEQA Guide [April 2011]) and the U.S. Forest Service (Climate Change Considerations in Project-Level NEPA Analysis [July 13, 2009]).

[6] 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 regarding GHG emissions 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*, which was published in December 2006.[7] One of the main strategies in the Climate Action Program regarding GHG emissions reduction is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (0 to 25 mph) and speeds over 55 mph; the most severe emissions occur between 0 and 25 mph (see Figure 3-2).

Figure 3-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions[8]



To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced. As detailed in Table 3-1, below, under Alternative 2, AM and PM peak-period average delay would decrease in the design year (2037). Table 3-1 also shows that delays would fall under the Alternative 3 scenario in the design year.

[7] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf.
[8] Barth, Matthew, and Kanok Boriboonsomsin. 2010. Traffic Congestion and Greenhouse Gases. *TR News* 268 May–June. Available: <http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>.

Table 3-1: Year 2037 Summary of Traffic Conditions for Alternative 1 (No Project)

Intersection	Alternative 1		Alternative 2		Alternative 3	
	AM Peak-Hour Delay[a]	PM Peak-Hour Delay[a]	AM Peak-Hour Delay[a]	PM Peak-Hour Delay[a]	AM Peak-Hour Delay[a]	PM Peak-Hour Delay[a]
Grand Ave. at SR-60 WB Off-Ramp	99.7	178.9	35.7	46.8	38.0	51.4
Grand Ave. at SR-60 EB Off-Ramp	81.9	84.3	49.6	55.4	20.0	10.3
Grand Ave. at Golden Springs Drive	111.6	103.6	50.6	64.6	49.6	53.0

[a] Delay in seconds per vehicle average.
Source: Traffic Study Report, 2011.

Projected traffic data and EMFAC 2007 emission rates (CT-EMFAC version 4.1) were used to calculate CO_2 emissions according to existing/baseline 2009 conditions, opening-year build and no-build conditions (2017), and horizon-year (2037) build and no-build conditions. The forecast of CO_2 emissions within each proposed build alternative is provided in Table 3-2.

As shown in Table 3-2, the modeled CO_2 emissions in the future years (2017 and 2037) are higher than those for the existing/baseline year (2009), which is attributed to the growth in VMT. At both the opening year (2017) and horizon year (2037), modeled CO_2 emissions under the build alternatives would be higher than those under the No-Build Alternative. As shown in Figure 3-2, CO_2 emissions factors increase as travel speed increases up to and beyond approximately 55 mph.

Table 3-2. Summary of CT-EMFAC-Modeled CO_2 Emissions

Scenario	Daily VMT[a]	Tons per Day CO_2 Emissions
Existing/Baseline (2009)	3,611,333	1,694
2017 No Build	3,796,197	1,785
2017 Alternative 2	3,800,971	1,800
2017 Alternative 3	3,803,708	1,809
2037 No Build	4,230,956	1,997
2037 Alternative 2	4,224,446	2,029
2037 Alternative 3	4,230,237	2,017
Alternative Increase/(Decrease) Compared with Existing 2009		
2017 Alternative 2 vs. Existing	189,638	106
2017 Alternative 3 vs. Existing	192,375	115
2037 Alternative 2 vs. Existing	613,113	335
2037 Alternative 3 vs. Existing	618,904	323
Alternative Increase/(Decrease) Compared with Respective No Build at 2017 and 2037		
2017 Alternative 2 vs. No Build	4,774	15
2017 Alternative 3 vs. No Build	7,511	24
2037 Alternative 2 vs. No Build	(6,510)	32
2037 Alternative 3 vs. No Build	(719)	20

[a] Daily VMT was obtained by summing peak- and off-peak-period VMT.

In conclusion, it is important to note that these modeled CO_2 emission estimates are useful only for comparison between project alternatives. These estimates are not necessarily an accurate reflection of what the true CO_2 emissions will be because CO_2 emissions are dependent on other factors that are not part of the model, such as the fuel mix,[9] rate of acceleration, and the aerodynamics and efficiency of the vehicles.

3.3.2.1 Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting CO_2 emissions. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008), studies have revealed that brief but rapid accelerations can contribute significantly to a vehicle's carbon monoxide and hydrocarbon emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, idle) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates uncertainty in the model's results when compared with the estimated emissions of the various alternatives in an attempt to determine impacts. Although work on modal-emission models by the U.S. EPA and CARB is under way, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling. In addition, EMFAC does not include speed corrections for most vehicle classes for CO_2. For most vehicle classes, emission factors are held constant, which means that EMFAC is not sensitive to the decreased emissions associated with improved traffic flows for most vehicle classes. Therefore, unless a project involves a large number of heavy-duty vehicles, the difference in modeled CO_2 emissions due to speed change will be slight.

CARB is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why CARB has made this decision. The agency's website states:

> REVISION: Both the EMFAC and OFFROAD models develop CO_2 and CH_4 [methane] emission estimates; however, they are not currently used as the basis for [CARB's] official [greenhouse gas] inventory, which is based on fuel usage information. . . However, CARB is working towards reconciling the emission estimates from the fuel usage approach and the models.

Other Variables

With the current science, project-level analysis of greenhouse gas emissions is limited. Although a greenhouse gas analysis is included for this project, there are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO_2 emissions. First, vehicle fuel economy is increasing. The U.S. EPA's annual report, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008* (http://www.epa.gov/oms/

[9] EMFAC model emission rates are only for direct engine-out CO_2 emissions, not the full fuel cycle. Fuel-cycle emission rates can vary dramatically, depending on the amount of additives, such as ethanol, and the source of the fuel components.

fetrends.htm), which provides data on the fuel economy and technology characteristics of new light-duty vehicles, including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year, beginning in 2005, and is now the highest since 1993. Most of the increase since 2004 is a result of higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52 percent in 2004, with projections at 48 percent in 2008.

Table 3.3 shows the alternatives for vehicle fuel economy increases studied by the National Highway Traffic Safety Administration in its final EIS, *New Corporate Average Fuel Economy (CAFE) Standards* (October 2008).

Table 3-3. Model Year 2015 Required Miles per Gallon by Policy Alternative

	Policy Alternative						
Vehicle Type	**No Action**	**25% below Optimized**	**Optimized (Preferred)**	**25% above Optimized**	**50% above Optimized**	**Total Costs Equal Total Benefits**	**Technology Exhaustion**
Cars	27.5	33.9	35.7	37.5	39.5	43.3	52.6
Trucks	23.5	27.5	28.6	29.8	30.9	33.1	34.7

Second, near zero-carbon vehicles will come into the market during the design life of this project. According to a March 2008 report released by the University of California, Davis Institute of Transportation Studies:

> Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially, resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California—several in the hands of the general public—with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.
>
> A number of the U.S. DOE 2010 milestones for FCV development and commercialization are expected to be met by 2010. Accounting for a five- to six-year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.[10]

Third, and, as previously stated, California has recently adopted a low-carbon transportation fuel standard. CARB is scheduled to come out with draft regulations for low-carbon fuels in late 2008, with implementation of the standard to begin in 2010.

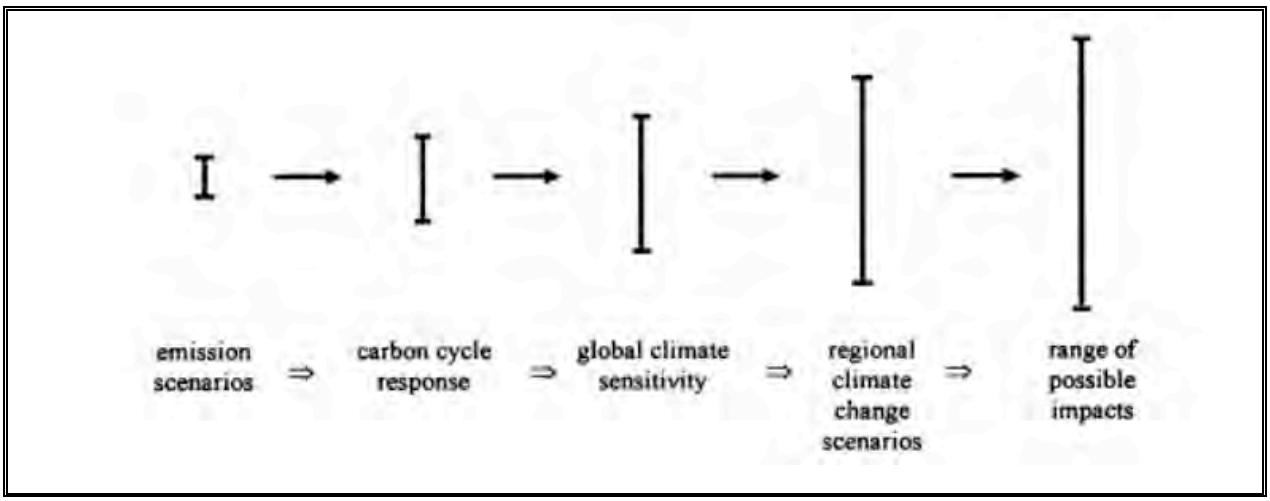
[10] Cunningham, Joshua, Sig Cronich, Michael A. Nicholas. 2008. *Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy.* University of California, Davis Institute of Transportation Studies, pp. 9-10. March.

Fourth, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, *Effects of Gasoline Prices on Driving Behavior and Vehicle Market* (http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf), the Congressional Budget Office found the following results, based on data collected from California: 1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly, 2) the market share for sports utility vehicles is declining, and 3) average prices for larger, less fuel-efficient models have declined over the past 5 years as average prices for the most fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

3.3.2.2 Limitations and Uncertainties with Impact Assessment

Taken from page 3-70 of the National Highway Traffic Safety Administration final EIS, *New Corporate Average Fuel Economy (CAFE) Standards* (October 2008), Figure 3-3 illustrates that the range of uncertainties associated with assessing greenhouse gas impacts grows with each step of the analysis. It also illustrates the "cascade of uncertainties typical in impact assessments, showing the 'uncertainty explosion' as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses."

Figure 3-3. Cascade of Uncertainties



Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the targeted 1990 emissions levels have been met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as evaluate potential changes in global temperature and other climate changes and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to

reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 to 36.7 billion metric tons of CO_2 from 2000 to 2030, which represents an increase of between 25 and 90 percent.[11]

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locales for some types of greenhouse gas emissions rather than causing "new" greenhouse gas emissions. It is difficult to assess the extent to which any project-level increase in CO_2 emissions represents a net global increase, reduction, or no change. No models have been approved by regulatory agencies that operate at the global or even statewide scale.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the final EIS completed by the National Highway Traffic Safety Administration, *New Corporate Average Fuel Economy (CAFE) Standards* (October 2008). As the text quoted below shows, even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among alternatives are very small and well within the error sensitivity of the model.

> In analyzing across the CAFE 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the model year 2011–2015 CAFE alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem. Emissions of CO2, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gases in the year 2000 (U.S. EPA 2008; CAIT 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO2 emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions).

The 2012–2035 RTP/SCS includes strategies to reduce VMT and associated per capita energy consumption from the transportation sector as well as mitigation measures related to energy, which are designed to reduce consumption and increase the use and availability of renewable sources of energy in the region (Southern California Association of Governments 2012a). Potential mitigation identified in the 2012–2035 RTP/SCS includes the construction of transportation infrastructure, increased automobile fuel efficiency, increased use of alternative-fuel motor vehicles, as well as coordinated transportation, land use, and air quality planning to reduce VMT, energy use, and GHG emissions (Southern California Association of Governments 2012a).

The EIR for the 2012–2035 RTP/SCS performed a GHG emissions-reduction strategy consistency analysis to evaluate impacts related to climate change. This analysis evaluated consistency with the CARB; Public Utilities Commission; Business, Transportation, and

[11] Intergovernmental Panel on Climate Change. 2007. *Climate Change 2007: The Physical Science Basis – Summary for Policy Makers*. Available: <http://www.ipcc.ch/SPM2feb07.pdf>. February.

Housing Agency; State and Consumer Services Agency; and U.S. EPA GHG reduction strategies and found that impacts on climate change would be considered significant even with implementation of mitigation measures. To help mitigate impacts associated with the 2012–2035 RTP/SCS, SCAG identified measures to mitigate the impact of growing transportation energy demand associated with the RTP (Southern California Association of Governments 2012a).

3.3.3 Construction Emissions

GHG emissions from transportation projects can be divided into two categories, those produced during construction and those produced during operations. Construction GHG emissions include those produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. The frequency and occurrence of these emissions, which are produced at different levels throughout the construction phase, can be reduced through innovative plans and specifications and improved traffic management during construction. In addition, GHG emissions produced during construction can be mitigated to some degree through changes in materials that result in longer intervals between maintenance and rehabilitation.

A quantitative and qualitative analysis of construction-related emissions is provided in Section 2.2.6.3 of Chapter 2 of this document. As stated therein, emissions of criteria pollutants during construction are considered temporary emissions. This is not the case with GHGs because of the cumulative nature of GHGs, which remain in the earth's atmosphere long after the time of emission. According to the construction emissions calculations for the proposed project, approximately 1,853 tons of CO_2 emissions from proposed project construction would endure in the atmosphere under Alternative 2 or Alternative 3.

3.3.4 CEQA Conclusion

As discussed above, both future with-project and future no-build conditions would result in an increase in CO_2 emissions compared with existing levels (i.e., future build CO_2 emissions would be higher than future no-build emissions). In addition, as discussed above, there are limitations with respect to EMFAC and the assessment of what a given CO_2 emissions increase means for climate change. Therefore, Caltrans has determined that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding the significance of the project's direct impact and its contribution on a cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

3.3.5 AB 32 Compliance

As Caltrans' involvement in the governor's Climate Action Team continues, CARB works to implement EO S-3-05 and EO S-01-07 and achieve the targets set forth in AB 32. Many of the strategies Caltrans uses to meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's

transportation system ($100.7 billion for transportation over the next decade) and provide funding for education, housing, and waterways. A goal of the Strategic Growth Plan is a significant decrease in traffic congestion and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to accomplish this while accommodating population and economic growth. A suite of investment options has been created that, together, are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attaining CO_2 reduction goals (i.e., system monitoring and evaluation, maintenance and preservation, smart land use and demand management, operational improvements) (see Figure 3-4).

Figure 3-4. Mobility Pyramid

Caltrans is supporting efforts to reduce VMT by planning and implementing smart land use strategies related to job/housing proximity, the development of transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions regarding planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks. Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating in the Climate Action Team. It is important to note, however, that fuel economy standards are controlled by the U.S. EPA and CARB. Lastly, the use of alternative fuels is also being considered. Caltrans is participating in alternative-fuel research at the University of California, Davis.

Table 3-4 summarizes the statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the *Climate Action Program at Caltrans* (December 2006).

Table 3-4. Caltrans Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements and Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy and GHG into Plans and Projects	Office of Policy Analysis and Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational and Information Program	Office of Policy Analysis and Research	Interdepartmental, Cal/EPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening and Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5% limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal/EPA, CARB, BTH, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Source: California Department of Transportation 2006.

The project applicant will implement measures to reduce GHG emissions. Such measures include, but are not limited to, the following:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

- Landscaping reduces surface warming, and through photosynthesis, decreases CO_2. The project will include planting in the intersection slopes, drainage channels, and seeding in areas adjacent to roads. A variety of different-sized plant material and trees will be planted where appropriate. This landscaping will help offset CO_2 increases.
- The project will incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs—or balls, in the stoplight vernacular—cost $60 to $70 apiece but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED balls themselves consume 10 percent of the electricity of traditional lights, a reduction that will also help reduce the project's CO_2 emissions.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with SCAQMD's rules, ordinances, and regulations in regards to air quality restrictions.

3.3.6 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts on the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency report on October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the United States to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts on habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, former Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state, and federal public and private entities to develop. The California Climate Adaptation Strategy (December 2009),[12] which summarizes the best known science on climate change impacts on California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[13] to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts on state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

[12] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF.
[13] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

All projects that have filed a notice of preparation (NOP) as of the date of the EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. This proposed project is programmed for construction funding after year 2015. As such, the proposed project is not exempt at this time from the requirements to analyze the impacts of sea level rise as directed in Executive Order S-13-08. The *Vulnerability of Transportation Systems to Sea Level Rise* (Caltrans 2009) report suggests that by 2100, sea level rise along the California coast could be as much as 55 inches. Given that elevation above mean seal level along the SR-57/SR-60 project limits is more than 300 feet, impacts related to sea level rise are unlikely.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance, and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required. It also helps them identify 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 Team meetings, interagency coordination meetings, stakeholder meetings, and public scoping meetings and workshops.

This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

4.1 Notice of Preparation and Scoping Meeting

Caltrans announced the scoping meeting by publishing a public notice (see Figure 4-1 for a copy of the notice) in the following newspaper:

San Gabriel Valley Tribune (August 3, 2009)

The published notice included the notice of preparation (NOP) for the EIR/EA. Copies of the NOP were sent to 78 public agencies and individuals (see Figure 4-2 for a copy of the NOP). The NOP was also posted on the City of Industry website. Though the NOP listed the City of Industry as the lead for CEQA, Caltrans later assumed lead agency responsibilities for the proposed projects per its letter to responsible and trustee agencies dated August 24, 2010 (Caltrans 2010).

A project scoping meeting for the proposed project was held on September 2, 2009, from 5 p.m. to 7:30 p.m. in the Main Ballroom of Diamond Bar Center (1425 Summitridge Drive, Diamond Bar, CA 91765). The meeting was held to provide information regarding the project, announce the start of the environmental process, and discuss and record comments from community members about proposed improvements to the SR-57/SR-60 confluence. The following four handouts were made available to the public:

- Meeting agenda
- Notice of preparation
- Speaker card
- Comment sheet

The meeting began at 5 p.m. with an informal meet and greet. Attendees were able to walk around the room and look at displays with maps of the project area, alternative improvements, and the overview of the environmental process. Members of the project team were available to clarify details regarding the proposed improvements.

Figure 4-1: Public Notice in *San Gabriel Valley Tribune*

PUBLIC NOTICE

Notice of Scoping Meeting and Notice of Preparation of a Draft Environmental Impact Report/Environmental Assessment for State Route 57/State Route 60 Confluence at Grand Avenue Project

WHAT IS BEING PLANNED	The California Department of Transportation (Caltrans), in cooperation with the City of Industry, proposes to modify the State Route 57 (SR-57)/State Route 60 (SR-60) confluence at the Grand Avenue interchange in the cities of Industry and Diamond Bar in Los Angeles County, California. The purpose of the project is to improve traffic operation on Grand Avenue from Golden Spring Drive to the interchange at SR-60, increase capacity at the Grand Avenue interchange, improve traffic operation on the freeway mainline, reduce traffic weaving and increase weaving distance, and improve safety.
WHY THIS AD	Caltrans and the City of Industry will study the effects this project may have on the environment. The results of the studies will be detailed in an Environmental Impact Report/Environmental Assessment (EIR/EA). This notice is to announce the date and location of the scoping meeting that will be held regarding the project and upcoming environmental studies. The scoping meeting will be held on **Wednesday, September 2, 2009,** from 5:00 p.m. to 9:00 p.m. at the Main Ballroom of the Diamond Bar Center, 1425 Summitridge Drive, Diamond Bar, CA 91765.
WHERE YOU COME IN	You can attend the scoping meeting for further information about the project. If you have any comments about the project, please submit them to Ron Kosinski, Deputy District Director, Division of Environmental Planning, Caltrans District 7 (LA-57/60), 100 S. Main Street, MS 16-A, Los Angeles, CA 90012. Written and verbal comments will be accepted at this workshop. Your comments should be received no later than **September 18, 2009.**
CONTACT	For information about this project or any transportation matter, call Caltrans Citizen Participation at 1-213-897-0849, or visit us at our web site at www.dot.ca.gov.

Figure 4-2: Notice of Preparation

SCH NO._____

NOTICE OF PREPARATION

To: Responsible/Trustee Agency

From: State of California, Department of Transportation
Ronald J. Kosinski, Deputy District Director
Division of Environmental Planning
100 S. Main Street, MS 16-A
Los Angeles, CA 90012

Subject: Notice of Preparation of a Draft Environmental Impact Report (EIR) / Environmental Assessment (EA)
Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Project Title: SR-57/SR-60 Confluence at Grand Avenue Project

Project Location: Cities of Industry and Diamond Bar in Los Angeles County

Project Description: The California Department of Transportation (Caltrans) in cooperation with the City of Industry will prepare an Environmental Impact Report (EIR)/Environmental Assessment (EA) on a proposal for constructing freeway improvements to the State Route 57 (SR-57)/State Route 60 (SR-60) Confluence at the Grand Avenue interchange in Los Angeles County, California. The project consists of the reconfiguration of the approximately 2.5-mile confluence of SR-57 and SR-60, which includes the addition of auxiliary lanes and associated on-ramp/off-ramp reconfiguration. A **Project Study Report (PSR)** for the project was completed in March 2009. Please refer to the attached map for location of the proposed project.

Impacts: Various environmental and community resources are known to exist within the limits of the study area. These resources include, but are not limited to: air quality, noise, biological resources, public utilities, traffic/transportation, land use planning, public golf course, water quality, and hazardous wastes. Right-of-way impacts to a public golf course, private residences, and businesses could be a significant issue. Soundwalls, relocation assistance, construction impact management, and other mitigation measures will be incorporated into the proposed project.

Caltrans will be the lead agency under the National Environmental Policy Act (NEPA) and the City of Industry will be the lead agency under the California Environmental Quality Act (CEQA) for the EIR/EA for the project described above. Your participation as a responsible agency is requested in the preparation and review of this document.

The purpose of this notice is: (1) to serve as the Notice of Preparation to potential Responsible Agencies, agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project, pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions regarding the preparation of the EIR/EA, environmental issues to be addressed in the EIR/EA, and any related issues, from interested parties other than those noted above,

including interested or affected members of the public. Caltrans request that any potential Responsible or Trustee Agency responding to this notice do so in a manner consistent with CEQA Guidelines Section 15082(b).

We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR/EA prepared by our agency when considering your permit or other approval for the project.

Caltrans and the City of Industry are holding a public hearing to provide an overview of the project, summary of the environmental process, and receive input regarding environmental issues and the suggested scope and content of the EIR/EA. The public hearing will be held on Wednesday, September 2, 2009 from 5:00 pm to 9:00 pm at the Main Ballroom of the Diamond Bar Center located at 1425 Summitridge Drive, Diamond Bar, CA 91765.

A copy of the Initial Study (__ is) (X is not) attached.

Due to the time limits mandated by State law, the 30-day scoping period starts August 17, 2009 and ends September 18, 2009. Please send your comments by September 18, 2009.

Please direct your response to Ronald Kosinski, Deputy District Director, Division of Environmental Planning, Caltrans District 7, 100 S. Main Street, MS 16-A, Los Angeles, CA 90012. Telephone (213) 897-0703 at the address shown above. Please supply us with the name for a contact person in your agency.

Date Aug 4, '09 Signature Ronald Kosinski

Title Deputy District Director Caltrans D-7

Figure 1
Regional Location Map
SR-57/SR-60 Confluence
at Grand Avenue Project

Thirty-nine members of the public attended the meeting. Many had questions and concerns about traffic, and several expressed concerns about the project's relation to future development projects in the area. Most questions were answered at the meeting, but some follow-up information regarding the number of additional lanes proposed and the traffic data used for the analysis was provided. At the conclusion of the public meeting, one comment card had been formally submitted to Caltrans. Questions asked during the scoping meeting and all comments received during the scoping period are summarized in the following table. The public comments that follow were either made at the meeting or received during the 30-day public scoping period.

4.2 Consultation and Coordination with Public Agencies

Consultation with several agencies occurred in conjunction with the preparation of the technical studies and the EIR/EA for the proposed project. The agencies are identified in the various technical reports and include those listed below.

- *Regional Water Quality Control Board*

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications for impacts on wetlands and waters in compliance with Section 401 of the CWA. Coordination with the RWQCB will continue to obtain the necessary Section 401 permit and NPDES permit.

- *U.S. Fish and Wildlife Service*

As part of the early consultation process conducted for the SR-57/SR-60 Confluence at Grand Avenue Project, in 2007 USFWS recommended focused surveys be conducted for SWWFC and LBV within suitable habitat areas of the project study area (Medak pers. comm.). Based on the USFWS recommendation, 2 years of protocol surveys have been conducted (Sage Environmental Group 2007, 2008). An additional LBV survey was conducted in 2011 per USFWS recommendation (Brown pers. comm.; Sage Environmental Group 2011).

On March 27, 2007, as part of the early consultation process, USFWS biologist Christine L. Medak discussed the proposed SR-57/SR-60 Confluence Grand Avenue Interchange Improvement Project with Erik Hansen, Environmental scientist, EIP Associates. Ms. Medak recommended focused surveys be conducted for SWWFC and LBV within suitable habitat areas of the project study area, stating that SWWFC and LBV surveys could be conducted simultaneously to reduce redundancy in survey time. The conversation was memorialized in a March 27, 2007, e-mail. The completed 2007 and 2008 protocol survey reports have been forwarded to USFWS for their use/review.

- *California Department of Fish and Game*

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

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
Private Citizens					
1	9/02/09	Robert Velazquez	Traffic	Concerned about other proposed developments in the area	A list of related projects (including planned, programmed, under-construction, and recently constructed projects) will be complied by ICF Jones & Stokes in coordination with Caltrans and the cities of Industry and Diamond Bar. Cumulative effects of those projects and other growth and development will be addressed in the EIR/EA.
2	9/02/09	Johnny Chua	Traffic	Interested in reviewing traffic data at intersections	Traffic data will be available when the draft EIR/EA is released for public review.
3	9/02/09	Johnny Chua	Traffic	Concerned about the impact of the proposed stadium	The stadium project would not generate substantial peak-hour traffic on weekdays. The stadium is expected to generate traffic mainly on weekends.
4	9/02/09	Johnny Chua	Funding	Concerned about the funding source	The funding sources will be identified in the draft EIR/EA. The project is eligible for federal-aid funding and considered to be state authorized under current FHWA/Caltrans stewardship agreements. An assumption of 60% federal and 40% non-federal funds is included in the project financing plan. The local agency is committing $35 million toward the project.
5	9/02/09	Robert Velazquez	Traffic	Recommended additional studies on SR-57, south from Pathfinder and north past Sunset Crossing	SR-57 traffic is affected by SR-60 at Grand Avenue. The alternatives under consideration would improve traffic conditions on SR-60 and SR-57. Traffic volumes on SR-57 are adequately served with three lanes.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
6	9/02/09	Michael West	Traffic	Concerned about the proposed stadium and whether it has been considered in traffic forecast model	The stadium project would not generate substantial peak-hour traffic on weekdays. The stadium is expected to generate traffic mainly on weekends. The cumulative conditions analysis conducted as part of the Grand Avenue interchange project did take into account the stadium project as one of the related projects. The study concluded that the interchange improvements would be able to serve traffic generated as a result of the stadium and other cumulative growth in the area.
7	9/02/09	Robert Vealzquez	Design	Concerned about constant upgrading and improvements on SR-60 and the possibility future projects after the confluence project is built	The proposed improvements are intended to accommodate existing and future traffic on SR-60 through 2035. Increases in traffic in the area will depend on a variety of factors, such as land use changes in the vicinity (other than the stadium).
8	9/02/09	James Tsai	Traffic	Concerned about staging multiple construction projects on this freeway	Same as #7. The confluence project would begin construction in 2013 and end in 2016.
9	9/02/09	James Tsai	Traffic	Concerned about the proposed stadium and whether it has been considered in traffic forecast model	Same as #6.
10	9/02/09	Brigid Byerke	Right-of-way	Concerned about right-of-way takes and use of eminent domain	No residential property take is anticipated. To the extent feasible, the project would limit the take of non-residential private property.
11	9/02/09	Howard Wang	Construction	Concerned about staging the westbound on-ramp project	The westbound ramp project is a separate, independent project and not part of this confluence project.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
12	9/02/09	Howard Wang	Traffic and Funding	Concerned that the environmental document will not consider traffic impacts of the NFL stadium project	The confluence project will take into account any cumulative projects that are planned, programmed, under-construction, or recently completed in the area. The stadium project is one of the several such projects and will be included in the cumulative analysis to be presented in the draft EIR/EA.
13	9/02/09	Robert Velazquez	Scoping meeting	Questioned the short comment period for scoping	The 30-day public scoping period complies with Caltrans' policy and procedures as well as CEQA guidelines.
14	9/02/09	Cindy Tse	Traffic and design	Concerned about weaving problems on SR-60 and potential for inducing more traffic	The proposed improvements would reduce weaving and improve safety. The project is not proposing new mainline freeway lanes and therefore would not induce traffic.
15	9/02/09	Cindy Tse	Design	Questioned the number of additional lanes proposed for the off-ramps	The off-ramps proposed in the alternatives are not new ramps. The westbound off-ramp would contain two additional lanes to meet the 2035 traffic forecast of 1,900 vehicles during morning peak (720 more vehicles than today).
16	9/02/09	Will Yeager	Need and purpose	Questioned the need for the project Favors bikes and mass transit system	Comment noted. The purpose of the project is to improve existing traffic conditions and safety on the mainline.
17	9/02/09	Howard Wang	Design	Questioned the need for the slip westbound on-ramp	Same as #11.
18	9/02/09	Grace Lim-Hays	EIR	Questioned why the City of Industry is serving as lead CEQA agency	The City of Industry is the lead agency because it will be making the local financial commitment. The City of Diamond Bar has agreed to let the City of Industry serve as the lead CEQA agency.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
19	9/02/09	Grace Lim-Hays	EIR	Concerned about City of Industry serving as lead CEQA agency	Same as #18.
20	9/02/09	Lucy Yang	Construction	Concerned about staging multiple construction projects on this freeway	Same as #7.
21	9/02/09	Lucy Yang	Need and purpose	Questioned the need for this project	This project is needed to address existing traffic problems on the two freeways.
22	9/02/09	Steve Otting	Funding	Concerned about the funding source	The funding sources will be identified in the draft EIR/EA. The project is eligible for federal-aid funding and considered to be state authorized under current FHWA/Caltrans stewardship agreements. An assumption of 60% federal and 40% non-federal funds is included in the project financing plan. The local agency is committing $35 million toward the project.
23	9/02/09	Steve Otting	Design	Suggested a direct HOV off-ramp on Diamond Bar Boulevard	HOV volumes do not warrant direct on- and off- ramps at Diamond Bar Boulevard.
24	9/02/09	Grace Lim-Hays	Process	Questioned why the City of Industry is serving as lead CEQA agency	Same as #18.
25	9/02/09	Grace Lim-Hays	PA/ED	Questioned approval of the westbound on-ramp project	Same as #11.
26	9/02/09	Lee Paulson	Traffic	Recommended additional studies and possibly more lanes on northbound SR-57 from Pathfinder to SR-60	Same as #5.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
27	9/02/09	Will Yeager	General	Questioned the format of the scoping meeting	Comment noted. The scoping meeting was conducted in accordance with Caltrans policies and procedures.
28	9/02/09	James Tsai	Traffic, air quality, permits	Suggested that the project be coordinated with other agencies, ACE, and NPS; concerned about traffic and air quality impacts Concerned about the amount of construction because Caltrans just recently completed an HOV project on SR-60; suggested Caltrans as CEQA lead	Consultation and coordination with affected and responsible public agencies will be conducted as part of the environmental and permitting processes for the project. Traffic and air quality as well as cumulative construction impacts of the proposed project and other projects will be addressed in detail in the draft EIR/EA.
29	9/02/09	Greg Hummel	Construction impacts	Concerned about noise, traffic, air quality during construction	Construction impacts will be addressed in the draft EIR/EA.
30	9/02/09	Lee Paulson	Design and traffic	Recommended four lanes on SR-57 in both directions	Same as #5. The traffic analysis revealed that additional lanes are not required.
31	9/02/09	Steve Otting	Need and purpose	Questioned if the need for the project is connected with the proposed stadium	The project has been proposed to address issues related to existing conditions and unsafe weaving. It is not connected with any future project. The design for streets and ramps did consider traffic from the proposed IBC project, which would generate higher daily traffic volumes than the proposed stadium project.
32	9/02/09	Jeff McCain	Traffic	Concerned about construction impacts related to traffic and noise	Same as #29.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
33	9/02/09	Grace Lim-Hays	CEQA	Recommended Caltrans as CEQA and NEPA lead Concerned with impacts from construction	Same as #18.
34	9/02/09	Brent Beverly	Design	Recommended additional studies and possibly more lanes on northbound SR-57 from Pathfinder to SR-60	Same as #26.
35	9/02/09	Joan Rupert	Outreach	Asked question about the sponsor of the freetheway.org website	Caltrans is not responsible for the website referenced.
36	9/02/09	Yesenia Arias	Outreach	Recommended that Caltrans provide designs on its website	Conceptual plans of the proposed alternatives will be presented in the draft EIR/EA and also at future public meetings for the project. The draft EIR/EA will be available on Caltrans' website.
37	9/02/09	Jeff McCain	Scoping	Concerned that NOP does not provide enough detail regarding the project; would like more detailed information regarding alternatives during the scoping period	The project is only at the scoping stage; a preferred alternative has not yet been selected. Details about the project alternatives will be provided during the draft EIR/EA phase.
38	9/02/09	Richard Saretsky	Need and purpose	Stated objection to the project because of the stadium project	Same as #31.
39	9/02/09	Lucy Yang	Need and purpose	Questioned the need and purpose of the westbound off-ramp improvements Concerned about impact of the proposed stadium	Same as #11 and #31.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
40	9/02/09	Dr. Howard Wang	Design	Recommended direct on- and off-ramps to proposed stadium parking Concerned with traffic and safety and mixing local traffic with stadium traffic	This was studied during the preliminary design phase; it was determined that direct on- and off-ramps would not be technically feasible at Grand Avenue.
41	9/02/09	Dr. Howard Wang	Need and purpose	Questioned the need for the project in connection with the proposed stadium	Same as #31.
42	9/02/09	Evonne Wang	Need and purpose	Questioned the need for the project in connection with the proposed stadium	Same as #31.
43	9/02/09	Evonne Wang	Construction	Questioned why the City of Industry is serving as lead CEQA agency Concerned about staging multiple construction projects on this freeway	Same as #18. Same as #7.
44	9/02/09	Everrett Chow	EIR/need and purpose	Questioned the need for the project in connection with the proposed stadium Recommended thorough evaluation of environmental impact of the proposed stadium	Same as #31. The draft EIR/EA will address cumulative impacts of the proposed project and other projects in the area.
45	9/02/09	Everrett Chow	Comment	Same as #44	
46	9/02/09	Allen Wilson	Lead agency/need and purpose	Concerned about the City of Industry serving as lead CEQA agency Questioned the need for the project if the stadium EIR is not approved	Same as #18. The confluence project is intended to reduce existing congestion and improve safety. There is a need for the proposed project irrespective of whether the stadium is or is not constructed.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
47	9/02/09	Stephen Blagden	Design	Recommended direct on- and off-ramps to proposed stadium parking Concerned with traffic and safety and mixing local traffic with stadium traffic	Same as #40.
48	9/02/09	Cindy Tse	Design, cumulative impacts, traffic study, truck lane study	Recommended project include westbound bypass ramp to Grand Avenue Concerned about cumulative effects of the proposed stadium and the 3,000 home sites proposed in Diamond Bar Recommended Caltrans conduct a thorough study on SR-60 between Fullerton Road and SR-71 Recommended study of truck bypass lanes on SR-60 Questioned the need for widening and adding more off-ramp lanes (both directions)	A westbound bypass ramp is under consideration by Metro as part of the Big Fix study. The westbound bypass ramp is not part of the scope for the confluence project. The draft EIR/EA will address the cumulative impacts of the project and other planned and programmed growth and development in the area. Studying SR-60 from Fullerton Road to SR-71 may have merit; however, it is beyond the scope of this project. Any future truck lane improvements will be contingent on the results and recommendations in SCAG's Multi-County Goods Movement Action Plan. If the SCAG study determines that truck lanes are needed, it is likely that they will be on alternative alignments to the confluence project alignment.
49	9/02/09	Peter Chung	Construction	Concerned with multiple construction stages on SR-60 since building the HOV structure	Same as #7.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
50	9/02/09	Michael West	Construction	Concerned with the multiple construction stages Concerned about impact of the proposed stadium	Same as #7. Same as #31.
51	9/02/09	Teresa Lopez	Construction	Concerned with multiple construction stages Recommended holding off on the project until funding is in place	Same as #7. Same as #46. The project is eligible for federal-aid funding and considered to be state authorized under current FHWA/Caltrans stewardship agreements. An assumption of 60% federal and 40% non-federal funds is included in the project financing plan. The local agency is committing $35 million toward the project. The project is needed to improve existing congestion and improve safety conditions.
52	9/18/09	James Flournoy	Design, traffic study, truck lane study, EIR/EA	Recommended direct on- and off-ramps to proposed stadium parking. Recommended Grand Avenue interchange be a full cloverleaf. Recommended a minimum of two through lanes in each direction on Grand Avenue on game days. Recommended widening the study area to cover the San Gabriel Valley. Recommended truck lanes. Concerned with project segmentation because of future projects.	Same as #40. The stadium project SEIR did not identify a need for two through lanes during events. The scope and the size of the project do not warrant a larger study area. Same as #48 for truck lane study. The Big Fix project is in the conceptual stages; Metro is managing that effort.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
53	9/02/09	Los Angeles County Department of Parks and Recreation	Section 4(f)	General concern about taking of golf course for freeway construction Specific concerns about Section 4(f) evaluations and Parkland Preservation Act (CEQA), noise, air quality, biological resources, traffic at Golden Springs Drive and Grand Avenue, and potential liquefaction	The draft EIR/EA and technical studies will address project-level and cumulative impacts on the golf course in accordance with applicable state and federal regulations.
54	9/02/09	South Coast Air Quality Management District	Air quality	Noted that air quality analytical modeling and health risk assessment files will need to be submitted to SCAQMD in electronic format, CARB will need to review and approve EIR, and PM2.5 quantitative analysis will need to stay under threshold recommended by SCAQMD	Comment noted. The air quality analysis for the proposed project will comply with SCAQMD standards and procedures. When the draft EIR/EA is made available for public review, a CD of the air quality modeling will be provided to SCAQMD as requested.
55	9/02/09	County Sanitation District of Los Angeles	Utility	Concerned that project will interfere with the district's truck sewer	As part of the design process and during preparation of the draft EIR/EA, consultation and coordination with the county sanitation district will be carried out to address any concerns.

Table 4-1. NOP Comments and Responses to Those Comments

No.	Date	Agency, Organization, Individual	Topic (air quality, noise, traffic, etc.)	Comment	Response to Comment
56	8/26/09	Native American Heritage Commission	Cultural resources	Although project does not appear to contain Native American cultural resources within 0.5 mile of APE boundary, consultation with Native American tribes is recommended	Comment noted. Consultation with representatives of Native American tribes will be carried out in accordance with Caltrans policies and procedures.

Lake or Streambed Alteration Agreement would 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 CDFG. Coordination will continue with CDFG to obtain the necessary Section 1600 Agreement for Streambed Alteration.

- *U.S. Army Corps of Engineers*

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by USACE, with oversight by EPA.

USACE issues two types of 404 permits: standard and general permits. Nationwide permits, a type of general permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a nationwide permit may be permitted under one of USACE's standard permits. For standard permits, the USACE decision to approve is based on compliance with EPA's Section 404(b)(1) guidelines (40 CFR Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) guidelines were developed by EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (WoUS) only if there is no practicable alternative that would have less adverse effects. The guidelines state that USACE may not issue a permit if there is an LEDPA to the proposed discharge that would have lesser effects on WoUS, and not have any other significant adverse environmental consequences. Coordination will continue with USACE for obtaining the Section 404 permit.

- *Native American Heritage Commission*

A letter to the NAHC was sent on May 18, 2009, requesting a review of the sacred lands file as well as a list of Native American representatives to be contacted for information regarding sacred sites within the project area (see HPSR Attachment C). According to the NAHC response dated May 19, 2009, no known sacred sites are located within the project area. The NAHC also provided a list of eight local Native Americans, representing eight different Native American groups in Southern California, to be contacted for information. A letter describing the proposed project and requesting information regarding resources important to Native Americans was sent to each representative on May 18, 2009.

- *City of Industry, City of Diamond Bar, County of Los Angeles*

Caltrans has held several coordination meetings with the City of Industry and the Los Angeles County Department of Parks and Recreation. A list of meetings conducted so far with local elected officials and public agency staff members is provided below.

> **December 9, 2009:** Meeting with County Supervisor Don Knabe and Los Angeles County Parks and Recreation staff to review the project alternatives and their impact on the community.

January 26, 2010: Meeting with representatives from the Los Angeles County Department of Parks and Recreation and the cities of Diamond Bar and Industry to present the reconfiguration options for the golf course.

April 27, 2010: Meeting with representatives from the Los Angeles County Department of Parks and Recreation to discuss the reconfiguration options in detail, with feedback received at the January 26, 2010, meeting.

October 13, 2010: Meeting with Supervisor Knabe and staff to discuss the reconfiguration design's progress.

June 8, 2011: Meeting with representatives from the Los Angeles County Department of Parks and Recreation to discuss the county's March 15, 2011, letter regarding golf course improvements.

March 1, 2012: Meeting with representatives from the Los Angeles County Department of Parks and Recreation to discuss the December 19, 2011, Caltrans letter regarding golf course enhancements.

March 5, 2012: The Director of the Los Angeles County Department of Parks and Recreation signs the letter concurring with the project's redesign plan for the golf course and the incorporation of the County's requested enhancement measures as agreed upon with Caltrans.

4.2.1 Agency Correspondence Letters

Agency correspondence letters are provided in Appendix D.

4.3 Notice of Availability and Public Meeting for Draft EIR/EA

During the public circulation period (February 19, 2013, to April 5, 2013) for the draft EIR/EA, various outreach efforts were made to alert the public about the availability of the document. Caltrans announced the public meeting by publishing a public notice (see Figure 4-3 for a copy of the notice) in the following newspapers:

San Gabriel Valley Tribune (February 19, 2013)

La Opinión (February 19, 2013)

As noted in the Notice of Availability (NOA), the draft EIR/EA was made available for public review at the following locations:

Caltrans District 7
100 S. Main Street
Los Angeles, CA 90012

Diamond Bar Public Library
1061 S. Grand Avenue
Diamond Bar, CA 91765-2299

Figure 4-3: Public Notice in Newspaper

(Space below for use of County Clerk only)

SAN GABRIEL VALLEY TRIBUNE

Affiliated with
SGV Newspaper Group
1210 N. Azusa Canyon Road
West Covina, CA 91790

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Los Angeles

I am a citizen of the United States, and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of **SAN GABRIEL VALLEY TRIBUNE**, a newspaper of general circulation which has been adjudicated as a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, on the date of September 10, 1957, Case Number 684891. The notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

08/03/09

I declare under penalty of perjury that the foregoing is true and correct.

Executed at West Covina, LA Co. California
This 3rd day of August, 2009

Signature

12/22/99 (R)

Proof of Publication of

Caltrans

PUBLIC NOTICE

Notice of Scoping Meeting and Notice of Preparation of a Draft Environmental Impact Report/Environmental Assessment for State Route 57/State Route 60 Confluence at Grand Avenue Project

WHAT IS BEING PLANNED	The California Department of Transportation (Caltrans), in cooperation with the City of Industry, proposes to modify the State Route 57 (SR-57)/State Route 60 (SR-60) confluence at the Grand Avenue interchange in the cities of Industry and Diamond Bar in Los Angeles County, California. The purpose of the project is to improve traffic operation on Grand Avenue from Golden Spring Drive to the interchange at SR-60, increase capacity at the Grand Avenue interchange, improve traffic operation on the freeway mainline, reduce traffic weaving and increase weaving distance, and improve safety.
WHY THIS AD	Caltrans and the City of Industry will study the effects this project may have on the environment. The results of the studies will be detailed in an Environmental Impact Report/Environmental Assessment (EIR/EA). This notice is to announce the date and location of the scoping meeting that will be held regarding the project and upcoming environmental studies. The scoping meeting will be held on **Wednesday, September 2, 2009**, from 5:00 p.m. to 9:00 p.m. at the Main Ballroom of the Diamond Bar Center, 1425 Summitridge Drive, Diamond Bar, CA 91765.
WHERE YOU COME IN	You can attend the scoping meeting for further information about the project. If you have any comments about the project, please submit them to Ron Kosinski, Deputy District Director, Division of Environmental Planning, Caltrans District 7 (E-A-57/60), 100 S. Main Street, MS 16-A, Los Angeles, CA 90012. Written and verbal comments will be accepted at this workshop. Your comments should be received no later than **September 18, 2009.**
CONTACT	For information about this project or any transportation matter, call Caltrans Citizen Participation at 1-213-897-0849, or visit us at our web site at www.dot.ca.gov.

Publish: August 3, 2009 San Gabriel Valley Tribune Ad#62806

PROOF OF PUBLICATION
(2015.5C.C.P.)

La Opinión

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www.laopinion.com

STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitle matter. I am the principal clerk of the printer of La Opinión a newspaper of general circulation, printed and published daily in the city of Los Angeles, County of Los Angeles, and which newpaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of July 28, 1969, Case Number: 950176; that the notice, of which the annexed is a printed copy, has been published in each regular and not in any supplement thereof on the following dates, to-wit:

February 19

all in the year 20 13

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Los Angeles, California, this

20 day of Feb, 20 13

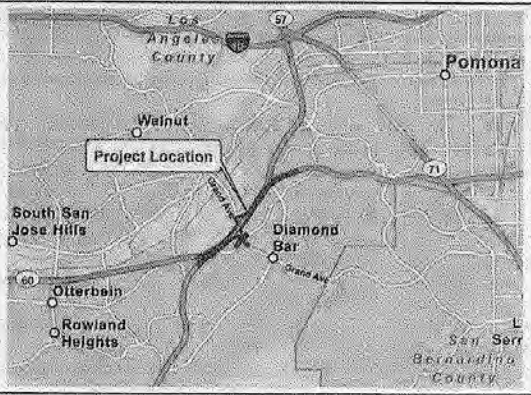
Rosa Bezuner
Signature

ADV #017 Controlled
Rev. 06/05

Caltrans

AVISO PÚBLICO

Aviso de Disponibilidad del Reporte Preliminar de Impacto Ambiental/Evaluación Ambiental y la Sección 4(f) Evaluación y Aviso de Audiencia Pública para la Confluencia Ruta Estatal 57/ Ruta Estatal 60 en el Proyecto Grand Avenue.



QUÉ ESTÁ SIENDO PLANEADO	La Ciudad de Industry y el Departamento de Transporte de California (Caltrans) están proponiendo mejoras a autopista para la confluencia de Ruta Estatal (SR, por sus siglas en inglés) 57/SR-60 en el cruce de Grand Avenue en el Condado de Los Ángeles. El proyecto consiste en la reconfiguración de la confluencia de aproximadamente 2.5 millas de SR-57 y SR-60, que incluye la adición de carriles auxiliares y reconfiguración de la rampa de entrada/ rampa de salida asociada. Las alternativas que se están considerando son la Intercambio Combinación Trébol/Configuración Diamante, Configuración de Intercambio Trébol Parcial, y la Alternativa de No Construir. Mejoras en la confluencia SR-57/SR-60 son necesarias para mejorar la seguridad y las deficiencias operacionales en el cruce de Grand Avenue.
POR QUÉ ESTE ANUNCIO	Caltrans ha completado un reporte preliminar de impacto ambiental/evaluación ambiental (EIR/EA, por sus siglas en inglés) que evalúa los impactos potenciales de las alternativas de no construir y construir. Este aviso se proporciona para informar al público de la disponibilidad del proyecto EIR/ EA para su revisión y comentarios, así como la audiencia pública sobre el estudio que se realizará el **miércoles 6 de marzo de 2013.** El proyecto EIR/EA y documentos relacionados están disponibles para revisión pública y copia en el Distrito 7 de Caltrans, División de Planificación del Medio Ambiente (100 S. Main Street, Los Ángeles, CA), de lunes a viernes de 8 a.m. a 4:30 p.m. El documento ambiental también está disponible en la Biblioteca Pública Diamond Bar (1061 S. Grand Avenue, Diamond Bar, CA). El proyecto EIR/EA está también disponible para su consulta en la página web de Caltrans: http://www.dot.ca.gov/dist07/resources/envdocs/ El proyecto tiene el potencial de causar impactos relacionados con el tráfico y transporte, calidad del aire y ruido.
DÓNDE ENTRA USTED	¿Tiene algún comentario sobre el EIR/EA? ¿Quiere hacer algún comentario sobre el proyecto? Sus comentarios pasarán a formar parte del registro público, y todas las observaciones de fondo sobre temas ambientales serán abordados en el EIR/EA final. Los comentarios por escrito del proyecto EIR/EA serán aceptados hasta el **5 de abril de 2013**. Por favor, envíe sus comentarios a Dawn Kukla, Planificador Ambiental Senior, Departamento de Transporte de California, Distrito 7, 100 S. Main Street, MS 16 A, Los Ángeles, CA 90012. Una reunión pública se llevará a cabo para permitir que cualquier persona interesada tenga la oportunidad de discutir ciertas características de diseño del proyecto con el personal de Caltrans antes de que el diseño final y alternativa sea seleccionado. **La reunión pública ser llevará a cabo el miércoles 6 de marzo de 2013, de 5:30 p.m. a 8 p.m. (parte de la audiencia pública será de 6:15 p.m. a 7:15 p.m.) en el Salón AQMD GB ubicado en 21865 Copley Drive, Diamond Bar, CA 91765.** Las personas que necesiten alojamiento especial (intérprete de Lenguaje de Señas, asientos accesibles, documentación en formatos alternativos, etc.) deben ponerse en contacto con la Oficina de Relaciones Públicas del Distrito 7 de Caltrans al (213) 897-3656 por lo menos 21 días antes de la reunión pública programada. Los usuarios de TDD pueden utilizar la línea de Servicio de Retransmisión de California al 1 (800) 735-2929 o línea de voz al número 1 (800) 735-2922.
CONTACTO	Para obtener más información adiciona, por favor póngase en contacto con Dawn Kukla al (213) 897-3643. 109-10071579

In addition, the NOA, along with a copy of the draft EIR/EA, was mailed to agency and elected officials, residents, homeowners, and business owners in the vicinity of the project (see Chapter 6, Distribution List) at the beginning of the public review period. A copy of the NOA is included in Figure 4-4.

A public meeting was held on March 6, 2013, from 5:30 p.m. to 8:00 p.m. to present the two build alternatives. The meeting was held in the auditorium at the South Coast Air Quality Management District office (21865 Copley Drive, Diamond Bar, CA 91765). The following four handouts were made available to the public:

- Meeting agenda
- Notice of Availability
- Speaker card
- Comment sheet

The meeting began at 5:30 p.m. with an informal meet and greet. Attendees were able to walk around the room and look at displays with maps of the project area, alternative improvements, noise and visual analysis summaries, and an overview of the environmental process. Members of the project team were available to clarify details regarding the proposed project.

During the public circulation period, 21 comments were received from the public. The comments were mixed. Those who favor the project chose Alternative 3. In general, those in support of Alternative 1 wanted a larger project implemented at the interchange. Suggestions included full-connection HOV lanes at each end of the confluence, separation of the two routes through the confluence, and construction of an eastbound SR-60 to northbound SR-57 lane. These suggestions are outside the scope of this project and do not address the need and purpose.

The City of Industry supports the project. The City of Diamond Bar had a comment regarding maintaining the ambiance of the city entrance. The County of Los Angeles had several comments regarding clarification of the text of the environmental document with respect to project impacts and mitigation measures at the golf course. The comments did not result in any substantial design or mitigation feature changes.

Figure 4-4: Notice of Availability (NOA)

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN, JR, Governor

DEPARTMENT OF TRANSPORTATION

DISTRICT 7, Division of Environmental Planning
100 South Main Street, Suite 100
LOS ANGELES, CA 90012-3606
PHONE (213) 897-0703
FAX (213) 897-0685
TTY (213) 897-4937

Flex your power!
Be Energy efficient!

February 14, 2013

Responsible Agencies, Review Agencies, Trustee Agencies, Cooperating Agencies and Individuals Interested in the State Route 57/State Route 60 Confluence at Grand Avenue Project

7-LA-60 (PM R23.3/R26.5) and 7-LA-57 (PM R4.3/R4.5 and R4.5/R4.8) State Route 57/State Route 60 Confluence at Grand Avenue Project EA 279100

Draft Environmental Impact Report/Environmental Assessment and Section 4(f) Assessment Now Available

The City of Industry, and the California Department of Transportation (Caltrans), are proposing freeway improvements to the State Route (SR) 57/SR-60 confluence at the Grand Avenue interchange in Los Angeles County. The project consists of the reconfiguration of the approximately 2.5-mile confluence of SR-57 and SR-60, which includes the addition of auxiliary lanes and associated on-ramp/off-ramp reconfiguration. The alternatives under consideration are the Combination Cloverleaf/Diamond Configuration Interchange, Partial Cloverleaf Interchange Configuration, and the No-Build Alternative. Improvements to the SR-57/SR-60 confluence are needed to improve safety and operational deficiencies at the Grand Avenue interchange.

Caltrans has completed a Draft Environmental Impact Report/Environmental Assessment (EIR/EA) that evaluates the potential impacts of the no-build and build alternatives. This notice is provided to inform the public of the availability of the Draft EIR/EA for review and comment as well as the public hearing about this study to be held on Wednesday, March 6, 2013, from 6:15 p.m. to 8 p.m. at the AQMD GB Hall 21865 Copley Drive, Diamond Bar, CA 91765.

Enclosed is a copy of the Draft EIR/EA for your review. Please submit any written comments no later than April 5, 2013 to:

Ms. Dawn Kukla, Senior Environmental Planner
State Route 57/State Route 60 Confluence at Grand Avenue Project
California Department of Transportation, Division of Environmental Planning
100 South Main Street MS 16A
Los Angeles, CA 90012

For additional information, please contact Dawn Kukla at (213) 897-3643. Thank you for your interest in this transportation improvement project.

Sincerely,

Garrett Damrath
Office Chief
Division of Environmental Planning, Caltrans District 7

Enclosure

"Caltrans improves mobility across California"

COMMENTS RECEIVED DURING PUBLIC REVIEW OF THE DRAFT EIR/EA		
No.	**Date**	**Government Agencies**
1	4/1/13	County of Los Angeles Department of Parks and Recreation
2	3/14/13	County Sanitation Districts of Los Angeles County
3	2/26/13	Native American Heritage Commission
4	4/4/13	County of Los Angeles Department of Parks and Recreation
5	4/5/13	Fred Alamolhoda for the City of Diamond Bar
No.	**Date**	**Comments Received at the Public Meeting/Hearing**
6	3/6/13	Anonymous 1
7	3/6/13	Anonymous 2
8	3/6/13	Anonymous 3
9	3/6/13	Anonymous 4
10	3/6/13	JR
11	3/6/13	Vinod Kashyap
12	3/6/13	Beronica O'Barr
13	3/6/13	Lee Paulson
14	3/6/13	Dick Simmons
15	3/6/13	Orion Von Stetten
16	3/6/13	Robert Velazquez
No.	**Date**	**Comments Received by Mail**
17	4/3/13	Cynthia Carter
18	3/6/13	Janet Peets
19	3/28/13	R. Lee Paulson
20	3/6/13	James Tsai
21	3/6/13	Sally Von Stetten
No.	**Date**	**Comments Received after the Comment Period**
22	5/8/13	California Transportation Commission

Government Agencies

Comment 1

Bryan Moscardini
<bmoscardini@parks.lacounty.gov>

04/01/2013 12:51 PM

To Dawn Kukla <dawn.kukla@dot.ca.gov>
cc
Subject 57/60 Confluence at Grand Ave (Diamond Bar Golf Course) Document

Dawn,

Following up on the VM I left this morning. The inquiry was regarding page 5-7 of the 4(f) Analysis: "… In its letter of March 5, 2012, the County of Los Angeles concurred that these measures would minimize harm and enhance the golf course." This isn't a letter but rather a dated signature by our Director, on the 12/19/11 letter correct? We couldn't find a letter dated 3/5/12. **1**

In that same 12/19/11 letter, CalTrans acknowledges the Department's request for clubhouse and snack bar improvements, but we couldn't find those in the project description (and absent from the 4(f) Evaluation, pages 5-7 and 5-8: 5.5 Measures to Minimize Harm to the Section 4(f) Property). If the clubhouse and snack bar elements are in the any of the documents, please direct us to where these are located. Thank you. **2**

BRYAN MOSCARDINI | DFP |
County of Los Angeles Department of Parks and Recreation
Planning Division-Environmental and Regulatory Permitting
510 South Vermont Avenue Los Angeles, CA 90020
ph 213 351-5133 / fx 213 639-3959
bmoscardini@parks.lacounty.gov
Please note that our office is closed on Fridays

Response to April 1, 2013, Comment Letter from the County of Los Angeles Department of Parks and Recreation

Response to Comment 1-1

The date of the concurrence letter from Los Angeles County (County) was incorrectly identified as March 5, 2012, in the Section 4(f) analysis and determination. The actual letter is dated December 19, 2011, as mentioned. This has been corrected in this final EIR/FONSI.

Response to Comment 1-2

The clubhouse and snack bar improvements are mentioned in Section 5.5.1 (on page 5-9) of the Programmatic Section 4(f) Evaluation section of the draft EIR/EA. This paragraph was edited following receipt of the aforementioned concurrence letter. The specific details of this improvement will be developed during the design phase of the project.

Comment 2

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON CHAN
Chief Engineer and General Manager

March 14, 2013

Ref. File No: 2512921

Ms. Dawn Kukla, Senior Environmental Planner
Division of Environmental Planning
California Department of Transportation
100 South Main Street MS 16A
Los Angeles, CA 90012

Dear Ms. Kukla:

State Route 57/State Route 60
Confluence at Grand Avenue Project

The County Sanitation Districts of Los Angeles County (Districts) received a Draft Environmental Impact Report for the subject project on February 19, 2013. The proposed development is located within the jurisdictional boundaries of District No. 21. We offer the following comments regarding sewerage service:

- The proposed project may impact existing and/or proposed Districts' trunk sewers over which it will be constructed. Existing and proposed Districts' trunk sewers are located directly under and/or cross directly beneath the proposed project alignment. The Districts cannot issue a detailed response to or permit construction of the proposed project until project plans and specifications that incorporate Districts' sewer lines are submitted. In order to prepare these plans, you will need to submit a map of the proposed project alignment, when available, to the attention of Mr. Jon Ganz of the Districts' Sewer Design Section at the address shown above. The Districts will then provide you with the plans for all Districts' facilities that will be impacted by the proposed project. Then, when revised plans that incorporate our sewers have been prepared, please submit copies of the same for our review and comment. 1

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Grace Robinson Chan

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR: ar

c: J. Ganz

Doc #: 2537482.D21

Recycled Paper

Response to March 14, 2013, Comment Letter from the County Sanitation Districts of Los Angeles County

Response to Comment 2-1

Comment noted. Caltrans is committed to meeting the County Sanitation Districts of Los Angeles County's (LASD's) requirements for plan submission and seeking information regarding district facilities. Caltrans will coordinate with the district after the final design is complete but prior to the start of construction.

An LASD trunk sewer (System No. PC6767), consisting of a 15- to 18-inch VCP, will require relocation of the portion within the easement near the Ayers Suites hotel (21951 Golden Springs Drive, Diamond Bar) to clear the way for the proposed Grand Avenue bypass off-ramp. The project proposes to relocate the sewer line to a public right-of-way on Golden Spring Drive. The final design of the trunk sewer will follow the standard plans and specifications of LASD and all applicable city and County standards. The design of the sewer line relocation will be processed through LASD for approval before starting construction. The costs for relocation of the trunk sewer and service laterals are included in the project cost estimates.

Comment 3

STATE OF CALIFORNIA — Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
ds_nahc@pacbell.net
www.nahc.ca.gov
(916) 657-5390 - Fax

February 26, 2013

Mr. Augustin Bajaras, Environmental Planner
California Department of Transportation – District 7
100 south Main Street, MS 16A
Los Angeles, CA 90012

RE: SCH# 2009081062 CEQA Notice of Completion – **State Route 57 / State route 60 Confluence at Grand Avenue Project** – draft Environmental Impact Report (DEIR); located in the Diamond Bar area; Los Angeles County , California

Dear Mr. Bajaras:

The Native American Heritage Commission has reviewed the Notice of Preparation (NOP) regarding the above referenced project. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resources, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA guidelines 15064(b)). To adequately comply with this provision and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

- ✓ Contact the appropriate Information Center for a record search to determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources, which we know that it has.
  - The NAHC recommends that known cultural resources recorded on or adjacent to the APE be listed in the draft Environmental Impact Report. **1**
- ✓ If an additional archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. We suggest that this be coordinated with the NAHC, if possible.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure pursuant to California Government Code Section 6254.10. **2**
- ✓ Contact has been made to the the Native American Heritage Commission for:
  - A Sacred Lands File Check, and cultural resources have been identified to your agency.
  - A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter. **3**
  - Lack of surface evidence of archeological resources does not preclude their subsurface existence once ground-breaking activity begins. If that occurs, the NAHC suggests that inadvertent discoveries be coordinated with the NAHC;

Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. **4**

- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

STATE OF CALIFORNIA Arnold Schwarzenegger, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
ds_nahc@pacbell.net
www.nahc.ca.gov
(916) 657-5390 - Fax

- Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery. 5

Sincerely,

Dave Singleton
Program Analyst
(916) 653-6251

CC: State Clearinghouse

Attachment: Tribal Contacts

Native American Contacts
Los Angeles County
February 26, 2013

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th St, Rm. 403
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 FAX

Gabrielino Tongva Nation
Sam Dunlap, Cultural Resources Director
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

Ti'At Society/Inter-Tribal Council of Pimu
Cindi M. Alvitre, Chairwoman-Manisar
3094 Mace Avenue, Apt. B Gabrielino
Costa Mesa, , CA 92626
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-761-6417- fax

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address Gabrielino Tongva
,
tattnlaw@gmail.com
310-570-6567

Gabrielino-Tongva Tribe
Bernie Acuna, Co-Chairperson
P.O. Box 180 Gabrielino
Bonsall , CA 92003
(619) 294-6660-work
(310) 428-5690 - cell
(760) 636-0854- FAX
bacuna1@gabrieinotribe.org

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 -FAX

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
P.O. Box 1800 Gabrielino
Bonsall , CA 92003
palmsprings9@yahoo.com
626-676-1184- cell
(760) 636-0854 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009081062; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the S.R. 57 / S.R. 60 Confluence at Grand Avenue Project; located in the Diamond Bar area of Los Angeles County, California.

Native American Contacts
Los Angeles County
February 26, 2013

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
Covina , CA 91723
(626) 926-4131
gabrielenoindians@yahoo.com

Gabrielino-Tongva Tribe
Conrad Acuna,
P.O. Box 180 Gabrielino
Bonsall , CA 92003
310-587-2203

760-636-0854 - FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009081062; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the S.R. 57 / S.R. 60 Confluence at Grand Avenue Project; located in the Diamond Bar area of Los Angeles County, California.

Response to the February 26, 2013, Comment Letter from the Native American Heritage Commission

Response to Comment 3-1
A records search was conducted at the Eastern Information Center (EIC) of the University of California, Riverside on May 19, 2009. Results of the records search, including a list of cultural resources located within 1 mile of the area of potential effects, is included on page 2-129 of the draft EIR/EA.

Response to Comment 3-2
Should additional an archaeological inventory be required for this project, the final stage will include preparation of a professional report detailing the findings and recommendations of the archaeologists who conducted the records search and field survey. Per Mitigation Measure CUL-2, the NAHC will be notified if Native American human remains are identified.

Response to Comment 3-3
The NAHC was contacted for a Sacred Lands Files check. In addition, a cultural resources inventory has been conducted. The NAHC has provided a list of Native American contacts.

It is noted that a lack of surface evidence of archaeological resources does not preclude their subsurface existence once ground-breaking activity begins. If human remains are identified, the NAHC will be contacted per Mitigation Measure CUL-2.

Response to Comment 3-4
Mitigation Measure CUL 2-1 outlines the procedures for cultural resources monitoring. A qualified professional archaeologist will monitor the initial phase of ground-disturbing activities for this project.

Response to Comment 3-5
Mitigation Measure CUL-2 outlines the procedures following the inadvertent discovery of archaeological resources.

Comment 4

COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS AND RECREATION
"Parks Make Life Better!"
Russ Guiney, Director | John Wicker, Chief Deputy Director

April 4, 2013 Sent via mail: dawn.kukla@dot.ca.gov

California Department of Transportation
Division of Environmental Planning
ATTN: Ms. Dawn Kukla
100 South Main Street, MS16A
Los Angeles, CA 90012

Dear Ms. Kukla:

DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) / ENVIRONMENTAL ASSESSMENT (EA) AND SECTION 4(f) ASSESSMENT FOR THE STATE ROUTE 57 / STATE ROUTE 60 CONFLUENCE AT GRAND AVENUE PROJECT

The Department has reviewed the document above and has produced the following comments. All requested edits are shown as a ~~strikeout~~ for deletion or an underline for new text.

DEIR/EA

1. Page 1-13, second paragraph: ". . . the facility would continue to operate as a golf course during construction": To this end, the golf course will operate as a 9-hole course during the project. Therefore, construction must be done in two, 9-hole phases versus potentially dividing the work between the east/west sides of Grand Ave. An east/west scenario would divide construction into a 12-hole and 6-hole project which is not acceptable to the County. Play on nine holes must be available at all times. 1

2. Page 1-29: Section 1.5 "Permits and Approvals Needed": Please add the County as a Responsible Agency under CEQA. The project requires one or more Right of Entry Permits and/or Licenses issued by the County prior to any work being done on the golf course. Also, County approval of the conveyance of park land is needed to complete the project. 2

3. Page 2-25: PARK-1 - To initiate the process of replacement parkland, please contact James Barber, Section Head, Land Acquisition and Development Section by phone at 213-351-5117 or by email at jbarber@parks.lacounty.gov. 3

Planning and Development Agency • 510 South Vermont Ave • Los Angeles, CA 90020-1975 • (213) 351-5198

Also, please add the following text to PARK -1 ". . . suitable as replacement park land. The final determination of the suitability of the replacement park land will be made to the satisfaction of the County." 3 (cont'd.)

Appendix B-Section 4(f) Analysis

4. Page 2-5, Section 2.2.2, "Build Alternatives", third paragraph: After the third paragraph, please add the following text: Both build alternatives utilize a portion of Diamond Bar Golf Course. Any project construction involving golf course property requires review and approval by the County prior to construction. 4

5. Page 2-7 Section 2.2.2.2, "Build Alternative 3": The location of any Temporary Construction Easement (TCE) must be approved by the County to ensure that the TCE does not affect the playability of the varying 9 holes that will remain in service during construction. 5

6. Page 3-2 Section 3.2.1.2, "Access/Facilities/Usage": Diamond Bar Golf Course has a total of 242 parking spaces, rather than the 37 spaces stated here. Also, the course rates (green fees) range from $4.50 to $67.00, rather than $14.50 to $28.00 stated here. 6

7. Page 4-2, Section 4.2, "Effects Under Build Alternative 3": This section states that 3.7 acres of the golf course will be used for staging. Please clarify if the staging area would be part of the TCE. Also, if the 3.7 acres is part of the TCE for Alternative 3, this contradicts the 3.4 acres stated on page 2-7. Please clarify the TCE acreage for Alternative 3. 7

8. Page 5-8: Section 5.5, "Measures to Minimize Harm to the Section 4(f) Property", Measure #9 - Please delete the following text ". . . ~~or make a payment in lieu of providing such land.~~" Per mitigation measure PARK-1, Caltrans must compensate the County by providing new acreage at a suitable location. 8

   In Measure #10, please edit the following text. "The project proponent shall compensate the ~~golf course operator~~ County for any loss of revenue during construction of the proposed project. The compensation will be based on the recommendations of the Caltrans right-of-way agent. If the recommendations do not meet the approval of the County, Caltrans will retain a third-party agent to make recommendations on the compensation. The County must approve of the third-party agent. 9

9. Page 5-9, Section 5.1.1, "Other Enhancements": Please edit the following text. "Other enhancements to the golf course to address any potential aesthetic impacts ~~could~~ would include minor architectural improvements on the exterior of the clubhouse and snack bar, including, but not limited to, architectural cladding around the steal posts of the existing breezeway covers and an architectural façade with lattice or similar architectural treatment on the exterior of the clubhouse and snack bar". 10

Thank you for the opportunity to comment on this project. We look forward to continuing our collaboration with your agency and the City of Industry on this very important endeavor. If I may be of further assistance, please contact me by phone at (213) 351-5126 or by email at jrupert@parks.lacounty.gov.

Sincerely,

Joan Rupert
Section Head-Environmental and Regulatory Permitting

JR:BM (Comments on DEIR_EA)

c: Fourth Supervisorial District (E. Stibal, D. Simmons)
CEO Real Estate (C. Montana, R. Hernandez)
Parks and Recreation (R. Guiney, J. Wicker, K. King, J. Barber, K. Hayes, J. Badel, W. Leary, G. Kossick, B. Moscardini)

Response to April 4, 2013, Comment Letter from the County of Los Angeles Department of Parks and Recreation

Response to Comment 4-1
Comment noted. The reference on page 1-13 of the draft EIR/EA states that the course will remain open during construction. Page 1-16, paragraph 3, and page 1-17, paragraph 4, have been revised to describe reconstruction of the golf course nine holes at a time.

Response to Comment 4-2
Comment noted. Section 1.5 of this final EIR/FONSI has been updated to identify the County as a responsible agency. Acquisition of parkland required for the project will be in accordance with the California Park Preservation Act.

Response to Comment 4-3
Comment noted. The information regarding the County's contact during the process of procuring replacement parkland has been noted. Mitigation measure PARK-1 has been revised. Please see revised text below.

> **PARK-1:** In accordance with the provisions of the California Park Preservation Act (CCP Sections 5400 through 5409), the acquiring entity will pay sufficient (just) compensation (CCP 1263.320), or land, or both, to the County to enable the operating entity to replace the parkland and the facilities thereon. The substitute land will be of comparable characteristics and of substantially equal size, located in an area that would allow for use by generally the same persons who used the existing parkland and facilities. The cost will include the land and the cost of development into parkland, including placing of substitute facilities thereon. If a functional replacement is elected subsequent an offer of payment, just compensation, final determination of a functional replacement relative to the scope of the property is with the FHWA. Negotiations with the County of Los Angeles Department of Parks and Recreation will be with the Land Acquisition and Development Section.

Response to Comment 4-4
Comment noted. Caltrans will negotiate with the County prior to construction involving golf course property. The County will be provided with a copy of the Right-of-Way Appraisal Map, denoting the area required on the golf course, when such map is available.

Response to Comment 4-5
Comment noted. Any temporary construction easements (TCEs) on County land will be presented to the County prior to negotiations and delineated on the Right-of-Way Appraisal Map.

Response to Comment 4-6
Comment noted. The number of parking spaces and green fees information has been updated in the Section 4(f) Programmatic Evaluation (see Section 3.2.1.2, page 3-2).

Response to Comment 4-7
Comment noted. The staging area mentioned in Section 4.2 is not within the area included as a TCE. Staging would occur within the fee right-of-way obtained from the golf course. The fee right-of-way requirements are based on the permanent features of each alternative. Any staging areas on County land will be coordinated with the County. The TCE required for Alternative 3 is 3.5 acres; this information has been updated in this final EIR/FONSI.

Response to Comment 4-8
The California Public Park Preservation Act (Public Resources Code Sections 5400–5409): provides that:

> 5401(a): No city, city and county, county, public district, or agency of the state, including any division, department or agency of the state government, or public utility, shall acquire (by purchase, exchange, condemnation, or otherwise) any real property, which property is in use as a public park at the time of such acquisition, for the purpose of utilizing such property for any nonpark purpose, unless the acquiring entity pays or transfers to the legislative body of the entity operating *the park sufficient compensation or land, or both*, as required by the provisions of this chapter to enable the operating entity to replace the park land and the facilities thereon.

Therefore, the EIR/EA is correct in citing both replacement land and in-lieu compensation as methods to compensate for loss of parkland. However, the County's preference for replacement land has been noted.

Response to Comment 4-9
Comment noted. Measure 10 has been updated to replace "golf course operator" with "County." Compensation for revenue loss during construction will be based on a loss of business goodwill claim, per CCP Sections 1263.510, 520, and, 530. A loss of business goodwill appraisal will be completed by a Caltrans right-of-way agent, upon request, based on financial documentation provided by the County. Caltrans will make every effort to negotiate in good faith and reach a mutual agreement for just compensation. However, Caltrans will not use third-party adjudication.

Response to Comment 4-10
Page 5-9, Section 5.1.1, reads "Other enhancements have been updated to include architectural enhancements, as spelled out in the Caltrans letter to the County on December 19, 2011, with concurrence by the County on March 5, 2012." The section will be modified to read:

> Other enhancements to the golf course to address any potential aesthetic impacts would include minor architectural improvements on the exterior of the clubhouse and snack bar, including architectural cladding around the steel posts of the existing breezeway covers and an architectural façade, with lattice or similar architectural treatment on the exterior of the clubhouse and snack bar.

Comment 5

From: Fred Alamolhoda [mailto:freda@laeassociates.com]
Sent: Friday, April 05, 2013 1:05 PM
To: jiwanjit_palaha@dot.ca.gov
Cc: David Liu; Wei Koo; Daniel Weddell; Trisal, Shilpa; Eduardo Pereira
Subject: SR-57/60 Confluence at Grand Ave. Project - Draft EIR/EA

Hi J.P.:

I am sending this email on behalf of the City of Diamond Bar. As previously discussed at the project status and design review meeting at the City of Diamond Bar with the City of Industry representatives and project design team on January 24, 2013, the City of Diamond Bar is requesting the project design to include an entry statement (landscape and hard-scape design)along Grand Avenue within the project limits. 1

If needed, we can discuss this request in detail at our future Project Development Team (PDT) meetings.

Thank you

Fred Alamolhoda, P.E.
President/Senior Program Manager
LAE Associates, Inc.
20709 Golden Springs Dr. Suite 104
Diamond Bar, CA 91789-3847
Tel: 909.595.3760
Fax: 909.595.9484
FredA@LAEassociates.com

Response to April 5, 2013, Comment Letter from Fred Alamolhoda (for the City of Diamond Bar)

Response to Comment 5-1

Comment noted. The request for an entry statement (landscape and hardscape design) on Grand Avenue will be evaluated during the design phase. The entry statement, if constructed, should not result in any new impacts or exacerbate impacts that were previously identified in the draft EIR/EA.

Comments Received at the Public Meeting/Hearing

Comment 6

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: CAN WE COMPLETELY ELIMINATE THE CONNECTION AT THE 57/60 CONFLUENCE, EXTEND THE 57 FWY. NORTH TO THE RAILROAD TRACKS, OVER THE TRACKS AND CONNECT IT BACK AT TEMPLE AVE.? 1

Name: _____ Address: _____
City: _____ State: _____ Zip _____
Phone: _____ E-Mail: _____

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Anonymous 1

Response to Comment 6-1

The project's need and purpose involve improving the Grand Avenue/SR-60 interchange. A new corridor study on SR-57 would not meet the project's need and purpose. The proposed improvements for the SR-57/SR-60 confluence would improve the existing weaving conflict on SR-57 and SR-60 and improve traffic operations. Currently, Caltrans has no plan to initiate a corridor study for SR-57.

Comment 7

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question/Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: ARE THERE ANY PROSECTS THAT will "PIGGY BACK" ON THIS PROSECT ? 1

Will THERE BE A CARPOOL LANE INSTALLED AT THE EAST END OF THE 57/60 CONFLUENCE ? 2

Name: _____ Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-Mail: _____

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Anonymous 2

Response to Comment 7-1

The proposed project has independent utility and logical termini. There are no future planned projects associated with the proposed project. Furthermore, there are no known projects that would require the SR-57/SR-60 confluence to be constructed first (i.e., no piggy-back projects). There are other planned projects on SR-60 (i.e., a proposed Lemon Avenue interchange on SR-60 and a proposed Grand Avenue westbound on-ramp to SR-60). The EIR/EA for the SR-57/SR-60 confluence project has considered the cumulative impact of the associated projects.

Response to Comment 7-2

No changes to the carpool lanes would be made by this project. Currently, the high-occupancy vehicle (HOV) lanes on SR-60, at the east end of the SR-57/SR-60 confluence project, do extend east of the SR-57 split. SR-57 north of SR-60 is not striped for an HOV lane. There are no plans by Caltrans to extend the HOV lanes on SR-57 north of SR-60 at this time.

Comment 8

✓

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

Was 60 west bound under Construction ~~fixed~~ few years ago?
Does this project will benefit certain business man or certain City with Tax payers's money. 1

Name: _____ Address: _____

City: _____ State: _____ Zip _____

Phone: _____ E-Mail: _____

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Anonymous 3

Response to Comment 8-1

Caltrans constructed the westbound SR-60 Brea Canyon bypass connector in 2006 and 2007 as part of the HOV direct connector from westbound SR-60 to southbound SR-57 and the reverse move.

The proposed project would provide congestion relief at the SR-57/SR-60 confluence, which will benefit residents and businesses in the cities of Diamond Bar and Industry as well as regional commuters while passing through the confluence area.

Comment 9

(4)

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: How is the final decision on the 3 alternatives made? Who is responsible for the final decision process? 1

Name: _____ Address: _____

City: _____ State: _____ Zip _____

Phone: _____ E-Mail: _____

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Anonymous 4

Response to Comment 9-1

Identification of a preferred alternative was made by the Project Development Team and based on the merits of the alternatives, environmental impacts, and public input provided through the environmental document review process. Caltrans will be responsible for the final decision regarding whether to approve the proposed project.

Comment 10

✓

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question/Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

The NFL stadium may or may not be built, was it included in your traffic assessment? 1

Name: JKR Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-Mail: _____

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from JR

Response to Comment 10-1

The SR-57/SR-60 traffic study was based on the SCAG 2035 regional model, with adjustments to reflect ambient traffic growth from local residential and commercial developments along SR-60 that were not included in the SCAG model. The traffic analysis focused on peak-hour traffic demand on a daily basis. Because stadium events would occur during off-peak hours, traffic to and from the stadium would not generate additional peak-hour traffic; therefore, the 2008 EIR study for a proposed NFL stadium was not considered in the SR-57/SR-60 confluence EIR/EA. However, resultant land uses from the Industry Business Center (IBC) were considered in the traffic model.

Comment 11

(3)

Caltrans

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

1. Is the powerpoint presentation accessible on Caltrans website | 1
2. Can the presentation be done on Google Earth | 2
3. Is there a contact person | 3
4. Will there be a TASK FORCE FOR COMMUNICATION DURING PLANNING STAGE AS ONGOING BASIS | 4

Name: VINOD KASHYAP Address: 21452 CHIRPING SPARROWS

City: DIAMOND BAR State: CA Zip 91765

Phone: (909) 263 7229 E-Mail: vskashyap@aol

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Vinod Kashyap

Response to Comment 11-1
All presentation materials were based on information in the EIR/EA documents, which are available to the general public. The PowerPoint presentation is not accessible on the Caltrans website. Please contact Jiwanjit Palaha, the Caltrans project manager, at (213) 897-6926 if you would like to request a copy of the PowerPoint presentation.

Response to Comment 11-2
There is no plan to provide the presentation on Google Earth. The entire project is overlaid on GIS mapping prepared specifically for this project.

Response to Comment 11-3
The contact person for the project is Jiwanjit Palaha, the Caltrans project manager ([213] 897-6926). The contact for the environmental document is Agustin Barajas ([213] 897-7665). Details regarding the Caltrans contact person were provided in the notice of availability for the draft EIR/EA and the notice of public meeting as well as on the comment cards distributed at the public meeting and in the PowerPoint presentation.

Response to Comment 11-4
The Project Development Team, consisting of Caltrans and the City of Diamond Bar and the City of Industry, has been responsible for the environmental document phase. The Project Development Team's responsibilities will continue during project planning and design.

Comment 12

(1)

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: The proposals are inefficient and insufficient to keep the excess volume of autos flowing and to reduce the excess on Diamond Bar streets.
We need a cable suspension bridge for 57 fwy confluence to truly remedy the traffic congestions. ↓ DOUBLE DECK
Let's fix this correctly. 1

Name: Berenica D'Bar Address: 21364 Broken Arrow Dr
City: Diamond Bar State: CA Zip 91765
Phone: (909) 860-2401 E-Mail: bbescobar@yahoo.com

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Beronica O'Barr

Response to Comment 12-1

Comment noted. The Los Angeles County Metropolitan Transportation Authority (Metro) prepared a feasibility study report regarding the SR-57 and SR-60 freeways in 2010. Metro's study showed that separating the SR-57 and SR-60 freeways with either a side-by-side or a double-deck alignment would not result in significant improvements compared with the bypass options proposed by the SR-57/SR-60 confluence project. Furthermore, the freeway separation options were not cost effective. To maintain the SR-57/SR-60 interchange at Grand Avenue, options involving separating the two freeways would require two sets of on- and off-ramps. The traffic analysis for those options shows unsatisfactory traffic performance at the interchange. The traffic study prepared for this project shows improved freeway operations and reduced traffic on city streets.

Comment 13

✓

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

IT APPEARS THAT ORANGE COUNTY IS WIDENING THE 57. MY QUESTION IS: WHAT STEPS ARE BEING TAKEN BY LA COUNTY TO PROVIDE FOR 4 OR 5 LANES LATER? THAT IS, DO YOU HAVE A MASTER PLAN FOR PROVIDING MORE 57 CAPACITY? IT SEEMS THAT YOU KEEP LOOKING AT SMALL ASPECTS OF THE OVERALL DESIGN REQUIREMENTS INSTEAD OF THE OVERVIEW, AND WORKING FROM THAT. 1

Name: LEE PAULSON Address: 21919 SANTAQUIN DR.
City: DIAMOND BAR State: CA Zip 91765
Phone: 909 861-8015 E-Mail: LEE@SILVERLIGHTPRESS.COM

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Lee Paulson

Response to Comment 13-1

The current SR-57 widening by the Orange County Transportation Authority (OCTA) terminates south of Lambert Road. Caltrans District 12 has prepared a project study report to add a northbound general purpose lane, which would be used mainly as a climbing lane from Lambert Road to Tonner Canyon Road for trucks on SR-57. There are no plans to construct an additional lane from SR-57 to SR-60.

The proposed project's need and purpose involve improving the SR-57/SR-60 confluence. The traffic modeling and analyses, which are based on the 2035 SCAG model, have considered regional and local planning. The traffic analyses presented in the EIR/EA clearly show that congestion on the SR-57 and SR-60 mainlines is mainly due to a bottleneck at the SR-57/SR-60 confluence. In addition to improving freeway operations, the project's need and purpose also involve removing the bottleneck, and the analysis shows that Alternatives 2 and 3 would greatly reduce the effects of this bottleneck.

Comment 14

✓

Caltrans

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: WHY NOT FIX WB 60 TO NB 57 TOO.
AND SB 57 FWY TO EB 60 to Relieve CONGESTION ON DB streets (DB Blvd) 1

Name: DICK SIMMONS Address: 1195 S. FAIRWAY DR #161
City: WALNT State: CA Zip 91789
Phone: 9095946561 E-Mail: DSIMMONS@IACCESS.ONE

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Dick Simmons

Response to Comment 14-1

The so-called "missing connectors" at the SR-57/SR-60 east junction are outside the scope of the SR-57/SR-60 confluence EIR/EA, as defined in the project's need and purpose statements. To study the need for and purpose of the missing connectors, a project initiation document (i.e., Project Study Report/Project Development Support) would need to be prepared. Steps are already being taken by Caltrans District 7 to improve SR-71, which could reduce traffic on Diamond Bar Boulevard.

Comment 15

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question/Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

ASSUMING THE PROJECT GOES FORWARD WHAT FISCAL IMPACT DOES THIS HAVE ON INDIVIDUAL HOUSEOWERS IN DIAMOND BAR? NEW TAXES? 1

CONSIDING THE STATE IS BROKE AND ONLY HAS SEED MONEY THE EVENTUAL START DATES ARE HYPOTHETICAL ARE THEY NOT? 2

Name: ORION VON STETTEN Address: 1152 BREA CANYON RD
City: DIAMOND BAR State: Calif Zip: 91789
Phone: 951-204-6804 E-Mail: VONSTETTENG JUNO, COM

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Orion Von Stetten

Response to Comment 15-1

The proposed project is part of Metro's 2009 Long-Range Transportation Plan (LRTP). Approximately $475 million in future regional transportation funding is identified in the LRTP for a forecast opening year of 2029. Metro, the City of Industry, City of Diamond Bar, and Caltrans are working on alternative funding sources to accelerate construction of the SR-57/SR-60 confluence. There is no intention of creating a tax assessment for City of Diamond Bar property owners as a result of this project.

Response to Comment 15-2

The start of construction is dependent on receiving additional funding.

Comment 16

(2)

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question/Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment:

1) How does this project get commitment to be built? | 1
2) Who makes decision on the alternative selected? | 2
3) Why would Option 2 be selected with a 4% savings versus a much larger traffic flow benefit if Option 3 is selected? | 3

Name: ROBERT VELAZQUEZ Address: 24336 SEAGREEN DR
City: DIAMOND BAR State: CA Zip: 91765
Phone: 909 3965224 E-Mail: RV33@VERIZON.NET

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Public Hearing Comment from Robert Velazquez

Response to Comment 16-1
See Response to Comment 15-1.

Response to Comment 16-2
Identification of a preferred alternative was made by the Project Development Team and based on the merits of the alternatives, environmental impacts, and public input provided through the environmental document review process. Caltrans will be responsible for the final decision regarding whether to approve the proposed project.

Response to Comment 16-3
Comment noted. Your comment in support of Alternative 3 has been considered in the final decision to choose Alternative 3 as the preferred alternative.

Comments Received by Mail

Comment 17

From: Cynthia Carter [mailto:ccarter@aqmd.gov]
Sent: Wednesday, April 03, 2013 10:15 AM
To: Kukla, Dawn E@DOT; Agustin_barajas@dot.ca.gov
Cc: david.doyle@ci.diamond-bar.ca.us; david.liu@ci.diamond-bar.ca.us; greg.gubman@ci.diamond-bar.ca.us; rick.yee@ci.diamond-bar.ca.us
Subject: Public Comments for SR-57/SR-60 Confluence At Grand Avenue Project

Dear Mr. Dawn Kukla and Mr. Agustin Barajas,
My comments for the SR-57/SR-60 Confluence At Grand Avenue Project reflect a perspective of a local cyclist commuter. My main route for commuting is Eastbound and Westbound of Golden Springs Drive (between Lemon Avenue and Grand Avenue in the City of Diamond Bar). Here are my questions/comments:

1. Has the project considered the bicyclists in the area? If so, please explain what kind of considerations were done. If not, why not? **1**

2. What kind of considerations were done for increased cycling growth? The EIR/EA documents states "Forecast regional population and employment growth between 2008 and 2035 is expected to result in more traffic." From a study on people driving less, "In 2009, people between the ages of 16 to 34 drove 23 percent less than the same age group did in 2000. This decrease in driving as a preference may be more than a short-term trend and instead be a result of rising gas prices as the average cost of gasoline has more than doubled during that same time. This has made driving a more costly travel choice that disproportionately impacts those with less disposable income…" **2**
Reference People are riding transit, walking, and bicycling more Study:
http://www.frontiergroup.org/sites/default/files/reports/Transportation%20&%20the%20New%20Generation%20vUS.pdf

3. In section 1.4.5.2, why were no TDM strategies proposed? According to the EIR/EA document "The primary purpose of the proposed project is to improve traffic operations and safety on SR-57 and SR-60 at the Grand Avenue interchange" By not doing a TDM strategy, doesn't this conflict with the primary purpose of the project? **3**

If bike lanes are not an option at this time, I wish for both cities of Industry and Diamond Bar consider its community to advocate bicycling. I would like to suggest bike signs, like the ones pictured below to be placed on Golden Springs Drive (in both directions) where the bike lanes narrow/end.

My recommendation to accommodate bicyclists and pedestrians are as follows:

4. Consider separated class II facilities for bicyclists and pedestrians where the bike lane ends/lane narrows on Westbound direction of Golden Springs Drive and before Adel Avenue. **4**

5. Bike Signs: One on Golden Springs Drive/Gateway Center Westbound. One in the East Bound Direction around Adel Aveune. Each of these will be well used on a daily **5**

basis…providing safe routes for people moving to and from their homes as well as for our workers, our residents and our visitors. **5 (cont'd.)**

6. Work with the City of Diamond Bar Traffic Engineer to design and provide well marked facilities (street marking as well as signage) for both pedestrians and bicyclists to help them safely navigate the single point intersections. This should include stripped bike lanes, pedestrian paths and bike signals and extended light timing to accommodate the needs of both bicyclists and pedestrians. **6**

Sincerely,

Cynthia Carter
Air Quality Engineer
Refinery and Waste Management Permitting
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Tel: (909) 396-2431
email: ccarter@aqmd.gov

Response to the April 3, 2013, Comment Letter from Cynthia Carter

Response to Comment 17-1
The project proposes to provide a continuous Class II bike lane on Golden Spring Drive through the Grand Avenue intersection. Currently, the bike lane on Golden Spring Drive ends 275 feet before the intersection and picks up about 1,050 feet west of the intersection. Also, as part of the proposed project, shoulder widths on both sides of Grand Avenue would be increased to 4 feet, providing additional space for bicyclists.

Response to Comment 17-2
Forecasts were based on the SCAG regional model, city general plan, and local planned land use and subject to Caltrans approval. Regional modeling may not reflect recent changes in travel behavior, but a greater shift from auto usage would not be enough to reduce or eliminate the purpose and need for the project, especially with respect to mainline deficiencies. It is noted that nearby terrain and the project's proximity to the nearest residential area are not conducive to large shifts to walking or bicycling.

Response to Comment 17-3
Although a TDM strategy was not developed as a project alternative, TDM components such as ramp metering are included. The level of forecast deficiency under the No-Project Alternative is too great to be alleviated by TDM alone, especially with mainline freeway flows requiring a sub-regional TDM program. A program that focuses on the project vicinity would result in minimal flow reduction on the mainline freeway.

Response to Comment 17-4
There is a Class II bike lane on Golden Spring Drive. In the westbound direction, the bike lane ends before the SR-57/SR-60 interchange. Golden Spring Drive cannot be widened to accommodate a continuation to the bike lane because of the bridge columns for the northbound SR-57/westbound SR-60 connector structure and the southbound SR-57/ eastbound SR-60 connector structure. West of the SR-57/SR-60 interchange, Golden Spring Drive cannot be widened to accommodate a westbound bike lane because the necessary rights-of-way are not available. It should be noted that the proposed project would maintain all existing bike lanes. Adding to the existing bike lane network is the responsibility of the City of Diamond Bar. Your comment has been forwarded to the city.

Response to Comment 17-5
The project design will add new signs for bike lanes.

Response to Comment 17-6
The project design will include adding new signs along the bike lanes on Golden Spring Drive and at the intersection with Grand Avenue to direct bicyclists to the striped bike lane at the intersection. Signal timing is the responsibility of the City of Diamond Bar. The city constantly monitors signal timing and will continue monitoring after completion of the project. Your comment has been forwarded to the city for consideration.

Comment 18

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

Caltrans

57/60 Confluence Project

Please Print

Question/Comment: Please have at least one more meeting re: this project - Too much info on first night & Too many questions left unanswered - 1

* Who makes final decision? * Do Residents have any say-so in final decision? 2

Name: Janet Perez Address: 445 Golden Prados

City: Diamond Bar State: CA Zip 91765

Phone: _____ E-Mail: fingoose@earthlink.net

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

* When will decision be made? 3

Response to March 6, 2013, Comment from Janet Peets

Response to Comment 18-1

Comment noted. The number of meetings, the venue, and the dates were decided in consultation with the City of Industry and the City of Diamond Bar. During the public hearing, project staff members were available to discuss participants' concerns and answer questions one on one. In addition, an open forum setting before and after the hearing provided opportunities for interpersonal discussions with project staff members. A 45-day public review period was provided, per State CEQA Guidelines Section 15203 and NEPA 40 CFR 1501.4(b).

A Caltrans staff member contacted Ms. Peets on April 2, 2013, to see if further information could be provided that would answer her questions.

Because the public review period has been completed, another meeting is not feasible. However, the project team is available to answer any questions. Please contact Jiwanjit Palaha at (213) 897-6926 for project-related questions or Agustin Barajas at (213) 897-7665 for environmental comments. Please also refer to Response to Comment 16-2.

Response to Comments 18-2 and 18-3

A decision regarding the preferred alternative has been made in this final EIR/FONSI. Caltrans, as lead agency, is expected to certify the final EIR/FONSI and approve the project before the end of the year. Please also refer to Response to Comment 16-2.

Comment 19

R Lee Paulson
21919 Santaquin Dr
Diamond Bar, CA 91765

March 28, 2013

Dawn Kukla
Senior Environmental Planner,
California Department of Transportation, District 17,
100 S. Main Street, MS-16A
Los Angeles, CA 90012

Dear Ms Kukla,

I attended the March 6, 2013 meeting in Diamond Bar. Both in that meeting, and in the Draft EIR that I read, the CA 57 freeway is referred to as only three lanes wide. That mystifies me because, as a driver who has driven the full length of CA 57 on multiple occasions, I can tell you from personal observation that, with the exception of the area of confluence with the CA 60 freeway, the CA 57 portion which runs through Los Angeles county is four lanes wide in each direction.

On that portion of the freeway where the CA57 and CA 60 are conjoined, it has been reduced to two lanes in either direction.

1

During both this meeting and the previous one where the confluence project was discussed, I stressed the need to bring all four lanes of the CA 57 freeway through the CA 57/ CA60 interchange. I wrote a comment after the previous meeting, I believe it was September 2, 2009, pleading with the planners to rethink the design and please, please, give us all four lanes through there.

So, when I attended this latest meeting on March 6, 2013, I was pleased to see that the planners had changed the design to allow at least three lanes through the confluence. That was up from two in the previous plan.

When I again made my plea to upgrade the current plan to four lanes for the CA 57 through the confluence to a planner before the March 6, 2013 meeting, I was bluntly told that not enough money was available to do this. He said that in order to make four lanes in each way happen, several expensive bridges would need to be rebuilt as well as a number of houses on the north side of the freeway demolished.

2

Fair enough. Not enough resources to right a wrong that has plagued that interchange since its inception. Since we can't solve the problem properly, then I believe that it is incumbent upon all of us to use every means necessary in order to create the best solution possible solution. A solution commensurate with our monetary means. Often the best possible solution requires some out of the box thinking.

The stated goal for this project is to reduce congestion. You plan to do that by bringing a total of three lanes of CA 57 through the confluence. That's a good start. But, your primary method of reducing congestion is to be achieved by reducing weaving. Your plan, as presented during the March 6 meeting is fine as far as it goes. Now, I'm asking you to take it one step further. **2 (cont'd.)**

Here's my idea: Eliminate the carpool lanes on the CA 60 and the CA 57 through the confluence. Stop them a mile or two before until a mile or two after.

Here's why: One of the lanes of the north bound CA 57 freeway, currently a carpool lane, is really a connector to the east bound CA 60. Similarly, one west bound lane of CA 60, also currently a carpool lane, is really a connector to the south bound CA 57.

If you were to eliminate the carpool lanes through this confluence interchange, you would already have three of four necessary interchange connectors already in place. Currently, there is a southbound CA 57 connector to the west bound 60. The only connector missing would be the eastbound CA 60 to the north bound CA 57.

3

The carpool connectors now often go unused during the rush hour periods. If you were to allow all traffic to use them, not just carpools, you would substantially increase the capacity of CA 57 as a whole. This is especially important during afternoon rush hour on the northbound CA 57, where it is not unusual to have it backed up all the way into Orange County.

I'm guessing that federal dollars paid for the carpool connector lanes. And I understand from listening to the project overview offered by a Caltrans representative during the March 6 meeting that carpool lanes are a priority for the county. However, I respectfully submit that there are cases, specifically cases like the CA 57/ CA 60 confluence, where congestion is so bad, that, as they tritely say in the Star Trek movies, the needs of the whole out weigh the needs of the few.

I see that you have carefully made cost estimates for each of the three options that you studied. (Obviously, I implore you to take option number three. The slight additional cost will reap huge benefits to those motorists who are forced to suffer through the congestion.) **4**

But there is one cost that I found notably missing. And that is the cost in gas, vehicle wear and tear, and time for the thousands of people who get stuck in traffic jams on those freeways. When that cost is factored in, not only does option three become the obvious choice, but that huge additional cost also makes the case for possibly breaking some rules with regard to the carpool lanes which run through that area.

5

However, there is another cost that you have not taken into consideration. And that is the cost to the city of Diamond Bar. Each afternoon, a huge amount of traffic exits the 57 freeway and heads down Diamond Bar Blvd. That afternoon surge causes huge traffic jams in our city. I have spent over a half hour trying to get from Silverhawk east bound on Diamond Bar Blvd to Grand Avenue. Usually, the trip takes less than three minutes.

That huge amount of additional traffic is not only an annoyance, it is a safety hazard. Diamond Bar Blvd runs through a valley between two relatively steep hills. For many Diamond Bar residents, it is the only way in or out of town for them. If there were ever an emergency, where Diamond Bar needed to be evacuated in a hurry, all of those commuters parked on our streets could easily place a significant number of individuals in harms way.

5 (cont'd.)

Bottom line: By taking the step of eliminating the carpool lanes through the CA 57/CA 60 confluence, you will not only improve the traffic flow through one of the most congested interchanges in LA County, but you will also improve the quality of life, and possibly the safety of those of us who live in Diamond Bar.

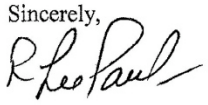
I know you work for a large bureaucratic organization. And I am aware that large bureaucratic organizations often punish those who break the rules or make choices which, at first glance, appear to run counter to stated objectives. However, there are times where it is appropriate to step back from the rules a bit. Step back and look at the larger picture. A picture that includes all possibilities for solutions. I believe this is one of those times.

I believe carpool lanes have a place in our freeway system. My wife and I use them often. They are an incentive for us to think carefully about our use of the freeway system. That said, the congestion on the CA 57/ CA60 interchange is so horrific, that they cause more problems than they solve. If you are going to place carpool lanes in that interchange, then why not wait until more funding becomes available? Why not wait until, what was it 2023, and address the problem when, hopefully, enough funds become available to allow you to expand the interchange corridor enough so that all of the Caltrans objectives can be met.

But, until then, thousands, I daresay millions of man hours will have been wasted, stuck in traffic, waiting to get through that interchange.

I personally, and I believe I speak for thousands of frustrated commuters, believe that an imperfect plan today, one that eliminates the carpool lanes through that interchange, is better than a perfect plan tomorrow. If you will find the courage to do that, literally thousands of us will thank you.

Sincerely,



R Lee Paulson

Response to March 28, 2013, Comment from R. Lee Paulson

Response to Comment 19-1
Comment noted. Your support for three lanes through the confluence is noted.

Response to Comment 19-2
Caltrans has no plans to add another lane to SR-57. If that were to occur, the northbound SR-57/westbound SR-60 connector structure would need to be rebuilt. Adding a fourth lane along the SR-60 alignment would require eight general purpose lanes and two HOV lanes, bringing the total number of lanes on eastbound SR-60 to ten, which would cause irreparable harm to the golf course. Furthermore, the traffic analysis performed by the engineering team confirmed that the bottleneck on northbound SR-57 is not due to a lack of through lanes. The 2037 traffic forecast shows a peak-hour volume of 5,300; a three-lane freeway is more than adequate for that volume. The bottleneck exists in the confluence section, which causes congestion on northbound SR-57. SR-60 traffic will be substantially improved with this project.

Response to Comment 19-3
The HOV lanes on SR-60 are well utilized within the project limits. In 2011, the average peak-hour volume was 1,577 in the morning (westbound) and 1,383 in the evening (eastbound). Given that peak operation for a lane is 1,800 vehicles per hour, very little capacity would be gained by eliminating the carpool lane. Caltrans built the HOV lanes and the connectors with federal funds. Removing the HOV lanes would not only negatively affect traffic on both SR-57 and SR-60, the project would be responsible for reimbursing monies that were used to construct the HOV lanes. Implementation would also require reconstruction of the eastbound SR-60 to northbound SR-57 tunnel at the east end, at considerable cost.

Response to Comment 19-4
The comment that Alternative 3 provides more benefit at a small incremental cost is noted. Alternative 3 has been identified as the preferred alternative.

Response to Comment 19-5
The traffic analysis shows that traffic conditions on northbound SR-57 would improve after the project is constructed, resulting in significant curtailment of the “cut-through” traffic on Brea Canyon Road and Diamond Bar Boulevard.

Comment 20

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question / Comment Card
March 6, 2013

Caltrans

57/60 Confluence Project

Please Print

Question/Comment: I would strongly recommend to "No-Build" this proposed project at this time due to followings;
1. Piece-meal improvements can't never catch up the traffic volume increased
2. $35 million from City of Industry to jump start is insufficient for the entire $100+ million project. And there's uncertainty/are uncertainties about fundings subsequently.
3. The ultimate solution of this 57/60 confluence point is to split the two freeways. Involvement of the land of city of Industry or Golf course to split the freeways is good. Eminent Domain for the proposed NFL site could improve traffic & safety greatly and shall be considered. 1

Name: James Tsai Address:
City: 1538 W. Parker Canyon Rd, Walnut CA 91789 State: Zip:
Phone: E-Mail:

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Comment from James Tsai

Response to Comment 20-1

Comment in support of the No-Build Alternative has been noted.

The traffic analyses, based on the SCAG 2035 models, showed that traffic operations would deteriorate to level of service (LOS) F through the SR-57/SR-60 confluence in both directions, including the northbound and southbound legs of SR-57 as they approach the SR-57/SR-60 confluence. The Grand Avenue on- and off-ramps also show LOS F on all four legs of the interchange ramps. "Doing nothing" produces unacceptable results. The traffic analysis shows that both Alternatives 2 and 3 would provide significant operational improvements by removing a major source of congestion (i.e., weaving to and from the Grand Avenue ramps).

The proposed project is part of Metro's 2009 LRTP. Approximately $475 million in future regional transportation funding is identified in the LRTP for a forecast opening year of 2029. Metro, the City of Industry, the City of Diamond Bar, and Caltrans are working on alternative funding sources that may accelerate construction of the SR-57/SR-60 confluence. The $35 million commitment from the City of Industry funded completion of the preliminary engineering and environmental studies, with an aim of obtaining final project approval.

See Response to Comment 12-1 regarding the split-level freeway. Furthermore, federal law (i.e., Section 4(f) of the U.S. Department of Transportation Act) requires the taking of land from public parks and recreational resources be avoided and minimized to the extent feasible. The state's Public Park Preservation Act also requires any land from a public park, including golf courses, to be replaced; therefore, taking the entire golf course for a transportation project is not reasonable or feasible.

Comment 21

SR-57/SR-60 CONFLUENCE
AT GRAND AVENUE PROJECT
Public Hearing Question/Comment Card
March 6, 2013

57/60 Confluence Project

Please Print

Question/Comment: Current congestion on Grand Ave. btw. Golden Springs & the freeway on ramp could be improved by closing access driveway which egresses from golf course parking lot on to Grand. Cars currently come out of driveway and block right lane to ramp in effort to cross in to second lane which goes straight north on Grand. 1

Name: Sally Von Stetten Address: 1152 Brea Canyon Rd
City: Diamond Bar State: CA Zip: 91789
Phone: (951) 202-9046 E-Mail: vonstetten@verizon.net

If you would like your question read aloud please give it to any project team member or turn it in at the sign in desk. Additional written comments on the draft EIR/EA will be accepted through April 5, 2013 at Caltrans District 7.

Response to March 6, 2013, Comment from Sally Von Stetten

Response to Comment 21-1

Northbound Grand Avenue at the driveway is currently striped for two lanes only. The proposed design would double the number of northbound lanes on Grand Avenue to four from Golden Spring Drive to SR-60. Once the improvements are complete, it is anticipated that the driveway from Diamond Bar Golf Course would have little if any effect on northbound Grand Avenue traffic. Closure of the driveway from the golf course parking lot is not feasible from a safety perspective because two access locations are required for emergency access.

Comment 22

STATE OF CALIFORNIA

EDMUND G. BROWN Jr., Governor

CALIFORNIA TRANSPORTATION COMMISSION
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SACRAMENTO, CA 94273-0001
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May 8, 2013

Mr. Ron Kosinski, Deputy District Director
Division of Environmental Planning, MS16A
Caltrans District 7
100 South Main Street
Los Angeles, CA 90012

RE: Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) for the State Route (SR) 57/SR-60 Confluence at Grand Avenue Project

Dear Mr. Kosinski,

The California Transportation Commission, as a Responsible Agency, received the DEIR/EA prepared by the California Department of Transportation (Department) for the SR-57/SR-60 Confluence at Grand Avenue Project in Los Angeles County. This project will construct freeway improvements at the confluence of SR-57 and SR-60

The Commission considered the DEIR/EA at its May 7, 2013 meeting. The Commission has no comments with respect to the project purpose and need, the alternatives to be studied, the impacts to be evaluated, and the evaluation methods used. However, the Commission recommends that the Department and its partners identify and secure the necessary funding to complete the project. 1

The Commission should be notified as soon as the environmental process is complete as the Commission cannot allocate funds to a project for design, right of way or construction until the final environmental document is complete and the Commission has considered the environmental impacts of the project and approved the environmentally cleared project for future consideration of funding. 2

Upon completion of the CEQA process, prior to the Commission's action to approve the project for future consideration of funding, the Commission expects the lead and/or implementing agency to provide written assurance whether the selected alternative identified in the final environmental document is or is not consistent with the project programmed by the Commission and included in the Regional Transportation Plan. In the absence of such 3

assurance of consistency, it may be assumed that the project is not consistent and Commission staff will base its recommendations to the Commission on that fact. The Commission may deny funding to a project which is no longer eligible for funding due to scope modifications or other reasons.

3 cont'd.

If you have any questions, please contact Susan Bransen at (916) 653-2090.

Sincerely,

ANDRE BOUTROS
Executive Director

c: Katrina Pierce, Chief, Caltrans Division of Environmental Analysis

Response to May 8, 2013, Comment from the California Transportation Commission

Response to Comment 22-1
The proposed project is part of Metro's 2009 Long-Range Transportation Plan (LRTP). Approximately $475 million in future regional transportation funding is identified in the LRTP for a forecast opening year of 2029. Metro, the City of Industry, City of Diamond Bar, and Caltrans are working to obtain alternative funding sources to accelerate construction of the SR-57/SR-60 confluence.

Response to Comment 22-2
The California Transportation Commission has been notified regarding this final environmental impact report/finding of no significant impact and provided with a copy. This document, with approval from Caltrans, completes the environmental process. It is available to the commission, which may express additional comments or concerns before granting its approval.

Response to Comment 22-3
As mentioned throughout the document, this project is programmed and listed in the Southern California Association of Government's 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy and the 2013 Federal Transportation Improvement Program under project number LA0D450. The selected alternative (Alternative 3) is consistent with the project description as listed in these programming documents.

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References

Chapter 1

California Department of Transportation. 2001. Highway Design Manual. Sacramento, CA.

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