State of California Business, Transportation and Housing Agency

Memorandum

To: **Smita Deshpande**
Branch Chief, Environmental Planning A

June 24, 2008

EA: 12-0G3300

From: **Environmental Engineering**

Subject: **Air Quality Assessment Report**
State Route 91 Widening- State Route 55 to Stare Route 241

Dear Smita:

We have reviewed the "Air Quality Assessment Report (Report)" prepared by the L.S.A. Associates, Inc. (L.S.A.), of Irvine, California, for the above referenced project (Project). It is our understanding that this Report was intended to be a CEQA report. As such, we did not have to send the Project to the conformity working group (TCWG) for determination of whether the Project is a project of air quality concern (POAQC) or not. L.S.A. has addresses the PM_{10}, $PM_{2.5}$, CO Screening Analysis, and Qualitative Project Level Mobile Source Air Toxics (MSAT) Discussion in their Report. At the present time we have no comments regarding the Report and the Report can be re-submitted as "Final".

Should you have any questions, please contact Arman Behtash of my staff at extension 2029.

Reza Aurasteh, Ph.D., P.E.
Branch Chief
Environmental Engineering

Arman Behtash
Environmental Engineering

C: Smita Deshoande, Caltrans, Planning
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Air Quality Assessment Report
State Route 91 Widening – State Route 55 to State Route 241

12-ORA-091 PM 9.1/15.6
E.A. 12-0G3300
June 4, 2008

Prepared By:

LSA Associates, Inc.

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1.0 INTRODUCTION

The California Department of Transportation – District 12 (the Department) proposes to improve State Route 91 (SR-91) in Orange County by adding one mixed-flow lane on SR-91 eastbound (EB) from the SR-91/State Route 55 (SR-55) connector (PM 9.1) to east of the Weir Canyon Road Interchange (PM 15.4), and westbound (WB) from west of SR-91/241 interchange (PM 15.6) to the Imperial Highway State Route 90 (SR-90) interchange (PM 11.1). The project would relieve congestion and improve operational efficiency on SR-91 between SR-55 and State Route 241 (SR-241). The total length of the project is 6.5 miles [mi]. The entire project area is located in Orange County. The Department is the lead agency for compliance with the California Environmental Quality Act (CEQA). The Orange County Transportation Authority (OCTA) is the local agency sponsor and a Responsible Agency under CEQA.

The regional location and the project location are shown in Figures 1-1, and 1-2, respectively.

Based upon the results of the analysis conducted during the course of this air quality assessment, Project implementation would:

- Not result in the formation of a local Carbon Monoxide (CO) Hot-Spot;
- Not result in the formation of a Particulate Matter Hot-Spot;
- Have a low likelihood of encountering Naturally Occurring Asbestos (NOA);
- Nor contribute to the regional Mobile Source Air Toxics (MSAT) concentrations;
- Not contribute to the global climate change; and
- Not directly result in a cumulative impact.

Standard Construction Practices would be required for construction activities (i.e., SCAQMD Rule 403 and Department Standard Specifications for Construction). As there are no significant Project or cumulative air quality impacts associated with the proposed Project, no mitigation measures are required for operational conditions.

The purpose of this Air Quality Assessment is to evaluate potential short-term and long-term air quality impacts resulting from implementation of the proposed SR-91 Widening Project.

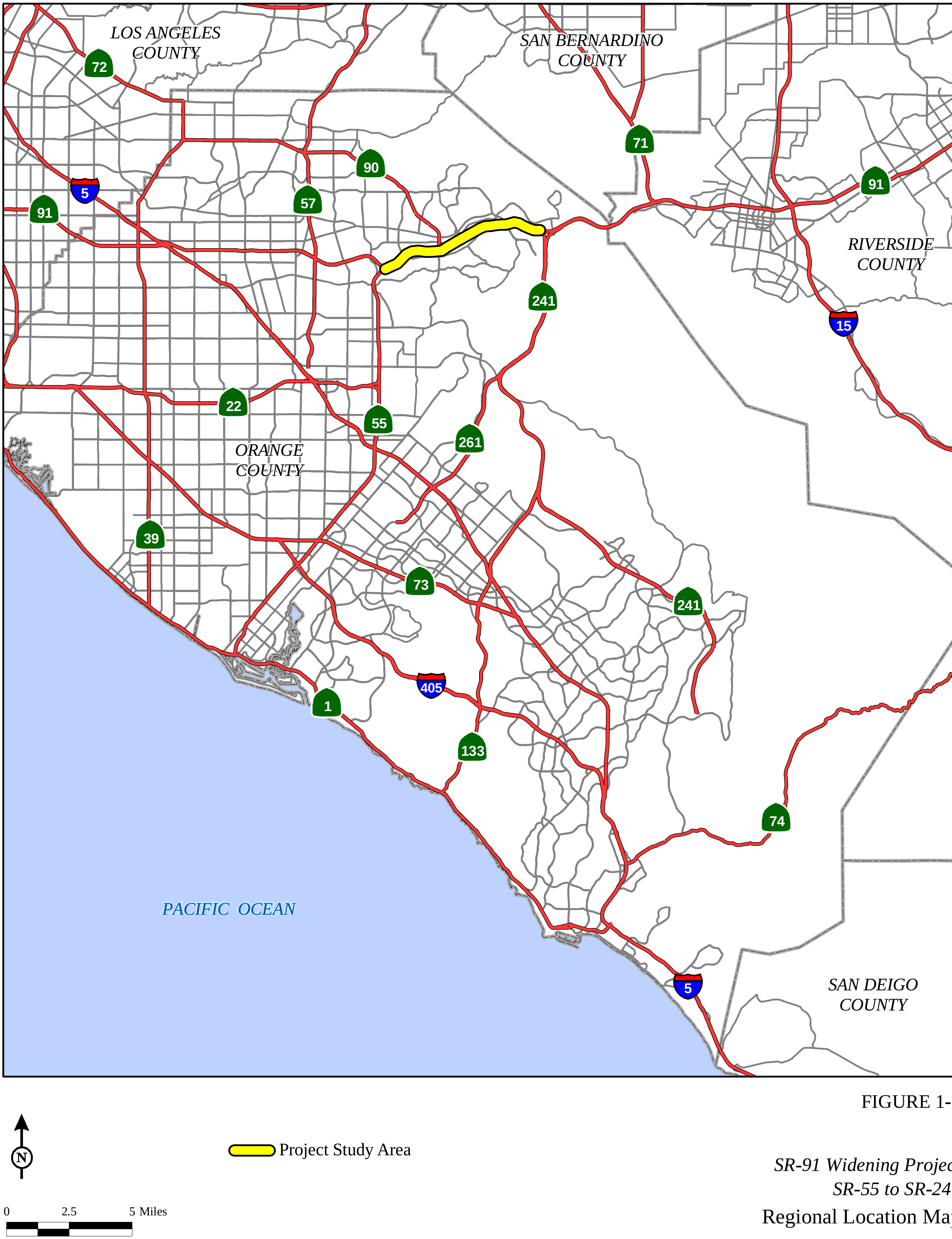

FIGURE 1-1

SR-91 Widening Project
SR-55 to SR-241

Regional Location Map

12-ORA-91 PM 9.1/15.6
EA# OG330

SOURCE: Thomas Bros, (2007).

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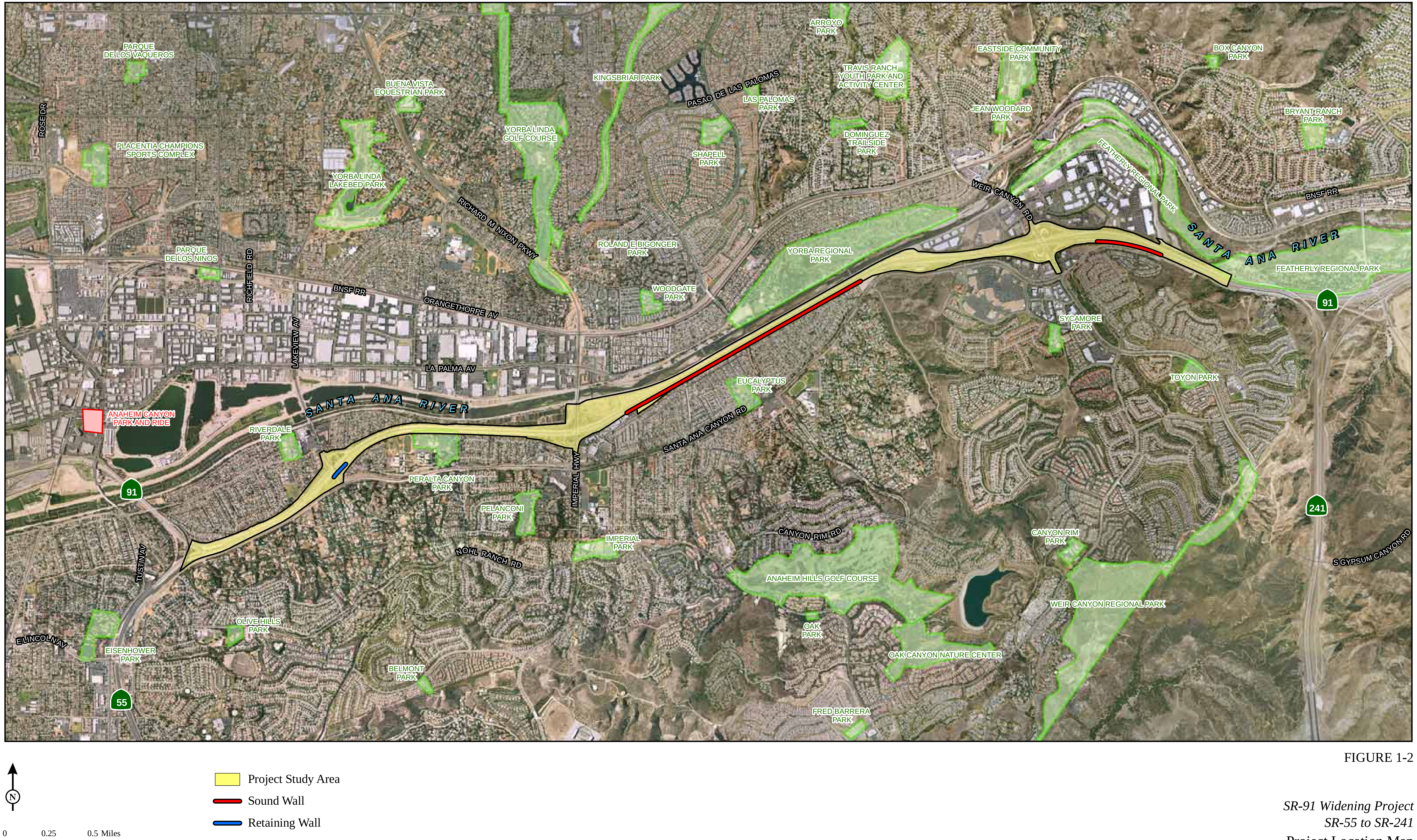

FIGURE 1-2

SR-91 Widening Project
SR-55 to SR-241

Project Location Map

12-ORA-91 PM 9.1/15.6
EA# OG330

SOURCE: Air Photo USA (2007), Thomas Bros (2007).

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1.1 Existing Facilities

The existing lane configuration on SR-91 varies within the project limits. The basic lane configurations by section are shown in Tables 1.1-1 and 1.1-2.

TABLE 1.1-1 LANE CONFIGURATION ALONG EB SR-91 WITHIN PROJECT LIMITS

Eastbound SR-91 Section	Lane Configuration
From the SR-91/55 interchange at SR-91 to Lakeview Avenue off-ramp	Five general-purpose lanes and an auxiliary lane
From Lakeview Avenue off-ramp to Imperial Highway (SR-90) off-ramp	Four general-purpose lanes and an auxiliary lane
From Imperial Highway off-ramp (SR-90) to Weir Canyon Road on-ramp	Four general-purpose lanes
From Weir Canyon Road on-ramp to the west of SR-91/241 Interchange	Four general-purpose lanes and an auxiliary lane

Source: California Department of Transportation, March 2008
General-purpose lane = a mainline freeway lane open to all traffic
Auxiliary Lane = The portion of the roadway for weaving, truck climbing, speed change, or for other purposes supplementary to through traffic movement.

TABLE 1.1-2 LANE CONFIGURATION ALONG WB SR-91 WITHIN PROJECT LIMITS

Westbound SR-91 Section	Lane Configuration
From west of SR-91/241 interchange to Weir Canyon off-ramp	Four general-purpose lanes and an auxiliary lane
From Weir Canyon Road off-ramp to Imperial Highway on-ramp	Four general-purpose lanes
From Imperial Highway on-ramp to SR-91/55 interchange	Five general-purpose lanes

Source: California Department of Transportation, March 2008
General-purpose lane = a mainline freeway lane open to all traffic
Auxiliary Lane = The portion of the roadway for weaving, truck climbing, speed change, or for other purposes supplementary to through traffic movement.

1.2 Purpose and Need

1.2.1 Project Purpose

The purpose of the project is to reduce traffic congestion, improve operational efficiencies, and comply with Department design standards on SR-91 between SR-55 and SR-241. The project will accomplish the following specific objectives:

- Enhance mid-term capacity for SR-91.

- Improve operational characteristics, such as weaving and lane efficiency at ramp junctions.
- Widen the existing 11 ft lane and 2 ft right shoulder within a portion of the project limit to the standard width of 12 ft lane and 10 ft right shoulder.

1.2.2 Project Need

The project is needed due to lack of freeway capacity and roadway deficiencies and to comply with legislation for performance improvements.

Currently, SR-91 in both the EB and WB directions within the project limit experiences heavy peak-hour congestion and traffic delays due to high traffic volumes, weaving, and merging/diverging.

The need for this project is based on an assessment of the transportation demand and current and predicted future traffic on SR-91 as measured by LOS. LOS is based on the ratio of traffic volume to the design capacity of the facility. LOS is expressed as a range from LOS A (free traffic flow with low volumes and high speeds, resulting in low traffic densities) to LOS F (traffic volumes exceed capacity and result in forced flow operations at low speeds, resulting in high traffic densities). See Table 1.2-1 for a description of the levels of service from A to F. Increasing traffic on the SR-91 corridor has seriously degraded the freeway LOS, particularly during the extended commuter peak hours.

The project area during the AM peak hour has LOS C, D or E conditions on eastbound SR-91 between Imperial Highway and the Weigh Station and on westbound SR-91 at most of the segments with the exception of between Weir Canyon Road and SR-241. During the PM peak hour, LOS E or F conditions occur on eastbound and westbound SR-91 at three study segments between SR-55 and the Weigh Station. The rest of the segments are experiencing LOS D with the exception of the segment between SR-55 and Lakeview Avenue on eastbound SR-91, which is experiencing LOS C during the AM peak hour. (See Table 1.2-2) The Department's LOS standard for freeway mainline segments is LOS E or better.

Specific operational deficiencies and bottlenecks are as follows:

TABLE 1.2-1 VARIOUS LEVELS OF SERVICE FOR FREEWAYS

LEVELS OF SERVICE
for Freeways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

TABLE 1.2-2 EXISTING FREEWAY LEVEL OF SERVICE SUMMARY

Freeway Eastbound – Mainline	A.M. Peak		P.M. Peak	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
SR-55 to Lakeview Avenue	C	25	**E**	36
Lakeview Avenue to Imperial Highway	D	30	**E**	40
Imperial Highway to Weigh Station	**E**	44	**F**	
Weigh Station to Weir Canyon Road	D	28	D	34
Weir Canyon Road to SR-241	D	28	D	34
Freeway Westbound – Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**F**		**E**	41
Lakeview Avenue to Imperial Highway	**E**	41	**E**	38
Imperial Highway to Weigh Station	**F**		**F**	
Weigh Station to Weir Canyon Road	**E**	36	**E**	31
Weir Canyon Road to SR-241	D	35	D	30

Source: California Department of Transportation, March 2008
Bold = unacceptable LOS
LOS = level of service
pc/mi/ln = passenger cars per mile per lane

- SR-55 northbound (NB) drops one general-purpose lane north of the junction with SR-91. The combined roadway consists of six lanes, one of which becomes an auxiliary lane as a single lane exit-only ramp to Lakeview Avenue. This creates an extremely difficult weave for EB SR-91 traffic exiting at Lakeview Avenue, and seriously compromises lane efficiency at the ramp junction.
- Lane efficiency problems are experienced when general-purpose lane 5 also becomes an EB auxiliary lane to Imperial Highway. The impact on traffic operations is made worse in this area because the on-ramps from Lakeview Avenue merge with general-purpose lane 5.
- The EB entrance from Imperial Highway to the Truck Weigh Station consists of two lanes, both of which taper off from the outside general-purpose lane, resulting in queuing problems. There is a weaving movement between the on-ramp from the Truck Weigh Station and the off-ramp to Weir Canyon Road which affects traffic operations. Although there is an auxiliary lane in this area, after going through the Truck Weigh Station, trucks have a difficult time reentering the traffic stream via general-purpose lane 4 without disrupting the flow of traffic.
- The EB auxiliary lane from the Truck Weigh Station becomes a single-lane exit-only ramp to Weir Canyon Road, resulting in a queuing problem.

- General-purpose lane 5 WB from SR-241 becomes a single lane exit-only ramp to Weir Canyon Road, resulting in a queuing problem.
- Substantial queuing occurs during the commuter peak hours WB at the interchange of SR-91 and SR-55.
- The following existing nonstandard features found within the project limits result in additional problems:
  - Some existing travel lanes are 11 ft in width instead of the standard width of 12 ft
  - The EB outside shoulder is 2 ft in width instead of the standard width of 10 ft from the Truck Weigh Station to the EB exit ramp to Weir Canyon Road

The project will meet the following requirements:

- All existing traffic lanes shall be maintained during construction. Toll lane operation shall be unaffected.
- Toll lane operation shall be unaffected.
- Improvements shall be accommodated within the existing right-of-way to the extent feasible.
- Cost shall be minimized through the retention of existing facilities to the extent feasible.

1.2.3 Capacity, Transportation Demand, and Safety

The SR-91 is the only major transportation facility connecting Orange County and Riverside County. It is also a major link connecting the Los Angeles region with the Inland Empire, and also accommodates interstate traffic. As such, it is heavily used for: goods movement, including throughput from the Ports of Los Angeles and Long Beach; commuter traffic between the residential developments in the Inland Empire and employment centers in Orange and Los Angeles counties; and interregional traffic, including weekend recreational traffic to Las Vegas and Colorado River destinations.

The SR-91 is one of the most heavily congested highways in Southern California. Normal morning delays begin at 5:00 a.m. and continue through 9:00 a.m., while afternoon delays generally extend between 3:00 p.m. and 7:00 p.m. The existing Average Daily Traffic (ADT) and Peak Hour Volumes within the Project Limits on the SR-91 are 778,000 vehicles in the eastbound direction and 737,600 vehicles in the westbound direction, for the year 2007. This data is calculated from District 12 Traffic Operations North Traffic Report, March 2008.

The primary need for the project is based on the increased projected traffic volumes along SR-91 by 2035. The projected traffic averages approximately 165,000 vehicles per day by year 2014 and 202,000 vehicles per day by year 2035. The increased traffic volumes, in conjunction with the limited capacity of the existing freeway, are expected to result in the deterioration of the LOS along SR-91. Table 1.2-3 provides an explanation of the various LOS ranges and corresponding traffic delays for basic freeway sections.

The LOS for merge and diverge influence areas, roadway sections, and weaving analysis are determined by the density for all cases of stable operation, represented by stable flow LOS A through E. LOS F exists when the total demand exceeds the capacity of the freeway.

1.2.4 Freeway Analysis

Existing Conditions

Table 1.2-2 summarizes the existing LOS along the freeway and ramp merges/diverges for no build conditions for the EB and WB directions respectively. Based on the peak-hour traffic volumes, the table shows that westbound SR-91, in the a.m. peak period operates at LOS D from Weir Canyon Road to SR-241, LOS E from Lakeview Avenue to Imperial Highway and the Weigh Station to Weir Canyon Road, and LOS F from SR-55 to Lakeview Avenue and from Imperial Highway to the Weigh Station. During the p.m. peak period, the WB direction experiences LOS D from the Weigh Station to SR-241, LOS E from SR-55 to Imperial Highway and LOS F from Imperial Highway to the Weigh Station.

Table 1.2-2 show that in the EB direction, most of the freeway segments operate at LOS D and E during the p.m. peak period, with the exception of the segment from Imperial Highway to the Weigh Station. This section operates at LOS F during the p.m. peak period and at LOS E conditions during the a.m. peak period. West of the Lakeview Avenue interchange and the section from Lakeview Avenue to Imperial Highway operates at LOS E conditions in the EB direction during the p.m. peak period. Ramp merges/diverges typically will not operate at a much higher LOS than the mainline. If the mainline is congested, vehicles entering or exiting the freeway will also experience reduced speeds and/or delay.

TABLE 1.2-3 FUTURE FREEWAY LEVEL OF SERVICE SUMMARY

Build-Out Year (2014) No Build Condition				
Freeway Eastbound – Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/mi/ln)**	**LOS**	**Density (pc/mi/ln)**
SR-55 to Lakeview Avenue	D	29	**E**	44
Lakeview Avenue to Imperial Highway	D	41	**F**	
Imperial Highway to Weigh Station	**F**		**F**	
Weigh Station to Weir Canyon Road	D	33	**E**	42
Weir Canyon Road to SR-241	D	33	**E**	41
Freeway Westbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**F**		**F**	
Lakeview Avenue to Imperial Highway	**F**		**E**	42
Imperial Highway to Weigh Station	**F**		**F**	
Weigh Station to Weir Canyon Road	**E**	44	D	30
Weir Canyon Road to SR-241	**E**	43	**E**	35
Build Out Year (2014) Build Condition				
Freeway Eastbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	C	24	D	32
Lakeview Avenue to Imperial Highway	D	26	**E**	36
Imperial Highway to Weigh Station	D	33	**E**	42
Weigh Station to Weir Canyon Road	C	24	D	29
Weir Canyon Road to SR-241	C	24	D	29
Freeway Westbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**F**		**F**	
Lakeview Avenue to Imperial Highway	**F**		**E**	42
Imperial Highway to Weigh Station	**E**	44	**E**	36
Weigh Station to Weir Canyon Road	D	30	D	27
Weir Canyon Road to SR-241	D	29	D	26
Project Design Year (2035) No Build Condition				
Freeway Eastbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**E**	44	**F**	
Lakeview Avenue to Imperial Highway	**F**		**F**	
Imperial Highway to Weigh Station	**F**		**F**	
Weigh Station to Weir Canyon Road	**F**		**F**	
Weir Canyon Road to SR-241	**F**		**F**	
Freeway Westbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**F**		**F**	
Lakeview Avenue to Imperial Highway	**F**		**F**	
Imperial Highway to Weigh Station	**F**		**F**	
Weigh Station to Weir Canyon Road	**F**		**F**	
Weir Canyon Road to SR-241	**F**		**F**	

TABLE 1.2-3 FUTURE FREEWAY LEVEL OF SERVICE SUMMARY

Project Design Year (2035) Build Condition				
Freeway Eastbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	D	31	**E**	44
Lakeview Avenue to Imperial Highway	**E**	37	**F**	
Imperial Highway to Weigh Station	**F**/[D]	31*	**F/E**	38*
Weigh Station to Weir Canyon Road	D	33	**E**	44
Weir Canyon Road to SR-241	D	34	**E**	43
Freeway Westbound– Mainline	**A.M. Peak**		**P.M. Peak**	
	LOS	**Density (pc/km/ln)**	**LOS**	**Density (pc/km/ln)**
SR-55 to Lakeview Avenue	**F**		**F**	
Lakeview Avenue to Imperial Highway	**F**		**F**	
Imperial Highway to Weigh Station	**F/E**	40	**F/E**	34
Weigh Station to Weir Canyon Road	**E**	40	**E**	38
Weir Canyon Road to SR-241	**E**	44	**E**	37

Source: California Department of Transportation, March 2008
*: One lane addition/ (one lane addition plus an auxiliary lane)
Bold = unacceptable LOS
LOS = level of service
pc/mi/ln = passenger cars per mile per lane

Future Conditions
In the build-out year (2014), without project implementation, all freeway segments are estimated to operate at LOS E or F, with the exception of several eastbound segments during the a.m. peak hour only (see Table 1.2-3). All freeway segments on eastbound SR-91 are anticipated to operate at LOS D or better during the a.m. and p.m. peak hour except two segments (LOS E) between Lakeview Avenue and the Weigh Station during the p.m. peak hour only. No segments in the eastbound direction are anticipated to operate at LOS F with project implementation. The lane additions to the westbound segments are anticipated to improve LOS to D from E (Weigh Station to SR-241) and to E from F (Imperial Highway to the Weigh Station).

In the project design year (2035), with project implementation, both directions of SR-91 are estimated to experience significant congestion (LOS F) during the a.m. and p.m. peak hours, with the exception of one eastbound segment between SR-55 and Lakeview Avenue that is reaching its capacity. With project implementation, all segments on eastbound SR-91 are anticipated to improve the LOS to E or better with the exception of one eastbound segment during the a.m. peak hour and two segments during the p.m. peak hour. The lane additions on the westbound segments are anticipated to improve to LOS E from F at two segments between the Weigh Station and SR-241.

1.2.5 Intersection Analysis

Existing Conditions
The existing intersection LOS analysis is summarized in the Table 1.6. The analysis indicates that all the intersections are currently operating at LOS D or better during peak traffic hours.

Future No Build Condition
Table 1.2-5 summarizes the intersection LOS forecast for the year 2035 without the project. Table 1.2-5 shows that intersections will operate at an acceptable LOS, with the exception of Imperial Highway and Santa Ana Canyon Road during both a.m. and p.m. peak hours and Lakeview Avenue and Santa Ana Canyon Road during the p.m. peak.

TABLE 1.2-4 EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	A.M. Peak		P.M. Peak	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1. SR-91 Eastbound Off Ramp and Santa Ana Canyon Road	B	14	B	15
2. Lakeview Ave and Santa Ana Canyon Road	D	39	C	27
3. SR-91 Westbound Off Ramp and Lakeview Avenue	B	12	A	7
4. Lakeview Ave. and Riverdale Avenue	C	22	C	34
5. Imperial Highway and Santa Ana Canyon Road	C	22	D	37
6. SR-91 Eastbound Off Ramp and Imperial Highway	B	11	B	13
7. SR-91 Westbound Off Ramp and Imperial Highway	A	9	A	9
8. Imperial Highway and La Palma Avenue	C	26	D	43
9. SR-91 Eastbound Off Ramp and Weir Canyon Road	B	15	B	13
10. SR-91 Westbound Off-Ramp and Weir Canyon Road	B	14	B	16

Source: California Department of Transportation, March 2008
LOS = level of service
Sec/veh= seconds per vehicle

TABLE 1.2-5 FORECASTED 2035 INTERSECTION LEVEL OF SERVICE SUMMARY WITHOUT THE PROJECT

Intersection	A.M. Peak		P.M. Peak	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
1. SR-91 Eastbound Off Ramp and Santa Ana Canyon Road	C	21	C	23
2. Lakeview Ave and Santa Ana Canyon Road	E	62	D	46
3. SR-91 Westbound Off Ramp and Lakeview Avenue	D	44	B	14
4. Lakeview Ave. and Riverdale Avenue	C	32	**E**	**69**
5. Imperial Highway and Santa Ana Canyon Road	C	29	**E**	**65**
6. SR-91 Eastbound Off Ramp and Imperial Highway	B	17	C	26
7. SR-91 Westbound Off Ramp and Imperial Highway	B	11	B	15
8. Imperial Highway and La Palma Avenue	C	28	D	35
9. SR-91 Eastbound Off Ramp and Weir Canyon Road	D	40	D	37
10. SR-91 Westbound Off-Ramp and Weir Canyon Road	C	32	D	49

Source: California Department of Transportation, March 2008
Bold = unacceptable LOS
LOS = level of service
sec/veh= seconds per vehicle

1.2.6 Roadway Deficiencies

Lane Weaving and Ramp Merge/Diverge

SR-55 NB drops one EB general-purpose lane east of the connector at SR-91. SR-91 drops one EB general-purpose lane at Imperial Highway, which results in an increased vehicle density on SR-91 and increases lane weaving that interferes with merge/diverge operations. Traffic congestion reduces the ability of vehicles to enter and exit the freeway via interchange ramps.

Nonstandard Lane Width

It is the Department's policy to design facilities according to the Design Guidelines, which include standard lane widths and shoulder widths. The existing lanes and shoulders on SR-91 include nonstandard widths. To meet the Department's current design standards, the existing nonstandard lanes and shoulders within the project limits shall be widened to the standard widths.

Traffic Accidents

The Department Traffic Accident Surveillance and Analysis System (TASAS) provided detailed accident rates for all highways in the State. District 12 provided accident data for eastbound and westbound SR-91 between SR-55 and SR-241 for Orange County for the period of July 1, 2004, through June 30, 2007.

A review of the TASAS accident data revealed that rear-end accidents were the most common, followed by side-swipe accidents. Rear-end accidents are associated with a sudden attempts to stop when vehicular traffic volume has exceeded roadway capacity and are typical in chokepoint areas. The sideswipe accidents can be usually attributed to lane weaving as well as narrow lane widths. The TASAS summary accident data are provided in the Final Traffic Analysis Report (California Department of Transportation, April 2008).

1.2.7 Social and Economic Demands

A review of the growth projections adopted by SCAG indicates continuing growth in the region that the project serves. The population in Orange County is expected to increase from 2.8 million in 2000 to over 3.6 million in 2035, an increase of nearly 29 percent. This regional growth will continue to place demand on SR-91. Growth in Riverside County is projected to increase at a faster pace. The population in Riverside County is projected to increase from 1.5 million in 2000 (U.S. Census Bureau, 2000) to 3.6 million in 2035 (Riverside County Center for Demographic Research, 2006), an increase of 140 percent. This regional growth will continue to place a high demand on SR-91.

1.2.8 Intermodal Facilities and System Linkage

SR-91, a major east-west regional facility in Orange County, provides the City of Anaheim with direct access to the cities of Buena Park, Fullerton, Placentia, and Yorba Linda and the counties of Los Angeles, Riverside and San Bernardino. SR-91 also provides direct access to major north-south corridors, specifically SR-55, State Route 57 (SR-57), and Interstate 5 (I-5) to the west and SR-241 to the east. There are no parallel or contiguous transportation facilities that could reduce traffic demand on SR-91 and offset the need for improvements to the project segment of SR-91.

The project site and vicinity are served by the Orange County Transportation Authority (OCTA) and Metrolink. OCTA provides local bus routes throughout the study area. In addition, OCTA has a shared-ride service that provides for people who are unable to use the regular, fixed-route bus service because of functional limitations caused by a disability. OCTA has a Senior Mobility Program (SMP) that is designed to fill the gap between local fixed route buses and ADA paratransit or ACCESS service by providing local transportation services to seniors in participating cities in Orange County.

Metrolink is a commuter rail line that provides service to the City of Anaheim and other areas including downtown Los Angeles, Riverside and several locations in Orange County. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), which provides transit services to the counties of Orange, San Bernardino, Ventura, Riverside, San Diego, and Los Angeles. There is an existing Metrolink station (Anaheim Canyon) immediately adjacent to SR-91 at North Tustin and La Palma Avenues.

SR-91 also provides a route for the movement of goods and people between the Inland Empire region and the ports of Long Beach and Los Angeles, Los Angeles International Airport (LAX), John Wayne Airport (SNA) in Orange County and the Ontario International Airport (ONT) in San Bernardino County.

1.2.9 Air Quality Improvements

Transportation Demand Management within the project limits is primarily facilitated by the City of Anaheim. According to the City of Anaheim's General Plan, the Commuter Services Office was established as part of the Public Works Department in 1989, to help facilitate Federal and State Clean Air Act requirements. The Commuter Services Office offers a variety of information for City of Anaheim employees interested in bicycling, carpooling, vanpooling, public transit and rail transportation.

The existing vanpooling program consists of eleven routes to and from inland cities during the morning and evening commute. Participants of the vanpooling program have the option of joining as part-time or full-time riders and pay rates in relation to distance traveled.

Currently, there are four park-and-ride facilities for people who carpool or use public transportation in the City of Anaheim. The nearest park and ride facility is identified as the Anaheim Canyon Station (located on the figures). Anaheim Canyon Station has 100 available parking spots and is located approximately 1.2 miles northwest of the western project limits.

1.3 Project Description

The project area lies within the northeastern portion of the City of Anaheim and the southeastern portion of the City of Yorba Linda. There are two parallel arterial roadway corridors, La Palma Avenue and Santa Ana Canyon Road, within the project limits that are currently being utilized in lieu of the SR-91 freeway. The Featherly Regional Park, the Santa Ana River, and the Santa Ana River Trail border the north side of SR-91. To the south, the area is predominantly bordered by Peralta Canyon Park and portions of a Natural Communities Conservation Program (NCCP) area.

SR-91 is a major east-west freeway that is located mainly in Southern California, extending from Interstate 110 (I-110) in the City of Gardena in Los Angeles County east through Orange County, where it intersects Interstates 710, 605, and 5 (I-710, I-605, and I-5), and SR-57, SR-55, and SR-241. The SR-91 extends further northeast beyond the project limits to the City of Riverside in Riverside County.

The SR-91 was originally constructed in the 1960s as a controlled access freeway. A significant reconstruction effort began in 1992 with the construction of the toll lanes and the SR-241 toll road. Within the study area, SR-91 is generally an 8–10 general-purpose lane freeway with auxiliary lanes. The 91 Express Lanes Toll Road provides two additional lanes in each direction. The toll lanes were built as a private facility but are now owned and operated under OCTA.

The Santa Ana River parallels the project area to the north of SR-91, and a few residential and commercial communities are located south of SR-91.

The SR-91 between the SR-55 and Weir Canyon Road is officially designated as a Scenic Highway. The portion of the SR-91 east of Weir Canyon is designated as an eligible Scenic Highway.

The proposed project will add one general-purpose lane to both directions of the SR-91 from SR-55 (PM 9.1) to SR-241 (PM 15.6) with the exception of the WB portion of the project between Imperial Highway and the SR-55, where no additional lane will be added. The three interchanges within the project limits are: Lakeview Avenue (PM 10.1), Imperial Highway (PM 11.5), and Weir Canyon Road (PM 14.4). The auxiliary lanes, which will be removed due to the lane addition, would be restored in kind. The existing mainline and freeway ramps would be reconstructed according to Department standards. However, the freeway ramps will be reconstructed from and to the mainline and will tie into the existing ramps only at the intersections with the local streets and highways.

1.4 Project Alternatives

This section describes the proposed action and the design alternatives that were developed under a multidisciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. The proposed project will add one general-purpose lane to both directions of SR-91 from SR-55 (PM 9.1) to SR-241 (PM 15.6).

1.4.1 Alternatives Under Consideration

This section describes the project alternatives that were developed in consultation with the local agencies as well as with public input through the scoping process and public workshops. The alternatives are the “No Build Alternative,” and the “Build Alternative.”

1.4.2 Proposed Build Alternative

The Build Alternative would improve capacity, and operational deficiencies on SR-91 by adding one general-purpose lane in each direction between SR-55 and SR-241, with the exception of the WB portion of the project, between Imperial Highway and SR-55. In general, all existing auxiliary lanes, displaced by the addition of this general-purpose lane, would be replaced.

The new mainline geometrics will also comply with the California Department of Transportation Highway Design Manual (HDM) standards and all existing nonstandard width lanes of 11 ft will be widened to a standard width of 12 ft. Existing general-purpose lanes from the 91 Express Lanes Toll Road buffer edge, including the new general-purpose lane and any auxiliary lane, will have a 12 ft width and a 10 ft outside shoulder width.

Reconstructed on- and off-ramps, from and to the mainline, will tie to the existing ramps at the termini. Ramps will be 12 ft or wider for truck travel lanes, and 4 ft and 8 ft for left and right shoulders, respectively. The capital cost for this alternative is estimated at $72 million.

Eastbound Roadway

<u>From the SR 91/55 Interchange to Lakeview Avenue off-ramp</u>

Currently, this area of EB SR-91 has five general-purpose lanes and one auxiliary lane that exit at Lakeview Avenue. This alternative would add one EB general-purpose lane originating from the SR 91/55 interchange. The general-purpose lane continues while the auxiliary lane exits at Lakeview Avenue. This will provide a two-lane off-ramp exiting to Lakeview Avenue to alleviate the existing traffic congestion during the peak hours.

The loop entrance ramp at Lakeview Avenue will merge to lane 6. The tangent on-ramp will also merge to lane 6. From there, this alternative will continue six lanes (five general-purpose and one auxiliary) EB to the Imperial Highway interchange.

All nonstandard width lanes of 11 ft will be widened to a standard width of 12 ft. Existing general-purpose lanes from the 91 Express Lanes Toll Road buffer edge, including the new general-purpose lane and the auxiliary lane, will have a 12 ft width and a 10 ft wide right shoulder.

The existing interchange spacing between SR 91/55 interchange to the Lakeview Avenue interchange is 0.8 mile, whereas the minimum required spacing between interchanges is one mile in urban areas and two miles in rural areas. The elimination of the existing lane drop at the SR 91/55 interchange_will improve traffic operations by having a dedicated lane to the Lakeview Avenue off-ramp.

From Lakeview Avenue to Imperial Highway (SR-90).

Currently, there are four existing general-purpose lanes and an auxiliary lane within this portion of the project. The proposed EB general-purpose lane 5 will extend the existing auxiliary lane (currently exiting to Lakeview Avenue) to Imperial Highway/SR-90. This provides an opportunity for a two-lane off-ramp to Imperial Highway.

From Imperial Highway (SR-90) off-ramp to Weir Canyon Road on-ramp

There are four existing general-purpose lanes. The new EB general-purpose lane 5 continues on from Imperial Highway to the Weir Canyon interchange.

The loop entrance ramp will have a taper-type entrance to the general-purpose lane 5. The tangent on-ramp will introduce an auxiliary lane that will continue to the Weigh Station.

The auxiliary lane from Imperial Highway leads to the Weigh Station in a two-lane exit. Due to the number of the slow-moving trucks entering the Weigh Station, regular traffic backs up at this location. The proposed project would widen the Weigh Station off-ramp to two lanes. Providing a two-lane off-ramp at the Weigh Station improves the operation within this portion of the project.

The entrance ramp from the Weigh Station introduces an auxiliary lane, which drops to Weir Canyon Road as a two-lane off-ramp. This additional lane will improve the traffic delay caused by high traffic volume and the existing short weaving distance at this location.

From Weir Canyon Road on-ramp to west of the SR-91/241 Interchange

There are four general-purpose lanes and an auxiliary lane from the Weir Canyon tangent on-ramp to SR-241 east-to-south connector. The addition of EB general-purpose lane 5 will provide a two-lane off-ramp to the SR-241 connector.

Westbound Roadway

From west of the SR-91/241 Interchange to Weir Canyon Road off-ramp

There are four existing general-purpose lanes and an auxiliary lane. The existing WB auxiliary lane from the north-to-west connector (NW) SR-241 drops off to Weir Canyon Road as a one-lane off-ramp. Due to high traffic volume exiting at Weir Canyon, two lanes off-ramp is proposed to exit to Weir Canyon. Therefore, additional general-purpose lane 5 is extended from the SR-241 NW connector to Weir Canyon to provide five lanes continuing through the interchange.

From Weir Canyon Road off-ramp to Imperial Highway (SR-90) on-ramp

The Weir Canyon loop on-ramp will have a taper-type entrance to general-purpose lane 5. The tangent on-ramp will introduce an auxiliary lane that will continue together with 5 general-purpose lanes WB, to the Weigh Station. The auxiliary lane from Weir Canyon tangent on-ramp will be dropped in a one-lane exit to the Weigh Station.

There are four existing WB general-purpose lanes from the on-ramp at the Truck Weigh Station to Imperial Highway. The added general-purpose lane 5 would require some slope modification. The on-ramp from the Truck Weigh Station will be modified to a two-lane entrance that will introduce an auxiliary lane that will continue, together with 5 general-purpose lanes WB, to the Imperial Highway. The auxiliary lane from the Weigh Station on-ramp will be dropped in a two-lane off-ramp to the Imperial Highway. From that point, the freeway will extend to five WB general-purpose lanes to Imperial Highway on-ramps and joint the existing general-purpose lane 5.

From the Imperial Highway on-ramp to SR 91/55 interchange

There are five existing general-purpose lanes from Imperial Highway on-ramps to SR 91/55 interchange. Therefore, no additional lane is provided. The existing tagent on-ramp will be modified to a two-lane entrance that will merge to the existing general-purpose lane 5.

The additional widening for general-purpose lane 5 would impact the existing Imperial Highway loop on-ramp. This ramp will be realigned and will include a new CHP enforcement area merging into general-purpose lane 5. The tangent WB on-ramp from Lake View Ave will be widened into a two-lane on-ramp that will merge to the existing general-purpose lane 5.

Bridge Widening

The project will widen (outside widening) the bridge for the Imperial Avenue undercrossing (Bridge No. 55-0474) and Weir Canyon Road undercrossing (Bridge No. 55-0505) in both EB and WB directions.

Sound Wall
On EB side, there is an existing sound wall from the SR 91/55 interchange to Imperial Highway (SR-90) interchange. This sound wall will not be impacted as a result of this project.

On EB SR-91, a new sound wall is being proposed from Imperial Highway to the Weigh Station along the property line. There is no new sound wall on WB SR-91 within the project limits.

Retaining Wall
On EB side, the project will build a tieback wall (approximately 761 ft. in length) at Lakeview Avenue Overcrossing (Bridge No. 55-0475) to accommodate the additional lane at this location. There is no new retaining wall on the WB within the project limits.

Utilities
All existing utilities within Department right-of-way should be protected in place or relocated within project limits during construction of the project. The existing Southern California Edison (SCE) overhead power line, existing underground electrical, and SR-91 Express Lanes Toll Road utilities boxes should be protected in place and/or relocated. Some utilities, as discussed in chapter 2, will need to be potholed or relocated.

Electrical
The electrical work involved in this alternative includes the relocation of existing electrical systems such as relocation of lighting along the ramps, ramp metering, controller cabinets, splice vaults, a changeable message sign (CMS) system, cameras, sign lighting, and fiber optics.

Drainage
The existing general drainage pattern within the project limits is from south of SR-91, carried via culverts and drainage system to the north side of the freeway. The proposed project will not change the existing drainage pattern. All existing inlets along the edge of shoulder will be relocated to the new edge of shoulder, and existing inlets will be capped. The existing longitudinal drainage systems along the edge of shoulder will be relocated to the new edge of shoulder with additional inlets to carry additional drainage due to the widening. A storm water treatment detention basin is proposed within the project limits. The drainages that may require relocation within project limits are discussed in Chapter 2.

Replacement Planting and Irrigation Modification
Existing planting and irrigation systems removed during roadway construction will be replaced. Replacement plantings will be split from the roadway project and will be a separate follow-up project. Specimen trees will be used to replace

mature trees removed by the roadway contract. Irrigation modification work will be included as part of the roadway contract. Irrigation modification work should include extending irrigation crossovers under roadways and ramps and inside bridge cells, and modifying existing system to maintain water supply to undisturbed planting areas.

Signing
Signs will be removed and relocated to accommodate the widening.

Right of Way Acquisition
The project would require property acquisitions and temporary construction easements (TCEs). No displacements or relocations would be required. The TCEs and partial takes would affect 128 properties (see right of way data sheets for details).

Weigh Station
The Weigh Stations on the EB and WB directions shall remain in place.

1.4.3 No Build Alternative

The No Build Alternative would not include any improvements to the project and would maintain its existing conditions for the mainline and intersections. SR-91 will continue to operate at LOS E and F during peak hours resulting in significant delays. This alternative does not address the capacity and operational needs of SR-91, and it is expected that between now and 2035, traffic congestion will continue to worsen if no freeway operational improvements are implemented within and downstream of the project area.

2.0 ENVIRONMENTAL SETTING

A region's topographic features have a direct correlation with air pollution flow; therefore, they are used by the California Air Resources Board (ARB) to determine the boundary of air basins. A local air district is then formed for each air basin; the district is responsible for providing air quality strategies to bring the air basin into compliance with the National Ambient Air Quality Standards (NAAQS).

The project site is located in Orange County, an area within the South Coast Air Basin (SCAB) that includes Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the SCAB is administered by SCAQMD, a regional agency created for the SCAB.

2.1 Meteorology

2.1.1 Climate

The SCAB climate is determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains surround the rest of the SCAB. The region lies in the semipermanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur.

The annual average temperature varies little throughout the SCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site monitoring temperature is the Anaheim Station.[1] The annual average maximum temperature recorded at this station is 77.2EF, and the annual average minimum is 55.3EF. December is typically the coldest month in this area of the SCAB.

The majority of annual rainfall in the SCAB occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB along the coastal side of the mountains. The climatological station closest to the site that monitors precipitation is the Anaheim Station. Average rainfall measured at this station varied from 3.80 inches (in) in February to 0.34 in or less between May and September, with an

[1] Western Regional Climatic Center. 2008. http://www. wrcc.dri.edu (accessed May 13, 2008).

average annual total of 13.08 in. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The SCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed from midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Inversion layers are significant in determining ozone (O_3) formation. O_3 and its precursors will mix and react to produce higher concentrations under an inversion. The inversion will also simultaneously trap and hold directly emitted pollutants such as CO. Particulate matter less than 10 microns in size (PM_{10}) is both directly emitted and created indirectly in the atmosphere as a result of chemical reactions. Concentration levels are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth's surface goes through a radiative process on clear nights, when heat energy is transferred from the ground to a cooler night sky. As the earth's surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low inversions produces the greatest concentration of pollutants. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and oxides of nitrogen (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

2.1.2 Climate Change

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas[1] (GHG) emissions reduction and climate change research and policy has increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the State level. AB 1493 requires the ARB to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05. The goal of this EO is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) by the year 2050 to reduce GHG emissions to 80 percent below the 1990 levels. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan that includes market mechanisms and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." EO S-17-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Climate change and GHG emissions reduction are also concerns at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reduction and climate change.

According to the IPCC report, *Climate Change 2007: The Physical Science Basis: Summary for Policymakers* (February 2007), there is no doubt that the climate system is warming. Global average air and ocean temperatures, as well as the global average sea level, are rising. Of the last 12 years, 11 years have ranked as among the warmest on record since 1850. While some of the increase is explained by natural occurrences, the 2007 report asserts that the increase in temperatures is very likely (> 90 percent) due to human activity, most notably the burning of fossil fuels.

For California, similar effects are described in the California Climate Change Center report, *Our Changing Climate: Assessing the Risks to California* (July 2006). Based on projections using state-of-the-art climate modeling, temperatures in California are expected to rise between 3°F to 10.5°F by the end of the century, depending on how much California is able to reduce its GHG emissions. The report states that these temperature increases will negatively impact public health, water supply, agriculture, plant and animal species, and the coastline.

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1 Greenhouse gases related to human activity include: carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23, HFC-134a*, and HFC-152a*.

2.2 Air Quality Management

Pursuant to the federal Clean Air Act (CAA) of 1970, the United States Environmental Protection Agency (EPA) established NAAQS. The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health. The NAAQS are two-tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (e.g., impairment of visibility, damage to vegetation and property).

The six criteria pollutants are O_3, CO, particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. PM includes particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and PM_{10}. The primary standards for these pollutants are shown in Table 2.2-1, and the health effects from exposure to the criteria pollutants are described later in this analysis.

2.3 2004 Transportation Conformity Rule

The EPA, in conjunction with the Department of Transportation (DOT), established the Transportation Conformity Rule on November 30, 1993. The rule implements the Federal Clean Air Act (FCAA) conformity provision, which mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting or approve any activity not conforming to an approved FCAA implementation plan. As part of the Clean Air Rules of 2004, the EPA published a final rule in the Federal Register on July 1, 2004, to amend the Transportation Conformity Rule to include criteria and procedures for the new 8-hour O_3 and fine particulate matter ($PM_{2.5}$) NAAQS. The final rule addressed a March 2, 1999, court decision by incorporating the EPA and DOT guidance. On July 20, 2004, the EPA published a technical correction notice to correct two minor errors in the July 1, 2004 notice. To remain consistent with the stricter federal standards, ARB approved a new 8-hour O_3 standard (0.070 ppm, not to be exceeded) for O_3 on April 28, 2005. Additionally, ARB retained the current 1-hour-average standard for O_3 (0.09 parts per million [ppm]) and the current monitoring method for O_3, which uses the ultraviolet (UV) photometry method.

In April 2003, the EPA was cleared by the White House Office of Management & Budget (OMB) to implement the 8-hour ground-level O_3 standard. ARB provided the EPA with California's recommendations for 8-hour O_3 area designations on July 15, 2003. The recommendations and supporting data were an update to a report submitted to the EPA in July 2000. On December 3, 2003, the EPA published its proposed designations. The EPA's proposal differs from the State's recommendations primarily on the appropriate boundaries for several nonattainment areas. ARB responded to the EPA's proposal on February 4, 2004. On April 15, 2004, the EPA announced the new nonattainment areas for the 8-hour O_3 standard. The designation and classification became effective on

TABLE 2.2-1 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[2,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 μg/m^3)	Ultraviolet Photometry	No federal standard	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 μg/m^3)		0.075 ppm (147 μg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 μg/m^3	Gravimetric or Beta Attenuation	150 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 μg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m^3	Gravimetric or Beta Attenuation	15 μg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Nondispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Nondispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 μg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 μg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescenc e
	1-Hour	0.18 ppm (338 μg/m^3)		–		
Lead	30-day average	1.5 μg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 μg/m^3	Same as Primary Standard	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 μg/m^3)	–	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 μg/m^3)		0.14 ppm (365 μg/m^3)	–	
	3-Hour	–		–	0.5 ppm (1300 μg/m^3)	
	1-Hour	0.25 ppm (655 μg/m^3)		–	–	
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24-Hour	25 μg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 μg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[8]	24-Hour	0.01 ppm (26 μg/m^3)	Gas Chromatography			

Source: ARB, April 1, 2008.

See footnotes on next page.

Footnotes:

1 California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter, PM_{10}; and visibility-reducing particles are values not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 mg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25EC and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25EC and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

7 Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8 The ARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

June 15, 2004. The Transportation Conformity requirement became effective on June 15, 2005.

The EPA proposed a $PM_{2.5}$ implementation rule in September 2003 and made final designations in December 2004. The $PM_{2.5}$ standard complements existing national and State ambient air quality standards that target the full range of inhalable PM_{10}.

Air quality monitoring stations are located throughout the nation and maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the EPA to identify regions as "attainment" or "nonattainment," depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. In addition, different classifications of attainment, such as marginal, moderate, serious, severe, and extreme, are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. The SCAB's attainment status for each of the criteria pollutants is listed in Table 2.2-2.

TABLE 2.2-2 ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1-hour)	Nonattainment	Revoked June 2005
O_3 (8-hour)	Not established	Severe 17 Nonattainment[1]
PM_{10}	Nonattainment	Serious Nonattainment[2]
$PM_{2.5}$	Nonattainment	Nonattainment[3]
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board, 2008 (http://www.arb.ca.gov/desig/desig.htm).

1 The SCAQMD has requested that the federal 8-hour O_3 attainment status be changed to extreme with an attainment date of 2023.

2 In October 2006, the EPA, in its final rule revision, eliminated the annual PM_{10} standard.

3 The $PM_{2.5}$ nonattainment designation is based on the 1997 standard. In 2006, the EPA revised the 24-hour standard. The 2006 $PM_{2.5}$ new standard of 35 µg/m^3 applies one year after the effective date of the new designation (April 2010).

CO = Carbon monoxide
NO_2 = Nitrogen oxide
O_3 = Ozone
$PM_{2.5}$ = Particulate matter less than 2.5 microns in diameter
PM_{10} = Particulate matter less than 10 microns in diameter

2.4 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. The majority of the sensitive receptors along the proposed Project Study Area are residential uses.

3.0 REGULATORY FRAMEWORK

3.1 Federal Clean Air Act

The CAA (1977 amendments – 42 USC 7401 *et. seq*.) state that the federal government is prohibited from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any activity that does not conform to an applicable SIP. Federal actions relating to transportation plans, programs, and projects developed, funded, or approved under 23 USC of the Federal Transit Act (40 USC 1601 *et. seq*.) are covered under separate regulations for transportation conformity.

In the 1990 CAA amendments, the EPA included provisions requiring federal agencies to ensure that actions undertaken in nonattainment or attainment-maintenance areas are consistent with applicable SIPs. The process of determining whether or not a federal action is consistent with an applicable SIP is called conformity.

The EPA General Conformity Rule applies only to federal actions that result in emissions of "nonattainment or maintenance pollutants," or their precursors, in federally designated nonattainment or maintenance areas. The EPA General Conformity Rule establishes a process to demonstrate that federal actions would be consistent with applicable SIPs and would not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS. The emissions thresholds that trigger requirements of the conformity rule for federal actions emitting nonattainment or maintenance pollutants, or their precursors, are called *de minimis* levels. The general conformity *de minimis* thresholds are defined in 40 CFR 93.153(b). The federal General Conformity Rule does not apply to federal actions in areas designated as nonattainment of only the CAAQS.

3.2 California Clean Air Act

ARB administers the air quality policy in California. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 2.2-1, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The CCAA, which was approved in 1988, requires that each local air district prepare and maintain an air quality management plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for preparation of the SIP for the State of California.

ARB establishes policy and statewide standards and administers the State's mobile source emissions control program. In addition ARB oversees air quality programs established by State statute, such as Assembly Bill (AB) 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987.

3.3 California State Implementation Plan

Federal clean air laws require areas with unhealthy levels of O_3, CO, NO_2, SO_2, and inhalable particulate matter to develop plans, known as State Implementation Plans (SIPs), describing how they will attain national ambient air quality standards. The 1990 amendments to the federal Clean Air Act set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the new national eight-hour O_3 standard and the fine particulate matter ($PM_{2.5}$) standards in 1997 will result in additional statewide air quality SIPs are not single documents, rather they are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, State regulations, and federal controls. Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes the ARB the Lead Agency for all purposes related to the SIP. Local air districts and other agencies, such as the Bureau of Automotive Repair, prepare SIP elements and submit them to the ARB for review and approval. The ARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items included in the California SIP. Many additional California submittals are pending EPA approval.

3.4 South Coast Air Quality Management District (SCAQMD)

The SCAQMD and the SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the SCAB. Every 3 years, the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon. The SCAQMD adopted the 2003 AQMP in August 2003 and forwarded it to the ARB for review and approval. The ARB approved a modified version of the 2003 AQMP and forwarded it to the EPA in October 2003 for review and approval.

The 2003 AQMP updates the attainment demonstration for the federal standards for O_3 and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992.

The 2003 AQMP proposes policies and measures to achieve federal and State standards for healthful air quality in the SCAB.

This revision to the AQMP also addresses several State and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. This AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the O_3 SIP for the SCAB for the attainment of the federal O_3 air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/1999 Plan) to offset increased emission estimates from mobile sources and meet all federal criteria pollutant standards within the time frames allowed under the federal CAA.

The SCAQMD adopted the 2007 AQMP on June 1, 2007, which it describes as a regional and multiagency effort (i.e., the SCAQMD Governing Board, ARB, SCAG, and EPA). State and federal planning requirements will include developing control strategies, attainment demonstration, reasonable further progress, and maintenance plans. The 2007 AQMP also incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP includes a request to have the SCAB's federal 8-hour O_3 attainment status changed from severe to extreme. This change would extend the attainment deadline from 2021 to 2023. The ARB approved the 2007 AQMP on September 27, 2007, and adopted it as part of the 2007 SIP. The ARB has forwarded the 2007 AQMP to the EPA for its review and approval.

SCAG is responsible under the FCAA for determining conformity of projects, plans and programs with the SCAQMD AQMP. As indicated in the *CEQA Air Quality Handbook*, there are two main indicators of consistency:

- Whether the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and
- Whether the project would exceed the AQMP's assumptions for 2020 or increments based on the year of project build-out and phase.

4.0 MONITORED AIR QUALITY

The SCAQMD operates several air quality monitoring stations within the SCAB; refer to Table 4.4-1 (Local Air Quality Levels). The closest monitoring station is located at 1630 West Pampas Lane, Anaheim, California.

The following air quality information briefly describes the various types of pollutants monitored within the vicinity of the Project Study Area.

4.1 Carbon Monoxide (CO)

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire SCAB is in attainment/ maintenance for the federal CO standard and attainment for the State CO attainment standard. State and federal standards were not exceeded between 2005 and 2007.

4.2 Ozone

O_3, a colorless gas with a sharp odor, is one of a number of substances called photochemical oxidants (highly reactive secondary pollutant). These oxidants are formed when hydrocarbons, NO_X and related compounds, interact in the presence of ultraviolet sunlight. The State standard for O_3 is 0.09 ppm, averaged over one hour, and 0.07 ppm, averaged over eight hours. Both Federal and State standards designate the SCAB as a nonattainment area. The federal standard for O_3 was revoked as of June 5, 2005, and therefore no longer applies. The State one-hour O_3 standard was exceeded one to six times per year in the last three years. The federal eight-hour O_3 standard was exceeded zero to one times per year in the last three years.

4.3 Nitrogen Dioxide

NO_2 is a reddish-brown gas with an odor similar to bleach and is the by-product of fuel combustion, which results from mobile and stationary sources. It has complex diurnal concentrations that are typically higher at night. The SCAB has relatively low NO_2 concentrations, as very few monitoring stations have exceeded the State standard of 0.25 ppm (one hour) since 1988. NO_2 is itself a regulated pollutant, but it also reacts with hydrocarbons in the presence of sunlight to form O_3 and other compounds that make up photochemical smog. NO_2 decreases lung function and may reduce resistance to infection. The entire SCAB has not exceeded either federal or State standards for NO_2 in the past five years with published monitoring data. It is designated as a maintenance area under the federal standards and an attainment area under the State standards.

TABLE 4.4-1 LOCAL AIR QUALITY LEVELS

Table 4.4-1
Local Air Quality Levels

Pollutant	Primary Standard: California	Primary Standard: Federal	Year	Maximum Concentration[1]	Number of Days State/Federal Std. Exceeded
Carbon Monoxide (CO)	9.0 ppm for 8 hours	9 ppm for 8 hours	2005	3.3 ppm	0/0
			2006	2.9 ppm	0/0
			2007	2.9 ppm	0/0
Ozone (O_3) (1-Hour)	0.09 ppm for 1 hour	N/A	2005	0.095 ppm	1/NA
			2006	0.113 ppm	6/NA
			2007	0.127 ppm	2/NA
Ozone (O_3) (8-Hour)	0.07 ppm for 8 hour	0.08 ppm for 8 hour	2005	0.077 ppm	NA/0
			2006	0.088 ppm	NA/1
			2007	0.099 ppm	NA/1
Nitrogen Dioxide (NO_x)	0.25 ppm for 1 hour	N/A	2005	0.089 ppm	0/NA
			2006	0.114 ppm	0/NA
			2007	0.086 ppm	0/NA
Sulfur Dioxide[2] (SO_x)	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 0.03 ppm annual arithmetic mean	2005	0.008 ppm	0/0
			2006	0.005 ppm	0/0
			2007	0.004 ppm	0/0
Particulate Matter (PM_{10})[3]	50 $\mu g/m^3$ for 24 hours	150 $\mu g/m^3$ for 24 hours	2005	65 ug/m^3	3/0
			2006	104 ug/m^3	7/0
			2007	489 ug/m^3	3/1
Fine Particulate Matter ($PM_{2.5}$)	65 $\mu g/m^3$ for 24 hours	65 $\mu g/m^3$ for 24 hours	2005	54.7 ug/m^3	NA/0[4]
			2006	56.2 ug/m^3	NA/0
			2007	79.4 ug/m^3	NA/1

Source: California Air Resources Board, ADAM Air Quality Data Statistics, www.arb.ca.gov/adam/welcome.html
ppm Parts per million
$\mu g/m^3$ Micrograms per cubic meter
PM_{10} Particulate matter 10 microns in diameter or less
$PM_{2.5}$ Particulate matter 2.5 micron or less
NA Not applicable
1 Max concentration is measured over the same period as the California Standard.
2 Measurement taken at the Costa Mesa Monitoring Station.
3 PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
4 $PM_{2.5}$ exceedances are based on the old 65 $\mu g/m^3$ standard. In 2006, the EPA revised the standard to 35 $\mu g/m^3$.

4.4 Oxides of Sulfur (SO_x or Sulfur Dioxide [SO_2])

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire SCAB is in attainment with both federal and State SO_2 standards.

4.5 Coarse Particulate Matter (PM_{10})

PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003 the ARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25). The Federal 24-hour standard of 150 $\mu g/m^3$ was retained. The State 24-hour PM_{10} standard was exceeded 3 to 7 times per year in the last three years. The federal 24-hour PM_{10} standard was exceeded once in 2007 in last three years.

Tiny airborne particles or aerosols that are less than 100 micrometers are collectively referred to as total suspended particulate matter (TSP). These particles constantly enter the atmosphere from many naturally sources including soil, bacteria, viruses, fungi, molds, yeast, and pollen. Manmade sources of TSP also include combustion products from space heating, industrial processes, power generation, and motor vehicle use.

Over 99 percent of inhaled particulate matter is either exhaled or trapped in the upper areas of the respiratory system and expelled. The balance enters the windpipe and lungs, where some particulates cling to protective mucous and are removed. Other mechanisms, such as coughing, also filter out or remove particles. Collectively, these "pulmonary clearance" mechanisms protect the lungs from the majority of inhalable particles.

Irritating odors are often associated with particulates. Some examples of sources are gasoline and diesel engine exhausts, large-scale coffee roasting, paint spraying, street paving and trash burning.

The EPA replaced TSP as the indicator for both the annual and 24-hour primary (i.e., health related) standards in 1987. The indicator includes only those particles with an aerodynamic diameter smaller than or equal to a nominal ten micrometers (Particulate Matter 10 microns or less [PM_{10}]).

4.6 Fine Particulate Matter ($PM_{2.5}$)

Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule, in the Federal Register that designates the Orange County portion of the SCAB as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, ARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by ARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging. The Federal standard was exceeded in 2007.

4.7 Volatile Organic Compounds (VOCs or Reactive Organic Gasses [ROG])

Hydrocarbon compounds are any compounds containing various combinations of hydrogen and carbon atoms that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor and some examples include gasoline, alcohol and the solvents used in paints. There are no specific State or Federal VOC thresholds as they are regulated by individual air districts as O_3 precursors.

4.8 Lead (Pb)

Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the bloodstream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The entire SCAB is in attainment for federal and State lead standards.

5.0 POTENTIAL AIR QUALITY IMPACTS

5.1 Short-Term Impacts

Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust emissions during the construction envisioned on site will vary daily as construction activity levels change. The use of construction equipment on site will result in localized exhaust emissions. The California Department of Transportation Standard Specifications for construction (Sections 10 and 18 for dust control and Section 39-3.06 for asphalt concrete plants) will be adhered to in order to reduce emissions as a result of construction equipment.

Additionally, the SCAQMD has established Rule 403 for reducing fugitive dust emissions (PM_{10}). The best available control measures (BACM), as specified in SCAQMD Rule 403, shall be incorporated into the project commitments. With the implementation of standard construction measures (providing 50 percent effectiveness) such as frequent watering (e.g., minimum twice per day), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

5.2 Regional Analysis

A consistency analysis determination plays an essential role in local agency project review by linking local planning and unique individual projects to the AQMP in the following ways: it fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed, and it provides the local agency with ongoing information, assuring local decision makers that they are making real contributions to clean air goals defined in the most current AQMP (adopted 2003 and updated in 2007). Because the AQMP is based on projections from local General Plans, projects that are consistent with the local General Plan are considered consistent with the AQMP. The implementation of the proposed Project would also not delay timely implementation of the Transportation Control Measures (TCMs) identified in the AQMP. As shown above, the proposed Project would not significantly contribute to or cause deterioration of existing air quality; therefore, mitigation measures are not required for the long-term operation of the Project.

5.3 CO Screening Analysis

The scope required for CO local analysis is summarized in the Transportation Project-Level Carbon Monoxide Protocol (Protocol), Section 3 (Determination of Project Requirements), and Section 4 (Local Analysis); refer to Appendix B (CO Screening). In

Section 3, the Protocol provides two conformity requirement decision flowcharts that are designed to assist the project sponsor(s) in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 (Appendix A) of the Protocol applies to new projects and was used in this local analysis conformity decision. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the Project. The flowchart begins with Section 3.1.1:

- 3.1.1 Is this project exempt from all emissions analyses?
  NO.
  Table 1 of the Protocol is Table 2 of §93.126. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The proposed Project does not appear in Table 1. It is not exempt from all emissions analyses.

- 3.1.2. Is the project exempt from regional emissions analyses?
  NO.
  Table 2 of the Protocol is Table 3 of §93.127. The question is attempting to determine if the Project is listed in Table 2. The project will widen an existing highway. Therefore, it is not exempt from regional emissions analysis.

- 3.1.3. Is the project locally defined as regionally significant?
  YES.
  As mentioned above, the project will widen SR-91. Therefore, the project is potentially significant.

- 3.1.4. Is the project in a federal attainment area?
  NO.
  The project is located within an attainment/maintenance area for the federal CO standard.

- 3.1.5. Are there a currently conforming RTP and TIP?
  YES.

- 3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?
  YES.
  The project is included in the SCAG 2004 RTP and the 2006 RTIP (Project ID: ORA030601; Description: Add one mixed-flow lane eastbound between the SR-91/SR-55 connector and east of the Weir Canyon Road interchange; add one mixed-flow lane westbound between east of Weir Canyon Road interchange and Imperial Highway; modify westbound on-ramps from Lakeview Avenue to improve merge).

- 3.1.7. Has the project design concept and/or scope changed significantly from that in the regional analysis?
  NO.

- 3.1.9. Examine local impacts.
  Section 3.1.9 of the flowchart directs the Project evaluation to Section 4 (Local Analysis), of the Protocol. This concludes Figure 1.

Likewise, Section 4 contains Figure 3 (Local CO Analysis [Appendix A]). This flowchart is used to determine the type of CO analysis required for the proposed Project. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the proposed Project. The flowchart begins at level 1:

- Level 1. Is the project in a CO non-attainment area?
  NO.
  The project site is located in an area that has demonstrated attainment with the federal CO standard.

- Level 1 (cont.). Was the area redesignated as "attainment" after the 1990 Clean Air Act?
  YES.

- Level 1 (cont.). Has "continued attainment" been verified with the local Air District, if appropriate?
  YES.
  The SCAB was designated as attainment by the EPA on June 11, 2007. (Proceed to Level 7.)

- Level 7. Does the project worsen air quality?
  NO.
  Because the following conditions (listed in Section 4.7.1 of the CO Protocol) are not met, the project would not potentially worsen air quality.

  a. *The project significantly increases the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2% should be considered potentially significant.*

     The percentage of vehicles operating in cold start mode is the same or lower for the intersection under study as compared to those used for the intersection in the attainment plan. It is assumed that all vehicles along SR-91 are in a fully warmed-up mode. Therefore, this criterion is not met.

b. *The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5% should be considered potentially significant. Increasing the traffic volume by less than 5% may still be potentially significant if there is also a reduction in average speeds.*

The traffic analysis (Department, March 2008) predicts that the with project traffic volumes along SR-91 would not increase over the no project conditions. Therefore, this criterion is not met.

c. *The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.*

As shown in Tables 5.3-1 and 5.3-2, the project would improve the vehicle speed along SR-91 by improving the LOS. Therefore, this criterion is not met.

TABLE 5.3-1 2014 HIGHWAY LEVELS OF SERVICE

Roadway Link		No Build		Build	
		EB LOS AM/PM	WB LOS AM/PM	EB LOS AM/PM	WB LOS AM/PM
1.	SR-55 to Lakeview Ave	D/E	F/F	C/D	F/F
2.	Lakeview Ave to Imperial Hwy	D/F	F/E	D/E	F/E
3.	Imperial Hwy to Weigh Station	F/F	F/F	D/E	E/E
4.	Weigh Station to Weir Canyon Rd	D/E	E/E	C/D	D/D
5.	Weir Canyon Rd to SR-241	D/E	E/E	C/D	D/D

Source: California Department of Transportation, March 2008.
Notes:
EB = Eastbound SR-55 = State Route 55
WB = Westbound SR-241 = State Route 241
LOS = Level of Service

TABLE 5.3-2 2035 HIGHWAY LEVELS OF SERVICE

Roadway Link		No Build		Build	
		EB LOS AM/PM	WB LOS AM/PM	EB LOS AM/PM	WB LOS AM/PM
1.	SR-55 to Lakeview Ave	E/F	F/F	D/E	F/F
2.	Lakeview Ave to Imperial Hwy	F/F	F/F	E/F	F/F
3.	Imperial Hwy to Weigh Station	F/F	F/F	F/F	F/F
4.	Weigh Station to Weir Canyon Rd	F/F	F/F	D/E	E/E
5.	Weir Canyon Rd to SR-241	F/F	F/F	D/E	E/E

Source: California Department of Transportation, March 2008.
Notes:
EB = Eastbound SR-55 = State Route 55
WB = Westbound SR-241 = State Route 241
LOS = Level of Service

The project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis was not required.

5.4 $PM_{2.5}$/PM_{10} Hot-Spot Analysis

The proposed project is within a nonattainment area for federal $PM_{2.5}$ and PM_{10} standards. Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in Section 93.123(b)(1) as an air quality concern. The project does not qualify as a project of air quality concern (POAQC) because of the following reasons:

i. The proposed project is not a new or expanded highway project that would have a significant number of or a significant increase in diesel vehicles. The future traffic volumes along this segment of SR-91 are projected to exceed 125,000 average daily vehicles and 10,000 daily truck trips. However, as shown in the State Route 91 Widening Traffic Report (Caltrans, March 2008), the proposed project would not increase the traffic volumes along this segment of SR-91. This type of project improves freeway operations by reducing traffic congestion and improving merge operations.
ii. The proposed project does not affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. Based on the Traffic Report, the proposed project would not increase the traffic volumes or worsen the LOS at any of the intersections within the project area.
iii. The proposed project does not include the construction of a new bus or rail terminal.
iv. The proposed project does not expand an existing bus or rail terminal.
v. The proposed project is not in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Therefore, the proposed project meets the CAA requirements and 40 CFR 93.116 without any explicit hot-spot analysis. The proposed project would not create a new, or worsen an existing, $PM_{2.5}$ or PM_{10} violation.

5.5 Naturally Occurring Asbestos/Structural Asbestos

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen, and inhalation of asbestos may result in the development of lung cancer or mesothelioma. The asbestos contents of many manufactured products have been regulated in the United States for a number of years. For example, ARB has regulated the amount of asbestos in crushed serpentinite used in surfacing applications, such as for gravel on unpaved roads, since 1990. In 1998, new concerns were raised about possible health hazards from activities that disturb rocks and soil containing asbestos and may result in the generation of asbestos-laden dust. These concerns recently led to ARB revising its asbestos limit for crushed serpentinite and ultramafic rock in surfacing applications from 5 percent to less than 0.25 percent, and adopting a new rule requiring best practices dust control measures for activities that disturb rock and soil containing NOA.

The United States Geological Service (USGS) Geological Map Index was searched for available geological maps, which cover the Project Study Area and surrounding areas. These geological maps indicate geological formations that are overlaid on a topographic map. Some maps focus on specific issues (i.e., bedrock, sedimentary rocks) while others may identify artificial fills (including landfills). Geological maps can be effective in estimating permeability and other factors that influence the spread of contamination. According to the GeoCheck search, the Project Study Area is generally underlain by urban land and a stratified sequence from the Cenozoic Era. Depth to bedrock is reported to be greater than 10 inches.

NOA in bedrock is typically associated with serpentine and peridotite deposits. Note that during demolition activities, the likelihood of encountering structural asbestos is low due to the nature of the demolished materials. The material would consist of concrete and metal piping. Therefore, the potential for NOA to be present within the Project limits is considered to be low. Furthermore, prior to the commencement of construction, qualified geologists would further examine the soils and makeup of the existing structure. Should the Project geologist encounter asbestos during the analysis, proper steps shall be executed to handle the materials.

5.6 Qualitative Project-Level MSAT Discussion

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, nonroad mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

MSATs are a subset of the 188 air toxics defined by the CAA. MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through an engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 Federal Register 17229 [March 29, 2001]). This Rule was issued under the authority in Section

202 of the CAA. In its rule, the EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low-emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements.

In February 2006, the FHWA issued guidance[2] to advise FHWA Division offices as to when and how to analyze MSATs in the National Environmental Policy Act (NEPA) process for highways. The guidance is described as interim because MSAT science is still evolving. As the science progresses, the FHWA will update the guidance. This analysis follows the FHWA guidance.

Between 2000 and 2020, FHWA projects that even with a 64 percent increase in vehicle miles traveled (VMT), these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 to 65 percent and will reduce on-highway diesel particulate emissions by 87 percent. As a result, the EPA concluded that no further motor vehicle emissions or fuel standards were necessary to further control MSATs. The EPA is preparing another rule under the authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary 6 MSATs.

This report includes a basic analysis of the likely MSAT emission impacts of the proposed project. However, available technical tools do not provide for predicting project-specific health impacts of the emission changes associated with the alternatives considered in this report. Due to these limitations, the following discussion is included in accordance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22[b]) regarding incomplete or unavailable information.

5.6.1 Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and a final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevent a more complete determination of the MSAT health impacts of the proposed project, as described below.

[2] http://www.fhwa.dot.gov/environment/airtoxic/020306guidmem.htm.

Emissions
The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 and EMFAC2002/2007 are used to predict emissions at a regional level, they have limited applicability at the project level. MOBILE 6.2 is a trip-based model with emission factors projected based on a typical trip of 12.1 kilometers (7.5 miles) and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emission rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Last, in its discussions of PM under the conformity rule, the EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis. Similar limitations apply to EMFAC2002/2007.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emission trends and performing relative analyses between alternatives for very large projects, but it is not sufficiently sensitive to capture the effects of travel changes due to smaller projects or to predict emissions near specific roadside locations.

Dispersion
The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE4 (a Department model used inside California only) and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of CO to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Highway Cooperative Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, the FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

Exposure Levels and Health Effects
Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis limit the ability to reach meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roads and to determine the part of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

5.6.2 Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the EPA conducted the National Air Toxics Assessment (NATA 1996) to evaluate modeled estimates of human exposure applicable to the County level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment (http://www.epa.gov/iris). The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries. This information, from the EPA's IRIS database, represents the EPA's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- Diesel Exhaust (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. DE is the combination of diesel particulate matter and DE organic gases.
- DE also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures to DE may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a nonprofit organization funded by the EPA, the FHWA, and the industry, has undertaken a major series of studies to research near-road MSAT hot spots, the health implications of the entire mix of mobile-source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roads is related to adverse health outcomes, particularly respiratory problems.[3] Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, these studies do not provide information that would be useful to alleviate the uncertainties listed above and allow for a more comprehensive evaluation of the health impacts specific to the proposed project.

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow reasonable prediction of relative emission changes between alternatives for larger projects, the amount of MSAT emissions from the project alternatives and MSAT concentrations or exposures created by each project alternative

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[3] South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

cannot be predicted with sufficient accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emission analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have significant adverse impacts on the human environment.

For each of the project alternatives, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. The proposed project is a freeway improvement project that increases the capacity of SR-91. This type of project improves roadway operations by reducing traffic congestion and improving traffic operations. As shown in Tables 5.3-1 and 5.3-2, the proposed project would reduce the delay and either improve the LOS or maintain the LOS at the same level as without the project.

For all of the future alternatives (No Build and Build), emissions are projected to be lower than present levels in the design year as a result of the EPA's national control programs, which are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

In summary, under the project Build Alternatives, it is expected that there would be similar or lower MSAT emissions in the study area relative to the No Build Alternative due to the LOS improvement. On a regional basis, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases will cause regionwide MSAT levels to be substantially lower than they are today.

5.7 Climate Change/Greenhouse Gases

According to a recent white paper by the Association of Environmental Professionals,[4] an individual project does not generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG.

The California Department of Transportation and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emissions reduction and climate change. Recognizing that 98 percent of California's

[4] Hendrix, Michael, and Cori Wilson. *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), p. 2.

GHG emissions are from the burning of fossil fuels and that 40 percent of all human-made GHG emissions are from transportation, the Deparment has created and is implementing the *Climate Action Program at Caltrans* (December 2006).

The Department recognizes the concern that CO emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions levels (including CO) at the project level is not currently possible. No federal, State, or regional regulatory agency has provided methodology or criteria for GHG emissions and climate change impact analysis. Therefore, the Department is unable to provide a scientific or regulatory-based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

The Department continues to be actively involved on the Governor's Climate Action Team as ARB works to implement AB 1493 and AB 32. As part of the *Climate Action Program at Caltrans* (December 2006), the Department is supporting efforts to reduce vehicle miles traveled (VMT) by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority. The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and in light and heavy-duty trucks. However, it is important to note that control of the fuel economy standards is held by the EPA and ARB. Lastly, the use of alternative fuels is also being considered; The Department is participating in funding for alternative fuel research at the University of California, Davis.

One of the main strategies to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources such as automobiles occur at stop-and-go speeds (0–25 mph) and speeds over 55 mph. Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions. The purpose of the proposed project is to alleviate existing and future traffic congestion along SR-91. Therefore, the proposed project would reduce the number of vehicle hours traveled (VHT) within the project area. The carbon dioxide emissions would be reduced due to the reduction in VHT and the improved traffic flow.

5.8 Conformity Analysis

Conformity determinations require the analysis of direct and indirect emissions associated with the proposed project and their comparison to the without project condition. The Lead Agency must perform a conformity determination to demonstrate the positive conformity of the federal action.

As stated previously, the proposed project is expected to improve traffic flow and reduce delay and congestion. No significant hot spots for CO, $PM_{2.5}$, or PM_{10} would occur as a result of the proposed project.

The project is in the 2004 RTP, which was found to be conforming by the FHWA/Federal Transit Administration (FTA) on June 7, 2004. The project is also in the 2006 RTIP, which was found to be conforming by the FHWA/FTA on October 2, 2006 (Project ID: ORA030601; Description: Add one mixed-flow lane eastbound between SR-91/SR-55 connector and east of Weir Canyon Road interchange; add one mixed-flow lane westbound between east of Weir Canyon Road interchange and Imperial Highway; modify westbound on ramps from Lakeview Avenue to improve merge). The proposed project is consistent with the scope of design concept of the RTIP. Therefore, the proposed project is in conformance with the SIP. The project will also comply with all SCAQMD requirements.

5.9 Cumulative Impacts Relating to Air Quality

Cumulative projects include local development as well as general growth within the Project area. However, as with most development, the greatest source of emissions is from vehicular traffic that can travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and, when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature.

Construction and operation of cumulative projects would further degrade the local air quality, as well as the air quality of the SCAB. Air quality would be temporarily degraded during construction activities that occur separately or simultaneously. However, the greatest cumulative impact on the quality of regional air would be the incremental addition of pollutants from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Note, that the proposed Project is a transportation improvement, and not a direct trip generator.

With respect to emissions that may contribute to exceeding State and federal standards, a CO and $PM_{2.5}$/PM_{10} screening analysis was performed. The results of this analysis illustrate that localized levels would not violate published air quality standards and therefore do not present a significant cumulative impact. In addition, due to the Project's relatively small scale, the contribution to the SCAB air emissions is not "cumulatively considerable."

6.0 STANDARD CONSTRUCTION PRACTICES

6.1 Construction Impacts

AQ1 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures using the following procedures, as specified in the SCAQMD Rules 403. All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferable in the late morning and after work is done for the day. All material transported on-site or off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust. These control techniques shall be indicated in Project specifications. Compliance with this measure shall be subject to periodic site inspections by the County. Visible dust beyond the property line emanating from the Project shall be prevented to the maximum extent feasible.

AQ2 Project grading plans shall show the duration of construction. O3 precursor missions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the County Engineer. Compliance with this measure shall be subject to periodic inspections of construction equipment vehicles by the County.

AQ3 All trucks that are to haul excavated or graded material on-site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ4 The contractor shall adhere to Caltrans Standard Specifications for Construction (Sections 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).

AQ5 Should the Project geologist determine that asbestos containing materials (ACMs) are present at the Project Study Area during final inspection prior to construction, the appropriate methods shall be implemented to remove ACMs.

6.2 Operational Impacts

There are no mitigation measures required, as the Project would not result in significant operational air quality impacts.

7.0 REFERENCES

1. California Air Resources Board Web site: http://www.arb.ca.gov.

2. Institute of Transportation Studies-University of California Davis, *Transportation Project-Level Carbon Monoxide Protocol*, December 1997.

3. South Coast Air Quality Management Agency, *2003 Air Quality Management Plan, South Coast Air Basin,* August 1, 2003.

4. South Coast Air Quality Management District. CEQA Air Quality Handbook. 1993.

5. State of California Department of Transportation, State Route 91 Widening Traffic Report, March 2008.

6. Western Regional Climatic Center 2008.

Appendix A
CO Protocol

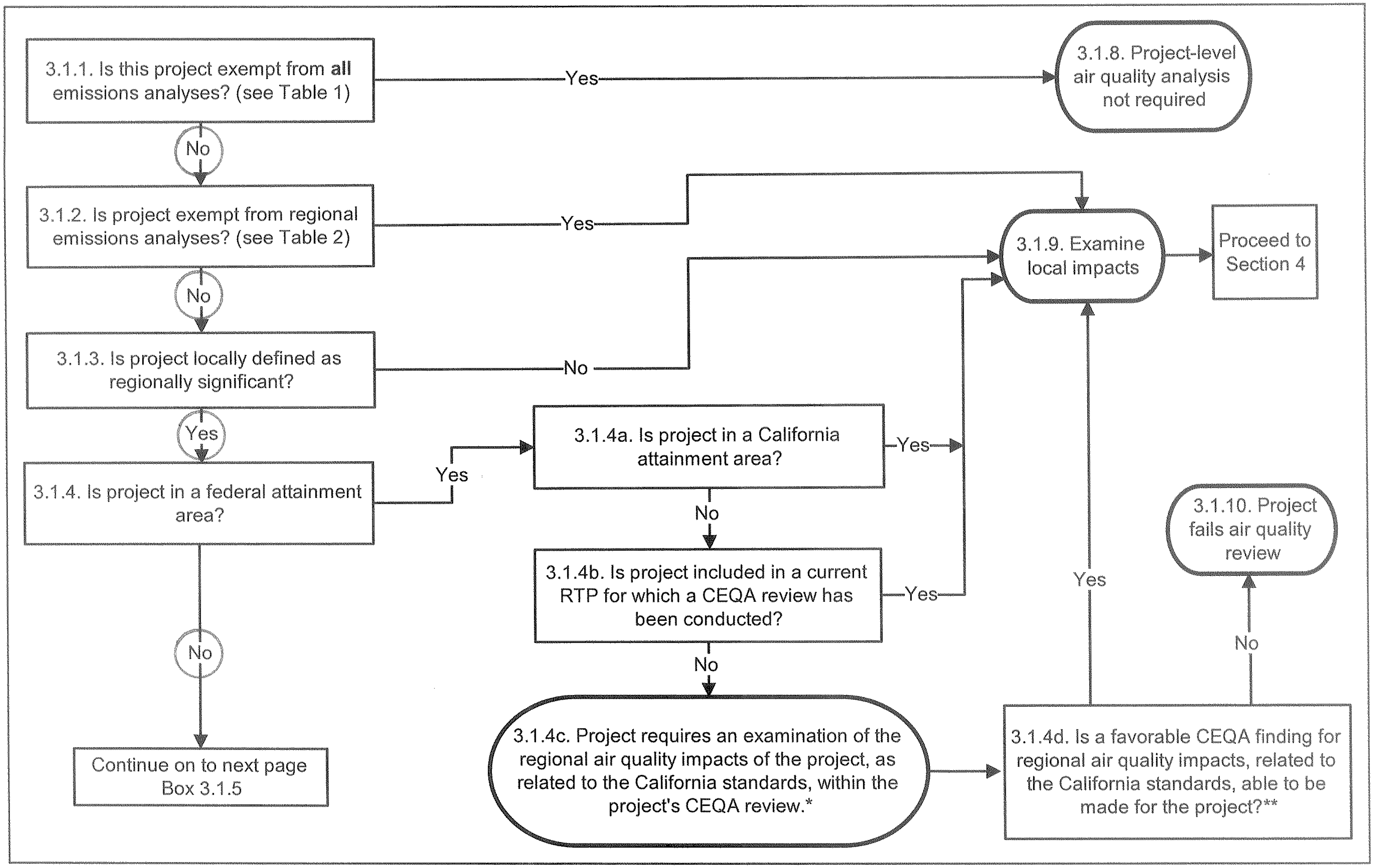

Figure 1. Requirements for New Projects

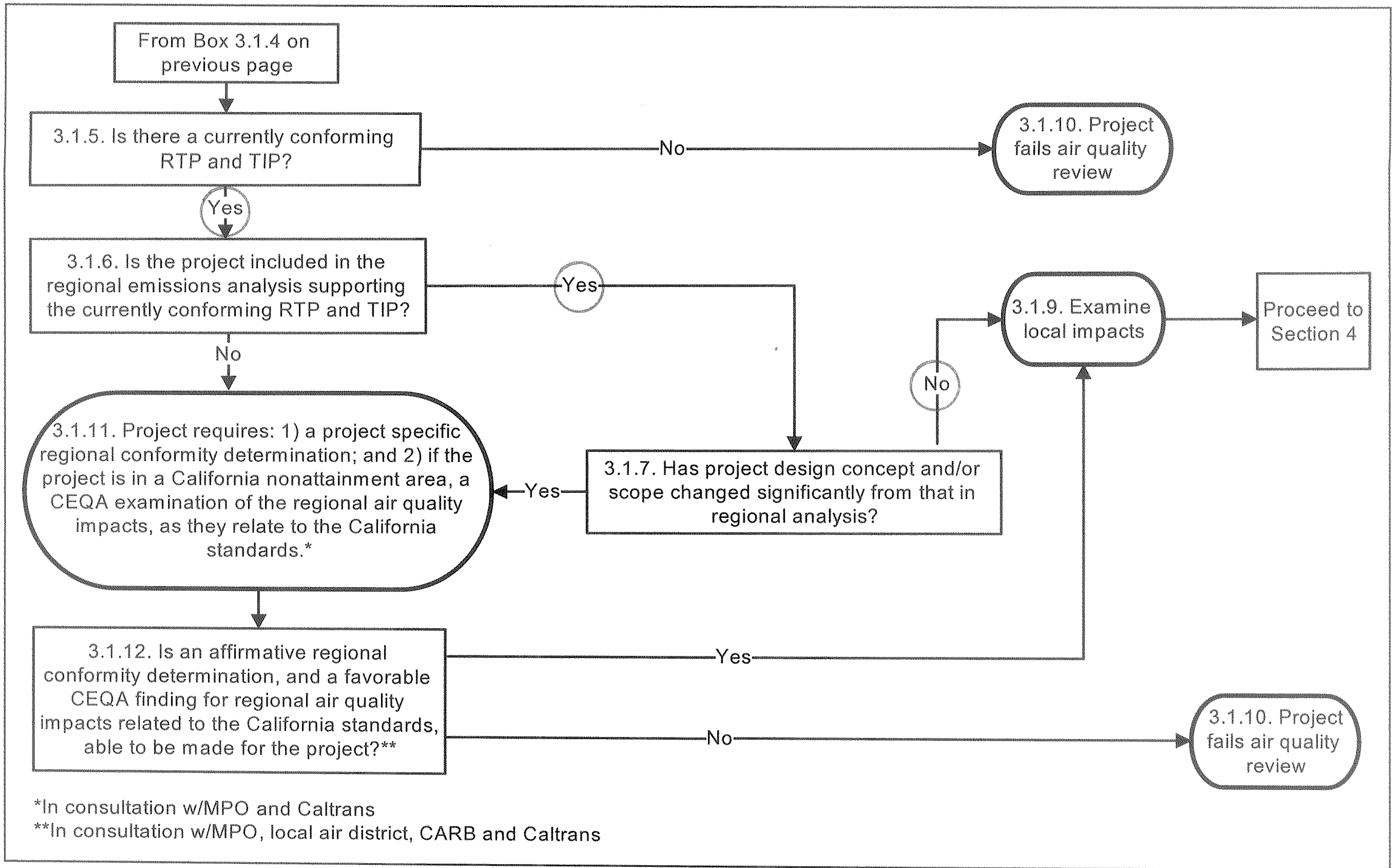

Figure 1 (cont.). Requirements for New Projects

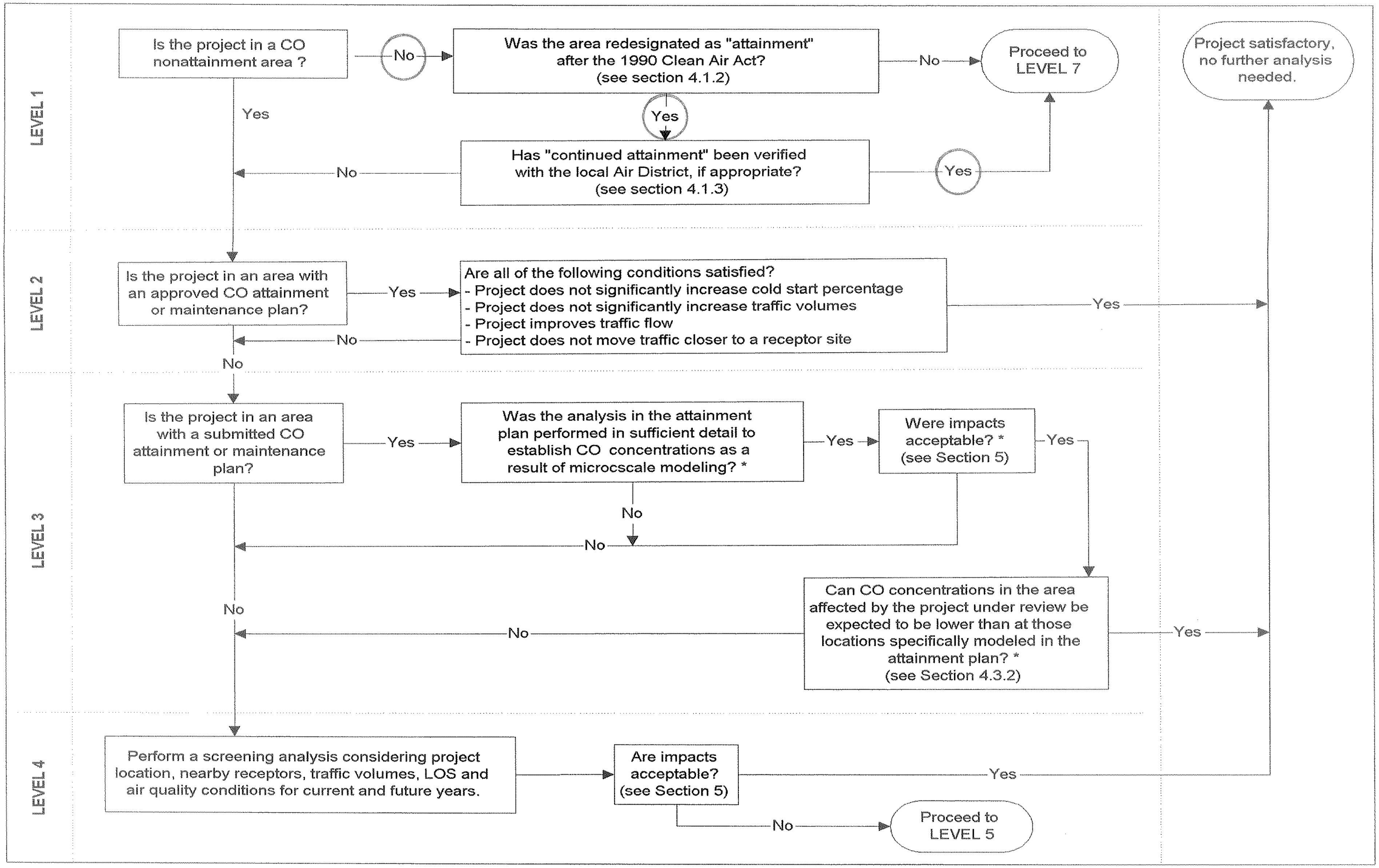

Figure 3. Local CO Analysis

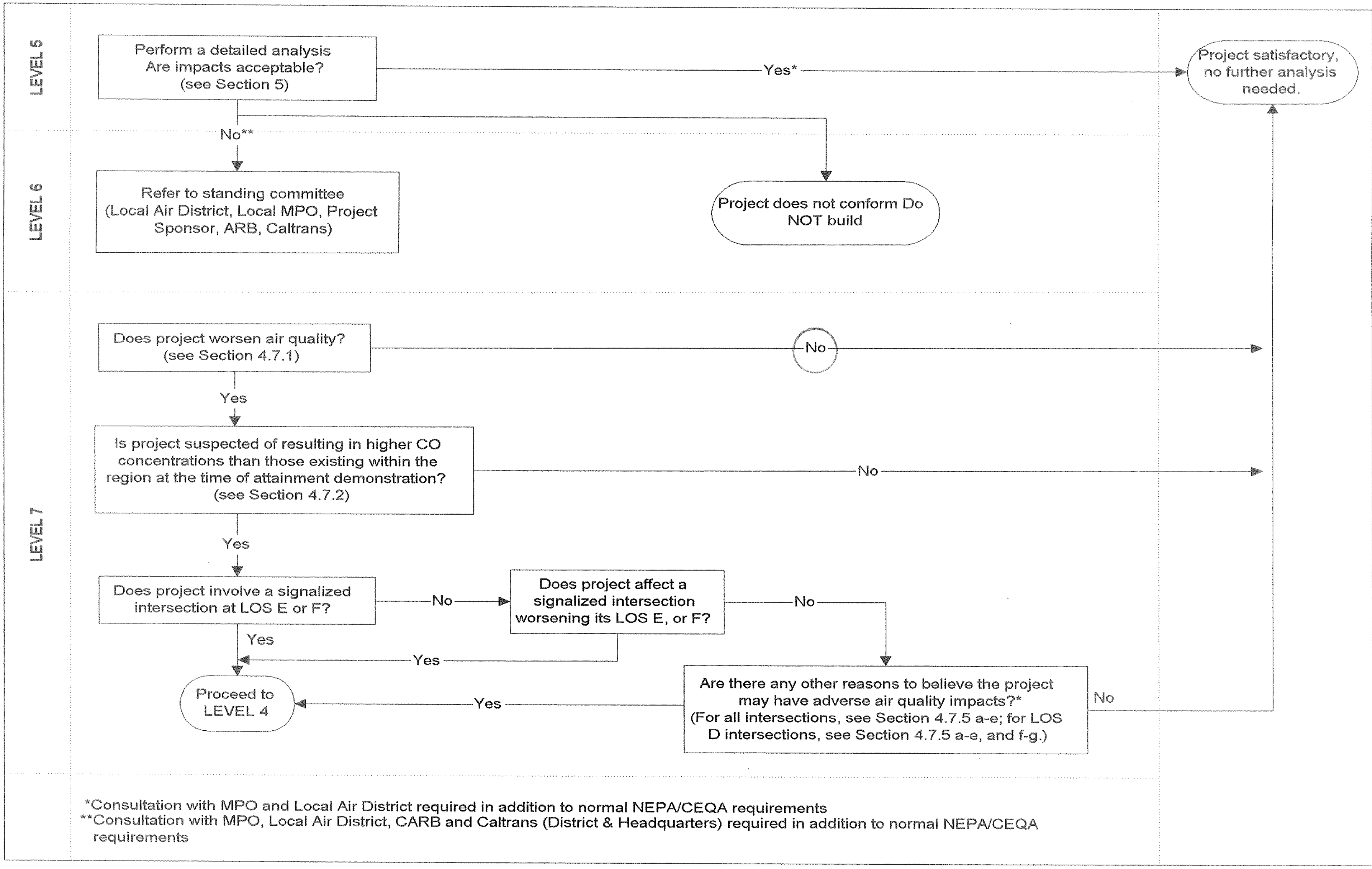

Figure 3 (cont.). Local CO Analysis