



## MEMORANDUM

**DATE:** August 4, 2016

**TO:** Bahar Heydari, Associate Environmental Planner  
Caltrans District 12

**FROM:** Michael Slavick, Senior Air Quality Specialist, LSA Associates, Inc.

**SUBJECT:** SR-241/SR-91 Express Lanes Connector Project – Errata for the Air Quality Report (July 2015)

This Errata documents changes to the approved Air Quality Report (AQR) based on comments from Caltrans Headquarters. These revisions do not change the findings of the approved AQR. Added text is shown in underline and removed text is shown in strikeout.

**Comment No. 6.** The requested change to the PM<sub>2.5</sub> attainment status is in Table 2.1 of the AQR (below).

**Comment No. 7.** The requested change to the NAAQS Ozone 8-hour standard is in Table 2.1 of the AQR (below).

**Comment No. 8.** The requested monitoring data for the last 5 years (ending in 2015) is added to Table 4.1 of the AQR (below).

**Comment No. 9.** The following text is added on page 38 of the AQR:

The discussion provided above indicates that the Proposed Project would not be considered a Project of Air Quality Concern, as defined by 40 CFR 93.123(b)(1). Therefore, PM<sub>2.5</sub> and PM<sub>10</sub> hot-spot evaluations are not required. It is unlikely that the Proposed Project would generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for PM<sub>2.5</sub> and PM<sub>10</sub>.

**Comment No. 10.** The following text is added on page 46 of the AQR:

Project improvements would have no meaningful impacts on traffic volumes or vehicle mix. The Proposed Project is considered a project with low potential for meaningful MSAT effects. The Build Alternative would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the No Build Alternative. Caltrans has determined that the Proposed Project would generate minimal air quality impacts for CAA criteria pollutants and has not been linked with any special MSAT concerns. Consequently, the Proposed Project is exempt from analysis for MSATs.

**Table 2.1 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

Pollutant	Averaging Time	State Standard <sup>8</sup>	Federal Standard <sup>8</sup>	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O <sub>3</sub> )	1 hour 8 hours	0.09 ppm 0.070 ppm	--- <sup>4</sup> 0.0705 ppm <sup>4</sup>  (4 <sup>th</sup> highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NO <sub>x</sub> ) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Extreme Nonattainment (8-hour)  State: Nonattainment (1-hour and 8-hour)
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm <sup>1</sup> 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment/ Maintenance  State: Attainment
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>2</sup>	24 hours Annual	50 µg/m <sup>3</sup> 20 µg/m <sup>3</sup>	150 µg/m <sup>3</sup> --- <sup>2</sup>  (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM <sub>10</sub> .	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Federal: Attainment/Maintenance  State: Nonattainment
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>2</sup>	24 hours Annual 24-hour (conformity process <sup>5</sup> ) Secondary Standard (annual; also for conformity process <sup>5</sup> )	--- 12 µg/m <sup>3</sup> --- ---	35 µg/m <sup>3</sup> 12.0 µg/m <sup>3</sup> 65 µg/m <sup>3</sup>  12 µg/m <sup>3</sup>  (98 <sup>th</sup> percentile over 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM <sub>2.5</sub> size range. Many toxic and other aerosol and solid compounds are part of PM <sub>2.5</sub> .	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO <sub>x</sub> , sulfur oxides (SO <sub>x</sub> ), ammonia, and ROG.	Federal: <u>Moderate</u> Nonattainment  State: Nonattainment
Nitrogen Dioxide (NO <sub>2</sub> )	1 hour  Annual	0.18 ppm  0.030 ppm	0.100 ppm <sup>6</sup> (98 <sup>th</sup> percentile over 3 years)  0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the “NO <sub>x</sub> ” group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment/Maintenance  State: Nonattainment

**Table 2.1 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

Pollutant	Averaging Time	State Standard <sup>8</sup>	Federal Standard <sup>8</sup>	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Sulfur Dioxide (SO <sub>2</sub> )	1 hour	0.25 ppm	0.075 ppm <sup>7</sup> (99 <sup>th</sup> percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment/Unclassified  State: Attainment/Unclassified
	3 hours 24 hours Annual Arithmetic Mean	--- 0.04 ppm ---	0.5 ppm <sup>9</sup> 0.14 ppm 0.03 ppm			
Lead (Pb) <sup>3</sup>	Monthly Calendar Quarter	1.5 µg/m <sup>3</sup> ---	--- 1.5 µg/m <sup>3</sup>	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Nonattainment (Los Angeles County only)  State: Nonattainment (Los Angeles County only)
	Rolling 3-month average	---	0.15 µg/m <sup>3</sup> <sup>10</sup>			
Sulfate	24 hours	25 µg/m <sup>3</sup>	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Federal: N/A  State: Attainment/Unclassified
Hydrogen Sulfide (H <sub>2</sub> S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Federal: N/A  State: Attainment/Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70 percent	---	Reduces visibility. Produces haze.  NOTE: Not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class 1" areas.	See particulate matter above.	Federal: N/A  State: Attainment/Unclassified
Vinyl Chloride <sup>3</sup>	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer.  Also considered a toxic air contaminant.	Industrial processes	Federal: N/A  State: Attainment/Unclassified

Source 1: California Air Resources Board (ARB). Website: [www.arb.ca.gov/research/aaqs/aaqs2.pdf](http://www.arb.ca.gov/research/aaqs/aaqs2.pdf) (May 29, 2015).Source 2: ARB, Area Designations. Website: <http://www.arb.ca.gov/desig/desig.htm> (accessed May 29, 2015).

**Table 2.1 State and Federal Criteria Air Pollutant Standards, Effects, and Sources**

Pollutant	Averaging Time	State Standard <sup>8</sup>	Federal Standard <sup>8</sup>	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
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<sup>1</sup> Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm.

<sup>2</sup> Annual PM<sub>10</sub> NAAQS revoked October 2006; was 50 µg/m<sup>3</sup>. 24-hour PM<sub>2.5</sub> NAAQS tightened October 2006; was 65 µg/m<sup>3</sup>. Annual PM<sub>2.5</sub> NAAQS tightened from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> December 2012, and secondary standard set at 15 µg/m<sup>3</sup>.

<sup>3</sup> The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM<sub>10</sub> and, in larger proportion, PM<sub>2.5</sub>. Both the ARB and the EPA have identified lead and various organic compounds that are precursors to ozone and PM<sub>2.5</sub> as toxic air contaminants. There are no exposure criteria for substantial health effects due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

<sup>4</sup> ~~Prior to June 2005, the 1-hour NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still in use in some areas where 8-hour ozone emission budgets have not been developed, such as the San Francisco Bay Area. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm.~~

<sup>5</sup> The 65 µg/m<sup>3</sup> PM<sub>2.5</sub> (24-hr) NAAQS was not revoked when the 35 µg/m<sup>3</sup> NAAQS was promulgated in 2006. The 15 µg/m<sup>3</sup> annual PM<sub>2.5</sub> standard was not revoked when the 12 µg/m<sup>3</sup> standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked for conformity purposes only when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

<sup>6</sup> Final 1-hour NO<sub>2</sub> NAAQS published in the Federal Register on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot-spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

<sup>7</sup> The EPA finalized a 1-hour SO<sub>2</sub> standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of September 2012.

<sup>8</sup> State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.

<sup>9</sup> Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis addresses both primary and secondary NAAQS.

<sup>10</sup> Lead NAAQS are not considered in Transportation Conformity analysis.

µg/m<sup>3</sup> = micrograms per cubic meter  
 ARB = California Air Resources Board  
 EPA = United States Environmental Protection Agency  
 N/A = Not Available

NAAQS = national ambient air quality standards  
 ppb = parts per billion  
 ppm = parts per million  
 SIP = State Implementation Plan

**Table 4.1 Local Air Quality Levels**

Pollutant		Standard	2011	2012	2013	2014	2015
<i>Carbon Monoxide</i> <sup>1</sup>							
Max 1-hour concentration (ppm)			<u>2.7</u>	3.0	3.4	3.1	<u>3.1</u>
No. of days exceeded:	State	> 20 ppm/1-hour	<u>0</u>	0	0	0	<u>0</u>
	Federal	> 35 ppm/1-hour	<u>0</u>	0	0	0	<u>0</u>
Max 8-hour concentration (ppm)			<u>2.1</u>	2.3	2.6	2.1	<u>2.2</u>
No. of days exceeded:	State	≥9 ppm/8-hour	<u>0</u>	0	0	0	<u>0</u>
	Federal	≥9 ppm/8-hour	<u>0</u>	0	0	0	<u>0</u>
<i>Ozone</i> <sup>1</sup>							
Max 1-hour concentration (ppm)			<u>0.088</u>	0.079	0.084	0.111	<u>0.100</u>
No. of days exceeded:	State	> 0.09 ppm/1-hour	<u>0</u>	0	0	2	<u>1</u>
Max 8-hour concentration (ppm)			<u>0.072</u>	0.067	0.070	0.081	<u>0.080</u>
No. of days exceeded:	State	> 0.07 ppm/8-hour	<u>1</u>	0	0	6	<u>1</u>
	Federal	> 0.075 ppm/8-hour	<u>0</u>	0	0	4	<u>1</u>
<i>Particulates (PM<sub>10</sub>)</i> <sup>1</sup>							
Max 24-hour concentration (µg/m <sup>3</sup> )			<u>53.0</u>	48.0	77.0	85.0	<u>59.0</u>
No. of days exceeded:	State	> 50 µg/m <sup>3</sup>	<u>0</u>	0	1	2	<u>2</u>
	Federal	> 150 µg/m <sup>3</sup>	<u>0</u>	0	0	0	<u>0</u>
Annual average concentration (µg/m <sup>3</sup> )			<u>24.7</u>	22.3	25.2	26.7	<u>25.3</u>
Exceeds Standard?	State	> 20 µg/m <sup>3</sup>	<u>Yes</u>	Yes	Yes	Yes	<u>Yes</u>
<i>Particulates (PM<sub>2.5</sub>)</i> <sup>1</sup>							
Max 24-hour concentration (µg/m <sup>3</sup> )			<u>39.1</u>	50.1	37.8	45.0	<u>45.8</u>
No. of days exceeded:	Federal <sup>2</sup>	> 35 µg/m <sup>3</sup>	<u>2</u>	4	1	4	<u>3</u>
Annual average concentration (µg/m <sup>3</sup> )			<u>15.9</u>	10.8	10.1	16.2	<u>14.8</u>
Exceeds Standard?	State	> 12 µg/m <sup>3</sup>	<u>Yes</u>	No	No	Yes	<u>Yes</u>
	Federal	> 12 µg/m <sup>3</sup>	<u>Yes</u>	No	No	Yes	<u>Yes</u>
<i>Nitrogen Dioxide</i> <sup>1</sup>							
Max 1-hour concentration (ppm): State		> 0.18 ppm/1-hour	<u>0.0738</u>	0.0673	0.0815	0.0758	<u>0.0591</u>
No. of days exceeded			<u>0</u>	0	0	0	<u>0</u>
Annual average concentration: Federal		0.053 ppm annual average	<u>0.016</u>	0.0154	N/A 0.017	N/A 0.015	<u>0.014</u>
Exceed Federal standard?			<u>No</u>	No	N/A No	N/A No	<u>No</u>
<i>Sulfur Dioxide</i> <sup>2</sup>							
Max 24-hour concentration (ppm)			<u>0.002</u>	0.001	0.001	0.001	<u>0.001</u>
No. of days exceeded:	State	0.04 ppm	<u>0</u>	0	0	0	<u>0</u>
	Federal	0.14 ppm	<u>0</u>	0	0	0	<u>0</u>
Annual average concentration: Federal		0.030 ppm annual average	<u>0.0001</u>	N/A 0.0007	N/A 0.002	N/A 0.003	<u>0.001</u>
Exceed Federal standard?			<u>No</u>	N/A No	N/A No	N/A No	<u>No</u>

Sources: United States Environmental Protection Agency and California Air Resources Board (2011<sup>2</sup> to 2015<sup>4</sup>). Websites: [http://www.epa.gov/airdata/ad\\_maps.html](http://www.epa.gov/airdata/ad_maps.html) and <http://www.arb.ca.gov/adam/> (accessed June 1, 2016<sup>5</sup>).

Note: All monitored concentration values (including decimal numbers) are presented as depicted in the EPA and ARB documents.

<sup>1</sup> Air monitoring data obtained from the Anaheim Station.

<sup>2</sup> Air monitoring data obtained from the Costa Mesa Station.

µg/m<sup>3</sup> = micrograms per cubic meter

ARB = California Air Resources Board

EPA = United States Environmental Protection Agency

max = maximum

N/A = Not Available

PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

ppm = parts per million

**Comment Nos. 11 and 12.** A discussion of long-term air quality impacts and an emission analysis for all criteria pollutants using EMFAC2014 is added to page 39 of the AQR:

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. The Build Alternative would reduce congestion along roadway and freeway segments within the vicinity of the SR-241 and SR-91 interchange once the project became operational. Emissions of ROG, NO<sub>x</sub>, CO, CO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for the 2040 No Build Alternative and the 2040 Build Alternative were evaluated using the ARB's EMFAC2014 emission rate model and systemwide morning and afternoon peak-hour speed and annual traffic data. Project-level emissions were obtained by comparing future No Build Alternative emissions to future Build Alternative emissions. The results of these calculations are summarized in Table 5.6.

**Table 5.6 Systemwide Project-Related Motor Vehicle Emissions**

<b>Scenario</b>	<b>Daily VMT</b>	<b>Pounds per Day</b>				
		<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<u>2040 No Build Alternative</u>	<u>11,737,270</u>	<u>377.26</u>	<u>1,519.16</u>	<u>10,125.55</u>	<u>22.97</u>	<u>21.47</u>
<u>2040 Build Alternative</u>	<u>11,936,350</u>	<u>383.66</u>	<u>1,544.92</u>	<u>10,297.29</u>	<u>23.36</u>	<u>21.83</u>
<b><u>Differences from No Build Alternative</u></b>						
<b>Net Emissions</b>	<b>-</b>	<b>+ 6.40</b>	<b>+25.77</b>	<b>+171.74</b>	<b>+ 0.39</b>	<b>+ 0.36</b>

Sources: EMFAC2014 emission rate model; *Traffic Analysis Report* (July 2015).

The project area for both the SR-241 and SR-91 segments was assumed to be 0.78 mile each.

Assumed 45 mph for No Build and 47 mph for Build Alternative system wide segments.

CO = carbon monoxide

mph = miles per hour

NO<sub>x</sub> = nitrogen oxide

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size

PM<sub>10</sub> = particulate matter less than 10 microns in size

ROG = reactive organic gases

SR-241 = State Route 241

SR-91 = State Route 91

VMT = vehicle miles traveled

As shown in Table 5.6, the increase in Build Alternative emissions in 2040 would be minimal when compared to the No Build Alternative. Project-related emissions would not delay the attainment or cause the area to be in nonattainment for the Federal PM standards.

**Comment No. 62.** The paragraph on page 50 of the AQR after Figure 4 is revised as follows:

The purpose of the Proposed Project is to implement the build out of the ETC, attain compatibility with the SR-91 mainline and SR-91 Express Lanes configuration, improve operations and traffic flow between the SR-91 Express Lanes and the SR-241 general purpose connectors, help achieve the Regional Mobility Plan goals of reducing emissions from transportation sources, and enhance the efficiency of the tolled system, thereby reducing congestion on the non-tolled system on the SR-91. SCAG included an SCS as part of its 2012 RTP. Under SB 375, the primary goal of the SCS is to provide a vision for future growth that will decrease per capita GHG emissions from automobiles and

light trucks. By providing improved freeway connections, the Build Alternative would help achieve the improved access and mobility goals of SCAG's 2012 RTP/SCS.

**Comment No. 63.** VMT tables are replaced with CO<sub>2</sub> tables and text is added on page 50 of the AQR as shown below:

The Traffic Analysis Report (July 2015) calculated peak hour VMT and VHT for all of the vehicle trips within the project area in 2013 (existing condition), 2017 and 2040. PM peak period VMT was converted to total VMT per day using the industry-standard factor of 10. The traffic data, in conjunction with the EMFAC2014 emission model, was used to calculate the regional CO<sub>2</sub> emissions for the 2013, 2017, and 2040 conditions. The Traffic Analysis Report (June 2015), determined that the Proposed Project would increase the average vehicle speeds in the Project Area by 2-4 miles per hour (mph) and would decrease the average delay per vehicle by up to 20 percent. This improvement in vehicle speed would help offset the 3,400 to 7,800 increase in daily trips shown in Tables 5.2 and 5.3. Table 5.7 presents the project-related regional GHG emissions. Both the future build and future no build show decreases in CO<sub>2</sub> emissions over existing levels. This is due to both reduced congestion associated with the SR-91 CIP improvements with and without the Build Alternative as well as improvements in vehicle technology. The future Build Alternative CO<sub>2</sub> emissions are slightly higher than the future No Build Alternative emissions and would not substantially alter the long-term GHG emissions in the region. There are also limitations with EMFAC and with assessing what a given CO<sub>2</sub> emissions increase means for climate change. Caltrans is firmly committed to implementing strategies to help reduce the potential effects of the Proposed Project. These strategies are outlined in Section 5.7.2.

### **5.7.1 Project Construction Emissions**

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate.

**Table 5.7 Regional GHG Emissions**

<u>Scenario</u>	<u>VMT (miles/day)</u>	<u>VHT (hours)</u>	<u>Speed (mph)</u>	<u>CO2 Emission Factor (g/mile)</u>	<u>CO2 Emissions (MT/year)</u>	<u>Percent increase from No Build Alternative</u>
Existing Condition (2013)	<u>8,831,450</u>	<u>289,825</u>	<u>30</u>	<u>448</u>	<u>1,445,287</u>	
2017 No Build Alternative	<u>10,140,010</u>	<u>262,780</u>	<u>39</u>	<u>362</u>	<u>1,341,245</u>	
2017 Build Alternative	<u>10,369,670</u>	<u>276,080</u>	<u>38</u>	<u>362</u>	<u>1,371,623</u>	<u>2.3</u>
2040 No Build Alternative	<u>11,737,270</u>	<u>260,630</u>	<u>45</u>	<u>270</u>	<u>1,157,986</u>	
2040 Build Alternative	<u>11,936,350</u>	<u>254,770</u>	<u>47</u>	<u>270</u>	<u>1,177,627</u>	<u>1.7</u>

Note: The project area for both the SR-241 and SR-91 segments was assumed to be 0.78 mile each.

CO<sub>2</sub> = carbon dioxide

GHG = greenhouse gas

g/mile = grams per mile

mph = miles per hour

MT/year = metric tons per year

SR-241 = State Route 241

SR-91 = State Route 91

VHT = vehicle hours traveled

VMT = vehicle miles traveled

The combustion of fossil-based fuels creates GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Using the same Roadway Construction Model for the criteria pollutants in Section 5.1 above, the maximum amount of construction-related GHG emissions would generate approximately 1,778 metric tons during the total construction period.