South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

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Ronald Kosinski
Caltrans District 7, Division of Environmental Planning
100 South Main Street, MS 16A
Los Angeles, CA 90012

Review of the Draft Environmental Impact Report/Statement (Draft EIR/EIS) for the Proposed I-710 Corridor Project

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to comment on the Draft EIR/EIS for the Proposed I-710 Corridor Project (proposed Project). The proposed Project would modernize and increase capacity of the I-710 between Ocean Boulevard in Long Beach and the SR-60, a distance of approximately 18 miles. This is a key freight corridor connecting the ports to railyards and warehouses, and is important for the economic vitality of our region. At the same time, truck traffic on the corridor is a significant source of air pollution impacting the health of local communities and the region as a whole. As is described below, the I-710 project can and should be designed to meet the long-term mobility, safety and air quality needs of this region. A key means to achieve these ends would be to include as an element of the project a freight corridor that would separate trucks from other traffic, and would be dedicated to zero-emission vehicles. We commend the lead agency for making improvement of air quality and public health an objective of the project, and for including a dedicated zero emission freight corridor as an option for consideration in the EIR/EIS.

Our comments on the Draft EIR/EIS are set forth in the attachment. Our comments seek a Draft EIR/EIS which fully describes the project's air quality impacts and feasible mitigation measures, and which supports effective action by the lead agency to meet the project objectives to improve air quality and public health. The following is a summary of key comments.

Need for Zero Emission Freight Corridor. The region's air quality has improved with reductions in the total number of days that the South Coast Air Basin (Basin) experiences ozone and $PM_{2.5}$ particulate levels exceeding state and federal ambient air quality standards. Despite this progress, however, the region still has the most polluted air in the country, with substantial health impacts, including thousands of premature deaths per year.[1] Mobile sources are the major contributor to the ozone and PM2.5 levels in this region. Heavy-duty diesel trucks are the largest source of nitrogen oxides (NOx)

[1] Draft 2012 Air Quality Management Plan, July 2012

emissions—which react in atmosphere to form ozone and particulates—and are the second largest source of directly emitted PM2.5. Diesel-powered equipment such as trucks traveling the I-710 corridor also contribute to significant local cancer risks. The District's Multiple Air Toxics Exposure Study (Mates III) completed in September 2008 concluded that the largest contributor to cancer risk from air pollution is diesel particulate matter emissions, and that the area along the I-710 corridor is significantly impacted with some of the highest risks from air pollution in the region.[2]

Looking forward, emissions from new trucks are lower than from older model years, but even with broad deployment of relatively new trucks, the region will need substantial additional emission reductions to attain ambient air quality standards. AQMD modeling shows that, to attain federal ambient standards for ozone, the region must reduce NOx emissions by approximately two thirds by 2023, and three fourths by 2032. These needed reductions are particularly challenging because they are beyond the benefits of adopted rules and programs, and because they already assume broad deployment of new trucks meeting the latest emission standards. The challenge is made greater because it is projected that port cargo volume will almost triple by 2035 and, as noted in Table 1.2-1 of the Draft EIR/EIS, from 2008 to 2035, truck volumes along the I-710 will increase up to 75 percent (depending on the segment).

To accommodate growth and to achieve the emission reductions needed to comply with federal law, the region will need to transition to broad use of zero emission technologies, particularly for trucks. A variety of zero emission technologies using on-road vehicles and fixed guideways are technically possible, and the Draft EIR/EIS includes zero emission trucks in project alternatives. Several types of zero emission trucks are beginning to be deployed or are on the horizon and expected to be feasible within the timeframe of the I-710 project. Ensuring deployment of such technologies will require collaborative efforts to establish requirements or incentives for their use—particularly on key transport corridors, and to create needed infrastructure such as for charging and fueling of vehicles powered by electricity, fuel cells or hybrid technologies with zero emission capability (e.g. natural gas/electric hybrids). The I-710, as a key truck corridor connecting to the region and nation, can and should be part of the solution. Indeed, the I-710 would be the initial segment of a sustainable regional freight transport system as described in the 2012 Update to the Regional Transportation Plan adopted by the Southern California Association of Governments. In short, deploying zero emission trucks on the I-710 will allow the corridor to accommodate economic growth, address local health risks, contribute to regional air quality attainment, and serve other policies such as energy security and climate.

Specificity of Zero-Emission Freight Corridor Component. In order to successfully implement a zero-emission freight corridor component to the proposed project, it is important that the lead agency provide added specificity regarding the schedule and process for development, deployment, selection, and implementation of the zero-emission truck technology in the Final EIR/EIS. The AQMD staff recommends that the following elements be incorporated in the Final EIR/EIS. Details of these elements are included in Attachment A.

[2] Final Report, Multiple Air Toxic Exposure Study in the South Coast Air Basin, September, 2008

1. Establish a schedule for key actions to develop and deploy zero-emission technologies.
2. Determine zero-emission truck technology or technologies and determine any needed infrastructure before construction begins.
3. Develop requirements or incentives to ensure zero-emission freight corridor will be utilized.
4. Establish an I-710 steering committee to provide guidance on the development and implementation of the zero-emission freight corridor.

Final EIR/EIS Certification and Adoption Process. It is the AQMD staff's understanding that the selection of the preferred alternative and approval and certification of the Final EIR/EIS will be done at the staff level within the lead agency. Due to the major significance of this project, the AQMD staff strongly urges the lead agency to hold a public hearing at which the Final EIR/EIS would be presented and considered for approval and certification.

Additional Comments. Attachment A contains additional comments which seek an EIR/EIS that fully describes the project's air quality impacts and feasible mitigation measures. The attachment includes comments on the air quality analysis, mitigation measures, and significance determinations. Attachment B includes additional information regarding zero emission technologies.

In closing, we commend the lead agency for including a zero-emission component in project alternatives and for the commitment to air quality and public health as a project objective. Pursuant to Public Resources Code Section 21092.5, please provide the AQMD staff with written responses to all comments contained herein prior to adoption of the Final EIR/EIS. Further, AQMD staff is available to work with the lead agency to address these issues and any other questions that may arise. Please contact me, at (909) 396-3105, if you have any questions regarding the enclosed comments.

Sincerely,

Susan Nakamura

Susan Nakamura
Planning Manager

Attachments

ATTACHMENT A

<u>Zero Emission Freight Corridor Component</u>

The AQMD staff supports inclusion of a zero-emission freight corridor component as part of the proposed project. The AQMD staff believes that a zero-emission freight corridor component can be implemented with or without adding additional general flow lanes to the I-710. A zero-emission freight corridor is needed to meet air quality standards and reduce localized health impacts along the I-710. Mobile sources are a major contributor to ozone and PM2.5 levels in the region. Heavy-duty diesel trucks are the largest source category in the Basin for NOx emissions and the second largest for directly emitted PM2.5.

Zero-Emission Freight Corridor is Needed to Help Attain Air Quality Standards

A zero-emission freight corridor is needed to help attain ambient air quality standards. As shown in Table 1, a zero emission freight corridor will reduce NOx, PM10, and PM2.5 exhaust emissions on the I-710. Compared to the no-build Alternative 1, a zero emission freight corridor (Alternative 6B) will *reduce* NOx emissions by 2,000 pounds per day in 2035 while a freight corridor without zero-emissions (Alternative 6A) will *increase* NOx emissions by +2,000 pounds per day. Similarly, compared to the no-build Alterative 1, a zero emission freight corridor (Alternative 6B) will *reduce* PM2.5 emissions by -37 pounds per day in 2035 while a freight corridor without zero-emissions (Alternative 6A) will *increase* PM2.5 emissions by +210 pounds per day. The development of the I-710 freight corridor offers a unique opportunity to deploy zero-emission technologies on a major freight transportation corridor in time to help meet the federal ambient air quality standards for ozone.

Table 1
Comparison of Alternative 6A and 6B
Relative to 2035 Alternative 1 for NOx, PM10 and PM2.5 Exhaust

Pollutant	2035 Alternative 1 (No Build) Baseline Emissions (Pounds per day)	Alternative 6A (No Zero Ems) (Pounds per day)	Alternative 6B (With Zero Ems) (Pounds per day)
NOx (I710)	5,111	+2000	-2000
PM10 Exhaust (I710)	569	+290	-35
PM2.5 Exhaust (I710)	391	+210	-37

Source: I710 Corridor Project Draft EIR/EIS. Table 3.13-23.

Zero-Emission Freight Corridor Will Reduce Diesel Particulate Matter

A zero-emission freight corridor will reduce diesel particulate matter and cancer health risks. As shown in Table 2, compared to the no-build Alternative 1, the zero-emission freight corridor (Alternative 6B) *decreases* DPM emissions by 71 lbs/day while a freight corridor without the zero-emissions (Alternative 6A) *increases* DPM emission by +160 lb/day (Table 5.4b of the Air Quality and Health Risk Assessments (AQ/HRA) Technical Study for the I-710 Corridor Environmental Impact Report/Environmental Impact Statement).

Table 2
Comparison of Alternative 6A and 6B
Relative to 2035 Alternative 1 for NOx, PM10 and PM2.5 Exhaust

Pollutant	**Alternative 6A (No Zero Ems) (Pounds per day)**	**Alternative 6B (With Zero Ems) (Pounds per day)**
Diesel Particulate Matter (Comparison to No Build)	+160	-71

Automated Vehicle Movement System

The AQMD staff recommends that the Lead Agency separate the decision regarding whether to implement a zero-emission freight corridor component from the decision regarding whether to implement an automated vehicle movement system. The zero-emission freight corridor component 6B also includes an automated vehicle movement system. Draft EIR/EIS states that, "…the assumption that all trucks using the freight corridor will have an automated control system that will steer, brake, and accelerate the trucks under computer control while traveling on the freight corridor. This will safely allow for trucks to travel in "platoons" (e.g., groups of 6–8 trucks) and increase the capacity of the freight corridor." Zero-emission freight technologies are being developed and demonstrated and there is substantial evidence that they can be made commercially available by 2016, or sooner, and certainly within the timeframe of completion of the I-710 project. Automated vehicle movement systems show promise, however, by the time of I-710 project operation, they may not have progressed as far in development and demonstration as zero-emission technologies. The AQMD staff is concerned that linking zero-emission technologies with automated vehicle movement systems may unintentionally result in a slower deployment of zero-emission technologies. As a result, the AQMD staff recommends that implementation of a zero-emission truck component not be tied to an automated vehicle movement system.

Specificity of Zero-Emission Freight Corridor Component

The AQMD staff believes that, in order to assure timely implementation of a zero emission freight corridor, it is essential that the process for development, deployment, selection, and implementation of the zero-emission truck technology be described with much greater specificity in the Final EIR/EIS. The AQMD staff recommends that the following four elements be incorporated in the Final EIR/EIS:

1. **Establish schedule for key actions to develop and deploy zero-emission technologies.**

   The Final EIR/EIS must have a schedule that provides the timeframes in which key milestones will be achieved for the development and deployment of zero emission trucks (or other technologies). At a minimum, the schedule should include the timeframe for (1) vehicle technology development and demonstration; (2) determination of needed infrastructure, such as wayside power; (3) vehicle pre-production deployment and assessment; and (4) vehicle early production deployments. It is important that if different zero-emission technologies are being considered that the different technologies are evaluated in parallel. The lead agency should establish and/or collaborate with other agencies or private entities to provide funding for these steps.

2. **Determine zero-emission truck technology or technologies and determine any needed infrastructure before construction begins.**

The zero emission technologies should be determined as early as practicable, and no later than sufficiently before construction begins to design and construct any needed infrastructure in time for initial project operation. Selection of the zero-emission technology or technologies is critical to the project's success, i.e. to send a clear market signal to developers and manufacturers of the zero emission technologies to ensure selected technology is commercially available. In addition, any needed infrastructure, e.g. charging, fueling, wayside power such as overhead catenary, should be determined by 2015. Note: 2012 RTP adopted by SCAG includes a schedule for developing demonstrating and deploying zero emission truck technologies and states by 2015-2016 a decision on wayside power and technology direction including strategy, funding, and timeframe would be incorporated into the 2016 RTP update and SIP revisions.

3. **Develop requirements or incentives to ensure zero-emission freight corridor will be utilized.**

As noted in the CALSTART report referenced in Attachment B to this letter, one of the key elements to the success of the zero-emission freight corridor will be to establish mechanisms to ensure it will be utilized. The lead agency can and should establish process for identifying, developing, and implementing mechanisms needed to accomplish this. It is important that a schedule with milestones also be developed, to ensure that the needed incentives, policies, and regulations are in place on opening day. The SCAQMD will work with the lead agency and other involved agencies to help develop these mechanisms.

4. **Establish an I-710 Steering Committee to Provide Guidance on the Development and Implementation of the Zero-Emission Freight Corridor.**

The lead agency should establish a stakeholder working group that can provide guidance to ensure that key milestones are met. This working group can also help to secure necessary funding and establish mechanisms to ensure the zero emission freight corridor will be utilized. The Final EIR/EIS should include the partners the lead agency will work with to select, demonstrate, design, and fund the zero-emission freight corridor.

Zero Emission Extension (ZEE) Design Option

The incremental cancer risk for the zero-emission freight corridor component in Alternatives 6B and 6C reduce the cancer risk on the majority of the I-710 corridor, but at the northern portion of the I-710 between the northern terminus of the freight corridor and the SR-60 freeway (see Figures 4.47 through 4.48 of the Draft EIR/EIS) there remains a significant increase in health risk where trucks exit the freight corridor and continue in a diesel-powered mode. However, extending the zero-emission freight component through this segment of I-710, sufficiently decreases the incremental cancer risk (see Figures 23 and 24 of Addendum 1 – Air Quality and Health Risk Technical Study for Zero Emission Extension Design Option). Table 2b of the Addendum 1 – Air

Quality and Health Risk Technical Study for Zero Emission Extension Design Option shows that there are further benefits in criteria mass exhaust emissions reductions by including the ZEE design option 1 in Alternatives 6B and 6C. For instance, Table 2b shows that there is a nine and seven percent increase in NOx benefits by adding the ZEE design option in Alternatives 6B, and 6C, respectively.

Air Quality Analysis

Interim Milestone Years Needed in Air Quality Analysis

The analysis years for the Draft EIR/EIS includes only two analysis years: 2008 and 2035. It is not clear that 2035 captures the peak daily emissions. By 2035, the project will be at full build and vehicle and truck fleets will meet the most stringent emission standards currently required. Although the proposed project may not be at peak capacity in earlier years, it is possible that due to higher emission rates of vehicles and trucks in earlier years, that peak daily emissions may occur before 2035. The overall emission rates of vehicles and trucks are higher in earlier years as more string emission standards have not been fully implemented and fleets have not fully turned over. The Final EIR/EIS must provide additional information to demonstrate that 2035 is the peak year, and if it is found that an earlier year is the peak year, that year should be presented in the air quality analysis.

Inconsistencies Between Project Emissions Used in Tables 3.13-22 and 3.13-23

On pages 3.13-36 through 3.13-39 of the Draft EIR/EIS, there are inconsistencies in the project emissions used to develop the incremental emissions presented in Tables 3.13-22 and Table 3.13-23. In Table 3.13-22 the incremental criteria pollutant emissions for all alternatives as compared to the 2008 baseline levels are shown. Table 3.13-23 contains similar information except the incremental emissions are based on a comparison with Alternative 1 (no build).

Regardless of the baseline that is used, 2008 or Alternative 1, the “project emissions” for each alternative should be the same in both analyses. Project emissions can be back calculated from Tables 3.13-22 and 3.13-23 by adding the baseline and the increment for each alternative. For example, the project emissions relative to a 2008 baseline for PM10 exhaust for the AOI for Alternative 5A is 33,592 lbs/day (36,992 lbs/day + (-3,400 lbs/day)) (See Table 3 below). When compared to the Alternative 1 baseline, the project emissions are 23,023 lbs/day (49,400 lbs/day – 0 lb/day). The project emissions differ by 10,569 lbs/day (33,592 lbs/day-23,023 lbs/day). This is just one of many inconsistencies found between Table 3.13-22 and 3.13.23. The Final EIR/EIS should correct these inconsistencies and verify that the project emissions used in both tables are the same. In addition, the AQMD staff recommends that the Final EIR/EIS provides the project emissions so these values do not need to be “back calculated” and so it will be more apparent the project emissions that are used to calculate the increment for the different baseline scenarios.

Table 3[a]
Example of Inconsistencies Between Project Emissions from Tables 3.13-22 and 3.13-23 for PM10 AOI Emissions

	2008	ALT 1	ALT 5A	ALT 6A	ALT 6B	ALT 6C
Project Emissions Compared to 2008 Baseline (Table 3.13-22)						
2008 Baseline	36,992	36,992	36,992	36,992	36,992	36,992
Incremental Emissions PM 10 Exhaust AOI		-3,400	-3,400	-3,300	-3,600	-3,600
Project Emissions (2008 +Incremental Emissions)		33,592	33,592	33,692	33,392	33,392
Project Emissions Compared to Alternative 1 Baseline (Table 3.13-23)						
Alternative 1 Baseline		10,569	10,569	10,569	10,569	10,569
Incremental Emissions PM 10 Exhaust AOI			0	0	-240	-170
Project Emissions (Alt 1 + Incremental Emissions)			10,569	10,569	10,329	10,397
Discrepancy			**23,023**	**23,123**	**23,063**	**22,995**

[a] Incremental and baseline emissions taken directly from Tables 3.13-22 and Table 3.13-23

AOI and SCAB Emissions

In Tables 3.13-22 and 3.13-23 of the Draft EIR/EIS, the criteria pollutant emissions are presented for each of the build alternatives relative to either the CEQA or NEPA baseline. Emissions are reported for the South Coast Air Basin (SCAB), the Area of Interest (AOI) encompassing approximately a 1 mile area around the I-710 project, and the I-710 freeway itself. Surprisingly, the AOI and SCAB emissions show no noticeable difference amongst alternatives. One would expect that as more vehicles make their way onto the freeway that the arterial congestion would be relieved and emissions would decrease with more efficient traffic flow because emission rates are higher for slower moving vehicles (See Figure 1 below). However, neither the Draft EIR/EIS nor the traffic modeling results included in the air quality calculation files given to AQMD staff show this. The two factors that should contribute to an expected difference in AOI and SCAB emissions are traffic volume and traffic speed.

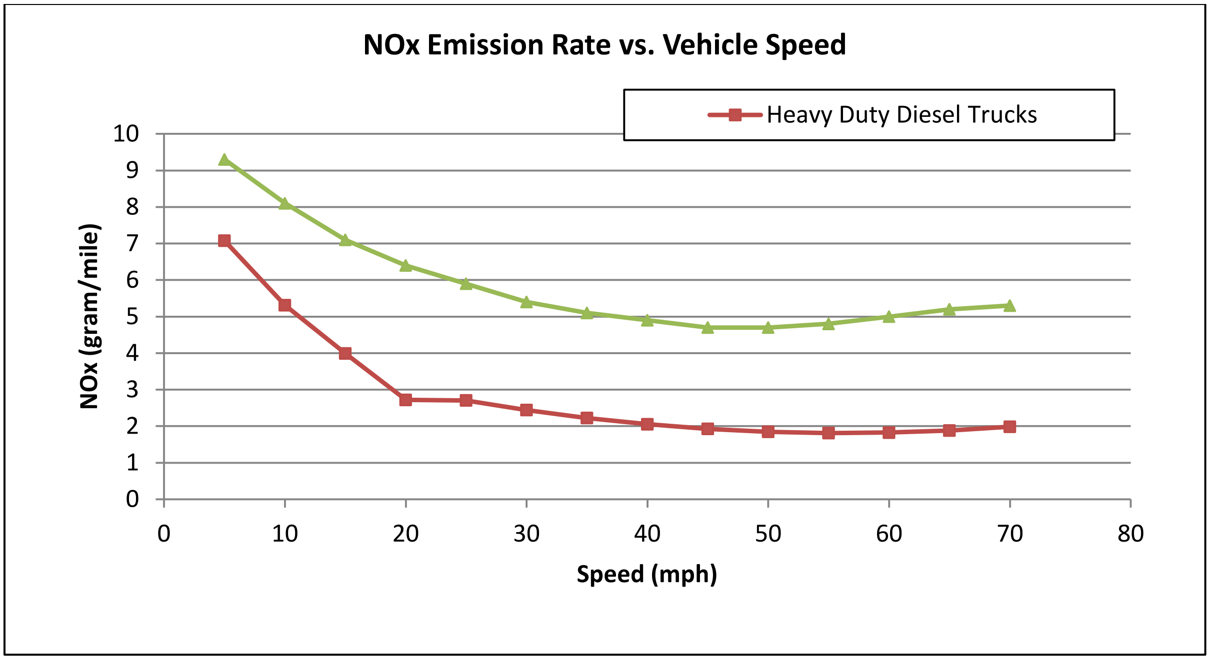

Figure 1: NOx Emission Rate vs. Vehicle Speed

Emission rates obtained from EMFAC 2011 for year 2035. The emission rate from cars has been multiplied by 100 to illustrate the difference in emission rates.

Traffic Volume. In Table 4 below AQMD staff has compiled the number of trips from the air quality calculation files along one of the primary parallel routes to the I-710, Alameda Street. As can be seen in the table, there are cumulatively almost 100,000 extra total trips and 40,000 extra heavy duty truck trips along Alameda Street in Alternative 1 compared to Alternative 6B. Presumably these same kinds of increases in arterial traffic volumes are captured throughout the travel demand model analysis. Because arterial traffic moves slower than freeway traffic, shifting traffic volume to arterials should increase overall emissions in the AOI. However, the total emissions in the AOI do not vary between any of the alternatives for either NOx or CO (see Table 5 below)

Table 4
Daily Trips and Average Vehicle Speed for Alternatives

	2008	**Alt. 1**	**Alt. 5A**	**Alt. 6B**
Total daily trips summed along entire length of Alameda St.	1,773,530	1,960,036	1,900,831	1,867,099
Total daily ***HHDT*** trips summed along entire length of Alameda St.	97,806	206,364	198,842	168,202
Average AM period link speed (mph) along entire length of Alameda St.	21.0	20.7	20.7	21.2

Table 5
Copy of Table 3.13-22 Showing No Change in
Emissions Between Alternatives for NOx and CO for AOI

Table 3.13-22 Comparison of Incremental Criteria Pollutant Emissions for All Alternatives compared to 2008, for all Study Areas[1,2]

Pollutant	Study Area	2008 Baseline Emissions	Comparison with 2008 Baseline: 2035 Alt.1 vs. 2008 (lbs/day)	2035 Alt 5A vs. 2008 (lbs/day)	2035 Alt 6A vs. 2008 (lbs/day)	2035 Alt 6B vs. 2008 (lbs/day)	2035 Alt 6C vs. 2008 (lbs/day)	SCAQMD CEQA Mass Emission Thresholds[2] (lbs/day increase)
NO_x	SCAB	103,4982	-870,000	-870,000	-870,000	-880,000	-880,000	55
	AOI	238,709	-200,000	-200,000	-200,000	-200,000	-200,000	
	I-710	18,050	-13,000	-13,000	-11,000	-15,000	-14,000	
	I-710 Post	24,212	-18,000	-17,000	-16,000	-20,000	-20,000	
CO	SCAB	2,860,036	-2,000,000	-2,000,000	-2,000,000	-2,000,000	-2,000,000	550
	AOI	688,363	-510,000	-510,000	-510,000	-510,000	-510,000	
	I-710	26,234	-19,000	-17,000	-16,000	-18,000	-18,000	
	I-710 Post	26,939	-19,000	-17,000	-16,000	-18,000	-18,000	
PM_{10} (Total)	SCAB	154,589	23,000	23,000	24,000	23,000	23,000	
	AOI	36,992	1,800	1,900	2,100	1,800	1,800	
	I-710	1,893	230	580	1,300	1,000	920	
	I-710 Post	2,345	120	[illegible]	[illegible]	[illegible]	[illegible]	
PM_{10} (Exhaust)	SCAB	58,876	-9,500	[illegible]	[illegible]	[illegible]	[illegible]	
	AOI	36,992	-3,400	[illegible]	[illegible]	[illegible]	[illegible]	
	I-710	868	-300	[illegible]	[illegible]	[illegible]	[illegible]	
	I-710 Post	1,105	-470	[illegible]	[illegible]	[illegible]	[illegible]	
PM_{10} (Entrained)	SCAB	95,713	33,000	33,000	33,000	33,000	33,000	
	AOI	23,024	5,200	5,300	5,400	5,500	5,400	
	I-710	1,025	530	770	1,300	1,400	1,200	
	I-710 Post	1,240	590	800	1,300	1,300	1,200	
$PM_{2.5}$ (Total)	SCAB	67,381	-2,300	-2,300	-2,200	-2,500	-2,400	55
	AOI	16,115	-2,000	-1,900	-1,900	-2,100	-2,100	
	I-710	942	-170	-40	230	0	0	
	I-710 Post	1,201	-320	-190	70	-190	-200	

No emissions change between alternatives for AOI

Arterial Traffic Speed. A further surprising result from the traffic modeling of arterial roads is that traffic speeds along Alameda Street are virtually identical between all of the alternatives and the 2008 baseline, with Alternative 6B showing an average speed increase of only about 0.5 miles per hour. It seems implausible that between 2008 and Alternative 6B there could be almost 100,000 extra total trips with a 170% increase of heavy duty truck trips on Alameda Street with a predicted increase in average vehicle speed.

AQMD staff requests that a more robust description of the travel demand modeling be included in the Final EIR/EIS. This description should include an explanation of how traffic on the freeways and arterials interact with each other, and how the speeds and traffic volumes vary with each of the different alternatives. There should also be a more thorough description about the emission estimates for the AOI and the SCAB and why there are very few differences seen between various alternatives and the CEQA baseline.

Vehicle Speed Averaging

In the Appendices to the Air Quality Health Risk Assessment Appendix, Tables C.3-1A through C.3-6D roadway characteristics such as speed, length, and volume are listed that are used to estimate vehicle emissions. These roadway characteristics are determined for each of four time periods including morning (6 am to 9 am), midday (9am to 3 pm), evening (3pm to 7pm), and night time (7pm to 6am). Average vehicle speeds are presented for each roadway link. AQMD staff requests clarification about how these average vehicle speeds were calculated. It is unclear if the averages are time weighted whereby average speeds are determined for each hour, than averaged across all hours in the time period. For emission calculation purposes a more accurate method would use averages that are vehicle weighted that equally weight the speed of every vehicle during the time period.

Inconsistencies of PM Re-Entrained Road Dust Emissions

The Draft EIR/EIS presents conflicting information for potential emissions from re-entrained road dust. Re-entrained road dust from paved roads is caused by the re-suspension of loose material on the road surface. For an individual project, re-entrained road dust is traditionally calculated using emission factors presented in EPA's AP-42 guidance. However, in Tables 3.13-14 and -15 of the Draft EIR/EIS, re-entrained road dust emissions are shown to be the same across all alternatives (See Table 6 below). As stated on page 3.13-18, the reason that the emissions are considered equal among each alternative is that emissions are grown according to growth in centerline miles of roadway, not growth in VMT. However in Tables 3.13-22 and -23 of the Draft EIR/EIS, and in the dispersion modeling calculation files submitted to AQMD staff, the re-entrained road dust emissions appear to be calculated using the AP-42 method, and vary across each alternative (See Table 7 below). The lead agency should consult with AQMD, CARB and EPA regarding the appropriate method for calculating road dust and address inconsistencies in the Final EIR/EIS.

Table 6

Copy of Table 3.13-14 Showing No Change in PM2.5 Re-entrained Road Dust

Table 3.13-14 I-710 Freeway $PM_{2.5}$ Emissions (lbs/day)

Source	2008	2035				
		Alt 1	Alt 5A	Alt 6A	Alt 6B	Alt 6C
Exhaust	690	391	465	600	**354**	**387**
Re-entrained	252	252	252	252	252	252
Total	942	642	717	852	**605**	**639**
% Change from 2035 Alt 1	-	-	12%	33%	**-6%**	**-1%**

Source: Environ, 2012.
Note: Numbers in **bold** represent emission levels at or below the Alternative 1 (No Build) lev
Alt = Alternative
$PM_{2.5}$ = particulate matter less than 2.
lbs/day = pounds per day

PM2.5 same for all Alternatives.

Table 7

Copy of Table 3.13-22 Showing Variation in PM2.5 Re-entrained Road Dust

Table 3.13-22 Comparison of Incremental Criteria Pollutant Emissions for All Alternatives compared to 2008, for all Study Areas[1,2]

Pollutant	Study Area	2008 Baseline Emissions	Comparison with 2008 Baseline					SCAQMD CEQA Mass Emission Thresholds[2] (lbs/day increase)
			2035 Alt.1 vs. 2008 (lbs/day)	2035 Alt 5A vs. 2008 (lbs/day)	2035 Alt 6A vs. 2008 (lbs/day)	2035 Alt 6B vs. 2008 (lbs/day)	2035 Alt 6C vs. 2008 (lbs/day)	
$PM_{2.5}$ (Exhaust)	*SCAB*	*43,888*	*-10,000*	*-10,000*	*-10,000*	*-11,000*	*-11,000*	
	AOI	*10,464*	*-3,200*	*-3,200*	*-3,200*	*-3,400*	*-3,400*	
	I-710	*690*	*-300*	*-230*	*-90*	*-340*	*-300*	
	I-710 Post	*895*	*-460*	*-390*	*-260*	*-520*	*-490*	
$PM_{2.5}$ (Entrained)	*SCAB*	*23,493*	*8,100*	*8,100*	*8,100*	*8,100*	*8,100*	
	AOI	*5,651*	*1,300*	*1,300*	*1,300*	*1,300*	*1,300*	
	I-710	*252*	*130*	*190*	*320*	*330*	*300*	
	I-710 Post	*308*	*150*	*200*	*320*	*330*	*290*	
ROG	SCAB	23,4677	-170,000	-160,000	-170,000	[illegible]	[illegible]	
	AOI	58,803	-43,000	-43,000	-44,000	[illegible]	[illegible]	
	I-710	2,204	-1,500	-1,500	-1,300	[illegible]	[illegible]	
	I-710 Post	2,482	-1,700	-1,700	-1,500	[illegible]	[illegible]	
SO_2	SCAB	3,867	1,300	1,300	1,300	[illegible]	[illegible]	150
	AOI	934	160	160	160	140	150	
	I-710	39	15	23	36	13	15	
	I-710 Post	41	17	24	37	12	14	

Source: *I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study*, February 2012.
1 Numbers rounded to two significant figures. Emission changes of 1 percent or smaller are presented as zero-emission changes.
2 The SCAQMD significance thresholds are presented for information only. Caltrans has not adopted these thresholds.

PM2.5 varies for Alternatives.

Localized PM Exhaust Impacts

The significance of PM impacts are caveated in the Draft EIR/EIS by concluding that the localized increases in PM concentrations are due solely to re-entrained road dust and that since road dust is conservatively calculated, that these potential PM impacts could be less than significant (page 3.13-55 of the Draft EIR/EIS). However, AQMD staff has looked through the electronic files provided by the lead agency and determined that exhaust emission on their own, without road dust, would also exceed AQMD thresholds (see Table 8 below) for many alternatives. Table 8 below shows PM10 and PM2.5 exhaust emissions for each alternative for option 1. Results for option 2 are similar. AQMD staff requests that the Final EIR/EIS include a table for each Alternative and Option with information below (including any updates after new modeling).

Table 8
Incremental Localized PM10 and PM2.5 Exhaust for Option 1 ($\mu g/m^3$)

		5A	6A	6B	6B ZEE	6C	6C ZEE	Significance Threshold
PM10 Exhaust	24-hour	**3.05**	**6.25**	2.35	0.58	2.17	0.58	2.5
	Annual	**1.90**	**3.57**	**1.55**	0.38	**1.42**	0.36	1.0
PM2.5 Exhaust	24-hour	0.90	**3.95**	1.15	0.15	1.00	-0.43	2.5

Bold values in shaded boxes are above AQMD significance thresholds.

PM2.5 Annual Impacts

Tables 3.13-25 through -28 show the incremental impacts of PM2.5 for the 24-hour averaging period, however they do not show the impacts for the annual averaging period. Because there are Ambient Air Quality Standards at the federal and state level for annual average PM2.5 concentrations, the Final EIR/EIS should also show this incremental impact in these tables. Further, this annual average incremental impact should be added to the background monitored data (i.e. the maximum concentration from the most recent three years of local monitored data) to determine if the project will cause or contribute to an air quality violation. This method for determining background for the CEQA analysis should also be used for any interim years that might be added to the EIR/EIS (e.g., construction years).

Operational Mitigation Measures

Air Quality Mitigation Measure AQ-1

The Draft EIR/EIS contains only one mitigation measure for operational impacts from the proposed Project. Mitigation Measure AQ-1 calls for Caltrans to make a funding contribution to the AQMD for the design and construction of four new air quality monitoring stations within the I-710 Corridor. Since information about new monitoring stations was not discussed prior to the release of the Draft EIR/EIS, the AQMD staff suggests that Caltrans staff schedule a meeting to discuss funding, monitoring protocol/plan, siting, pollutants, measured, duration and overall design of this mitigation measure.

Zero-Emission Freight Corridor is a Feasible Mitigation Measure

When compared to the future no-build Alternative 1, the cancer risk for build Alternatives 5A and 6A show significant levels of increased risk all along the I-710 corridor (see Figures 4.45 through 4.46). On page 4-40 of the Draft EIR/EIS, the lead agency concluded that "while the mobile source air toxics (MSAT) analysis showed that there would be an overall reduction of MSAT emissions in the South Coast Air Basin (SCAB) and the I-710 area of interest (AOI), the build alternatives would result in near-roadway incremental emissions concentrations in a few areas very near I-710. Therefore, the project's long-term impacts are potentially significant and unavoidable at these near-roadway locations." The Draft EIR/EIS provides *one* mitigation measure which is to provide monitoring. A zero-emission freight corridor is a feasible mitigation measure as discussed in either Alternative 6B or 6C. To mitigate significant cancer risk impacts under Alternatives 5A and 6A, the Final EIR/EIS should include a zero-emission freight corridor mitigation measure for Alternatives 5A and 6A.

CEQA Baseline

Establishing a proper baseline is fundamental to accurately assessing a project's impacts. The function of the baseline is to set conditions against which project impacts are compared to determine whether an environmental impact is significant. As such, the baseline should not be established in a way that understates project impacts. The baseline in this Draft EIR/EIS is the 2008 emissions levels. While conditions at the time the NOP is released, normally constitutes the baseline for analysis of project impacts, a future conditions baseline (similar to the baseline used here for NEPA purposes) is the more appropriate baseline to evaluate the impacts from this proposed project. This is because use of a current conditions baseline underestimates project impacts by taking credit for projected improvements to air quality that are unrelated to the proposed project. These improvements include the future air quality benefits from currently adopted and enforceable vehicle emission standards. Crediting the project with such benefits does not disclose the impacts *of the project*. Therefore, in order to ensure that the impacts of this project are accurately described, the AQMD staff believes the impacts of the proposed Project should be measured against future conditions without the proposed Project.

Significance Determination

While CEQA permits an agency to apply a qualitative threshold to determine significance, an agency may not apply a threshold of significance in a manner that precludes consideration of other substantial evidence demonstrating that there may be a significant effect on the environment. Evaluation of air quality impacts, unlike some other impact areas, easily lends itself to quantification. Not only does quantification make it easier for the public and decision-makers to understand the breadth and depth of the potential impact, but it also provides clarity on the extent of mitigation required to reduce project impacts. The South Coast Air Basin is recognized as having the worst air pollution in the nation. The AQMD has adopted thresholds of significance that were developed specifically with the intent to reduce emissions from sources that exacerbate the South Coast Air Basin's ability to achieve the federal and state ambient air quality standards, and to provide a clear benchmark as to when the impacts of the project will no longer be considered significant. For this reason, and consistent with CEQA, most public agencies with projects within our jurisdiction apply our quantitative thresholds to determine a project's impacts on air quality. As we have routinely cautioned, failure to do so has the potential to ignore impacts to air quality.

We recognize that the Draft EIR/EIS presents the AQMD's significance thresholds for regional operational criteria pollutant impacts (Table 3.13-22), localized operational criteria pollutant impacts (Tables 3.13-24 through 3.13-28), health risk impacts (Table 3.13-29), and regional construction criteria pollutant impacts (Table 3.24-4). We ask that Caltrans take the analysis a step further and make a determination of significance based on the AQMD's significance thresholds. As stated, applying the AQMD's significance thresholds would clearly identify whether the proposed Project would result in significant air quality impacts, identifies the magnitude of the impact, and also clearly identifies the effectiveness of mitigation. For this reason, the AQMD staff recommends that the Final EIR contain tables that clearly identify the significance threshold and indicate if the project exceeds the significance threshold. If the project exceeds the significance threshold, the impact would be deemed "significant." Attachment C contains the significance determination for Tables 3.13-22, Tables 3.13-24 through 3.13-28, and Table 3.24-4.

As identified in Table 9, by applying the AQMD's significance thresholds, all alternatives exceed regional criteria pollutant thresholds for PM10 and SO2 and localized criteria pollutant concentrations for PM10. All but Alternative 1 exceed the localized criteria pollutant threshold for PM2.5 and Alternative 6A exceeds thresholds for regional PM2.5 and localized annual NO2. This is in contrast to what is stated in the Draft EIR/EIS, which identifies that the project does not violate any air quality standard or contribute substantially to an existing or projected air quality violation. (Page 4-15) As discussed, this conclusion relies on inclusion of the project within the current Regional Transportation Plan (RTP) to state that the project will not cause any additional local exceedences for CO and particulates. While this conclusion fails to consider increased emissions from SO2 and NO2, it also fails to comply with the agreement made by Caltrans on October 29, 2009, in which the agency agreed to use the AQMD significance thresholds to analyze impacts on air quality and the I710 EIR/EIS Corridor Project Committee voted unanimously to use the AQMD significance thresholds. For the reasons identified here, we continue to believe that the use of our thresholds provides a more accurate analysis of project impacts.

Table 9
Summary of Significant Impacts for Alternatives Based on Information Reported in Draft EIR/EIS

	Alternative 1	**Alternative 5A**	**Alternative 6A**	**Alternative 6B**	**Alternative 6C**
Regional Criteria Pollutants – Operational					
NOx	No	No	No	No	No
CO	No	No	No	No	No
PM10	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
PM2.5	No	No	**Yes**[1]	No	No
ROG	No	No	No	No	No
SO2	**Yes**[2]	**Yes**[2]	**Yes**[2]	**Yes**[3]	**Yes**[2]

Table 9 *(Continued)*
Summary of Significant Impacts for Alternatives Based on Information Reported in Draft EIR/EIS

	Alternative 1	Alternative 5A	Alternative 6A	Alternative 6B	Alternative 6C
Localized Criteria Pollutants - Operational					
NO2 1 (Hr)	No	No	No	No	No
NO2 (Annual)	No	No	**Yes**	No	No
CO (1-Hr)	No	No	No	No	No
CO (8-Hr)	No	No	No	No	No
PM10 (24 Hr)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
PM10 (Annual)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
PM2.5 (24 Hr)	No	**Yes**	**Yes**	**Yes**	**Yes**
Health Risk Impacts					
Cancer Risk	No	No	**Yes**	No	No
Chronic HI	No	No	No	No	No
Acute HI	No	No	No	No	No
Regional Criteria Pollutants – Construction (All Segments)					
NOx	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
CO	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
PM10	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
PM2.5	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
ROG	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
SOx	**MISSING FROM ANALYSIS**				
Localized Criteria Pollutants - Construction					
NO2 1 (Hr)	**MISSING FROM ANALYSIS**				
NO2 (Annual)					
CO (1-Hr)					
CO (8-Hr)					
PM10 (24 Hr)					
PM10 (Annual)					
PM2.5 (24 Hr)					

[1] Significant for I710 only
[2] Significant for AOI and SCAB
[3] Significant for SCAB only
[4] Table 3.13-29 states that "Only 15 grid points show incremental increases above ten in a million. These grid points are not in residential areas and are generally located very near the freight corridor. The incremental cancer risk and incremental hazard indices decreased at all sensitive receptors in the modeling domain."

Greenhouse Gas Emissions

Page 4-84 of the Draft EIR/EIS states that "it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change." This explanation is contrary to the requirements of CEQA (§15126.2) that a lead agency must make a determination of significance. Without making this determination, it is unclear if the project would need to adopt all feasible mitigation to reduce the impact and to what extent mitigation is required. Further, it is unclear if the lead agency must adopt a statement of overriding consideration for this impact. In the Final EIR/EIS the lead agency must make this significance determination and include all feasible mitigation measures if found significant.

Non-Port Truck Emission Factors

Year 2035 on road emission factors used in the Draft EIR/EIS to estimate emissions are based on the EMFAC 2007 model with some post-processing. For non-port trucks, a control factor was developed to account for the 2008 ARB Truck and Bus Rule (Table C.2-1D). This control factor is used to adjust all of the emission factors derived from EMFAC 2007. In September, 2011 ARB released the updated EMFAC 2011 model. Included in this update are the 2008 Truck and Bus Rule and later updates to that rule and other adjustments. Table 10 shows how the control factors from Table C.2-1D would be modified using EMFAC 2011.

Table 10
Control factors for the 2035 Calendar Year for Non-Port Trucks

Vehicle Class	EMFAC 2007 (g/mi)	Target (g/mi)	Control Factor	EMFAC 2011 (g/mi)	Updated Control Factor
NOx					
HHD	3.44	1.6	0.47	**2.44**	**0.71**
MHD	1.51	0.8	0.53	**1.02**	**0.67**
PM10					
HHD	0.11	0.11	0.97	**0.07**	**0.61**
MHD	0.12	0.06	0.52	**0.04**	**0.34**

As can be seen in the table above, non-port HHD and MHD truck NOx emissions in the Draft EIR/EIS using the updated control factor would be approximately 51% and 26% higher, respectively using EMFAC 2011. PM10 emissions would be 37% and 35% lower for HHD and MHD trucks, respectively. AQMD staff requests that the lead agency revise its non-port truck emission estimates taking into account the more current values from EMFAC 2011.

Passenger Car Equivalents

Since large trucks take up more space on a roadway than automobiles, Passenger Car Equivalents (PCEs) are used to more accurately represent the effect of trucks on the utilization of roadway capacity, especially in relation to congestion. Differentiating PCEs for autos and trucks is important to properly represent the impacts of freeway congestion. If heavy heavy-duty trucks used the same PCE value as autos, the forecasts would underestimate the levels of traffic congestion, particularly for these freeway and arterial segments with high volumes of HHDTs. Congestion levels play a significant role in determining pollutant emissions as vehicle emission factors vary with speed, and congestion patterns can determine route choice and volume of traffic flow. The PCE values used for the I-710 traffic analysis (and hence the air quality analysis) are shown below as reported in the Final Technical Memorandum for the I-710 Corridor Project EIR/EIS Travel Demand Modeling Methodology report (February 26, 2010).

Table 11
Table 4 from the Draft EIR/EIS
Table 4. Systemwide Passenger Car Equivalents by Vehicle Class

Vehicle Class	Passenger-Car Equivalents
Autos and light trucks	1.0
Light Heavy-Duty Trucks (Nonport Trucks)	1.2
Medium Heavy-Duty Trucks (Nonport Trucks)	1.5
Heavy Heavy-Duty Trucks (Nonport Trucks)	2.0
Port of Long Beach/Los Angeles Trucks	2.0

Table 11 shows that Heavy Heavy-Duty Trucks (HHDT) are equivalent to two passenger cars. However these values appear to be lower than values used in other recent transportation analysis reports. For example, in Table 7-15 of the SCAG Regional Travel Demand Model and 2008 Model Validation report[3], the PCE for HHDT is no lower than 2.5, and can reach much higher values depending on grade and the percentage of trucks. In addition, in several recent EIR's for warehouse projects that will serve trucks that travel along the I-710 freeway, PCE's for HHDT are typically assigned a value of 3 and MHDTs are assigned a value of 2.[4] AQMD staff requests that the Final EIR include additional explanation for its choice of PCE values. If it is determined that higher values are more appropriate, the traffic analysis and air quality analysis may need revision. Lastly, Tables 6-1 through 6-5 of the Traffic Operations Analysis Report are stated to show PCE traffic counts in the text (page 6-8), however it appears that these traffic and truck counts are all unadjusted actual traffic counts. The Final EIR should clarify if these traffic counts are indeed adjusted to PCE counts.

Near Roadway Air Quality Impacts

This proposed project will widen the mainline of the I-710 freeway by adding general purpose lanes, in addition to adding a freight corridor for Alternative 6 A/B/C. By widening the freeway, this project will bring a significant source of emissions in closer proximity to nearby communities. Despite this fact, the Draft EIR/EIS does not address the widely cited recommendation to maintain a buffer zone of at least 500 feet between freeways and sensitive receptors such as homes and schools.[5]

Although two of the alternatives for this project include a zero emission component for trucks, the majority of traffic on the mainline freeway is assumed to include traditional internal combustion engine passenger vehicles. Ultrafine particles are a recognized pollutant[6] that are generated from internal combustion engines, and are suspected to have potentially significant health impacts on communities within 500 feet of a freeway,

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[3] http://scag.ca.gov/modeling/index.htm
[4] See for example Starcrest Distribution Center (city of Perris), VIP Moreno Valley (city of Moreno Valley), ProLogis Eucalyptus Industrial Park (city of Moreno Valley), Stratford Ranch Industrial (city of Perris)
[5] For example, see the Air Quality and Land Use Handbook from CARB (2005) (http://www.arb.ca.gov/ch/landuse.htm)
[6] See Chapter 9 of the Draft 2012 AQMP for a more complete discussion of ultrafine particles. (http://www.aqmd.gov/aqmp/2012aqmp/index.htm)

primarily due to their very high concentration in this environment. The Draft EIR/EIS concludes that the concentration of ultrafine particles in the near roadway environment will mimic that of PM2.5 (page 3.13-57). Monitoring studies do not appear to support this assumption. For example, in AQMD's recent monitoring study of pollutants near the I-710 freeway[7], PM2.5 concentrations at 50 feet from the freeway are no higher than about 30% higher than background concentrations, whereas ultrafine concentrations at the same distance are approximately 275% higher than background. Ultrafine particles appear to have substantially higher relative concentrations in the near roadway environment than other pollutants such as PM2.5. Further, in the absence of existing regulation on ultrafine particles, it is unclear how new engine technologies designed to meet tightening emissions standards will affect ultrafine particle emissions.

Recent research has revealed that pollutants (such as ultrafine particles) found in close proximity to freeways are associated with a variety of adverse health effects, independent of regional air quality impacts[8]. These can include reduced lung capacity and growth[9]; cardiopulmonary disease[10]; increased incidence of low birth weight, premature birth, and birth defects[11]; and exacerbation of asthma[12], especially among children[13]. Despite the potential for public health impacts to sensitive receptors within the 500-foot buffer of the project, the lead agency has not included mitigation measures other than providing funding for near roadway pollutant monitoring. As this 'mitigation measure' for monitoring does not do anything to lessen the significance of the impact, the lead agency should investigate other possible ways to reduce this public health exposure. This could include various measures to alleviate community exposures such as design considerations to maximize buffer zones wherever possible, installing enhanced filtration in ventilation systems for buildings, schools, and residences, purchasing and/or funding asthma programs such as asthma vans, etc.

Air Dispersion Modeling

Receptors Used to Determine Impacts

Dispersion modeling was used to determine potential pollutant concentrations after construction of the various project alternatives. The dispersion modeling represents the roadways with volume sources and overlays a receptor grid on top of these sources. Pollutant concentrations are calculated by the dispersion model at each receptor. In some instances, because a receptor grid was used, some of the receptors lay directly on the freeway and inside the volume sources. Because these receptors are located so close to

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[7] Ambient Concentrations Of Criteria And Air Toxic Pollutants In Close Proximity To A Freeway With Heavy-Duty Diesel Traffic, SCAQMD (2012) (http://www.aqmd.gov/tao/AQ-Reports/I710Fwy_Study.pdf)

[8] "Special Report 17. Traffic-related air pollution: A critical review of the literature on emissions, exposure, and health effects". Health Effects Institute, May 2009; 394 p.

[9] "Effect of exposure to traffic on lung development from 10 to 18 years of age: a cohort study". Gauderman WJ et al., Lancet, February 2007; 369 (9561): 571-7

[10] "Exposure to traffic and the onset of myocardial infarction". Peters A et al., The New England Journal of Medicine, 351(17):1721-1730

[11] "Ambient air pollution and risk of birth defects in Southern California". Ritz B, et al. 2002. Am J Epidemiology, 155:17-25

[12] "Traffic, susceptibility, and childhood asthma". McConnell R, et al. 2006. Environ Health Perspectives 114(5):766-72

[13] "Near-Roadway Pollution and Childhood Asthma: Implications for Developing "Win-Win" Compact Urban Development and Clean Vehicle Strategies". Perez et al., 2012 Environ. Health Perspect. doi:10.1289/ehp.1104785

the source of emissions (i.e., directly on top of the freeway), the predicted concentrations are too high. The receptors used to determine potential pollutant concentrations from all project alternatives, including the baseline scenario, should be revisited in the Final EIR/EIS. AQMD staff notes that while the maximum reported concentrations are from receptors that should be excluded from analysis, other receptors that are not on the freeway and should not be excluded still exceed AQMD significance thresholds. In a meeting between AQMD staff and the air quality consultant on August 22, we requested the GIS files that were used to determine source placement and elevations relative to the freeway and surrounding areas. To date, AQMD staff has not received these files.

Dispersion Modeling Parameters

Dispersion modeling was used to determine potential pollutant concentrations of the various project alternatives. The dispersion modeling represents the roadways with volume sources and overlays a receptor grid on top of these sources. Pollutant concentrations are calculated by the dispersion model at each receptor. In some instances, because a receptor grid was used, some of the receptors lay directly on the freeway and inside the volume sources. Because these receptors are located so close to the source of emissions (i.e., directly on top of the freeway), the predicted concentrations are too high. The receptors used to determine potential pollutant concentrations from all project alternatives, including the baseline scenario, should be revisited in the Final EIR/EIS. AQMD staff notes that while the maximum reported concentrations are from receptors that should be excluded from analysis, other receptors that are not on the freeway and should not be excluded still exceed AQMD significance thresholds. In a meeting between AQMD staff and the air quality consultant on August 22, we requested the GIS files that were used to determine source placement and elevations relative to the freeway and surrounding areas. To date, AQMD staff has not received these files. Without the ability to review the GIS files in conjunction with the dispersion modeling files, AQMD staff is unable to verify if the volume sources are appropriately treated in the model. AQMD staff requests that the lead agency facilitate further discussion between our staff, the project modeling team, and any other relevant parties or agencies to ensure that the dispersion modeling parameters are appropriate for this exercise.

Option 3 Described, But Does Not Appear in Modeling Files

The Draft EIR/EIS includes a description of Option 3 for Alternatives 6B that differs from Options 1 and 2 by removing ramp access to Washington Blvd. and providing direct access into the rail yards. AQMD staff was provided the electronic modeling files for all alternatives of the project, however Option 3 was not included. The lead agency should explain how the analysis of Option 3 was conducted and how the impacts may differ from other modeling analyses conducted for the project.

Modeling Off Freeway Mainline

The dispersion modeling analysis for this project appears to have only included constructed portions of the project, including the mainline freeway, the freight corridor (for Alt’s 6 A/B/C), and some freeway on- and off-ramps. Because this project has the potential to significantly alter traffic patterns in adjacent communities, especially diesel truck traffic patterns, the modeling analysis should be expanded off the mainline freeway. While there are net benefits from the project that are demonstrated for some pollutants and some alternatives, it is difficult to determine if these benefits may be negated by the increased flow of diesel truck traffic that this project facilitates. While modeling the entire roadway network presents substantial logistical challenges, AQMD staff believes that it is possible to include key roadway segments with an acceptable level of certainty in the dispersion modeling analysis. At a minimum, the roadways that should be added include those that are predicted to have substantial volumes of diesel truck traffic (e.g., any roadway in the study area with greater than 5,000 trucks/day), especially those that traverse through or adjacent to residential neighborhoods.

Construction

Localized Criteria Pollutant Analysis During Construction

The Final EIR/EIS should analyze localized criteria pollutant impacts for NO_2, CO, PM10, and PM2.5 during construction, and if impacts are found to be significant, should provide mitigation measures. A localized air quality analysis would quantify potential air quality impacts that would occur near the proposed project during construction. This analysis is important for the proposed Project because of the long duration of construction and the extent of demolition and construction activities. The construction period of the proposed project is "expected to take place over several years (eight to 15)" (Page 3.24-24 of the Draft EIR/EIS). In addition, according to the project schedule, "some of the construction phases are expected to take more than five years to complete" (Page 3.24-24 of the Draft EIR/EIS). The localized criteria pollutant analysis is also important due to the proximity of the proposed Project to residential neighborhoods, schools, and other sensitive populations.

Construction Overlap with Operations

In the Draft EIR/EIS (Chapters 3.13 and 3.24), the lead agency presents the air quality impacts from construction of the proposed Project. However, the construction air quality impacts are analyzed and presented separately, even though construction impacts would occur during operation of the I710. This method of separately evaluating the construction air quality impacts from operational air quality impacts does not capture the peak daily emissions which would occur during the overlapping construction and operation of the I-710 freeway. The Final EIR/EIS should reevaluate air quality impacts from construction and operations during the overlapping years, compare the impacts to the AQMD's operational significance thresholds to base the determination of significance.

Air Quality Impacts from Delays, Closures, and Detours During Construction

Based on a review of the construction emissions impact analysis (Appendix B), it appears the lead agency did not include the emission impacts from construction related delays, detours, or closures. During construction operations of the proposed Project there will be various sections of the existing mainline, bridges, arterials, as well as on- and off-ramps to the I710 that will be closed. Incremental increases in congestion will result from delays, closures, and detours during construction. Such effects will result in increased emissions from vehicles on the I710 mainline and adjacent arterials and intersections. The Final EIR/EIS must account for these emissions and include them in construction emissions.

SOx Emissions Missing from Construction Air Quality Analysis

Table 3.24-4 - *Criteria Pollutant Mass Emissions for Construction* of the Draft EIR/EIS does not list regional emissions for SOx. SOx emissions for construction should be evaluated and reported in the Final EIR/EIS, along with the AQMD construction significance SOx threshold of 150 lbs/day.

Additional Construction Mitigation Measures

Table 3.24-4 of the Draft EIR/EIS shows that construction emissions exceed the AQMD CEQA Regional Significance Thresholds for NOx, CO, PM10, PM2.5, and ROG, when all mainline construction segments are combined. In addition, to the air quality construction mitigation measures in the Draft EIR/EIS, the following construction mitigation measures are feasible and should be included in the Final EIR/EIS. The lead agency has a responsibility under CEQA to mitigate the impacts from construction of the proposed Project, and both on-road trucks and construction equipment contribute to those impacts. It is important to note that the lead agency need not only rely on existing regulations (e.g., CARB on-road and off-road construction equipment fleet rules) to mitigate emissions from on-road trucks or construction equipment. In mitigating impacts under CEQA, Caltrans' can go beyond existing regulations and require additional controls.

On-Road Trucks Used During Construction

The Final EIR/EIS should contain mitigation for on-road heavy-duty diesel trucks used during construction, consistent with Metro's Green Construction Policy and the Ports of Los Angeles' LAHD Sustainable Construction Guidelines. Both Metro and the Port of Los Angeles are part of the I-710 Funding Partnership. Their guidelines call for on-road trucks used in construction to meet EPA's 2007 on-road emission standards beginning in either 2012 or 2014, for Metro's Green Construction Policy and the Ports of Los Angeles' LAHD Sustainable Construction Guidelines, respectively. Because the construction will begin in 2020, 2010 trucks will be widely available and should be used for the proposed Project mitigation. The AQMD staff recommends that the lead agency go beyond the guidelines laid out by its funding partners and adopt mitigation measures for on-road trucks used during construction that operate on engines with the lowest certified NOx and PM emissions levels, and at a minimum meet the 2010 EPA on-road emission standards.

Off-Road Equipment Used During Construction

Similarly to on-road trucks used during construction, the Final EIR/EIS should contain mitigation for off-road construction equipment used during construction. As with the lack of mitigation for on-road trucks, this fail to adequately reduce the impacts of exhaust emissions from these sources, and it is again inconsistent with the guidelines and policies for Caltrans' I-710 funding partners. Both Metro's Green Construction Policy and the Ports of Los Angeles' LAHD Sustainable Construction Guidelines call for construction equipment to meet EPA's non-road Tier 4 on-road emission standards beginning in 2015. Construction equipment meeting Tier 4 non-road emission standards became available beginning 2011, so ensuring that this equipment be available during the construction phase of the Proposed Project is technically feasible, and warranted due to magnitude of peak day construction emissions. To address this lack of mitigation and consistency, the lead agency should add a mitigation measure in the Final EIR/EIS which requires all construction equipment to meet EPA's Tier 4 non-road emission standards.

Construction Equipment Idling Restriction

Mitigation Measure CON-23 specifies that "The construction contractor will establish Environmentally Sensitive Areas (ESAs) for sensitive air receptors within which construction activities involving extended idling of diesel equipment will be prohibited to the extent feasible." This mitigation measure is insufficient to adequately reduce idling emissions from off-road construction equipment and on-road trucks used in construction. The lead agency should amend the measure by limiting idling from these sources to be to a maximum of 5 minutes when not in use. This is consistent with CARB's Heavy-duty Vehicle Idling Emission Reduction Program and Off-road In-Use Off-Road Diesel Vehicle Regulation. It is also consistent with Metro's Green Construction Policy.

PM Transportation Conformity

A qualitative PM10/PM2.5 Transportation Conformity analysis (dated January 2012) is contained in Appendix I of the Air Quality and Health Risk Assessment Technical Study. The report concludes that the project meets transportation conformity hot-spot requirements and will not worsen or cause any new PM10/PM2.5 ambient air quality standard violations. The Air Quality chapter of the Draft EIR/EIS also concludes that the project meets transportation conformity hot-spot requirements, however different air quality values are presented here than are contained in Appendix I. Both Appendix I and the Air Quality chapter rely on projections of recent air quality monitoring data out to 2035 to determine the baseline concentrations. As reported in Appendix I, the year 2035 PM2.5 annual average is predicted to be reduced to 3.6 $\mu g/m^3$ compared to a value of 13.9 $\mu g/m^3$ in 2008. This approach is not substantiated as there are no programs in place to ensure this continued reduction in monitored PM values. For example, as shown in the most recent 2012 Draft Air Quality Management Plan (Appendix V), the latest predicted annual average in 2030 is 9.5 $\mu g/m^3$ at the South Long Beach station.

Further, both predicted PM concentrations and daily emission levels show increases in the future as shown in Tables 3.13-23 to 3.13-28. The Final EIR/EIS should explain how the project meets transportation conformity requirements in light of these reported air quality impacts. We note that the project's transportation conformity consultant met with AQMD staff during the Draft EIR/EIS comment period (August 22) and stated that the version of the conformity analysis contained within the Draft EIR/EIS is outdated. However, Caltrans has not provided an updated transportation conformity analysis to AQMD staff.

Early Action Projects Cumulative Impacts

The Draft EIR does not contain a description of any "Early Action Projects" that have been discussed in several meetings of the I-710 Technical Advisory Committee. It would appear that these projects are either a part of the proposed I-710 project or are at least cumulatively considerable pursuant to CEQA Guidelines §15130. The Final EIR should include a description of these "Early Action Projects", how they relate to the I-710 project, and how these projects are being evaluated pursuant to CEQA. Without this description and a cumulative analysis, it appears that these projects may be ‘piecemealed’ without sufficient review pursuant to CEQA requirements.

Cumulative Projects (SCIG)

The Cumulative chapter in Section 3.25 of the Draft EIR/EIS incorrectly states that the Southern California International Gateway (SCIG) Project was certified and approved by the Los Angeles Board of Harbor Commissioners in September 2010. Construction started in 2011 and will be completed by 2015. The Final EIR has not been approved for this project, and it is still under review. Please correct this error in the Final EIR/EIS.

ATTACHMENT B
ZERO-EMISSION TRUCK TECHNOLOGIES

Overview

AQMD comments regarding the proposed Draft Environmental Impact Report/Statement (Draft EIR/EIS) for the Proposed I-710 Corridor Project strongly support the inclusion of a zero-emission component into the proposed project. The specific technology or technologies used to implement this component would be determined by the lead agency.

Zero emission technologies for transport applications, including heavy trucks, are developing rapidly and can, with appropriate actions by the lead agency and other entities, be deployed by the time the I-710 project becomes operational. Any of several types of zero-emission truck technologies could be used. As is described below, these include, but are not limited to, on-road technologies such as battery-electric trucks, fuel cell trucks, hybrid-electric trucks with all-electric range (which could be coupled with natural gas or other power for range extension), and zero-emission hybrid or battery-electric trucks with "wayside" power (such as electricity from overhead wires).

Several recent analyses have supported the technical feasibility of implementing zero emission truck technologies in the I-710 corridor. For example, AQMD and LA Metro co-funded preparation by CALSTART of a report titled, "Technologies, Challenges & Opportunities I-710 Corridor Zero Emission Freight Corridor Vehicle Systems." The report was released in June and examines whether a Class 8 truck could be developed that would meet the zero-emission needs of the I-710 project alternatives described in the Draft EIR/EIS. CALSTART prepared the report with input from a wide range of industry experts. Among the findings are the following:

> "The development of a vehicle or vehicle system (truck and infrastructure power source) that can move freight through the I-710 Corridor with zero emissions has no major technological barriers. In fact, there are several technical approaches that can achieve the desired outcome. Solutions can be developed based on existing designs and technical knowledge, and require no fundamental research or technology breakthroughs. Small-scale demonstrations can begin immediately and commercialization of proven designs can certainly be achieved by 2035, the horizon year of the I-710 Corridor Project. Provided there is a strong focus on the commercialization process, this assessment finds commercial viability could occur well before 2035, indeed within the next decade." [14]

The report also noted an unprompted and "particularly striking" degree of consensus by experts around the most promising and commercially viable approaches. The report states:

> "A 'dual mode' or 'range extender' Hybrid Electric Vehicle (HEV) with some EV-only capability was seen as the most feasible solution, particularly if combined with an infrastructure power source such as catenary or in-road, which would allow for smaller battery packs aboard the vehicles." [15]

[14] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.2
[15] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.4,7

The report concluded by stating:[16]

- "A ZE truck to serve the I-710 freight corridor (in Alternatives 6B or 6C) is fully technically feasible and can be based on vehicle architectures and designs already in prototype status.
  - Several manufacturers and suppliers have existing systems and prototype trucks ranging from near-zero- to full zero-emissions. These include dual-mode hybrids; plug-in hybrids; range-extender battery electrics; hydrogen fuel cell EVs, and battery electric trucks.
- "A zero-emissions freight truck can be developed for potential production well within the proposed timing of the corridor project. Indeed, such a truck could be developed in advance of the corridor's actual construction.
- There is a high degree of agreement on the near-term technical approaches that are most promising for a zero-emissions truck over the next five years to meet the stated requirements of the I-710 freight corridor alternatives 6B & 6C.
  - A dual-mode hybrid or range-extended hybrid (possibly using a natural gas engine) with some engine-off driving capability (hence zero tailpipe emissions) coupled with corridor-supplied electrical power (lowest risk is believed to be a catenary system) was overwhelmingly identified as the most feasible system in the 5-year time frame.
- Other possible less likely near-term solutions included in-road power, all-battery trucks with fast charge or battery swap, zero-emission equivalent engines (virtually zero NOx and PM) and exotic fuel engines.
- A single-purpose truck is considered less likely to be successful, while a multiple purpose truck is considered much more likely. Manufacturers in particular believe a successful system must be useful beyond the corridor or its production cannot be justified or sustained.
- Based on interview responses, technology is not considered a barrier to a zero-emission freight truck. Fundamental research and development is not required. Additional development and demonstration of systems and system integration, and on fielding and validating prototype vehicles, would be valuable.
- Development timelines run from near term demonstrations within eighteen months to three years, to the potential for production in as few as five years, assuming market demand was sufficient to justify moving to production. Funding assistance will be needed to speed development, validation and deployment. It will also be likely needed to support purchase. Longer-term solutions were not examined here, as the 5-year time frame best fit the I-710 project."

The report also noted the need to establish an economic case for a zero-emission corridor and its vehicles, including incentives, inducements and potential regulations. CALSTART recommended that developing this structure for a zero-emission freight corridor should be conducted in parallel with technology demonstration as soon as practicable. (Page 33).

The AQMD also funded and provided input to a study titled Zero-Emission Catenary Hybrid Truck Market Study. This study was prepared by Gladstein, Neandross & Associates and was

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[16] http://www.metro.net/projects_studies/zero_emission/images/CALSTART_I-710_TCO_Report.pdf, pg.31

released in late March 2012, and presented at the ACT Expo in May. The study explores the potential market for zero-emission trucks, including hybrid electric trucks with all electric range, that receive wayside power, such as from overhead electric catenary wires. Potential markets include the I-710, transport between the ports and near-dock railyards, and a potential east-west freight corridor. The report concludes that such technologies could provide standard operating range for local or regional trucks and could have similar or lower cost compared to other zero-emission technologies.[17]

The Zero-Emission Catenary Hybrid Truck Market Study[18] states "As the I-710 expansion project moves forward, decisions will be made about the best technologies to reduce truck related emissions and traffic congestion from the corridor. In 2004, the local communities along the I-710 identified their preferred strategy, an expansion of the I-710 including the addition of a four lane dedicated roadway for trucks. Since that time, much work has been done to evaluate the feasibility of zero emission trucks on the proposed dedicated roadway. The concept of zero emission trucks has gathered significant support by some I-710 project committee members and the concept looks very promising for inclusion in the ultimate project recommendation, due in 2012. Whether the recommendation would specify catenary systems, other wayside power options, or opportunity charging, the truck platform considered in this market study would be easily adapted to suit the selected zero emission system. The zero emission system selected by the I-710 project committee could be strongly influenced by a working system serving the near-dock rail yards at the ports. The benefits of using the same system for the CA-47/103 and the I-710 are significant."

Additional Information: Types of Zero-Emission Trucks

Zero-emission trucks can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or by "wayside" electricity from outside sources such as overhead catenary wires, as is currently used for transit buses and heavy mining trucks (discussed below). All technologies eliminate fuel combustion and utilize electric drive as the means to achieve zero emissions and higher system efficiency compared to conventional fossil fuel combustion technology. Hybrid-electric trucks with all electric range can provide zero emissions in certain corridors and flexibility to travel extended distances (e.g. outside the region) powered from fossil fuels (e.g. natural gas) or fuel cells.

Vehicles employing electrified drive trains have seen dramatic growth in the passenger vehicle market in recent years, evidenced by the commercialization of various hybrid-electric cars, and culminating in the sale of all-electric, plug in, and range extended electric vehicles in 2011. A significant number of new electric light-duty vehicles will come on the market in the next few years. The medium- and heavy-duty markets have also shown recent trends toward electric drive technologies in both on-road and off-road applications, leveraging the light-duty market technologies and component supply base. Indeed, the California-funded Hybrid Truck and Bus Voucher Incentive Project (HVIP) website currently lists more than 75 hybrid-electric on-road trucks and buses available for order from eight manufacturers.

[17] http://www.gladstein.org/tmp/ZETECH_Market_Study_FINAL_2012_03_08.pdf
[18] http://www.gladstein.org/tmp/ZETECH_Market_Study_FINAL_2012_03_08.pdf

Battery-Electric Trucks

Battery-electric vehicles operate continuously in zero-emissions mode by utilizing electricity from the grid stored on the vehicle in battery packs. Battery-electric technology has been tested, and even commercially deployed for years in other types of heavy-duty vehicles (e.g., shuttle buses). Technologically mature prototypes have recently become available to demonstrate in drayage truck applications. (TIAX, *Technology Status Report - Zero Emission Drayage Trucks*, 1 (June 2011)). Battery electric trucks can be connected to "wayside power" (such as overhead catenary wires) to extend range.

Figure 1 Balqon Electric Battery Truck

Fuel Cell Battery-Electric Trucks

Fuel cell vehicles utilize an electrochemical reaction of hydrogen and oxygen in fuel cell "stacks" to generate electricity onboard a vehicle to power electric motors. Fuel cells are typically combined with battery packs, potentially with plug-in charging capability, to extend the operating range of a battery-electric vehicle. Because the process is combustion free, there are no emissions of criteria pollutants or CO_2.

Fuel cell vehicles are less commercially mature than battery-electric technologies, but have been successfully deployed in transit bus applications, are beginning to be deployed in passenger vehicles, and are beginning to be demonstrated in heavy duty truck port applications.

Figure 2 Vision Zero-Emission Fuel Cell Battery Electric Truck

Hybrid-Electric with All-Electric Range (AER) Trucks

Hybrid vehicles combine a vehicle's traditional internal combustion engine with an electric motor. Hybrid-electric heavy-duty trucks that improve fuel mileage are in commercial operation today. Hybrid-electric technologies can also be designed to allow all electric propulsion for certain distances, similar to the Chevrolet Volt passenger automobile which is currently being marketed. For example, the large vehicle drive-train manufacturer Meritor has developed such a heavy-duty truck and it has been demonstrated by Walmart Inc. in the Detroit area. This "dual mode" vehicle was developed as part of a U.S. Department of Energy program. Besides the advantages of increased range flexibility, dual-mode hybrid trucks can incorporate smaller battery packs as compared to those for all-battery electric trucks. This saves weight and cost while increasing range. The Meritor truck is powered solely by battery power (i.e. produces zero emissions) at speeds less than 48 mph.

Figure 3: Dual-Mode Hybrid (Meritor)

Trucks With Wayside Power (e.g. "Trolley Trucks")

One largely existing technology that could be used to move trucks regionwide is wayside power to power motors and/or charge vehicle batteries. Wayside power from overhead catenary wires is commonly provided to on-road transit buses, and has been used for heavy mining trucks. An example of how wayside power is feasible would be to outfit a battery-electric or hybrid AER truck with a connection to overhead catenary wires. Many cities operate electric transit buses that drive on streets with overhead wires, as well as streets without them. In such cities, "dual-mode" buses have capability to disconnect from the overhead wire and drive like a conventional bus. In Boston and other cities, such buses are propelled "off wire" by diesel engines. In Rome, such buses are propelled off wire by battery power to the same electric motors used on wire. The batteries are charged as the bus operates on the wired roadways. Figure 4 shows a dual-mode electric and battery-electric transit bus with detachable catenary connection in Rome, Italy.[19]

[19] Other proposals have been evaluated and awarded by the SCAQMD and the CEC to develop catenary trucks and hybrid trucks with AER. Similarly, in 2010, Volvo announced an award by the Swedish Energy Agency to develop a "slide in" technology for both automobiles and trucks which would provide wayside power from the road to the vehicle using a connection from the bottom of the vehicle to a slot in the roadway (http://www.energimyndigheten.se/en/Press/Press-releases/New-initiatives-in-electrical-vehicles/).

Figure 4 Dual-Mode Battery Electric Transit Bus (Rome)

The global technology manufacturer Siemens has developed a prototype truck to catenary wire connection for this purpose. Figure 5 shows a photo of this system on a prototype roadway in Germany. The truck is a hybrid electric with zero emission all electric operation when operated under the overhead wire. The truck automatically senses the wire which allows the driver to raise the pantograph connection while driving at highway speeds. The pantograph automatically retracts when the truck leaves the lane with catenary power. The powered lane can be shared by cars and traditional trucks. The truck may be operated off the powered lane propelled by a diesel engine, or could be configured with battery or fuel cell power sources.

Figure 5 Truck Catenary (Siemens)

As applied to hybrid AER trucks, wayside power could provide zero-emission operation and battery charging on key transport corridors, allowing the vehicle to operate beyond such corridors in zero-emission mode. As the battery is depleted, the vehicle would have the flexibility for extended operation on fossil fuel power.

ATTACHMENT C
AIR QUALITY TABLES WITH SIGNIFANCE DETERMINATIONS

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Table 3.13-22 Comparison of Incremental Criteria Pollutant Emissions for All Alternatives Compared to 2008, for all Study Areas[1,2]

Pollutant	Study Area	Comparison with 2008 Baseline: 2008 Baseline Emissions	2035 Alt. 1 vs. 2008 (lbs/day)	2035 Alt 5A vs. 2008 (lbs/day)	2035 Alt 6A vs. 2008 (lbs/day)	2035 Alt 6B vs. 2008 (lbs/day)	2035 Alt 6C vs.2008 (lbs/day)	SCAQMD CEQA Mass Emission Thresholds[2] (lbs/day	Alt. 1 Significance	Alt 5A Significance	Alt 6A Significance	Alt 6B Significance	Alt 6C Significance
NOx	SCAB	1,034,982	-870,000	-870,000	-870,000	-880,000	-880,000	55	No	No	No	No	No
	AOI	238,709	-200,000	-200,000	-200,000	-200,000	-200,000		No	No	No	No	No
	I-710	18,050	-13,000	-13,000	-11,000	-15,000	-14,000		No	No	No	No	No
	I-710 Post	24,212	-18,000	-17,000	-16,000	-20,000	-20,000		No	No	No	No	No
CO	SCAB	2,860,036	-2,000,000	-2,000,000	-2,000,000	-2,000,000	-2,000,000	550	No	No	No	No	No
	AOI	688,363	-510,000	-510,000	-510,000	-510,000	-510,000		No	No	No	No	No
	I-710	26,234	-19,000	-17,000	-16,000	-18,000	-18,000		No	No	No	No	No
	I710 Post	26,939	-19,000	-17,000	-16,000	-18,000	-18,000		No	No	No	No	No
PM_{10} (Total)	SCAB	154,589	23,000	23,000	24,000	23,000	23,000	150	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	AOI	36,992	1,800	1,900	2,100	1,800	1,800		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	I-710	1,893	230	580	1,300	1,000	920		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	I-710 Post	2,345	120	400	1,100	800	680		No	**Yes**	**Yes**	**Yes**	**Yes**
PM_{10} *(Exhaust)*	*SCAB*	*58,876*	*-9,500*	*-9,400*	*-9,400*	*-9,800*	*-9,700*						
	AOI	*36,992*	*-3,400*	*-3,400*	*-3,300*	*-3,600*	*-3,600*						
	I-710	*868*	*-300*	*-190*	*-10*	*-330*	*-290*						
	I-710 Post	*1,105*	*-470*	*-360*	*-190*	*-540*	*-500*						
PM_{10} *(Entrained)*	*SCAB*	*95,713*	*33,000*	*33,000*	*33,000*	*33,000*	*33,000*						
	AOI	*23,024*	*5,200*	*5,300*	*5,400*	*5,500*	*5,400*						
	I-710	*1,025*	*530*	*770*	*1,300*	*1,400*	*1,200*						
	I-710 Post	*1,240*	*590*	*800*	*1,300*	*1,300*	*1,200*						
$PM_{2.5}$ (Total)	SCAB	67,381	-2,300	-2,300	-2,200	-2,500	-2,400	55	No	No	No	No	No
	AOI	16,115	-2,000	-1,900	-1,900	-2,100	-2,100		No	No	No	No	No
	I-710	942	-170	-40	230	0	0		No	No	**Yes**	No	No
	I-710 Post	1,201	-320	-190	70	-190	-200		No	No	**Yes**	No	No
$PM_{2.5}$ (Exhaust)	*SCAB*	*43,888*	*-10,000*	*-10,000*	*-10,000*	*-11,000*	*-11,000*						
	AOI	*10,464*	*-3,200*	*-3,200*	*-3,200*	*-3,400*	*-3,400*						
	I-710	*690*	*-300*	*-230*	*-90*	*-340*	*-300*						
	I-710 Post	*895*	*-460*	*-390*	*-260*	*-520*	*-490*						
$PM_{2.5}$ (Entrained)	*SCAB*	*23,493*	*8,100*	*8,100*	*8,100*	*8,100*	*8,100*						
	AOI	*5,651*	*1,300*	*1,300*	*1,300*	*1,300*	*1,300*						
	I-710	*252*	*130*	*190*	*320*	*330*	*300*						
	I-710 Post	*306*	*150*	*200*	*320*	*330*	*290*						
ROG	SCAB	234,677	-170,000	-160,000	-170,000	-170,000	-170,000	55	No	No	No	No	No
	AOI	58,803	-43,000	-43,000	-44,000	-44,000	-44,000		No	No	No	No	No
	I-710	2,204	-1,500	-1,500	-1,300	-1,600	-1,600		No	No	No	No	No
	I-710 Post	2,482	-1,700	-1,700	-1,500	-1,800	-1,800		No	No	No	No	No
SO_2	SCAB	3,867	1,300	1,300	1,300	1,200	1,300	150	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
	AOI	934	160	160	160	140	150		**Yes**	**Yes**	**Yes**	No	**Yes**
	I-710	39	15	23	36	13	15		No	No	No	No	No
	I-710 Post	41	17	24	37	12	14		No	No	No	No	No

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

1 Numbers rounded to two significant figures. Emissions changes of 1 percent or smaller are presented as zero-emission changes.

2 The SCAQMD significance thresholds are presented for information only. Caltrans has not adopted these thresholds.

Alt = Alternative	No_x = nitrogen oxide
AOI = Area of Interest	$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
CEQA = California Environmental Quality Act	PM_{10} = particulate matter less than 10 microns in diameter
CO = Carbon Monoxide	ROG = reactive organic gases
I-710 = Interstate 710	SCAB = South Coast Air Basin
I-710 Post = Post-Processed Traffic Data	SCAQMD = South Coast Air Quality Management District
lbs/day = pounds per day	SO_2 = sulfur dioxide

Table 3.13-24 Incremental Concentration Impacts from the I-710 Freeway Mainline for Alternative 1 as Compared to 2008

Project Increment + Background[a]						
Pollutant	**Averaging Time**	**Incremental Impact ($\mu g/m^3$)**	**Maximum (Incremental & Background) Concentration Impact ($\mu g/m^3$)**	**SCAQMD CEQA Threshold[b] ($\mu g/m^3$)**	**National Ambient Air Quality Standards[b] ($\mu g/m^3$)**	**Significant**
NO_2	1-hour	-81.2	145	339	188	No
	Annual	-0.6	55.6	56	100	No
CO	1-hour	-211	8,950	23,000	40,000	No
	8-hour	-36	7,300	10,000	10,000	No
Project Increment Impact[a]						
Pollutant	**Averaging Time**	**Maximum Incremental Impact ($\mu g/m^3$)**		**SCAQMD CEQA Threshold[b] ($\mu g/m^3$)**		**Significant**
PM_{10}	24-hour	19.6 [b]		2.5		**Yes**
	Annual	13.9 [b]		1		**Yes**
$PM_{2.5}$	24-hour	0.036		2.5		No

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

Notes:

[a] Incremental impacts from the project plus background pollutant concentrations are presented. PM10 are incremental impacts, consistent with the SCAB's nonattainment status and, therefore, only the incremental impacts from the project are presented. PM2.5 and PM10 emissions include AP 42 estimates of entrained road dust; actual incremental impacts would be lower using the recent SCAQMD/ARB methodology.

[b] SCAQMD thresholds presented for information purposes only; see Chapter 4 for the CEQA air quality analysis Impacts above the SCAQMD's threshold levels are in areas close (300 meters or less) to the mainline and/or freight corridor. Maximum impacts occur within 50 meters

CEQA = California Environmental Quality Act
CO = Carbon monoxide
I-710 = Interstate 710
$\mu g/m^3$ = micrograms per cubic meter
NO_2 - nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 2.5 microns in diameter
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District

Table 3.13-25 Incremental Concentration Impacts from the I-710 Freeway Mainline for Alternative 5A as Compared to 2008

Project Increment + Background[a]						
Pollutant	**Averaging Time**	**Incremental Impact ($\mu g/m^3$)**	**Maximum (Incremental & Background) Concentration Impact ($\mu g/m^3$)**	**SCAQMD CEQA Threshold[b] ($\mu g/m^3$)**	**National Ambient Air Quality Standards[b] ($\mu g/m^3$)**	**Significant**
NO_2	1-hour	-79.4	146	339	188	No
	Annual	-0.6	55.7	56	100	No
CO	1-hour	-203	8,960	23,000	40,000	No
	8-hour	-34	7,300	10,000	10,000	No

Project Increment Impact[a]				
Pollutant	**Averaging Time**	**Maximum Incremental Impact ($\mu g/m^3$)**	**SCAQMD CEQA Threshold[b] ($\mu g/m^3$)**	**Significant**
PM_{10}	24-hour	60.5[b]	2.5	**Yes**
	Annual	35.6[b]	1	**Yes**
$PM_{2.5}$	24-hour	15.5	2.5	**Yes**

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

Notes:

[a] Incremental impacts from the project plus background pollutant concentrations are presented. PM10 are incremental impacts, consistent with the SCAB's nonattainment status and, therefore, only the incremental impacts from the project are presented. PM2.5 and PM10 emissions include AP 42 estimates of entrained road dust; actual incremental impacts would be lower using the recent SCAQMD/ARB methodology.

[b] SCAQMD thresholds presented for information purposes only; see Chapter 4 for the CEQA air quality analysis Impacts above the SCAQMD's threshold levels are in areas close (300 meters or less) to the mainline and/or freight corridor. Maximum impacts occur within 50 meters.

CEQA = California Environmental Quality Act
CO = Carbon monoxide
I-710 = Interstate 710
$\mu g/m^3$ = micrograms per cubic meter
NO_2 - nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 2.5 microns in diameter
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District

Table 3.13-26 Incremental Concentration Impacts from the I-710 Freeway Mainline for Alternative 6A as Compared to 2008

Project Increment + Background[a]						
Pollutant	**Averaging Time**	**Incremental Impact (μg/m³)**	**Maximum (Incremental & Background) Concentration Impact (μg/m³)**	**SCAQMD CEQA Threshold[b] (μg/m³)**	**National Ambient Air Quality Standards[b] (μg/m³)**	**Significant**
NO_2	1-hour	-70.1	156	339	188	No
	Annual	4.8	62.4	56	100	**Yes**
CO	1-hour	-241	8,920	23,000	40,000	No
	8-hour	-37	7,300	10,000	10,000	No

Project Increment Impact[a]				
Pollutant	**Averaging Time**	**Maximum Incremental Impact (μg/m³)**	**SCAQMD CEQA Threshold[b] (μg/m³)**	**Significant**
PM_{10}	24-hour	78.7[b]	2.5	**Yes**
	Annual	44.4 [b]	1	**Yes**
$PM_{2.5}$	24-hour	21.0	2.5	**Yes**

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

Notes:

[a] Incremental impacts from the project plus background pollutant concentrations are presented. PM10 are incremental impacts, consistent with the SCAB's nonattainment status and, therefore, only the incremental impacts from the project are presented. PM2.5 and PM10 emissions include AP 42 estimates of entrained road dust; actual incremental impacts would be lower using the recent SCAQMD/ARB methodology.

[b] SCAQMD thresholds presented for information purposes only; see Chapter 4 for the CEQA air quality analysis Impacts above the SCAQMD's threshold levels are in areas close (300 meters or less) to the mainline and/or freight corridor. Maximum impacts occur within 50 meters.

CEQA = California Environmental Quality Act
CO = Carbon monoxide
I-710 = Interstate 710
μg/m³ = micrograms per cubic meter
NO_2 - nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 2.5 microns in diameter
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District

Table 3.13-27 Incremental Concentration Impacts from the I-710 Freeway Mainline for Alternative 6B as Compared to 2008

Project Increment + Background[a]						
Pollutant	**Averaging Time**	**Incremental Impact (μg/m^3)**	**Maximum (Incremental & Background) Concentration Impact (μg/m^3)**	**SCAQMD CEQA Threshold[b] (μg/m^3)**	**National Ambient Air Quality Standards[b] (μg/m^3)**	**Significant**
NO_2	1-hour	-84.5	141	339	188	No
	Annual	-0.7	55.6	56	100	No
CO	1-hour	-254	8,910	23,000	40,000	No
	8-hour	-40	7,290	10,000	10,000	No

Project Increment Impact[a]				
Pollutant	**Averaging Time**	**Maximum Incremental Impact (μg/m^3)**	**SCAQMD CEQA Threshold[b] (μg/m^3)**	**Significant**
PM_{10}	24-hour	74.4[b]	2.5	**Yes**
	Annual	42.5[b]	1	**Yes**
$PM_{2.5}$	24-hour	15.3	2.5	**Yes**

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

Notes:

[a] Incremental impacts from the project plus background pollutant concentrations are presented. PM10 are incremental impacts, consistent with the SCAB's nonattainment status and, therefore, only the incremental impacts from the project are presented. PM2.5 and PM10 emissions include AP 42 estimates of entrained road dust; actual incremental impacts would be lower using the recent SCAQMD/ARB methodology.

[b] SCAQMD thresholds presented for information purposes only; see Chapter 4 for the CEQA air quality analysis Impacts above the SCAQMD's threshold levels are in areas close (300 meters or less) to the mainline and/or freight corridor. Maximum impacts occur within 50 meters.

CEQA = California Environmental Quality Act
CO = Carbon monoxide
I-710 = Interstate 710
μg/m^3 = micrograms per cubic meter
NO_2 - nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 2.5 microns in diameter
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District

Table 3.13-28 Incremental Concentration Impacts from the I-710 Freeway Mainline for Alternative 6C as Compared to 2008

Project Increment + Background[a]						
Pollutant	**Averaging Time**	**Incremental Impact (μg/m³)**	**Maximum (Incremental & Background) Concentration Impact (μg/m³)**	**SCAQMD CEQA Threshold[b] (μg/m³)**	**National Ambient Air Quality Standards[b] (μg/m³)**	**Significant**
NO_2	1-hour	-83.9	142	339	188	No
	Annual	-0.7	55.6	56	100	No
CO	1-hour	-254	8,910	23,000	40,000	No
	8-hour	-39	7,290	10,000	10,000	No

Project Increment Impact[a]				
Pollutant	**Averaging Time**	**Maximum Incremental Impact (μg/m³)**	**SCAQMD CEQA Threshold[b] (μg/m³)**	**Significant**
PM_{10}	24-hour	64.2[b]	2.5	**Yes**
	Annual	34.9[b]	1	**Yes**
$PM_{2.5}$	24-hour	13.1	2.5	**Yes**

Source: I-710 Corridor Project Air Quality and Health Risk Assessments Technical Study, February 2012.

Notes:

[a] Incremental impacts from the project plus background pollutant concentrations are presented. PM10 are incremental impacts, consistent with the SCAB's nonattainment status and, therefore, only the incremental impacts from the project are presented. PM2.5 and PM10 emissions include AP 42 estimates of entrained road dust; actual incremental impacts would be lower using the recent SCAQMD/ARB methodology.

[b] SCAQMD thresholds presented for information purposes only; see Chapter 4 for the CEQA air quality analysis Impacts above the SCAQMD's threshold levels are in areas close (300 meters or less) to the mainline and/or freight corridor. Maximum impacts occur within 50 meters.

CEQA = California Environmental Quality Act
CO = Carbon monoxide
I-710 = Interstate 710
μg/m³ = micrograms per cubic meter
NO_2 - nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 2.5 microns in diameter
SCAB = South Coast Air Basin
SCAQMD = South Coast Air Quality Management District

Table 5.5 Comparison of Incremental MSAT Health Risk Impacts for All Alternatives Compared to 2008

(All analyses based on worst-case residential scenario impacts)

Health Impact	Alt 1. vs. 2008	Alt 5A. vs. 2008	Alt 6A. vs. 2008	Alt 6B. vs. 2008	Alt 6B. vs. 2008	SCAQMD CEQA Threshold[b] ($\mu g/m^3$)	Significant
Cancer Risk (Risk in 1 million)	-6	-6	462**	-7	-7	10 in 1 million	**Yes**
Chronic Non-Cancer Hazard Index (unitless)	-.004	-.004	0.279	-0.005	-0.005	1.0 (Hazard Index)	No
Acute Non-Cancer Hazard Index (unitless)	-0.017	-0.016	0.079	0.102	-0.0001	1.0 (Hazard Index)	No

* The SCAQMD significance thresholds are presented for information only. Caltrans has not adopted them but has stated that it will use them as part of its significance determination.

** Only 15 grid points show incremental increases above 10 in a million. These grid points are **NOT** in residential areas and are generally located very near the freight corridor. The incremental cancer risk and incremental hazard indices <u>decreased</u> at all sensitive receptors in the modeling domain.