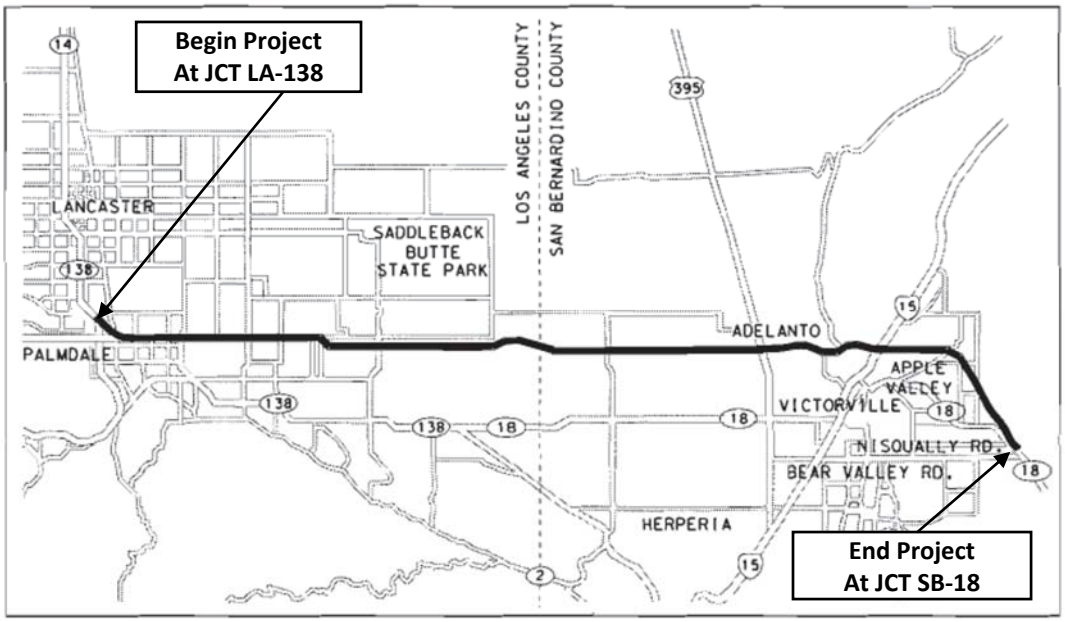
AIR QUALITY REPORT

NEW FREEWAY/TOLL/EXPRESSWAY (HIGH DESERT CORRIDOR)



STATE ROUTE 138
FROM ROUTE 14 TO ROUTE 18

EA 2600U

Prepared by

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1. PROPOSED PROJECT

1.1. Introduction

The Counties of San Bernardino and Los Angeles as well as the Cities of Adelanto, Victorville, Lancaster, Palmdale, and the Town of Apple Valley have formed a Joint Power Authority (JPA) to develop a new freeway/toll facility with or without a high speed rail feeder service from SR-14 to I-15 and expressway on through to SR-18; and also to incorporate Green Energy Technologies and bike path.

The purpose of the proposed improvements is to provide for the existing and projected traffic demand attributed to residential growth and increasing developments in the Antelope, Victor, and Apple Valley areas. This growth is resulted in inadequate capacity and accessibility along the existing east-west roadways as well as an in increasing demand for goods movement corridors and access to regional airports.

1.2. Project Location and Background

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), proposes construction of the High Desert Corridor (HDC) as a new transportation facility in the High Desert region of Los Angeles and San Bernardino counties. The proposed 63-mile-long west-east facility would provide route continuity and relieve traffic congestion between State Route (SR) 14 in Los Angeles County and SR-18 and Interstate 15 (I-15) in San Bernardino County. The project would comprise of one or more of the following major components, including highway, tollway, rail transit, bikeway, and recommendation for green energy facilities. Figures 1 and 2 are project vicinity and location maps, respectively.

1.3. Purpose and Need

The purpose of the proposed action is to improve west-east mobility through the High Desert region of southern California. This can be achieved by addressing present and future travel demand and mobility needs within the Antelope and Victor valleys. The proposed project is intended to achieve the following objectives:

- Increase capacity of west-east transportation facilities to accommodate existing and future transportation demand
- Improve travel safety and reliability within the High Desert region
- Improve the regional goods movement network
- Provide improved access and connectivity to regional transportation facilities, including airports and existing and future passenger rail systems, which include the proposed California HSR system and the proposed XpressWest HSR system
- Contribute to state greenhouse gas (GHG) reduction goals by supporting future plans for green energy features along the corridor

The specific needs to be addressed by the proposed action include:

- Recent and future planned population growth within the High Desert region
- Limited and unreliable west-east connectivity within the High Desert region
- Regional demands for goods movement to support the growth of the regional economy
- Future demands for the use of green energy, including sustainability and green energy provisions in state law and policy.

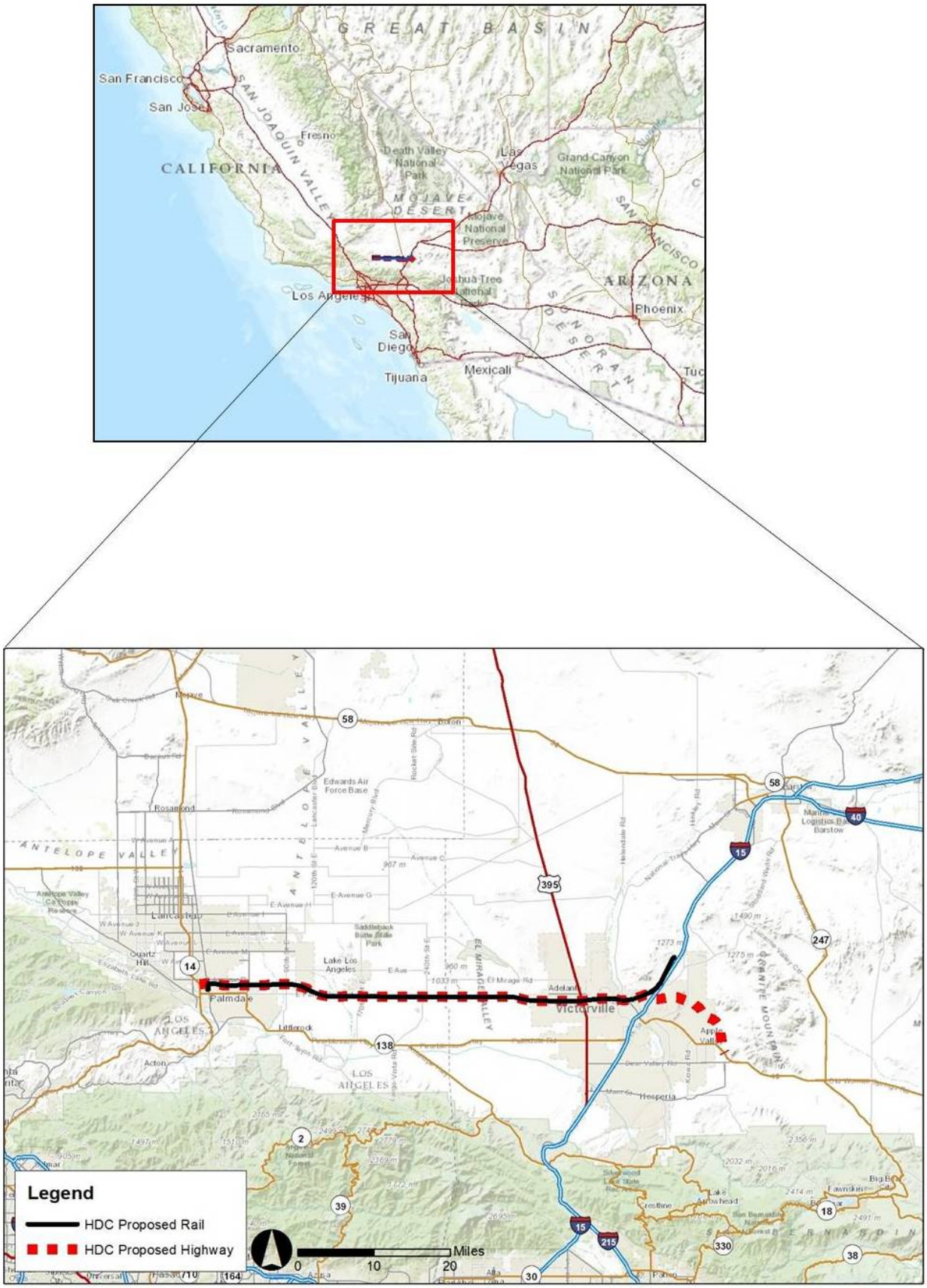
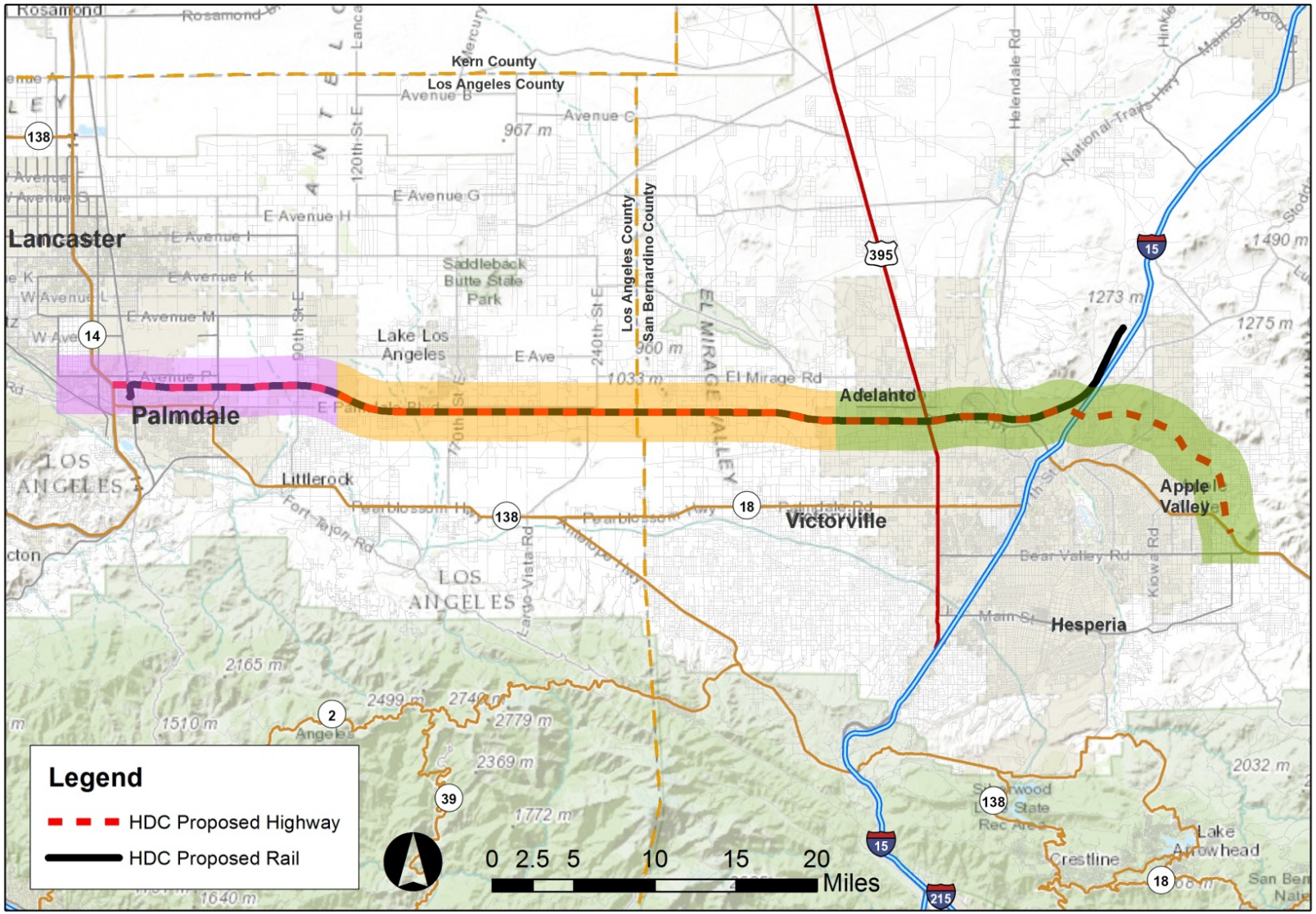


Figure 1. Project Vicinity Map



ANTELOPE VALLEY	HIGH DESERT	VICTOR VALLEY
Los Angeles County	**Los Angeles County–San Bernardino County**	**San Bernardino County**
Lancaster, Palmdale	Lake Los Angeles, El Mirage	Adelanto, Victorville, Apple Valley, Hesperia

Figure 2. Project Location Map

1.4. Project Alternatives

Several project alternatives and design variations have been considered and evaluated. A No Build Alternative and four build alternatives were selected for detailed evaluation in the Draft and Final Environmental Impact Report/Environmental Impact Statement. Figure 3 shows the primary alignment and variations in certain location.

No Build Alternative

Under the No Build alternative, no new transportation infrastructure would be built within the project area to connect Los Angeles and San Bernardino Counties aside from existing SR-138 safety corridor improvements in Los Angeles County and SR-18 corridor improvements in San Bernardino County. Traffic circulation and congestion currently experienced on Palmdale Boulevard, Pearblossom Highway, Air Expressway, Palmdale Road, and Happy Trails Highway (existing SR-18) would remain from increasing transportation demand. The No Build Alternative functions as a baseline to compare against all of the proposed build alternatives.

Freeway/Expressway Alternative (Avenue P-8, I-15, and SR-18)

This alternative would consist of a combination of a controlled-access freeway and at-grade expressway for a total distance of 63 miles. The alignment generally follows Avenue P-8 in Los Angeles County and then runs slightly south of El Mirage Road in San Bernardino County. The alignment then extends east to Air Expressway Road near I-15 and curves slightly southeast to terminate at Bear Valley Road near Apple Valley. Bicycle facility and green energy components would be incorporated into the design features of this alternative.

Four physical alignment variations are being considered, including:

- Variation A: Near Palmdale, the freeway/expressway would dip slightly south of the main alignment, approximately between 15th Street East and Little Rock Wash.
- Variation B: East of the county line, the freeway/expressway would flare out slightly south of the main alignment between Oasis Road and Coughlin Road. Another option for Variation B is called Variation B1, which is shorter than Variation B and would run slightly south of the main alignment.
- Variation D: Near the community of Lake Los Angeles, the freeway/expressway would dip slightly south of the main alignment, just south of Avenue R approximately between 180th Street East and 230th Street East.
- Variation E: Near Adelanto and Victorville, the freeway/expressway would dip south of the federal prison.

Freeway/Tollway Alternative (Avenue P-8, I-15, and SR-18)

This alternative would follow the same physical alignment as the Freeway/Expressway Alternative (with Variations A, B, D, and E), but it would have sections that operate as a tollway. The segment where toll lanes are proposed, four in each direction, would begin from 100th Street East in Palmdale and end at US 395 in Victorville. The Central Segment would consist of a toll facility, and motorists who choose not to use this segment of the HDC would have the option to exit and use local west-east parallel roads adjacent to the HDC and reenter the freeway segments from either 90th Street East in Palmdale or US 395 in Adelanto. Bicycle facility and green energy components would be incorporated into the design features of this alternative.

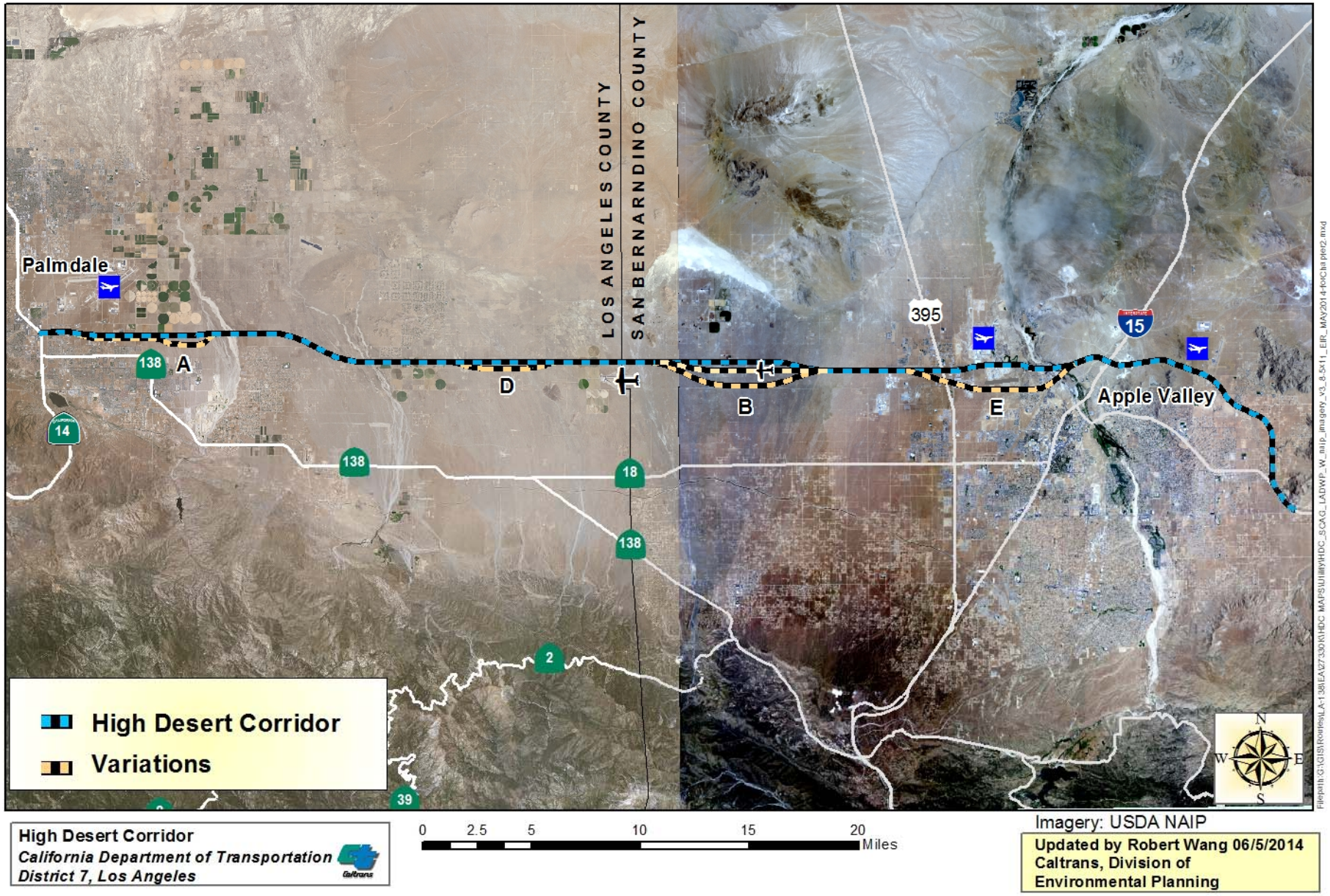


Figure 3. **Alternative Alignments**

Freeway/Expressway Alternative with High-Speed Rail (HSR) Feeder/Connector Service

This alternative would be the same as the Freeway/Expressway Alternative, but it also includes an HSR Feeder Service between Palmdale and Victorville. Variations A, B, D, and E were considered, but Variation A was later determined to be not a viable variation for the alternatives with HSR due to some geometric constraint. Additional elements would include bikeways and green energy facilities as described under the Freeway/Expressway Alternative.

The HSR component of the HDC would operate as a new west to east passenger rail corridor from the existing Metrolink station in Palmdale (Antelope Valley) to Victorville (Victor Valley). The HSR Feeder Service would consist of steel wheels on track and would have a maximum operating speed of 125 miles per hour (mph). The HSR Feeder would be built within the HDC right-of-way (ROW). The rail alignment would primarily run in the median of the HDC freeway.

Station Connection

To connect to the Palmdale and Victorville rail stations, ROW would be required for the station connection approaches as the HSR Feeder/Connector alignment curves away from the HDC ROW and to provide overnight storage for the trains.

Palmdale Rail Connection

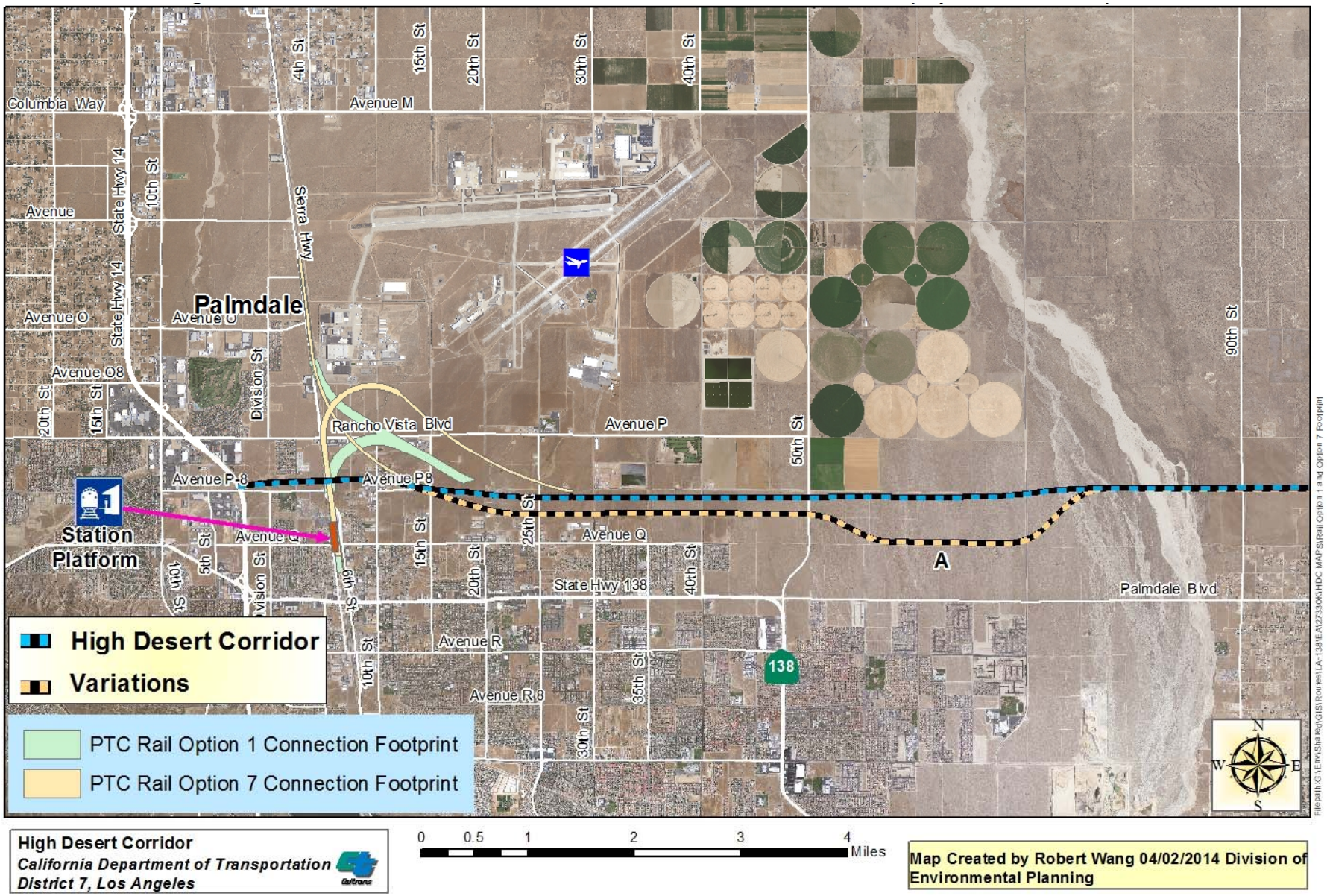
For the Palmdale rail connection, two rail connection approaches are proposed for connecting the HDC to the California HSR network, Options 1 and 7 (see Figure 4). Both options allow for eastbound and westbound tracks on the HDC to connect to the California HSR network northbound and southbound tracks by using a combination of aerial and cut-and-cover or tunneling structures.

Rail Option 1

Option 1 would shift the existing Palmdale Transportation Center south approximately 800 feet and would require a cut-and-cover box and mined tunnels configuration. This option would run adjacent to the Air Force Plant 42 parking lot associated with the Palmdale Airport. The alignment would also cross under commercial development at Rancho Vista Boulevard and 15th Street East. This option would diverge outside of the HDC median and would require only two rail tracks to cross under the HDC westbound lanes, reducing the ROW needed for the HDC. Three station variations are being considered under Rail Option 1 as described below.

Variation A

This variation would place the HDC and Metrolink station platforms on the west side of Sierra Highway inside the Union Pacific Railroad (UPRR) ROW. The HDC platforms would be approximately 20 feet in width and 1,400 feet in length. The Metrolink platforms would be approximately 50 feet in width and 500 feet in length. The HDC platforms would extend from Transportation Drive to about 700 feet north of Avenue Q. Station area parking is proposed at the terminus of 6th Street (UPRR/Sierra Highway) and would provide 6,200 surface parking spaces. The existing Palmdale Transportation Center would be shifted approximately 800 feet south of its current location.



High Desert Corridor
California Department of Transportation
District 7, Los Angeles

0 0.5 1 2 3 4 Miles

Map Created by Robert Wang 04/02/2014 Division of Environmental Planning

Figure 4. Palmdale Rail Connection Options 1 and 7 Alignment

Variation B

This variation is the same as Variation A with the following exceptions: (1) HDC station platforms would extend from just north of Avenue Q and immediately north of Avenue Q3; and (2) this option would not affect the location of the existing Palmdale Transportation Center.

Variation C

This option would place the HDC and Metrolink station platforms on the west side of Clock Tower Plaza East and outside of the UPRR ROW. The HDC platforms would extend from East Avenue Q to East Avenue Q4. Station area parking is proposed at the terminus of 6th Street (UPRR/Sierra Highway) and would provide 6,200 parking spaces (via an above-grade structure). This option would not affect the location of the existing Palmdale Transportation Center.

Station location variations are the same for Rail Options 1 and 7, although the "wye" connections differ, as well as the corresponding details on location and tunnel/aerial configurations.

Rail Option 7

Option 7 would require a mix of aerial structures and tunneling, and it would allow the Palmdale Transportation Center to remain at its current location. This option would encroach into a small residential area near 10th Street East and would require a four-track section within the HDC median, necessitating a larger ROW section for the HDC in this area.

Three station variations are being considered under Rail Option 7 as same as Rail Option 1 as described above.

Freeway/Tollway Alternative with High-Speed Rail Feeder/Connector Service

This alternative would be the same as the Freeway/Expressway Alternative (including Variations A, D, B, and E), but it also includes an HSR Feeder Service between Palmdale and Victorville. Similar to the Freeway/Tollway Alternative, the bicycle facility and green energy components would be incorporated into the design features of this alternative. Rail Options 1 and 7 and three station variations described in the Freeway/Tollway Alternative with HSR Feeder Connector Service are also being considered.

Figure 3 above depicts various Alternatives proposed to address the need and purpose.

1.5. Construction Activities and Schedule

The length of the project construction period is approximately 6 years, as the following milestone completion dates are anticipated:

Construction Milestone Schedule	Completion Date
Advertisement and Award of Contract	8/18/16
End of Construction	8/16/22

Although the overall construction duration is planned to last approximately 6 years, none of the construction phases is anticipated to last more than five years. Emissions from construction-related activities are thus considered temporary as defined in 40 CFR 93.123(c)(5); and are not required to be included in PM hot-spot analyses.

2. AFFECTED ENVIRONMENT

2.1. Climate and Meteorology

The project site is located in the Mojave Desert Air Basin (MDAB) within the jurisdictional boundaries of the Antelope Valley Air Quality Management District (AVAQMD) and Mojave Desert Air Quality Management District (MDAQMD). The MDAB is comprised of four air districts: the Kern County Air Pollution Control District (APCD); the AVAQMD, the MDAQMD, and the eastern portion of the South Coast AQMD. The AVAQMD covers the western portion of the proposed project in Los Angeles County while the MDAQMD covers the eastern portion of the proposed project in San Bernardino County. The MDAQMD's boundaries encompass San Bernardino County's High Desert and the Blythe portion of Riverside County.

Meteorology (weather) and terrain can influence air quality trends. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight and the type of winds at the surface and above the surface. Winds can transport ozone or ozone precursors from on region to another, contributing to air quality problems downwind of the source regions. Mountains such as the San Gabriel, Sierra Nevada, San Bernardino and Tehachapi Mountains in the Los Angeles and San Bernardino County areas can form a barrier that prevents ozone from dispersing.

The climatological station from each jurisdictional area of the AVAQMD and MDAQMD that is closest to the project corridor are the Lancaster/Palmdale Station (#046624) and Victorville Station (#049325) maintained by the Western Regional Climate Center.

2.1.1. Los Angeles County's (AVAQMD) Climate and Meteorology

The climate of the Antelope Valley, technically called an interior valley subclimate of Southern California's Mediterranean-type climate, is characterized by hot summers, mild winters, infrequent rainfall, moderate afternoon breezes, and generally fair weather. The clouds and fog that form along the Southern California coastline rarely extend as far inland as Palmdale, and if they do, they usually burn off quickly after sunrise. The most important weather pattern is associated with the funneling of the daily onshore seabreeze through Soledad Canyon into the upper desert to the north of the heavily developed portions of the Los Angeles Basin. This daily air flow brings polluted air into the area late in the afternoon from late spring to early fall. This transport pattern creates both unhealthy air quality as well as destroying the scenic vistas of the mountains surrounding the Antelope Valley.

Hot summers, cold winters, and widely varying daily temperatures characterize the climate in the Antelope Valley. The annual average maximum temperature recorded from January 1981 to December 2010 at the Palmdale Station is 25.6°C (78.0°F), and the annual average minimum is 9.1°C (48.4°F) (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6624), but it gets very hot on summer afternoons (close or over 100 degrees) and quite cool on winter mornings (around 30 degrees). The warm summer afternoons are quite dry and the breezes are moderate such that physical comfort is good despite the warm weather.

Rainfall in the Antelope Valley area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April with summers often completely dry except for occasional widely scattered summer thundershowers. The Antelope Valley is located in a transition area between the semi-arid

conditions of the Los Angeles Basin and the completely arid portions of the Mojave Desert. The annual average precipitation from January 1981 to December 2010 is recorded at 7.48 inches at the Palmdale Station. The Antelope Valley may occasionally experience a light winter snowfall, but temperatures are not cold enough for the snow to remain on the ground for very long.

Winds blow mainly from south to north and from west to east in response to the regional pattern of airflow from the cool ocean to the heated interior. A large portion of the airflow across the Antelope Valley therefore has its origin in more developed areas of the Los Angeles Basin. Seventy percent of all airflow across Palmdale derives from a narrow sector from southwest through west-northwest. These winds are moderately strong during the daytime, averaging from 10 to 13 mph, but become light and variable at night. Daytime local ventilation is, therefore, very good, but there may be nocturnal stagnation near local emissions sources such as the major area highways during the calm wind periods. Air pollutant emissions, however, are generally sufficiently low such that even during limited local dispersion conditions, air quality near the project site remains quite healthful. The primary Antelope Valley air quality concern is that there is a general transport of air from the polluted Los Angeles Basin through the Santa Clarita Valley, and then toward the normally cleaner upper desert, especially during the summer smog season. This meteorological pattern will, therefore, make it difficult for the area to achieve clean air until sources in the developed portions of the basin are better controlled and less pollution is carried downwind across communities within the Antelope Valley.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the South Coast Air Basin. Such summer inversions, however, occur very infrequently, it at all, in the Antelope Valley. Air starting onshore at the beach is relatively clean, but becomes progressively more polluted as sources continue to add pollution from below without much dilution from above. Some dilution occurs in the thermal chimneys along the heated slopes of the San Gabriel Mountains, but not enough to prevent the intrusion of significantly polluted air into the Antelope Valley. In the absence of strong summer inversions, the dilution process continues as the smoggy air traverses the Valley such that there is considerable variation in air quality across the area. Ozone concentrations (the main ingredient in photochemical smog) decrease noticeable in moving from Palmdale out to Edwards AFB and beyond.

A second inversion type forms on clear, winter nights when cold air off the mountains sinks to the valley floor while the air aloft over the valley remains warm. This process forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution “hot spots” in heavily developed coastal areas of Southern California, there is not enough traffic in inland valleys to cause any winter air pollution problems. Thus, while summers are periods of hazy skies and unhealthful air, winter is often a period of spectacular visibility and excellent air quality in the Antelope Valley.

2.1.2. San Bernardino County's (MDAQMD/MDAB) Climate and Meteorology

The High Desert is classified as an arid desert climate. In the Mojave Desert, this is modified by the San Bernardino and San Jacinto mountains forming barriers to precipitation. The rain shadow causes the aridity of the High Desert climate, while leaving the summers hot and the winters generally mild.

For most of the summer, the Mojave Desert region is under edge of the Pacific Subtropical Ridge that limits cloud formation and allows strong daytime heating. This is a zone with no dominant winds, which allows more local effects such as the sea breeze passing through the Banning Pass to control the local weather. The high pressure systems also contribute to the presence of persistent inversion layers that trap pollutants by preventing their dispersion through vertical mixing. In late summer, the ridge can move far enough north to allow humid air from the Gulf of California, and even as far east as the Gulf of Mexico, into the High Desert. When this happens, thunderstorms may form causing isolated flash floods and high wind gusts.

Average high temperatures in summer are in the mid 90s to 100° Fahrenheit (F). Average low temperatures are in the mid 60s to 70s. During winter, the Polar Front Jet stream steers pressure systems from west to east across the region. Mild rains result from systems steered in from the southwest and northwest. Winter storm systems are often followed by periods of clear skies and strong westerly or northerly winds. Average high temperatures in winter are in the mid 50s and average low temperatures are in the mid 30s. The annual average maximum temperature recorded from January 1981 to December 2010 at the Victorville Station is 25.3°C (77.5°F), and the annual average minimum is 6.6°C (43.8°F) (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9325).

Prevailing winds in the MDAB are out of the west and southwest. Theses prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes from the main channels for these air masses.

The Mojave Desert receives precipitation from winter cold fronts and moist southerly air masses during the late summer. Annual average precipitation for the same period is recorded at 5.56 inches at the Victorville Station. Summer thunderstorms bring highly variable amounts of localized rain. The rain from these storms falling into the dry air often evaporates before reaching the surface. However, if the storm lasts long enough, the area beneath the storm may get several inches of rain over a short time leading to flash floods and rapid erosion in washes and gullies. The Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. Inversions are layers in the atmosphere where the temperature increases with height instead of decreasing as is normal. There are two types of inversion affecting the High Desert. The first is the regional inversions caused by subsiding air within the high-pressure systems that dominate the summer weather. These subsidence inversions can occur at varying altitudes, with corresponding variable effects on the pollution levels. The lower the inversion level, the greater the concentration of pollutants results between it and the ground. The second type is the radiation inversion that forms when the ground cools rapidly after sunset, cooling the air immediately above it at the same time. Radiation inversions can cause significant concentrations of pollutants because they are

generally only a few hundred feet above the ground and are strongest during early morning commuting time. Especially in the desert, rapid heating of the ground usually disperses radiation inversions within an hour of sunrise.

At a height of 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long period of time, allowing them to form secondary pollutants by reacting with sunlight. The inversion conditions in the MDAB are much less favorable for the buildup of high ozone concentrations than in the coastal areas of Southern California. When subsidence inversions occur, they are generally 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is often much lower. As a result, meteorology in the MDAB is less conducive for the chemical mixing characteristic of typical ozone formation.

The area in which the proposed project is located offers clear skies and sunshine; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerolsols emitted by trucks, automobiles, furnaces, and other sources.

2.2. Regulatory Setting

Many statutes, regulations, plans, and policies have been adopted that address air quality issues. At the federal level, the United States Environmental Protection Agency (EPA) is responsible for implementation of the Federal Clean Air Act (CAA or FCAA). Some portions of the CAA (e.g., certain mobile source and requirements) are implemented directly by EPA. Other portions of the CAA are implemented by state and local agencies. The proposed project is subject to air quality regulations developed and implemented at the federal, state, and local levels. Plans, policies, and regulations that are relevant to the proposed project are discussed in the following sections.

2.2.1. Federal Regulations including the Clean Air Act Amendments of 1990

The CAA as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: CO, nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Under the 1990 CAA Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of the CAA requirements. Title I of the amendments defines conformity as follows:

Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and

i. That such activities will not cause or contribute to any new violation of any NAAQS in any area;

ii. That such activities will not increase the frequency or severity of any existing violation of any NAAQS in any area; or

iii. That such activities will not delay timely attainment of any NAAQS.

Conformity with the CAA takes place on two levels – first, at the regional level and second, at the project level. A project must conform at both levels to satisfy the conformity requirements.

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO_2, O_3, and PM. California is in attainment for the other criteria pollutants. At the regional level, RTP is developed that includes all of the transportation projects planned for a region over a period of years, usually at least 25. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the metropolitan planning organization, such as SCAG and the appropriate federal agencies, such as the FHWA and the Federal Transit Administration (FTA), make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires a "hot-spot" analysis if an area is designated as "non-attainment" or "maintenance" for any of the criteria pollutants. A region is a "non-attainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or PM analysis performed for the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) purposes. Conformity does include some specific standards for projects that require a hot-spot analysis. In general, projects must not cause the CO standard to be violated, and in "non-attainment" areas the project must not cause any increase in the number and severity of violations. If a project has known CO or PM violation and is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.2.2. Chronology of Transportation Conformity Milestones

The basis of regional and project-level air quality date back to the passage of the federal Clean Air Act of 1970 (FCAA) (Pub.L. 101-549). Since the inception of FCAA, many milestones to improve air quality have been undertaken through various laws, regulations, and rules. Several of the significant achievements are highlighted below.

- In 1976, the California Legislature adopted the Lewis Air Quality Management Act that created the Air Quality Management Districts (AQMDs) in addition to Air Pollution Control Districts (APCDs). Though separate from federal actions, the creation of AQMDs is an integral part of transportation conformity. The AQMDs and APCDs promulgate the SIPs for achieving cleaner air quality on a region-by-region basis. The SIP is a legal agreement between California and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The regional analysis is the responsibility of the Metropolitan Planning Organization (MPO) and

the project-level analysis is that of the project sponsor. For both analyses, the AQMD or APCD overseeing the air basin provide technical support.

- Amendments were added that culminated in the Amendments of 1977 (Pub. L.95-95). The key provisions of the 1977 FCAA ascertained the assurance of conformity as an affirmative responsibility of the head of each Federal agency and that no MPO could approve any transportation plan, program, or project that did not conform to a SIP. Specifically, the 1977 FCAA stated: "No Federal department shall 1) engage in, 2) support in any way or provide financial assistance for, 3) license or permit, or 4) approve any activity which does not conform to a (State Implementation Plan) after it has been approved or promulgated."
- The most recent revision to the FCAA is the Amendment of 1990 [CAA §176(c)(1), 42 U.S.C. § 7506 (c)(1)]. The scope and content of transportation conformity provisions were expanded to require the reconciliation of the emissions impacts of transportation plans, programs, and projects with the SIP. Specifically, transportation plans, programs, and projects must conform to the purpose of the SIP. This integration of transportation and air quality planning is intended to ensure that transportation plans, programs, and projects will not: "(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emissions reductions or other milestones in any area."
- The 1990 FCAA required a mechanism to conform the transportation plans, programs, and projects to the SIP. This was accomplished by the development of the Transportation Conformity Rule (40 CFR Parts 51 and 93) in 1993. This rule established the criteria and procedures by which the FHWA, the FTA, and MPO entities determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIP provisions.
- Subsequently, a major revision was made to the Transportation Conformity Rule in 1997 and the August 1997 Transportation Conformity Rule Amendments revised the rule to: 1) streamline and clarify regulatory text; 2) eliminate the build/no-build test when SIP budgets have been submitted; 3) provide more flexibility even where there are no submitted SIP budgets; 4) allow for previously planned non-Federal projects to go forward when there is no currently conforming transportation plan/transportation improvement program (TIP) (the Court found this provision invalid and it no longer applies); 5) limit network-based modeling requirements to large, urban areas; 6) provide rural areas the flexibility to choose among several conformity tests; 7) streamline and clarify modeling requirements; and 8) makes consequences of an EPA SIP disapproval without a protective finding less severe (the court found this provision invalid and it no longer applies).
- The November 2003 amendment revises only 40 CFR Part 93 and is entitled Transportation Conformity Rule Amendments for the New 8-Hour ozone and $PM_{2.5}$ National Ambient air Quality Standards and Miscellaneous Revisions for Existing Areas; Proposed Rule. This revision advances the 1997 version and incorporates two additional criteria pollutants by addressing: 1) conformity grace period and revocation of the 1-hour ozone standard; 2) general changes in the interim emissions tests; 3) regional conformity tests in 8-hour ozone areas that do not have 1-hour ozone SIPs; 4) regional conformity test in 8-hour ozone areas that have 1-hour ozone SIPs; 5) regional conformity tests in $PM_{2.5}$ areas; 6) consideration of

direct $PM_{2.5}$ and $PM_{2.5}$ precursors in regional emissions analyses; 7) re-entrained road dust in $PM_{2.5}$ regional emissions analyses; 8) construction-related fugitive dust in $PM_{2.5}$ regional emissions analyses; 9) compliance with $PM_{2.5}$ SIP control measures; 10) $PM_{2.5}$ hot-spot analyses; 11) PM_{10} hot-spot analyses; and 12) miscellaneous revisions for new and existing areas.

- In March of 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM_{10} and $PM_{2.5}$ Hot-spot impacts. Only projects that are considered "Projects of Air Quality Concern" or POAQCs, are required to perform an analysis. POAQCs are defined, generally, as those for new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, projects affecting intersections that are LOS D, E, or F with a significant number of diesel vehicles, new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and projects in or affecting locations, areas or categories of sites which are identified in the PM_{10} or $PM_{2.5}$ applicable implementation plan as sites of possible violation. The rule allows for project sponsors who have already prepared a PM_{10} hot-spot analysis based on prior guidance to continue using that analysis without any changes.
- In January 24, 2008, the Transportation Conformity Rule was amended to implement provisions contained in the 2004 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). On August 10, 2005, the SAFETEA-LU section 6011 amended the CAA Section 176 (c) by:
  - Changing the required frequency of transportation conformity determinations from three years to four years;
  - Providing two years to determine conformity after new SIP motor vehicle emissions budgets are either found adequate, approved or promulgated;
  - Adding a one-year grace period before the consequences of a conformity lapse apply;
  - Providing an option for reducing the time period addressed by conformity determinations;
  - Streamlining requirements for conformity SIPs; and
  - Providing procedures for areas to use in substituting or adding Transportation Control Measures (TCMs) to approved SIPs.
- On March 10, 2010, the final Transportation Conformity Rule was amended to provide clear guidance on how to implement transportation conformity under the 2006 $PM_{2.5}$ NAAQS. Conformity applies in 2006 $PM_{2.5}$ nonattainment areas for this NAAQS on December 14, 2010, based on the one-year grace period for newly designated areas in the CAA and the transportation conformity rule. The final rule also updates the conformity regulation to:
  - Include the requirements for demonstrating conformity for the 2006 $PM_{2.5}$ NAAQS, including the regional emissions test(s) that would apply before and after SIP motor vehicle emissions budgets are established for the revised NAAQS;
  - Update the baseline year for the interim emissions test to calendar year 2008 in 2006 $PM_{2.5}$ nonattainment areas;

- Clarify with budgets PM_{10} nonattainment and maintenance areas would use for transportation conformity determinations, now that the annual PM_{10} standard has been revoked; and
- Clarify that federally funded or approved highway and transit projects in $PM_{2.5}$, PM_{10} and CO nonattainment and maintenance areas must not delay timely attainment or achievement of other interim milestones.

- On December 14, 2010, the Environmental Protection Agency (EPA) revised the ambient monitoring requirements for measuring lead (Pb) in the air. These amendments expand the nation's lead monitoring network to better assess compliance with the revised National Ambient Air Quality Standards (NAAQS) for lead issued in 2008. EPA is changing the emission threshold that state monitoring agencies must use to determine if an air quality monitor should be placed near an industrial facility that emits lead. The new emission threshold is 0.5 tones per year (tpy), reduced from the previous threshold of 1.0 tpy. Any new monitors located near an emissions source must be operational no later than one yar after this rule is published in the Federal Register. EPA is also requiring lead monitoring in large urban areas (Core Based Statistical Areas, or CBSAs, with a population of 500,000 people or more). Monitors will be located along with multi-pollutant ambient monitoring sites (known as the :NCore network"). Lead monitoring at these site will begin January 1, 2012.
  - The NCore network will consist of approximately 80 monitoring sites, of which 63 will be in large urban areas. The requirement to add these monitors replaces an existing requirement to place lead monitors in each CBSA with a population of 500,000 or more people.
  - EPA estimates that a net increase of up to 76 lead monitors will be required to satisfy the revised monitoring requirements.
  - Increase of 114 source-oriented monitors
  - Increase of 63 monitors at urban NCore network sites
  - Decrease of 101 non-source-oriented monitors previously required in CBSA's with a population of 500,000 or more
- On April 30, 2012, the EPA issued a final rule that directs key aspects of the implementation of the 2008 NAAQS for ground-level ozone. The EPA set these final standards at 0.075 PPM on March 12, 2008. This final action specifically:
  - Establishes air quality thresholds that define each of the five CAA nonattainment classifications;
  - Establishes December 31 of each relevant calendar year as the attainment date for each classification;
  - Grants voluntary reclassifications under the 2008 ozone NAAQS to the six California nonattainment areas that requested a bump-up to a higher classification under the 1997 ozone NAAQS; and
  - Revokes the 1997 ozone NAAQS for purposes of transportation conformity.

2.2.3. State Regulations

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was enacted September 30, 1988, and it became effective January 1, 1989. The CCAA requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The CAAQS are more stringent than the NAAQS for most of the criteria air pollutants. In addition, the CAAQS include standards for other pollutants recognized by the state. These include sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Moreover, on April 28, 2005, the California Air Resources Board (CARB or ARB) approved a new 8-hour average O_3 standard of 0.070 ppm to further protect California's most vulnerable population (i.e., children) from the adverse health effects associated with ground-level O_3. The standard went into effect in early 2006.

The state regulations that are applicable to the project include the following:

California Diesel Fuel Regulations. This rule sets sulfur limitations for diesel fuel sold in the state for use in on-road and off-road motor vehicles (CARB 2004). Harbor craft and intrastate locomotives were originally excluded from the rule, but they were later included by a 2004 rule amendment (CARB 2005). Under this rule, diesel fuel used in motor vehicles, except harbor craft and intrastate locomotives, has been limited to 500-ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006 (A federal diesel rule similarly limited sulfur content nationwide for on-road vehicles to 15 ppm beginning October 15, 2006). Diesel fuel used in harbor craft in the SCAQMD also was limited to 500-ppm sulfur starting January 1, 2006 and 15-ppm sulfur by September 1, 2006. Diesel fuel used in intrastate locomotives (i.e., switch locomotives) was limited to 15-ppm sulfur starting January 1, 2007.

Heavy-Duty Diesel Truck Idling Regulation. This CARB rule became effective in February 1, 2005, and it prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time. Truck idling for longer than 5 minutes while queuing is allowed, however, provided the queue is located beyond 100 feet from any homes or schools (CARB 2006d).

Western Regional Climate Action Initiative. In 2007, the states of California, Arizona, New Mexico, Oregon, Washington, Utah, and Montana, and Canadian provinces of British Colombia, Manitoba, and Quebec signed the Western Regional Climate Action Initiative (WCI). The goal of the Initiative is to collaborate to identify, evaluate, and implement ways to reduce greenhouse gas (GHG) emissions, as well as to design a regional market-based multi-sector mechanism by the end of 2008. In addition, a multi-state registry will track, manage, and credit entities that reduce GHG emissions.

AB 1493 – Vehicular Emissions of Greenhouse Gases. California Assembly Bill (AB) 1493 (Pavley) was signed by Governor Gray Davis on July 22, 2002. It required CARB to develop and implement that regulations reduce GHGs emitted by passenger vehicles and light-duty trucks. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year; however, in order to enact the standards California needed a waiver from the EPA. The waiver was denied by EPA in December 2007 (see California v. EPA, 9th Cir. Jul. 25, 2008, No. 08-70011). However, on January 26, 2009, it was announced that EPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 mpg fuel economy standard for automobiles and light duty trucks which will take effect in 2012. On June 30, 2009 EPA granted

California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

AB 32 – California Global Warming Solution Act of 2006. On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order (EO) S-3-05. This Executive Order established GHG emission reduction targets and the Climate Action Team (CAT). The goal was to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020 and (3) 80 percent below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of AB 32, the California Global Warming Solutions Act of 2006. On September 27, 2006, the California Global Warming Solutions Act was signed into law by Governor Schwarzenegger. AB 32 sets the same overall GHG emissions reduction goals of EO S-3-05, while further mandating that CARB create a plan, which includes market mechanisms (e.g., a cap-and-trade system), and implement rules to achieve "real, quantifiable, cost-effective reductions of GHGs." EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team. In December 2008, CARB adopted a final scoping plan for reducing California's GHG emissions.

EO S-01-07. EO S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. The order mandates the following: (1) establish a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) establish a Low Carbon Fuel Standard (LCFS) for transportation fuels for California.

California Climate Action Registry. Established by the California Legislature in 2000, the California Climate Action Registry (CCAR or the Registry) is a nonprofit public-private partnership that maintains a voluntary registry for GHG emissions. The purpose of the Registry is to help companies, organizations, and local agencies establish GHG emissions baselines for purposes of complying with future GHG emission reduction requirements. Furthermore, it promotes credible, accurate, and consistent GHG reporting standards and tools for organizations to measure, monitor, verify, and reduce their GHG emissions consistently across industry sectors and geographical borders.

SB 97. Senate Bill (SB) 97, which was enacted in 2007, directs the state Office of Planning and Research (OPR) to develop draft CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010. Currently, at the request of OPR, CARB is preparing draft CEQA thresholds of significance for future OPR consideration.

2.2.4. Local Plans and Regulations

CARB coordinates and oversees state and federal air pollution control programs in California. CARB has divided the state into 15 air basins. Authority for air quality control within each basin has been given to local APCD or AQMD to regulate stationary source emissions and develop local plans for achieving and maintaining attainment.

The proposed project is located in the MDAB, comprised of Kern, Los Angeles, San Bernardino, and Riverside Counties. The proposed project corridor is located in Los Angeles County (32.5 miles) and San Bernardino County (30.5 miles).

The primary agencies responsible for attaining state and federal air quality standards in the MDAB for the proposed corridor are the AVAQMD and the MDAQMD. The AVAQMD and MDAQMD work directly with SCAG, a metropolitan planning organization, and with local governments; and they cooperate actively with all states and federal government agencies. The AVAQMD and MDAQMD regulate stationary source emissions and have been given the authority to regulate mobile emissions as an indirect source. As such, they also have transportation-related programs aimed primarily at reducing the number of cars on the road and promoting the use of cleaner fuels and vehicles. In addition, both AVAQMD and MDAQMD are responsible for developing and adopting an air quality management plan (AQMP) that serves as the blueprint for all future rules necessary to bring the region into compliance with federal and state clean air standards. CARB regulates motor vehicles and fuels.

Both the AVAQMD and MDAQMD are required to update its plans on a regular basis. Updates may be in the form of a new plan or an amendment. Plans range in scope from the regional AQMP to plans dealing with specific pollutants in specific geographic locales. Every 3 years, the AVAQMD and MDAQMD prepare an overall plan for air quality improvement. Each update of the plan includes revisions and amendments to the previous plan and has a 20-year horizon. The 2007 AQMP employs the most recent scientific findings, primarily in the form of updated emission inventories, ambient measurements, new meteorological episode data, and new modeling tools. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, area sources, and on-road and off-road mobile sources.

Currently, the MDAB has an approved 2004 Ozone SIP (Attainment Plan), an adopted 2008 8-hour Ozone SIP (Attainment Plan), and two PM_{10} SIPs pending adequacy finding with no prior approval. The entire Basin has been designated as a nonattainment area for the PM_{10} state standard. However, the Antelope Valley is not included in the federal nonattainment area for PM_{10}. The 2008 Ozone SIP was submitted in February 2008, but this plan has not been approved by the EPA due to the region exceeding the federal 8-hour ozone standards 14 days in that year. The approved 2004 Ozone SIP for the Southeast Desert Modified Area, which contains the MDAB, allows for an emissions budget test. Furthermore, the motor vehicle emissions budgets (MVEBs) in the Antelope Valley-Western Mojave Desert 8-hour Ozone Early progress plan were found adequate for transportation conformity purposes. Consistent with the 2004 final amendments to the Transportation Conformity Rule (69 FR 4004) these 8-hour motor vehicle emissions budgets replace the existing 1-hour ozone motor vehicle emission budgets from the 2004 Attainment Plan. The two other SIPs are the-1995 PM_{10} SIP for MDAB (excluding Searles Valley), and the 1996 PM_{10} SIP for Searles Valley are still pending and adequacy findings due to the different motor vehicle emissions not being combined into clearly defined budgets consistent with the federal conformity regulations.

AVAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. The most pertinent AVAQMD rules to the proposed project are listed below.

Rule 401 – Visible Emissions. No emissions may exceed No. 1 on the Ringelmann Chart for a period or periods aggregating more than three minutes in any one hour.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust. Visible dust is prohibited beyond the property line of an emission source. PM_{10} levels are prohibited from exceeding 50 micrograms per cubic meter when determine by simultaneous upwind and downwind sampling. Rule 403 contains a menu of best applicable control measures to reduce fugitive dust impacts.

MDAQMD also adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. The most pertinent MDAQMD rules to the proposed project are listed below.

Rule 401 – Visible Emissions. No emissions may exceed No. 1 on the Ringelmann Chart for a period or periods aggregating more than three minutes in any one hour.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust. Visible dust is prohibited beyond the property line of an emission source. PM_{10} levels are prohibited from exceeding 50 micrograms per cubic meter when determine by simultaneous upwind and downwind sampling. Rule 403 contains a menu of best applicable control measures to reduce fugitive dust impacts.

Rule 403.1 – Fugitive Dust Control for the Searles Valley Planning Area. To ensure that the NAAQS for PM_{10} will not be exceeded due to anthropogenic sources within the San Bernardino County portion of the Searles Valley Planning Area.

Rule 403.2 – Fugitive Dust Control for the Mojave Desert Planning Area. To ensure that the NAAQS for PM_{10} will not be exceeded due to anthropogenic sources within the San Bernardino County portion of the Mojave Desert Planning Area.

2.3. Existing Ambient Air Quality

Monitoring data were obtained from Lancaster and Victorville stations and were reviewed to establish the current ambient level within the project limits and to help establish future localized pollutant concentrations as affected by the proposed projects. The Lancaster station is located at 43301 Division Street, Lancaster, 93535, (latitude (N) = 34.66944 and Longitude (W) = -118.13056), approximately 1.3 miles east of SR-14 and approximately 5 miles north of the proposed HDC alignment. The Victorville station is located at 14306 Park Avenue, Victorville, (latitude (N) = 34.51083 and Longitude (W) = -117.32556), approximately 0.2 miles west of I-15 and 0.25 miles north of SR-18. Figure 5 illustrates the proximity of these monitoring stations to the freeway and to the proposed projects. Table 1 provides a summary of traffic activity data along the I-15 and SR-18 near the Victorville monitoring station as well as those along SR-14

near the Lancaster monitoring station in comparison to the level of traffic anticipated along the HDC within the project limits.

Table 1. Existing Traffic Data along the Project and Near Air Monitoring Stations

Location	AADT		% Truck
	Total	Truck	
SR- 138 near the HDC project limits (Between PM 42.4 to 84.4)	1,600 - 31,500	210 – 2,484	4.4 – 14.1
I-15 near Victorville monitoring station (Interchange, PM 36.41)	85,000 - 86,000	15,540	18.07
SR-18 near Victorville monitoring station	26,500 – 40,000	2,063	7.5
SR-14 near Lancaster monitoring station	73,000 - 88,000	4,497	5.84

Source: Parsons February 2013 Traffic Study Report Vol. 1

As indicated in Table 1 above, the portion of I-15, SR-18, and SR-14 experience volumes comparable to the proposed HDC within the limits of the project. In addition, percentage and volume of trucks (18,434 truck AADT and 6.9% of trucks) carried along I-210 in the vicinity of the Azusa monitoring station are also deemed comparable to those within the project limits of the HDC.

The monitoring stations and the project site experience similar meteorological conditions due to proximity to coastal and central regions by mountains (highest elevation approximately 10,000 feet), whose passes from the main channels for these air masses. Prevailing winds in the MDAB are out of the west and southwest. Therefore, it is expected that air pollutants originating from the proposed project would be blown in the direction of the monitoring stations.

Based on the comparison of the traffic volumes, land uses, and the proximity to the freeway, the ambient concentration data measured at the Lancaster and Victorville monitoring stations are deemed representative for comparison to the proposed project.

A summary of the most recent three years of ambient air monitoring data at the Lancaster and Victorville Stations for criteria pollutants is provided in Tables 2 and 3.

Table 2. Ambient Monitoring Data at Lancaster Station

Pollutant Standards	2009	2010	2011	2012	2013	2014
1-Hour Ozone						
Maximum 1-hour concentration (ppm)	0.122	0.107	0.115	0.112	0.108	0.101
1-hour California designation value	0.12	0.11	0.11	0.11	0.11	0.11
1-hour expected peak-day concentration	0.117	0.114	0.113	0.108	0.112	0.107
CAAQS 1-hour (> 0.09 ppm)	22	11	19	13	9	3
8-Hour Ozone						
National maximum 8-hour concentration (ppm)	0.122	0.096	0.100	0.095	0.093	0.087
National second-highest 8-hour concentration (ppm)	0.116	0.095	0.098	0.089	0.092	0.086
State maximum 8-hour concentration (ppm)	0.102	0.096	0.100	0.096	0.094	0.088

	State second-highest 8-hour concentration (ppm)	0.098	0.095	0.098	0.089	0.094	0.087
	8-hour national designation value	0.093	0.091	0.091	0.089	0.090	0.086
	8-hour California designation value	0.103	0.098	0.102	0.098	0.100	0.096
	8-hour expected peak-day concentration	0.103	0.101	0.102	0.099	0.100	0.096
Number of days standard exceeded[a]							
	NAAQS 8-hour (> 0.075 ppm)	44	45	53	39	34	17
	CAAQS 8-hour (> 0.070 ppm)	70	78	76	72	53	36
Carbon Monoxide (CO)							
	National[b] maximum 8-hour concentration (ppm)	1.8	1.2	1.3	1.4	1.2	10.6
	National[b] second-highest 8-hour concentration (ppm)	1.8	1.1	1.2	1.3	1.1	10.5
	California[c] maximum 8-hour concentration (ppm)	1.00	1.23	1.33	1.00	*	*
	California[c] second-highest 8-hour concentration (ppm)	0.94	1.01	1.20	0.99	*	*
	Maximum 1-hour concentration (ppm)	1.8	1.8	2.3	1.9	1.9	15.2
	Second-highest 1-hour concentration (ppm)	1.8	1.6	1.6	1.8	1.8	14.8
Number of days standard exceeded[a]							
	NAAQS 8-hour (≥ 9.0 ppm)	0	0	0	0	0	5
	CAAQS 8-hour (≥ 9.0 ppm)	0	0	0	0	*	*
	NAAQS 1-hour (≥ 35 ppm)	0	0	0	0	0	0
	CAAQS 1-hour (≥ 20 ppm)	0	0	0	0	*	*
Particulate Matter (PM10)[d]							
	National[b] maximum 24-hour concentration (μg/m^3)	60.0	39.0	51.0	47.0	47	131
	National[b] second-highest 24-hour concentration (μg/m^3)	58.0	31.0	43.0	38.0	43	80
	State[c] maximum 24-hour concentration (μg/m^3)	56.0	829.0	49.0	43.0	173	*
	State[c] second-highest 24-hour concentration (μg/m^3)	34.0	36.0	40.0	35.0	68	*
	State annual average concentration (μg/m^3)	*	18.5	19.6	19.8	21.8	24.3
Number of days standard exceeded[a]							
	NAAQS 24-hour (>150 (μg/m3)[f]	0	0	0	0	0	0
	CAAQS 24-hour (>50 (μg/m3)[f]	1	1	0	0	*	*
Particulate Matter (PM2.5)							
	National[b] maximum 24-hour concentration (μg/m^3)	20.0	15	50	14	11.9	42
	National[b] second-highest 24-hour concentration (μg/m^3)	16.0	14	13	10	10.5	27.9
	State[c] maximum 24-hour concentration (μg/m^3)	20.0	15.0	50.0	14.0	11.9	42.0
	State[c] second-highest 24-hour concentration (μg/m^3)	16.0	14.0	13.0	10.0	10.5	27.9
	National annual designation value (μg/m^3)	*	*	*	*	*	*
	National annual average concentration (μg/m^3)	7.7	*	*	*	5.8	7.2
	State annual designation value (μg/m^3)	8	8	8	*	*	*
	State annual average concentration (μg/m^3)[e]	7.8	*	*	*	*	*
Number of days standard exceeded[a]							
NAAQS 24-hour (>35 (μg/m^3))		0	0	1	0	0	1

Table 3. Ambient Monitoring Data at Victorville Station

Pollutant Standards	2009	2010	2011	2012	2013	2014
1-Hour Ozone						
Maximum 1-hour concentration (ppm)	0.111	0.111	0.098	0.111	0.120	0.122
1-hour California designation value	0.11	0.11	0.11	0.10	0.11	0.11
1-hour expected peak-day concentration	0.109	0.111	0.105	0.103	0.105	0.105
Number of days standard exceeded[a]						
CAAQS 1-hour (> 0.09 ppm)	8	6	2	6	9	3
8-Hour Ozone						
National maximum 8-hour concentration (ppm)	0.111	0.092	0.085	0.094	0.097	0.096
National second-highest 8-hour concentration (ppm)	0.110	0.087	0.082	0.090	0.093	0.094
State maximum 8-hour concentration (ppm)	0.097	0.093	0.085	0.095	0.097	0.097
State second-highest 8-hour concentration (ppm)	0.096	0.088	0.083	0.090	0.093	0.094
8-hour national designation value	0.087	0.087	0.083	0.083	0.085	0.086
8-hour California designation value	0.097	0.097	0.093	0.093	0.095	0.097
8-hour expected peak-day concentration	0.097	0.097	0.094	0.093	0.096	0.097
Number of days standard exceeded[a]						
NAAQS 8-hour (> 0.075 ppm)	23	19	5	28	31	18
CAAQS 8-hour (> 0.070 ppm)	53	35	13	58	60	40
Carbon Monoxide (CO)						
National[b] maximum 8-hour concentration (ppm)	1.8	2.3	1.5	1.8	0.9	9.2
National[b] second-highest 8-hour concentration (ppm)	1.7	1.6	1.5	1.5	0.9	7.8
California[c] maximum 8-hour concentration (ppm)	1.14	5.17	1.51	1.83	0.80	*
California[c] second-highest 8-hour concentration (ppm)	1.07	4.26	1.50	1.52	0.67	*
Maximum 1-hour concentration (ppm)	1.8	8.7	1.9	2.1	1.2	11.5
Second-highest 1-hour concentration (ppm)	1.7	5.3	1.8	1.9	1.1	11.1
Number of days standard exceeded[a]						
NAAQS 8-hour (≥ 9.0 ppm)	0	0	0	0	0	0
CAAQS 8-hour (≥ 9.0 ppm)	0	0	0	0	*	*
NAAQS 1-hour (≥ 35 ppm)	0	0	0	0	0	0
CAAQS 1-hour (≥ 20 ppm)	0	0	0	0	*	*
Particulate Matter (PM10)[d]						
National[b] maximum 24-hour concentration (µg/m^3)	53.0	44.0	36.0	45.0	77.9	104
National[b] second-highest 24-hour concentration (µg/m^3)	49.0	35.0	35.0	41.0	58.0	98
State[c] maximum 24-hour concentration (µg/m^3)	51.0	40.0	34.0	40.0	70.6	*
State[c] second-highest 24-hour concentration (µg/m^3)	34.0	34.0	33.0	40.0	52.8	*
State annual average concentration (µg/m^3)	23.9	21.8	22.1	23.3	22.5	30.2
Number of days standard exceeded[a]						
NAAQS 24-hour (>150 (µg/m3)[f]	0	0	0	0	0	0
CAAQS 24-hour (>50 (µg/m3)[f]	1	0	0	*	*	*
Particulate Matter (PM2.5)						

	National[b] maximum 24-hour concentration (µg/m^3)	20.0	18	15.0	12.0	13.1	24
	National[b] second-highest 24-hour concentration (µg/m^3)	17.0	15	11.0	12.0	11.8	24
	State[c] maximum 24-hour concentration (µg/m^3)	20.0	20.0	16.0	12.0	13.8	24.1
	State[c] second-highest 24-hour concentration (µg/m^3)	17.0	16.0	12.0	12.0	12.7	24.1
	National annual designation value (µg/m^3)	*	*	*	*	*	*
	National annual average concentration (µg/m^3)	8.9	7.2	*	*	*	*
	State annual designation value (µg/m^3)	10	9	9	8	*	*
	State annual average concentration (µg/m^3)[e]	9.3	7.5	*	*	*	*
Number of days standard exceeded[a]							
NAAQS 24-hour (>35 (µg/m^3))		0	0	0	0	0	0

Sources: *California Air Resources Board 2010b; U.S. Environmental Protection Agency 2010a;* California Air Resources Board ADAM database (http://www.arb.ca.gov/adam/)*; and U.S. Environmental Protection Agency database Ihttp://www3.epa.gov/airdata/.*

Notes:

CAAQS = California Ambient Air Quality Standards.

NAAQS = National Ambient Air Quality Standards.

* = insufficient data available to determine the value.

a: An exceedance is not necessarily a violation.

b: National statistics are based on standard conditions data. In addition, national statistics are based on samplers, using federal reference or equivalent methods.

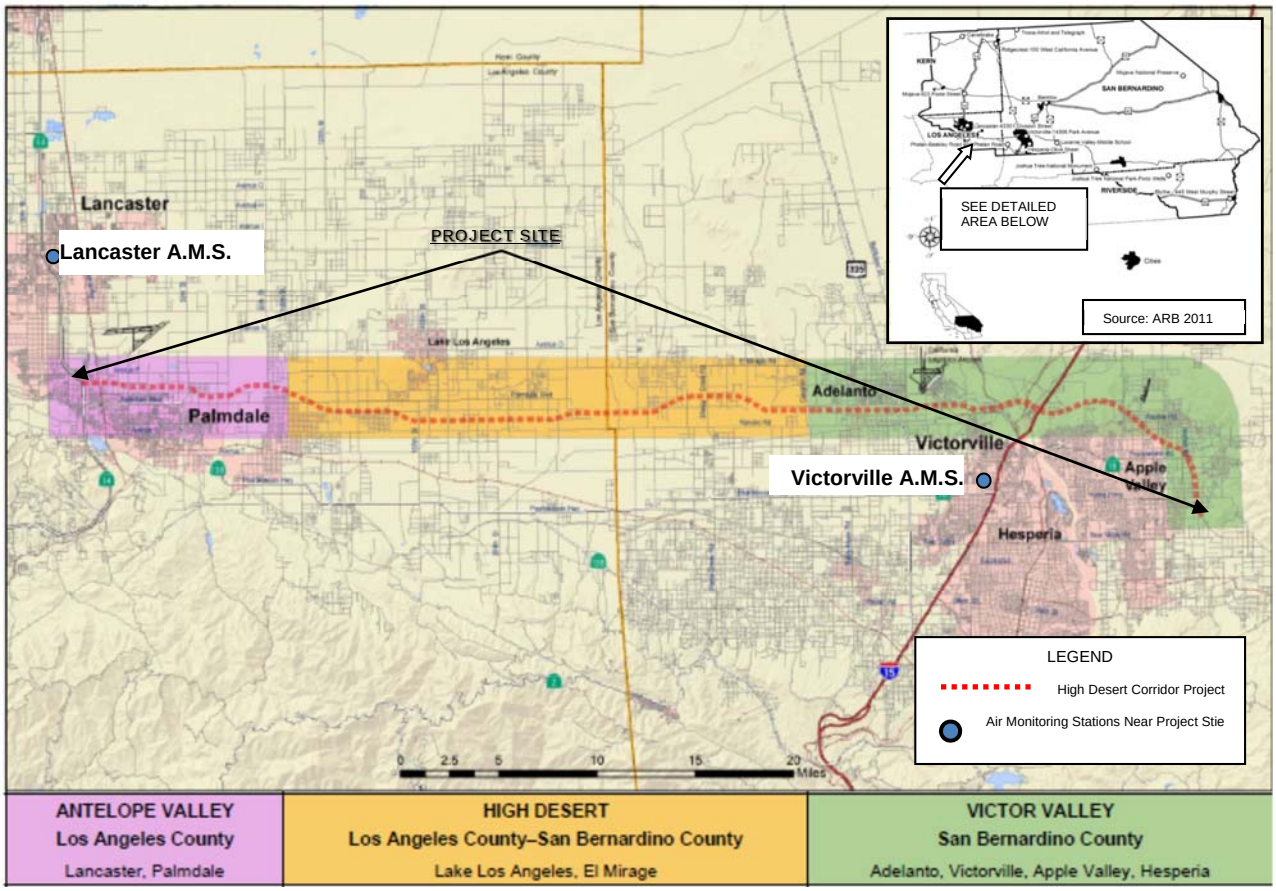
c: State statistics are based on local conditions data, except in the South Coast Air Basin; statistics there are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

d: Measurements are usually collected every 6 days.

e: The state criteria for ensuring that the data are complete for calculating valid annual averages are more stringent than the national criteria.

f: Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Figure 5. Mojave Desert Air Basin Monitoring Stations – Los Angeles County



2.4. Criteria Pollutants

Since the passage of CAA and subsequent amendments, the EPA has established and revised the NAAQS. The NAAQS was established for six major pollutants or criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property). The six criteria pollutants are ozone, CO, PMs (PM_{10} and $PM_{2.5}$), NO_2, SO_2, and lead (Pb). Table 4 presents the state and national AAQS. Table 5 presents a summary of health effects that result from exposure to these pollutants. A brief explanation of each pollutant is presented below.

Ozone (O_3)

Ozone is a toxic gas that irritates the lungs and damages materials and vegetation. Ozone is a secondary pollutant; it is not directly emitted. Ozone is a principal cause of lung and eye irritation in an urban environment. It is formed in the atmosphere through a series of reactions involving hydrocarbons (HC) and nitrogen oxides in the presence of sunlight.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles between 10 and 2.5 microns in size (PM_{10}) and smaller than or equal to 2.5 microns ($PM_{2.5}$). The size of the PM is referenced to the aerodynamic diameter of the particulate. The PM_{10} criteria are aimed primarily at what the EPA refers to as "coarse particles." Course particles are often found near roadways, dusty industries, construction sites,

and fires. The $PM_{2.5}$ criteria, which are directed at particles less than or equal to 2.5 microns in size, are referred to as "fine particles." These particles can also be directly emitted and they can also be formed when gases emitted from power plants, industries and automobiles react in the air. The principal health effect of airborne PM is on the respiratory system. Studies have linked particulate pollution with irritation of the airways, coughing, aggravated asthma, irregular heartbeat, and premature death in people with heart or lung disease.

Carbon Monoxide (CO)

CO is a colorless and odorless gas, which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Nitrogen Oxides (NO_X)

Nitrogen oxides from automotive sources are some of the precursors in the formation of ozone and secondary PM. Ozone and PM are formed through a series of photochemical reactions in the atmosphere. Because the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from the source of precursor emission. The effects of nitrogen oxides emission are examined on a regional basis.

Lead (Pb)

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming or hematopoletic, the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles, and decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters) and are not applied to transportation projects.

Sulfur Oxides (SO_x)

Sulfur oxides constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. The oxides are formed during combustion of the sulfur components in motor fuels. Relatively few sulfur oxides are emitted from motor vehicles since motor fuels are now de-sulfured. The health effects of sulfur oxides include respiratory illness, damage to the respiratory tract, and bronchia-constriction.

Table 4. Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 5. Health Effect Summary from Criteria Pollutants

Pollutant	Sources	Primary Effects
Ozone (O_3)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory diseases; irritation of eyes; impairment of pulmonary function; plant leaf injury.
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust; high temperature; stationary combustion; atmospheric reactions.	Aggravation of respiratory illness; reduced visibility; reduced plant growth; formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; and natural events, such as decomposition of organic matter.	Reduced tolerance for exercise; impairment of mental function; impairment of fetal development; impairment of learning ability; death at high levels of exposure; aggravation of some cardiovascular diseases (angina).
Particulate Matter (PM_{10} and $PM_{2.5}$)	Fuel combustion in motor vehicles, equipment, and industrial sources; construction activities; industrial processes; residential and agricultural burning; atmospheric chemical reactions.	Reduced lung function; aggravation of the effects of gaseous pollutants; aggravation of respiratory and cardio-respiratory diseases; increased cough and chest discomfort; soiling; reduced visibility.
Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ores; industrial processes.	Aggravation of respiratory and cardiovascular diseases; reduced lung function; carcinogenesis; irritation of eyes; reduced visibility; plant injury; deterioration of materials (e.g., textiles, leather, finishes, coating).
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction; behavioral and hearing problems in children.

Source: EPA, 2006

2.5. Attainment Status

The Antelope Valley Air Pollution Control District (AVAPCD) was established as its own air district when it assumed jurisdiction over the high desert portion of Los Angeles County from the SCAQMD on July 1, 1997. The AVAPCD was later replaced by the AVAQMD on January 1, 2002. As a successor district to the SCAQMD, the AVAQMD assumes the authorities and duties of the SCAQMD for the Antelope Valley.

The SCAQMD addressed the high desert portion of Los Angeles County in their AQMPs adopted in 1991, 1994, and 1997. The 1994 AQMP is the most recent ozone attainment plan for the high desert portion that has been approved by the EPA. The EPA also approved a revision to the 1997 AQMP that was adopted after the formation of the AVAPCD. Ozone plans have been

adopted by the AVAQMD to address Federal ozone planning requirements, including RACT applicability. The most recent such plan that was approved by the USEPA is the AVAQMD 2004 Ozone Attainment Plan adopted in 2004. The 2008 Ozone Attainment Plan replaced and updates all previously submitted federal ozone plans.

The MDAB is designated as in attainment of standards for CO, $PM_{2.5}$ (portion of MDAQMD outside of Western Mojave Desert Ozone Non-attainment area), NO_2, and SO_2. Portions of the MDAB including the Antelope Valley have been designated as a severe non-attainment area with respect to the federal and state O_3 8-hour standards. The MDAB has been designated as a nonattainment area for PM_{10} federal standard and designated as a non-attainment area for the state PM_{10} and $PM_{2.5}$ standards. However, the Antelope Valley is not included in the federal non-attainment area for PM_{10} or in the state nonattainment area for $PM_{2.5}$.

The AVAQMD is in compliance with the state and federal CO standards as well as NOx state and federal standards. However, since NOx emissions contribute to O_3 generation, emissions are regulated through the O_3 Attainment Plans.

A SIP is required for each criteria pollutant designated as maintenance or non-attainment. MDAB has adopted a variety of attainment plans for ozone and PM_{10} non-attainment pollutants. The 1994 Ozone (1-hour standard) SIP applies to the Basin. The SIP actually applies to the Southeast Desert Modified Area, which includes the Basin, Antelope Valley, and the Coachella Valley. Though the SIP is one document, it is composed of three separate ozone plans, one for each of the areas within the Southeast Desert Modified Area. The 1994 Ozone SIP was amended in 1999. The Basin has two submitted SIPs. The 1995 PM_{10} SIP pertains to the Basin with the exception of Searles Valley. The 1996 PM_{10} SIP addresses Searles Valley. It should be noted that the SIP does not necessarily apply to an entire air basin or to a sub-basin. The US EPA has the latitude in deciding areas affected by a SIP.

The AVAQMD has adopted a single Attainment Plan for ozone. The Attainment Plan was adopted on April 20, 2004 (AVAQMD, *AVAQMD CEQA and Federal Conformity Guidelines*, May 2005). The 2004 ozone Attainment Plan received an adequacy finding by the EPA on the emission budgets for conformity determination and it was published in the Federal Register on May 28, 2004, effective June 14, 2004.

On June 15, 2005 the 1-hour ozone standard was rescinded along with all non-attainment and attainment-maintenance designations; however, the 1-hour ozone NAAQS designation and classification status was retained in reference to the effective date of designation for the 8-hour NAAQS for purposes of the anti-backsliding regulations (40 CFR 51.905).

The CARB submitted the draft Antelope Valley-Western Mojave Desert 8-hour Ozone Early Progress Plan to EPA for parallel processing on February 6, 2008 as a revision to the SIP. The Plan identified regional motor vehicle emissions budgets (MVEBSs) for the nonattainment area for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for the year 2009. EPA has found the MVEBs adequate for transportation conformity purposes on April 16, 2008.

On May 20, 2008, the federal 8-hour ozone attainment plan for the Western Mojave Desert non-attainment was approved by the AVAQMD Board at noticed of public hearing while the MDAQMD adopted its plan on June 9, 2008. These attainment plans replace or update all previously submitted federal ozone plans. The AVAQMD and MDAQMD have each requested a reclassification to severe-17 for their respective portions of the Western Mojave Desert Ozone

non-attainment Area, which would result in an attainment date of 2021 for this region. EPA indicated that reclassification requests for other California areas were pending consultation with Indian tribes in the affected areas.

On June 26, 2009 the EPA proposed to strengthen the primary NAAQS for nitrogen dioxide (NO_2). They announced that the proposed changes to the NO_2 regulations would add a 1-hour component to the standard and require hot spot modeling and analysis for SIP (and eventually project-level conformity) purposes. The EPA's proposed revisions to the primary NO_2 standard would also retain the current annual average NO_2 standard of 53 ppb; add NO_2 monitoring within 50 meters of major roads in cities with at least 350,000 residents and; continue monitoring "area-wide" NO_2 concentrations in cities with at least 1 million residents.

The goal of a SIP is to secure an attainment designation for the criteria pollutant at a future year. As such, a SIP is created if a pollutant is in non-attainment. The AVAQMD portion of the MDAB is in attainment of four criteria pollutants (CO, PM_{10}, $PM_{2.5}$, and NO_2) while it is in nonattainment of one criteria pollutant, O_3. The remaining pollutants have or will have its respective SIP to address attainment for future years. The proposed project will comply with any federal, state, and local rules and regulations developed as part of implementing control measures in the respective SIPs. The following table lists the designations per federal and state AAQS:

Table 6. Designations of Criteria Pollutants in the MDAB within the AVAQMD

Pollutants	Federal	State
O_3 (8-hour)	Non-Attainment-Severe 15	Non-Attainment
CO	Attainment	Attainment
PM_{10}	Unclassified /Attainment	Non-Attainment
$PM_{2.5}$	Unclassified /Attainment	Unclassified /Attainment
NO_2	Unclassified /Attainment	Unclassified /Attainment

Sources: http://pd.dot.ca.gov/env/air/html/areadesig/canafed_index.htm,
http://www.epa.gov/region9/air/maps/pdfs/AIR1100018_7.pdf
http://www3.epa.gov/airquality/greenbk/ancl.html

Notes:

1. The Federal 1-hour Ozone (O3) standard was rescinded effective June 15, 2005 with the implementation of the 8-hour standard.
2. Effective October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 parts per million (ppm).

The MDAQMD portion of the MDAB is in attainment of three criteria pollutants (CO, $PM_{2.5}$, and NO_2) while in nonattainment of the other two (O_3 and PM_{10}). The remaining pollutants have or will have its respective SIP to address attainment for future years. The proposed project will comply with any federal, state, and local rules and regulations developed as part of implementing control measures in the respective SIPs. The following table lists the designations per federal and state NAAQS:

Table 7. Designations of Criteria Pollutants in the MDAB within the MDAQMD

Pollutants	Federal	State
O_3 (8-hour)	Non-Attainment-Severe 15	Non-Attainment
CO	Attainment	Attainment
PM_{10}	Non-attainment, Moderate	Non-attainment
$PM_{2.5}$	Unclassified /Attainment	Non-attainment
NO_2	Unclassified /Attainment	Unclassified /Attainment

Sources: http://pd.dot.ca.gov/env/air/html/areadesig/canafed_index.htm,
http://www.epa.gov/region9/air/maps/pdfs/AIR1100018_7.pdf
http://www3.epa.gov/airquality/greenbk/ancl.html

Notes:

1. The Federal 1-hour Ozone (O3) standard was rescinded effective June 15, 2005 with the implementation of the 8-hour standard.
2. Effective October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 parts per million (ppm).

2.6. Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a TAC. Compared with other air toxics CARB has identified and controlled, diesel particulate matter (DPM) emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (CARB 2000). Through the 1990 amendments to the CAA, Congress mandated that EPA regulate 188 air toxics, which are also known as hazardous air pollutants (HAPs). In the EPA's latest final rule (2007) on the control of hazardous air pollutants from mobile sources (72 FR 8430), the agency identified 93 compounds emitted from mobile sources, which are listed in their Integrated Risk Information System (IRIS). From this list of 93 compounds, EPA has identified seven as priority mobile-source air toxics (MSATs). The high priority of these seven MSATs was based on EPA's 1999 National Air Toxics Assessment (NATA) (FHWA 2012). The seven priority MSATs are as follows:

- acrolein,
- benzene,
- 1,3-butadiene,
- diesel particulate matter plus diesel exhaust organic gases,
- formaldehyde,
- naphthalene, and
- polycyclic organic matter (POM).

The aforementioned 2007 rule requires controls to decrease MSAT emissions dramatically through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's latest emissions model, the Motor Vehicle Emissions Simulator (MOVES), even if vehicle activity (vehicle miles traveled [VMT]) increases by 102%, as assumed from 2010 to 2050, a combined reduction of 83% in the total annual emission rate for the priority MSATs is projected for the same period.

2.7. Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the demographic characteristics of occupants and users and the activities involved. Sensitive receptors include residential areas, hospitals, elder-care facilities, rehabilitation centers, elementary schools, daycare centers, and parks. Residential areas are considered sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants.

This section provides a general overview of the existing conditions which characterize the study area in terms of housing, employment, land uses surrounding the project, schools, public services, shopping centers and recreational facilities. The proposed project passes through three distinct sub-regions listed below.

1) The Antelope Valley, which is located in northern Los Angeles County and the southern eastern portion of Kern County, California and constitutes the western tip of the Mojave Desert. It is situated between the Tehachapi and the San Gabriel mountains. The principal cities in the Antelope Valley are Palmdale and Lancaster.

2) The High Desert, which is defined as the unincorporated portions of Los Angeles and San Bernardino Counties lying between the Palmdale/Lancaster and Adelanto/Victorville/Hesperia/Apple Valley urbanized areas. The High Desert is highly rural in character. Lake Los Angeles and Phelan are the only communities characterized by the 2010 census as "places."

3) The Victor Valley, which is in the southwest area of the Mojave Desert in San Bernardino County. Victor Valley is located north of the San Bernardino Mountains and Cucamonga Valley, and east of the Antelope Valley. In this region, there are four incorporated cities – Victorville, Hesperia, Apple Valley, and Adelanto.

Existing sensitive land uses in the proposed HDC project corridor include rural and low one- and two-story detached residences located west and south of the proposed facility. The closest residences are located within 100 to 200 feet south of the proposed facility. Other potentially sensitive uses in the area include public facilities (Antelope Valley Mall) and institutions, schools, and industrial/commercial buildings. There are over 200 schools within the study area. Just in the Victor Valley alone, there are over 173 schools. The closest schools to the project site are Summerwind Elementary and Juniper Intermediate, which are located approximately 125 feet to 1500 feet within the project limit. The Palmdale Metro-link Station is within 1000 feet of the project limit. There are a few hospitals/healthcare facilities (Delta Medical Home Care - Palmdale, and the Mojave Home Health, Inc.) that are all located within a mile south of the project limit. There are also three hospitals and medical centers in the Victor Valley, including St. Mary's Medical Center, the Desert Valley Hospital/Medical Group, and the Victor Valley Community Hospital. Several industrial and commercial buildings exist within a 200-500 foot radius of the project limit. Recreational opportunities in the Antelope Valley region include eight public parks, two golf courses and a water park. In the Victor Valley region, there are over 30 parks and six golf courses. Desert Sands Park and Desert Aire Golf Course are two of few outdoor recreational facilities north and south of the proposed HDC facility that are within 500 feet of the proposed project area. Figures 6 through 17 illustrate the sensitive receptors in the project vicinity, including residential uses, schools/daycares, churches, hospitals/medical centers, and parks.

Figure 6. Sensitive Receptors, Part 1 (Within 500 Ft. & 0.25 mile of Project Corridor)

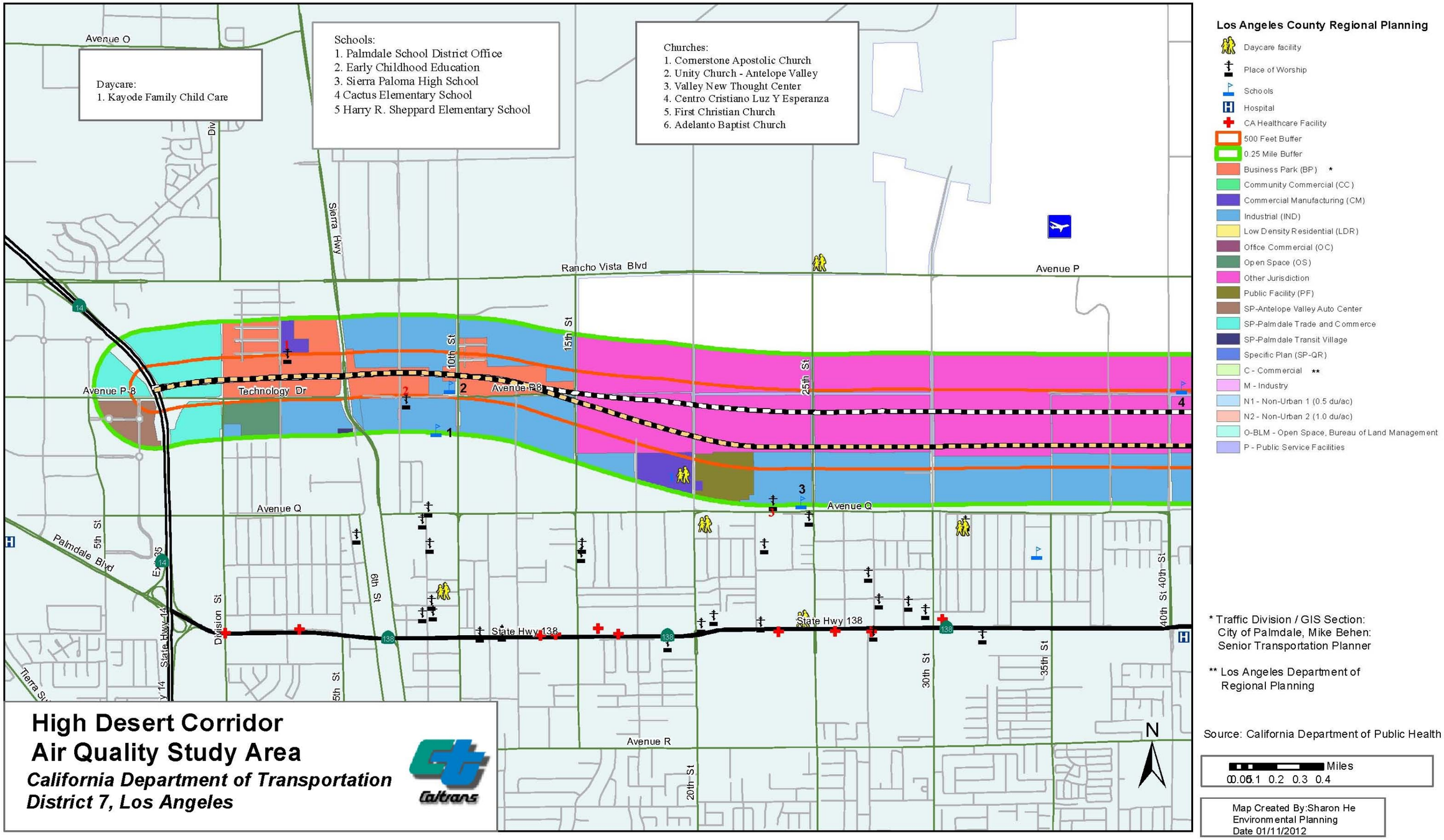


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Figure 7. Sensitive Receptors, Part 2 (Within 500 Ft. & 0.25 mile of Project Corridor)

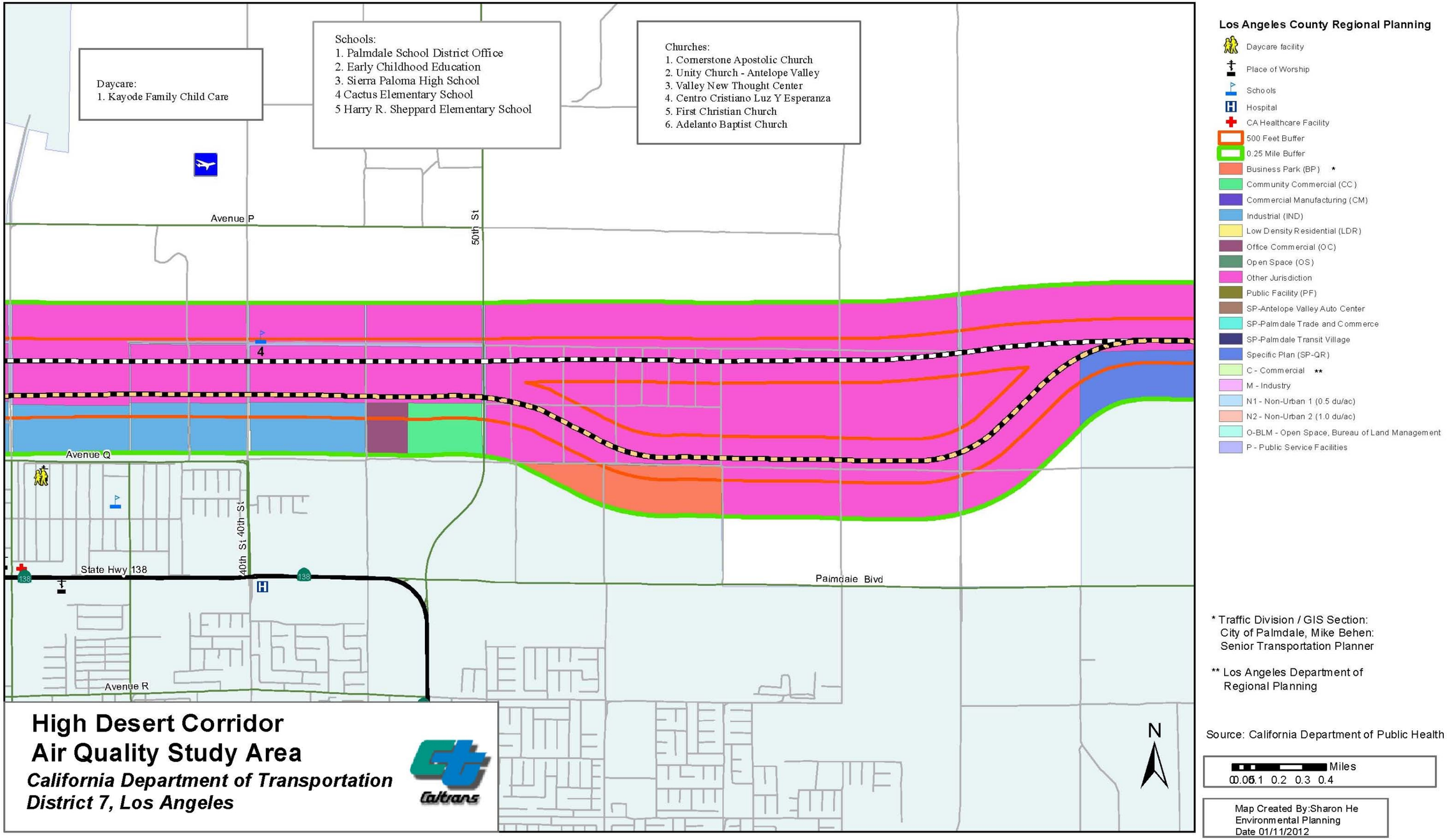

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Figure 8. Sensitive Receptors, Part 3 (Within 500 Ft. & 0.25 mile of Project Corridor)

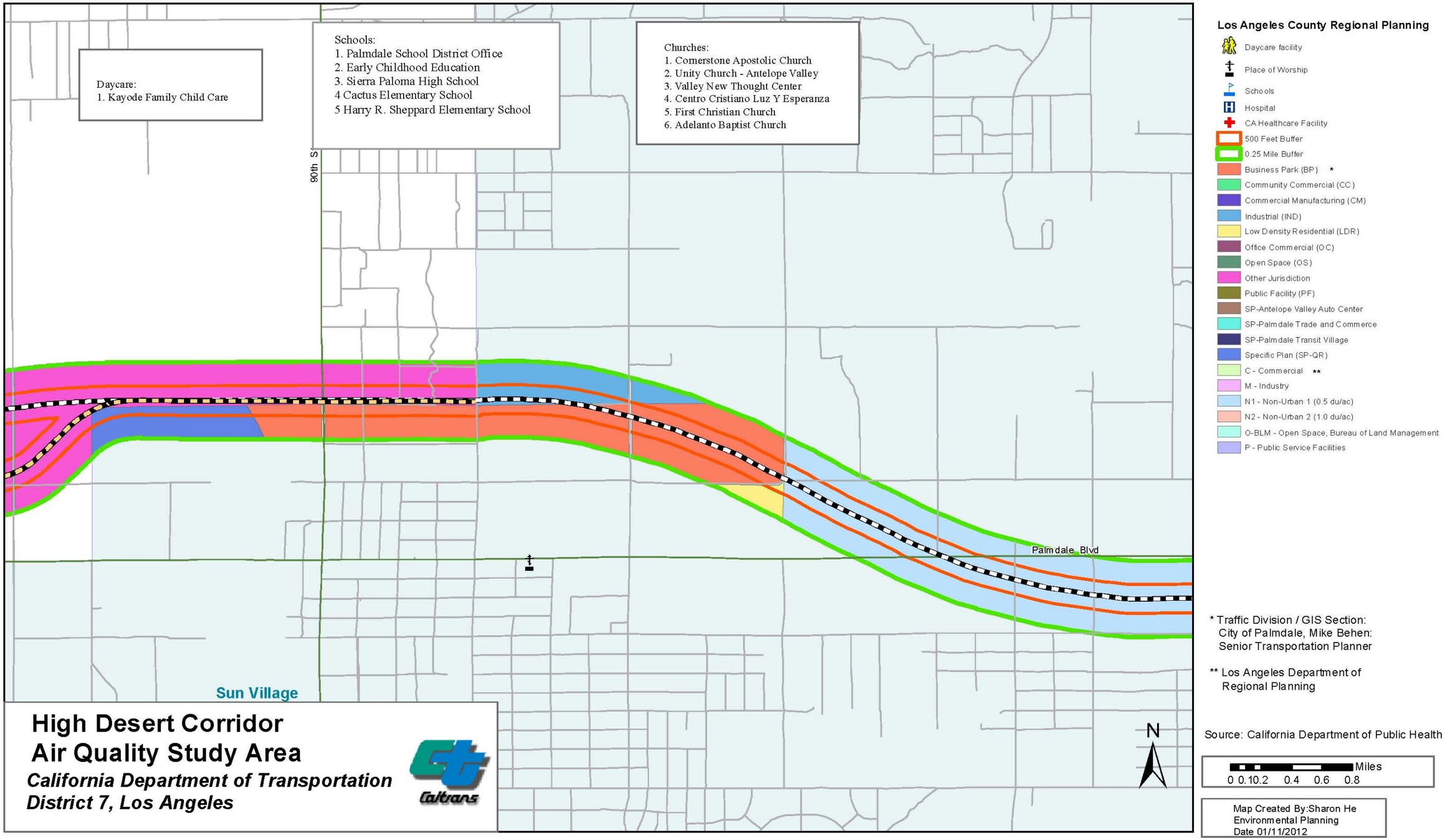

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Figure 9. Sensitive Receptors, Part 4 (Within 500 Ft. & 0.25 mile of Project Corridor)

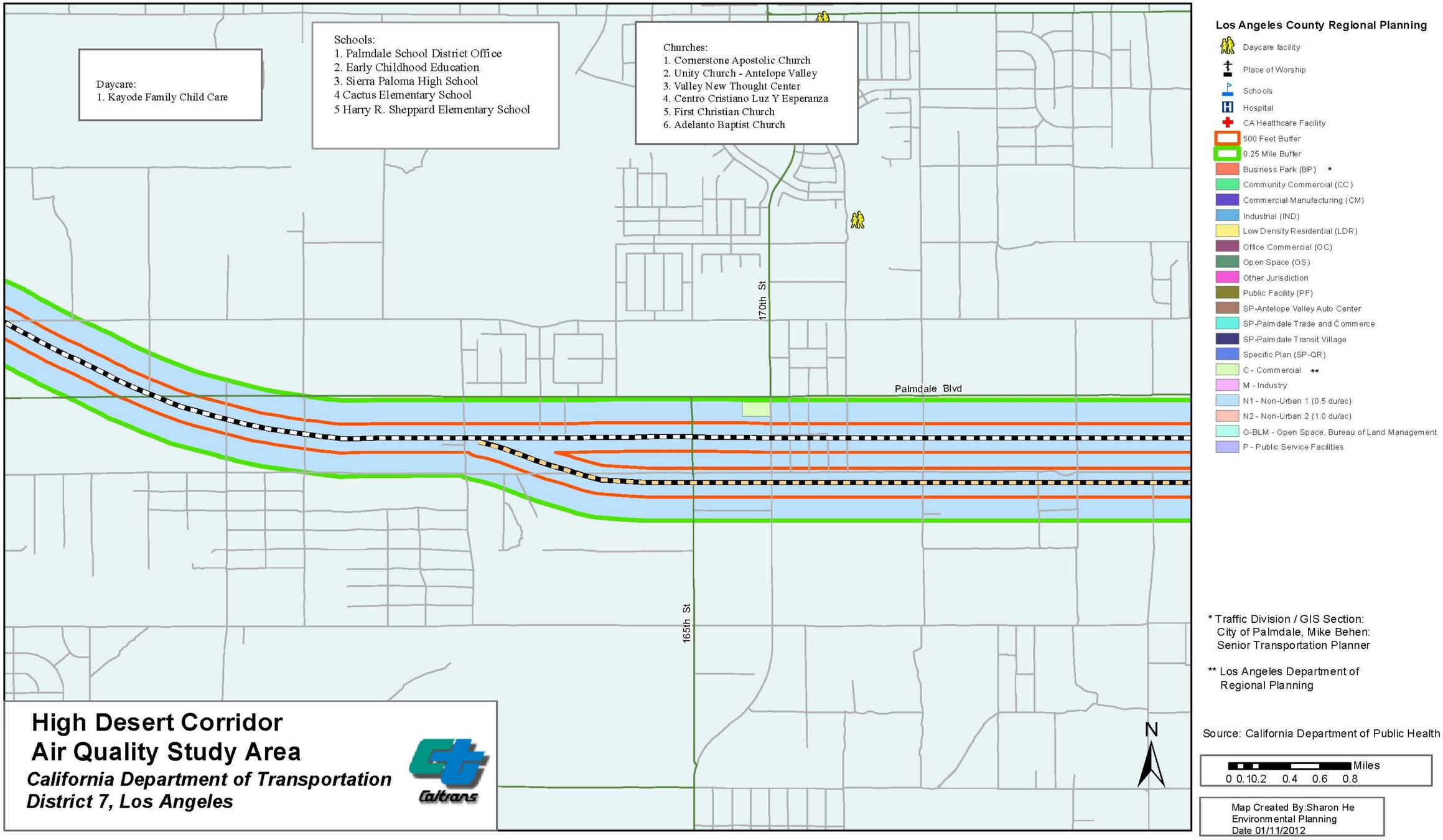

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Figure 10. Sensitive Receptors, Part 5 (Within 500 Ft. & 0.25 mile of Project Corridor)

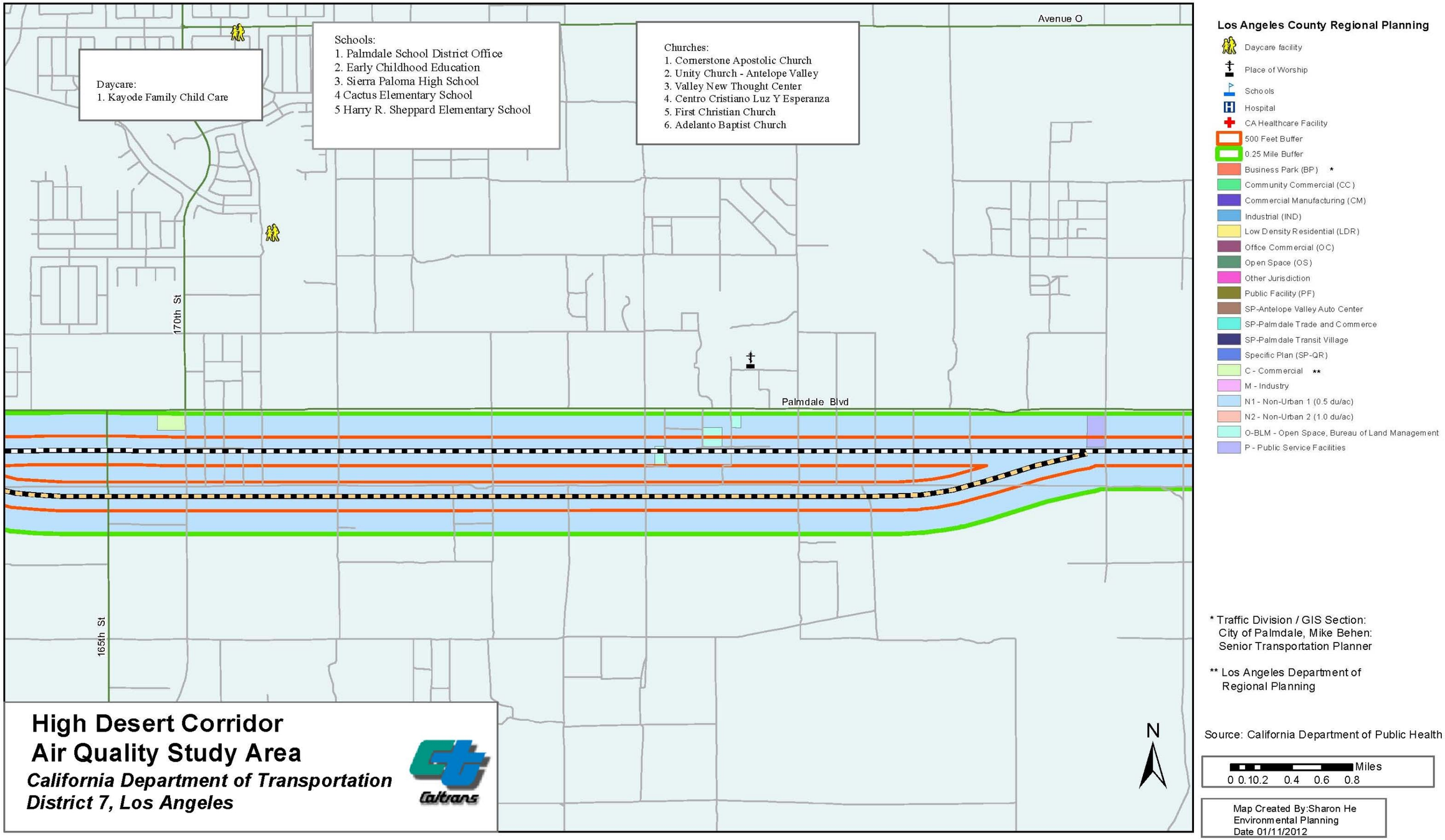

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Figure 11. Sensitive Receptors, Part 6 (Within 500 Ft. & 0.25 mile of Project Corridor)

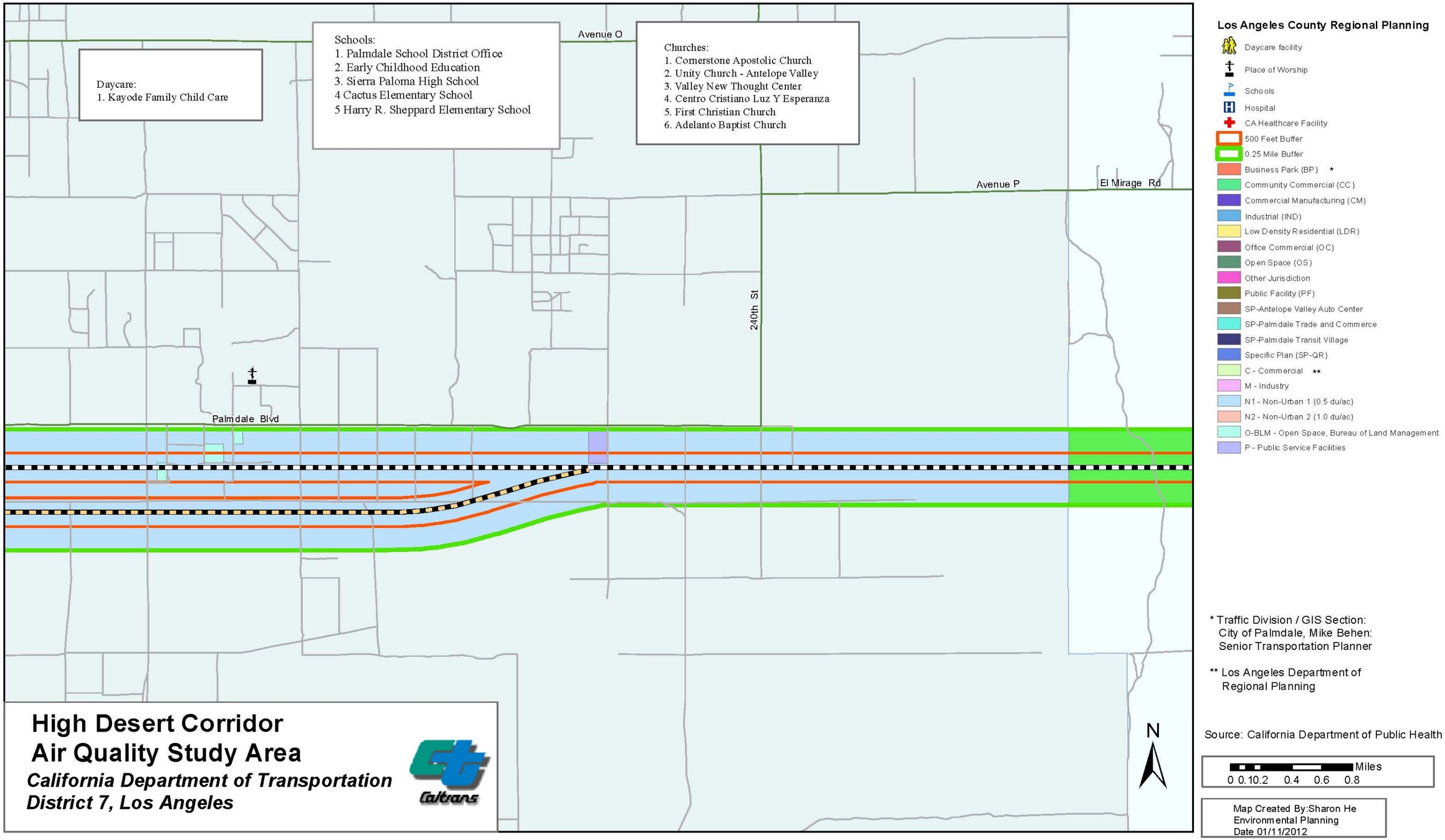

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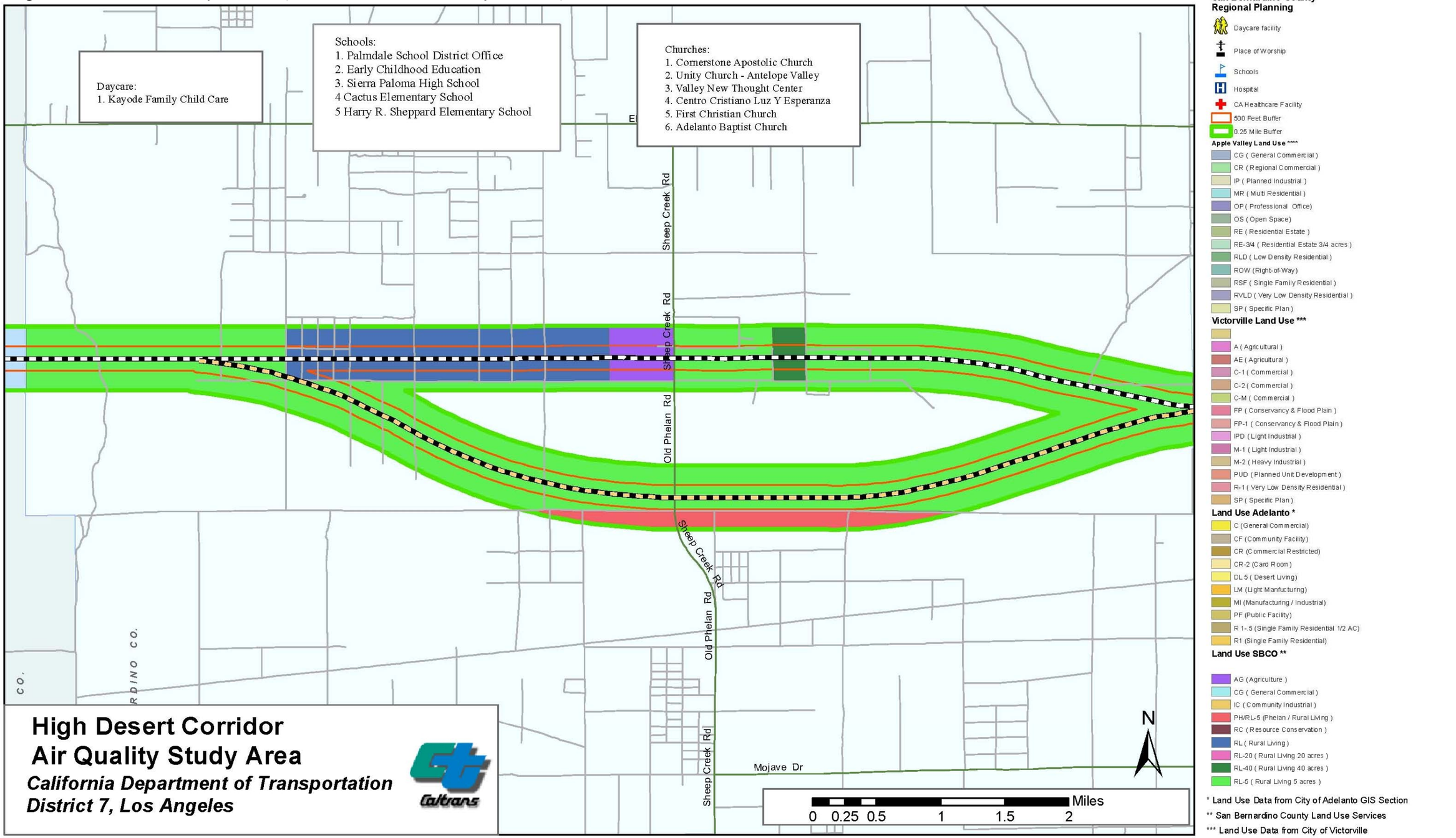
Figure 12. Sensitive Receptors, Part 7 (Within 500 Ft. & 0.25 mile of Project Corridor)



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Map Created By:Sharon He
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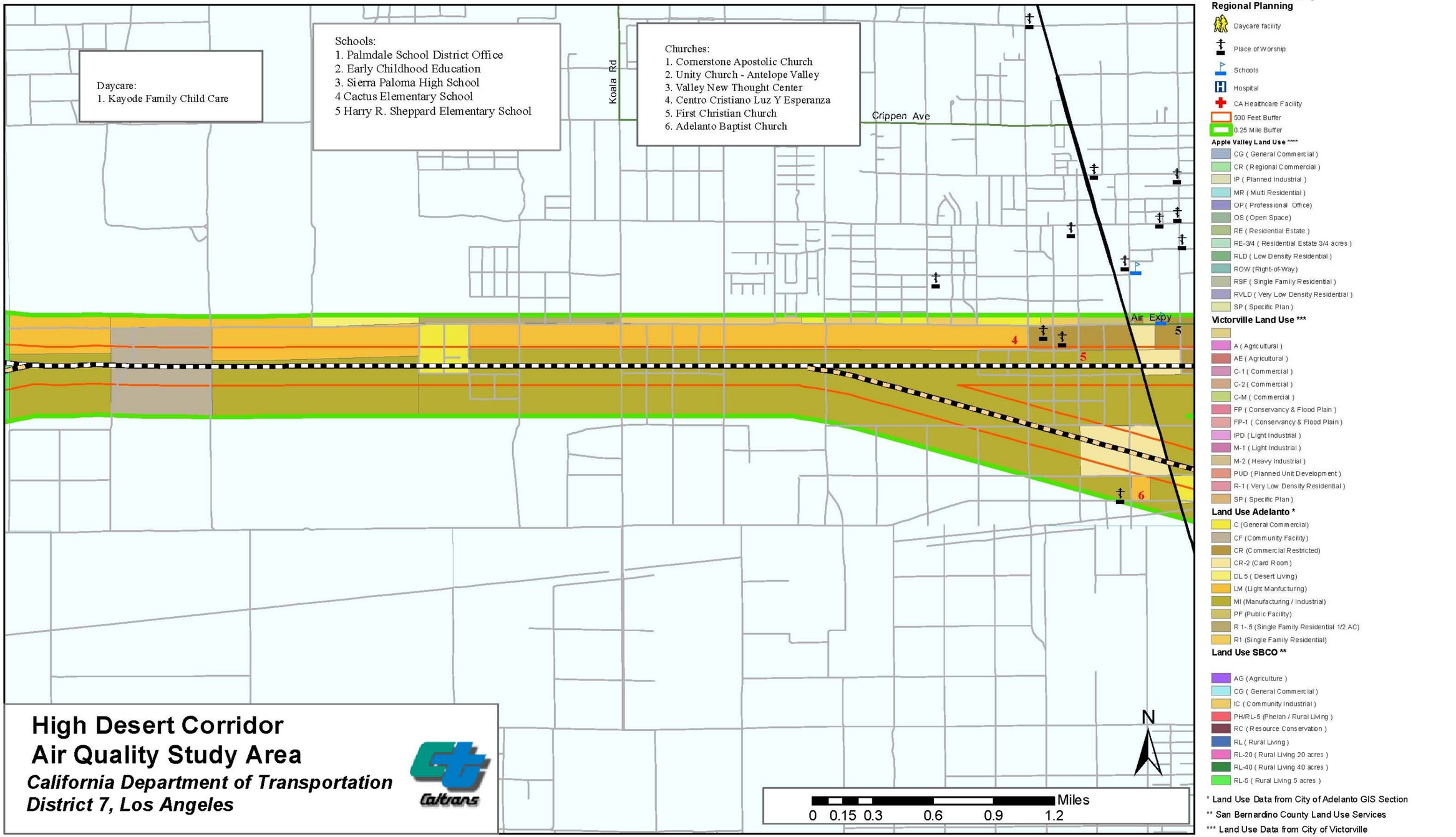
Figure 13. Sensitive Receptors, Part 8 (Within 500 Ft. & 0.25 mile of Project Corridor)



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Map Created By:Sharon He
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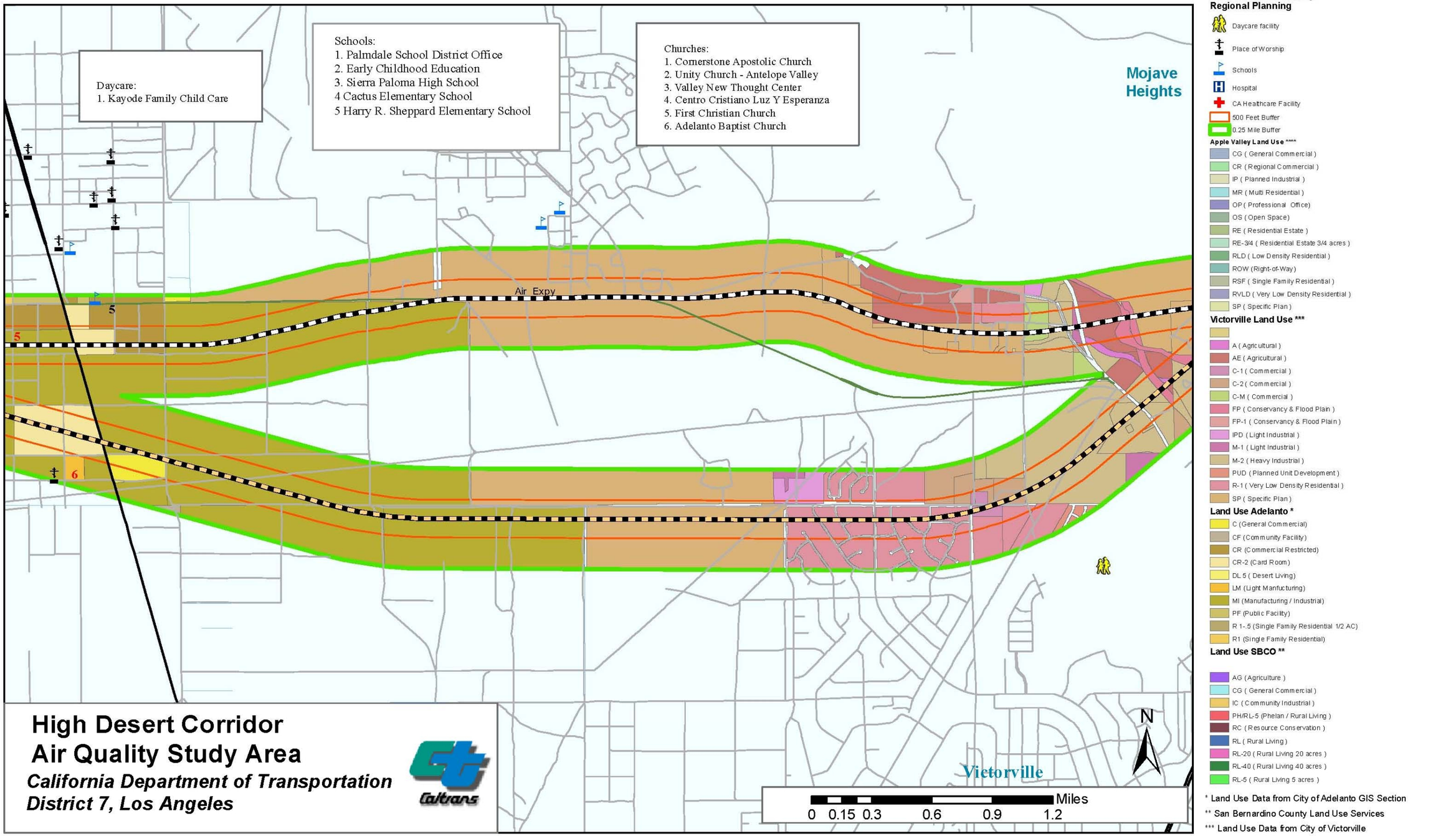
Figure 14. Sensitive Receptors, Part 9 (Within 500 Ft. & 0.25 mile of Project Corridor)



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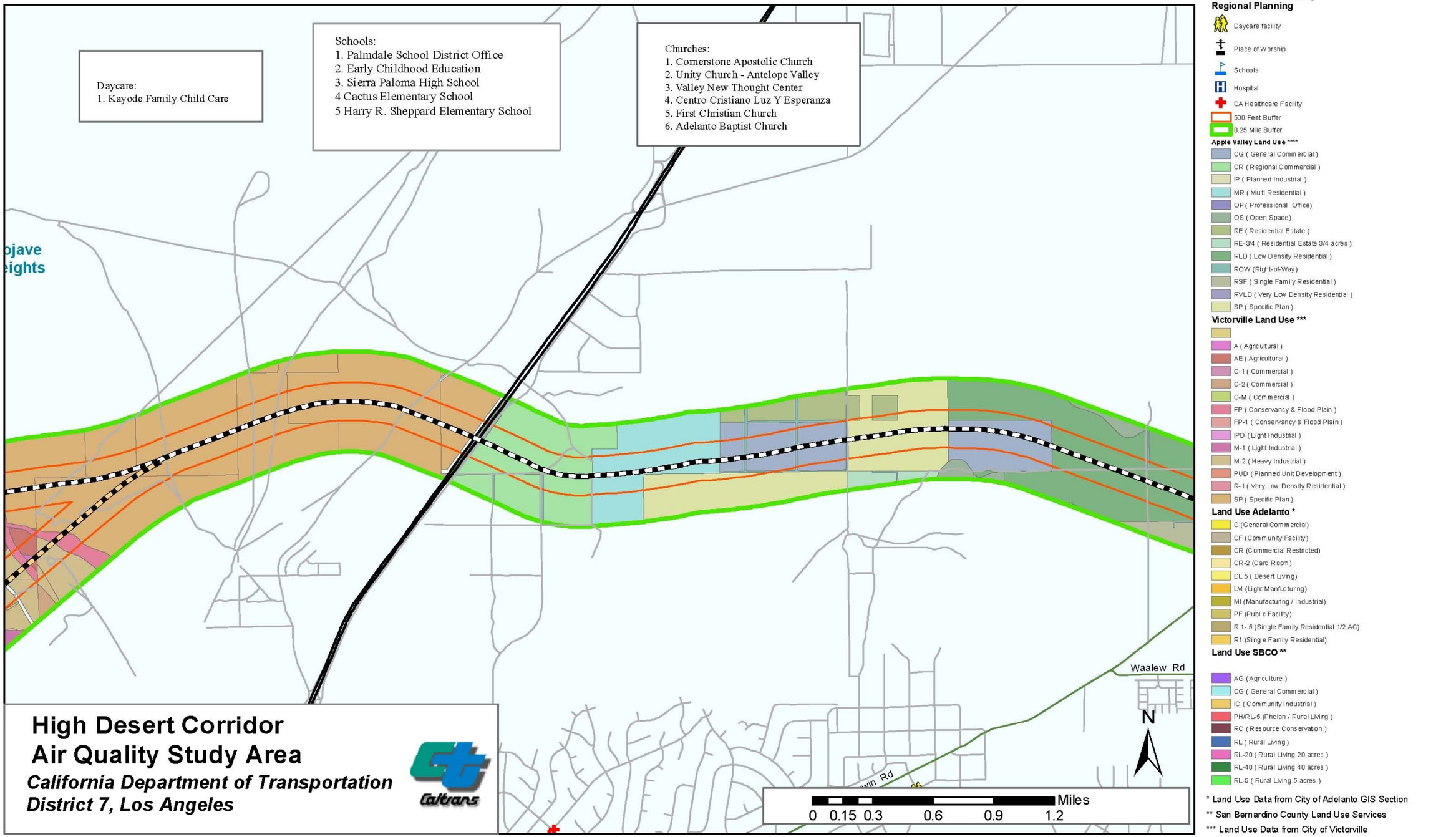
Map Created By:Sharon He
Environmental Planning

Figure 15. Sensitive Receptors, Part 10 (Within 500 Ft. & 0.25 mile of Project Corridor)



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Map Created By:Sharon He
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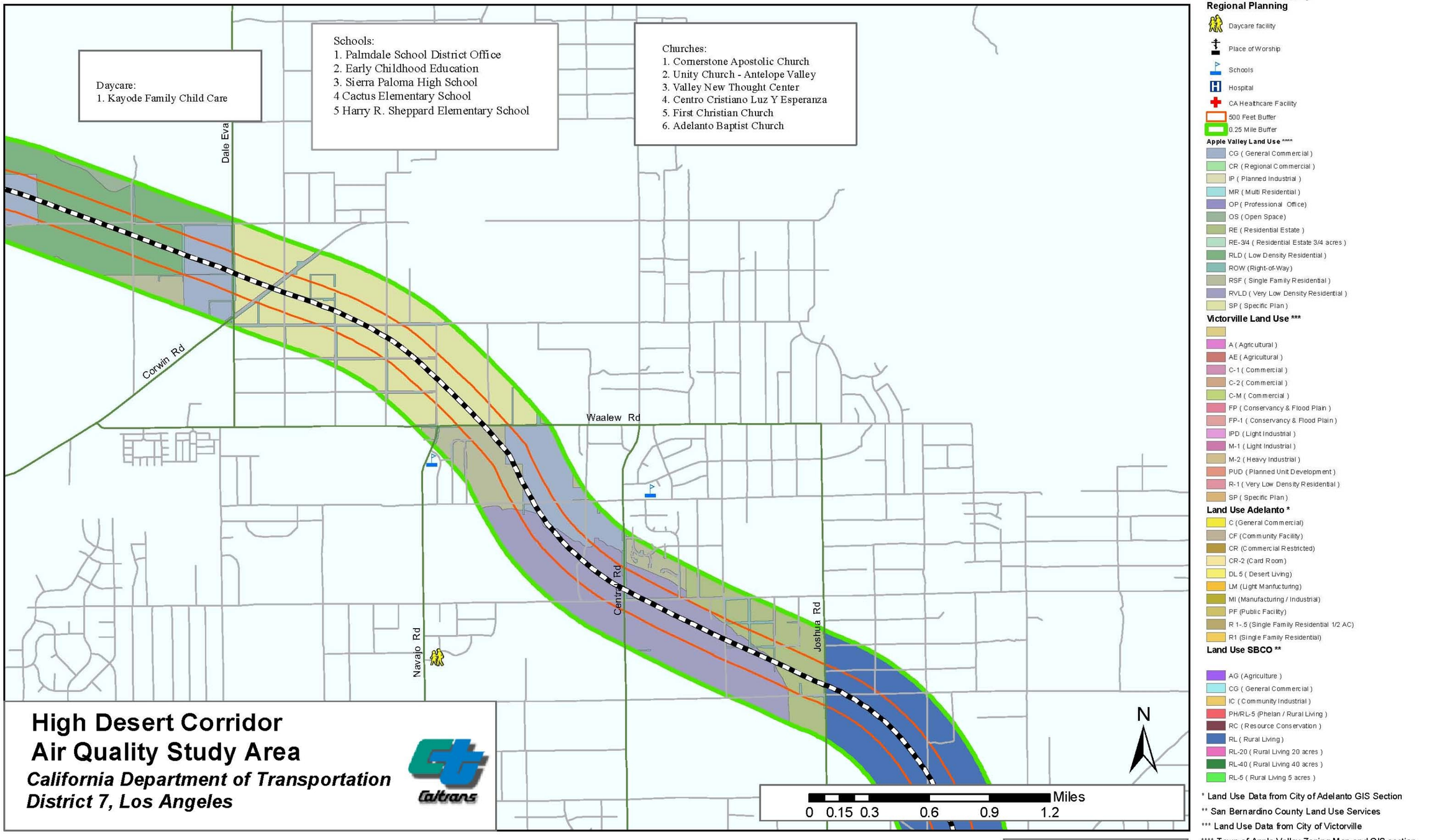
Figure 16. Sensitive Receptors, Part 11 (Within 500 Ft. & 0.25 mile of Project Corridor)



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Map Created By:Sharon He
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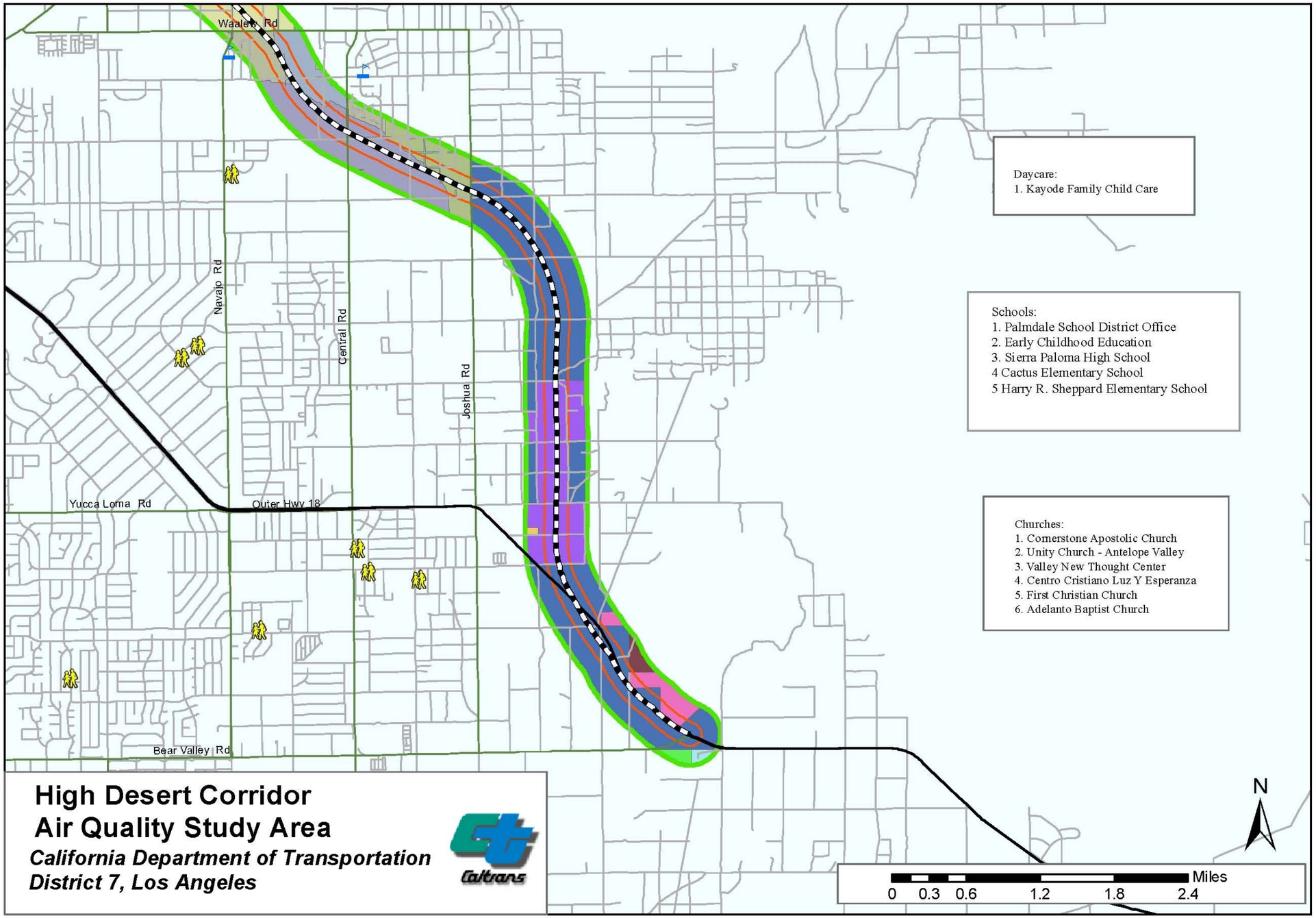
Figure 17. Sensitive Receptors, Part 12 (Within 500 Ft. & 0.25 mile of Project Corridor)



San Bernardino County Regional Planning

- Daycare facility
- Place of Worship
- Schools
- Hospital
- CA Healthcare Facility
- 500 Feet Buffer
- 0.25 Mile Buffer

Apple Valley Land Use ****

- CG (General Commercial)
- CR (Regional Commercial)
- IP (Planned Industrial)
- MR (Multi Residential)
- OP (Professional Office)
- OS (Open Space)
- RE (Residential Estate)
- RE-3/4 (Residential Estate 3/4 acres)
- RLD (Low Density Residential)
- ROW (Right-of-Way)
- RSF (Single Family Residential)
- RVLD (Very Low Density Residential)
- SP (Specific Plan)

Victorville Land Use ***

- A (Agricultural)
- AE (Agricultural)
- C-1 (Commercial)
- C-2 (Commercial)
- C-M (Commercial)
- FP (Conservancy & Flood Plain)
- FP-1 (Conservancy & Flood Plain)
- IPD (Light Industrial)
- M-1 (Light Industrial)
- M-2 (Heavy Industrial)
- PUD (Planned Unit Development)
- R-1 (Very Low Density Residential)
- SP (Specific Plan)

Land Use Adelanto *

- C (General Commercial)
- CF (Community Facility)
- CR (Commercial Restricted)
- CR-2 (Card Room)
- DL 5 (Desert Living)
- LM (Light Manfucturing)
- MI (Manufacturing / Industrial)
- PF (Public Facility)
- R 1-.5 (Single Family Residential 1/2 AC)
- R1 (Single Family Residential)

Land Use SBCO **

- AG (Agriculture)
- CG (General Commercial)
- IC (Community Industrial)
- PH/RL-5 (Phelan / Rural Living)
- RC (Resource Conservation)
- RL (Rural Living)
- RL-20 (Rural Living 20 acres)
- RL-40 (Rural Living 40 acres)
- RL-5 (Rural Living 5 acres)

* Land Use Data from City of Adelanto GIS Section
** San Bernardino County Land Use Services
*** Land Use Data from City of Victorville
**** Town of Apple Valley Zoning Map and GIS section

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3. METHODOLOGY AND IMPACT CRITERIA

3.1. Methodology

Analyses in this AQR have been conducted using methodology and assumptions that are consistent with the requirements of NEPA, CEQA, the CAAAs of 1990, and the CCAA of 1988. The analyses also utilize guidelines and procedures provided in applicable air quality analysis protocols such as the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol), Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Quantitative Guidance or EPA Guidance), and the FHWA Interim Guidance on Air Toxics Analysis in NEPA Documents.

3.2. Construction Emissions

According to 40CFR93.123(c)(5), hot-spot analyses are not required to consider construction related activities that cause temporary increases in emissions. Temporary increases in emissions are defined as those that occur only during the construction phase and that last five years or less at any individual site. The proposed project has construction durations of approximately 6 years; but less than 5 years at each individual site. Emissions from the construction activities therefore are considered temporary pursuant to 40CFR93.123(c)(5) and a qualitative analysis is provided accordingly. In addition, an estimate of approximate construction emissions is also provided, using the latest Sacramento Metropolitan Air Quality Management District's Road Construction Model (http://airquality.org/ceqa/RoadConstructionEmissionsModelVer7_1_5_1.xls). While the model was developed for Sacramento conditions in terms of fleet emission factors, silt loading, and other modeling assumptions, it is considered adequate for estimating road construction emissions by the San Joaquin Valley Air Pollution Control District under its Indirect Source regulations and the South Coast Air Quality Management District in its CEQA guidance, and is used for that purpose in this project analysis. See Appendix A for construction emissions calculation, based on the engineer's estimate of construction activities.

3.3. Operational Emissions

Vehicular emissions constitute the primary source of air pollutants associated with operation of the proposed project. The direct emissions associated with vehicle traffic were estimated based on the daily traffic volumes and VMTs along the project corridor, using the modeled emission factors based on CARB's Emission Factors (EMFAC2011). For this study, the operational emissions were estimated for the opening year 2020 and the horizon year of 2040. Evaluation of the local impacts includes the following analyses.

3.3.1. Localized CO Analysis

The procedures prescribed by the CO Protocol were followed to determine if a quantitative CO hot-spot analysis would be required. Based on the results of screening procedure of the CO Protocol, it was determined that a quantitative hot-spot analysis would be necessary. The screening analysis and quantitative modeling results are provided in Chapter 4 of this report.

3.3.2. Particulate Matter Hot-Spot Analysis

The EPA promulgated the NAAQS for PM on July 18, 1997, establishing a new standard for $PM_{2.5}$. The EPA then published their final rule on PM designations and classifications in the Federal Register on January 5, 2005, and established areas designated as nonattainment, unclassifiable or attainment/classifiable. The EPA again published a final rule on March 10,

2006 (became effective as of April 5, 2006) that supersedes the FHWA September 21, 2001 "Guidance for Qualitative Project-Level Hot-Spot Analysis in PM_{10} Nonattainment and Maintenance Areas" and establishes conformity criteria and procedures for transportation projects when determining impacts on ambient $PM_{2.5}$ and PM_{10} levels in nonattainment and maintenance areas (71 FR 12468). The March 10, 2006 final rule requires a qualitative $PM_{2.5}$ and PM_{10} hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule in 40 CFR 93.123(b)(1) defines the POAQC as:

i. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

ii. Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

v. Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The project proposes to construct a new Freeway/Expressway/Toll Lanes with a High Speed Rail Feeder Service. Based on the current and forecast traffic data, the new HDC is projected to experience a significant increase in diesel vehicles and to carry a significant number of diesel vehicles. The project is therefore considered to be of air quality concern as described in 40 CFR 93.123(b)(1)(i) and requires a detailed conformity hot-spot analysis.

A conformity hot-spot analysis for PM was prepared according to the procedures and methodology provided in the "Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" released by EPA in November 2013 (Quantitative Guidance). Interagency consultation was initiated in May 2011, by providing Method and Assumptions for review and concurrence. The interagency consultation concurred with the methods and assumptions in June 2011. When project-specific traffic data were made available, quantitative analyses were conducted and their results were presented back to the interagency consultation in March 2014. As indicated in the PM hot-spot analysis attached to this AQR, a preliminary analysis was conducted as a screening tool to identify hot-spots; and another focused analysis was conducted within the identified hot-spots for conformity analysis consistent with the requirements in the Quantitative Guidance. The interagency consultation reviewed and concurred with the attached PM hot-spot analysis in June 2014. Appendix F provides the PM hot-spot analysis and documentation of concurrence.

3.3.3. Mobile Source Air Toxics Emissions

TACs associated with mobile sources, MSATs, are released as part of vehicle exhaust emissions and include benzene, 1,3-butadiene, formaldehyde, acrolein, naphthalene, DPM, and POM (FHWA 2012). Prolonged exposure to MSAT may cause cancer and/or other serious health

effects, such as reproductive problems and birth defects. The health effects associated with MSAT emissions are also influenced by other variables, such as distance between sources of emissions and sensitive receptors. For assessment of project specific impacts from MSAT, the currently available tools and techniques are limited (FHWA 2012).

FHWA released an interim guidance on February 3, 2006, determining when and how to address MSAT impacts in the NEPA process for transportation projects. The guidance document was later updated in December 2012 (FHWA 2012). FHWA has identified three levels of analysis:

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Under Category 1, three types of projects are included: (a) projects qualifying as a categorical exclusion under 23 CFR 771.117(c); (b) projects exempt under the CAA conformity rule under 40 CFR 93.126; and (c) other projects with no meaningful impacts on traffic volumes or vehicle mix.

The types of projects included in Category 2 are those that serve to improve operations of highway, transit, or freight movement without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions. This category covers a broad range of projects. Any project not meeting the criteria for higher potential effects set forth in Category 1 or Category 3, should be included in this category. Examples of these types of projects are minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street or where design year traffic is not projected to meet the 140,000 to 150,000 annual average daily traffic (AADT) criterion.

Category 3 includes projects that have the potential for meaningful differences among project alternatives. Only a limited number of projects meet this two-pronged test. To fall into this category, a project must:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of DPM in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Proposed to be located in proximity to populated areas or in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

The basic procedure for analyzing emissions for on-road MSAT is to calculate emission factors using EMFAC2011 and apply those emission factors to travel activity data specific to the project. EMFAC2011 is an emissions inventory model developed by the ARB, which calculates emission rates from all motor vehicles operating on roadway systems in California.

The University of California – Davis (UC Davis), Sonoma Technology, Inc. (STI), and Caltrans collaborated and developed a California-specific analysis tool, CT-EMFAC. CT-EMFAC's underlying emission factor information is based on the EMFAC2011 on-road emissions model and the MSAT speciation factors provided by ARB. CT-EMFAC is capable of estimating

project-level emissions of criteria pollutants, CO_2, MSATs, diesel exhaust organic has (DEOG) as well as naphthalene and POM. It includes two main modules: *Emissions Factors* module that calculates emission factors from EMFAC2011 based on the project location and analysis year; and *Emission Calculations* module that generates project-level emissions based on the calculated emission factors and the user-provided travel activity data.

The latest version of CT-EMFAC (v 5.0), which was released in April 2013, was used in this AQR to estimate MSAT emissions. The proposed project is anticipated to affect travel activities and patterns not just along the proposed project; but also to areas outside the proposed corridor and sub-regions of the High Desert. Due to the magnitude of the area potentially impacted by the proposed project, emissions were calculated by focused areas throughout the project region and potentially impacted area, covering approximately 606 square miles. Traffic activity data were estimated by Parsons in a mile-by-mile grid format for each of different periods of a representative day in the existing, opening (2020), and horizon (2040) years. Emissions for each grid, or a mile-by-mile area, were then estimated for all of MSATs using CT-EMFAC, based on EMFAC2011 and speciation factors by ARB.

3.3.4. Greenhouse Gases

An estimate of GHG emissions from project operation was conducted for the proposed project operations in the same manner as the MSAT emissions estimate; and is based on a mile-by-mile grid, covering approximately 606 square miles. The emission factors needed for the analysis were obtained from the CT-EMFAC and EMFAC 2011.

Construction activities also result in emissions of GHG. As such, GHG emissions were also estimated for different types of activities to be conducted during construction of the proposed project. Estimates of construction emissions were completed using the latest Sacramento Metropolitan Air Quality Management District's Road Construction Model.

3.4. Impact Criteria

Project-related emissions would have adverse environmental impact if they result in pollutants emission levels that either create or worsen violation of an ambient air quality standard (AAQS identified in Table 4) or contribute to an existing air quality violation.

4. AIR QUALITY IMPACTS

4.1. Short-term (Construction) Emissions

4.1.1. No-Build Alternative

The No-Build Alternative would not result in the construction of any of the proposed project improvements and therefore, would not result in temporary, construction-related impacts to air quality.

4.1.2. Build Alternative

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, NOx, VOCs, directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat. Construction activities associated with the build alternative of the proposed project would be temporary and would not require more than five years to complete; therefore, construction emissions are not considered for conformity purposes.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NOx, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the EPA to add 1.09 tonne (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 14-9.02) pertaining to dust minimization requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction. The proposed project is located within the MDAB and is required to comply with the respective AVAQMD and MDAQMD Fugitive Dust Rules to minimize emissions of fugitive dust during construction activities.

In addition to fugitive dust emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NOx, VOCs and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area

surrounding the construction site. In order to minimize the temporary exhaust emissions from the heavy-duty trucks and construction equipment adjacent to certain sensitive receptors, certain construction activities, e.g., extended idling, material storage, and equipment maintenance, would need to be conducted in areas at least 500 feet away from those sensitive receptors.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal standards can contain 300 parts per million (ppm) or more of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm), so SO_2-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

During construction, contractors must comply with the requirements of applicable state and local regulations including the Fugitive Dust Rules in areas under each respective AQMD.

Based on two preliminary construction activity schedule assumptions, a summary of temporary emissions of pollutants is provided for roadway construction activities in Table 8, using the Sacramento Metropolitan Air Quality Management District's Road Construction Model (http://airquality.org/ceqa/RoadConstructionEmissionsModelVer7_1_5_1.xls). While the model was developed for Sacramento conditions in terms of fleet emission factors, silt loading, and other modeling assumptions, it is considered adequate for estimating road construction emissions by the San Joaquin Valley Air Pollution Control District under its Indirect Source regulations and the South Coast Air Quality Management District in its CEQA guidance, and is used for that purpose in this project analysis. See Appendix A for construction emissions calculation, based on the engineer's estimate of construction activities.

The proposed alignments for Alternatives and route variations are relatively similar in lengths and components, i.e., total lengths of structures. In addition, the proposed HSR service is proposed to be constructed in the median except at its termini. As the construction emissions are estimated based on the length of the proposed project on structures or at-grade, the total aggregate construction emissions are anticipated to result in the same for all Alternatives and route variations.

During the project construction, objectionable odors would be mainly related to operation of diesel-powered equipment and to off-gas emissions during road-building activities, such as paving and asphalting. Rules 401 and 402 in each respective AQMD provide for prohibition of visible emissions and nuisance. Other rules in each respective AQMD, such as restriction on Architectural Coatings, also limit the amount of VOC emissions from paving, asphalt, concrete curing and cement coatings operations. Construction of the proposed project shall comply with all applicable AQMD Rules. While construction equipment on site would generate some objectionable odors primarily arising from diesel exhaust, these emissions would generally be limited to the project site and would be temporary in nature. Objectionable odors should also be minimized by conducting certain construction activities in areas at least 500 feet from the sensitive receptors as feasible. The estimates in Table 8 also includes emissions of fugitive dust and other pollutants from concrete batch plants and application of hot mix asphalt based on factors in EPA's AP-42.

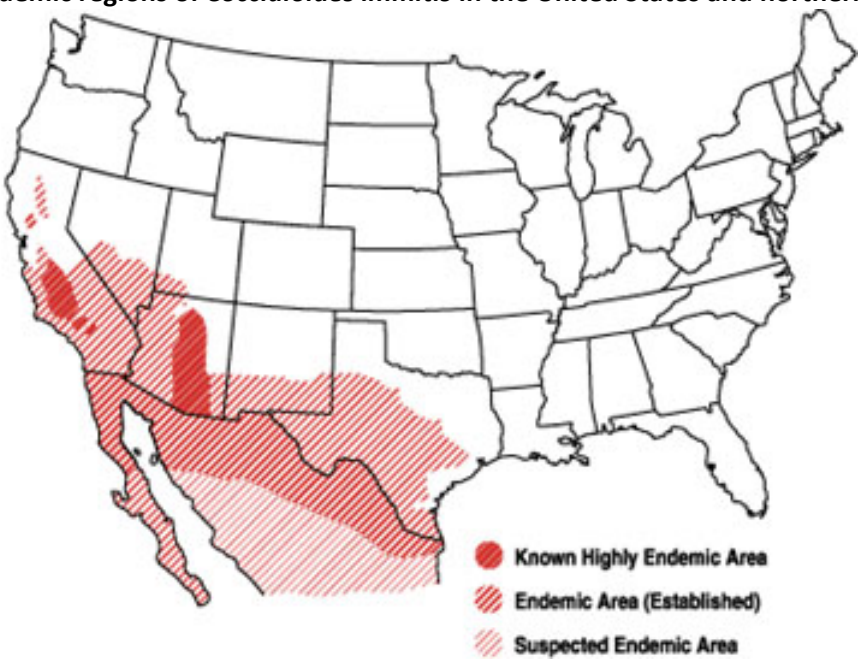
Table 8. Summary of Construction Emissions by Construction Phasing Assumption

	ROG	CO	NOx	Total PM_{10}	Total $PM_{2.5}$
Assuming Completion of Construction Activities with No Phasing					
Total Project Emissions (tons)	52.4	280.0	501.2	379.5	53.7
Daily Maximum (lbs/day)	111.2	589.9	1581.4	456.7	128.2
Assuming Completion of Construction Activities in 4 Phases, Summary by each Phase					
Phase 1, Total Emissions (tons)	14.3	82.2	141.8	83.9	14.6
Phase 1, Daily Maximum (lbs/day)	34.3	194.7	430.6	117.3	35.5
Phase 2, Total Emissions (tons)	25.6	135.7	255.1	159.6	17.2
Phase 2, Daily Maximum (lbs/day)	55.1	292.4	834.1	128.8	43.2
Phase 3, Total Emissions (tons)	15.0	85.8	138.4	75.1	14.7
Phase 3, Daily Maximum (lbs/day)	35.0	198.1	409.4	117.0	35.4
Phase 4, Total Emissions (tons)	8.9	49.5	78.4	66.4	12.3
Phase 4, Daily Maximum (lbs/day)	19.1	105.3	230.0	109.3	28.6

Valley Fever

The Centers for Disease Control and Prevention (CDC) indicates that *Coccidioides immitis* is a fungus found in the soil of dry, low rainfall areas and is native and common in many areas of the southwestern United States, Mexico, and Central and South America (see Figure 18). As shown, the project is in an endemic area for *Coccidioides*. Coccidioidomycosis, also known as Valley Fever, is a common cause of pneumonia in the areas where *Coccidioides* occurs. *Coccidioides* spores circulate in the air after contaminated soil and dust are disturbed by such human or natural activities as winds, construction, farming, animal burrows, or burial. The spores are typically inhaled, although in rare cases spores can enter the skin through cuts or abrasions and cause infection. After the fungal spores are settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Figure 18. Endemic regions of *Coccidioides immitis* in the United States and northern Mexico



Source: USGS, 2000

At least 30 to 60 percent of people, who live in endemic areas such as the High Desert where the fungus is present, are exposed to the fungus at some point during their lives. In most people, the infection will go away on its own, but for a small segment of the population, including people of Asian descent (particularly those of Filipino descent), African-American, pregnant women, and people with weakened immune systems, the risk for the disease is increased. It is difficult to avoid exposure to *Coccidioides*, but people who are at higher risk should try to avoid breathing in large amounts of dust if they are in endemic areas.

Most people who are exposed to the fungus do not develop symptoms or have mild flu-like symptoms that go away on their own. In severe cases, patients develop pneumonia or meningitis which can sometimes lead to death. Meningitis, the most lethal complication of disseminated Valley Fever, may cause a stiff neck, severe and persistent headache, nausea, vomiting, and various other central nervous system symptoms such as disorientation, loss of balance or equilibrium, inability to think clearly, and loss of consciousness. In addition to humans, Valley Fever affects many species of domestic and wild animals. Because the spores of *Coccidioides immitis* can become airborne during soil disturbance, dust suppression is an important aspect of managing its spread.

Valley fever is not contagious, and therefore, cannot be passed on from person to person. Most of those who are infected will recover without treatment within six months and will have a life-long immunity to the fungal spores. In severe cases, such as patients with rapid and extensive primary illnesses, those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used. Only one to two percent of those exposed who seek medical attention will develop a disease that disseminates to other parts of the body than the lungs.

There are measures that can be implemented to lower the incidence of infection and also reduce the numbers of spores inhaled, thereby decreasing the chances of developing a more serious form

of the disease. These measures include dust control and prevention, use of dust masks with appropriate filters, use of construction equipment with enclosed, air-conditioned cabs, and/or positioning of construction workers upwind when possible. Furthermore, infection risk can also be lowered by conducting outdoor activities, such as field studies or construction activities, in the winter months; avoiding sites favorable for *Coccidioides immitis* growth; seeking prompt medical treatment if flu-like or respiratory illness occurs during or within a few weeks following fieldwork or construction activities; getting a coccidioidin skin test to determine susceptibility to the disease; or by educating all members of the field party and construction crew about the possibilities and consequences of infection.

Construction of the proposed project would occur in an endemic area where *Coccidioides immitis* naturally occurs. Temporary soil disturbance during construction grading activities could cause fungal spores (if present) to become airborne, potentially putting construction personnel, residents, and wildlife at risk of contracting Valley Fever. However, as noted above, most Valley Fever cases are very mild, and more than half of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention. Dust control measures are the main defense against infection, although all persons residing or traveling through the High Desert would be susceptible to the disease, regardless of whether or not the project is implemented.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentinite may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology have developed a map of the state showing the general location of ultramafic rock in the state. Los Angeles County is one of the Counties identified as one of the Counties containing serpentinite and ultramafic rock. However, only the Catalina Island portion of Los Angeles County has been found to contain such rock; hence, it is

not anticipated to be found in the project area. Therefore, no potential impacts from naturally occurring asbestos during project construction would occur.

While unlikely, if naturally occurring asbestos, serpentine, or ultramific rock is discovered during grading operations Section 93105, Title 17 of the California Code of Regulations requires notification to the SCAQMD by the next business day and implementation of the following measures within 24-hours:

1. Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;
2. The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;
3. Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos; and
4. Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.

Other Asbestos Containing Materials

The use of asbestos in many building products was banned by the EPA by the late 1970s. Those already in use when the ban was implemented may still be present in bridge joints or in structural materials. ACMs represent a concern when they are subject to damage that results in the release of fibers. Asbestos may be found in roadway materials such as rails, bearing pads, support piers, expansion joint material in bridges, asphalt, and concrete within the study area. Evaluation of impacts by potential ACMs is deferred to the Initial Site Assessment prepared for the project.

4.2. Regional Conformity Requirements

The primary source of air pollutant emissions associated with the proposed action would be motor vehicle traffic along the project segments on the HDC within the project limits. As described in Chapter 2, the Transportation Conformity Rule requires a regional emission analysis to be performed by the MPO for projects within its jurisdiction. The regional emissions analysis includes all projects listed in the RTP and TIP. Both RTP and TIP must support an affirmative conformity finding to obtain FHWA approval. Projects that are included in the regional emissions analysis are listed in the RTIP and referenced in the RTP; and they are considered to have met the conformity requirement for regional emissions analysis.

The currently approved plans are the 2012 RTP and the 2013 FTIP. The 2012 RTP was adopted by SCAG on April 4, 2012; FHWA and FTA approved the 2012 RTP on June 4, 2012. The 2013 FTIP was federally approved on December 14, 2012. The most recent Amendment to the 2013 FTIP is No. 13-15, approved by FHWA and FTA on December 18, 2013.

The latest conforming RTP with Amendment No. 1 includes this project in its regional conformity analysis; and the latest TIP also identifies this project for completion of PA/ED. SCAG must be contacted to ensure that the project appropriately satisfies the regional

conformity requirements prior to the approval of a NEPA document. The following project information is excerpted from the FTIP Listing with RTP ID: 1C0404 as follows:

- Lead Agency – Caltrans
- Project ID # - LA0G665 and LA0G1099 (Formerly 1C0404, LA962212, and SB20061702)
- Air Basin – MDAB
- Route – 138
- Begin Post Mile – 42.4
- End Post Mile – 84.4R

Project ID No. 1C0404 from the 2012 RTP Amendment No. 1 is described as: Complete PA/ED for an approximate 63-mile west-east freeway/expressway and possible toll facility between SR-14 in LA County and SR-18 in SB County. High Desert Corridor PA/ED combines the LA County Measure R Project from SR-14 to I-15 and SB County Federal Earmarks provided to City of Victorville for US-395 to SR-18. Both projects and funds are combined to complete the PA/ED from SR-14 to SR-18. [EA 2600U, 11672, PPNO 3912, 0393F]

The current project limits and conformity category reflect the proposed project as described in this AQR. This project is identified in the latest conforming RTP and TIP with consistent design concept and scope in order to satisfy the regional conformity requirement. A copy of project listings from the RTP and TIP is included in Appendix B.

4.3. Project-level Conformity Requirements

4.3.1. Carbon Monoxide Screening Analysis

The local analysis is commonly referred to as a project-level hot-spot analysis. Conformity must be demonstrated at the project-level for projects in CO, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas. As discussed previously, a region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant CAAQS or NAAQS. In general, projects must not cause the standards to be violated, and in nonattainment areas, the project must not cause any increase in the number and severity of violations.

The CO Protocol has a screening exercise that would determine whether the project requires a qualitative or quantitative analysis, or whether none would be necessary. Discussions below highlight the steps taken, following the Figure 1 of the CO Protocol (flow charts noted as Figures 1 and 3 from the CO protocol are included in Appendix C).

Q: 3.1.1 Is this project exempt from all emissions analyses? (see Table 1)

A: NO. Table 1 of the CO Protocol is Table 2 of 40 CFR 93.126. Section 3.1.1 is inquiring if the project is exempt from all the requirements to determine conformity. The proposed project is not classified according to Table 1; and therefore, it is not deemed exempt from all emissions analyses.

Q: 3.1.2. Is project exempt from regional emissions analyses? (see Table 2)

A: NO. Table 2 of the CO Protocol is Table 3 of 40 CFR 93.127. The question is attempting to determine if project is exempt from regional emissions analyses. The proposed project is not

classified according to Table 2; and therefore, it is not deemed exempt from regional emissions analyses.

Q: 3.1.3. Is project locally defined as regionally significant?

A: YES. Projects not listed in Table 1 nor 2 of the Protocol are usually considered regionally significant (defined in 40 CFR 93.101 as projects that would normally be included in the modeling of a metropolitan area's transportation network) unless otherwise stipulated via interagency consultation. The project is considered as regionally significant.

Q: 3.1.4. Is project in a federal attainment area?

A: NO. The Basin is nonattainment of federal standard for more than one criteria pollutant (see Tables 5 and 6). The flowchart directs the project evaluation to Section 3.1.5.

Q: 3.1.5. Is there a currently conforming RTP and TIP?

A: YES. The Plan and TIP recently approved by FHWA are the 2012 RTP and the 2013 FTIP. The flowchart directs the project evaluation to Section 3.1.6.

Q: 3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?

A: YES. The project is included in the FHWA approved 2012 RTP and corresponding 2013 FTIP with project ID# LA0G665. The flowchart directs the project evaluation to Section 3.1.7.

Q: 3.1.7. Has project design concept and /or scope changed significantly from that in regional analysis?

A: NO. The project has not changed significantly with regards to scope and/or design concept. The flowchart directs the project evaluation to Section 3.1.9.

Q: 3.1.9. Examine local impacts.

A: Section 3.1.9 of the flowchart directs the project evaluation to Section 4, Local Analysis, of the CO Protocol. This concludes the flowchart presented in Figure 1 of the CO Protocol. The flowchart is now continued to Section 4.

The project-level local analysis in Section 4 begins at level 1:

Q: Level 1. Is the project in a CO non-attainment area?

A: No. The Basin is designated as attainment-unclassified of the federal CO standard.

Q: Was the area redesignated as "attainment" after the 1990 Clean Air Act? (see section 4.1.2)

A: No. The Basin is currently in attainment of the standard; and has never been designated otherwise previously.

Q: Level 7. Does the project worsen air quality? (see Section 4.7.1)

A: The CO Protocol Section 4.7.1 recommends the following criteria to be used to determine whether the project is likely to worsen air quality for the area substantially affected by the project. Project specific responses to each criterion are presented below as well.

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
1	SR 14 southbound off-ramp and West Avenue N	-12.9/-9.5	-30.9/-27.0	-16.7/-10.5	5.6/-3.7	53.6/12.7	8.9/9.0
2	SR 14 northbound off-ramp and West Avenue N	-21.3/-33.3	20.3/-15.3	-3.5/10.2	27.5/-9.5	214.2/57.3	26.6/60.6
3	10th Street West and West Avenue O-8	-17.5/-14.6	54.4/15.8	-23.1/-13.5	-13.4/-14.6	-13.4/-14.6	-18.9/-14.1
4	10th Street West and Sam's Club access	0.0/0.0	26.1/18.1	0.0/-18.1	6.5/7.4	6.5/7.4	-9.8/7.4
5	10th Street West and SR 14 northbound on-ramp	-18.7/-31.6	-18.0/-31.6	-17.3/-34.8	-11.6/-22.4	-11.6/-21.8	-11.1/-21.8
6	10th Street West and SR 14 southbound off-ramp	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
7	10th Street West and Mall Ring Road	46.8/-32.9	59.6/-32.0	59.6/-35.9	28.1/-34.8	28.1/-5.2	39.6/-39.9
8	10th Street West and West Avenue P	20.5/12.3	31.5/23.8	32.8/18.4	14.7/47.7	30.0/47.7	17.9/48.8
9	10th Street West and West Palmdale Boulevard	-0.8/-1.5	-0.8/-1.5	-0.8/-1.5	1.0/5.0	-2.2/2.9	1.0/5.0
10	10th Street East and East Avenue P	-0.6/-34.4	-28.5/-20.1	-71.4/-69.1	-37.3/-39.8	-6.7/-29.3	-67.8/-66.3
11	10th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
12	10th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
13	10th Street East and East Avenue Q	-45.4/-38.7	-41.9/-30.2	-46.2/-37.1	-41.8/-42.6	-38.8/-42.6	-48.1/-46.3
14	15th Street East and East Avenue Q	-7.0/-17.1	-7.0/-17.1	-7.0/-17.1	-8.5/-26.0	7.0/-16.9	-8.5/-26.0
15	20th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
16	20th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
17	20th Street East and East Avenue Q	-46.6/-54.1	-47.5/-45.5	-55.0/-55.4	-55.1/-48.0	-48.4/-33.2	-56.3/-47.0
18	50th Street East and East Avenue P	-29.4/-45.5	-70.6/-58.2	-41.2/-58.5	-37.0/-43.5	-44.9/-43.5	-51.2/-45.7
19	50th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
20	50th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
21	50th Street East and East Palmdale Avenue	-2.8/-25.5	8.5/-27.1	-5.5/-29.0	-10.1/-21.8	2.0/-15.5	-18.8/-28.5
22	70th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
23	70th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
24	70th Street East and East Palmdale Boulevard	-44.6/-49.0	-26.5/-10.3	-42.6/-63.2	-43.5/-64.6	-27.1/-25.5	-45.3/-64.8
25	90th Street East and East Avenue P	22.7/-9.4	443.2/771.7	15.9/43.4	72.2/149.1	44.4/101.9	31.5/120.8
26	90th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
27	90th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
28	90th Street East and East Avenue Q	36.4/-81.0	36.4/-81.0	36.4/-81.0	-84.8/-83.6	-84.8/-83.6	-84.8/-83.6
29	110th Street East and East Palmdale Boulevard	-53.6/-37.9	5.0/-8.5	-20.4/-25.4	-62.1/-44.5	-62.1/-44.5	-36.6/-37.2
30	140th Street and East Palmdale Boulevard	-78.1/-59.5	-9.7/23.4	-74.0/-69.4	-85.2/-69.2	-59.5/-11.3	-83.0/-75.6
31	140th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
32	140th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
33	140th Street and East Avenue R	-49.0/-7.9	827.6/417.3	210.2/179.1	-23.9/-27.1	-10.6/-18.6	154.0/144.6
34	170th Street East and East Palmdale Boulevard	-91.5/-69.9	15.0/41.3	-75.6/-65.0	-93.1/-67.9	-82.1/-63.5	-78.8/-68.8
35	170th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
36	170th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
37	170th Street East and East Avenue S	-18.2/-33.3	-18.2/-13.3	-43.6/-33.3	0.0/-26.7	-7.7/-26.7	-23.1/-11.4
38	210th Street and East Palmdale Boulevard	-12.5/20.0	-10.0/-20.0	-25.0/42.7	0.0/53.3	0.0/53.3	0.0/166.7
39	210th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
40	210th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
41	210th Street and East Avenue S	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
42	SR 138 and SR 18	-18.6/-25.0	160.5/212.5	-7.0/62.5	NA/NA	NA/NA	NA/NA
43	240th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
44	240th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
45	240th Street East and East Avenue R	-84.6/-85.3	-2.2/18.3	-40.8/-45.5	-88.6/-84.2	-89.0/-84.2	-63.5/-39.5
46	Oasis Road and El Mirage Road	NA/NA	NA/NA	NA/NA	-89.1/-90.9	-87.9/-92.3	-59.5/-63.8
47	Oasis Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
48	Oasis Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
49	Sheep Creek Road and El Mirage Road	-79.1/-81.0	24.7/42.5	-52.4/-58.9	-81.1/-74.0	-79.8/-73.5	-35.5/-40.1
50	Sheep Creek Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
51	Sheep Creek Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
52	Sheep Creek Road and Holly Street	192.6/225.0	-25.9/-20.0	170.4/165.0	207.4/18.9	318.5/66.0	185.2/5.7
53	Sheep Creek Road and SR 18	-50.5/-5.8	31.5/125.8	-31.5/29.5	-37.9/-46.2	-37.9/-46.2	-23.3/-11.7
54	Caughlin Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
55	Caughlin Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
56	Caughlin Road and Rancho Road	7.7/-5.0	-9.2/-25.0	23.1/15.0	-4.8/48.5	4.8/48.5	4.8/39.6
57	Koala Road and Air Base Road	12.9/-3.3	155.0/129.8	-4.8/6.9	-10.9/16.2	-10.9/16.2	-4.5/9.8
58	Koala Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
59	Koala Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
60	Koala Road and Rancho Road	-73.4/-53.8	-35.5/-61.4	-72.3/-57.2	-69.2/-54.7	-69.2/-54.7	-76.2/-61.8

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
61	Aster Road and SR 18	-16.8/17.9	19.3/38.6	-7.6/15.2	77.1/34.8	77.1/34.8	90.0/49.6
62	Bellflower Street and SR 18	7.8/-0.5	29.8/30.6	16.7/5.9	36.0/34.7	36.0/34.7	52.3/35.6
63	U.S. 395 and Chamberlaine Way	-26.3/-61.1	-26.8/-55.6	-25.8/-52.4	-33.0/-43.1	-33.0/-43.1	-30.2/-36.2
64	U.S. 395 and Air Base Road	36.7/23.1	-39.6/145.1	-2.7/31.5	-27.5/-46.4	-45.4/-47.7	-38.3/-39.1
65	U.S. 395 and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
66	U.S. 395 and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
67	U.S. 395 and SR 18	11.8/3.0	27.1/33.8	18.6/14.4	49.8/29.3	49.8/29.3	55.0/36.8
68	Phantom Street and Mustang Street	145.9/791.1	143.7/757.8	175.5/615.6	20.5/38.3	20.5/38.3	9.5/31.0
69	Phantom West and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
70	Phantom West and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
71	Phantom Street and Rancho Road	-27.2/-32.1	-40.8/-32.7	-55.5/-53.5	-45.3/-38.7	-40.2/-36.7	-59.1/-46.1
72	Topaz Road and SR 18	7.9/-11.9	3.6/2.0	10.1/-14.3	6.7/-5.1	6.7/-5.1	5.1/-5.9
73	Amethyst Road and SR 18	2.7/1.7	-2.3/12.1	5.4/-0.8	6.1/-1.3	6.1/-1.3	4.5/-2.6
74	Phantom East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
75	Phantom East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
76	El Evado Road and Air Expressway Boulevard	-40.8/-52.5	-71.1/-80.4	-69.5/-64.1	-65.6/-67.5	-3.8/-13.0	-80.6/-78.2
77	Village Drive and Air Expressway Boulevard	-15.8/1.1	-71.2/-49.0	-2.0/-9.5	-14.8/-32.9	-8.2/-21.2	-30.0/-41.9
78	El Evado Road and SR 18	1.1/4.7	-4.9/11.9	2.9/4.9	4.1/0.2	4.1/0.2	4.0/-0.9
79	National Trails Highway and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
80	National Trails Highway and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
81	National Trails Highway and Air Expressway Boulevard	-25.3/-42.0	-42.5/-42.0	-25.3/-49.6	7.1/-11.9	-23.2/-11.9	7.1/-10.4
82	I-15 northbound off-/on-ramps and Mojave Drive	7.0/-10.0	8.7/-8.5	10.5/-6.1	16.2/7.2	16.8/1.9	14.4/1.9
83	Amargosa Road and SR 18	-1.7/-14.1	-10.6/-8.1	0.3/-16.8	8.1/-0.5	6.8/-1.0	8.3/-0.1
84	Kentwood Boulevard and SR 18	-7.3/-13.7	-15.9/-15.5	-5.1/-16.1	5.6/0.7	4.5/0.3	4.6/1.1
85	Park Avenue and SR 18	-6.2/-10.4	-11.1/-15.6	-4.4/-12.2	4.3/0.3	3.5/0.0	3.5/1.0
86	I-15 southbound off-ramp and Palmdale Road	-5.0/-8.1	2.2/-1.0	-4.4/-10.0	6.6/2.2	6.0/1.8	4.5/0.8
87	I-15 northbound on-ramp and Palmdale Road	-7.3/-9.7	-2.4/-4.2	-6.6/-10.5	5.6/4.2	5.6/4.2	4.8/3.3
88	I-15 northbound off-ramp and Mariposa Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
89	I-15 southbound off-/on-ramps and National Trails Highway/D Street	-19.8/-34.8	-16.4/-32.3	-21.2/-37.3	-5.0/-9.3	-4.3/-8.6	-7.5/-12.8
90	I-15 northbound off-/on-ramps and National Trails Highway/D Street	-5.1/-15.6	-6.6/-14.4	-7.4/-16.5	-3.1/-1.3	-2.5/-0.8	-5.8/-2.3
91	I-15 southbound off-/on-ramps and E Street	50.0/15.0	72.7/75.0	27.3/15.0	0.0/0.0	0.0/0.0	0.0/0.0
92	I-15 northbound off-/on-ramps and E Street	73.1/14.3	61.5/74.3	53.8/14.3	15.4/20.0	34.6/20.0	5.8/10.0
93	Gateway and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
94	Gateway and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
95	I-15 southbound off-ramp and Stoddard Wells Road	15.6/12.6	11.8/7.8	9.8/3.2	8.2/-1.9	3.8/-0.5	6.2/-11.2
96	I-15 northbound on-ramp and Stoddard Wells Road/Frontage Road	0.0/-88.9	-10.0/-88.9	0.0/-88.9	0.0/-88.9	0.0/-88.9	0.0/-88.9
97	I-15 southbound on-ramp and Stoddard Wells Road	54.0/15.4	32.7/-6.2	49.3/9.6	43.3/40.8	22.9/47.9	65.3/30.5
98	Stoddard Wells Road and I-15 Frontage Road	-12.4/19.4	-12.4/19.4	-21.0/3.5	-2.3/-1.3	4.8/-1.3	18.9/6.4
99	136 I-15 southbound off-/on-ramps and Victorville Quarry Road	14.8/4.5	0.0/-25.8	-7.4/-31.8	31.7/-14.3	34.1/-19.0	41.5/-10.7
100	I-15 southbound off-/on-ramps and Dale Evans Parkway	7.8/9.4	12.3/17.2	11.8/9.4	-10.9/3.9	-10.9/3.9	-10.0/2.0

Table 9. Changes in AM and PM Peak Hourly Volumes in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, In %(AM/PM)			Changes from No-Bld in 2040, In %(AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
101	I-15 northbound off-/on-ramps and Dale Evans Parkway	7.7/16.5	6.6/14.1	7.2/11.3	-4.8/-2.4	-4.1/-4.5	-3.1/-4.5
102	Choco Road and No Name Road	33.3/0.0	33.3/0.0	0.0/0.0	0.0/0.0	0.0/0.0	0.0/0.0
103	Choco Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
104	Choco Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
105	Choco Road and Air Expressway Boulevard	0.0/0.0	0.0/0.0	100.0/50.0	0.0/0.0	0.0/0.0	166.7/116.7
106	Dale Evans Parkway and Air Expressway Boulevard	81.8/-20.0	58.2/-27.0	61.8/-30.0	154.5/15.0	154.5/15.0	90.9/-10.0
110	Central Road and Waalew Road	12.0/-6.7	-3.0/17.9	5.6/11.6	29.6/13.5	29.6/13.5	44.6/13.8
111	High Desert Corridor and Central Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
112	Central Road and Thunderbird Road	-56.9/-33.3	-48.0/-42.2	-56.9/-21.3	-67.6/-33.0	-67.6/-33.0	-54.7/-11.5
113	Joshua Road and Cahuilla Road	-7.2/-4.1	-40.6/-14.9	-23.9/-10.0	-12.6/-7.0	-12.6/-7.0	-32.3/-21.4
114	Joshua Road and High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
115	Joshua Road and Standing Rock Road	-27.0/14.8	-57.3/-29.6	-32.6/-8.7	-33.0/25.0	-33.0/25.0	-42.0/-14.3
116	Joshua Road and Yucca Loma Road	-8.7/41.2	76.4/61.4	0.8/42.2	-28.8/-0.4	-7.2/-0.4	-24.3/-0.7
117	Joshua Road and Nisqually Road	374.5/2.0	736.4/258.7	256.4/14.0	63.6/18.7	63.6/18.7	63.6/16.7
118	High Desert Corridor and Standing Rock Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
119	High Desert Corridor and Yucca Loma Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
120	High Desert Corridor and Nisqually Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
121	Bear Valley Road and SR 18	-5.4/-20.0	-7.9/-27.4	-13.8/-33.6	30.5/37.7	23.6/36.2	16.0/22.9

Source: Parsons, Traffic Study Report: Volume I, September 2012

Table 10. Changes in AM and PM Delays in 2020 and 2040.

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
1	SR 14 southbound off-ramp and West Avenue N	-1.2/-3.5	2.3/-0.8	0.3/-1.8	0.2/-63.7	7.5/-52.8	0.2/-64.4
2	SR 14 northbound off-ramp and West Avenue N	9.1/4.6	10.6/5.1	10.3/6.3	0.5/-7.4	1.8/-5.9	0.5/-10.4
3	10th Street West and West Avenue O-8	1.0/-4.5	1.6/-2.2	2.6/-4.6	3.1/-18.1	2.2/-10.2	3.7/-19.1
4	10th Street West and Sam's Club access	2.2/5.4	4.8/6.7	3.4/6.0	1.7/-3.9	-5.2/-5.1	2.1/-3.5
5	10th Street West and SR 14 northbound on-ramp	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
6	10th Street West and SR 14 southbound off-ramp	1.2/2.2	2.8/2.4	2.2/2.3	4.2/-33.0	59.3/-6.4	2.6/-36.8
7	10th Street West and Mall Ring Road	7.3/0.5	9.4/0.7	6.8/0.3	11.1/-21.5	1.7/-8.2	9.1/-19.2
8	10th Street West and West Avenue P	-5.4/-8.6	-1.6/-5.0	-3.6/-5.6	-5.2/-47.0	29.4/1.2	-4.6/-41.7
9	Lowe's Driveway and West Avenue P	5.5/-4.6	8.8/-3.1	5.9/-4.7	0.7/-46.1	4.0/-31.6	1.6/-46.8
10	10th Street West and West Palmdale Boulevard	-1.2/-1.1	-1.2/-1.1	-1.2/-1.1	2.2/3.1	-0.2/0.1	0.3/0.1
11	SR 14 northbound off-/on-ramps and East Palmdale Boulevard	-3.1/1.5	-2.9/2.2	-2.3/2.1	0.2/-3.7	2.8/7.1	1.0/-2.9
12	Division Street and East Palmdale Boulevard	-10.5/-5.6	-11.6/-5.5	-10.5/-5.2	-28.8/12.3	-30.9/-8.4	-31.1/-5.1
13	SR 14 southbound off-ramp and West Avenue S	-23.6/-6.2	-24.5/-6.7	-22.7/-5.9	10.4/8.7	-0.3/10.7	27.0/9.4
14	SR 14 northbound off-ramp and East Avenue S	-16.6/-3.4	-14.9/-2.6	-15.7/-1.5	3.1/-15.9	7.1/-9.5	7.4/-15.2
15	Sierra Highway and East Avenue Q	1.9/0.1	1.9/0.1	1.9/0.1	2.1/0.7	2.5/0.5	1.9/0.5
16	5th Street East and East Palmdale Boulevard	5.2/2.3	4.4/2.1	4.9/2.5	4.3/-2.7	3.5/-4.4	3.6/-4.1
17	10th Street East and East Avenue P	12.8/8.7	16.9/9.6	5.5/11.0	10.8/9.4	7.7/5.7	4.8/1.4
18	10th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
19	10th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
20	10th Street East and East Avenue Q	5.0/1.2	8.2/1.5	5.6/2.3	5.4/-4.5	3.1/-1.6	3.6/-2.8

*Delay in seconds.

Table 10. Changes in AM and PM Delays in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
21	10th Street East and East Palmdale Boulevard	-4.1/-4.9	-4.1/-4.9	-4.1/-4.9	3.0/18.5	-1.2/-3.2	-2.2/-1.1
22	20th Street East and East Avenue P	2.0/2.1	1.7/4.7	2.7/3.6	-0.3/-0.3	0.7/-2.2	-0.9/-0.6
23	20th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
24	20th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
25	20th Street East and East Avenue Q	0.6/-1.1	2.7/2.4	3.1/0.8	0.6/-1.5	1.9/0.2	0.8/-2.7
26	30th Street East and East Palmdale Boulevard	0.5/0.7	0.5/0.7	0.5/0.7	2.1/12.0	0.9/0.8	0.1/3.7
27	50th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
28	50th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
29	70th Street East and East Avenue P	-0.7/0.6	5.5/2.9	1.9/3.2	0.1/-4.7	0.6/-4.1	-0.5/-3.5
30	70th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
31	70th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
32	90th Street East and East Avenue P	-0.8/-1.6	-1.1/5.3	3.1/4.2	-3.8/-5.8	-1.8/-5.0	-1.7/-1.8
33	90th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
34	90th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
35	90th Street East and East Avenue Q	1.8/0.0	-1.1/9.9	-0.9/-1.3	3.5/-2.9	1.3/-3.9	1.6/-4.1
36	90th Street East and East Palmdale Boulevard	4.5/-17.6	4.5/-17.6	4.5/-17.6	-11.1/-39.4	-11.2/-39.0	-11.5/-41.2
37	110th Street East and East Palmdale Boulevard	2.9/-1.2	1.4/1.5	2.7/0.3	4.9/-4.1	4.7/-4.4	3.8/-3.7
38	140th Street and East Palmdale Boulevard	-6.3/-36.7	2.0/48.5	#VALUE!	#VALUE!	#VALUE!	#VALUE!
39	140th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
40	140th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA

Table 10. Changes in AM and PM Delays in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
41	140th Street and East Avenue R	-8.7/-13.3	#VALUE!	0.0/21.7	-9.1/-24.6	1.8/-6.5	-0.9/-6.5
42	170th Street East an East Palmdale Boulevard	-6.8/-10.0	8.5/65.3	-3.2/-3.7	-11.1/-65.3	-2.4/-51.2	-9.0/-33.8
43	170th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
44	170th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
45	170th Street East and East Avenue S	-6.9/-8.7	-0.6/-1.2	-5.0/-6.0	-7.5/-10.4	6.1/8.2	-7.3/-9.0
46	165th Street East and SR 138	-25.8/-14.0	14.4/10.9	-12.3/-7.2	-73.1/-27.3	-76.4/-27.3	-55.7/-3.9
47	210th Street and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
48	210th Street and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
49	210th Street and East Avenue S	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
50	240th Street East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
51	240th Street East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
52	240th Street East and East Avenue R	-10.3/-12.7	1.2/3.7	-2.0/-3.9	-39.3/-180.4	-31.1/-172.4	-28.8/-160.2
53	Oasis Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
54	Oasis Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
55	Sheep Creek Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
56	Sheep Creek Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
57	Sheep Creek Road and Holly Street	-5.6/1.5	0.6/-0.1	-4.8/-1.2	-8.5/-5.7	9.2/18.8	-8.8/-7.2
58	Caughlin Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
59	Caughlin Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
60	Koala Road and Air Base Road	-6.9/4.1	1.9/1.6	-5.8/1.0	-4.7/-2.5	8.9/11.1	-4.7/-3.9

Table 10. Changes in AM and PM Delays in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
61	Koala Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
62	Koala Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
63	Koala Road and Rancho Road	1.7/8.4	1.6/0.7	3.1/17.3	-4.0/9.5	3.2/6.5	-3.8/10.6
64	Aster Road and SR 18	7.4/10.8	9.5/17.9	8.7/11.6	1.1/-1.4	1.6/-1.5	1.0/-2.3
65	U.S. 395 and Chamberlaine Way	3.2/6.3	10.4/22.7	4.0/4.9	12.0/7.2	-3.2/-1.8	5.7/7.2
66	U.S. 395 and Air Base Road	-2.7/-3.4	6.7/1.0	1.8/-3.8	-20.2/-44.6	-15.6/-28.8	-23.8/-50.6
67	U.S. 395 and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
68	U.S. 395 and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
69	U.S. 395 and Mojave Drive	-3.7/1.6	-0.9/5.2	-8.0/1.3	-2.5/5.8	-5.0/2.0	-4.6/0.3
70	Phantom Street and Mustang Street	1.6/2.8	3.0/0.5	2.7/6.2	3.6/-5.4	6.2/13.1	3.6/-5.7
71	Phantom West and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
72	Phantom West and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
73	Phantom Street and Rancho Road	3.4/-2.4	5.9/-2.8	4.6/-3.6	-1.0/-3.2	5.8/5.4	-0.7/-6.3
74	Topaz Road and SR 18	14.7/7.9	12.7/8.5	14.7/7.8	-55.1/-100.7	-56.6/-111.6	-57.6/-111.1
75	Amethyst Road and SR 18	3.2/5.1	4.8/6.5	3.6/3.7	-14.4/-65.7	-15.1/-69.7	-15.0/-70.6
76	Phantom East and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
77	Phantom East and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
78	Village Drive and Air Expressway Boulevard	0.2/-0.1	-1.4/-1.2	0.7/-0.5	-2.0/1.2	0.8/1.3	-2.8/-1.4
79	El Evado Road and SR 18	11.9/6.8	12.8/16.3	10.2/6.9	-1.9/-34.3	-3.3/-41.0	-3.4/-41.6
80	National Trails Highway and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA

Table 10. Changes in AM and PM Delays in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
81	National Trails Highway and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
82	National Trails Highway and Air Expressway Boulevard	-3.8/1.0	-5.7/1.6	-3.7/0.8	-17.6/-10.8	-12.6/-11.9	-21.2/-12.6
83	I-15 southbound off-/on-ramps and Mojave Drive	0.1/-0.6	1.9/0.8	1.8/0.7	-0.8/-0.9	4.6/4.3	1.2/-1.0
84	I-15 southbound off-/on-ramps and Roy Rogers Drive	-2.8/-1.0	-1.3/1.5	-1.4/1.4	-11.8/-1.5	-8.7/4.5	-11.9/-1.6
85	I-15 northbound off-/on-ramps and Roy Rogers Drive	-0.6/-1.7	2.2/3.6	1.9/1.0	-12.7/-0.6	-6.5/30.8	-12.1/-3.6
86	Park Avenue and SR 18	-4.9/7.7	-0.4/-13.7	-0.6/9.3	-15.0/-1.4	2.7/44.4	-14.5/1.0
87	I-15 southbound off-ramp and Palmdale Road	-20.8/-6.0	-19.7/-5.1	-16.7/12.9	-13.3/-1.6	0.4/16.8	-13.4/1.7
88	I-15 northbound on-ramp and Palmdale Road	-3.7/-20.9	-2.0/-21.5	-1.6/-10.2	-2.1/0.7	8.9/27.8	-4.7/1.9
89	I-15 northbound off-ramp and Mariposa Road	-1.6/1.0	-1.3/0.5	-1.4/0.9	-1.5/-0.1	3.8/7.6	-0.9/0.5
90	I-15 southbound off-/on-ramps and National Trails Highway/D Street	-4.6/-7.0	-1.3/-4.5	-3.8/-5.3	-3.0/-6.8	1.6/-3.1	-2.8/-7.7
91	I-15 southbound off-/on-ramps and E Street	-1.8/-1.6	0.2/0.4	0.7/0.0	-1.7/-2.1	4.9/4.8	-2.3/-2.1
92	I-15 northbound off-/on-ramps and E Street	-2.1/-2.0	0.2/0.2	0.2/0.1	-2.2/-2.0	4.6/4.6	-2.1/-2.4
93	Gateway and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
94	Gateway and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
95	I-15 southbound off-ramp and Stoddard Wells Road	-5.2/-4.0	-4.1/-3.2	-4.7/-3.6	-1.3/-1.1	5.2/4.4	0.0/-1.5
96	I-15 northbound on-ramp and Stoddard Wells Road/Frontage Road	1.2/2.3	0.2/1.6	0.7/0.8	2.2/1.5	23.3/24.1	3.3/3.2
97	Stoddard Wells Road and SR 18	2.3/-2.5	3.2/0.2	2.0/-2.2	-5.2/-46.2	-7.0/-60.3	-7.3/-61.2
98	136 I-15 southbound off-/on-ramps and Victorville Quarry Road	-2.9/-2.9	-0.7/-0.8	-0.5/-0.6	-2.6/-2.6	4.3/5.4	-2.6/-2.6
99	I-15 northbound off-/on-ramps and Stoddard Wells Road (north)	-13.1/-131.5	-10.9/-129.9	-11.0/-129.8	-3.2/-2.1	5.8/8.9	1.1/-1.4
100	I-15 southbound off-/on-ramps and Dale Evans Parkway	1.6/11.5	2.4/6.2	2.9/11.2	-7.2/-0.7	-2.8/-1.9	-7.2/-1.1

Table 10. Changes in AM and PM Delays in 2020 and 2040 (continued)

No	Intersection	Changes from No-Bld in 2020, Delays in seconds (AM/PM)			Changes from No-Bld in 2040, Delays in seconds (AM/PM)		
		Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)	Alt 2 (Blue Align)	Alt 3 (Blue w Red IC)	Alt 4 (Blue Align Toll)
101	I-15 northbound off-/on-ramps and Dale Evans Parkway	1.9/2.4	4.6/7.7	7.4/4.0	0.6/-5.3	8.6/4.7	1.4/-5.5
102	Choco Road and No Name Road	1.1/-6.4	2.3/-3.2	0.5/-3.2	-1.0/-4.0	2.5/1.6	0.6/-4.5
103	Choco Road and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
104	Choco Road and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
105	Choco Road and Air Expressway Boulevard	0.3/0.7	-0.3/-1.1	-0.2/0.3	3.5/0.4	-7.9/-8.2	-0.2/-0.1
106	Dale Evans Parkway and Air Expressway Boulevard	-1.6/-2.8	1.9/-0.6	3.3/-2.1	2.3/0.3	3.0/6.6	4.5/0.8
107	Dale Evans Parkway and westbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
108	Dale Evans Parkway and eastbound High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
109	High Desert Corridor and Waalew Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
110	Central Road and Waalew Road	-5.2/-6.2	-4.0/-5.3	-2.2/-3.6	-5.4/-7.2	1.9/7.9	-5.1/-8.4
111	High Desert Corridor and Central Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
112	Central Road and SR 18	-2.4/1.4	-1.4/0.8	-2.4/1.4	-3.1/-3.1	-3.6/-4.7	-3.4/-4.7
113	Joshua Road and High Desert Corridor	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
114	Joshua Road and Standing Rock Road	-9.4/-12.4	-8.0/-11.7	-7.2/-9.2	-10.8/-12.5	2.5/41.3	-8.8/-12.0
115	High Desert Corridor and Standing Rock Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
116	High Desert Corridor and Yucca Loma Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
117	High Desert Corridor and Nisqually Road	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA	NA/NA
118	Bear Valley Road and SR 18	-1.1/-5.9	5.0/-2.7	0.8/-3.6	-4.8/-7.3	-0.6/-2.3	-3.7/-6.9

*Delay in seconds.

Source: Parsons, Traffic Study Report: Volume I, September 2012

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

   Response: Change in the land use within the project area is not anticipated with implementation of any of the proposed alternatives. The proposed project would thus not increase the percentage of vehicles operating in cold start mode.

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

   Response: The project proposes three build alternatives. Alternative 1 is the no-build alternative. A total of 163 intersections were analyzed in the traffic study prepared by Parsons in January 2013, and AM and PM peak hourly volumes were estimated for the current conditions, in the opening year of 2020, and in the design year of 2040. Based on the traffic analysis and the scope of the build alternatives, forty-two intersections show no increases in traffic volumes as a result of the project alternatives; and as a result, the remaining 121 intersections are analyzed herein. Table 9 above provides a summary of changes in the AM and PM Peak hourly volumes for the build alternatives as compared to the no-build alternative in 2020 and 2040.

   Based on the traffic volume data summarized below, the proposed project is anticipated to increase traffic volumes by more than 5 percent at a number of intersections.

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

   For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.

   Response: A summary of changes in the AM and PM Peak hourly delays in 2020 and 2040 is provided above in Table 10. Based on the summary below, the proposed project is anticipated to increase delays at a number of intersections.

Based on the evaluation above, the project is likely to worsen air quality and the analysis is preceded to the next level of the CO Protocol.

Q: Level 7. Is project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration? (see Section 4.7.2)

A: Section 4.7.2 of the CO Protocol recommends selecting one of the worst-case locations in the region where attainment has been demonstrated and comparing it to the "build" scenario of the project with a similar configuration. The 10th Street West and West Ave. P intersection (located in the Lancaster/Palmdale region) and the SR-18 and Armargosa Road intersection (located in the Victorville region) are the two among the 121 intersections analyzed in the previous step that were selected due to having the highest volumes. Since there are no attainment demonstration plans for CO in the AVAQMD or MDAQMD, intersections for comparison were selected based on available level of traffic volumes near each of the respective air monitoring stations in Lancaster and Victorville. The intersections for

comparison were also evaluated to share configurations similar to those affected by the proposed project.

These intersections establish a "modeled" baseline to compare to the build scenario and determine the potential for higher CO concentrations in the region. Based on available traffic data, intersections were selected as follows to represent the baseline: 10th Street West and Avenue K in Lancaster, and Roy Rodgers Drive and Amargosa Road in Victorville. The intersections affected by the proposed project were then compared to the two baseline intersections, evaluated using the following criteria established in the CO Protocol.

a. *The receptors at the location under study are at the same distance of farther from the traveled roadway than the receptors at the location where attainment has been demonstrated.*

   The baseline intersections, if modeled, would have receptors within 3 meters from the traveled roadway. The receptors at the intersections of 10th Street West and West Ave. P and the SR-18 and Armargosa Road would also be the same distance or farther from the traveled roadway for the worst-case Build scenario.

b. *The roadway geometry of the two locations is not significantly different. An example of a significant difference would be a larger number of lanes at the location under study compared to the location where attainment has been demonstrated.*

   The baseline intersection at 10th Street West and Avenue K has 3 through lanes and double left-turn lanes in all 4 directions. A right-turn lane exists in the northbound direction only. The other baseline intersection at Roy Rodgers Drive and Amargosa Road has 2 through lanes in all 4 directions with double left-turn lanes in northbound and southbound directions. A single left-turn lane exists in the eastbound and westbound directions and a right-turn lane exists in the northbound and westbound directions.

   One of the two intersections selected to represent the conditions affected by the proposed project, at 10th Street West and West Ave. P in Palmdale, has 3 through lanes and double left-turns in all 4 directions. A right-turn lane also exists in all directions except for the southbound direction. The other project intersection at SR-18 and Amargosa Road has 2 through lanes and a single left-turn lane in all 4 directions. Table 10 below presents a summary of number of through lanes at each of the baseline and project intersections.

Table 11. Number of Through Lanes at Intersections.

Intersection	Number of Lanes			
	Northbound	Southbound	Eastbound	Westbound
10th Street West and Ave. K	3	3	3	3
Roy Rodgers Drive and Amargosa Road	2	2	2	2
10th Street West and West Ave. P	3	3	3	3
SR-18 and Amargosa Road	2	2	2	2

Source: Parsons, Traffic Study Report: Volume I, September 2012

c. *Expected worst-case meteorology at the location under study is the same or better than the worst-case meteorology at the location where attainment has been demonstrated. Relevant meteorological variables include: wind speed, wind direction, temperature and stability.*

   The worst-case meteorology at the project intersections is expected to be the same or better than conditions at the baseline intersections.

d. *Traffic lane volumes at the location under study are the same or lower than those at the location where attainment has been demonstrated.*

   For the existing conditions, the baseline intersections at 10th Street West and Avenue K and Roy Rodgers Drive and Amargosa Road experienced the highest pear-hourly volume of 495 vehicles per lane per hour (veh/ln/hr) in the westbound direction during the PM. As a comparison, the highest peak-hourly volumes projected (in 2040) for the affected intersections at 10th Street West and West Ave. P intersection and the SR-18 and Armargosa Road are 809 veh/ln/hr in the westbound in the PM and 1308 veh/ln/hr in the westbound in the PM peak hour, respectively. A summary of peak-hourly traffic lane volumes at the project intersections are provided in Table 12.

e. *Percentages of vehicles operating in cold start mode at the location under study are the same or lower than those at the location where attainment has been demonstrated.*

   Percentages of cold-start vehicles are projected to be about the same at the project location as they are at the baseline intersections because they are in the same regions of the High Desert area. The High Desert is highly rural in character except for pockets of urbanized regions of Palmdale/Lancaster and Adelanto/Victorville/Hesperia/Apple Valley where the project and baseline intersections are located.

f. *Percentage of Heavy Duty Gas Trucks at the location under study is the same or lower that the percentage at the location where attainment has been demonstrated.*

   The traffic volumes will increase due to the inherent nature of the proposed project. However, the traffic volumes along local east-west and north-south local roads will shift directional patterns, as traffic flows to the new HDC freeway, taking advantage of its higher speeds and avoiding traffic signal delays. Therefore, the percentage of heavy duty gas trucks at the project intersections is expected to be about the same as the baseline intersections.

g. *For projects involving intersections, average delay and queue length for each approach is the same or smaller for the intersection under study compared to those found in the intersection where attainment has been demonstrated.*

   With the increase in traffic volumes at the project intersections summarized in Table 12, average delay and queue lengths would be expected to be higher than those at the baseline intersections.

h. *Background concentrations at the location under study are the same or lower than the background concentration at the location where attainment has been demonstrated.*

   Background concentrations of CO at the project intersections are anticipated to be the same or more than those at the baseline intersections due to the urban nature of the environment surrounding the intersection, combined with higher traffic volumes.

Table 12. Peak-Hourly Traffic Lane Volumes at Intersections

Intersection			Peak Hour Traffic Lane Volume (AM/PM)			
			Northbound	Southbound	Eastbound	Westbound
10th Street West and Ave. K	Existing		295	299	278	363
Roy Rodgers Drive and Amargosa Road	Existing		NA	NA	377/495	364/478
10th Street West and West Ave. P	Existing		315/559	295/467	409/304	327/732
	2020	Alt 2	556/523	290/441	464/504	343/738
		Alt 3	629/665	303/450	506/556	354/715
		Alt 4	571/535	306/404	511/532	332/702
	2040	Alt 2	699/633	320/485	530/554	366/732
		Alt 3	724/778	345/513	601/554	389/809
		Alt 4	698/641	324/545	545/558	364/715
SR-18 and Amargosa Road	Existing		206/271	178/332	555/571	386/690
	2020	Alt 2	238/317	274/532	741/744	758/1034
		Alt 3	222/286	273/553	674/796	833/1045
		Alt 4	235/338	268/545	756/720	765/1035
	2040	Alt 2	264/409	347/589	868/989	1051/1308
		Alt 3	264/409	347/589	858/984	1044/1300
		Alt 4	264/405	339/583	870/992	1017/1308

Source: Parsons, Traffic Study Report: Volume I, September 2012

Q: Level 7. Does project involve a signalized intersection at LOS E or F? (see Section 4.7.3)

A: YES. The 2040 build scenarios for the proposed project involve some signalized intersections at LOS E or F. The flowchart directs the project to proceed to Level 4.

LEVEL 4

The screening analysis in Appendix A of the CO Protocol is based on the EMFAC7 model. As the new EMFAC2011 model is required for CO hot spot analyses, the screening analysis Appendix A is no longer valid. (Proceed to Level 5).

LEVEL 5

Perform a detailed analysis. Are impacts acceptable?

A: YES. See below for further explanation.

CALINE4 ANALYSIS:

CO is the pollutant of major concern along roadways since the most notable source of CO is vehicles. CO is a direct function of vehicle idling time and, thus, traffic flow conditions. For this reason, CO concentrations are usually indicative of the local air quality generated by the roadway network, and are used as an indicator of its impacts upon local air quality. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations close to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, school children, the elderly, hospital patients, etc). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels. Local air quality impacts can be assessed by comparing future CO levels with State and Federal CO standards and also by comparing future CO concentrations with and without the proposed project.

The highest CO concentrations would occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Modeling of the CO hot spot analysis was based on the traffic volumes generated by the project traffic study (Parsons – September 2012), which identified the peak traffic levels generated in the project area for the year 2040.

METHODOLOGY:

- The effect on local CO levels was assessed with the EPA-approved CALINE4 air quality model, which allows micro-scale CO concentrations to be estimated along roadway corridors or near intersections. This model is designed to identify localized concentrations of CO, often termed "hot spots." A brief discussion of input to the CALINE4 model is provided below. The analyses were performed for the worst-case wind angle and wind speed conditions and are based upon the following assumptions:
- The afternoon peak hour volumes were used in the modeling because the intersections experienced higher volumes in the afternoon than in the morning; and produced a worst-case scenario for the proposed project.
- The proposed project affects each alternative differently and results in forecast volumes that vary among different alternatives. In order for the modeling to represent the worst case scenario, travel activity data for Alternative 3 were selected to evaluate CO impacts at the intersection of 10th Street West and West Ave. P; and travel activity data for Alternative 2 at the intersection of SR-18 and Armargosa Road.
- Four receptors were modeled for each of the two project intersections in evaluating CO impacts. The CO Protocol (Appendix B, section B.4.4 Receptor Locations) states the following:

  The EPA has a policy that receptors for 8-hour analyses should be placed at a distance of 3 m for the minimum distance to the nearest receptor. This reflects the concentration in the mixing zone above and surrounding the traveled way and is the closest distance that modeled concentrations are considered valid.

- The calculations assume a meteorological condition of very calm to no wind (0.5 meter/second), a suburban topographical condition between the source and receptor, a mixing height of 1,000 m, Surface Roughness of 0 (a suburban topographical condition between the source and receptor), and temperature of 14° C, representing a worst-case scenario for CO concentrations;
- CO concentrations with averaging time of eight-hour were calculated by applying a persistence factor of 0.7 for urban locations in accordance with the CO Protocol.
- The "at-grade" link option in the CALINE4 was utilized, based on average cruise speed and number of vehicles per lane per hour. Emission factors from EMFAC2011 and updated vehicle classifications algorithms were also used for the vehicle fleet based on the adjusted speed.
- In accordance with the CO Protocol, the 2nd highest eight-hour CO concentrations monitored at the Lancaster and Victorville stations in the past three years were used as background concentrations: 1.20 ppm for the eight-hour CO at Lancaster and 4.26 ppm for the eight-hour CO at Victorville. The background concentrations are then added to the modeled results for impacts at the project intersections.

Based on the CALINE4 modeling, the proposed project is anticipated to contribute a maximum increase of 0.7 ppm to the background CO concentration at the project intersections. The intersection at SR-18 and Amargosa Road is anticipated to result in higher CO concentrations because this intersection affects area with a higher background concentration (4.26 ppm in Victorville). Table 13 below summarizes estimated CO concentrations at the project intersections based on their respective travel activity data. According to the results in Table 13, the proposed project would result in concentrations less than the federal and state standards and would not create violations of the standards at the project intersections in which the worst case CO impacts are anticipated within the project area in Los Angeles and San Bernardino Counties.

Table 13. Eight-Hour CO Concentrations for Build Condition

Intersection	Distance from Edge of Travel Way (Meters)		8-Hour CO Concentration (Modeled + Background in ppm)	8-hour exceeds standards? (State/Fed.)	
10th Street West & West Ave. P in Los Angeles County	Receptor 1	3	1.4	No	No
	Receptor 2	3	1.6	No	No
	Receptor 3	3	1.6	No	No
	Receptor 4	3	1.4	No	No
SR-18 & Amargosa Road in San Bernardino County	Receptor 1	3	4.6	No	No
	Receptor 2	3	4.7	No	No
	Receptor 3	3	4.6	No	No
	Receptor 4	3	4.8	No	No

Ambient eight-hour standards: State = 9.0 ppm; Federal = 9 ppm

4.3.2. Particulate Matter Hot-Spot Conformity Analysis

Future traffic data have been projected based on the current conditions and future improvements; and their averages are summarized in Tables 14 and 15. Traffic projections were conducted by segments (from one interchange to another) for the entire length of the HDC and connecting portions of SR-14 and I-15 within the project limits. While the traffic data in Tables 14 and 15 provide a summary of averages along the proposed HDC, Appendix D provides a complete summary of forecast travel activity data throughout the project in their respective years. Since the proposed HDC is a new facility, forecast travel activity along the corridor is provided for Build scenarios only.

Table 14. Opening Year Traffic Data (2020)

2020		Traffic Volume		VMT (miles)	Average Daily Speed (MPH)
		Total	Truck %		
Freeway/ Expressway Alternative	Freeway Segment	19,201 – 102,330	7.7 – 22.3	33,289 – 359,127	56 – 64
	Expressway Segment	7,009 – 17,042	3.9 – 5.5	9,429 – 30,708	43 – 47
Freeway/ Toll Alternative	Freeway/ Toll Segment	18,758 – 92,075	7.6 – 18.3	32,666 – 265,788	57 – 67
	Expressway Segment	6,593 – 16,526	3.1 – 4.7	8,870 – 29,778	43 – 47

Source: Traffic Forecast Data by Parsons, November 2013

Table 15. Build-Out (Horizon) Year Traffic Data (2040)

2040		Traffic Volume		VMT (miles)	Average Daily Speed (MPH)
		Total	Truck %		
Freeway/ Expressway Alternative	Freeway Segment	32,390 – 137,444	3.7 – 19.5	51,442 – 526,276	52 – 62
	Expressway Segment	16,424 – 25,830	3.1 – 5.6	14,650 – 46,543	38 – 44
Freeway/ Toll Alternative	Freeway/ Toll Segment	31,199 – 126,918	3.5 – 18.7	49,550 – 383,384	54 – 65
	Expressway Segment	14,591 – 28,794	3.5 – 4.7	16,556 – 51,884	38 – 44

Source: Traffic Forecast Data by Parsons, November 2013

Hot-spot analyses were conducted according to the EPA's *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (EPA Guidance, November 2013).

A quantitative PM hot-spot analysis has been prepared based on the Alternative that comprises of the most complete set of proposed project features, including the toll program and rail system. However, an emissions analysis for $PM_{2.5}$ and PM_{10} has also been completed as part of a MSAT and GHG emissions analysis over a wider region that approximately extends to SR-14 to the west; SR-138 to the south; SR-18 to the east; and the proposed HDC to the north. Tables and

maps to summarize and illustrate changes in PM_{10} and $PM_{2.5}$ emissions are included in Appendices I and J, respectively.

According to the EPA Guidance, the quantitative analysis includes following sources of $PM_{2.5}$ and PM_{10} emissions: directly emitted exhaust emissions; tire and brake wears; re-entrained road dust; and fugitive dust emissions from the HSR system. Precursors of PM and secondary particles are not considered in the hot-spot analysis; but they are considered as part of the regional emissions analysis prepared for the conforming RTP and TIP.

Emissions of $PM_{2.5}$ and PM_{10} from the proposed project were estimated, based on the forecast travel activity data and emission factors generated from the latest EPA-approved emissions model, EMFAC2011. The emissions estimates were then provided as inputs to a near-field dispersion model to calculate concentrations near the project area. Appendix E provides a summary of emission inputs (in grams/second) used in the hot-spot analysis for the proposed project in Los Angeles and San Bernardino Counties.

While the American Meteorological Society/EPA Regulatory Model (AERMOD) is the EPA's recommended model, Section 3.2 of Appendix W to 40 CFR Part 51 provides applicable guidance with which an EPA's Regional Office may determine acceptability of alternative models such as some commercial Graphical User Interface (GUI) versions of AERMOD. The quantitative analysis for this project has been prepared, using the AERMOD View Message Passing Interface by Lakes Environmental (Lakes AERMOD View MPI). Prior to the use of the Lakes AERMOD View MPI, however, Caltrans has coordinated with EPA Region 9 Office and Model Clearinghouse and satisfactorily demonstrated that the Lakes AERMOD View MPI produces concentration estimates equivalent to those obtained using the EPA's standard AERMOD for all types of sources typically used in dispersion modeling and those used in the hot-spot analysis.

According to the conformity rules and regulations, nonattainment and maintenance areas are required to attain and maintain applicable NAAQ. As indicated in Tables 6 and 7, San Bernardino County within the MDAB is in nonattainment of the 24-hour PM_{10} NAAQS while both Los Angeles and San Bernardino Counties within the MDAB are in attainment of 24-hour $PM_{2.5}$ and annual $PM_{2.5}$ NAAQS. Los Angeles County within MDAB is in attainment of the 24-hour PM_{10} NAAQS. A hot-spot analysis to demonstrate conformity to the 24-hour PM_{10} NAAQS was thus prepared under a separate cover for the portion of the proposed project in San Bernardino County; and was submitted to the interagency consultation for their review and concurrence. The interagency consultation within the SCAG area is conducted as the Transportation Conformity Working Group (TCWG). TCWG reviewed and provided comments in April 2014. The hot-spot analysis was revised to address the comments and submitted to the TCWG in May 2014.

The hot-spot analysis was updated and finalized for the preferred alternative, using the EPA's standard AERMOD and AERMET models version 15181. The updated and final hot-spot analysis was submitted to the TCWG for their review and concurrence. The updated and final hot-spot analysis was concurred with by the TCWG in their monthly meeting in September 2015 (FHWA provided their concurrence in October 2015).

Appendix F provides the updated and final Quantitative PM_{10} Hot-Spot Analysis as submitted to and concurred with by the TCWG in September 2015. In addition to the hot-spot analysis for the 24-hour PM_{10} NAAQS using the EPA's standard AERMOD version 15181, the proposed project

was also modeled, using Lakes AERMOD View MPI version 15181, in Los Angeles and San Bernardino Counties within the MDAB; and design concentrations of 24-hour $PM_{2.5}$ and annual $PM_{2.5}$ were calculated.

Besides emissions calculated based on the travel activity data and emissions factors, AERMOD model uses meteorological data to estimate ground-level concentrations of PMs. Meteorological input data include surface and upper air data that need to be processed prior to running the dispersion model. A review of available surface and upper air data in and around the project area indicated that monitoring stations in Lancaster/Palmdale (AIRS Number 060379033) and in Victorville (AIRS Number 060710306) provide a representative surface data while Mercury/Desert Rock monitoring station in Neveda provides representative upper air data. Selection of representative surface and upper air data for a 5-year period was made based on the availability of measurements and the EPA modeling requirements. Caltrans consulted with EPA Region 9 Office prior to selecting the most representative surface and upper air data that satisfy the EPA modeling requirements.

Background ambient concentrations have also been reviewed and determined based on the latest available sets of measurements at the Lancaster/Palmdale and Victorville monitoring stations. The EPA Guidance requires consideration of monitoring data in calculation of design values with which applicable NAAQS is compared. The following background concentrations have been calculated using 3 most recent years of monitoring data at the Lancaster/Palmdale and Victorville monitoring stations:

Table 16. Background Concentrations at Lancaster/Palmdale and Victorville, CA

Monitoring Station	24-Hour PM_{10} ($\mu g/m^3$)	24-Hour $PM_{2.5}$ ($\mu g/m^3$) *	Annual $PM_{2.5}$ ($\mu g/m^3$) *
Lancaster/Palmdale	51	27	6.9
Victorville	45	14	7.0**
National AAQS	150	35	12.0
State AAQS	50	No Separate SAAQS	12

Source: EPA AirData (http://www.epa.gov/airdata/).

* 24-Hour and Annual $PM_{2.5}$ background concentrations at Lancaster have been calculated based on 3-year measurements between 2009 and 2011 due to unavailability of 3rd Quarter measurements in 2012.

** Victorville has two monitors at the site; and the highest background concentration is noted.

The AERMOD estimates ground-level concentrations at a series of receptors placed in the model. For this hot-spot analysis, a line of receptors was placed at less than 1 meter away from the right-of-way (ROW) line; and layers of receptors were placed subsequently at every 10 meters up to 50 meters from the ROW line; and at 50 meters up to 250 meters from the ROW line. All receptors were placed around a hot-spot location in Los Angeles and San Bernardino Counties, each identified from model runs of the entire corridor with FASTALL option. Location and spacing of receptor placement for the hot-spot analysis was determined according to the EPA Guidance.

The EPA Guidance notes that design values are a fundamental component of PM analyses as they are the values compared to applicable NAAQS. In general, a design value is a statistic that describes a future air quality concentration in the project area and is calculated by combining modeled concentrations and monitored background concentrations. Background concentrations

at Lancaster/Palmdale and Victorville summarized in Table 16 were used in calculating design values for portions of the project in Los Angeles and San Bernardino Counties, respectively. Tables 17 and 18 below provide the highest design values for PMs anticipated due to the proposed project.

Table 17. Design Values with Project in Los Angeles and San Bernardino in 2020

Project Area	24-Hour PM_{10} (µg/m^3)	24-Hour $PM_{2.5}$ (µg/m^3)	Annual $PM_{2.5}$ (µg/m^3)
Los Angeles County	70	32	9.2
San Bernardino County	80	27	12.8

Table 18. Design Values with Project in Los Angeles and San Bernardino in 2040

Project Area	24-Hour PM_{10} (µg/m^3)	24-Hour $PM_{2.5}$ (µg/m^3)	Annual $PM_{2.5}$ (µg/m^3)
Los Angeles County	70	33	9.8
San Bernardino County	90	29	13.6

Multiple runs of dispersion modeling were completed to evaluate impacts in proximity of the hot-spots, using the standard EPA AERMOD and Lakes AERMOD View MPI. Results of those model runs are illustrated in Figures 19 and 20 for the 24-hour $PM_{2.5}$; Figures 21 and 22 for the annual $PM_{2.5}$; and Figures 23 and 24 for the 24-hour PM_{10}. Figures 25 through 30 illustrate modeled results for 2040.

The design values in Tables 17 and 18 are based on the multiple model runs; and indicate that the proposed project will not likely create new or worsen existing violations of the state and federal 24-hour $PM_{2.5}$ standards or federal 24-hour PM_{10} standard in both Counties. The proposed project, however, will likely cause violations of the state 24-hour PM_{10} standard in both Counties.

Combining the highest modeled annual $PM_{2.5}$ outputs and the background concentration, design values for annual $PM_{2.5}$ were calculated in San Bernardino as shown in Tables 17 and 18. The calculated design values resulted higher than the state and federal $PM_{2.5}$ standards of 12 or 12.0 µg/m^3. A detailed review of modeled values was thus completed in order to determine appropriateness of the receptors as recommended by the EPA Guidance Section 9.4.

The most recent PM NAAQS final rule (78 FR 3127) provides that the annual $PM_{2.5}$ NAAQS is to protect the public health of "populations living near important sources of $PM_{2.5}$, including the large populations that live near major roadways." The EPA Guidance clarifies that the annual $PM_{2.5}$ NAAQS is to be monitored at "area-wide" locations, which is defined under 40 CFR 58.1: "*Area-wide* means all monitors sited at neighborhood, urban, and regional scales, as well as those monitors sited at either micro- or middle-scale that are representative of many such locations in the same [Core Based Statistical Area]."

Based on the model outputs, however, the results that are higher than the state and federal annual $PM_{2.5}$ standards in San Bernardino County would mostly occur at receptors located in unpopulated areas along the right-of-way fence line (1 meter away from the fence line); and would not be considered appropriate "area-wide" locations representative of neighborhood,

urban, regional scales as well as micro- or middle-scale monitors as defined in 40 CFR 58.1. Figures 31 and 32 illustrate those receptors calculated to result in design values higher than the state and federal annual $PM_{2.5}$ standards, in 2020 and 2040, respectively. All other receptors result in design values less than the state and federal annual $PM_{2.5}$ standards; and the proposed project is thus not likely anticipated to violate the state and federal annual $PM_{2.5}$ standards at all appropriate receptors.

Figure 19. 24-Hour $PM_{2.5}$ Concentrations Contour near the Hot-Spot in Los Angeles County in 2020

Figure 20. **24-Hour $PM_{2.5}$ Concentrations Contour near the Hot-Spot in San Bernardino County in 2020**

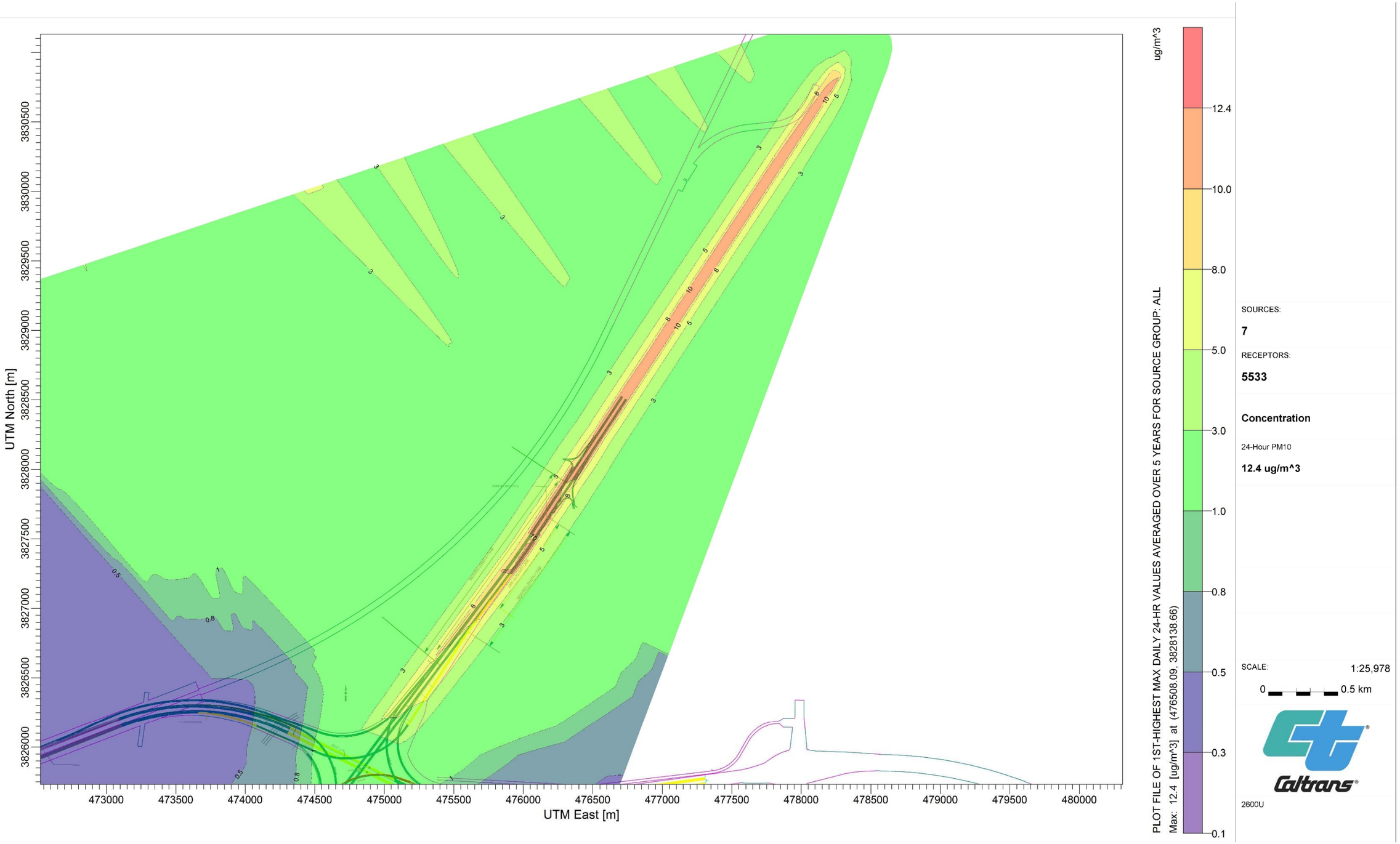


Figure 21. **Annual $PM_{2.5}$ Concentrations Contour near the Hot-Spot in Los Angeles County in 2020**

Figure 22. **Annual $PM_{2.5}$ Concentrations Contour near the Hot-Spot in San Bernardino County in 2020**

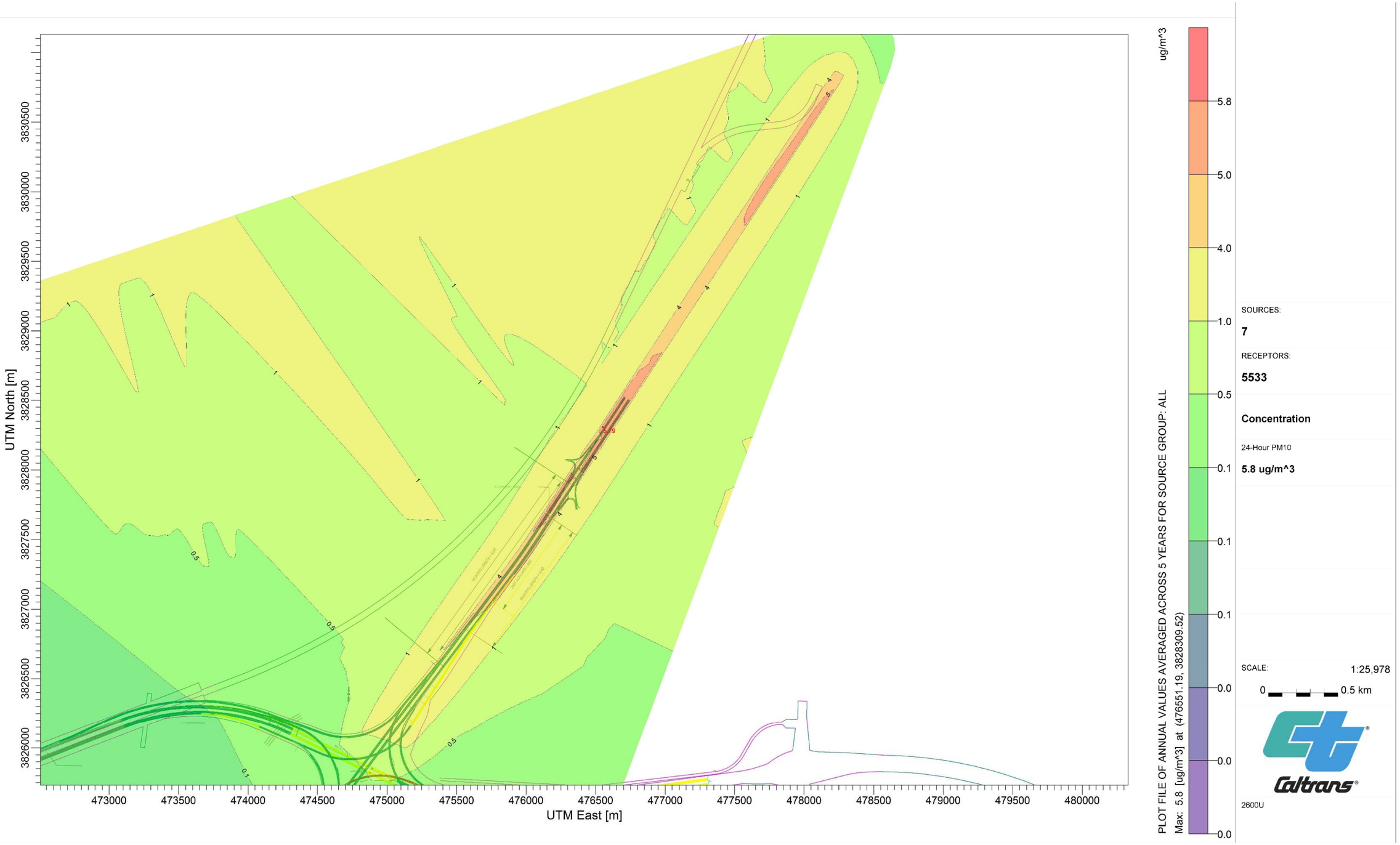


Figure 23. **24-Hour PM_{10} (6th Highest) Concentrations Contour near the Hot-Spot in Los Angeles County in 2020**

Figure 24. **24-Hour PM_{10} (6th Highest) Concentrations Contour near the Hot-Spot in San Bernardino County in 2020**

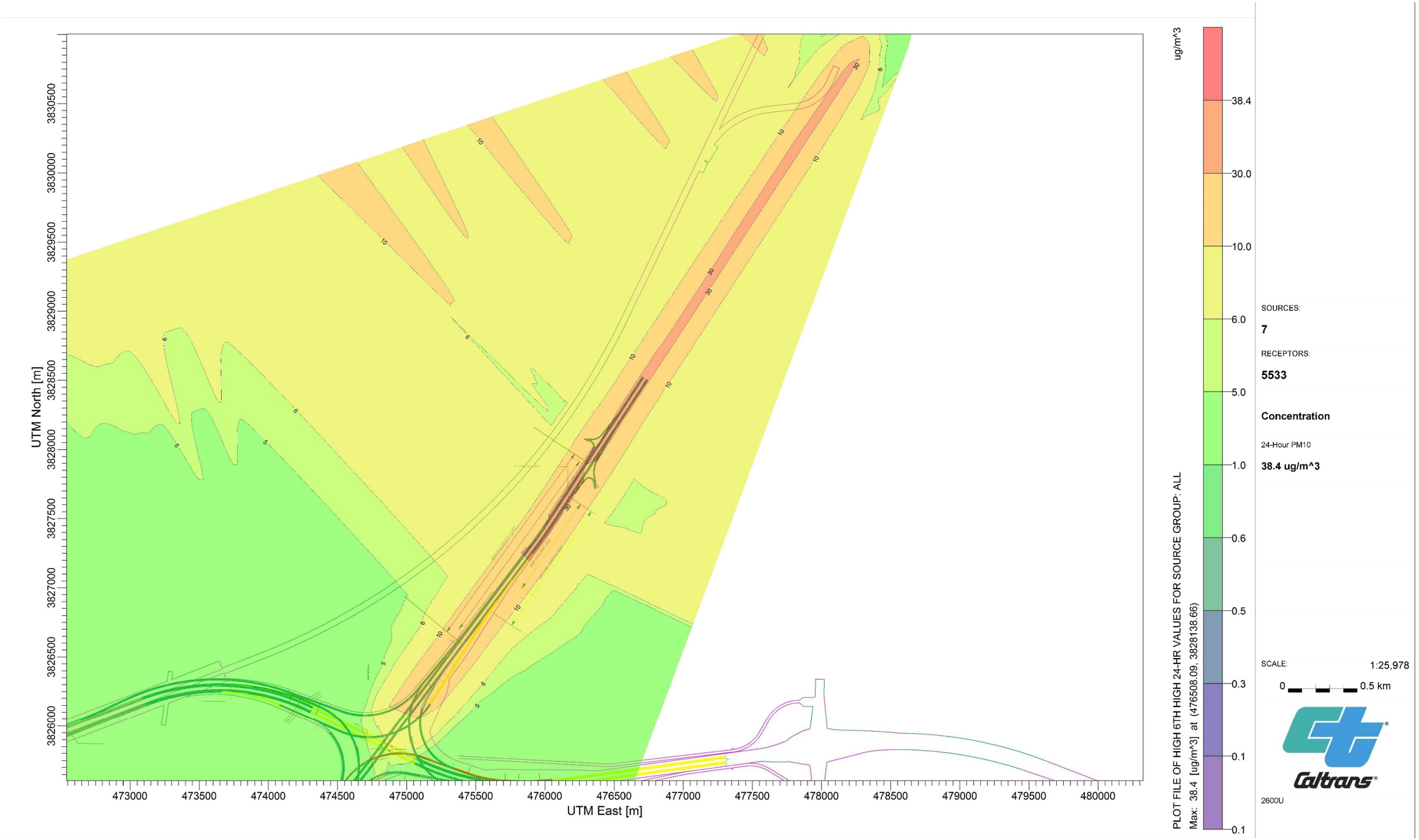


Figure 25. 24-Hour $PM_{2.5}$ Concentrations Contour near the Hot-Spot in Los Angeles County in 2040

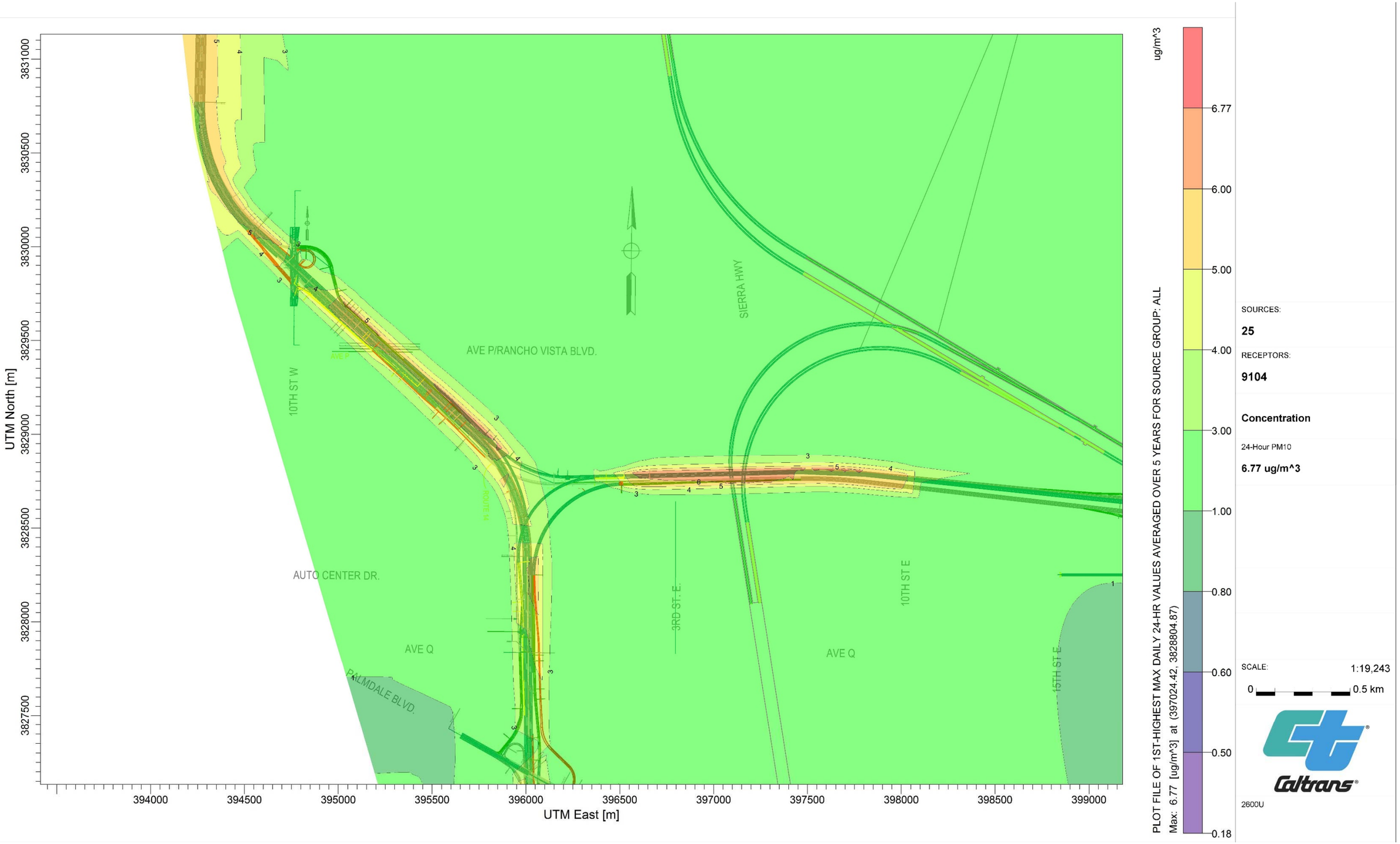


Figure 26. **24-Hour $PM_{2.5}$ Concentrations Contour near the Hot-Spot in San Bernardino County in 2040**

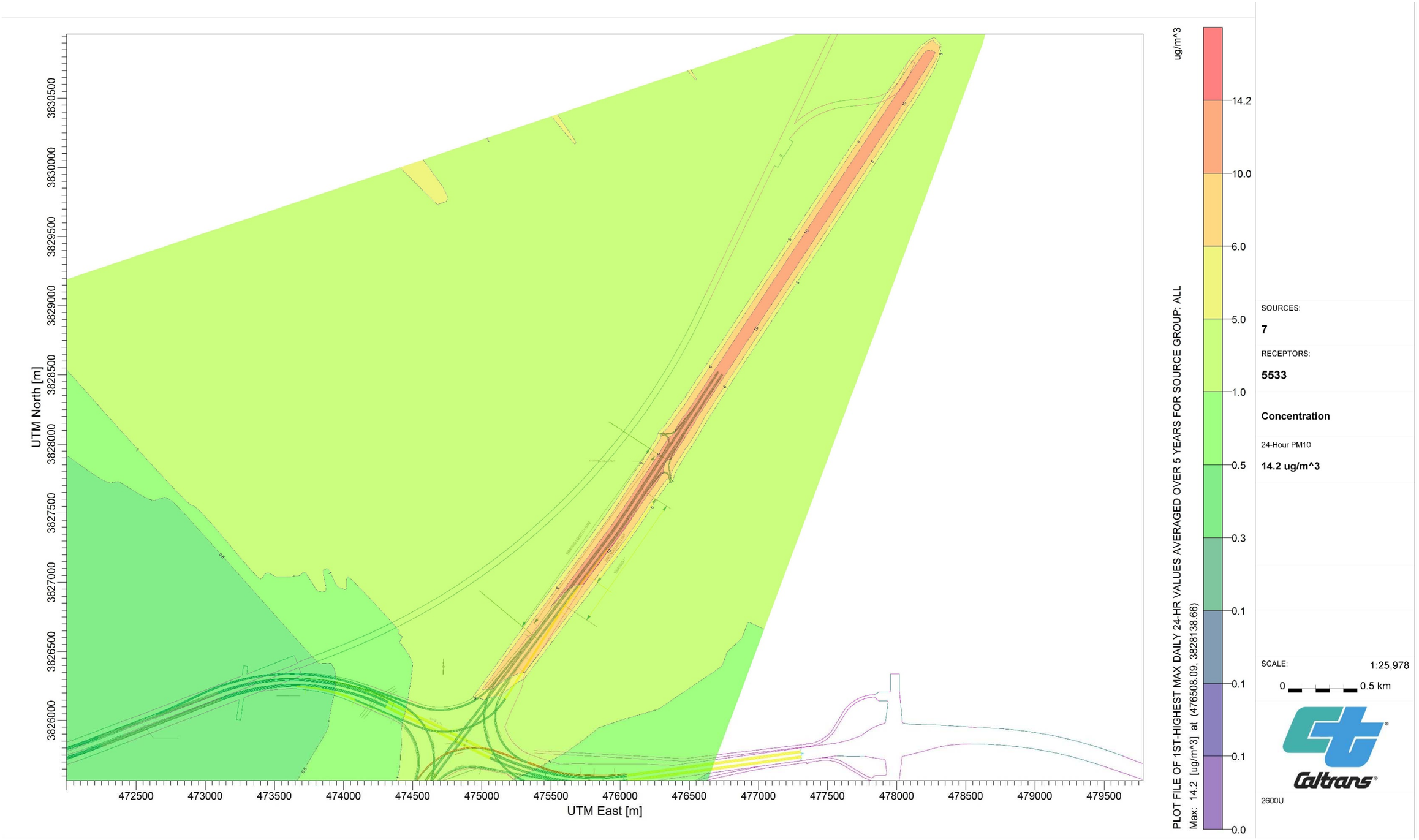


Figure 27. Annual $PM_{2.5}$ Concentrations Contour near the Hot-Spot in Los Angeles County in 2040

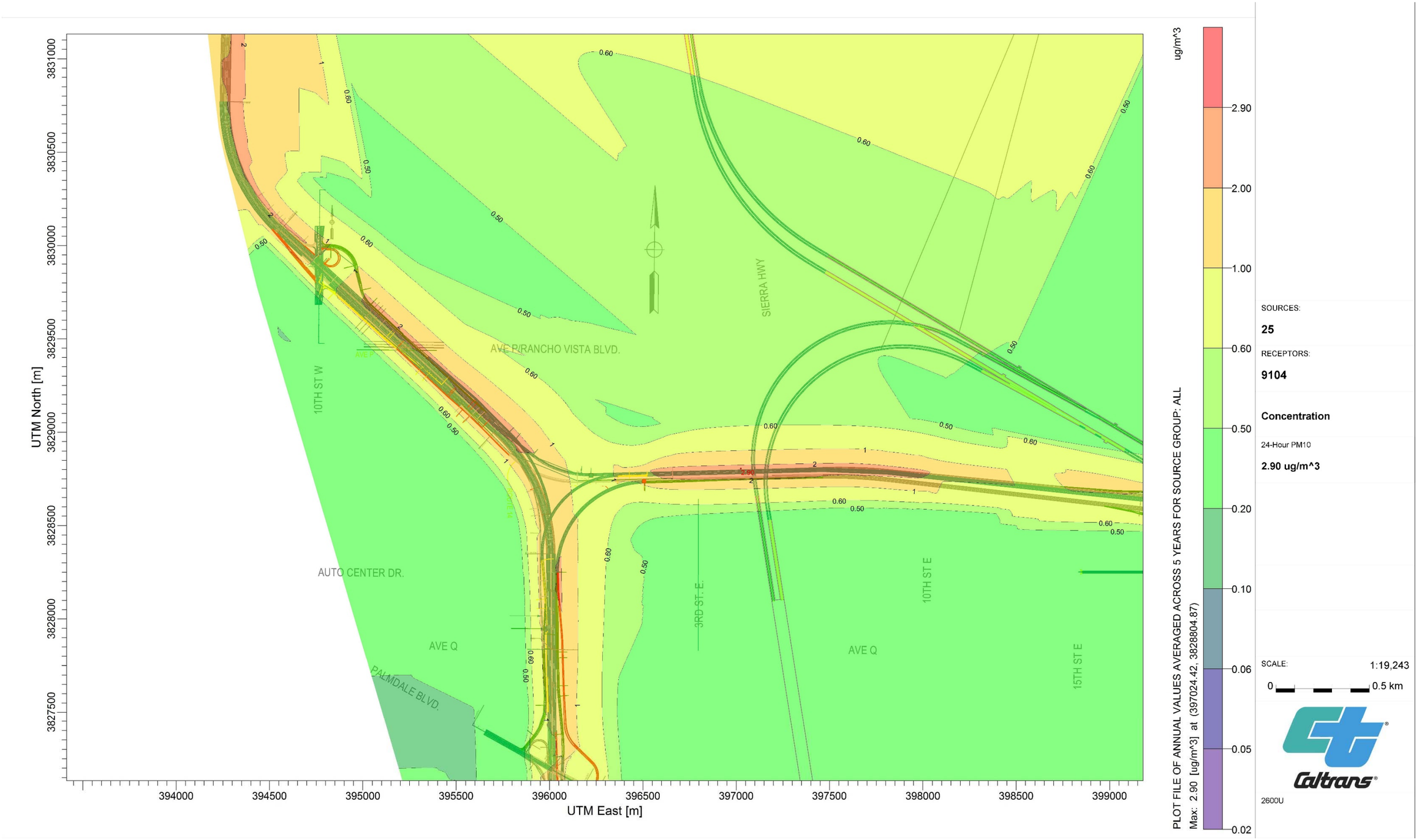


Figure 28. **Annual $PM_{2.5}$ Concentrations Contour near the Hot-Spot in San Bernardino County in 2040**

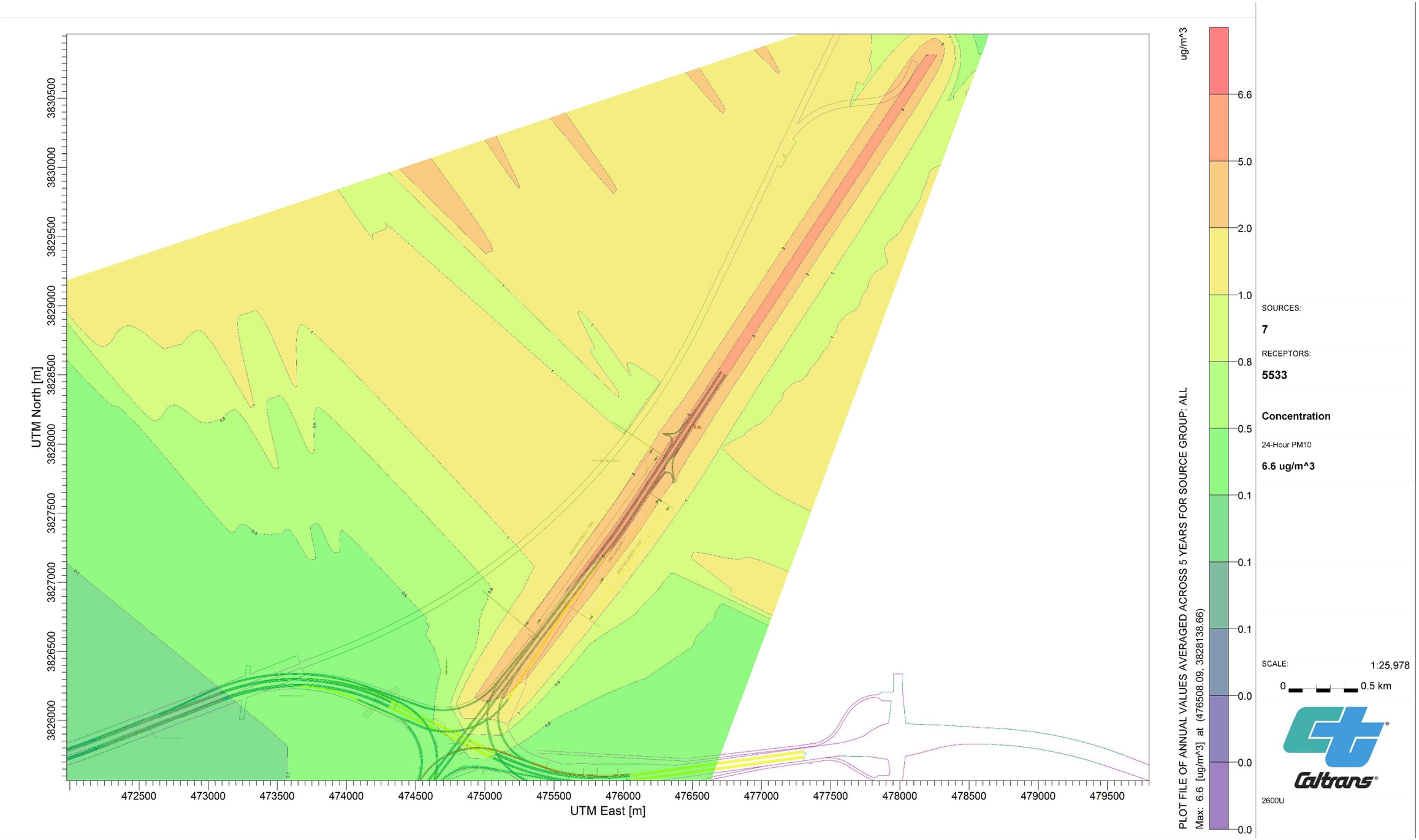


Figure 29. **24-Hour PM_{10} (6th Highest) Concentrations Contour near the Hot-Spot in Los Angeles County in 2040**

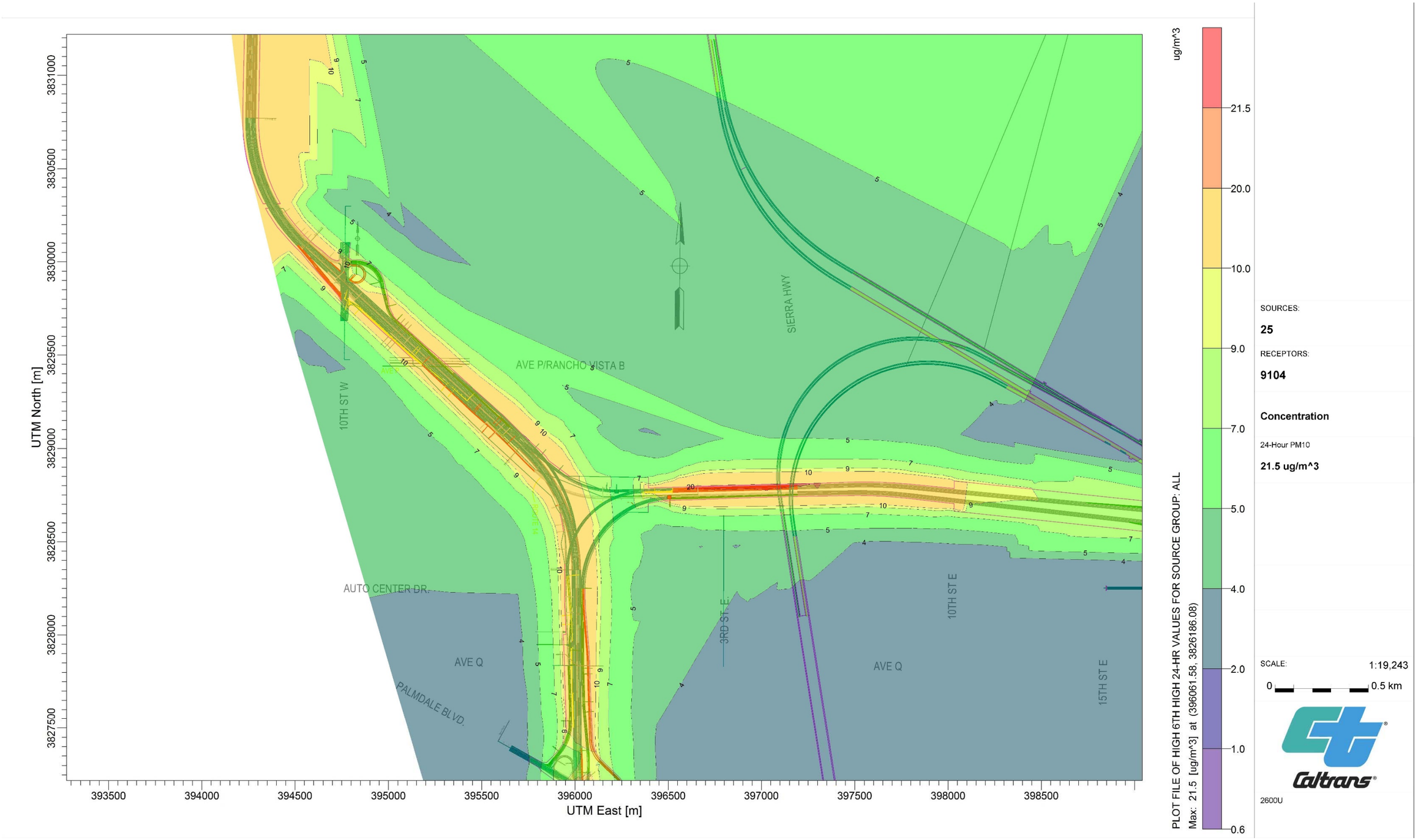


Figure 30. **24-Hour PM_{10} Concentrations Contour near the Hot-Spot in San Bernardino County in 2040**

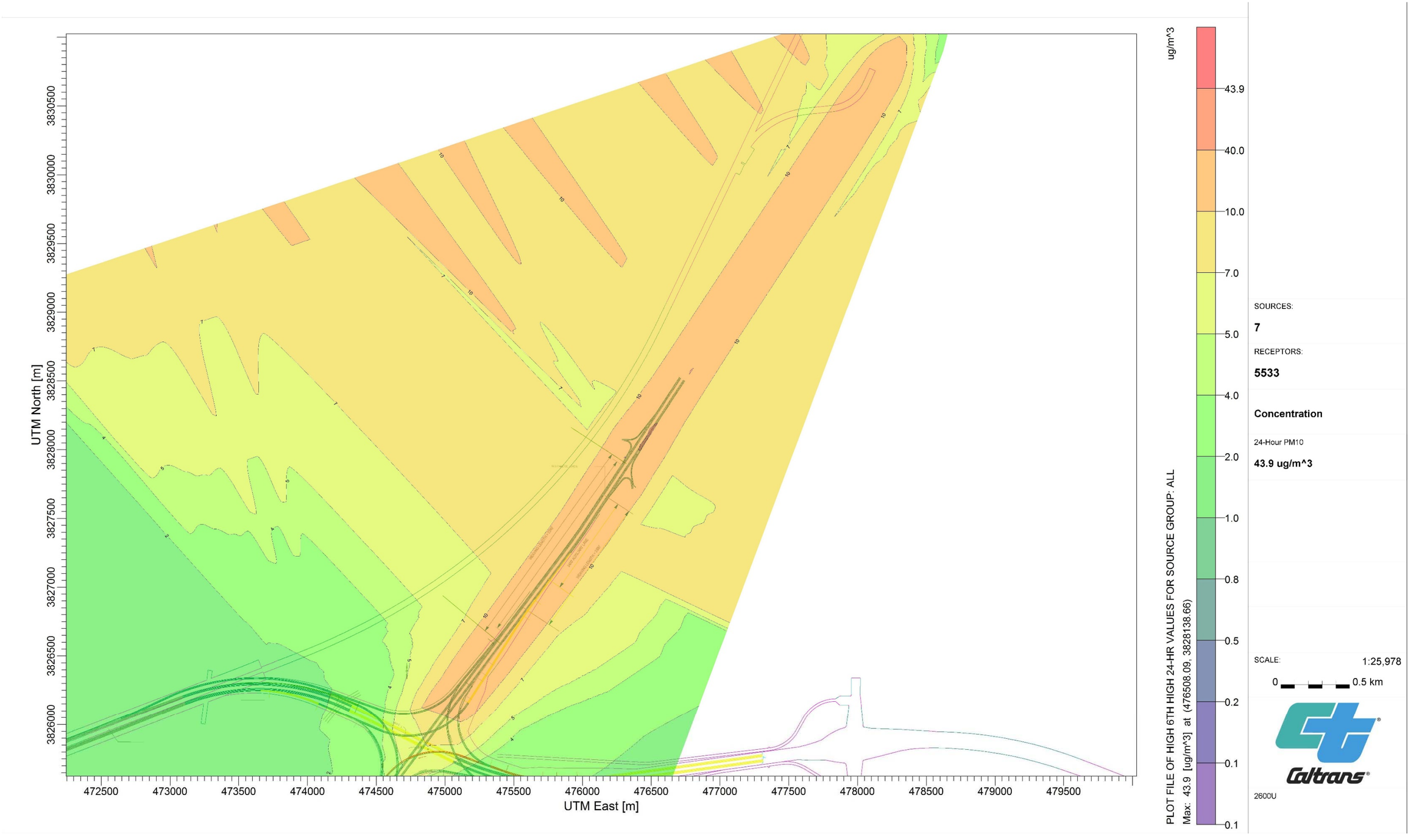


Figure 31. **Receptors with design values higher than the federal and state annual $PM_{2.5}$ standards in 2020**

Figure 32. **Receptors with design values higher than the federal and state annual $PM_{2.5}$ standards in 2040**

4.4. Qualitative Project-level MSAT and Particulate Matter Discussion

4.4.1. MSAT

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://cfcpub.epa.gov/ncea/iris/index.cfm). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are *acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.* While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

According to EPA, Motor Vehicle Emissions Simulator (MOVES) improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles. Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 33 below, even if VMT increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

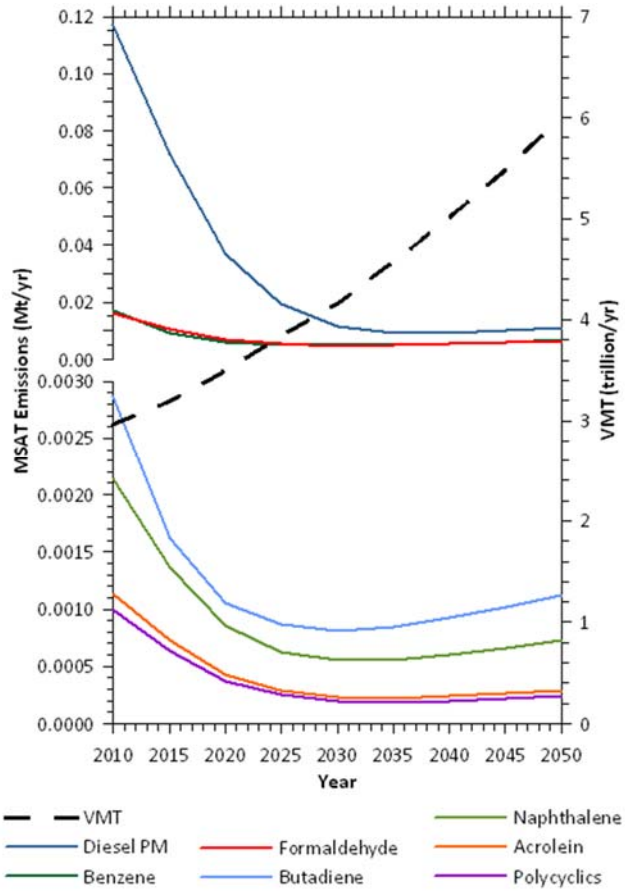
The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define

potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

Figure 33. Projected National MSAT Emission Trends 2010 – 2050 For Vehicles Operating On Roadways Using EPA's MOVES2010b Model



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors4

Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

Incomplete or Unavailable Information for Project Specific MSAT Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures,

and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks

from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Tiered Approach for MSAT Impacts Analysis

Due to the emerging state of the MSAT-related science and techniques; there are no established criteria for determining the relative significance of air toxics emissions. Given the state, however, the FHWA, in its updated Interim Guidance published in December 2012, recommends a range of options deemed appropriate for addressing and documenting the MSAT issue in NEPA documents as described below.

No Analysis required for projects with no potential for meaningful MSAT effects – Applicable for categorically excluded projects under 23 CFR 771.117(c); exempt projects under 40 CFR 93.126; or projects with no meaningful impacts on traffic volumes or vehicle mix.

Qualitative analysis required for projects with low potential MSAT effects – Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.

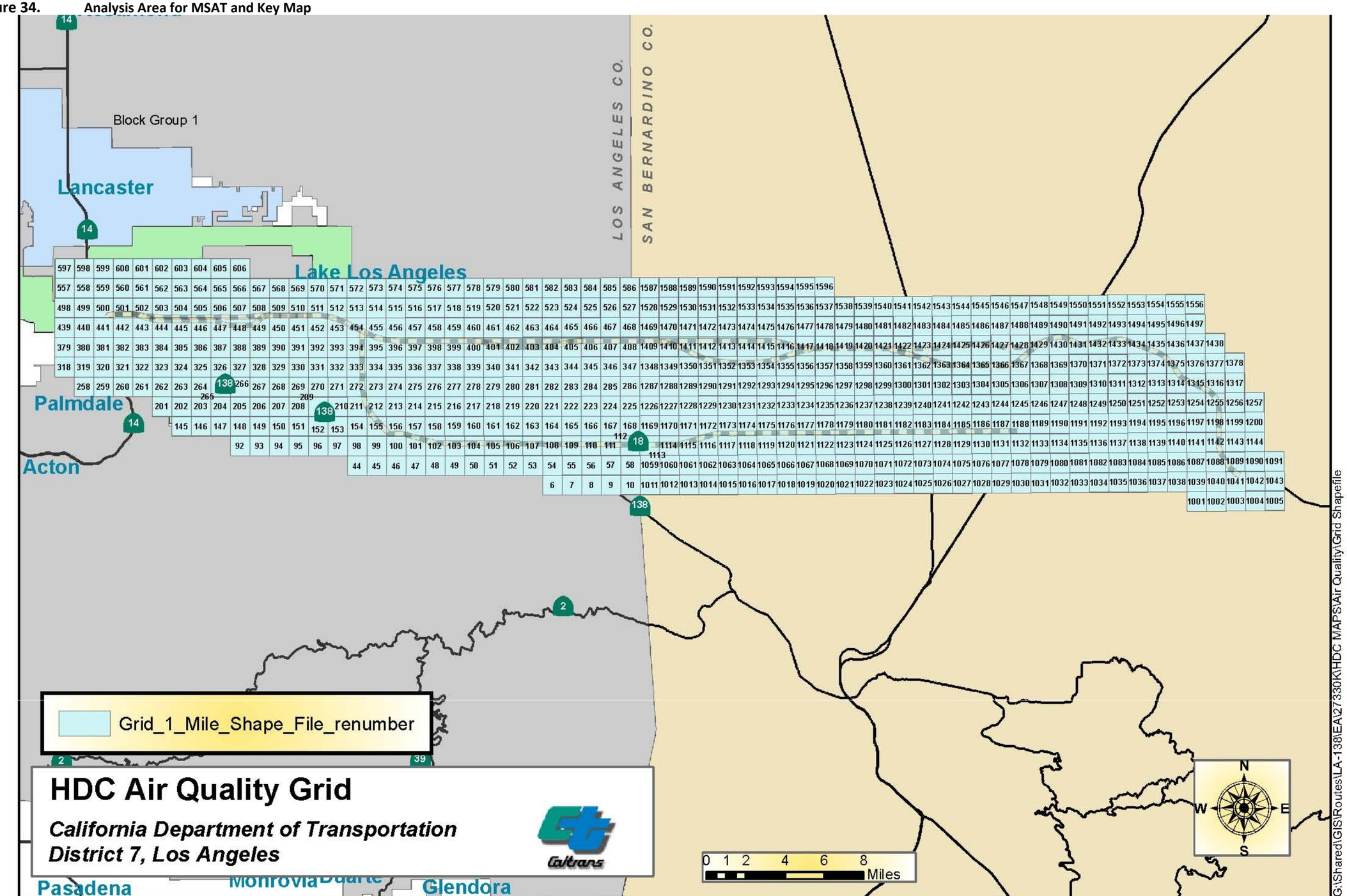
Quantitative analysis for projects that have the potential for meaningful differences in MSAT emissions among project alternatives. In order to fall into this category, a project should:

- create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and also
- Proposed to be located in proximity to populated areas.

The scope of the proposed project is, among other alternatives, to construct a new freeway/expressway/toll corridor with a HSR feeder system, connecting SR-14 with I-15 and SR-18. The project includes creating a new roadway system with urban and populated areas toward the eastern and western ends of the corridor with sensitive land uses nearby.

Based on a review of the proposed scope, traffic data, and settings, this project is anticipated to have meaningful differences in MSAT emissions among project alternatives. In accordance with the FHWA Interim Guidance, the project therefore requires a quantitative analysis in an effort to: 1) evaluate the levels of emissions for the priority MSATs for the project alternatives for the

Figure 34. Analysis Area for MSAT and Key Map



Map Created by Chaffee Yiu 10/12
Updated by Robert Wang

current, opening, and horizon years; and 2) utilize its result as a basis for comparison and differentiate among the project alternatives.

Regional and Corridor MSAT Emissions Analysis

Although an emissions analysis cannot identify and measure health impacts from MSATs, it can provide a basis for identifying and comparing the potential differences in MSAT emissions from various alternatives and between various project milestone years.

MSAT emissions analysis for the proposed project was performed using the CT-EMFAC (v5.0). While the MDAB was selected as the geographic area, emission factors were drawn from the inventory according to the Counties in which each respective analysis area is located in order to evaluate its representative conditions. For the purpose of this emissions analysis, an area covering approximately 606 square-miles along and surrounding the proposed HDC was evaluated, roughly bounded to the west by SR-14, to the east by SR-18, to the south by SR-138, and to the north I-15. In order to provide evaluation of localized MSAT emissions, the area was divided into individual mile-by-mile squares, totaling up to 606 squares. Traffic data were analyzed in and forecasted for each of the squares; and emissions were estimated for each square based on the individual set of forecast traffic data. Figure 34 illustrates extent of the area considered in this MSAT emissions analysis; and provides a key map for locations that correspond to the grid numbers in the MSAT summary tables in Appendix G.

The travel activity data typically required in estimating MSAT emissions include truck percentages, speeds, and VMT on different facilities (e.g., freeway, highway, major arterials, etc.) during peak and off-peak periods. While emissions were estimated based on forecast traffic for each category of facilities, Appendix G provides a summary of total regional travel activity data in VMTs to illustrate the level of overall travel activity in each square.

Daily emissions of DPM and Benzene were also estimated for each segment along the proposed corridor. These corridor emissions have been estimated based on the corridor-level VMTs forecasted with 4 periods of a day: AM period is identified as the time period when the roadway is congested from 6:00 AM to 9:00 AM in the morning; PM period is the congested time period in the afternoon from 3:00 PM to 7:00 PM; Mid-Day is identified between the AM and PM peak periods from 9:00 AM to 3:00 PM; and Night period is defined from 7:00 PM to 6:00 AM. A summary of corridor-level VMTs are provided in Appendix D.

Discussion of MSAT Results

The MSAT emissions were estimated for the current year conditions as well as for the No-Build and all Build Alternatives in the future years of 2020 (opening year) and 2040 (build-out year). Results of the No-Build Alternative were compared to those of the Build Alternatives in the future years of 2020 and 2040. Results of the MSAT emissions for the future years were also compared to those for the existing year. Summaries of the comparison are provided below in Table 19 while changes in MSAT emissions in each individual square are provided in Appendix G, highlighting differences between each respective Build Alternative and the No-Build or between Alternative in the future years and the existing conditions. Appendix H provides graphical illustration of the changes in DPM and Benzene emissions only, depicting increase in shades of red and decrease in shades of green.

Table 19. Summary of Regional MSAT Emissions

	Mobile Source Air Toxics Emissions (lbs/day)							
	Benzene	Acrolein	Formalde-hyde	Butadiene	Naphtha-lene	POM	DPM	DEOG
Base Year, 2010	107.8	5.4	134.2	24.1	5.3	1.9	288.8	392.0
Opening Year, 2020								
No-Build	42.2	2.0	65.5	8.9	3.4	0.9	99.0	267.1
Change from Base Year	*-65.6*	*-3.4*	*-68.7*	*-15.2*	*-1.9*	*-1.0*	*-189.8*	*-124.9*
FWY/EXP or FWY/EXP with HSR	51.5	2.4	76.9	11.0	3.9	1.1	137.5	301.4
Change from Base Year	*-56.3*	*-2.9*	*-57.3*	*-13.1*	*-1.4*	*-0.8*	*-151.3*	*-90.6*
Change from No-Build	*9.3*	*0.5*	*11.5*	*2.1*	*0.5*	*0.2*	*38.5*	*34.2*
FWY/Toll or FWY/Toll with HSR	49.1	2.4	70.7	10.5	3.8	1.0	120.0	267.2
Change from Base Year	*-58.8*	*-3.0*	*-63.5*	*-13.6*	*-1.6*	*-0.9*	*-168.7*	*-124.8*
Change from No-Build	*6.9*	*0.4*	*5.2*	*1.6*	*0.3*	*0.1*	*21.0*	*0.0*
Horizon Year, 2040								
No-Build	38.0	1.8	60.9	8.0	5.1	1.1	96.8	253.8
Change from Base Year	*-69.8*	*-3.6*	*-73.3*	*-16.1*	*-0.2*	*-0.8*	*-191.9*	*-138.2*
FWY/EXP or FWY/EXP with HSR	46.9	2.2	71.0	10.0	5.7	1.3	130.0	279.1
Change from Base Year	*-60.9*	*-3.2*	*-63.2*	*-14.1*	*0.4*	*-0.6*	*-158.8*	*-112.9*
Change from No-Build	*9.0*	*0.5*	*10.1*	*2.0*	*0.6*	*0.2*	*33.1*	*25.3*
FWY/Toll or FWY/Toll with HSR	45.0	2.2	66.5	9.6	5.6	1.3	118.9	255.3
Change from Base Year	*-62.8*	*-3.2*	*-67.7*	*-14.5*	*0.2*	*-0.7*	*-169.9*	*-136.7*
Change from No-Build	*7.0*	*0.4*	*5.6*	*1.6*	*0.5*	*0.2*	*22.0*	*1.6*

The summary of regional emissions indicates that reduction in regional MSAT emissions is anticipated with all Alternatives when compared to the existing conditions. However, when compared to the No-Build in each respective year, all Build Alternatives are anticipated to result in increase in all MSAT emissions. As depicted Appendices G and H, however, future MSAT emissions in 2020 and 2040 result in decrease in many areas outside the immediate vicinity along the proposed HDC corridor; while most of increased emissions are anticipated along the proposed HDC corridor.

The emissions of benzene and DPM were also estimated for each segment only along the proposed HDC based on the corridor-level VMT data in Appendix D. A summary of total corridor-level emissions is provided below only for Build Alternatives.

Table 20. Summary of Corridor-Level MSAT Emissions

	Mobile Source Air Toxics Emissions (lbs/day)	
	Benzene	DPM
Opening Year, 2020		
FWY/EXP or FWY/EXP with HSR	16.4	56.0
FWY/Toll or FWY/Toll with HSR	12.5	36.6
Horizon Year, 2040		
FWY/EXP or FWY/EXP with HSR	15.8	53.8
FWY/Toll or FWY/Toll with HSR	12.5	42.5

The CARB's "Air Quality and Land Use Handbook" identifies the following land uses as particularly sensitive to MSATs: residential areas, schools, hospitals and other health care facilities, day care and other child care facilities, and parks and playgrounds. However, as discussed above, the magnitude and the duration of potential increases and exposure compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. On a regional basis, EPA's and California's vehicle and fuel regulations, coupled with fleet turnover, will over time cause region-wide MSAT levels to be lower than today.

Minimization of Construction MSAT Emissions

Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission minimization will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the SAFETEA-LU has emphasized a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.

Minimization of construction MSAT emissions includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented minimization. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate minimization strategies. Technology retrofits could include PM traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions minimization measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

Post-Construction Minimization for Projects with Potentially Significant MSAT Levels

Travel demand management strategies and techniques that reduce overall VMTs; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system's efficiency will minimize MSAT emissions. Examples of such strategies include congestion pricing which is proposed as a component in two project Alternatives, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System (ITS) programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

The benefits of establishing buffer zones between new or expanded highway alignments and populated areas should be considered. Modifications of local zoning or the development of guidelines that are more protective also may be useful in separating emissions and receptors.

4.4.2. Discussion of Particulate Matter Results

The PM emissions were estimated for the current year conditions as well as for the No-Build and all Build Alternatives in the future years of 2020 (opening year) and 2040 (build-out year). Results of the No-Build Alternative were compared to those of the Build Alternatives in the future years of 2020 and 2040. Results of the PM emissions for the future years were also compared to those for the existing year. Summaries of the comparison are provided below in Table 21 while changes in PM emissions in each individual square are provided in Appendix I, highlighting differences between each respective Build Alternative and the No-Build or between Alternative in the future years and the existing conditions. Appendix J provides graphical illustration of the changes in PM emissions, depicting increase in shades of red and decrease in shades of green.

The summary indicates that the regional PM emissions are anticipated to increase with all Alternatives when compared to the existing conditions, except for the $PM_{2.5}$ emissions for the No-Build Alternative in 2020. When compared to the No-Build in each respective year, all Build Alternatives are anticipated to result in increase in all PM emissions. As depicted Appendices I and J, however, future PM emissions in 2020 and 2040 result in decrease in many areas outside the immediate vicinity along the proposed HDC corridor; while most of increased emissions are anticipated along the proposed HDC corridor.

Table 21. Summary of Regional PM Emissions

	Particulate Matter (lbs/day)	
	PM_{10}	**$PM_{2.5}$**
Base Year, 2010	1186.7	649.4
Opening Year, 2020		
No-Build	1249.4	565.5
Change from Base Year	*62.7*	*-83.9*
FWY/EXP or FWY/EXP with HSR	1552.0	707.9
Change from Base Year	*365.3*	*58.5*
Change from No-Build	*302.6*	*142.4*
FWY/Toll or FWY/Toll with HSR	1455.1	659.9
Change from Base Year	*268.4*	*10.6*
Change from No-Build	*205.7*	*94.5*
Horizon Year, 2040		
No-Build	1642.8	730.5
Change from Base Year	*456.1*	*81.1*
FWY/EXP or FWY/EXP with HSR	2049.6	912.5
Change from Base Year	*862.9*	*263.2*
Change from No-Build	*406.8*	*182.0*
FWY/Toll or FWY/Toll with HSR	1946.1	864.9
Change from Base Year	*759.4*	*215.6*
Change from No-Build	*303.3*	*134.5*

Note: The emissions do not account for fugitive dust emissions.

The emissions of PM_{10} and $PM_{2.5}$ were also estimated for each segment along the proposed corridor based on the corridor-level VMT data in Appendix D. A summary of total corridor-

level emissions is provided below only for Build Alternatives. It should be noted that these corridor emissions include fugitive dust emissions as they were included as part of the demonstration for project-level conformity. Furthermore, for Alternatives with the proposed HSR feeder service should consider approximately 1.74 lbs/mile of PM_{10} emissions per day to account for wind-driven fugitive dust from the operation of the rail service. Likewise, approximately 0.26 lbs/mile of $PM_{2.5}$ emissions per day should be added.

Table 22. Summary of Corridor-Level PM Emissions

	Particulate Matter Emissions (lbs/day)	
	PM_{10}	$PM_{2.5}$
Opening Year, 2020		
FWY/EXP or FWY/EXP with HSR	1703.9	534.7
FWY/Toll or FWY/Toll with HSR	1158.8	365.9
Horizon Year, 2040		
FWY/EXP or FWY/EXP with HSR	2197.6	688.5
FWY/Toll or FWY/Toll with HSR	1654.3	520.1

Note: The summary includes fugitive dust emissions from vehicular traffic along the proposed corridor only.

4.5. Qualitative Project-Level Discussion of Greenhouse Gas and other pollutants

4.5.1. Greenhouse Gas

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greeenhouse Gas Mitigation” and “Adaptation.” "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels [http://climatechange.transportation.org/ghg_mitigation/]).

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To

be most effective, all four strategies should be pursued cooperatively (http://www.fhwa.dot.gov/environment/climate_change/mitigation/).

Regulatory Setting

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by 2020.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Although climate change and GHG reduction are a concern at the federal level; currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the EPA nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis. FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-

making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing CAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010 (http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq).

The EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, the EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish GHG emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

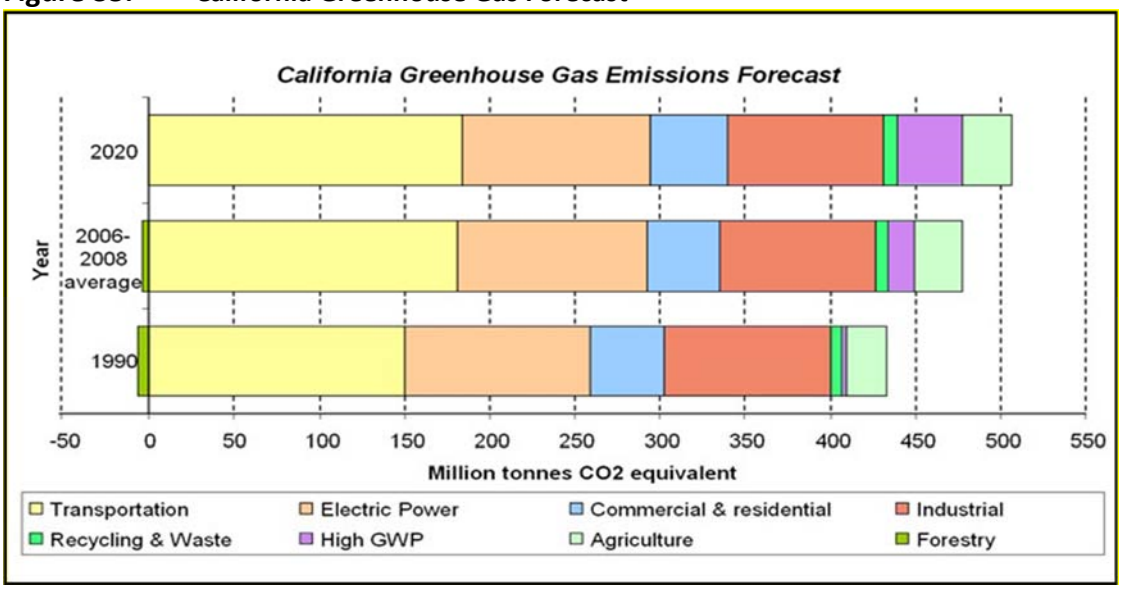
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG[*]. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California as shown in Figure 35 (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf).

[*] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

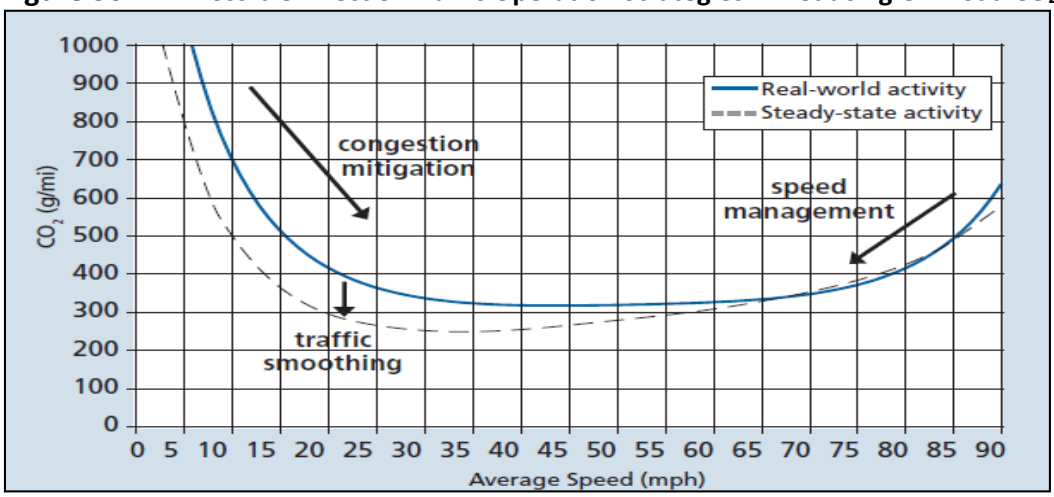
Figure 35. California Greenhouse Gas Forecast



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure 36 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, may be reduced.

Figure 36. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions*



The HDC Project is included in SCAG's 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Since 2000, SCAG has worked actively with the people and institutions of Southern California to create a dynamic regional growth vision based on the

* **Traffic Congestion and Greenhouse Gases:** Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

following principles: *mobility, economy and sustainability*. Charged by federal law with preparing a Regional Transportation Plan every four years, SCAG has traditionally focused most on the mobility aspects of the region's growth. Under state law, SCAG is also charged with working with its member local governments on planning for an adequate regional housing supply. However, the recent passage of SB 375 at the state level gives SCAG a new area of responsibility—and provides the region with a renewed opportunity to focus on an integrated planning effort for the future.

Under SB 375, the primary goal of the SCS is to provide a vision for future growth in Southern California that will decrease per-capita greenhouse gas emissions from automobiles and light trucks. The strategies contained in the RTP/SCS will produce benefits for the region far beyond simply reducing GHG emissions. Because it is the latest refinement of an evolving regional blueprint that SCAG has been working on since 2000, the RTP/SCS will help the region deal with many ongoing issues across a wide range of concerns, including placemaking, the cost of living, the environment, health, responsiveness to the marketplace, and mobility.

To meet the Sustainable Communities Strategy, the proposed project is planned to be a multipurpose corridor that would incorporate the rail system, green energy production and transmission facility, and a bicycle facility, as outlined in Chapter 1 of this environmental document.

Project GHG Emissions Analysis

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions are temporary in nature and include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Idling times would also be restricted to 5 minutes for construction vehicles, which helps reduce harmful emissions from diesel-powered construction vehicles.

Based on two preliminary construction activity schedule assumptions, a summary of temporary CO_2 emissions have been estimated using the SMAQMD's Road Construction Model version 7.1.5.1 and are provided below.

The proposed alignments for Alternatives and route variations are relatively similar in lengths and components, i.e., total lengths of structures. In addition, the proposed HSR service is proposed to be constructed in the median except at its termini. As the construction emissions are estimated based on the length of the proposed project on structures or at-grade, the total aggregate construction emissions are anticipated to result in the same for all Alternatives and route variations.

Table 23. Summary of Temporary Construction GHG Emissions

	CO_2
Assuming Completion of Construction Activities with No Phasing	
Total Project Emissions (tons)	97,411.0
Daily Maximum (lbs/day)	292,600.0
Assuming Completion of Construction Activities in 4 Phases, Summary by each Phase	
Phase 1, Total Emissions (tons)	23,337.6
Phase 1, Daily Maximum (lbs/day)	68,056.2
Phase 2, Total Emissions (tons)	51,080.7
Phase 2, Daily Maximum (lbs/day)	160,378.9
Phase 3, Total Emissions (tons)	22,579.9
Phase 3, Daily Maximum (lbs/day)	62,622.4
Phase 4, Total Emissions (tons)	13,822.4
Phase 4, Daily Maximum (lbs/day)	37,930.0

Operational Emissions

The purpose of the proposed project is to improve east-west mobility through the High Desert region of southern California by addressing present and future travel demand and mobility needs within the Antelope and Victor Valley. The proposed project will not generate new vehicular traffic trips since new residential or commercial developments will not be constructed. However, there is a potential for increase in overall VMTs due to the traffic redistribution in which some traffic, currently utilizing other routes, would be attracted to use this new facility when construction is completed.

Sources of operational GHG emissions are the same as those analyzed for MSATs and include GHG emissions from travel activities along the project corridor as well as activities in the project region. Project-related GHG emissions were estimated using the emission factors for on-road mobile sources and VMTs within the analysis area in the same fashion as the MSAT analysis, comprised of 606 mile-by-mile squares. Climate change, as it relates to man-made GHG emissions, is by nature a global and cumulative impact. According to the Association of Environmental Professionals (AEP), in its paper titled *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*[*], "an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases." The following GHG emissions estimate is presented for the purpose of disclosing project-related emissions.

[*] AEP, 2007. Association of Environmental Professionals. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.*

The project GHG emissions were compared to the following baselines; and their summaries are provided in Table 24:

- The changes in the future GHG emissions within the analysis area in comparison to the CEQA baseline, i.e., emissions in 2010; and
- The changes in GHG emissions for the Build Alternative within the analysis area in comparison to the emissions of No-Build scenario in the same year.

Table 24. Summary of Regional Operational GHG Emissions

	Greenhouse Gas Emissions (MT)	
	CO_2	CO_2 with Pavley Clean Standards
Base Year, 2010	3481.2	3467.4
Opening Year, 2020		
No-Build	4746.1	3625.9
Change from Base Year	*1264.9*	*158.6*
FWY/EXP or FWY/EXP with HSR	5773.6	4422.7
Change from Base Year	*2292.4*	*955.3*
Change from No-Build	*1027.5*	*796.8*
FWY/Toll or FWY/Toll with HSR	5451.1	4159.3
Change from Base Year	*1969.9*	*691.9*
Change from No-Build	*705.0*	*533.4*
Horizon Year, 2040		
No-Build	6447.0	4461.5
Change from Base Year	*2965.8*	*994.1*
FWY/EXP or FWY/EXP with HSR	7766.7	5385.8
Change from Base Year	*4285.4*	*1918.4*
Change from No-Build	*1319.6*	*924.3*
FWY/Toll or FWY/Toll with HSR	7421.7	5127.8
Change from Base Year	*3940.5*	*1660.4*
Change from No-Build	*974.7*	*666.3*

Carbon dioxide emissions for the baseline year (2010) were estimated at 3,481.2 metric tons per day (MTPD) or about 1.3 million metric ton per year (MMTPY). Carbon dioxide emissions are the main greenhouse gas of concern, as vehicle operation does not result in appreciable amounts of other greenhouse gases (such as methane, nitrous oxides, etc.). With the project, in the opening year (2020), the CO_2 emission is estimated to increase from 2010 level by about 2,300 MTPD for the alternatives without toll and about 2,000 MTPD for the alternatives with toll; and increase from the No Build level of the same year about 1,000 MTPD for the alternatives without toll and about 700 MTPD for the alternatives with toll. In the horizon year (2040), the CO_2 emission is estimated to increase from 2010 level by about 4,300 MTPD for the alternatives without toll and about 3,900 MTPD for the alternatives with toll; and increase from the No Build level of the same year about 1,300 MTPD for the alternatives without toll and about 1,000 MTPD for the alternatives with toll.

Table 24 also presents estimates of operational emissions of greenhouse gases reflecting implementation of two important California rules/standards [Assembly Bill 1439 (Pavley) and Assembly Bill 32 via the Low Carbon Fuels Standard], which establish stricter standards to reduce greenhouse gas emissions from passenger cars and light duty trucks. These emissions

were estimated using the EMFAC2011 Model, which includes data for CO_2 emissions for the fleet mix with implementation of these new standards.

The emissions of CO_2 with the Pavley Clean Car Standards were also estimated for each segment along the proposed corridor based on the corridor-level VMT data in Appendix D. A summary of total corridor-level emissions is provided below only for the proposed HDC Build Alternatives.

Table 25. Summary of Corridor-Level CO_2 Emissions with Pavley Clean Car Standards

	CO_2 Emissions with Pavley Clean Car Standards (MT/day)
Opening Year, 2020	
FWY/EXP or FWY/EXP with HSR	1456.8
FWY/Toll or FWY/Toll with HSR	1056.2
Horizon Year, 2040	
FWY/EXP or FWY/EXP with HSR	1830.6
FWY/Toll or FWY/Toll with HSR	1409.0

These comparisons provide illustration of estimated changes in project emissions of GHG based on forecast traffic data. Note that GHG emissions are only useful for a comparison between Alternatives or between analysis years. It should be noted that, while the carbon dioxide emissions factor does assume certain reductions in vehicle emissions due to future vehicle models operating more efficiently, additional reductions in vehicle emissions would also occur in response to new and stricter legislated standards as they become implemented. Therefore, the numbers are not an accurate reflection of what the true carbon dioxide emissions will be and may actually overstate the expectations because carbon dioxide emissions depend on other factors that are not part of the model representation, such as fuel mix; rate of acceleration; and the aerodynamics and efficiency of the vehicles themselves.

ARB's EMFAC model emission rates are only for direct engine-out CO_2 emissions and do not account for a full fuel cycle. Fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components. Tables in Appendix I summarize changes in GHG emissions of Build Alternatives in comparison to the baselines as discussed above. Appendix J provides illustration of the changes in GHG emissions in comparison to the baselines.

Greenhouse Gas Reduction Strategies

AB 32 Compliance

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from Former Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 37: The Mobility Pyramid.

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and

high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

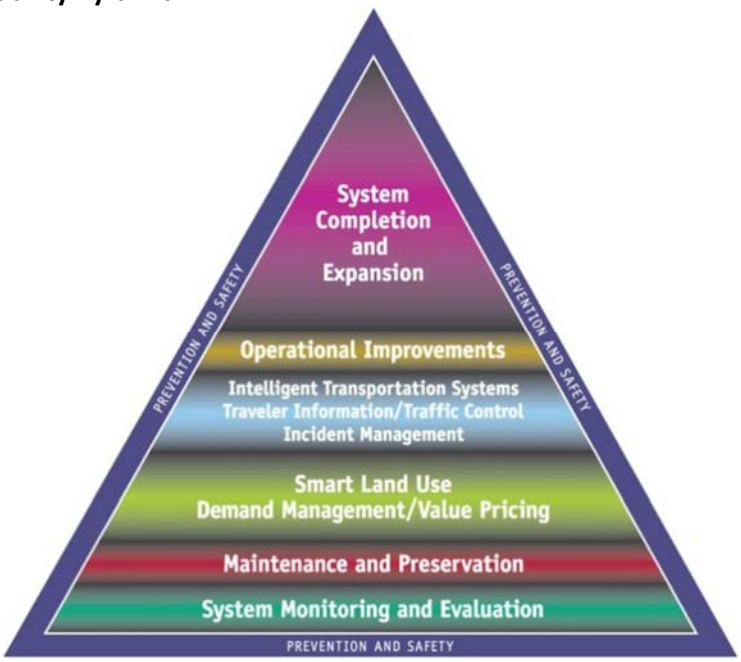
Caltrans is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 28 summarizes Caltrans and statewide efforts that it is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Figure 37. The Mobility Pyramid



Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)* provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- Improve mobility by providing dedicated bicycle lanes within the R/W.
- Enhance choice by providing alternate mode of transportation with the HSR.
- Improving the HDC with the green-corridor strategy.
- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS commonly consists of electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- In addition, the proposed project provides park-and-ride facilities to help manage the growth in demand for highway capacity as well as in demand for the HSR along the HDC.
- Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. The project proposes planting in the intersection slopes, drainage channels, and seeding in areas next to frontage roads as well as planting a variety of different-sized plant material and scattered skyline trees where appropriate but not to obstruct the view of the mountains. Caltrans has committed to planting at least 40 trees. These trees will help offset any potential CO_2 emissions increase.
- The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost $60 to $70 each but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.†
- According to Caltrans Standard Specifications, the contractor must comply with all local Air Quality Management District's (AQMD) rules, ordinances, and regulations for air quality restrictions, including idling restriction by ARB and MDAQMD and AVAQMD's Rule 403.

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* http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

† Knoxville Business Journal, "LED Lights Pay for Themselves," May 19, 2008 at http://www.knoxnews.com/news/2008/may/19/led-traffic-lights-pay-themselves/.

4.5.2. Other Pollutants and Issues

Discussion of Organic Gases and CO Results

In the similar manner with estimates of PM, CO_2, and MSATs, regional emissions were estimated for reactive organic gases (ROG), total organic gases (TOG), nitrogen oxides (NO_x), and carbon monoxide (CO) and are summarized below in Table 26.

Table 26. Summary of Emissions of Regional Pollutants

	Emissions of Other Pollutants (lbs/day)			
	ROG	**TOG**	**CO**	**NO_x**
Base Year, 2010	3285.6	3990.1	74536.1	16737.3
Opening Year, 2020				
No-Build	1418.3	1837.9	37671.5	8145.5
Change from Base Year	*-1867.3*	*-2152.1*	*-36864.6*	*-8591.8*
FWY/EXP or FWY/EXP with HSR	1726.4	2211.6	44493.3	10641.8
Change from Base Year	*-1559.1*	*-1778.4*	*-30042.8*	*-6095.5*
Change from No-Build	*308.2*	*373.7*	*6821.8*	*2496.3*
FWY/Toll or FWY/Toll with HSR	1639.1	2105.3	42671.4	9603.3
Change from Base Year	*-1646.5*	*-1884.7*	*-31864.7*	*-7133.9*
Change from No-Build	*220.8*	*267.4*	*4999.9*	*1457.8*
Horizon Year, 2040				
No-Build	1215.8	1639.8	34512.0	5941.2
Change from Base Year	*-2069.8*	*-2350.2*	*-40024.1*	*-10796.1*
FWY/EXP or FWY/EXP with HSR	1508.2	1996.1	40858.9	7381.3
Change from Base Year	*-1777.4*	*-1993.9*	*-33677.2*	*-9356.0*
Change from No-Build	*292.4*	*356.3*	*6346.9*	*1440.1*
FWY/Toll or FWY/Toll with HSR	1442.8	1913.9	39250.2	6894.7
Change from Base Year	*-1842.8*	*-2076.2*	*-35285.9*	*-9842.6*
Change from No-Build	*227.0*	*274.1*	*4738.2*	*953.5*

Furthermore, emissions of CO were also estimated for each segment along the proposed corridor based on the corridor-level VMT data in Appendix D. A summary of total corridor-level emissions is provided below only for the proposed HDC Build Alternatives.

Table 27. Summary of Corridor-Level CO Emissions

	CO (lbs/day)
Opening Year, 2020	
FWY/EXP or FWY/EXP with HSR	12693.6
FWY/Toll or FWY/Toll with HSR	9470.4
Horizon Year, 2040	
FWY/EXP or FWY/EXP with HSR	12199.1
FWY/Toll or FWY/Toll with HSR	9262.7

The summary indicates that the regional emissions are anticipated to decrease with all Alternatives and for all future years when compared to the existing conditions. When compared to the No-Build in each respective year, all Build Alternatives are anticipated to result in increase in all regional emissions.

Toxic Air Contaminant

In 1998, the EPA's Office of Environmental Health Hazard Assessment (OEHHA) completed a comprehensive health assessment of diesel exhaust. This assessment formed the basis for a decision by the ARB to formally identify particles in diesel exhaust as a TAC that may pose a threat to human health.

TACs consist of a variety of compounds, including metals, minerals, soot, and hydrocarbon-based chemicals. There are hundreds of different types of air toxics, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. TACs are a concern in the Basin because of the large number of mobile sources and industrial facilities throughout the basin. Toxicity of TACs is studied by the OEHHA.

California regulates TACs through its Air Toxics Program, which is mandated in Chapter 3.5 of the Health and Safety Code – *Toxic Air Contaminants,* and Part 6 – *Air Toxics Hot Spots Information and Assessment* (H&SC Sections 39660 *et seq*. and 44300 *et seq*., respectively).

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than ambient air conditions to determine allowable emission levels from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a health risk and are termed "toxic hot spots."

The CARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020. In addition, total toxic risk from diesel exhaust may only be exposed for a much shorter duration. Further, DPM is only one of many environmental toxics and those of other toxics and other pollutants in various environmental media may over shadow its cancer risks. Thus, while diesel exhaust may pose potential cancer risks to receptors spending time on or near high risk DPM facilities, most receptors' short-term exposure would only cause minimal harm, and these risks would also greatly diminish in the future operating years of the project due to planned emission control regulations.

Table 28. Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Department	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Department	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional agencies	Department	Regional plans and application process	0.975	7.8
Operational Improvements and Intelligent Transportation Systems Deployment	Strategic Growth Plan	Department	Regions	State ITS; Congestion Management Plan	0.007	2.17
Mainstream Energy and GHG Consideration in Plans and Projects	Office of Policy Analysis and Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines and technical assistance	Not Estimated	Not Estimated
Educational and Informational Program	Office of Policy Analysis and Research	Interdepartmental, Cal/EPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening and Fuel Diversification	Division of Equipment	Department of General Services		Fleet replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy conservation opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	3.6
Goods Movement	Office of Goods Movement	Cal/EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67

Note: MMT = million metric tons; Cal/EPA = California Environmental Protection Agency
Source: Climate Action Program, Climate Change Report, 2006a

Figure 38. Projected Percent Reduction in Diesel PM Cancer Risk from year2000 Levels With and Without ARB Risk Reduction Plan (RRP) Implemented

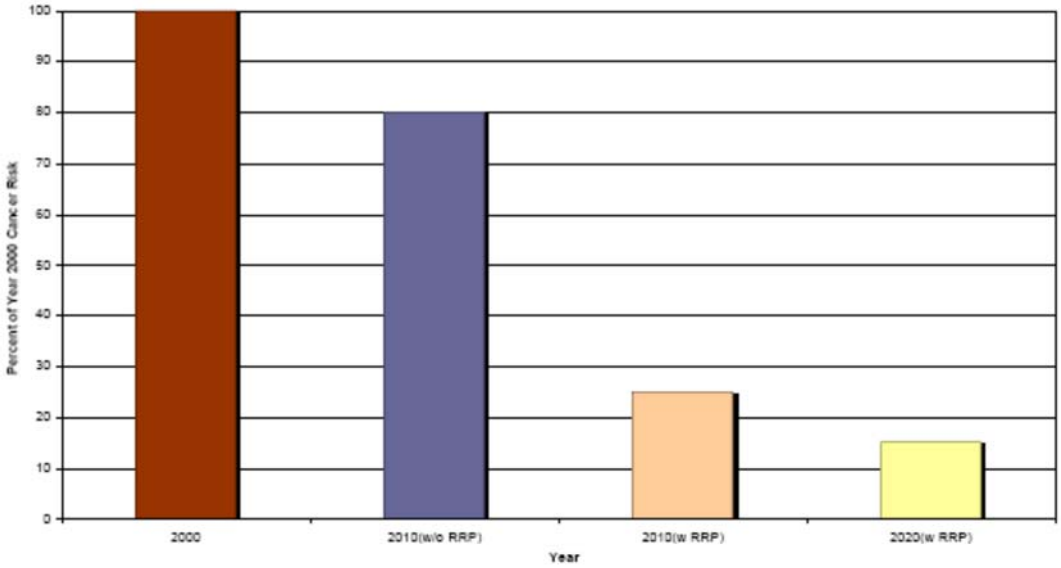
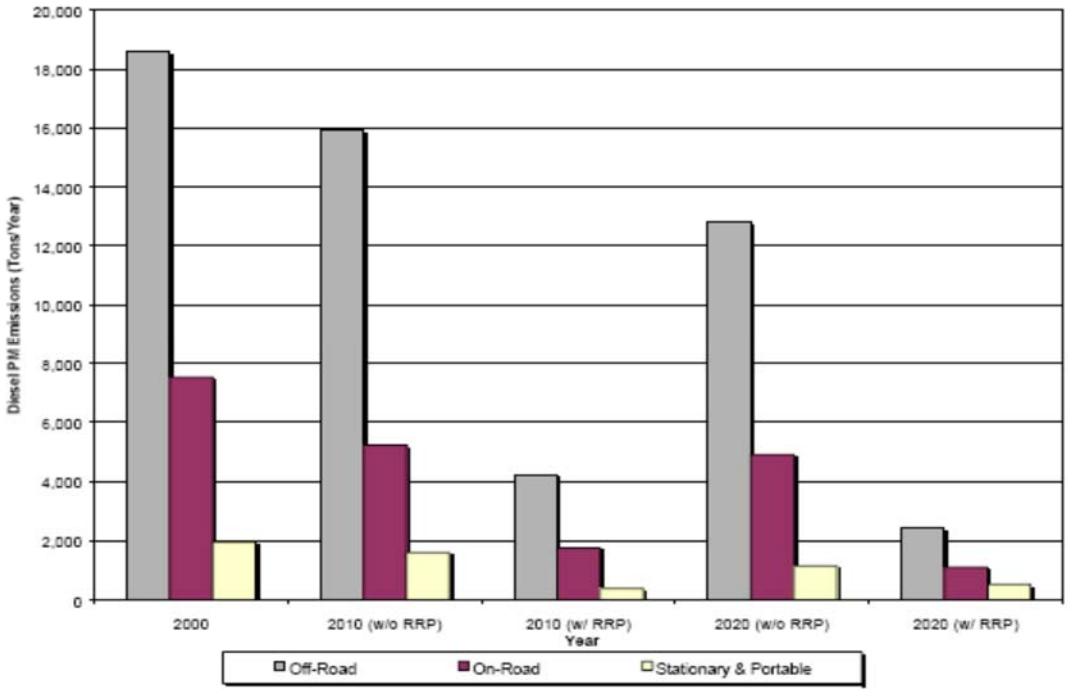


Figure 39. Projected Diesel PM Emission Levels With and Without ARB Risk Reduction Plan (RRP) Implemented



In their October 2000 DRRP, the CARB had estimated that DPM emissions and risk would decrease by only about 20 percent if the recommended measures are not implemented. This reduction would result from the implementation of existing federal and state regulations and the attrition of older diesel-fueled passenger cars and light-duty trucks from the on-road fleet. The EPA has now implemented new, lower emission standards for heavy-duty trucks for 2007 and lower sulfur limits fore diesel fuel (on-road vehicles only) in 2006.

The recommended measures can be grouped as follows: measures addressing on-road vehicles; measures addressing off-road equipment and vehicles; and measures addressing stationary and portable engines. These measures include the EPA's 2007 new heavy-duty truck standards and the 2006 low-sulfur fuel limits. Figures 38 and 39 illustrate the impact of each of these groups of measures on projected DPM emission levels for 2010 and 2020. As shown, off-road recommended measures have the largest impact. Of the off-road recommended measures, the retrofit measures result in over 90 percent of the DPM reductions associated with all of the off-road measures.

4.6. Avoidance and Minimization

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control will reduce any air quality impacts resulting from construction activities:

- The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 (2010).
  - Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including SCAQMD rules and regulations and local ordinances.
  - Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right of way line as required by the MDAQMD or AVAQMD.
- Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.
- Wash off trucks as they leave the R/W as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites at least 500 feet from the sensitive receptors. Keep construction areas clean and orderly. Establish environmentally sensitive areas (ESAs) or their equivalent at least 500 feet away from sensitive air receptors within which construction activities such as extended idling, material storage, and equipment maintenance, would be prohibited, to the extent feasible.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.

- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.
- Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and may need to use controls such as dampened straw.

4.7. Minimization of PM_{10} during Construction

As noted above, Caltrans Standard Specifications specifically requires compliance with all applicable laws and regulations related to air quality, which would include applicable rules and regulations of the respective AQMD such as Rules 401, 402, and 403.

Rule 401 requires no visible emissions be discharged in the atmosphere of such opacity for a period or periods aggregating more than three minutes in any one hour as to obscure an observer's view to a degree equal to or greater than the dark shade of smoke as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines. Rule 402 requires that air pollutant emissions not be a nuisance off-site. Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project.

Rule 403 in both AQMDs requires a dust control plan to be submitted and approved prior to the construction. The dust control plan should describe all applicable dust control measures that will be implemented at the project; and should describe types of dust suppressant, surface treatments, and other measures to be utilized at the construction sites to comply with the Rule.

5. CONCLUSIONS

This project-level AQR addresses all pertinent aspects of transportation conformity, NEPA, and CEQA requirements; and adheres to the CAA. Portions of the proposed project are included in the latest conforming 2012 RTP/SCS and in the 2013 FTIP; however, the overall route concept and design scope must be made consistent with and be identified in the latest conforming RTP and TIP before the environmental document is approved. Commitment must also be made that this project will not interfere with the timely implementation of TCMs identified in the SIPs and/or RTP. The essential role of applicable SIP in regional analysis is documented in this report.

Comprehensive project-level hot-spot conformity analyses were conducted for CO, PM_{10}, and $PM_{2.5}$. The CO hot-spot analysis and quantitative modeling were completed in accordance with the CO Protocol; and have concluded that the proposed project is not likely to result in creating new violations of CO state or federal AAQS.

The proposed project is located in two Counties within the MDAB. Within the MDAB, San Bernardino County is federally designated as nonattainment area for 24-hour PM_{10} while Los Angeles County is designated as attainment/unclassified area for the same standard. Both Counties within the MDAB are designated as attainment/unclassified areas for the federal 24-hour and annual $PM_{2.5}$ standards. A project-level PM conformity hot-spot analysis was, therefore, prepared in accordance with the November 2013 EPA Guidance and submitted in March 2014 for interagency consultation to demonstrate that the project would not create new violations of the 24-hour PM_{10} NAAQS in San Bernardino County within the MDAB. The SCAG TCWG reviewed and provided comments in April 2014. The hot-spot analysis was revised to address the comments and submitted to the TCWG in May 2014. As attached to this AQR in Appendix F, the revised Quantitative PM_{10} Hot-Spot Analysis was reviewed and concurred with by TCWG in June 2014. In addition to the hot-spot analysis for the 24-hour PM_{10} NAAQS, the proposed project was also modeled in Los Angeles and San Bernardino Counties within the MDAB; and design concentrations of 24-hour $PM_{2.5}$ and annual $PM_{2.5}$ were calculated.

Based on the emissions estimates and modeling analysis of $PM_{2.5}$ and PM_{10} near hot-spots identified in both Counties, it is noted that implementation of the project would result in $PM_{2.5}$ and PM_{10} concentrations below the federal standards demonstrating project-level conformity requirements; but higher than the state standards for 24-hour PM_{10} and annual $PM_{2.5}$.

The analysis of PM_{10} and $PM_{2.5}$ emissions estimates illustrate that the proposed project is likely to affect the travel activities within the High Desert area. The emissions analysis in Appendices I and J illustrate that there are decreases in PM emissions experienced throughout parts of the High Desert area where its traffic pattern has been altered due to the implementation of the proposed project. The emissions analysis also indicates increase in emissions along the proposed corridor as noted in the tables summarizing regional and corridor-level emissions.

Project-level MSAT emissions were estimated using the CT-EMFAC (v 5.0) based on speciation factors provided by ARB; and are summarized and illustrated in Appendices G and H. Based on the MSAT analysis, the Build Alternative, in general, would result in higher emissions along the proposed corridor in all future years. It should be noted though that, similar to the PM emissions estimates, decrease in the MSAT emissions were noted throughout parts of the High Desert area included as part of the analysis.

Regardless of the alternative selected, future emissions will likely be lower in most parts of the High Desert area as a result of EPA's and California's control programs that are projected to further reduce MSAT emissions. Local conditions have been analyzed to differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. As discussed in the report, however, the magnitude and the duration of potential increases and exposure compared to the No-Build alternative and any related health impacts cannot be accurately quantified primarily due to the inherent deficiencies of current models.

According to 40 CFR 93.123(c)(5), hot-spot analyses are not required to consider construction-related activities that cause temporary increases in emissions. Temporary increases in emissions are defined as those that occur only during the construction phase and that last five years or less at any individual site. Based on the anticipated construction schedule for the project, construction related emissions from the project are considered temporary and are not included as part of the hot-spot analyses. Temporary construction emissions, however, were estimated only for informational purposes based on the SMAQMD's Road Construction Model. Contractors must comply with all applicable federal, state, and local Rules and Regulations and the latest Caltrans Standard Specifications to minimize fugitive dust emissions from construction-related activities.

Construction of the proposed project would occur in an endemic area where *Coccidioides immitis* naturally occurs. Temporary soil disturbance during construction grading activities could cause fungal spores (if present) to become airborne, potentially putting construction personnel, residents, and wildlife at risk of contracting Valley Fever. However, most Valley Fever cases are very mild, and more than half of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention. Dust control measures are the main defense against infection, although all persons residing or traveling through the High Desert would be susceptible to the disease, regardless of whether or not the project is implemented.

Control measures have not been identified for NOA because the proposed project is not located in an area identified as potentially containing serpentinite and ultramafic rocks. In Los Angeles County, the Catalina Island is the only area identified to contain such rocks. However, in an unlikely event the NOA, serpentine or ultramific rock, is discovered during grading operations, the respective AQMD should be notified per Section 93105, Title 17 of the California Code of Regulations.

Project-related CO_2 emissions (No-Build and Build Alternatives) were estimated using the emission factors for on-road mobile sources and VMTs along the project roadways. The estimates show that the future operational CO_2 emissions for the Build Alternative would result in increase along the proposed corridor when compared to the No-Build Alternative. The level of increase would be relatively higher in 2040 than the increase compared in 2020. One of the main strategies in the proposed Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds higher than 55 mph. Relieving congestion by enhancing operations and improving travel times may lead to an overall reduction in GHG emissions. Furthermore, the proposed project incorporates alternate modes of transportation such as bicycle lanes and HSR feeder system that will help reduce GHG emissions.

Appendix A Construction Emissions Calculation

Emission Estimates for ->	HDC - No phase, Road			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	50.8	248.5	303.5	400.4	16.2	384.1	94.2	14.3	79.9	46,321.5
Grading/Excavation	95.8	499.5	1,399.2	433.2	49.0	384.1	118.1	38.2	79.9	267,044.1
Drainage/Utilities/Sub-Grade	60.8	376.1	433.6	407.5	23.4	384.1	100.8	20.9	79.9	67,683.8
Paving	36.5	245.5	218.8	12.1	12.1	-	10.7	10.7	-	39,796.3
Maximum (pounds/day)	95.8	499.5	1,399.2	433.2	49.0	384.1	118.1	38.2	79.9	267,044.1
Total (tons/construction project)	38.0	210.8	434.5	189.6	17.2	172.4	49.9	14.0	35.9	79,768.4
Emission Estimates for ->	HDC - No phase, Structure			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	3.2	18.3	24.3	17.1	1.2	15.9	4.4	1.1	3.3	3,299.0
Grading/Excavation	15.4	90.3	182.2	23.5	7.7	15.9	10.0	6.7	3.3	25,555.8
Drainage/Utilities/Sub-Grade	9.2	59.2	86.8	20.1	4.2	15.9	7.1	3.8	3.3	12,045.0
Paving	2.4	17.8	16.9	1.0	1.0	-	0.9	0.9	-	3,136.2
Maximum (pounds/day)	15.4	90.3	182.2	23.5	7.7	15.9	10.0	6.7	3.3	25,555.8
Total (tons/construction project)	5.5	33.2	59.7	9.8	2.6	7.1	3.8	2.3	1.5	8,402.6

Total (Road + Structure)

Emission Estimates for ->				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	54.0	266.8	327.8	417.5	17.5	400.0	98.6	15.4	83.2	49,620.5
Grading/Excavation	111.2	589.9	1,581.4	456.7	56.7	400.0	128.2	45.0	83.2	292,600.0
Drainage/Utilities/Sub-Grade	70.0	435.3	520.4	427.6	27.6	400.0	107.9	24.7	83.2	79,728.7
Paving	38.9	263.4	235.7	13.1	13.1	-	11.6	11.6	-	42,932.5
Maximum (pounds/day)	111.2	589.9	1,581.4	456.7	56.7	400.0	128.2	45.0	83.2	292,600.0
SubTotal (tons/construction project)	43.4	244.0	494.2	286.4	19.8	179.5	53.7	16.3	37.3	88,171.0
Concrete Batch Plant (tons/project)				87.1						
Hot Mix Asphalt (ton/project)	9.0	36.0	7.0	6.0						9,240.0
Total (Rd+Sturc+Conc+HMA, tons)	**52.4**	**280.0**	**501.2**	**379.5**	**19.8**	**179.5**	**53.7**	**16.3**	**37.3**	**97,411.0**

Emission Estimates for ->	HDC - Phase 1, Road			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	8.7	44.4	53.5	93.9	2.9	91.0	21.5	2.6	18.9	7,506.3
Grading/Excavation	20.2	110.8	271.9	101.3	10.3	91.0	27.3	8.4	18.9	47,835.4
Drainage/Utilities/Sub-Grade	13.3	84.9	104.6	96.5	5.5	91.0	23.9	5.0	18.9	15,708.7
Paving	7.0	49.6	46.4	2.6	2.6	-	2.3	2.3	-	8,405.5
Maximum (pounds/day)	20.2	110.8	271.9	101.3	10.3	91.0	27.3	8.4	18.9	47,835.4
Total (tons/construction project)	7.9	46.0	87.7	44.5	3.7	40.8	11.6	3.1	8.5	14,916.0

Emission Estimates for ->	HDC - Phase 1, Structure			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.2	13.7	20.5	10.0	1.0	9.0	2.7	0.9	1.9	2,678.5
Grading/Excavation	14.1	84.0	158.7	16.0	7.0	9.0	8.1	6.3	1.9	20,220.7
Drainage/Utilities/Sub-Grade	8.4	54.9	83.2	13.0	4.0	9.0	5.5	3.6	1.9	11,425.1
Paving	1.7	13.7	13.5	0.8	0.8	-	0.7	0.7	-	2,516.3
Maximum (pounds/day)	14.1	84.0	158.7	16.0	7.0	9.0	8.1	6.3	1.9	20,220.7
Total (tons/construction project)	4.9	30.5	53.0	6.4	2.4	4.0	3.0	2.2	0.8	6,954.9

Total (Road + Structure)

Emission Estimates for ->				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	10.9	58.1	73.9	103.8	3.8	100.0	24.2	3.4	20.8	10,184.8
Grading/Excavation	34.3	194.7	430.6	117.3	17.3	100.0	35.5	14.7	20.8	68,056.2
Drainage/Utilities/Sub-Grade	21.8	139.8	187.8	109.5	9.5	100.0	29.4	8.6	20.8	27,133.8
Paving	8.7	63.3	59.8	3.4	3.4	-	3.1	3.1	-	10,921.8
Maximum (pounds/day)	34.3	194.7	430.6	117.3	17.3	100.0	35.5	14.7	20.8	68,056.2
SubTotal (tons/construction project)	12.9	76.5	140.7	67.0	6.1	44.9	14.6	5.3	9.3	21,870.9
Concrete Batch Plant (tons/project)				16.0						
Hot Mix Asphalt (ton/project)	1.4	5.7	1.1	1.0						1,466.7
Total (Rd+Sturc+Conc+HMA, tons)	**14.3**	**82.2**	**141.8**	**83.9**	**6.1**	**44.9**	**14.6**	**5.3**	**9.3**	**23,337.6**

Emission Estimates for ->	HDC - Phase 2, Road			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	22.9	108.1	107.7	102.0	6.7	95.3	25.8	5.9	19.8	16,193.3
Grading/Excavation	40.5	205.9	663.4	116.8	21.5	95.3	35.7	15.9	19.8	137,392.0
Drainage/Utilities/Sub-Grade	23.9	143.9	154.5	103.7	8.4	95.3	27.3	7.5	19.8	24,386.5
Paving	16.8	107.6	95.1	5.3	5.3	-	4.6	4.6	-	17,083.7
Maximum (pounds/day)	40.5	205.9	663.4	116.8	21.5	95.3	35.7	15.9	19.8	137,392.0
Total (tons/construction project)	15.9	85.9	195.3	50.0	7.2	42.8	14.5	5.6	8.9	38,715.2

Emission Estimates for ->	HDC - Phase 2, Structure			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	2.6	15.2	21.8	5.7	1.0	4.7	1.9	0.9	1.0	2,885.3
Grading/Excavation	14.6	86.5	170.7	12.0	7.3	4.7	7.4	6.5	1.0	22,986.9
Drainage/Utilities/Sub-Grade	8.7	56.4	84.4	8.7	4.0	4.7	4.7	3.7	1.0	11,631.8
Paving	1.9	15.1	14.6	0.8	0.8	-	0.8	0.8	-	2,722.9
Maximum (pounds/day)	14.6	86.5	170.7	12.0	7.3	4.7	7.4	6.5	1.0	22,986.9
Total (tons/construction project)	5.1	31.5	56.2	4.6	2.5	2.1	2.7	2.2	0.4	7,672.2

Total (Road + Structure)

Emission Estimates for ->				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	25.5	123.4	129.5	107.7	7.7	100.0	27.7	6.9	20.8	19,078.6
Grading/Excavation	55.1	292.4	834.1	128.8	28.8	100.0	43.2	22.4	20.8	160,378.9
Drainage/Utilities/Sub-Grade	32.6	200.2	238.8	112.4	12.4	100.0	32.0	11.2	20.8	36,018.3
Paving	18.7	122.6	109.7	6.1	6.1	-	5.4	5.4	-	19,806.6
Maximum (pounds/day)	55.1	292.4	834.1	128.8	28.8	100.0	43.2	22.4	20.8	160,378.9
SubTotal (tons/construction project)	21.1	117.4	251.5	105.6	9.7	44.9	17.2	7.9	9.3	46,387.4
Concrete Batch Plant (tons/project)				51.0						
Hot Mix Asphalt (ton/project)	4.6	18.3	3.6	3.1						4,693.3
Total (Rd+Sturc+Conc+HMA, tons)	**25.6**	**135.7**	**255.1**	**159.6**	**9.7**	**44.9**	**17.2**	**7.9**	**9.3**	**51,080.7**

Emission Estimates for ->	HDC - Phase 3, Road			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	10.4	52.0	59.9	102.8	3.3	99.5	23.7	3.0	20.7	8,540.5
Grading/Excavation	21.5	116.7	263.2	109.9	10.4	99.5	29.3	8.6	20.7	45,302.6
Drainage/Utilities/Sub-Grade	14.6	91.9	110.6	105.4	5.9	99.5	26.0	5.3	20.7	16,741.7
Paving	8.2	56.5	52.2	2.9	2.9	-	2.6	2.6	-	9,438.6
Maximum (pounds/day)	21.5	116.7	263.2	109.9	10.4	99.5	29.3	8.6	20.7	45,302.6
Total (tons/construction project)	8.6	49.5	87.4	48.5	3.8	44.7	12.5	3.2	9.3	14,614.2
Emission Estimates for ->	HDC - Phase 3, Structure			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	1.9	12.2	19.2	1.4	0.9	0.5	0.9	0.8	0.1	2,471.6
Grading/Excavation	13.5	81.4	146.2	7.1	6.6	0.5	6.1	6.0	0.1	17,319.9
Drainage/Utilities/Sub-Grade	8.2	53.5	82.0	4.4	3.9	0.5	3.7	3.6	0.1	11,218.5
Paving	1.4	12.3	12.3	0.7	0.7	-	0.6	0.6	-	2,309.7
Maximum (pounds/day)	13.5	81.4	146.2	7.1	6.6	0.5	6.1	6.0	0.1	17,319.9
Total (tons/construction project)	4.7	29.4	49.7	2.5	2.3	0.2	2.1	2.1	0.0	6,205.6

Total (Road + Structure)

Emission Estimates for ->				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	12.3	64.2	79.1	104.2	4.2	100.0	24.6	3.8	20.8	11,012.1
Grading/Excavation	35.0	198.1	409.4	117.0	17.0	100.0	35.4	14.6	20.8	62,622.4
Drainage/Utilities/Sub-Grade	22.8	145.5	192.6	109.8	9.8	100.0	29.6	8.8	20.8	27,960.3
Paving	9.6	68.8	64.5	3.7	3.7	-	3.3	3.3	-	11,748.3
Maximum (pounds/day)	35.0	198.1	409.4	117.0	17.0	100.0	35.4	14.6	20.8	62,622.4
SubTotal (tons/construction project)	13.3	78.9	137.1	62.5	6.1	44.9	14.7	5.3	9.3	20,819.9
Concrete Batch Plant (tons/project)				11.5						
Hot Mix Asphalt (ton/project)	1.7	6.9	1.3	1.1						1,760.0
Total (Rd+Sturc+Conc+HMA, tons)	**15.0**	**85.8**	**138.4**	**75.1**	**6.1**	**44.9**	**14.7**	**5.3**	**9.3**	**22,579.9**

Emission Estimates for ->	HDC - Phase 4, Road			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	8.4	42.8	52.2	102.8	2.8	100.0	23.3	2.5	20.8	7,299.5
Grading/Excavation	19.1	105.3	230.0	109.3	9.3	100.0	28.6	7.8	20.8	37,930.0
Drainage/Utilities/Sub-Grade	13.1	83.5	103.4	105.5	5.5	100.0	25.7	4.9	20.8	15,502.0
Paving	6.8	48.3	45.2	2.6	2.6	-	2.3	2.3	-	8,198.8
Maximum (pounds/day)	19.1	105.3	230.0	109.3	9.3	100.0	28.6	7.8	20.8	37,930.0
Total (tons/construction project)	7.6	44.3	77.4	48.3	3.4	44.9	12.3	2.9	9.3	12,502.4

Emission Estimates for ->	HDC - Phase 4, Structure			Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	-	-	-	-	-	-	-	-	-	-
Total (tons/construction project)	-	-	-	-	-	-	-	-	-	-

Total (Road + Structure)

Emission Estimates for ->				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	8.4	42.8	52.2	102.8	2.8	100.0	23.3	2.5	20.8	7,299.5
Grading/Excavation	19.1	105.3	230.0	109.3	9.3	100.0	28.6	7.8	20.8	37,930.0
Drainage/Utilities/Sub-Grade	13.1	83.5	103.4	105.5	5.5	100.0	25.7	4.9	20.8	15,502.0
Paving	6.8	48.3	45.2	2.6	2.6	-	2.3	2.3	-	8,198.8
Maximum (pounds/day)	19.1	105.3	230.0	109.3	9.3	100.0	28.6	7.8	20.8	37,930.0
SubTotal (tons/construction project)	7.6	44.3	77.4	56.9	3.4	44.9	12.3	2.9	9.3	12,502.4
Concrete Batch Plant (tons/project)				8.6						
Hot Mix Asphalt (ton/project)	1.3	5.1	1.0	0.9						1,320.0
Total (Rd+Sturc+Conc+HMA, tons)	**8.9**	**49.5**	**78.4**	**66.4**	**3.4**	**44.9**	**12.3**	**2.9**	**9.3**	**13,822.4**

Appendix B RTP and TIP Listing for the Project

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

2015 Federal Transportation Improvement Program

Los Angeles County
State Highway
Including Amendments 1 - 7
(In $000`s)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LALS07	Los Angeles	Various		REG0701	SHP01	999			S	EXEMPT - 93.126	6
Description:							PTC	333,033	Agency	CALTRANS	

Route 999: Grouped Projects for Safety Improvements - SHOPP Mandates Program. Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - Railroad/highway crossing, Safer non-Federal-aid system roads, Shoulder improvements, traffic control devices and operating assistance other than signalization projects, Intersection signalization projects at individual intersections, Pavement marking demonstration, Truck climbing lanes outside the urbanized area

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
SHOPP - ADVANCE CONSTRUCTION			269,419	269,419		15,763	71,014	126,518	56,124			269,419
SHOPP AC-PRIOR			63,614	63,614		63,614						63,614
LALS07 Total			333,033	333,033		79,377	71,014	126,518	56,124			333,033

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LALS08	Los Angeles	Various		REG0701	SHP01	999			S	EXEMPT - 93.126	6
Description:							PTC	30,263	Agency	CALTRANS	

Route 999: Grouped Projects for Emergency Repair - SHOPP Emergency Response Program. Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 categories - Repair damage caused by natural disasters, civil unrest, or terrorist acts. This applies to damages that do not qualify for Federal Emergency Relief funds or to damages that qualify for federal Emergency Relief funds but extend beyond the Federally declared disaster period.

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
SHOPP - ADVANCE CONSTRUCTION			30,263	30,263		25,878	4,385					30,263
LALS08 Total			30,263	30,263		25,878	4,385					30,263

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LALS09	Los Angeles	SCAB		1AL04	LUM03	999			S	EXEMPT - 93.126	1
Description:							PTC	12,737	Agency	CALTRANS	

Route 999: Grouped Projects for Safety Improvements, Shoulder Improvements, Pavement resurfacing and/or rehabilitation - Minor Program. Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - RR/HWY crossing, Safer non-Fed Aid sys rds, shlder improv, traffic control devices & operating assistance other than signalizPavement resurfacing and/or rehabilitation.

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
SHOPP AC-PRIOR			6,410	6,410		6,410						6,410
SHOPP ADVANCE CONSTRUCTION (AC) - CT MINOR			6,327	6,327		6,327						6,327
LALS09 Total			12,737	12,737		12,737						12,737

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LA0G1099	Los Angeles	SCAB		LA0G1099	CAX63	999			S	TCM	1
Description:							PTC	5,000,000	Agency	LOS ANGELES COUNTY MTA	

High Desert Corridor, an approximately 63-mile east-west multi-purpose corridor from Avenue P-8/SR-14 in LA County to Bear Valley Road/SR-18 in San Bernardino County. This multi-purpose corridor includes TSM/TDM, freeway, expressway, tollway, high-speed rail, green energy transmission/production,and bikeway elements.

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
MEASURE R	4,450			4,450		4,450						4,450
MEASURE R 20H - HIGHWAY CAPITAL	2,000			2,000	2,000							2,000
LA0G1099 Total	6,450			6,450	2,000	4,450						6,450
Grand Total	681,112	1,365,459	5,774,649	7,821,220	4,346,586	1,998,389	454,252	644,589	355,970	17,634	3,800	7,821,220

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

2015 Federal Transportation Improvement Program

Los Angeles County
State Highway
Including Amendments 1 - 7
(In $000`s)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LA0G949	Los Angeles	SCAB		1OM0702	STUDY	138		36.8	S	EXEMPT - 93.126	0
Description:							PTC	25,000	Agency	LOS ANGELES COUNTY MTA	

Complete PA&ED to determine the alternatives for the approximate 36.8-mile east-west SR-138 highway facility between I-5 and SR-14 in northern Los Angeles County. The PA&ED will study and determine the alternatives (i.e. freeway and/or expressway), constraints (right-of-way requirements), potential impacts/improvements and conduct technical studies.

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
MEASURE R	25,000			25,000	8,000	5,000	5,000	4,000	3,000			25,000
LA0G949 Total	25,000			25,000	8,000	5,000	5,000	4,000	3,000			25,000

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LA0G665	Los Angeles	SCAB		LA0G1099	STUDY	138	42.4	92.4	S	EXEMPT - 93.126	0
Description:							PTC	46,007	Agency	CALTRANS	

Route 138: Complete PA/ED for an approximate 63-mile west-east freeway/expressway and possible toll facility between SR-14 in LA County and SR-18 in SB County. High Desert Corridor PA/ED combines the LA County Measure R Project from SR-14 to I-15 and SB County Federal Earmarks provided to City of Victorville for US-395 to SR-18. Both projects and funds are combined to complete the PA/ED from SR-14 to SR-18. [EA 2600U, 11672, PPNO 3912, 0393F]

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
MEASURE R 20H - HIGHWAY CAPITAL	30,000			30,000	29,500	500						30,000
STATE CASH - GRNDFTHR RIP	16,007			16,007	16,007							16,007
LA0G665 Total	46,007			46,007	45,507	500						46,007

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
LA0D451	Los Angeles	SCAB		LA0D451	CAX63	138	51.9	69.4	S	NON-EXEMPT	7
Description:							PTC	169,362	Agency	CALTRANS	

Route 138: ROUTE 138 FROM AVE. T TO ROUTE 18-WIDEN 2 TO 4 THRU LANES WITH MEDIAN TURN LANE. EA# 12721,12722,12723,12724(=29350),12725,12728(= 28580 + 28590 + 28600 + 28620 + 28610 + 28630). PPNO# 3325,3326,3327,33289(=4560),3329,3331(= 4351 + 4352 + 5353 + 4356 + 4354 + 4357) (use toll credits as local match)

Fund	ENG	R/W	CON	Total	Prior	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	Total
STP LOCAL - REGIONAL	14,300	18,000	4,600	36,900	24,600		12,300					36,900
PROP "C25" FUNDS			6,005	6,005	6,005							6,005
NATIONAL HWY SYSTEM - RIP			7,040	7,040	7,040							7,040
STATE CASH - GRNDFTHR RIP	5,709	3,773	12,574	22,056	22,056							22,056
STATE CASH - IIP		3,248		3,248	3,248							3,248
STATE CASH - RIP		3,637	8,276	11,913	11,913							11,913
STIP ADVANCE CON-RIP		20,900	61,300	82,200			30,600	51,600				82,200
LA0D451 Total	20,009	49,558	99,795	169,362	74,862		42,900	51,600				169,362

County	System	Lead Agency	RTP ID	FTIP ID	Begin PM	End PM	Route #	Route Name	From	To	Description	Baseline	Comple-tion Year	Model Segment	Roadway Segment: Route Name	Roadway Segment: Length	Roadway Segment: From	Roadway Segment: To	Roadway Segment: Description	Roadway Segment: Existing Lanes	Roadway Segment: Proposed Lanes	Transit Segment: Route	Additional Details
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	1000'	EB Valley18.76	EB Valley19.77	Phase 4 widen EB Valley to 3 lanes in advance of SB ramps intersection.	2 lanes	3 lanes		No significant modeling change made. *16055249-6
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	1200'	Valley Blvd18.76	Valley Blvd19.77	Phase 2b, remove Phase 1 improvement and construct dual WB to SB lanes to SB on-ramp and reconstruct entire SB on-ramp	2 Lanes	N/A		No significant modeling change made. *16055249-6
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	1200'	Valley18.76	Valley19.77	Phase 3c, improvements at Valley/Temple/NB 605 off-ramp intersection,	2 Lanes	N/A		No significant modeling change made. *16055249-6
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	1500'	SB On Ramp18.76	SB On Ramp19.77	Phase 2a, remove Phase 1 improvement and construct dual WB to SB lanes to SB on-ramp and reconstruct entire SB on-ramp	N/A	N/A		No significant modeling change made. *16055249-6
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	350'	Valley Blvd @ 605	Valley Blvd @ 605	Phase 1: right turn from Valley onto existing SB on-ramp.	N/A	N/A		No significant modeling change made. *16055249-6
Los Angeles	State Highway	INDUSTRY	LA0D441	LA0D441	18.76	19.77	605	On-Off Ramp 605	605	605	RECONFIGURATION OF VALLEY BLVD ON-AND-OFF-RAMPS TO THE 605 FREEWAY TO IMPROVE MOBILITY, CIRCULATION, AND RELIEVE THE CURRENT CONGESTION AT VALLEY BLVD. Includes; right turn from Valley onto existing SB on-ramp, construct dual WB to SB lanes to SB on-ramp	X	2017		605	600'	TEMPLE18.76	TEMPLE18.76	Phase 3b, improvements at Valley/Temple/NB 605 off-ramp intersection,	N/A	6		No significant modeling change made. *16055249-6
Los Angeles	State Highway		1C0401				710	I-710	OCEAN BLVD IN LONG BEACH	INTERMODAL RAILROAD YARDS IN COMMERCE/VERNON	I-710 CORRIDOR USER-FEE BACKED CAPACITY ENHANCEMENT - WIDEN TO 5 MIXED FLOW + 2 DEDICATED LANES FOR CLEAN TECHNOLOGY TRUCKS (EACH DIRECTION) AND INTERCHANGE IMPROVEMENTS, FROM OCEAN BLVD IN LONG BEACH TO THE INTERMODAL RAILROAD YARDS IN COMMERCE/VERNON		2025	1										
Los Angeles	State Highway	LONG BEACH	LA0G830				710	I-710	Post mile 6	Post mile 6.4	I-710 Improvements/Shoemaker Bridge - Downtown off ramps. The project replaces the existing Shoemaker Bridge and makes bicycle, pedestrian, and streetscape improvements on major thoroughfares.		2023	1									
Los Angeles	State Highway	LONG BEACH	LA000512	LA000512	3.6	5	710	Ocean Boulevard	I-710	SR 47	BRIDGE NO. 53C0065, OCEAN BLVD, OVER ENTRANCE CHANNEL, UP RR, 1.0 MI E STATE ROUTE 47. Replace existing 5 lane Gerald Desmond Bridge (GDB) with new 6 lane bridge.		2017		710	2000	Pico Avenue	SR-47	Replace 5-lane bridge with a 6-lane bridge	5	6		
Los Angeles	State Highway		1M0101				710	SR-710	Valley Boulevard	California Bl & Pasadena Ave	SR-710 North Extension (tunnel) (alignment TBD)		2025	1									4 toll lanes in each direction in tunnel
Los Angeles	State Highway	LOS ANGELES COUNTY MTA	LA0G1099	LA0G1099	0	0	999				High Desert Corridor, an approximately 63-mile east-west multi-purpose corridor from Avenue P-8/SR-14 in LA County to Bear Valley Road/SR-18 in San Bernardino County. This multi-purpose corridor includes TSM/TDM, freeway, expressway, tollway, high-speed r		2020		999	0	Dale Evans Parkway0	Bear Valley Road/SR-180	Transition to Expressway design between HDC/Dale Evans Parkway to Bear Valley Road/SR-18.	0	6		High Desert Corridor, an approximately 63-mile east-west multi-purpose corridor from Avenue P-8/SR-14 in LA County to Bear Valley Road/SR-18 in San Bernardino County. Transit Segment Route - HSR terminus include Palmdale Transportation Center (PTC) and
Los Angeles	State Highway	LOS ANGELES COUNTY MTA	LA0G1099	LA0G1099	0	0	999				High Desert Corridor, an approximately 63-mile east-west multi-purpose corridor from Avenue P-8/SR-14 in LA County to Bear Valley Road/SR-18 in San Bernardino County. This multi-purpose corridor includes TSM/TDM, freeway, expressway, tollway, high-speed r		2020		999	0	P8/SR-14	Dale Evans Parkway	Highway design between Avenue P-8/SR-14 and HDC/Dale Evans Parkway	0	8		High Desert Corridor, an approximately 63-mile east-west multi-purpose corridor from Avenue P-8/SR-14 in LA County to Bear Valley Road/SR-18 in San Bernardino County. Transit Segment Route - HSR terminus include Palmdale Transportation Center (PTC) and

Appendix C CO Flow Chart (Based on the CO Protocol)

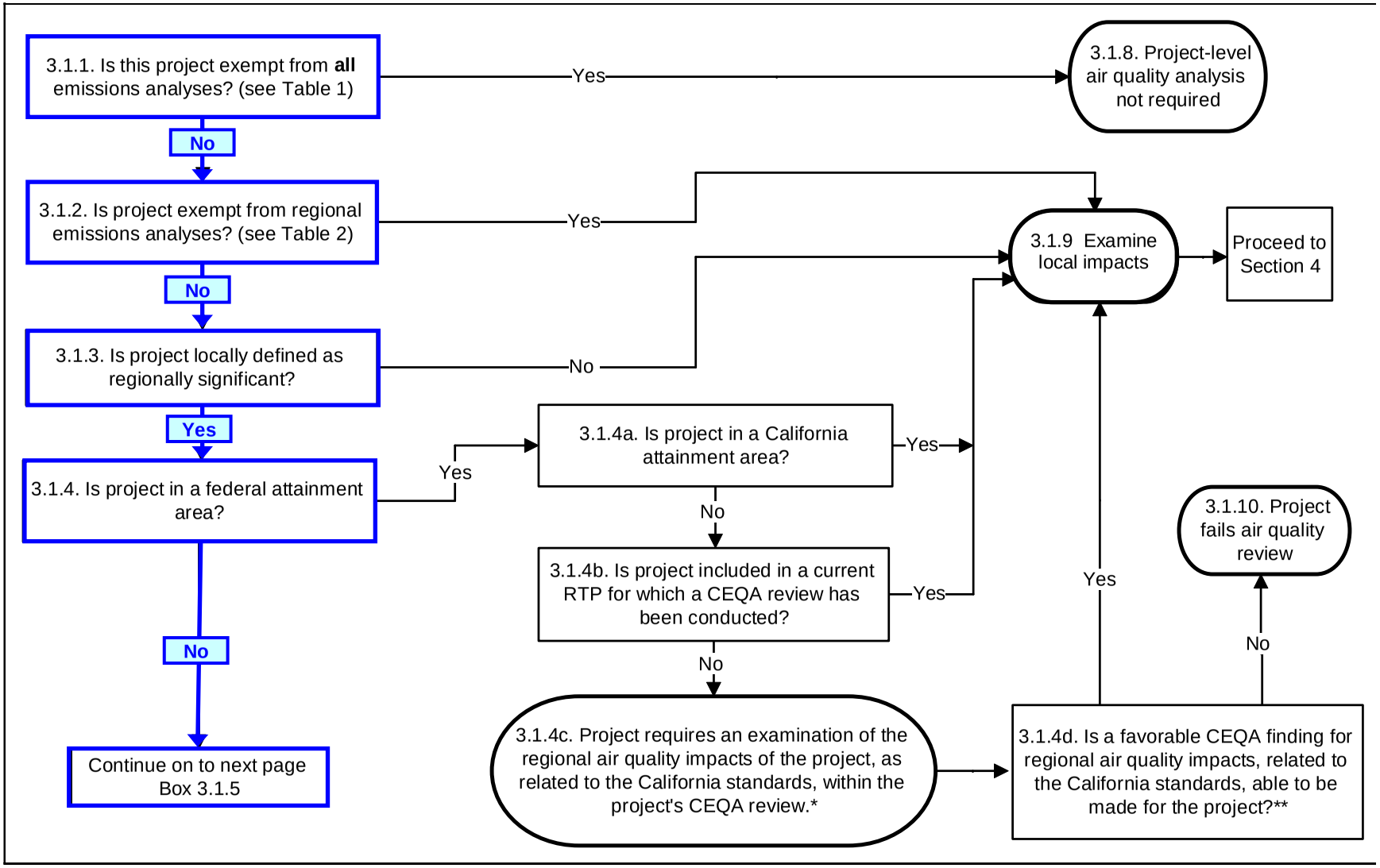


Figure 1. Requirements for New Projects

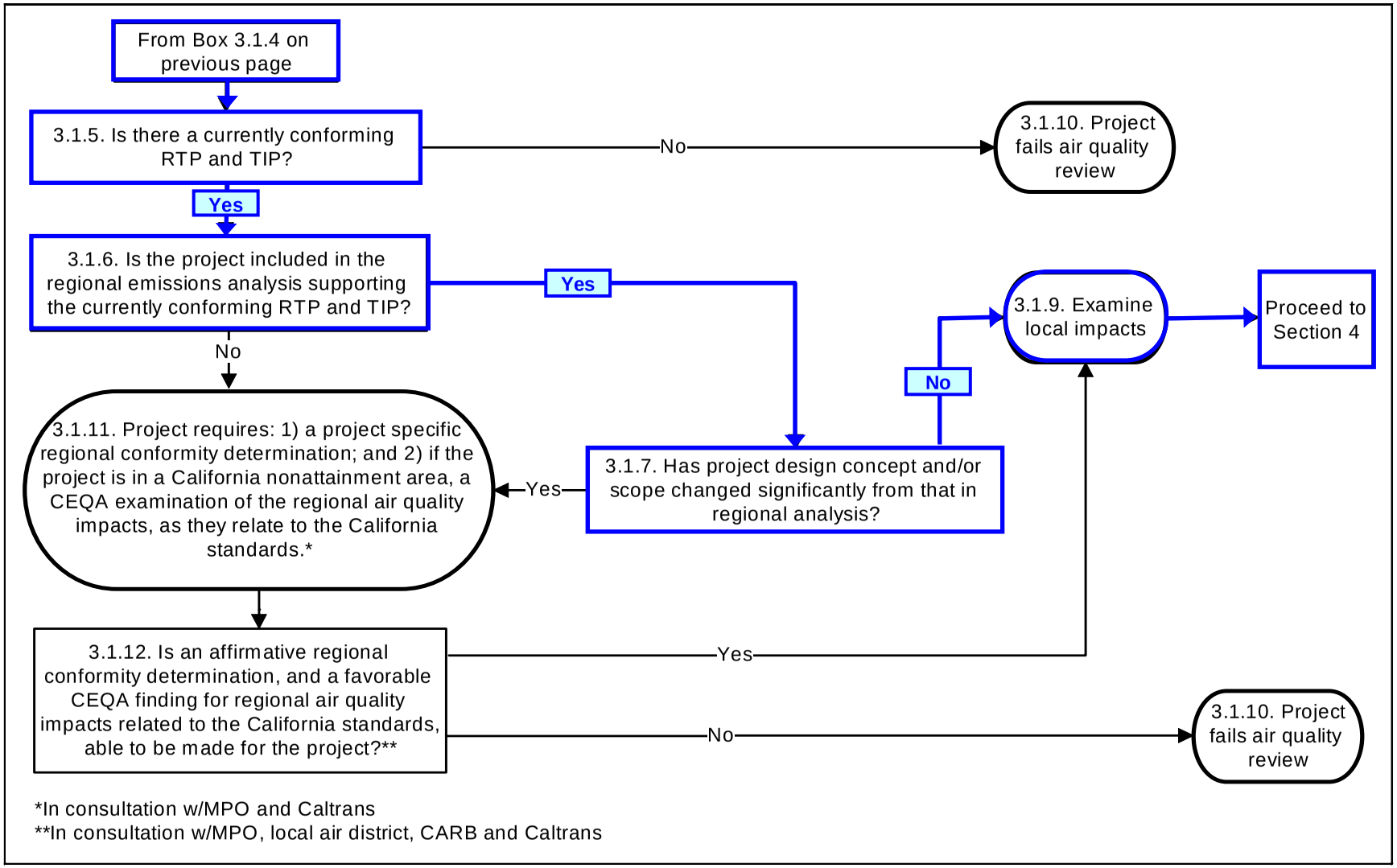


Figure 1 (cont.). Requirements for New Projects

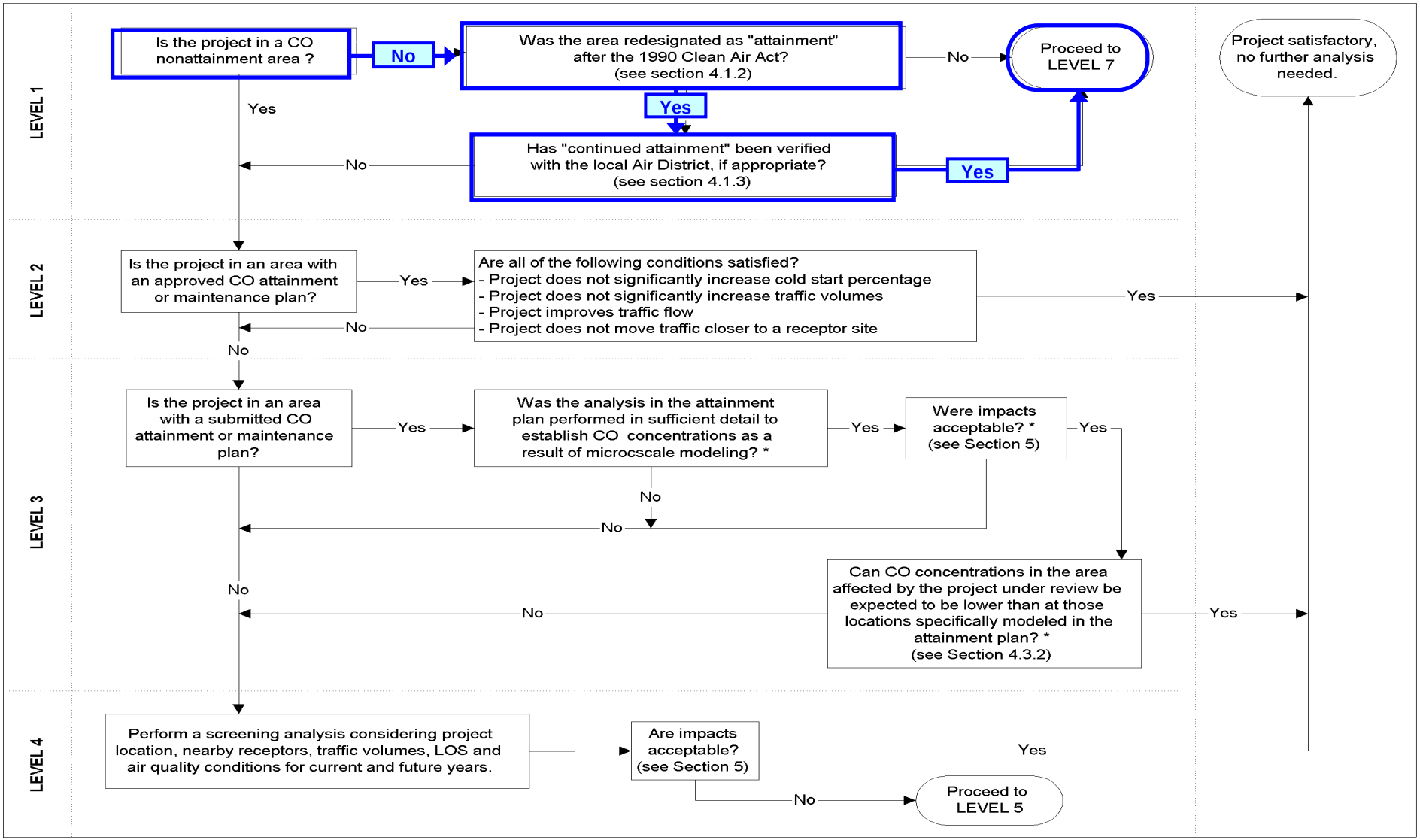


Figure 3. Local CO Analysis

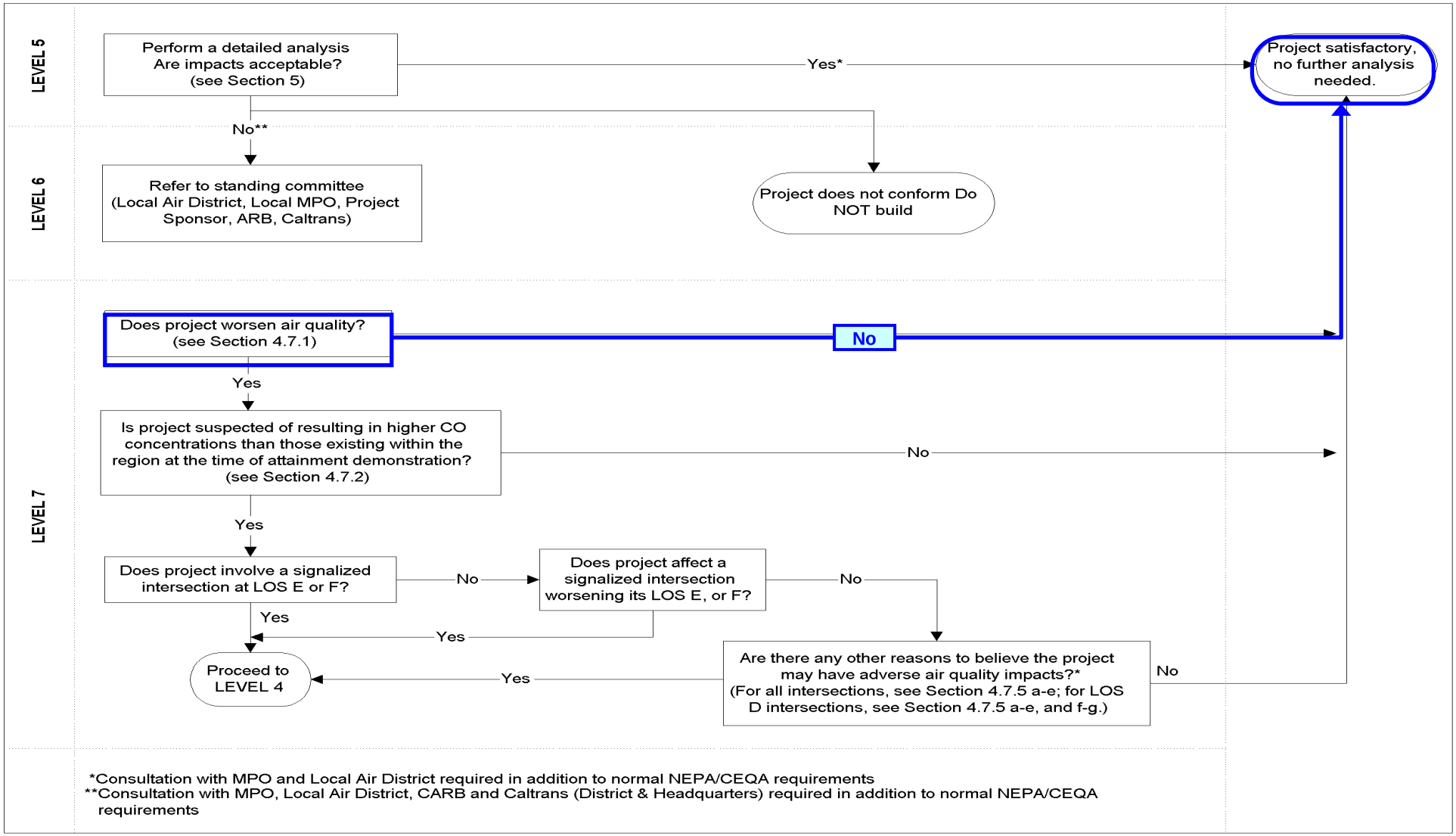


Figure 3 (cont.). Local CO Analysis

Appendix D Summary of Corridor-Level Forecast Travel Activities and Emissions

Attachment D-1
Travel Activity Data and Daily Emissions of Pollutants

2020 Freeway/Tollway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	9969	61	11623	13588	62	15842	17418	59	20308	7273	64	8480	6.2	20.0	165.2	0.20	0.33	18.3
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	9969	56	10057	13588	60	13708	17418	51	17571	7273	64	7337	5.4	17.3	140.6	0.16	0.27	15.0
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	9673	57	7738	13291	60	10633	16525	52	13220	5963	64	4770	4.1	13.2	104.7	0.12	0.21	11.3
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	8527	58	25955	11949	61	36372	14723	54	44815	5294	64	16114	14.3	46.3	355.6	0.42	0.79	39.3
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	7916	59	32266	10480	61	42716	13181	56	53726	3607	64	14702	16.9	54.7	414.4	0.50	0.96	46.3
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	6793	60	29984	8873	62	39165	10917	58	48188	3054	64	13480	15.3	49.6	381.2	0.47	0.88	42.9
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	5432	66	19141	6792	67	23934	7850	65	27662	2400	69	8457	10.1	32.7	249.7	0.34	0.72	29.7
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	5271	66	21732	6438	68	26544	7275	66	29995	2129	70	8778	11.3	36.6	274.4	0.38	0.82	32.8
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	5294	66	16290	6316	68	19434	7123	66	21917	2070	70	6369	8.4	27.1	201.7	0.28	0.61	24.2
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	6787	65	24756	7584	67	27663	8343	65	30432	2475	69	9028	11.3	36.4	287.8	0.39	0.76	33.7
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	6787	65	24727	7584	67	27631	8343	65	30396	2475	69	9017	12.4	37.8	353.9	0.52	1.90	38.5
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	5802	66	29666	6963	67	35602	7827	65	40019	2473	69	12644	16.6	50.5	457.3	0.67	2.68	50.9
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	5110	66	10432	6373	68	13010	6990	66	14270	2241	70	4575	6.2	18.8	164.4	0.24	1.04	18.7
EB ML - KOALA & US395	EB ML - KOALA & US395	6237	60	16176	7083	63	18370	7829	61	20305	2184	65	5664	8.2	25.3	216.3	0.29	1.16	23.9
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	9503	57	18559	11028	61	21538	11136	58	21749	4451	64	8693	8.6	26.5	251.8	0.33	1.03	25.9
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	7393	59	10948	8815	62	13054	10166	59	15055	3341	64	4948	5.7	17.5	156.9	0.21	0.74	16.7
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	5838	61	9017	8350	62	12897	10939	58	16895	3740	64	5776	6.3	19.5	158.0	0.21	0.93	17.9
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	4009	62	9373	5321	63	12440	8014	61	18737	2391	64	5590	7.3	22.4	163.7	0.23	1.22	20.0
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	1808	64	4800	2415	64	6411	3146	64	8351	1396	65	3706	2.6	8.0	87.8	0.12	0.29	8.7
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	1935	64	3073	2636	64	4186	3586	63	5695	1526	65	2424	1.7	5.2	58.1	0.08	0.18	5.7
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	1587	44	2860	2171	47	3912	3952	37	7121	1043	50	1879	1.4	4.4	60.7	0.06	0.06	4.8
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	1038	47	1141	1427	48	1569	3176	39	3492	659	51	725	0.6	1.9	26.4	0.03	0.02	2.0
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	836	48	927	1229	49	1362	2919	41	3235	574	51	636	0.5	1.7	23.0	0.02	0.02	1.8
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	373	50	502	766	50	1030	2341	43	3149	387	51	521	0.5	1.5	19.3	0.02	0.02	1.5
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	805	48	1225	1083	49	1647	1103	48	1678	506	51	770	0.5	1.6	19.1	0.02	0.03	1.6
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	1167	46	1041	1572	48	1402	1733	45	1546	765	51	682	0.4	1.3	17.0	0.02	0.02	1.4
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	1654	41	2342	2075	45	2938	2181	41	3089	1103	50	1562	0.9	3.0	37.0	0.04	0.05	3.0
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	5120	58	7876	12241	56	18830	15336	38	23591	9876	62	15192	8.8	28.9	195.1	0.23	0.57	22.0
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	1994	0	3067	5230	0	8045	7497	0	11533	3254	0	5006	2.1	6.4	84.5	0.09	0.02	7.8
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	4981	62	6178	10866	61	13478	12587	57	15613	8919	63	11063	5.2	16.7	135.8	0.17	0.28	15.1
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	143	0	177	353	0	438	1246	0	1546	0	0	0	0.2	0.5	6.5	0.01	0.00	0.7
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	9816	57	9706	17899	58	17699	23845	39	23578	13030	62	12884	6.6	21.3	192.8	0.21	0.29	19.6
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	143	0	141	353	0	349	1246	0	1232	0	0	0	0.1	0.4	5.5	0.01	0.00	0.5
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	10201	56	17279	17280	58	29271	21444	45	36324	11816	63	20015	10.7	34.4	302.9	0.33	0.48	31.1
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	10363	56	10501	16937	58	17162	21276	45	21559	11456	63	11608	6.4	20.4	178.4	0.20	0.29	18.4
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	7916	62	12028	17952	60	27276	20446	47	31066	13489	66	20495	18.0	56.1	307.2	0.43	3.42	44.6
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	7858	64	6896	17426	62	15293	19751	54	17333	12795	67	11229	10.4	32.2	173.1	0.25	2.11	25.7
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	7654	64	5805	17036	63	12920	19396	55	14710	12843	67	9740	8.9	27.5	147.2	0.21	1.80	21.9
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	6131	64	9633	14633	62	22991	16805	54	26404	11655	66	18312	17.2	53.2	260.7	0.38	3.64	41.3
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	5571	65	6589	13858	63	16391	15488	56	18319	11195	67	13241	12.4	38.2	183.8	0.27	2.66	29.6
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	5343	65	4947	12681	63	11741	15168	57	14044	10711	67	9917	9.7	29.8	136.2	0.20	2.14	22.8
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	6296	64	12302	15587	61	30457	18145	51	35455	11707	66	22875	23.9	74.1	333.8	0.49	5.09	55.9
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	5664	64	23421	15430	61	63803	18152	51	75059	11823	66	48888	50.0	155.0	698.2	1.02	10.70	117.0

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-1
Travel Activity Data and Daily Emissions of Pollutants

2020 Freeway/Tollway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	8177	61	9534	11965	62	13950	16429	57	19155	7257	64	8461	5.7	18.4	149.1	0.18	0.31	16.5
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	8177	59	8249	11965	61	12070	16429	53	16574	7257	64	7321	4.9	15.9	128.1	0.15	0.26	13.9
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	7920	59	6336	11787	61	9430	15944	53	12755	5957	64	4766	3.8	12.3	96.2	0.11	0.20	10.5
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	6665	60	20288	10391	61	31629	14196	55	43211	5294	64	16114	13.1	42.6	322.4	0.39	0.76	36.1
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	5196	61	21179	8245	62	33607	13175	56	53701	3407	64	13887	14.8	47.9	356.6	0.44	0.89	40.5
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	3797	62	16760	6771	63	29887	11397	58	50306	2925	64	12911	13.9	45.4	320.9	0.40	0.91	37.3
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	2461	68	8672	5142	68	18119	9108	64	32095	2408	69	8485	9.6	31.3	215.6	0.30	0.78	26.4
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	2601	68	10724	5608	68	23122	10006	64	41255	2750	69	11338	11.8	38.4	273.2	0.37	0.91	32.9
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	2506	68	7711	5498	68	16917	10520	63	32370	2681	69	8249	8.9	28.8	205.9	0.28	0.68	24.8
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	2567	68	9363	6203	68	22626	12505	61	45613	2869	69	10465	11.4	36.9	274.5	0.36	0.81	32.2
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	2567	68	9352	6203	68	22599	12505	61	45559	2869	69	10453	12.6	38.5	332.9	0.48	2.06	37.3
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	2639	68	13493	5766	68	29482	12074	62	61734	2842	69	14531	17.4	53.1	450.5	0.65	2.89	51.1
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	2265	68	4624	5180	68	10575	10921	63	22295	2599	69	5306	6.5	19.9	163.1	0.24	1.14	18.9
WB ML - KOALA & US395	WB ML - KOALA & US395	2744	63	7117	5941	63	15409	12383	57	32117	2543	64	6596	8.6	26.7	216.5	0.29	1.27	24.5
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	4906	62	9581	10231	61	19981	17004	52	33209	5698	64	11128	9.1	28.2	262.9	0.33	1.09	26.9
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	4819	62	7136	8296	62	12286	13504	56	19998	3968	64	5876	5.9	18.4	161.0	0.21	0.80	17.4
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	5414	61	8365	7987	62	12340	11781	57	18202	4213	64	6509	6.7	20.7	160.1	0.22	1.03	18.7
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	3906	62	9132	5101	63	11926	9295	60	21732	2652	64	6200	7.8	24.2	172.7	0.24	1.33	21.4
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	1604	64	4258	2595	64	6889	4295	63	11402	1499	65	3979	3.0	9.3	100.2	0.14	0.34	10.0
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	1888	64	2999	2867	64	4553	4519	63	7177	1610	65	2557	1.9	5.9	64.9	0.09	0.21	6.4
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	1748	43	3150	2110	46	3802	2807	40	5058	1107	50	1995	1.3	4.0	52.5	0.05	0.06	4.2
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	1256	46	1381	1393	49	1532	1883	45	2070	689	51	758	0.5	1.6	20.9	0.02	0.02	1.7
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	962	47	1066	1247	49	1382	1585	46	1757	598	51	663	0.5	1.4	17.7	0.02	0.02	1.4
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	677	49	911	837	50	1126	828	49	1114	385	51	518	0.4	1.1	13.1	0.01	0.02	1.1
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	581	49	884	1000	50	1521	2494	43	3794	533	51	811	0.6	2.0	25.9	0.03	0.03	2.1
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	1241	46	1107	1378	49	1229	3160	40	2819	736	51	657	0.5	1.6	21.8	0.02	0.02	1.7
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	1599	43	2264	1885	47	2669	3781	36	5354	1058	50	1498	1.1	3.4	45.5	0.05	0.05	3.7
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	4758	0	7319	5441	0	8370	3721	0	5724	2887	0	4441	2.0	6.0	76.4	0.08	0.02	7.2
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	10487	45	16132	12899	56	19843	8739	55	13443	8134	62	12513	8.5	28.0	178.0	0.21	0.57	20.4
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	813	0	1008	456	0	566	536	0	665	0	0	0	0.2	0.5	6.8	0.01	0.00	0.7
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	9663	57	11986	12358	61	15329	8222	61	10199	7560	63	9377	5.2	16.6	137.0	0.17	0.27	15.1
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	813	0	804	456	0	451	536	0	530	0	0	0	0.1	0.4	5.5	0.01	0.00	0.5
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	16756	43	16568	20438	56	20209	18188	50	17984	11867	63	11734	6.9	22.3	195.1	0.21	0.31	19.8
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	13693	51	23195	17444	58	29548	16868	52	28573	9925	63	16812	10.4	33.5	283.4	0.31	0.48	29.5
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	13317	51	13494	16997	58	17223	17172	52	17400	9686	63	9815	6.2	19.8	167.8	0.19	0.29	17.6
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	11907	56	18091	16821	61	25558	13260	59	20147	14282	66	21700	17.9	55.5	285.4	0.41	3.58	43.6
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	12140	59	10654	16569	63	14541	12910	61	11330	14269	66	12522	10.4	32.0	168.1	0.25	2.16	25.5
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	12812	58	9717	17081	62	12954	13552	61	10278	14362	66	10892	9.1	28.0	149.9	0.22	1.85	22.4
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	10641	61	16719	13357	64	20987	11011	63	17300	11900	67	18697	16.9	52.0	252.9	0.38	3.72	40.8
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	9100	61	10763	12594	63	14896	9751	63	11533	11606	66	13728	12.1	37.2	173.0	0.26	2.70	28.8
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	8949	61	8286	11398	64	10553	9200	63	8518	11127	67	10302	9.5	29.1	127.1	0.19	2.17	22.1
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	10003	59	19546	13904	62	27168	12309	59	24052	12280	66	23995	23.7	73.1	312.2	0.47	5.26	54.8
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	10090	59	41722	13861	62	57315	11134	60	46039	12466	66	51547	49.7	153.3	648.4	0.99	11.12	114.8

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-2
Travel Activity Data and Daily Emissions of Pollutants

2040 Freeway/Tollway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	14492	58	16896	19061	61	22223	23000	56	26816	10010	64	11671	8.1	26.0	150.3	0.20	0.28	22.0
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	14492	55	14620	19061	60	19229	23000	52	23202	10010	64	10098	7.0	22.5	129.9	0.17	0.23	18.7
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	14418	55	11534	19104	60	15283	21688	53	17350	8796	64	7037	5.4	17.4	98.8	0.13	0.19	14.3
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	13171	57	40091	17412	60	53000	19329	55	58836	7902	64	24053	18.9	61.2	338.9	0.45	0.69	50.1
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	12182	53	49654	15439	59	62929	16513	52	67307	5628	64	22940	22.2	72.1	388.6	0.49	0.82	57.0
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	10837	55	47835	13374	60	59033	14112	55	62290	4818	64	21267	21.7	70.7	363.8	0.48	0.88	55.3
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	9908	61	34914	10937	66	38540	11318	62	39882	4164	69	14673	15.2	49.6	258.4	0.39	0.72	41.4
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	9903	61	40830	10606	66	43729	10881	63	44862	3542	69	14604	17.3	56.6	289.5	0.44	0.84	46.8
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	10634	60	32721	10449	66	32152	10782	63	33176	3466	69	10665	13.0	42.5	217.4	0.32	0.63	35.0
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	11843	58	43199	12293	65	44840	12277	62	44782	4067	69	14835	17.0	55.1	295.5	0.43	0.76	46.3
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	11355	59	41370	11769	65	42878	11833	62	43111	3881	69	14140	18.2	55.8	335.2	0.48	2.45	52.2
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	8493	63	43425	9101	67	46533	10289	63	52608	3580	69	18305	22.4	68.7	388.8	0.58	3.45	63.8
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	7353	64	15011	8230	67	16802	9442	64	19276	3222	69	6578	8.4	25.6	140.6	0.22	1.36	23.7
EB ML - KOALA & US395	EB ML - KOALA & US395	9999	57	25933	9531	62	24720	10627	59	27562	3349	64	8686	11.5	35.6	198.5	0.27	1.50	31.3
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	14383	49	28090	16175	58	31590	15614	53	30494	7336	64	14327	12.9	40.2	240.3	0.30	1.45	35.2
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	10901	55	16143	11385	61	16860	14128	55	20922	4961	64	7347	7.1	22.1	140.4	0.18	0.76	20.2
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	10143	56	15666	13274	60	20502	17499	50	27027	6914	63	10679	10.8	33.8	167.7	0.22	1.53	28.0
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	8505	58	19885	10647	61	24893	14858	54	34738	5579	64	13044	14.7	45.7	208.6	0.28	2.29	37.2
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	4330	62	11494	3444	64	9142	6973	61	18511	1476	65	3918	4.0	12.5	102.1	0.14	0.26	13.3
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	3907	63	6205	3249	64	5160	5629	62	8940	1435	65	2279	2.2	6.7	53.8	0.08	0.15	7.1
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	3999	35	7206	3388	46	6105	5386	34	9705	1548	50	2789	2.4	7.5	68.3	0.07	0.10	7.7
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	3252	40	3576	2305	48	2534	4226	40	4646	946	51	1040	1.1	3.4	29.4	0.03	0.05	3.3
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	2875	41	3187	2104	48	2332	3646	41	4041	879	51	974	1.0	3.2	26.2	0.03	0.05	3.0
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	2431	44	3270	1496	50	2013	2768	45	3724	562	51	756	1.0	3.1	23.5	0.02	0.06	2.8
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	2515	42	3826	1802	49	2741	3185	42	4845	787	51	1197	1.2	3.9	30.8	0.03	0.07	3.6
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	2606	42	2325	2282	48	2036	3185	42	2841	951	51	848	0.8	2.5	19.7	0.02	0.04	2.3
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	2617	35	3706	2526	43	3577	3222	35	4563	1070	48	1515	1.3	4.1	34.9	0.03	0.06	4.1
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	7532	61	11586	18150	60	27920	24774	49	38110	13766	63	21176	11.7	38.2	188.7	0.24	0.50	28.9
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	1726	0	2655	4484	0	6898	6217	0	9564	3294	0	5067	1.8	5.6	48.8	0.06	0.01	6.1
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	4986	63	6185	10817	62	13417	13461	59	16697	8674	64	10759	5.2	17.0	92.3	0.13	0.21	14.3
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	1911	0	2370	3587	0	4449	5693	0	7062	2564	0	3180	1.3	4.0	34.3	0.04	0.01	4.3
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	11402	58	11274	21086	59	20850	29922	43	29587	14553	63	14390	7.6	24.4	151.0	0.19	0.23	20.9
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	1911	0	1890	3587	0	3547	5693	0	5629	2564	0	2535	1.0	3.2	27.3	0.04	0.01	3.5
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	11797	58	19983	19580	59	33167	25507	49	43206	12756	63	21607	12.0	38.5	230.1	0.29	0.39	32.7
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	2773	0	4697	4579	0	7756	6452	0	10929	2947	0	4992	2.1	6.6	57.3	0.07	0.01	7.1
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	11654	54	11809	18446	57	18691	23528	40	23841	11976	63	12135	6.8	22.0	132.4	0.16	0.22	18.4
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	3178	0	3220	5282	0	5352	7570	0	7671	3216	0	3259	1.5	4.5	40.5	0.05	0.01	4.9
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	9500	60	14434	20939	58	31815	22349	44	33957	16022	65	24344	18.5	57.8	240.9	0.33	3.13	46.0
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	9794	62	8595	20555	61	18039	22520	51	19764	14968	66	13136	10.7	33.1	136.4	0.19	1.90	26.4
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	9904	62	7511	20749	61	15736	22812	50	17301	15045	66	11410	9.3	28.7	119.1	0.17	1.64	22.9
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	7327	64	11512	16493	63	25914	19140	56	30073	12349	67	19403	15.9	48.9	202.1	0.30	3.01	39.8
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	6461	64	7642	15193	62	17970	17811	54	21067	11449	67	13542	11.4	35.1	138.8	0.20	2.15	28.0
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	6656	65	6163	15360	64	14222	18131	57	16787	11401	67	10556	9.2	28.2	110.8	0.17	1.79	22.6
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	9601	61	18760	22007	59	43002	24349	46	47578	15504	66	30295	27.7	86.5	317.8	0.46	5.13	66.7
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	7328	62	30301	18790	59	77697	22308	42	92244	14201	66	58721	54.7	171.0	596.1	0.87	10.36	130.5

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-2
Travel Activity Data and Daily Emissions of Pollutants

2040 Freeway/Tollway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	10695	59	12469	16688	60	19457	23349	51	27223	9623	64	11219	7.4	23.9	136.2	0.18	0.26	19.8
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	10695	59	10789	16688	60	16835	23349	51	23554	9623	64	9708	6.4	20.7	117.9	0.15	0.22	17.2
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	10315	59	8252	16460	61	13168	23253	51	18602	8405	64	6724	5.0	16.1	90.3	0.12	0.18	13.2
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	8729	60	26570	14699	61	44742	21413	53	65179	7593	64	23112	17.4	56.4	308.8	0.41	0.66	46.1
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	6831	60	27843	12574	60	51252	19656	48	80118	5236	64	21342	20.2	65.7	349.1	0.44	0.78	51.5
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	5018	62	22149	10767	61	47526	17718	51	78207	4631	64	20441	19.6	64.3	323.6	0.42	0.83	49.4
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	3223	68	11357	8177	67	28814	16345	57	57597	4023	69	14176	13.9	45.5	225.7	0.33	0.70	36.2
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	3376	68	13919	8744	67	36052	17473	56	72041	4468	69	18422	16.9	55.4	283.6	0.40	0.82	44.5
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	3258	68	10025	8940	67	27508	18629	54	57321	4378	69	13471	12.9	42.3	218.6	0.31	0.61	33.9
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	3278	68	11957	10260	66	37424	19809	52	72255	4692	69	17115	16.1	52.6	281.2	0.39	0.73	42.9
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	3065	68	11167	9803	66	35715	19054	53	69419	4473	69	16296	17.3	53.2	317.4	0.44	2.35	48.5
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	2815	68	14393	7587	67	38792	15524	58	79374	3949	69	20191	21.5	65.9	367.2	0.53	3.32	59.6
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	2365	68	4828	6370	68	13004	13370	61	27295	3566	69	7280	7.8	23.9	126.3	0.19	1.30	21.4
WB ML - KOALA & US395	WB ML - KOALA & US395	3061	63	7939	7719	62	20020	16686	52	43277	3743	64	9708	10.8	33.6	186.8	0.24	1.43	29.3
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	6042	61	11800	14810	59	28924	22894	41	44712	9233	63	18032	12.7	39.6	248.0	0.30	1.41	35.7
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	5777	61	8555	10778	61	15961	17326	52	25658	5760	64	8530	6.8	21.1	135.9	0.17	0.71	19.3
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	8458	58	13068	12784	60	19751	18603	49	28742	7399	63	11431	10.8	33.7	166.8	0.22	1.54	27.9
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	6704	60	15674	10429	61	24383	16742	51	39143	5611	64	13119	14.6	45.4	209.2	0.28	2.26	37.0
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	2887	63	7664	4136	64	10979	10437	59	27706	1433	65	3804	4.5	13.7	117.9	0.16	0.23	14.8
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	2631	63	4179	3969	64	6304	8929	60	14181	1450	65	2303	2.4	7.4	63.5	0.09	0.13	8.0
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	2476	42	4462	3638	45	6555	6797	28	12248	1562	50	2815	2.3	7.0	70.8	0.07	0.07	7.8
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	1686	46	1854	2545	47	2798	5923	32	6512	1006	51	1106	1.1	3.3	32.4	0.03	0.03	3.5
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	1318	48	1461	2218	48	2458	5922	35	6564	869	51	963	1.0	3.1	29.8	0.03	0.03	3.2
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	703	50	946	1596	49	2147	4444	38	5979	592	51	796	0.9	2.7	24.9	0.02	0.03	2.7
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	1014	49	1542	1894	49	2881	4769	39	7255	828	51	1260	1.1	3.5	32.3	0.03	0.04	3.5
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	1647	46	1469	2278	48	2032	4609	38	4111	1003	51	895	0.7	2.3	21.5	0.02	0.03	2.3
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	1795	42	2542	2493	45	3530	4611	34	6530	1132	49	1603	1.2	3.9	37.2	0.04	0.04	4.0
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	3832	0	5895	4593	0	7065	3115	0	4792	2421	0	3724	2.3	7.7	43.0	0.06	0.01	5.5
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	16368	53	25179	19636	59	30206	13117	59	20178	11168	63	17180	11.1	36.5	176.7	0.24	0.50	27.6
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	3771	0	4678	4106	0	5093	3666	0	4547	1921	0	2383	1.8	6.0	33.4	0.04	0.01	4.2
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	9946	59	12337	12820	62	15902	7942	62	9851	7577	64	9399	5.2	17.0	92.7	0.13	0.21	14.3
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	3771	0	3729	4106	0	4060	3666	0	3625	1921	0	1899	1.4	4.8	26.6	0.03	0.01	3.4
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	20723	47	20491	24431	57	24157	21880	53	21635	13802	63	13647	8.0	25.6	156.1	0.19	0.24	21.6
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	4008	0	6789	5030	0	8520	5090	0	8622	2703	0	4579	3.1	10.3	57.1	0.07	0.01	7.1
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	16135	54	27331	20725	59	35106	20244	54	34291	10846	63	18372	11.8	37.9	223.2	0.29	0.39	32.0
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	4668	0	4730	5578	0	5652	5957	0	6036	2648	0	2683	2.1	6.9	38.6	0.05	0.01	4.7
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	14870	48	15068	19533	57	19793	19404	48	19662	10569	63	10710	6.7	21.7	126.8	0.15	0.22	17.7
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	14009	52	21285	19247	59	29244	15332	56	23295	16108	65	24474	18.7	58.1	221.5	0.32	3.39	45.3
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	14210	56	12471	19548	61	17155	15594	59	13685	16485	66	14467	10.9	33.8	131.0	0.19	2.03	26.7
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	15061	54	11422	19990	61	15160	16441	58	12469	16605	66	12593	9.5	29.6	116.7	0.17	1.73	23.4
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	11579	60	18193	14486	64	22760	11862	63	18638	12758	67	20045	15.4	47.3	185.5	0.28	3.04	38.3
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	10170	59	12029	13222	63	15639	10949	62	12950	12158	67	14380	11.1	34.2	127.0	0.19	2.23	27.1
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	10325	59	9560	12719	64	11777	10557	62	9775	12132	67	11233	8.8	27.1	97.9	0.15	1.80	21.3
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	12912	57	25230	18456	61	36063	15194	59	29689	16309	66	31868	26.9	83.3	275.8	0.42	5.43	63.2
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	12276	55	50761	16354	61	67624	12658	59	52341	14842	65	61372	53.6	166.7	515.9	0.80	11.00	123.8

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-3
Travel Activity Data and Daily Emissions of Pollutants

2020 Freeway/Expressway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	10711	60	12488	15072	62	17572	18834	58	21959	8965	64	10452	7.5	24.4	181.9	0.22	0.45	20.7
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	10711	55	10805	15072	59	15205	18834	48	19000	8965	63	9044	6.5	21.1	156.2	0.18	0.37	17.1
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	10567	55	8454	15010	59	12008	17993	50	14394	7764	63	6211	5.0	16.4	118.1	0.14	0.30	13.1
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	9475	57	28841	13710	60	41732	16442	52	50048	7104	64	21624	18.0	58.8	408.6	0.48	1.12	46.1
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	9474	57	38616	13332	60	54341	15770	53	64279	6022	64	24546	23.3	76.1	521.1	0.62	1.47	59.2
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	9327	57	41169	12898	60	56932	14760	54	65151	5709	64	25200	24.6	80.7	539.4	0.64	1.59	62.0
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	8606	62	30326	11564	65	40749	12462	61	43914	5000	69	17619	18.1	59.1	400.6	0.53	1.34	48.4
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	8541	62	35215	10715	66	44178	11769	62	48524	5261	69	21691	20.1	65.4	454.3	0.60	1.47	54.7
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	8942	62	27515	10889	66	33505	11573	62	35610	5217	69	16053	15.0	49.0	341.3	0.45	1.09	40.9
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	9676	61	35294	11629	65	42418	12184	61	44442	5395	69	19679	18.5	60.1	429.6	0.56	1.31	51.1
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	9676	61	35253	11629	65	42368	12184	61	44390	5395	69	19656	20.4	62.6	522.0	0.74	3.26	59.7
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	8136	63	41599	10300	66	52664	10949	63	55982	5339	69	27298	26.2	80.4	658.9	0.94	4.34	76.5
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	7314	64	14932	9408	66	19206	9800	64	20007	4850	69	9901	9.9	30.2	240.3	0.35	1.73	28.5
EB ML - KOALA & US395	EB ML - KOALA & US395	8594	58	22289	10154	61	26335	10890	58	28244	5215	64	13526	13.0	40.2	316.5	0.42	1.92	36.3
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	10183	56	19887	12432	60	24280	12669	57	24743	6072	64	11859	10.9	33.9	281.3	0.36	1.49	30.9
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	8057	59	11932	10127	61	14997	11673	58	17287	4921	64	7288	7.4	22.8	180.2	0.24	1.09	20.6
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	6328	60	9774	9467	61	14622	12078	57	18654	5182	64	8004	8.0	24.8	177.2	0.24	1.29	21.6
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	4345	62	10159	6000	63	14028	9098	60	21271	3610	64	8440	9.5	29.4	186.6	0.26	1.73	24.8
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	1859	64	4935	2437	64	6469	3150	64	8362	1473	65	3910	2.7	8.3	89.2	0.12	0.31	8.9
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	1985	64	3153	2657	64	4220	3572	63	5673	1599	65	2540	1.7	5.3	58.9	0.08	0.19	5.8
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	1613	44	2906	2227	46	4013	4057	36	7310	1135	50	2045	1.5	4.6	62.5	0.06	0.07	5.0
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	1061	46	1167	1483	48	1631	3283	38	3610	751	51	826	0.6	2.0	27.5	0.03	0.03	2.2
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	854	48	947	1278	49	1417	3019	41	3346	657	51	728	0.6	1.8	24.1	0.02	0.03	1.9
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	385	50	518	826	50	1111	2434	42	3274	452	51	608	0.5	1.6	20.4	0.02	0.03	1.7
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	856	47	1302	1120	49	1704	1145	47	1742	564	51	858	0.6	1.8	20.0	0.02	0.04	1.7
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	1210	45	1079	1596	48	1424	1772	45	1581	796	51	710	0.5	1.4	17.5	0.02	0.02	1.4
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	1696	41	2402	2095	45	2967	2163	41	3063	1131	50	1602	1.0	3.1	37.4	0.04	0.05	3.1
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	5371	58	8262	12627	56	19424	15511	37	23861	10060	61	15475	9.6	31.8	199.4	0.23	0.67	23.0
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	2136	59	3286	5489	57	8444	7662	39	11786	4330	62	6661	2.3	7.0	92.4	0.10	0.02	8.5
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	4989	62	6188	10889	61	13507	12457	57	15452	8940	63	11089	5.2	16.6	135.6	0.17	0.28	15.1
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	165	65	205	334	65	414	1338	63	1660	0	65	0	0.2	0.5	6.9	0.01	0.00	0.7
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	10016	56	9904	18225	57	18021	24471	37	24197	13151	62	13004	6.9	22.3	199.3	0.22	0.32	20.5
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	165	54	163	334	54	330	1338	37	1323	0	58	0	0.1	0.4	5.8	0.01	0.00	0.5
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	10391	56	17601	17510	58	29660	21903	43	37101	11907	63	20169	11.2	36.1	308.4	0.34	0.53	31.9
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	10538	56	10678	17156	58	17384	21758	44	22047	11542	63	11696	6.6	21.4	182.3	0.20	0.31	18.9
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	7896	62	11997	17691	60	26880	20853	47	31684	12749	66	19371	17.5	54.2	308.0	0.43	3.29	43.6
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	7733	64	6786	17079	63	14989	20211	54	17737	11726	67	10291	9.9	30.7	171.4	0.24	1.98	24.8
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	7603	64	5766	16759	63	12710	19816	54	15028	11773	67	8929	8.5	26.2	146.0	0.21	1.70	21.2
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	6152	64	9666	14353	63	22551	17297	54	27177	10556	67	16586	16.3	50.5	257.2	0.37	3.37	39.6
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	5508	65	6515	13521	63	15993	15298	57	18094	10103	67	11950	11.7	36.0	178.4	0.26	2.49	28.2
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	5314	65	4920	12361	64	11445	15083	57	13965	9642	67	8928	9.2	28.2	132.8	0.20	2.01	21.7
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	6501	64	12703	15923	63	31114	18861	55	36854	11779	67	23016	24.7	76.2	344.1	0.51	5.35	57.8
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	5836	64	24132	15728	61	65035	18684	50	77258	11883	66	49136	51.2	158.7	712.0	1.04	10.86	119.5

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-3
Travel Activity Data and Daily Emissions of Pollutants

2020 Freeway/Expressway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	8796	60	10255	13201	61	15391	18164	56	21177	8587	64	10012	6.9	22.5	164.8	0.20	0.42	18.7
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	8796	58	8873	13201	60	13317	18164	50	18324	8587	63	8663	6.1	19.8	142.3	0.17	0.35	15.8
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	8648	58	6918	13170	60	10536	18010	50	14408	7372	63	5898	4.8	15.8	109.1	0.13	0.28	12.1
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	7473	59	22747	11834	60	36022	16462	52	50109	6802	64	20705	16.9	55.3	374.0	0.45	1.06	42.6
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	6567	60	26767	10759	61	43854	16361	52	66687	5645	64	23009	21.3	70.0	462.0	0.55	1.37	53.2
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	5652	61	24948	10277	61	45363	16275	52	71838	5468	64	24136	22.9	75.7	480.2	0.58	1.49	55.8
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	4337	67	15283	9036	66	31841	15466	58	54499	5031	69	17728	16.5	53.7	363.0	0.47	1.28	43.7
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	3951	67	16290	8493	67	35017	16039	57	66129	5443	69	22441	18.9	61.7	424.2	0.54	1.44	50.5
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	3967	67	12206	9038	66	27810	16676	56	51312	5699	69	17536	14.4	46.9	330.3	0.42	1.08	39.1
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	4106	67	14977	9521	66	34729	17841	54	65077	5788	69	21112	17.9	58.5	411.3	0.52	1.27	47.9
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	4106	67	14959	9521	66	34688	17841	54	65000	5788	69	21087	20.1	62.0	496.1	0.68	3.15	56.4
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	4182	67	21383	8580	67	43870	17293	55	88419	5458	69	27907	27.6	85.4	660.8	0.91	4.43	76.4
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	3470	67	7084	7871	67	16069	16116	57	32901	5250	69	10718	9.9	30.2	243.4	0.34	1.75	28.7
WB ML - KOALA & US395	WB ML - KOALA & US395	4319	62	11202	9120	62	23654	17113	51	44384	5563	64	14428	12.9	39.6	327.1	0.42	1.93	37.1
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	5541	61	10822	11619	61	22692	19241	48	37578	7219	63	14099	11.9	37.3	300.9	0.38	1.50	32.4
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	5444	61	8062	9591	61	14203	15681	53	23222	5460	64	8086	8.2	25.9	187.3	0.25	1.11	21.3
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	5808	61	8973	8956	62	13837	13577	55	20976	5515	64	8521	8.9	28.1	180.1	0.24	1.33	22.1
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	4189	62	9794	5629	63	13161	10447	58	24425	3597	64	8410	7.6	21.3	192.7	0.27	1.80	25.7
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	1634	64	4338	2649	64	7032	4410	63	11707	1590	65	4221	3.1	9.4	102.4	0.14	0.36	10.2
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	1918	64	3046	2900	64	4606	4626	63	7347	1702	65	2703	1.8	5.4	66.4	0.09	0.22	6.5
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	1806	42	3254	2164	46	3899	2846	40	5128	1193	50	2150	1.3	4.2	53.9	0.06	0.07	4.4
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	1315	46	1446	1447	49	1591	1927	45	2119	775	51	852	0.6	1.8	21.8	0.02	0.03	1.8
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	1017	47	1127	1295	49	1435	1622	45	1798	674	51	747	0.5	1.6	18.4	0.02	0.03	1.5
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	729	49	981	874	50	1176	868	49	1168	442	51	595	0.4	1.2	13.9	0.02	0.03	1.2
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	594	49	904	1060	49	1612	2579	43	3923	606	51	922	0.7	2.1	27.1	0.03	0.03	2.2
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	1247	46	1112	1423	49	1269	3235	40	2886	765	51	682	0.6	1.7	22.3	0.02	0.02	1.8
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	1604	43	2271	1926	47	2727	3842	36	5441	1084	50	1535	0.6	1.4	46.2	0.05	0.06	3.7
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	4836	46	7439	5702	57	8771	3896	57	5993	3037	63	4672	4.4	15.7	79.1	0.08	0.02	7.4
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	10580	44	16275	13349	55	20535	8977	55	13809	9107	62	14009	3.6	8.0	185.4	0.22	0.65	21.7
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	836	63	1037	580	64	719	602	64	747	0	65	0	0.3	1.2	7.6	0.01	0.00	0.8
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	9537	57	11830	12197	61	15129	8143	61	10101	7600	63	9427	2.3	5.4	135.8	0.16	0.26	15.0
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	836	40	827	580	52	574	602	48	595	0	59	0	0.3	0.9	6.1	0.01	0.00	0.5
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	16992	42	16802	20764	56	20531	18814	49	18603	12045	62	11910	3.3	7.7	199.8	0.21	0.33	20.4
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	13919	50	23577	17768	58	30097	17383	51	29445	10040	63	17007	5.0	11.5	288.8	0.32	0.53	30.3
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.00	0.00	0.0
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	13528	51	13708	17306	58	17536	17738	51	17974	9797	63	9927	2.9	6.8	170.7	0.19	0.31	17.9
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	11845	56	17997	16628	61	25265	13371	59	20316	13668	66	20767	17.4	53.8	283.6	0.41	3.45	42.6
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	12061	59	10585	16297	63	14302	13125	61	11519	13464	67	11816	9.9	30.3	166.0	0.24	2.06	24.8
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	12735	58	9658	16809	63	12748	13768	61	10442	13557	67	10282	9.3	29.3	148.1	0.21	1.77	21.8
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	10539	61	16559	13156	64	20671	11154	63	17525	11091	67	17426	16.7	51.6	249.9	0.38	3.58	39.6
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	8999	61	10644	12349	64	14606	9743	63	11524	10804	67	12779	12.0	37.2	168.8	0.25	2.55	27.7
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	8872	61	8215	11171	64	10343	9264	63	8578	10368	67	9600	9.2	28.4	124.4	0.19	2.05	21.3
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	10128	61	19790	14151	63	27651	13131	60	25658	12375	67	24181	24.7	76.2	323.2	0.49	5.52	56.9
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	10198	58	42169	14093	62	58275	11854	59	49016	12542	66	51861	50.8	156.9	658.2	1.00	11.32	117.4

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-4
Travel Activity Data and Daily Emissions of Pollutants

2040 Freeway/Expressway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	15530	57	18106	21179	60	24693	24359	55	28400	11648	64	13580	9.2	29.8	163.4	0.22	0.35	24.3
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	15530	54	15667	21179	59	21365	24359	50	24573	11648	63	11751	7.9	25.8	141.5	0.18	0.29	20.6
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	15693	54	12554	21486	58	17189	23301	51	18641	10569	63	8455	6.2	20.2	109.1	0.14	0.23	16.0
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	14492	55	44112	19900	59	60574	21130	53	64318	9778	64	29763	22.2	72.4	380.7	0.49	0.87	57.0
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	14158	49	57708	19484	56	79417	19072	48	77737	8718	63	35535	28.4	92.6	481.9	0.58	1.10	70.4
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	14026	49	61911	19024	57	83972	17767	50	78424	8386	63	37016	30.0	98.2	498.3	0.61	1.20	73.9
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	13618	54	47987	18046	62	63590	16095	57	56716	7670	68	27028	22.9	75.0	380.5	0.52	1.02	58.9
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	14273	53	58848	17916	62	73868	16080	57	66298	7414	68	30568	26.7	87.1	447.6	0.60	1.16	68.6
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	14602	52	44930	17935	62	55186	16132	57	49638	7543	68	23210	20.0	65.4	337.4	0.45	0.86	51.6
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	15639	50	57045	19008	61	69334	16946	56	61812	7889	68	28776	24.7	80.4	424.7	0.56	1.03	63.9
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	15150	51	55196	18478	61	67321	16497	56	60104	7622	68	27769	26.4	81.7	490.2	0.64	3.23	73.2
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	13581	55	69440	15472	63	79108	15971	57	81660	7593	68	38823	34.6	106.7	629.2	0.86	4.50	96.6
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	11426	58	23326	13043	65	26627	13207	60	26962	6738	68	13756	12.4	38.1	213.3	0.31	1.80	34.5
EB ML - KOALA & US395	EB ML - KOALA & US395	13273	51	34425	14694	59	38110	15056	54	39049	7211	64	18702	16.5	51.3	298.5	0.37	1.94	44.7
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	15539	45	30348	18347	57	35832	17053	51	33305	9105	63	17782	15.0	46.8	270.6	0.33	1.74	40.3
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	11791	54	17461	13419	60	19872	15628	53	23144	6568	64	9727	8.5	26.4	160.6	0.20	0.94	23.5
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	10832	54	16730	14584	59	22525	18784	48	29012	8294	63	12810	12.1	37.7	185.1	0.24	1.71	31.0
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	9064	57	21192	11540	60	26981	15940	52	37268	6709	63	15686	16.4	51.0	228.0	0.31	2.59	41.1
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	4406	62	11696	3621	64	9612	7392	61	19623	1635	65	4340	4.3	13.2	107.0	0.15	0.29	14.0
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	3954	63	6280	3363	64	5341	6013	62	9550	1559	65	2476	2.3	7.0	56.3	0.08	0.17	7.5
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	4037	35	7274	3492	46	6292	5477	33	9869	1664	50	2998	2.5	7.7	69.8	0.07	0.11	7.9
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	2935	40	3227	2171	48	2387	3821	40	4201	986	51	1084	1.0	3.3	27.2	0.03	0.05	3.1
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	2557	42	2834	1848	49	2048	3418	41	3789	872	51	967	0.9	3.0	23.6	0.02	0.05	2.8
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	2650	35	3565	2558	43	3441	3315	35	4460	1111	48	1495	1.3	4.0	34.0	0.03	0.06	4.0
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	1779	45	2706	2668	47	4059	5997	32	9123	1143	51	1739	1.5	4.8	46.4	0.05	0.05	5.0
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	764	49	681	1694	49	1511	4480	38	3996	690	51	615	0.6	1.9	17.1	0.02	0.03	1.9
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	1677	46	2375	2333	48	3304	4645	38	6578	1035	51	1466	1.2	3.8	34.6	0.03	0.05	3.8
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	7644	61	11759	18879	59	29042	25025	49	38496	14628	63	22502	12.5	41.1	193.9	0.25	0.57	30.3
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	1814	60	2790	4658	59	7165	6331	47	9739	3613	62	5558	2.5	7.4	51.0	0.06	0.01	6.4
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	4991	63	6191	10682	62	13250	13267	59	16456	8630	64	10705	5.2	16.9	91.4	0.13	0.21	14.1
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	1953	60	2423	3617	60	4487	5822	49	7222	2588	63	3210	1.7	5.1	34.9	0.04	0.01	4.4
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	11614	58	11484	21167	59	20930	30223	42	29885	14621	63	14457	7.7	24.9	152.8	0.19	0.24	21.2
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	1953	60	1931	3617	60	3576	5822	49	5757	2588	63	2559	1.4	4.1	27.8	0.04	0.01	3.5
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	11957	58	20254	19679	59	33334	25876	49	43831	12833	63	21738	12.2	39.3	232.8	0.30	0.40	33.1
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	2837	57	4806	4674	59	7917	6617	46	11209	2936	63	4973	2.8	8.4	58.5	0.07	0.01	7.2
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	11802	54	11959	18552	57	18799	23791	39	24107	12062	63	12222	7.0	22.4	134.2	0.16	0.23	18.7
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	3252	55	3295	5374	57	5445	7754	38	7857	3195	63	3237	2.0	5.7	41.4	0.05	0.01	5.0
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	9531	60	14481	21211	58	32228	22240	44	33791	15320	66	23277	18.0	56.3	238.6	0.33	3.01	45.0
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	9896	62	8685	20849	61	18297	22517	51	19761	14260	67	12515	10.4	32.2	135.8	0.19	1.82	25.9
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	10005	62	7588	21043	60	15959	22816	50	17304	14337	67	10873	9.0	28.0	118.6	0.17	1.57	22.5
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	7228	64	11357	16568	63	26032	18732	56	29432	11430	67	17959	15.2	46.8	197.5	0.29	2.84	38.4
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	6313	64	7467	14770	63	17470	17402	54	20583	10594	67	12531	10.8	33.4	134.3	0.20	2.06	26.8
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	6545	65	6060	15123	64	14002	17703	57	16391	10562	67	9779	8.7	26.9	107.6	0.16	1.70	21.8
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	9915	61	19374	22339	59	43650	24568	45	48006	15636	66	30553	28.0	87.6	321.2	0.46	5.13	67.3
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	7637	62	31579	19201	58	79396	22427	41	92736	14291	65	59093	55.4	173.2	603.8	0.88	10.45	132.1

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Attachment D-4
Travel Activity Data and Daily Emissions of Pollutants

2040 Freeway/Expressway Alternative		AM Period			Mid-day Period			PM Period			Night Period			Daily Emissions					
		Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	Volume	Speed	Total VMT	PM2.5 (lbs)	PM10 (lbs)	CO (lbs)	Benzene (lbs)	DPM (lbs)	CO2_Pavley (MT)
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	11374	58	13261	18029	60	21020	24273	50	28300	11053	63	12887	8.3	27.0	145.6	0.19	0.32	21.5
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	11374	58	11474	18029	60	18188	24273	50	24487	11053	63	11150	7.2	23.4	126.0	0.16	0.27	18.6
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	11035	58	8828	18145	60	14516	24563	50	19650	10067	63	8054	5.7	18.5	98.3	0.13	0.22	14.6
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	9558	60	29094	16579	60	50465	22921	51	69769	9374	64	28534	20.2	66.0	341.0	0.45	0.82	51.6
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	8208	58	33456	15635	59	63728	21733	43	88584	8186	63	33366	25.3	82.8	428.8	0.53	1.03	63.7
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	7034	60	31048	15140	59	66828	21297	44	94005	8086	63	35692	26.7	87.6	442.9	0.55	1.12	66.5
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	5645	65	19892	14133	64	49802	20863	49	73517	7686	68	27084	20.5	67.1	339.1	0.46	0.96	52.8
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	5096	66	21011	14696	64	60592	22145	47	91304	8174	68	33701	24.5	80.0	416.9	0.56	1.11	63.6
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	5122	66	15760	15194	63	46752	23355	44	71863	8561	68	26342	18.8	61.3	327.5	0.43	0.83	49.4
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	5306	66	19354	15968	63	58245	24429	41	89107	8746	68	31902	22.9	74.6	408.9	0.53	0.98	60.8
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	5076	66	18493	15489	63	56431	23675	43	86255	8454	68	30800	24.5	75.6	471.2	0.61	3.07	69.7
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	5490	66	28070	15690	63	80223	20588	50	105266	8543	68	43680	33.3	103.0	614.3	0.83	4.39	93.7
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	4013	67	8193	12831	65	26194	18055	54	36859	7477	68	15264	11.9	36.6	205.3	0.29	1.73	32.9
WB ML - KOALA & US395	WB ML - KOALA & US395	5084	61	13186	14078	59	36513	21072	44	54652	7888	63	20458	15.8	49.4	292.9	0.36	1.87	43.5
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	7077	59	13821	17452	57	34084	24035	37	46940	10951	63	21387	14.8	46.2	282.2	0.34	1.69	41.6
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	6672	60	9881	13138	60	19456	18401	50	27250	7452	64	11036	8.2	25.4	156.5	0.20	0.92	22.8
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	9153	57	14141	14387	59	22228	19403	47	29978	8695	63	13434	12.0	37.4	182.2	0.24	1.70	30.7
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	7214	59	16866	11319	60	26464	17452	50	40803	6583	63	15391	16.1	50.2	225.7	0.30	2.54	40.5
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	3022	63	8022	4373	64	11609	10570	59	28059	1595	65	4234	4.7	14.5	122.0	0.16	0.26	15.4
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	2741	63	4353	4138	64	6572	9023	60	14330	1598	65	2538	2.5	7.8	65.5	0.09	0.15	8.4
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	3315	40	5973	2409	48	4341	4373	40	7880	1062	51	1914	1.9	5.9	50.3	0.05	0.09	5.7
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	2472	44	2718	1543	50	1697	3001	44	3300	644	51	708	0.8	2.7	20.4	0.02	0.05	2.4
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	2646	42	2933	2315	48	2566	3293	42	3650	992	51	1100	1.0	3.1	25.2	0.03	0.05	3.0
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	2572	42	3460	3761	45	5060	6834	28	9194	1704	50	2292	1.8	5.5	54.4	0.05	0.06	6.0
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	1397	47	2125	2323	48	3534	5995	35	9120	990	51	1506	1.4	4.5	42.3	0.04	0.06	4.6
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	1071	49	955	1992	49	1777	4807	39	4288	927	51	827	0.7	2.2	19.7	0.02	0.03	2.2
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	1823	42	2582	2542	44	3600	4647	33	6581	1165	49	1650	1.3	4.0	37.7	0.04	0.05	4.1
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	3892	52	5987	4713	59	7250	3257	58	5010	2619	63	4029	1.7	5.2	44.7	0.06	0.01	5.7
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	16549	53	25457	20171	59	31029	13609	59	20935	12066	63	18561	11.9	39.1	181.9	0.24	0.55	28.9
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	3890	52	4825	4213	59	5226	3794	57	4706	1967	64	2440	1.3	4.0	34.4	0.04	0.01	4.4
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	9771	60	12120	12577	62	15601	7987	62	9907	7516	64	9323	5.2	16.8	91.6	0.13	0.21	14.1
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	3890	52	3846	4213	59	4166	3794	57	3752	1967	64	1945	1.0	3.2	27.4	0.04	0.01	3.5
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	21168	46	20931	24937	57	24658	22460	52	22208	13938	63	13782	8.2	26.3	159.5	0.19	0.25	22.1
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	4180	51	7081	5194	58	8798	5239	52	8874	2766	63	4685	2.2	6.8	59.0	0.07	0.01	7.3
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	16473	53	27904	21149	59	35824	20745	54	35140	10970	63	18582	12.1	38.9	227.5	0.29	0.40	32.6
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	4892	46	4957	5779	57	5856	6191	48	6273	2707	63	2743	1.5	4.6	40.2	0.05	0.01	4.9
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	15112	47	15313	19918	56	20183	19795	47	20058	10694	63	10836	6.9	22.3	129.3	0.15	0.23	18.1
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	14101	52	21425	18960	59	28808	15265	56	23194	15482	65	23523	18.0	56.2	218.6	0.31	3.23	44.0
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	14174	56	12439	19327	61	16961	15630	59	13717	15752	66	13824	10.5	32.6	130.0	0.19	1.95	26.0
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	14890	55	11293	19629	61	14887	16352	58	12401	15872	66	12037	9.2	28.5	115.6	0.17	1.68	22.8
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	11326	60	17795	14098	64	22151	11660	63	18320	12058	67	18946	14.7	45.3	181.1	0.28	2.92	36.9
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	9962	60	11783	12832	64	15178	10879	62	12868	11454	67	13548	10.6	32.7	123.2	0.19	2.12	26.1
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	10138	62	9387	12372	65	11455	10463	64	9688	11443	67	10595	8.5	26.0	97.0	0.15	1.78	20.9
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	13043	57	25486	18615	61	36374	15663	58	30606	16431	66	32106	27.1	84.3	279.1	0.43	5.45	63.8
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	12407	54	51303	16502	60	68236	13238	58	54739	14913	65	61665	54.3	168.8	523.8	0.81	11.06	125.3

Note: lbs = pounds
MT = Metric Tons
Alternatives with High Speed Rail Feeder Service add 1.74 lbs/mile-day of PM10, and 0.26 lbs/mile-day of PM2.5

Appendix E Summary of Emissions Input for PM Hot-Spot Modeling

Attachment E-1
2020 PM10 Emissions Input

2020 TOTAL PM10 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	0.0035861	0.0513689	0.1173180	0.1722730	0.0032913	0.0357765	0.0799537	0.1190215	0.0052268	0.0680641	0.1537350	0.2270259	0.0010145	0.0104559	0.0233429	0.0348133
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	0.0029239	0.0444471	0.1015099	0.1488810	0.0026807	0.0309558	0.0691803	0.1028168	0.0041438	0.0588928	0.1330199	0.1960564	0.0008590	0.0090470	0.0201976	0.0301036
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	0.0023123	0.0342737	0.0807643	0.1173504	0.0021397	0.0240793	0.0554863	0.0817053	0.0032525	0.0444086	0.1034811	0.1511422	0.0006285	0.0059550	0.0135785	0.0201620
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	0.0084547	0.1154792	0.2826134	0.4065473	0.0076841	0.0826503	0.1980150	0.2883493	0.0119101	0.1513787	0.3659772	0.5292660	0.0022140	0.0202108	0.0478530	0.0702778
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	0.0106472	0.1437095	0.3578912	0.5122479	0.0094759	0.0973296	0.2369062	0.3437118	0.0150350	0.1822291	0.4469458	0.6442099	0.0021047	0.0184824	0.0444754	0.0650625
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	0.0099719	0.1334711	0.3297999	0.4732428	0.0089494	0.0895202	0.2153919	0.3138615	0.0129205	0.1620936	0.3975149	0.5725290	0.0021387	0.0171602	0.0404377	0.0597366
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	0.0078734	0.0858347	0.2345026	0.3282106	0.0070109	0.0554854	0.1466073	0.2091036	0.0096757	0.0941813	0.2541668	0.3580239	0.0017236	0.0109892	0.0282571	0.0409699
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	0.0089842	0.0974990	0.2725460	0.3790292	0.0079484	0.0617033	0.1664439	0.2360956	0.0108603	0.1024953	0.2821247	0.3954802	0.0019108	0.0115187	0.0300228	0.0434523
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	0.0067182	0.0730650	0.2059049	0.2856881	0.0058881	0.0452427	0.1228273	0.1739581	0.0080391	0.0749982	0.2077815	0.2908189	0.0014161	0.0083855	0.0219574	0.0317590
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	0.0089366	0.1099610	0.2869831	0.4058807	0.0075988	0.0636458	0.1603418	0.2315865	0.0101825	0.1033665	0.2645831	0.3781320	0.0018065	0.0116999	0.0285419	0.0420483
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	0.0164355	0.1121283	0.2866448	0.4152087	0.0163459	0.0662469	0.1601528	0.2427455	0.0204811	0.1066159	0.2642712	0.3913682	0.0042006	0.0123962	0.0285082	0.0451050
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	0.0226883	0.1359824	0.3602628	0.5189334	0.0225585	0.0861960	0.2161763	0.3249308	0.0288856	0.1410969	0.3645006	0.5344831	0.0059437	0.0174110	0.0418788	0.0652335
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	0.0087767	0.0481559	0.1325914	0.1895240	0.0087449	0.0317802	0.0826815	0.1232066	0.0109840	0.0507175	0.1360295	0.1977310	0.0022973	0.0063774	0.0158586	0.0245333
EB ML - KOALA & US395	EB ML - KOALA & US395	0.0099845	0.0735839	0.1923078	0.2758762	0.0098772	0.0442713	0.1091964	0.1633449	0.0125020	0.0713779	0.1810459	0.2649257	0.0025411	0.0079260	0.0183655	0.0288326
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	0.0086167	0.0828964	0.1934819	0.2849950	0.0087958	0.0502766	0.1122655	0.1713379	0.0104849	0.0748095	0.1700474	0.2553419	0.0031144	0.0116860	0.0247153	0.0395156
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	0.0061132	0.0494572	0.1223830	0.1779534	0.0063704	0.0311578	0.0729613	0.1104896	0.0080202	0.0521981	0.1262152	0.1864336	0.0018309	0.0066868	0.0150836	0.0236013
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	0.0069557	0.0419588	0.1132360	0.1621504	0.0073506	0.0313467	0.0809798	0.1196772	0.0093624	0.0589830	0.1591326	0.2274780	0.0027237	0.0081632	0.0197843	0.0306712
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	0.0089359	0.0444436	0.1336157	0.1869952	0.0095495	0.0316525	0.0886716	0.1298736	0.0112920	0.0656985	0.2003236	0.2773140	0.0036271	0.0085026	0.0217335	0.0338631
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	0.0019816	0.0210611	0.0446417	0.0676843	0.0020559	0.0144901	0.0298146	0.0463606	0.0030150	0.0277531	0.0582589	0.0890270	0.0014504	0.0050564	0.0094006	0.0159074
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	0.0012486	0.0134729	0.0275811	0.0423026	0.0012755	0.0094217	0.0187865	0.0294837	0.0019149	0.0188383	0.0383356	0.0590888	0.0008803	0.0032654	0.0059322	0.0100778
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	0.0006187	0.0123055	0.0201861	0.0331103	0.0006520	0.0086348	0.0138072	0.0230939	0.0014063	0.0231356	0.0377011	0.0622430	0.0002123	0.0022931	0.0036182	0.0061236
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	0.0002362	0.0049016	0.0077061	0.0128439	0.0002537	0.0034515	0.0052970	0.0090022	0.0006439	0.0113162	0.0176838	0.0296440	0.0000617	0.0008665	0.0013343	0.0022624
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	0.0002024	0.0039885	0.0064728	0.0106637	0.0002539	0.0030248	0.0047578	0.0080366	0.0005995	0.0105088	0.0169505	0.0280588	0.0000595	0.0007646	0.0012121	0.0020362
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	0.0001352	0.0021816	0.0036308	0.0059475	0.0002239	0.0023165	0.0037282	0.0062685	0.0005943	0.0102422	0.0170906	0.0279272	0.0000527	0.0006291	0.0010274	0.0017091
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	0.0004478	0.0054390	0.0095383	0.0154251	0.0002814	0.0036353	0.0064162	0.0103329	0.0004404	0.0055710	0.0098020	0.0158134	0.0000721	0.0009252	0.0016351	0.0026324
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	0.0003285	0.0045809	0.0076611	0.0125705	0.0002152	0.0030758	0.0051599	0.0084509	0.0003382	0.0050751	0.0085325	0.0139458	0.0000642	0.0008213	0.0013696	0.0022551
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	0.0006743	0.0102422	0.0183439	0.0292603	0.0005329	0.0065324	0.0115065	0.0185718	0.0006933	0.0101565	0.0181415	0.0289913	0.0001878	0.0019176	0.0033363	0.0054417
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	0.0044955	0.0372241	0.1056323	0.1473518	0.0052186	0.0445040	0.1262739	0.1759965	0.0066081	0.0799141	0.2373012	0.3238234	0.0021882	0.0192585	0.0555695	0.0770161
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0004916	0.0130653	0.0163806	0.0299375	0.0006261	0.0171342	0.0214821	0.0392424	0.0014119	0.0368419	0.0461906	0.0844444	0.0002358	0.0058149	0.0072904	0.0133410
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0023118	0.0276923	0.0636696	0.0936737	0.0028052	0.0305110	0.0694473	0.1027635	0.0031873	0.0514434	0.1206700	0.1753007	0.0014799	0.0138337	0.0310929	0.0464065
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0000324	0.0007555	0.0009472	0.0017352	0.0000400	0.0009325	0.0011692	0.0021417	0.0002002	0.0049373	0.0061902	0.0113277	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0027320	0.0427924	0.0894386	0.1349630	0.0030095	0.0395666	0.0815435	0.1241196	0.0042544	0.0769783	0.1629480	0.2441807	0.0016599	0.0160823	0.0323790	0.0501212
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0000213	0.0006023	0.0007551	0.0013787	0.0000262	0.0007434	0.0009320	0.0017016	0.0001592	0.0039359	0.0049346	0.0090296	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	0.0046969	0.0759878	0.1605414	0.2412261	0.0049624	0.0654199	0.1359747	0.2063569	0.0062465	0.1187092	0.2531112	0.3780669	0.0026877	0.0250991	0.0507158	0.0785026
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0027856	0.0461486	0.0977515	0.1466857	0.0029715	0.0383781	0.0798812	0.1212307	0.0036741	0.0704634	0.1505183	0.2246558	0.0015829	0.0145824	0.0294713	0.0456366
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0194778	0.0625151	0.2285806	0.3105736	0.0232836	0.0721166	0.2591890	0.3545892	0.0187219	0.1129423	0.4427956	0.5744598	0.0166910	0.0329807	0.1062287	0.1559004
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0117863	0.0358404	0.1346675	0.1822941	0.0140375	0.0405828	0.1493202	0.2039405	0.0121401	0.0631836	0.2538640	0.3291878	0.0101656	0.0185058	0.0598025	0.0884740
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0099863	0.0302091	0.1137180	0.1539134	0.0118696	0.0342923	0.1265547	0.1727167	0.0103515	0.0536589	0.2161296	0.2801400	0.0087894	0.0160359	0.0520398	0.0768651
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0201692	0.0520521	0.2059760	0.2781973	0.0235984	0.0626108	0.2458039	0.3320131	0.0205827	0.0978991	0.4234334	0.5419152	0.0176542	0.0307991	0.1067889	0.1552423
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0139473	0.0356974	0.1436022	0.1932469	0.0171851	0.0448687	0.1786071	0.2406608	0.0147625	0.0677766	0.2994227	0.3819617	0.0132001	0.0225207	0.0787011	0.1144218
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	0.0110460	0.0271499	0.1136274	0.1518233	0.0139441	0.0329512	0.1348408	0.1817361	0.0117407	0.0522777	0.2419287	0.3059470	0.0105123	0.0172275	0.0621236	0.0898634
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0283651	0.0685174	0.2830394	0.3799219	0.0340262	0.0853238	0.3503601	0.4697101	0.0276468	0.1329257	0.6117872	0.7723597	0.0242577	0.0397429	0.1435345	0.2075352
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0595795	0.1329631	0.5398559	0.7323985	0.0711201	0.1786357	0.7353440	0.9850998	0.0580175	0.2809683	1.2975985	1.6365844	0.0511891	0.0845602	0.3073342	0.4430835

Attachment E-1
2020 PM10 Emissions Input

2020 TOTAL PM10 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	0.0029933	0.0421918	0.0979846	0.1431697	0.0030018	0.0316851	0.0716880	0.1063749	0.0045101	0.0638015	0.1476509	0.2159625	0.0011158	0.0105632	0.0237164	0.0353954
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	0.0025152	0.0365066	0.0847816	0.1238035	0.0025385	0.0274157	0.0620283	0.0919825	0.0036941	0.0552045	0.1277556	0.1866541	0.0009654	0.0091398	0.0205207	0.0306260
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	0.0019605	0.0280730	0.0671334	0.0971669	0.0020340	0.0214737	0.0499559	0.0734636	0.0029156	0.0425457	0.1013612	0.1468226	0.0007152	0.0060400	0.0137711	0.0205263
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	0.0069648	0.0904381	0.2261482	0.3235510	0.0073610	0.0724388	0.1762870	0.2560868	0.0106323	0.1448366	0.3612603	0.5167292	0.0025357	0.0205456	0.0489898	0.0720711
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	0.0079341	0.0949360	0.2431483	0.3460184	0.0084221	0.0774192	0.1929136	0.2787549	0.0137221	0.1803508	0.4623960	0.6564689	0.0024749	0.0179557	0.0434813	0.0639119
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	0.0072298	0.0759797	0.2063538	0.2895634	0.0082197	0.0696236	0.1839902	0.2618335	0.0135835	0.1695599	0.4645406	0.6476840	0.0025471	0.0169456	0.0433537	0.0628464
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	0.0055308	0.0405393	0.1234635	0.1695335	0.0067197	0.0432399	0.1289820	0.1789416	0.0111357	0.1094206	0.3426977	0.4632540	0.0021204	0.0113875	0.0329467	0.0464546
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	0.0065954	0.0499008	0.1444663	0.2009625	0.0079245	0.0547128	0.1557414	0.2183787	0.0132603	0.1398688	0.4168194	0.5699485	0.0025639	0.0149671	0.0416569	0.0591879
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	0.0048569	0.0359889	0.1030868	0.1439326	0.0058702	0.0401008	0.1130829	0.1590539	0.0101070	0.1094368	0.3245630	0.4441068	0.0018997	0.0109214	0.0300779	0.0428990
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	0.0059078	0.0437107	0.1169494	0.1665679	0.0072825	0.0530849	0.1413005	0.2016679	0.0124683	0.1529739	0.4272843	0.5927266	0.0023019	0.0137547	0.0356477	0.0517043
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	0.0132262	0.0458651	0.1168115	0.1759029	0.0163636	0.0558596	0.1411340	0.2133572	0.0234846	0.1566121	0.4267806	0.6068773	0.0054599	0.0146827	0.0356056	0.0557482
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	0.0187016	0.0659652	0.1721917	0.2568584	0.0227565	0.0736594	0.1881124	0.2845283	0.0327338	0.2128145	0.5908608	0.8364091	0.0076945	0.0204669	0.0505738	0.0787352
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	0.0071963	0.0230344	0.0619706	0.0922013	0.0090456	0.0267843	0.0708627	0.1066926	0.0128103	0.0772797	0.2240998	0.3141897	0.0029912	0.0075695	0.0193933	0.0299541
WB ML - KOALA & US395	WB ML - KOALA & US395	0.0082695	0.0345570	0.0891603	0.1319867	0.0100312	0.0382531	0.0965199	0.1448042	0.0148433	0.1102656	0.3017688	0.4268777	0.0033119	0.0094435	0.0225352	0.0352907
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	0.0075012	0.0445188	0.1022729	0.1542929	0.0089023	0.0471322	0.1066402	0.1626747	0.0115524	0.1123134	0.2658553	0.3897211	0.0036932	0.0148408	0.0323954	0.0509294
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	0.0058938	0.0333608	0.0818975	0.1211521	0.0066441	0.0296319	0.0704940	0.1067700	0.0087699	0.0684679	0.1721224	0.2493602	0.0021336	0.0079168	0.0183914	0.0284418
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	0.0073145	0.0393699	0.1110401	0.1577244	0.0076531	0.0303910	0.0819059	0.1199500	0.0106785	0.0641498	0.1812195	0.2560477	0.0031663	0.0092576	0.0235658	0.0359896
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	0.0083641	0.0430824	0.1329626	0.1844091	0.0098135	0.0307550	0.0868206	0.1273891	0.0131416	0.0764354	0.2373056	0.3268826	0.0042717	0.0095819	0.0246206	0.0384743
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	0.0026405	0.0191931	0.0401616	0.0619952	0.0025304	0.0157654	0.0324873	0.0507830	0.0034063	0.0374463	0.0806549	0.1215074	0.0015836	0.0054455	0.0102361	0.0172652
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	0.0016258	0.0134000	0.0274096	0.0424354	0.0015713	0.0103592	0.0208113	0.0327418	0.0020494	0.0235474	0.0492045	0.0748012	0.0009586	0.0034633	0.0063746	0.0107965
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	0.0009099	0.0137772	0.0230584	0.0377455	0.0006297	0.0083884	0.0139168	0.0229350	0.0010120	0.0165031	0.0277710	0.0452861	0.0002168	0.0024263	0.0039826	0.0066257
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	0.0003883	0.0060282	0.0097150	0.0161316	0.0002352	0.0033579	0.0053873	0.0089804	0.0004064	0.0067521	0.0109236	0.0180820	0.0000653	0.0009057	0.0014535	0.0024244
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	0.0003570	0.0047087	0.0079036	0.0129692	0.0002208	0.0030381	0.0051225	0.0083814	0.0003829	0.0057664	0.0097665	0.0159158	0.0000619	0.0007965	0.0013399	0.0021983
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	0.0003532	0.0040603	0.0073303	0.0117437	0.0001958	0.0024862	0.0045313	0.0072134	0.0003278	0.0037247	0.0067239	0.0107765	0.0000526	0.0006260	0.0011369	0.0018154
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	0.0002101	0.0038189	0.0063326	0.0103616	0.0003107	0.0034020	0.0054497	0.0091624	0.0007199	0.0123424	0.0203874	0.0334497	0.0000737	0.0009726	0.0015844	0.0026307
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	0.0002180	0.0047439	0.0077157	0.0126776	0.0002302	0.0027325	0.0042837	0.0072464	0.0005337	0.0091653	0.0147350	0.0244340	0.0000621	0.0007905	0.0012480	0.0021006
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	0.0005607	0.0098116	0.0169501	0.0273224	0.0005555	0.0059967	0.0099909	0.0165431	0.0011485	0.0174800	0.0300601	0.0486886	0.0001859	0.0018425	0.0030587	0.0050871
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0011002	0.0311758	0.0390868	0.0713628	0.0006513	0.0178255	0.0223488	0.0408256	0.0006681	0.0182858	0.0229259	0.0418798	0.0002153	0.0051590	0.0064682	0.0118425
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	0.0048535	0.0717875	0.2228041	0.2994450	0.0050153	0.0464235	0.1370244	0.1884633	0.0055368	0.0476985	0.1392499	0.1924852	0.0022685	0.0163138	0.0471308	0.0657130
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0001792	0.0042954	0.0053854	0.0098600	0.0000517	0.0012046	0.0015103	0.0027666	0.0000911	0.0021239	0.0026629	0.0048780	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0028484	0.0521819	0.1199575	0.1749877	0.0027855	0.0343358	0.0767067	0.1138280	0.0025952	0.0340637	0.0765515	0.1132105	0.0014168	0.0118949	0.0255956	0.0389073
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0001312	0.0034241	0.0042930	0.0078484	0.0000337	0.0009603	0.0012039	0.0021979	0.0000588	0.0016931	0.0021227	0.0038747	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0036049	0.0718927	0.1544428	0.2299404	0.0030718	0.0448704	0.0941902	0.1421324	0.0038474	0.0597853	0.1257313	0.1893641	0.0016349	0.0147773	0.0298309	0.0462432
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	0.0050670	0.1008646	0.2214576	0.3273891	0.0047422	0.0657340	0.1410613	0.2115376	0.0061852	0.0950096	0.2046053	0.3058001	0.0024719	0.0213093	0.0437775	0.0675587
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0029890	0.0587056	0.1291503	0.1908449	0.0028305	0.0383427	0.0824197	0.1235929	0.0037230	0.0578054	0.1249025	0.1864309	0.0014894	0.0124565	0.0256190	0.0395649
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0176822	0.0879255	0.3633288	0.4689365	0.0232906	0.0685724	0.2566370	0.3485000	0.0217687	0.0778951	0.3034605	0.4031243	0.0176282	0.0348935	0.1188543	0.1713760
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0106965	0.0516060	0.2143264	0.2766288	0.0141232	0.0390845	0.1462592	0.1994670	0.0133980	0.0439272	0.1709403	0.2282656	0.0104836	0.0201465	0.0687035	0.0993336
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0091100	0.0467646	0.1908506	0.2467253	0.0122594	0.0346127	0.1272213	0.1740934	0.0113311	0.0395209	0.1514054	0.2022574	0.0090685	0.0174947	0.0583472	0.0849105
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0191363	0.0820307	0.3665694	0.4677364	0.0248649	0.0584602	0.2300661	0.3133913	0.0233776	0.0685811	0.2844866	0.3764453	0.0171838	0.0309621	0.1118019	0.1599478
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0134926	0.0536051	0.2460407	0.3131384	0.0177724	0.0418559	0.1702547	0.2298830	0.0161143	0.0460595	0.1977315	0.2599053	0.0128600	0.0228727	0.0855809	0.1213135
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	0.0107187	0.0414910	0.2009998	0.2532095	0.0144025	0.0305521	0.1280029	0.1729575	0.0127854	0.0345848	0.1549781	0.2023483	0.0102479	0.0175093	0.0681597	0.0959170
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0256971	0.0990053	0.4754739	0.6001763	0.0350394	0.0785720	0.3304503	0.4440617	0.0330058	0.0974254	0.4388140	0.5692452	0.0241615	0.0409492	0.1591928	0.2243034
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0543044	0.2109439	1.0267812	1.2920295	0.0739780	0.1657946	0.7052633	0.9450359	0.0695920	0.1898012	0.8497658	1.1091590	0.0512048	0.0875653	0.3459732	0.4847433

Attachment E-2
2020 PM2.5 Emissions Input

2020 TOTAL PM2.5 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	0.0033086	0.0204069	0.0293295	0.0530450	0.0030344	0.0142081	0.0199884	0.0372309	0.0048205	0.0270348	0.0384338	0.0702891	0.0009353	0.0041523	0.0058357	0.0109234
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	0.0026978	0.0176572	0.0253775	0.0457324	0.0024715	0.0122936	0.0172951	0.0320602	0.0038221	0.0233920	0.0332550	0.0604691	0.0007919	0.0035928	0.0050494	0.0094342
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	0.0021333	0.0136152	0.0201911	0.0359396	0.0019726	0.0095623	0.0138716	0.0254065	0.0029997	0.0176383	0.0258703	0.0465083	0.0005793	0.0023645	0.0033946	0.0063384
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	0.0077986	0.0458709	0.0706533	0.1243229	0.0070834	0.0328202	0.0495037	0.0894073	0.0109821	0.0601201	0.0914943	0.1625965	0.0020404	0.0080243	0.0119632	0.0220279
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	0.0098207	0.0570837	0.0894728	0.1563772	0.0087346	0.0386478	0.0592266	0.1066089	0.0138618	0.0723679	0.1117364	0.1979661	0.0019396	0.0073378	0.0111189	0.0203963
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	0.0091978	0.0530173	0.0824500	0.1446651	0.0082487	0.0355451	0.0538480	0.0976418	0.0119147	0.0643795	0.0993787	0.1756729	0.0019705	0.0068116	0.0101094	0.0188916
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	0.0072604	0.0340914	0.0586256	0.0999775	0.0064602	0.0220267	0.0366518	0.0651387	0.0089195	0.0373997	0.0635417	0.1098610	0.0015876	0.0043608	0.0070643	0.0130127
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	0.0082846	0.0387240	0.0681365	0.1151450	0.0073238	0.0244941	0.0416110	0.0734288	0.0100107	0.0406991	0.0705312	0.1212409	0.0017599	0.0045703	0.0075057	0.0138359
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	0.0061951	0.0290196	0.0514762	0.0866909	0.0054252	0.0179594	0.0307068	0.0540915	0.0074100	0.0297799	0.0519454	0.0891353	0.0013042	0.0033270	0.0054894	0.0101205
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	0.0082434	0.0436801	0.0717458	0.1236692	0.0070029	0.0252690	0.0400855	0.0723573	0.0093872	0.0410486	0.0661458	0.1165816	0.0016640	0.0046430	0.0071355	0.0134425
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	0.0151415	0.0442480	0.0716612	0.1310507	0.0150495	0.0260033	0.0400382	0.0810910	0.0188611	0.0419476	0.0660678	0.1268764	0.0038665	0.0048437	0.0071271	0.0158372
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	0.0208983	0.0536049	0.0900657	0.1645689	0.0207682	0.0338031	0.0540441	0.1086154	0.0265993	0.0554868	0.0911252	0.1732112	0.0054709	0.0068022	0.0104697	0.0227428
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	0.0080834	0.0189704	0.0331479	0.0602017	0.0080505	0.0124530	0.0206704	0.0411738	0.0101139	0.0199297	0.0340074	0.0640510	0.0021144	0.0024889	0.0039647	0.0085680
EB ML - KOALA & US395	EB ML - KOALA & US395	0.0091981	0.0290287	0.0480769	0.0863038	0.0090938	0.0173691	0.0272991	0.0537620	0.0115130	0.0280775	0.0452615	0.0848520	0.0023389	0.0030922	0.0045914	0.0100225
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	0.0079414	0.0327613	0.0483705	0.0890732	0.0081003	0.0197843	0.0280664	0.0559511	0.0096582	0.0294887	0.0425119	0.0816588	0.0028670	0.0045754	0.0061788	0.0136212
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	0.0056325	0.0195241	0.0305958	0.0557523	0.0058656	0.0122352	0.0182403	0.0363412	0.0073870	0.0205599	0.0315538	0.0595007	0.0016855	0.0026168	0.0037709	0.0080732
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	0.0064059	0.0165164	0.0283090	0.0512313	0.0067673	0.0122887	0.0202450	0.0393009	0.0086226	0.0232170	0.0397832	0.0716228	0.0025069	0.0031820	0.0049461	0.0106349
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	0.0082281	0.0174634	0.0334039	0.0590954	0.0087899	0.0123576	0.0221679	0.0433154	0.0103991	0.0258496	0.0500809	0.0863295	0.0033378	0.0032939	0.0054334	0.0120651
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	0.0018271	0.0083383	0.0111604	0.0213258	0.0018942	0.0057198	0.0074537	0.0150676	0.0027791	0.0109770	0.0145647	0.0283208	0.0013351	0.0019771	0.0023502	0.0056623
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	0.0011513	0.0053346	0.0068953	0.0133811	0.0011752	0.0037207	0.0046966	0.0095926	0.0017653	0.0074545	0.0095839	0.0188037	0.0008103	0.0012782	0.0014830	0.0035716
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	0.0005715	0.0048815	0.0050465	0.0104996	0.0006013	0.0034165	0.0034518	0.0074697	0.0012991	0.0091716	0.0094253	0.0198960	0.0001957	0.0009061	0.0009045	0.0020064
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	0.0002182	0.0019449	0.0019265	0.0040895	0.0002340	0.0013661	0.0013242	0.0029244	0.0005949	0.0044872	0.0044210	0.0095031	0.0000569	0.0003431	0.0003336	0.0007335
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	0.0001869	0.0015822	0.0016182	0.0033873	0.0002341	0.0011961	0.0011895	0.0026197	0.0005537	0.0041661	0.0042376	0.0089574	0.0000549	0.0003026	0.0003030	0.0006605
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	0.0001247	0.0008645	0.0009077	0.0018970	0.0002063	0.0009149	0.0009320	0.0020533	0.0005487	0.0040599	0.0042727	0.0088813	0.0000486	0.0002488	0.0002568	0.0005542
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	0.0004129	0.0021507	0.0023846	0.0049482	0.0002595	0.0014384	0.0016040	0.0033020	0.0004062	0.0022037	0.0024505	0.0050603	0.0000665	0.0003661	0.0004088	0.0008414
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	0.0003031	0.0018131	0.0019153	0.0040314	0.0001985	0.0012178	0.0012900	0.0027062	0.0003121	0.0020098	0.0021331	0.0044550	0.0000592	0.0003250	0.0003424	0.0007265
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	0.0006224	0.0040564	0.0045860	0.0092647	0.0004914	0.0025828	0.0028766	0.0059509	0.0006398	0.0040214	0.0045354	0.0091966	0.0001731	0.0007573	0.0008341	0.0017644
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	0.0041413	0.0147732	0.0264081	0.0453226	0.0048076	0.0176624	0.0315685	0.0540385	0.0060955	0.0317365	0.0593253	0.0971573	0.0020163	0.0076450	0.0138924	0.0235536
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0004549	0.0051933	0.0040952	0.0097434	0.0005793	0.0068107	0.0053705	0.0127605	0.0013070	0.0146442	0.0115477	0.0274988	0.0002181	0.0023113	0.0018226	0.0043521
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0021318	0.0109988	0.0159174	0.0290480	0.0025861	0.0121165	0.0173618	0.0320644	0.0029415	0.0204384	0.0301675	0.0535474	0.0013640	0.0054926	0.0077732	0.0146298
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0000300	0.0003003	0.0002368	0.0005671	0.0000370	0.0003707	0.0002923	0.0007000	0.0001852	0.0019625	0.0015476	0.0036953	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0025210	0.0170004	0.0223596	0.0418810	0.0027755	0.0157156	0.0203859	0.0388770	0.0039305	0.0305876	0.0407370	0.0752551	0.0015299	0.0063856	0.0080947	0.0160102
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0000198	0.0002394	0.0001888	0.0004479	0.0000243	0.0002955	0.0002330	0.0005527	0.0001473	0.0015645	0.0012336	0.0029454	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	0.0043346	0.0301894	0.0401353	0.0746593	0.0045766	0.0259844	0.0339937	0.0645547	0.0057695	0.0471689	0.0632778	0.1162162	0.0024770	0.0099651	0.0126790	0.0251210
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0025709	0.0183347	0.0244379	0.0453434	0.0027404	0.0152434	0.0199703	0.0379542	0.0033934	0.0279985	0.0376296	0.0690214	0.0014587	0.0057895	0.0073678	0.0146161
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0179274	0.0243617	0.0571452	0.0994342	0.0214293	0.0280618	0.0647972	0.1142884	0.0172401	0.0442877	0.1106989	0.1722267	0.0153587	0.0127200	0.0265572	0.0546358
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0108480	0.0139668	0.0336669	0.0584817	0.0129194	0.0157865	0.0373300	0.0660360	0.0111775	0.0247700	0.0634660	0.0994135	0.0093540	0.0071244	0.0149506	0.0314290
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0091913	0.0117710	0.0284295	0.0493918	0.0109242	0.0133394	0.0316387	0.0559022	0.0095307	0.0210346	0.0540324	0.0845977	0.0080876	0.0061740	0.0130100	0.0272715
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0185619	0.0202175	0.0514940	0.0902734	0.0217175	0.0243026	0.0614510	0.1074710	0.0189489	0.0383200	0.1058584	0.1631273	0.0162443	0.0118391	0.0266972	0.0547806
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0128358	0.0138622	0.0359006	0.0625985	0.0158152	0.0174084	0.0446518	0.0778754	0.0135905	0.0265345	0.0748557	0.1149807	0.0121458	0.0086497	0.0196753	0.0404708
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	0.0101654	0.0105317	0.0284068	0.0491040	0.0128320	0.0127587	0.0337102	0.0593009	0.0108083	0.0204554	0.0604822	0.0917459	0.0096725	0.0066066	0.0155309	0.0318100
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0261032	0.0265466	0.0707598	0.1234097	0.0313127	0.0330420	0.0875900	0.1519448	0.0254520	0.0519783	0.1529468	0.2303771	0.0223199	0.0152410	0.0358836	0.0734445
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0548268	0.0514362	0.1349640	0.2412270	0.0654485	0.0691808	0.1838360	0.3184653	0.0534121	0.1098830	0.3243996	0.4876947	0.0471000	0.0324382	0.0768335	0.1563717

Attachment E-2
2020 PM2.5 Emissions Input

2020 TOTAL PM2.5 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	0.0027615	0.0167609	0.0244961	0.0440185	0.0027672	0.0125821	0.0179220	0.0332713	0.0041604	0.0253441	0.0369127	0.0664172	0.0010284	0.0041942	0.0059291	0.0111517
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	0.0023205	0.0145024	0.0211954	0.0380184	0.0023400	0.0108868	0.0155071	0.0287339	0.0034079	0.0219291	0.0319389	0.0572759	0.0008898	0.0036290	0.0051302	0.0096490
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	0.0018087	0.0111519	0.0167833	0.0297440	0.0018749	0.0085269	0.0124890	0.0228908	0.0026896	0.0169002	0.0253403	0.0449301	0.0006590	0.0023977	0.0034428	0.0064995
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	0.0064238	0.0359230	0.0565370	0.0988838	0.0067845	0.0287619	0.0440718	0.0796181	0.0098061	0.0575285	0.0903151	0.1576496	0.0023362	0.0081553	0.0122474	0.0227389
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	0.0073165	0.0377065	0.0607871	0.1058101	0.0077615	0.0307368	0.0482284	0.0867267	0.0126548	0.0716325	0.1155990	0.1998863	0.0022798	0.0071258	0.0108703	0.0202760
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	0.0066650	0.0301724	0.0515884	0.0884259	0.0075736	0.0276374	0.0459975	0.0812085	0.0125256	0.0673429	0.1161351	0.1960036	0.0023459	0.0067235	0.0108384	0.0199079
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	0.0050957	0.0160914	0.0308659	0.0520530	0.0061894	0.0171584	0.0322455	0.0555933	0.0102651	0.0434505	0.0856744	0.1393900	0.0019526	0.0045169	0.0082367	0.0147061
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	0.0060770	0.0198087	0.0361166	0.0620022	0.0073000	0.0217136	0.0389354	0.0679489	0.0122252	0.0555459	0.1042048	0.1719760	0.0023612	0.0059380	0.0104142	0.0187135
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	0.0044749	0.0142856	0.0257717	0.0445322	0.0054074	0.0159142	0.0282707	0.0495924	0.0093188	0.0434623	0.0811408	0.1339218	0.0017495	0.0043328	0.0075195	0.0136018
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	0.0054432	0.0173506	0.0292373	0.0520312	0.0067093	0.0210701	0.0353251	0.0631045	0.0114986	0.0607601	0.1068211	0.1790798	0.0021201	0.0054574	0.0089119	0.0164893
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	0.0121756	0.0179658	0.0292029	0.0593443	0.0150634	0.0218648	0.0352835	0.0722117	0.0216323	0.0617378	0.1066952	0.1900653	0.0050252	0.0057262	0.0089014	0.0196529
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	0.0172164	0.0258466	0.0430479	0.0861109	0.0209473	0.0288042	0.0470281	0.0967796	0.0301510	0.0838704	0.1477152	0.2617365	0.0070819	0.0079802	0.0126434	0.0277056
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	0.0066242	0.0090100	0.0154927	0.0311269	0.0083260	0.0104612	0.0177157	0.0365029	0.0117986	0.0304399	0.0560249	0.0982634	0.0027530	0.0029482	0.0048483	0.0105495
WB ML - KOALA & US395	WB ML - KOALA & US395	0.0076132	0.0135486	0.0222901	0.0434519	0.0092342	0.0149673	0.0241300	0.0483315	0.0136735	0.0434729	0.0754422	0.1325886	0.0030482	0.0036769	0.0056338	0.0123589
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	0.0069084	0.0175266	0.0255682	0.0500033	0.0081976	0.0185286	0.0266601	0.0533863	0.0106464	0.0443453	0.0664638	0.1214556	0.0034000	0.0058148	0.0080989	0.0173137
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	0.0054277	0.0131262	0.0204744	0.0390283	0.0061171	0.0116247	0.0176235	0.0353653	0.0080793	0.0270012	0.0430306	0.0781111	0.0019641	0.0030990	0.0045978	0.0096610
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	0.0067356	0.0154805	0.0277600	0.0499761	0.0070453	0.0118997	0.0204765	0.0394215	0.0098339	0.0252280	0.0453049	0.0803667	0.0029142	0.0036066	0.0058914	0.0124122
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	0.0077020	0.0169366	0.0332407	0.0578792	0.0090325	0.0119930	0.0217051	0.0427307	0.0121022	0.0300653	0.0593264	0.1014939	0.0039310	0.0037073	0.0061552	0.0137934
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	0.0024329	0.0075784	0.0100404	0.0200517	0.0023308	0.0062157	0.0081218	0.0166683	0.0031411	0.0148284	0.0201637	0.0381332	0.0014577	0.0021286	0.0025590	0.0061454
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	0.0014982	0.0052955	0.0068524	0.0136462	0.0014475	0.0040866	0.0052028	0.0107369	0.0018900	0.0093255	0.0123011	0.0235166	0.0008824	0.0013550	0.0015937	0.0038311
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	0.0008398	0.0054563	0.0057646	0.0120607	0.0005808	0.0033192	0.0034792	0.0073792	0.0009343	0.0065395	0.0069428	0.0144166	0.0001999	0.0009590	0.0009956	0.0021546
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	0.0003583	0.0023879	0.0024287	0.0051750	0.0002169	0.0013295	0.0013468	0.0028933	0.0003751	0.0026757	0.0027309	0.0057817	0.0000602	0.0003586	0.0003634	0.0007822
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	0.0003293	0.0018630	0.0019759	0.0041682	0.0002037	0.0012026	0.0012806	0.0026869	0.0003533	0.0022836	0.0024416	0.0050785	0.0000570	0.0003152	0.0003350	0.0007072
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	0.0003256	0.0016050	0.0018326	0.0037631	0.0001806	0.0009837	0.0011328	0.0022971	0.0003022	0.0014723	0.0016810	0.0034555	0.0000485	0.0002476	0.0002842	0.0005803
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	0.0001940	0.0015143	0.0015831	0.0032915	0.0002864	0.0013443	0.0013624	0.0029931	0.0006647	0.0048922	0.0050969	0.0106538	0.0000680	0.0003850	0.0003961	0.0008491
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	0.0002015	0.0018827	0.0019289	0.0040131	0.0002123	0.0010804	0.0010709	0.0023636	0.0004929	0.0036331	0.0036837	0.0078097	0.0000573	0.0003128	0.0003120	0.0006820
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	0.0005177	0.0038895	0.0042375	0.0086447	0.0005120	0.0023686	0.0024977	0.0053783	0.0010607	0.0069261	0.0075150	0.0155019	0.0001713	0.0007275	0.0007647	0.0016635
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0010183	0.0123920	0.0097717	0.0231820	0.0006027	0.0070854	0.0055872	0.0132753	0.0006182	0.0072684	0.0057315	0.0136181	0.0001992	0.0020507	0.0016170	0.0038669
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	0.0044782	0.0285155	0.0557010	0.0886947	0.0046209	0.0184269	0.0342561	0.0573039	0.0051007	0.0189300	0.0348125	0.0588431	0.0020895	0.0064735	0.0117827	0.0203456
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0001658	0.0017074	0.0013463	0.0032196	0.0000478	0.0004788	0.0003776	0.0009042	0.0000843	0.0008442	0.0006657	0.0015943	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0026301	0.0207347	0.0299894	0.0533541	0.0025687	0.0136376	0.0191767	0.0353829	0.0023937	0.0135307	0.0191379	0.0350623	0.0013055	0.0047218	0.0063989	0.0124262
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0001215	0.0013611	0.0010733	0.0025558	0.0000312	0.0003817	0.0003010	0.0007139	0.0000545	0.0006730	0.0005307	0.0012581	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0033307	0.0285682	0.0386107	0.0705097	0.0028338	0.0178240	0.0235475	0.0442053	0.0035500	0.0237494	0.0314328	0.0587322	0.0015066	0.0058667	0.0074577	0.0148310
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	0.0046798	0.0400796	0.0553644	0.1001237	0.0043743	0.0261110	0.0352653	0.0657506	0.0057067	0.0377419	0.0511513	0.0945999	0.0022777	0.0084591	0.0109444	0.0216812
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0027605	0.0233271	0.0322876	0.0583751	0.0026108	0.0152304	0.0206049	0.0384461	0.0034351	0.0229631	0.0312256	0.0576238	0.0013723	0.0049447	0.0064047	0.0127218
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0162798	0.0344697	0.0908322	0.1415817	0.0214350	0.0266496	0.0641592	0.1122439	0.0200367	0.0303768	0.0758651	0.1262786	0.0162211	0.0134585	0.0297136	0.0593932
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0098481	0.0202375	0.0535816	0.0836672	0.0129979	0.0151873	0.0365648	0.0647500	0.0123318	0.0171262	0.0427351	0.0721930	0.0096468	0.0077702	0.0171759	0.0345929
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0083879	0.0183498	0.0477127	0.0744504	0.0112827	0.0134564	0.0318053	0.0565444	0.0104296	0.0154193	0.0378513	0.0637003	0.0083447	0.0067483	0.0145868	0.0296798
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0176170	0.0321308	0.0916424	0.1413901	0.0228821	0.0226494	0.0575165	0.1030480	0.0215157	0.0266871	0.0711216	0.1193245	0.0158117	0.0119155	0.0279505	0.0556776
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0124205	0.0209683	0.0615102	0.0948990	0.0163549	0.0162050	0.0425637	0.0751236	0.0148306	0.0179120	0.0494329	0.0821755	0.0118330	0.0087983	0.0213952	0.0420265
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	0.0098667	0.0162218	0.0502500	0.0763385	0.0132532	0.0118006	0.0320007	0.0570545	0.0117665	0.0134310	0.0387445	0.0639420	0.0094294	0.0067253	0.0170399	0.0331947
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0236539	0.0386688	0.1188685	0.1811912	0.0322436	0.0303504	0.0826126	0.1452066	0.0303759	0.0378424	0.1097035	0.1779218	0.0222316	0.0157239	0.0397982	0.0777537
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0499871	0.0824025	0.2566953	0.3890849	0.0680751	0.0640413	0.1763158	0.3084322	0.0640444	0.0736160	0.2124414	0.3501018	0.0471151	0.0336350	0.0864933	0.1672434

Attachment E-3
2040 PM10 Emissions Input

2040 TOTAL PM10 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	0.0042442	0.0743496	0.1583606	0.2369544	0.0033707	0.0496004	0.1041440	0.1571152	0.0049996	0.0887750	0.1884985	0.2822731	0.0011748	0.0143944	0.0298319	0.0454011
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	0.0035043	0.0643313	0.1370222	0.2048578	0.0028733	0.0429170	0.0901111	0.1359014	0.0041928	0.0768130	0.1630991	0.2441049	0.0010165	0.0124548	0.0258122	0.0392835
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	0.0027766	0.0507739	0.1102327	0.1637833	0.0023034	0.0341393	0.0730297	0.1094724	0.0032228	0.0575396	0.1243616	0.1851240	0.0007579	0.0087461	0.0183408	0.0278449
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	0.0100730	0.1768858	0.3952657	0.5822244	0.0082865	0.1186458	0.2612697	0.3882020	0.0115535	0.1958211	0.4350518	0.6424264	0.0026848	0.0300228	0.0646749	0.0973825
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	0.0122535	0.2193337	0.5045665	0.7361538	0.0097317	0.1411441	0.3197341	0.4706100	0.0136816	0.2250961	0.5129642	0.7517420	0.0027828	0.0289340	0.0635744	0.0952913
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	0.0124751	0.2120454	0.5147614	0.7392818	0.0099316	0.1331513	0.3176349	0.4607179	0.0137950	0.2095786	0.5027438	0.7261173	0.0028636	0.0271273	0.0624155	0.0924063
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	0.0102499	0.1550057	0.3967774	0.5620330	0.0077676	0.0875878	0.2189924	0.3143479	0.0105586	0.1349487	0.3399318	0.4854391	0.0023843	0.0189587	0.0454779	0.0668209
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	0.0119894	0.1812756	0.4726287	0.6658936	0.0089424	0.0995486	0.2530900	0.3615811	0.0120749	0.1520718	0.3894784	0.5536251	0.0026278	0.0191749	0.0461031	0.0679059
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	0.0091407	0.1449405	0.3768037	0.5308849	0.0066230	0.0732563	0.1851242	0.2650035	0.0089717	0.1125168	0.2865359	0.4080244	0.0019482	0.0140382	0.0334947	0.0494811
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	0.0112559	0.1906846	0.4676779	0.6696183	0.0085683	0.1012928	0.2427242	0.3525853	0.0112493	0.1510576	0.3636124	0.5259193	0.0024449	0.0192089	0.0438014	0.0654552
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	0.0223005	0.1863596	0.4557865	0.6644466	0.0202100	0.1006659	0.2362021	0.3570780	0.0255175	0.1505462	0.3562299	0.5322937	0.0070673	0.0197644	0.0424861	0.0693178
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	0.0299260	0.1986686	0.5266032	0.7551977	0.0271641	0.1119972	0.2821509	0.4213122	0.0358007	0.1855812	0.4784723	0.6998542	0.0097091	0.0258921	0.0605388	0.0961400
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	0.0118895	0.0692900	0.1907558	0.2719354	0.0104174	0.0408002	0.1067537	0.1579713	0.0141557	0.0684299	0.1837124	0.2662980	0.0037791	0.0094629	0.0227965	0.0360384
EB ML - KOALA & US395	EB ML - KOALA & US395	0.0134432	0.1171418	0.3014136	0.4319986	0.0119311	0.0590314	0.1436530	0.2146155	0.0158742	0.0967996	0.2402582	0.3529320	0.0042870	0.0124481	0.0275328	0.0442679
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	0.0111328	0.1255005	0.3028134	0.4394467	0.0114348	0.0734503	0.1702707	0.2551558	0.0139508	0.1056673	0.2465477	0.3661659	0.0058597	0.0198707	0.0421224	0.0678528
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	0.0066209	0.0716811	0.1601140	0.2384160	0.0060490	0.0388391	0.0836115	0.1284996	0.0092572	0.0719386	0.1556341	0.2368299	0.0023645	0.0097368	0.0198729	0.0319742
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	0.0102915	0.0726622	0.2093613	0.2923151	0.0111775	0.0502438	0.1369941	0.1984154	0.0124305	0.0943906	0.2708972	0.3777183	0.0064963	0.0161830	0.0389214	0.0616007
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	0.0155696	0.0936211	0.2912865	0.4004772	0.0162809	0.0626755	0.1823238	0.2612801	0.0183234	0.1224198	0.3816522	0.5223954	0.0093830	0.0207005	0.0521112	0.0821947
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	0.0031439	0.0494217	0.0844900	0.1370555	0.0018757	0.0200049	0.0336009	0.0554815	0.0066294	0.0616909	0.1020465	0.1703668	0.0004776	0.0047010	0.0078547	0.0130333
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	0.0017396	0.0267077	0.0468773	0.0753245	0.0010801	0.0113043	0.0194912	0.0318756	0.0036961	0.0300627	0.0506538	0.0844126	0.0002826	0.0027374	0.0046957	0.0077157
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	0.0017289	0.0308923	0.0534801	0.0861013	0.0008959	0.0133621	0.0226545	0.0369125	0.0028937	0.0325116	0.0540217	0.0894270	0.0002510	0.0033463	0.0056460	0.0092433
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	0.0007517	0.0153207	0.0269147	0.0429871	0.0003720	0.0055378	0.0095385	0.0154483	0.0014252	0.0157029	0.0262319	0.0433601	0.0000789	0.0012334	0.0021353	0.0034476
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	0.0006941	0.0136811	0.0249225	0.0392977	0.0003698	0.0051219	0.0091195	0.0146112	0.0013560	0.0137870	0.0237046	0.0388475	0.0000766	0.0011577	0.0020781	0.0033125
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	0.0007093	0.0140524	0.0273874	0.0421491	0.0003601	0.0044555	0.0084269	0.0132426	0.0015278	0.0129588	0.0233880	0.0378746	0.0000665	0.0009047	0.0017268	0.0026979
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	0.0008923	0.0165002	0.0312039	0.0485964	0.0004677	0.0060519	0.0111788	0.0176984	0.0017985	0.0166922	0.0296375	0.0481282	0.0001032	0.0014306	0.0026630	0.0041968
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	0.0005449	0.0100256	0.0187426	0.0293130	0.0003241	0.0044749	0.0082062	0.0130052	0.0010666	0.0098007	0.0171801	0.0280474	0.0000747	0.0010151	0.0018654	0.0029552
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	0.0009183	0.0159225	0.0296733	0.0465141	0.0005432	0.0078486	0.0143207	0.0227125	0.0016911	0.0157296	0.0273999	0.0448205	0.0001307	0.0018148	0.0033088	0.0052543
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	0.0046696	0.0533675	0.1319049	0.1899420	0.0053598	0.0640354	0.1589268	0.2283220	0.0071371	0.1266633	0.3253929	0.4591933	0.0023453	0.0264778	0.0657487	0.0945718
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0004365	0.0113258	0.0141790	0.0259413	0.0005587	0.0147117	0.0184179	0.0336883	0.0010807	0.0305963	0.0383043	0.0699813	0.0002409	0.0058949	0.0073800	0.0135158
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0020597	0.0277325	0.0639698	0.0937619	0.0024227	0.0303418	0.0693904	0.1021548	0.0030851	0.0549477	0.1295272	0.1875600	0.0012157	0.0134496	0.0303508	0.0450162
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0003897	0.0101113	0.0126586	0.0231597	0.0003658	0.0094896	0.0118803	0.0217357	0.0007858	0.0225918	0.0282832	0.0516608	0.0001555	0.0036999	0.0046320	0.0084875
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0027848	0.0495417	0.0992307	0.1515572	0.0029634	0.0463804	0.0917549	0.1410986	0.0045040	0.0963891	0.1953065	0.2961996	0.0014602	0.0178088	0.0345419	0.0538109
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0003107	0.0080604	0.0100910	0.0184620	0.0002916	0.0075648	0.0094705	0.0173269	0.0006264	0.0180093	0.0225463	0.0411820	0.0001239	0.0029494	0.0036925	0.0067659
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	0.0047298	0.0876139	0.1802440	0.2725877	0.0048618	0.0738888	0.1495794	0.2283300	0.0065555	0.1410686	0.2922872	0.4399113	0.0023651	0.0269072	0.0531535	0.0824259
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0.0007382	0.0200366	0.0250843	0.0458590	0.0006189	0.0165430	0.0207106	0.0378724	0.0012413	0.0349646	0.0437731	0.0799791	0.0002373	0.0058074	0.0072704	0.0133151
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0026954	0.0517865	0.1088284	0.1633103	0.0027233	0.0417389	0.0861270	0.1305893	0.0039192	0.0779463	0.1647834	0.2466490	0.0013407	0.0151688	0.0305005	0.0470100
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0004905	0.0137366	0.0171971	0.0314242	0.0004206	0.0114154	0.0142913	0.0261272	0.0009736	0.0245404	0.0307227	0.0562367	0.0001549	0.0037911	0.0047462	0.0086922
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0180618	0.0724198	0.2414618	0.3319434	0.0213723	0.0816587	0.2661037	0.3691347	0.0158480	0.1203086	0.4260340	0.5621907	0.0167824	0.0376120	0.1110632	0.1654576
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0109716	0.0428740	0.1440762	0.1979217	0.0131331	0.0463555	0.1511888	0.2106773	0.0100267	0.0698753	0.2484630	0.3283650	0.0098191	0.0205931	0.0600516	0.0904638
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0095036	0.0374093	0.1251112	0.1720241	0.0113714	0.0403778	0.1310547	0.1828039	0.0086937	0.0610915	0.2161275	0.2859127	0.0084910	0.0178650	0.0518330	0.0781891
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0175738	0.0584476	0.1952241	0.2712454	0.0209296	0.0668572	0.2197237	0.3075105	0.0170443	0.1064002	0.3824815	0.5059261	0.0148561	0.0303853	0.0897362	0.1349776
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0119650	0.0389867	0.1351190	0.1860707	0.0149637	0.0469190	0.1588657	0.2207484	0.0120716	0.0750492	0.2793613	0.3664821	0.0107048	0.0215754	0.0652999	0.0975801
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	0.0096412	0.0314352	0.1102564	0.1513328	0.0123387	0.0372415	0.1272189	0.1767991	0.0104326	0.0599175	0.2252544	0.2956046	0.0088483	0.0169734	0.0515065	0.0773281
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0303701	0.0979559	0.3580645	0.4863905	0.0353047	0.1139182	0.4103700	0.5595929	0.0268693	0.1728879	0.6810628	0.8808201	0.0255438	0.0496565	0.1576947	0.2328949
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0626829	0.1663252	0.6225899	0.8515980	0.0699233	0.2115229	0.7982031	1.0796493	0.0522411	0.3377405	1.4214726	1.8114542	0.0520010	0.0977728	0.3290517	0.4788254

Attachment E-3
2040 PM10 Emissions Input

2040 TOTAL PM10 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	0.0030667	0.0547733	0.1191690	0.1770090	0.0031151	0.0436594	0.0929730	0.1397475	0.0049180	0.0901201	0.1951246	0.2901627	0.0011543	0.0138715	0.0292430	0.0442688
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	0.0026535	0.0473928	0.1031115	0.1531578	0.0026954	0.0377765	0.0804453	0.1209172	0.0042553	0.0779768	0.1688324	0.2510646	0.0009987	0.0120024	0.0253026	0.0383038
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	0.0020764	0.0362713	0.0801754	0.1185231	0.0021406	0.0295944	0.0639693	0.0957043	0.0033668	0.0615928	0.1355540	0.2005136	0.0007444	0.0083846	0.0178171	0.0269461
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	0.0071612	0.1173229	0.2677099	0.3921939	0.0077081	0.1009181	0.2254019	0.3340281	0.0123308	0.2163562	0.4925367	0.7212238	0.0026494	0.0289429	0.0635100	0.0951022
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	0.0079760	0.1237877	0.2917278	0.4234915	0.0089738	0.1161015	0.2684954	0.3935707	0.0151034	0.2664431	0.6295785	0.9111249	0.0027207	0.0270967	0.0609848	0.0908022
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	0.0073729	0.0995554	0.2476079	0.3545363	0.0091111	0.1084895	0.2656431	0.3832438	0.0153574	0.2610991	0.6557070	0.9321635	0.0028611	0.0262188	0.0623214	0.0914013
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	0.0052551	0.0522384	0.1373734	0.1948668	0.0069436	0.0667877	0.1742634	0.2479947	0.0125139	0.1928152	0.5225025	0.7278316	0.0023844	0.0184138	0.0467650	0.0675632
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	0.0062864	0.0638298	0.1622175	0.2323336	0.0083667	0.0831527	0.2100755	0.3015949	0.0147275	0.2404943	0.6296860	0.8849079	0.0028952	0.0236843	0.0585514	0.0851309
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	0.0046204	0.0460874	0.1151015	0.1658093	0.0063099	0.0633532	0.1579200	0.2275831	0.0112856	0.1909702	0.4936061	0.6958620	0.0021439	0.0173516	0.0421827	0.0616782
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	0.0055543	0.0550236	0.1322633	0.1928412	0.0079925	0.0854334	0.2069893	0.3004153	0.0137505	0.2401480	0.5994519	0.8533504	0.0026173	0.0219167	0.0516318	0.0761658
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	0.0143627	0.0543134	0.1259244	0.1946005	0.0199696	0.0854376	0.2013764	0.3067836	0.0265027	0.2361248	0.5871201	0.8497476	0.0073426	0.0223404	0.0501195	0.0798026
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	0.0195415	0.0706002	0.1769663	0.2671079	0.0269135	0.0954754	0.2384801	0.3608690	0.0374199	0.2726400	0.7319425	1.0420024	0.0100150	0.0281811	0.0677061	0.1059022
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	0.0076522	0.0242008	0.0635798	0.0954327	0.0102264	0.0327014	0.0856244	0.1285522	0.0145318	0.0944955	0.2695757	0.3786030	0.0038985	0.0103179	0.0261456	0.0403620
WB ML - KOALA & US395	WB ML - KOALA & US395	0.0086574	0.0384322	0.0940809	0.1411705	0.0117653	0.0490206	0.1186231	0.1794091	0.0164686	0.1474291	0.3846377	0.5485354	0.0044273	0.0136840	0.0313752	0.0494865
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	0.0090983	0.0549757	0.1263782	0.1904522	0.0114357	0.0677663	0.1548875	0.2340895	0.0136646	0.1510497	0.3591487	0.5238630	0.0061840	0.0242412	0.0526699	0.0830952
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	0.0055430	0.0391191	0.0842951	0.1289572	0.0062161	0.0371020	0.0786336	0.1219518	0.0081808	0.0861748	0.1896093	0.2839650	0.0023494	0.0110959	0.0229219	0.0363672
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	0.0101684	0.0614768	0.1768184	0.2484636	0.0114295	0.0488804	0.1336277	0.1939377	0.0122532	0.0998333	0.2916782	0.4037648	0.0065865	0.0170867	0.0421853	0.0658585
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	0.0133998	0.0741691	0.2284201	0.3159890	0.0165207	0.0617942	0.1776695	0.2559844	0.0185315	0.1368258	0.4278277	0.5831851	0.0093751	0.0207795	0.0521398	0.0822945
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	0.0029091	0.0334393	0.0522100	0.0885583	0.0024758	0.0242057	0.0373988	0.0640803	0.0055421	0.0895347	0.1415610	0.2366378	0.0004500	0.0045555	0.0070678	0.0120732
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	0.0016509	0.0182739	0.0288104	0.0487351	0.0014534	0.0139178	0.0217310	0.0371022	0.0029224	0.0458491	0.0733318	0.1221033	0.0002732	0.0027583	0.0043304	0.0073618
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	0.0011166	0.0193235	0.0298086	0.0502488	0.0010583	0.0144461	0.0218990	0.0374033	0.0026966	0.0393735	0.0613720	0.1034421	0.0002416	0.0033660	0.0051286	0.0087363
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	0.0004791	0.0080489	0.0121763	0.0207043	0.0004815	0.0061864	0.0091900	0.0158580	0.0012116	0.0209004	0.0320820	0.0541940	0.0000791	0.0013084	0.0019815	0.0033689
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	0.0004382	0.0063968	0.0097825	0.0166176	0.0004773	0.0054826	0.0082312	0.0141911	0.0011480	0.0210661	0.0329658	0.0551799	0.0000749	0.0011438	0.0017591	0.0029777
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	0.0003873	0.0042329	0.0065846	0.0112048	0.0004891	0.0048508	0.0074744	0.0128143	0.0009559	0.0191861	0.0312182	0.0513602	0.0000666	0.0009498	0.0015122	0.0025286
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	0.0004837	0.0067704	0.0106085	0.0178626	0.0006098	0.0064731	0.0099076	0.0169904	0.0011410	0.0232853	0.0374202	0.0618464	0.0000967	0.0014946	0.0023625	0.0039538
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	0.0003701	0.0063690	0.0100411	0.0167802	0.0003994	0.0045407	0.0069440	0.0118842	0.0006765	0.0132011	0.0210744	0.0349521	0.0000702	0.0010640	0.0016677	0.0028019
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	0.0006811	0.0110575	0.0173355	0.0290741	0.0006577	0.0078717	0.0120383	0.0205677	0.0011873	0.0209665	0.0333987	0.0555525	0.0001233	0.0019058	0.0029816	0.0050106
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0008839	0.0251450	0.0629594	0.0889884	0.0005637	0.0150693	0.0377313	0.0533643	0.0005735	0.0153301	0.0383844	0.0542880	0.0001821	0.0043326	0.0108482	0.0153629
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	0.0057320	0.1105302	0.2928790	0.4091413	0.0054237	0.0687354	0.1756773	0.2498364	0.0059650	0.0697739	0.1760307	0.2517696	0.0021894	0.0218113	0.0545000	0.0785007
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0007014	0.0199528	0.0499588	0.0706131	0.0004125	0.0108627	0.0271985	0.0384737	0.0005360	0.0145479	0.0364258	0.0515097	0.0001165	0.0027721	0.0069408	0.0098294
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0028338	0.0538349	0.1265152	0.1831839	0.0025816	0.0356462	0.0815366	0.1197643	0.0023477	0.0330524	0.0757679	0.1111680	0.0011562	0.0118761	0.0262857	0.0393180
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0005591	0.0159056	0.0398253	0.0562901	0.0003289	0.0086593	0.0216816	0.0306698	0.0004273	0.0115971	0.0290373	0.0410616	0.0000929	0.0022098	0.0055330	0.0078356
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0040180	0.0889502	0.1799490	0.2729172	0.0031567	0.0534028	0.1060738	0.1626333	0.0037220	0.0712746	0.1424969	0.2174935	0.0014354	0.0169594	0.0326864	0.0510813
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0.0010127	0.0289602	0.0725120	0.1024848	0.0006798	0.0181724	0.0455009	0.0643531	0.0009696	0.0275837	0.0690655	0.0976188	0.0002238	0.0053266	0.0133369	0.0188874
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	0.0056466	0.1189950	0.2490795	0.3737211	0.0048842	0.0778303	0.1599682	0.2426827	0.0060480	0.1130615	0.2343833	0.3534928	0.0021423	0.0230558	0.0456633	0.0708614
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0007127	0.0201769	0.0505200	0.0714096	0.0004441	0.0120551	0.0301843	0.0426835	0.0006787	0.0193114	0.0483527	0.0683427	0.0001312	0.0031216	0.0078159	0.0110686
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0031173	0.0657003	0.1399914	0.2088090	0.0026872	0.0439682	0.0919452	0.1386006	0.0034088	0.0648945	0.1370070	0.2053103	0.0012344	0.0134572	0.0271364	0.0418281
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0166663	0.1020670	0.3840469	0.5027802	0.0229901	0.0767382	0.2638215	0.3635498	0.0201515	0.0875698	0.3152370	0.4229583	0.0173308	0.0380943	0.1204335	0.1758586
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0104499	0.0596528	0.2215247	0.2916274	0.0139585	0.0448372	0.1523703	0.2111660	0.0124997	0.0512491	0.1823253	0.2460740	0.0100133	0.0223766	0.0700883	0.1024782
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0089600	0.0542954	0.1983325	0.2615879	0.0117660	0.0394693	0.1316203	0.1828556	0.0106320	0.0463395	0.1623789	0.2193504	0.0086603	0.0194439	0.0596359	0.0877401
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0160844	0.0864710	0.3279310	0.4304864	0.0213679	0.0602859	0.2051303	0.2867842	0.0191228	0.0702381	0.2519594	0.3413203	0.0144127	0.0310858	0.0985423	0.1440408
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0117379	0.0579677	0.2284637	0.2981693	0.0154123	0.0421415	0.1485126	0.2060664	0.0134419	0.0491601	0.1844726	0.2470747	0.0107432	0.0225406	0.0744881	0.1077719
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	0.0094131	0.0461298	0.1874605	0.2430034	0.0122882	0.0321735	0.1154630	0.1599246	0.0110633	0.0375225	0.1437545	0.1923403	0.0086364	0.0177524	0.0600732	0.0864620
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0272613	0.1244819	0.5317667	0.6835099	0.0368849	0.0993939	0.3800452	0.5163240	0.0345603	0.1171644	0.4693113	0.6210360	0.0256323	0.0514775	0.1831823	0.2602921
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0521570	0.2514284	1.1433130	1.4468984	0.0736410	0.1908961	0.7615567	1.0260938	0.0706244	0.2137170	0.8841676	1.1685090	0.0521614	0.1008483	0.3769895	0.5299992

Attachment E-4
2040 PM2.5 Emissions Input

2040 TOTAL PM2.5 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
EB ML - SR14 & 10TH	EB ML - SR14 & 10TH	0.0039219	0.0295474	0.0395901	0.0730595	0.0031124	0.0197092	0.0260360	0.0488576	0.0046192	0.0352792	0.0471246	0.0870231	0.0010842	0.0057191	0.0074580	0.0142613
EB ML - 10TH & 20TH	EB ML - 10TH & 20TH	0.0032382	0.0255660	0.0342555	0.0630598	0.0026531	0.0170535	0.0225278	0.0422343	0.0038741	0.0305255	0.0407748	0.0751744	0.0009381	0.0049485	0.0064531	0.0123396
EB ML - 20TH & 30TH	EB ML - 20TH & 30TH	0.0025658	0.0201781	0.0275582	0.0503021	0.0021268	0.0135655	0.0182574	0.0339497	0.0029775	0.0228659	0.0310904	0.0569338	0.0006993	0.0034747	0.0045852	0.0087592
EB ML - 30TH & 50TH	EB ML - 30TH & 50TH	0.0093067	0.0702948	0.0988164	0.1784179	0.0076503	0.0471438	0.0653174	0.1201116	0.0106715	0.0778156	0.1087630	0.1972500	0.0024768	0.0119272	0.0161687	0.0305727
EB ML - 50TH & 90TH	EB ML - 50TH & 90TH	0.0113211	0.0871628	0.1261416	0.2246255	0.0089840	0.0560825	0.0799335	0.1450001	0.0126346	0.0894450	0.1282411	0.2303207	0.0025665	0.0114936	0.0158936	0.0299537
EB ML - 90TH & LONGVIEW	EB ML - 90TH & LONGVIEW	0.0115232	0.0842637	0.1286903	0.2244772	0.0091664	0.0529040	0.0794087	0.1414791	0.0127352	0.0832744	0.1256859	0.2216956	0.0026403	0.0107748	0.0156039	0.0290190
EB ML - LONGVIEW & 170TH	EB ML - LONGVIEW & 170TH	0.0094668	0.0615961	0.0991943	0.1702573	0.0071675	0.0347982	0.0547481	0.0967138	0.0097452	0.0536181	0.0849830	0.1483462	0.0021978	0.0075295	0.0113695	0.0210967
EB ML - 170TH & LARGO VISTA	EB ML - 170TH & LARGO VISTA	0.0110734	0.0720352	0.1181572	0.2012657	0.0082511	0.0395496	0.0632725	0.1110732	0.0111440	0.0604205	0.0973696	0.1689340	0.0024216	0.0076143	0.0115258	0.0215617
EB ML - LARGO VISTA & 240TH	EB ML - LARGO VISTA & 240TH	0.0084433	0.0575976	0.0942009	0.1602418	0.0061108	0.0291037	0.0462811	0.0814956	0.0082798	0.0447045	0.0716340	0.1246183	0.0017953	0.0055744	0.0083737	0.0157434
EB ML - 240TH & OASIS	EB ML - 240TH & OASIS	0.0103992	0.0757781	0.1169195	0.2030968	0.0079080	0.0402453	0.0606810	0.1088343	0.0103839	0.0600201	0.0909031	0.1613071	0.0022536	0.0076287	0.0109503	0.0208326
EB ML - OASIS & SHEEP CREEK	EB ML - OASIS & SHEEP CREEK	0.0205590	0.0735496	0.1139466	0.2080552	0.0186171	0.0395643	0.0590505	0.1172319	0.0235092	0.0592179	0.0890575	0.1717846	0.0065060	0.0077037	0.0106215	0.0248312
EB ML - SHEEP CREEK & CAUGHLIN	EB ML - SHEEP CREEK & CAUGHLIN	0.0275786	0.0782844	0.1316508	0.2375137	0.0250164	0.0439113	0.0705377	0.1394655	0.0329785	0.0729259	0.1196181	0.2255225	0.0089374	0.0100814	0.0151347	0.0341535
EB ML - CAUGHLIN & KOALA	EB ML - CAUGHLIN & KOALA	0.0109551	0.0272790	0.0476890	0.0859231	0.0095931	0.0159831	0.0266884	0.0522646	0.0130388	0.0268735	0.0459281	0.0858404	0.0034785	0.0036789	0.0056991	0.0128565
EB ML - KOALA & US395	EB ML - KOALA & US395	0.0123932	0.0462189	0.0753534	0.1339655	0.0109888	0.0231623	0.0359133	0.0700643	0.0146242	0.0380549	0.0600645	0.1127437	0.0039462	0.0048411	0.0068832	0.0156705
EB ML - US395 & W.PHANTOM	EB ML - US395 & W.PHANTOM	0.0102697	0.0495725	0.0757033	0.1355456	0.0105354	0.0288955	0.0425677	0.0819986	0.0128561	0.0415966	0.0616369	0.1160897	0.0053946	0.0077507	0.0105306	0.0236759
EB ML - W.PHANTOM & E.PHANTOM	EB ML - W.PHANTOM & E.PHANTOM	0.0061072	0.0283320	0.0400285	0.0744677	0.0055738	0.0152936	0.0209029	0.0417703	0.0085315	0.0283411	0.0389085	0.0757812	0.0021774	0.0038141	0.0049682	0.0109597
EB ML - E.PHANTOM & NATIONAL TRAIL	EB ML - E.PHANTOM & NATIONAL TRAIL	0.0094829	0.0285928	0.0523403	0.0904160	0.0102927	0.0196654	0.0342485	0.0642066	0.0114546	0.0371285	0.0677243	0.1163073	0.0059789	0.0062632	0.0097303	0.0219725
EB ML -NATIONAL TRAIL & I-15	EB ML - NATIONAL TRAIL & I-15	0.0143428	0.0367857	0.0728216	0.1239501	0.0149895	0.0244691	0.0455809	0.0850395	0.0168813	0.0481108	0.0954130	0.1604052	0.0086349	0.0079811	0.0130278	0.0296437
EB ML - I-15 & CHOCO	EB ML - I-15 & CHOCO	0.0029057	0.0196002	0.0211225	0.0436283	0.0017311	0.0079189	0.0084002	0.0180503	0.0061141	0.0243815	0.0255116	0.0560072	0.0004406	0.0018599	0.0019637	0.0042642
EB ML - CHOCO & DALE EVANS	EB ML - CHOCO & DALE EVANS	0.0016076	0.0105908	0.0117193	0.0239177	0.0009967	0.0044743	0.0048728	0.0103438	0.0034078	0.0118704	0.0126634	0.0279416	0.0002607	0.0010829	0.0011739	0.0025175
EB EXPWY- DALE EVANS & WAALEW	EB EXPWY- DALE EVANS & WAALEW	0.0016005	0.0122554	0.0133700	0.0272260	0.0008273	0.0052892	0.0056636	0.0117802	0.0026723	0.0128424	0.0135054	0.0290201	0.0002317	0.0013239	0.0014115	0.0029671
EB EXPWY - WAALEW & CAHUILLA	EB EXPWY - WAALEW & CAHUILLA	0.0006957	0.0060783	0.0067287	0.0135027	0.0003435	0.0021924	0.0023846	0.0049206	0.0013150	0.0061972	0.0065580	0.0140702	0.0000729	0.0004886	0.0005338	0.0010953
EB EXPWY - CAHUILLA & JOSHUA	EB EXPWY - CAHUILLA & JOSHUA	0.0006422	0.0054266	0.0062306	0.0122995	0.0003414	0.0020267	0.0022799	0.0046480	0.0012507	0.0054359	0.0059261	0.0126127	0.0000708	0.0004585	0.0005195	0.0010488
EB EXPWY - JOSHUA & STANDING ROCK	EB EXPWY - JOSHUA & STANDING ROCK	0.0006561	0.0055734	0.0068469	0.0130764	0.0003323	0.0017616	0.0021067	0.0042006	0.0014083	0.0050991	0.0058470	0.0123544	0.0000614	0.0003580	0.0004317	0.0008511
EB EXPWY - STANDING ROCSK & SR18	EB EXPWY - STANDING ROCSK & SR18	0.0008251	0.0065417	0.0078010	0.0151678	0.0004317	0.0023934	0.0027947	0.0056198	0.0016584	0.0065748	0.0074094	0.0156425	0.0000953	0.0005662	0.0006658	0.0013272
EB EXPWY - SR18 & NASQUILLY	EB EXPWY - SR18 & NASQUILLY	0.0005039	0.0039748	0.0046856	0.0091643	0.0002992	0.0017705	0.0020515	0.0041213	0.0009834	0.0038599	0.0042950	0.0091383	0.0000690	0.0004017	0.0004663	0.0009370
EB EXPWY - NASQUILLY & BEAR VALLEY	EB EXPWY - NASQUILLY & BEAR VALLEY	0.0008500	0.0063152	0.0074183	0.0145835	0.0005016	0.0031060	0.0035802	0.0071878	0.0015600	0.0061952	0.0068500	0.0146051	0.0001206	0.0007181	0.0008272	0.0016660
NB SR14 ML LOV- N. OR S AVENUE	S AVENUE TO PALMDALE AVE	0.0043070	0.0212002	0.0329762	0.0584834	0.0049441	0.0254389	0.0397317	0.0701148	0.0065935	0.0503342	0.0813482	0.1382759	0.0021635	0.0105187	0.0164372	0.0291194
NB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0004046	0.0045023	0.0035448	0.0084516	0.0005178	0.0058483	0.0046045	0.0109706	0.0010018	0.0121629	0.0095761	0.0227407	0.0002232	0.0023434	0.0018450	0.0044116
NB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0019015	0.0110193	0.0159924	0.0289132	0.0022358	0.0120552	0.0173476	0.0316386	0.0028513	0.0218374	0.0323818	0.0570706	0.0011215	0.0053431	0.0075877	0.0140523
NB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0003612	0.0040195	0.0031647	0.0075454	0.0003390	0.0037724	0.0029701	0.0070814	0.0007284	0.0089808	0.0070708	0.0167800	0.0001441	0.0014708	0.0011580	0.0027729
NB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0025736	0.0196887	0.0248077	0.0470699	0.0027367	0.0184303	0.0229387	0.0441057	0.0041673	0.0383107	0.0488266	0.0913047	0.0013474	0.0070755	0.0086355	0.0170583
NB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0002879	0.0032042	0.0025227	0.0060149	0.0002702	0.0030072	0.0023676	0.0056451	0.0005806	0.0071592	0.0056366	0.0133764	0.0001149	0.0011725	0.0009231	0.0022105
NB SR14 ML LOV- N. OF 10TH ST	10TH ST TO N AVE	0.0043717	0.0348200	0.0450610	0.0842526	0.0044896	0.0293609	0.0373949	0.0712454	0.0060632	0.0560679	0.0730718	0.1352029	0.0021821	0.0106897	0.0132884	0.0261601
NB SR14 ML HOV- N. OF 10TH ST	10th ST TO N AVE	0.0006842	0.0079651	0.0062711	0.0149203	0.0005736	0.0065763	0.0051776	0.0123275	0.0011506	0.0138994	0.0109433	0.0259933	0.0002199	0.0023086	0.0018176	0.0043461
NB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0024914	0.0205812	0.0272071	0.0502797	0.0025145	0.0165853	0.0215318	0.0406316	0.0036256	0.0309795	0.0411959	0.0758009	0.0012367	0.0060260	0.0076251	0.0148879
NB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0004546	0.0054607	0.0042993	0.0102145	0.0003898	0.0045379	0.0035728	0.0085005	0.0009026	0.0097555	0.0076807	0.0183388	0.0001436	0.0015071	0.0011866	0.0028372
NB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0166295	0.0282830	0.0603655	0.1052780	0.0196757	0.0318243	0.0665259	0.1180258	0.0146048	0.0472563	0.1065085	0.1683696	0.0154451	0.0145332	0.0277658	0.0577441
NB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0101018	0.0167532	0.0360190	0.0628740	0.0120902	0.0180639	0.0377972	0.0679512	0.0092379	0.0274521	0.0621157	0.0988057	0.0090364	0.0079476	0.0150129	0.0319969
NB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0087503	0.0146199	0.0312778	0.0546480	0.0104685	0.0157365	0.0327637	0.0589687	0.0080099	0.0240041	0.0540319	0.0860459	0.0078142	0.0068955	0.0129582	0.0276679
NB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0161790	0.0228013	0.0488060	0.0877864	0.0192672	0.0260436	0.0549309	0.1002417	0.0157014	0.0417988	0.0956204	0.1531206	0.0136719	0.0117278	0.0224340	0.0478337
NB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0110151	0.0152026	0.0337797	0.0599975	0.0137745	0.0182573	0.0397164	0.0717481	0.0111201	0.0294630	0.0698403	0.1104234	0.0098512	0.0083158	0.0163250	0.0344919
NB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HSC SR138	0.0088758	0.0122581	0.0275641	0.0486980	0.0113580	0.0144877	0.0318047	0.0576504	0.0096096	0.0235182	0.0563136	0.0894414	0.0081426	0.0065372	0.0128766	0.0275564
NB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0279566	0.0381172	0.0895161	0.1555899	0.0324976	0.0442709	0.1025925	0.1793610	0.0247518	0.0677427	0.1702657	0.2627603	0.0235060	0.0190957	0.0394237	0.0820254
NB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0576924	0.0644390	0.1556475	0.2777789	0.0643586	0.0820068	0.1995508	0.3459161	0.0481279	0.1322414	0.3553682	0.5357375	0.0478514	0.0375531	0.0822629	0.1676674

Attachment E-4
2040 PM2.5 Emissions Input

2040 TOTAL PM2.5 EMISSIONS (GRAMS PER SECOND)		AM (6AM - 9AM)				MID-DAY (9AM - 3PM)				PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
WB ML - SR14 & 10TH	WB ML - SR14 & 10TH	0.0028342	0.0217679	0.0297923	0.0543943	0.0028757	0.0173477	0.0232432	0.0434666	0.0045442	0.0358138	0.0487812	0.0891391	0.0010652	0.0055112	0.0073107	0.0138871
WB ML - 10TH & 20TH	WB ML - 10TH & 20TH	0.0024523	0.0188348	0.0257779	0.0470649	0.0024882	0.0150101	0.0201113	0.0376097	0.0039319	0.0309880	0.0422081	0.0771280	0.0009217	0.0047686	0.0063257	0.0120159
WB ML - 20TH & 30TH	WB ML - 20TH & 30TH	0.0019189	0.0144148	0.0200439	0.0363775	0.0019759	0.0117589	0.0159923	0.0297272	0.0031108	0.0244770	0.0338885	0.0614763	0.0006867	0.0033310	0.0044543	0.0084720
WB ML - 30TH & 50TH	WB ML - 30TH & 50TH	0.0066160	0.0466240	0.0669275	0.1201675	0.0071143	0.0400970	0.0563505	0.1035618	0.0113913	0.0859780	0.1231342	0.2205035	0.0024439	0.0114978	0.0158775	0.0298193
WB ML - 50TH & 90TH	WB ML - 50TH & 90TH	0.0073661	0.0491901	0.0729319	0.1294881	0.0082811	0.0461279	0.0671239	0.1215329	0.0139533	0.1058802	0.1573946	0.2772282	0.0025088	0.0107631	0.0152462	0.0285181
WB ML - 90TH & LONGVIEW	WB ML - 90TH & LONGVIEW	0.0068059	0.0395569	0.0619020	0.1082647	0.0084058	0.0431007	0.0664108	0.1179173	0.0141839	0.1037529	0.1639268	0.2818636	0.0026377	0.0104135	0.0155804	0.0286316
WB ML - LONGVIW & 170TH	WB ML - LONGVIW & 170TH	0.0048472	0.0207519	0.0343433	0.0599425	0.0064036	0.0265298	0.0435659	0.0764992	0.0115550	0.0766171	0.1306256	0.2187977	0.0021977	0.0073128	0.0116912	0.0212017
WB ML - 170TH & LARGO VISTA	WB ML - 170TH & LARGO VISTA	0.0057990	0.0253573	0.0405544	0.0717107	0.0077169	0.0330319	0.0525189	0.0932676	0.0136009	0.0955653	0.1574215	0.2665877	0.0026690	0.0094067	0.0146378	0.0267135
WB ML - LARGO VISTA & 240TH	WB ML - LARGO VISTA & 240TH	0.0042619	0.0183085	0.0287754	0.0513458	0.0058201	0.0251670	0.0394800	0.0704670	0.0104238	0.0758873	0.1234015	0.2097126	0.0019763	0.0068914	0.0105457	0.0194134
WB ML - 240TH & OASIS	WB ML - 240TH & OASIS	0.0051232	0.0218582	0.0330658	0.0600472	0.0073739	0.0339410	0.0517473	0.0930622	0.0127022	0.0954315	0.1498630	0.2579967	0.0024129	0.0087049	0.0129079	0.0240258
WB ML - OASIS & SHEEP CREEK	WB ML - OASIS & SHEEP CREEK	0.0132259	0.0212737	0.0314811	0.0659807	0.0183918	0.0335177	0.0503441	0.1022536	0.0244323	0.0931261	0.1467800	0.2643384	0.0067600	0.0087234	0.0125299	0.0280133
WB ML - SHEEP CREEK & CAUGHLIN	WB ML - SHEEP CREEK & CAUGHLIN	0.0179937	0.0276308	0.0442416	0.0898661	0.0247813	0.0373539	0.0596200	0.1217552	0.0344854	0.1074211	0.1829856	0.3248921	0.0092195	0.0109859	0.0169265	0.0371320
WB ML - CAUGHLIN & KOALA	WB ML - CAUGHLIN & KOALA	0.0070451	0.0094523	0.0158950	0.0323923	0.0094150	0.0127684	0.0214061	0.0435896	0.0133899	0.0372021	0.0673939	0.1179859	0.0035886	0.0040167	0.0065364	0.0141417
WB ML - KOALA & US395	WB ML - KOALA & US395	0.0079727	0.0150601	0.0235202	0.0465530	0.0108339	0.0191882	0.0296558	0.0596778	0.0151820	0.0581360	0.0961594	0.1694775	0.0040756	0.0053297	0.0078438	0.0172491
WB ML - US395 & W.PHANTOM	WB ML - US395 & W.PHANTOM	0.0083822	0.0216235	0.0315945	0.0616003	0.0105350	0.0266393	0.0387219	0.0758962	0.0126078	0.0596145	0.0897872	0.1620095	0.0056942	0.0094829	0.0131675	0.0283446
WB ML - W. PHANTOM & E.PHANTOM	WB ML - W. PHANTOM & E.PHANTOM	0.0051083	0.0154155	0.0210738	0.0415976	0.0057270	0.0145964	0.0196584	0.0399818	0.0075449	0.0340309	0.0474023	0.0889781	0.0021638	0.0043543	0.0057305	0.0122486
WB ML - E.PHANTOM & NATIONAL TRAIL	WB ML - E.PHANTOM & NATIONAL TRAIL	0.0093673	0.0241574	0.0442046	0.0777293	0.0105241	0.0191141	0.0334069	0.0630451	0.0112932	0.0392906	0.0729196	0.1235033	0.0060621	0.0066207	0.0105463	0.0232292
WB ML - NATIONAL TRAIL & I-15	WB ML - NATIONAL TRAIL & I-15	0.0123429	0.0291282	0.0571050	0.0985761	0.0152097	0.0241106	0.0444174	0.0837377	0.0170759	0.0538155	0.1069569	0.1778484	0.0086277	0.0080128	0.0130349	0.0296754
WB ML - I-15 & CHOCO	WB ML - I-15 & CHOCO	0.0026853	0.0132411	0.0130525	0.0289789	0.0022840	0.0095743	0.0093497	0.0212080	0.0051212	0.0355005	0.0353903	0.0760120	0.0004152	0.0018026	0.0017669	0.0039848
WB ML - CHOCO & DALE EVANS	WB ML - CHOCO & DALE EVANS	0.0015237	0.0072342	0.0072026	0.0159605	0.0013408	0.0055042	0.0054327	0.0122777	0.0027002	0.0181783	0.0183330	0.0392115	0.0002520	0.0010915	0.0010826	0.0024261
WB EXPWY- DALE EVANS & WAALEW	WB EXPWY- DALE EVANS & WAALEW	0.0010322	0.0076576	0.0074522	0.0161419	0.0009769	0.0057142	0.0054748	0.0121659	0.0024974	0.0156203	0.0153430	0.0334607	0.0002231	0.0013322	0.0012822	0.0028374
WB EXPWY - WAALEW & CAHUILLA	WB EXPWY - WAALEW & CAHUILLA	0.0004427	0.0031888	0.0030441	0.0066756	0.0004444	0.0024463	0.0022975	0.0051881	0.0011220	0.0082931	0.0080205	0.0174357	0.0000731	0.0005184	0.0004954	0.0010868
WB EXPWY - CAHUILLA & JOSHUA	WB EXPWY - CAHUILLA & JOSHUA	0.0004047	0.0025320	0.0024456	0.0053823	0.0004404	0.0021660	0.0020578	0.0046642	0.0010630	0.0083589	0.0082414	0.0176633	0.0000692	0.0004530	0.0004398	0.0009619
WB EXPWY - JOSHUA & STANDING ROCK	WB EXPWY - JOSHUA & STANDING ROCK	0.0003572	0.0016717	0.0016461	0.0036751	0.0004510	0.0019139	0.0018686	0.0042334	0.0008849	0.0076130	0.0078046	0.0163024	0.0000614	0.0003760	0.0003781	0.0008155
WB EXPWY - STANDING ROCSK & SR18	WB EXPWY - STANDING ROCSK & SR18	0.0004466	0.0026792	0.0026521	0.0057779	0.0005624	0.0025554	0.0024769	0.0055946	0.0010562	0.0092393	0.0093550	0.0196505	0.0000893	0.0005920	0.0005906	0.0012719
WB EXPWY - SR18 & NASQUILLY	WB EXPWY - SR18 & NASQUILLY	0.0003420	0.0025237	0.0025103	0.0053760	0.0003685	0.0017935	0.0017360	0.0038980	0.0006263	0.0052378	0.0052686	0.0111327	0.0000648	0.0004213	0.0004169	0.0009031
WB EXPWY - NASQUILLY & BEAR VALLEY	WB EXPWY - NASQUILLY & BEAR VALLEY	0.0006293	0.0043799	0.0043339	0.0093431	0.0006069	0.0031099	0.0030096	0.0067264	0.0010994	0.0083189	0.0083497	0.0177680	0.0001139	0.0007547	0.0007454	0.0016140
SB SR14 ML HOV - N.OF S AVE	S AVENUE TO PALMDALE AVE	0.0008193	0.0099958	0.0157399	0.0265550	0.0005225	0.0059905	0.0094328	0.0159457	0.0005315	0.0060941	0.0095961	0.0162217	0.0001687	0.0017223	0.0027121	0.0046031
SB SR14 ML LOV - N. OF S AVE	S AVENUE TO PALMDALE AVE	0.0052980	0.0439270	0.0732198	0.1224447	0.0050043	0.0273080	0.0439193	0.0762316	0.0055017	0.0277174	0.0440077	0.0772268	0.0020189	0.0086637	0.0136250	0.0243076
SB SR14 ML HOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0006501	0.0079318	0.0124897	0.0210716	0.0003823	0.0043182	0.0067996	0.0115002	0.0004967	0.0057832	0.0091065	0.0153864	0.0001079	0.0011020	0.0017352	0.0029451
SB SR14 ML LOV - N, OF PALMDALE AVE	PALMDALE AVE TO SR138 HDC	0.0026201	0.0213963	0.0316288	0.0556452	0.0023833	0.0141638	0.0203841	0.0369312	0.0021675	0.0131334	0.0189420	0.0342430	0.0010663	0.0047175	0.0065714	0.0123552
SB SR14 ML HOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0005182	0.0063229	0.0099563	0.0167975	0.0003048	0.0034423	0.0054204	0.0091675	0.0003960	0.0046101	0.0072593	0.0122655	0.0000861	0.0008784	0.0013832	0.0023477
SB SR14 ML LOV - N, OF SR138 HDC	SR138 HDC TO 10 STREET	0.0037175	0.0353543	0.0449872	0.0840590	0.0029162	0.0212220	0.0265184	0.0506566	0.0034400	0.0283258	0.0356242	0.0673901	0.0013244	0.0067378	0.0081716	0.0162337
SB SR14 ML HOV- N. OF 10TH ST	10TH ST TO N AVE	0.0009386	0.0115125	0.0181280	0.0305791	0.0006301	0.0072240	0.0113752	0.0192293	0.0008987	0.0109653	0.0172664	0.0291304	0.0002074	0.0021175	0.0033342	0.0056591
SB SR14 ML LOV- N. OF 10TH ST	10th ST TO N AVE	0.0052220	0.0472947	0.0622699	0.1147866	0.0045114	0.0309285	0.0399920	0.0754320	0.0055893	0.0449324	0.0585958	0.1091175	0.0019760	0.0091590	0.0114158	0.0225508
SB SR14 ML HOV - N. OF N AVE	N AVE TO M AVE	0.0006606	0.0080209	0.0126300	0.0213115	0.0004116	0.0047922	0.0075461	0.0127499	0.0006291	0.0076768	0.0120882	0.0203940	0.0001216	0.0012409	0.0019540	0.0033164
SB SR14 ML LOV - N. OF N AVE	N AVE TO M AVE	0.0028829	0.0261123	0.0349978	0.0639930	0.0024818	0.0174719	0.0229863	0.0429401	0.0031505	0.0257898	0.0342518	0.0631921	0.0011386	0.0053459	0.0067841	0.0132685
SB I-15 ML N. OF NASQUALLI RD	NASQUALLI RD TO PEAR BLOSSOM	0.0153518	0.0400328	0.0960117	0.1513963	0.0211628	0.0298472	0.0659554	0.1169654	0.0185542	0.0342030	0.0788092	0.1315664	0.0159496	0.0147106	0.0301084	0.0607686
SB I-15 ML N. OF PEAR BLOSSOM	PEAR BLOSSOM TO LAPAZ DR	0.0096251	0.0234026	0.0553812	0.0884089	0.0128492	0.0174456	0.0380926	0.0683873	0.0115088	0.0200239	0.0455813	0.0771141	0.0092153	0.0086455	0.0175221	0.0353829
SB I-15 ML - N. OF LAPAZ DR	LAPAZ DR TO MOJAVE DR	0.0082535	0.0213138	0.0495831	0.0791504	0.0108311	0.0153623	0.0329051	0.0590985	0.0097897	0.0181186	0.0405947	0.0685030	0.0079703	0.0075135	0.0149090	0.0303927
SB I-15 ML - N. OF MOJAVE DR	MOJAVE DR TO SR18	0.0148151	0.0339448	0.0819827	0.1307426	0.0196687	0.0234287	0.0512826	0.0943800	0.0176061	0.0274271	0.0629898	0.1080231	0.0132641	0.0120078	0.0246356	0.0499075
SB I-15 ML - N. OF SR18	SR18 TO SOTDDARD WELLS	0.0108101	0.0227253	0.0571159	0.0906513	0.0141860	0.0163526	0.0371282	0.0676668	0.0123753	0.0191836	0.0461182	0.0776771	0.0098868	0.0086993	0.0186220	0.0372081
SB I-15 ML - N. OF STODDARD WELLS	STODDARD WELLS TO HDC SR138	0.0086690	0.0180821	0.0468651	0.0736163	0.0113100	0.0124698	0.0288657	0.0526455	0.0101849	0.0146273	0.0359386	0.0607508	0.0079478	0.0068468	0.0150183	0.0298129
SB I-15 ML - N. OF HDC FWY	SR138 HDC FWY TO VICTOVVILE QUARRY RD	0.0251026	0.0486917	0.1329417	0.2067360	0.0339480	0.0384941	0.0950113	0.1674534	0.0318134	0.0455603	0.1173278	0.1947015	0.0235879	0.0198189	0.0457956	0.0892024
SB I-15 ML - N. OF VICTORVILLE QUAR	VICTORVILLE QUARRY RD TO DALE EVANS	0.0480275	0.0983114	0.2858282	0.4321671	0.0677739	0.0737829	0.1903892	0.3319459	0.0650039	0.0828582	0.2210419	0.3689040	0.0479999	0.0387742	0.0942474	0.1810215

Appendix F Updated Quantitative PM_{10} Hot-Spot Analysis and Interagency Consultation

September 2015 ×

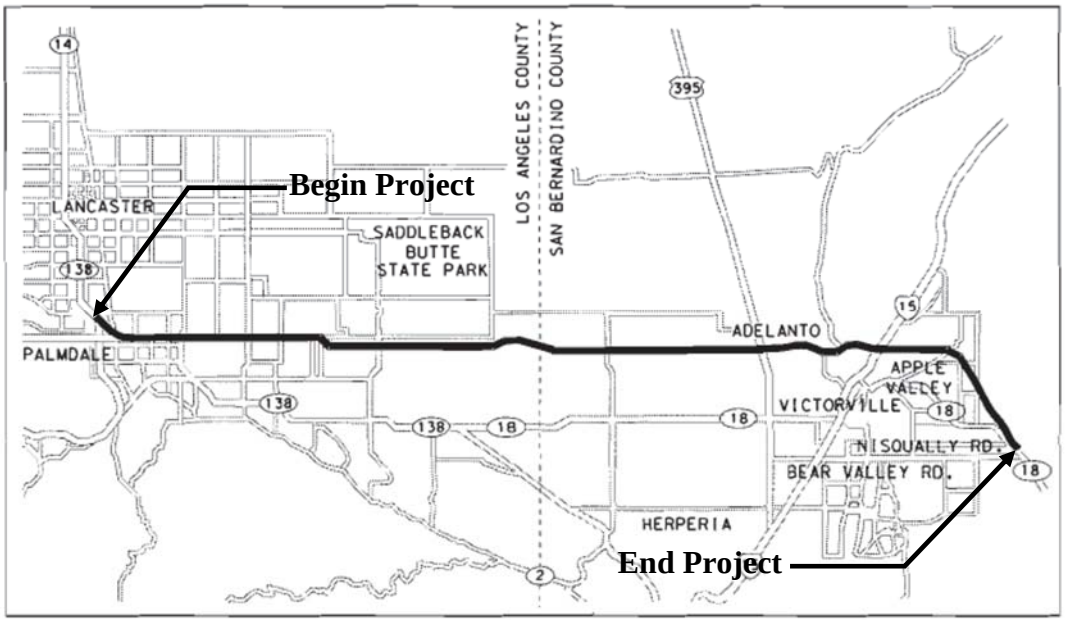
TCWG Review of Quantitative Analyses

Quantitative PM Hot Spot Analysis Review

September, 2015	Determination
Interstate 10 Corridor Project September 2015 Interstate 10 Corridor Project September 2015 Attachments (approximately 500 MB)-FTP login info	
High Desert Corridor Project September 2015	It is reaffirmed to be acceptable for NEPA circulation (FHWA concurrence received after the meeting.

Updated Quantitative PM_{10} Hot-Spot Analysis

HIGH DESERT CORRIDOR



High Desert Corridor

IN SAN BERNARDINO COUNTY, CALIFORNIA

FROM COUNTY LINE TO STATE ROUTE 18

Caltrans EA: 07-2600U

Project ID: LA0G665 and LA0G1099
(Formerly 1C0404, LA962212, and SB20061702)

Prepared by

California Department of Transportation, District 7
Division of Environmental Planning
Office of Environmental Engineering

September 2015

1. Introduction

In November 2013, the EPA released a final *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the particulate matter (PM) national ambient air quality standards (NAAQS) (75 FR 79370). EPA originally released the quantitative guidance in December 2010, which has now been revised in November 2013 to reflect California's latest approved emissions model, EMFAC2011-PL, and EPA's 2012 PM NAAQS final rule. The Transportation Conformity Rules and Regulations based on the Clean Air Act and its Amendments require a hot-spot analysis to be completed for a project of air quality concern (POAQC). The Guidance is provided by EPA to describe how quantitative analyses should be completed for POAQCs. The final rule in 40 CFR 93.123(b)(1) defines the POAQC as:

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

(ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The project under study in this Updated Quantitative Hot-Spot analysis proposes to construct a new freeway and/or tollway with expressway and high-speed rail (HSR) feeder system. The new facility would be 500 feet at the maximum width and extend approximately 63 miles from State Route 14 (SR-14) in the City of Palmdale to SR-18 in the Town of Apple Valley. Because this project is to construct a new facility and there is no existing highway, Post Mile information is not available for the project at this time. Based on the forecast traffic data that indicate increase in the number of diesel vehicles, the project is considered to be of air quality concern as described in 40 CFR 93.123(b)(1)(i); and requires a hot-spot analysis. A quantitative hot-spot analysis was prepared and submitted for review by the interagency consultation and was concurred with in June 2014. This analysis has been prepared to update the June 2014 hot-spot analysis for the preferred alternative selected and to utilize the latest recommended dispersion modeling software (AERMOD version 15181) and meterological processing software (AERMET version 15181). This analysis, as well as the June 2014 hot-spot analysis, have been prepared according to the procedures and methodology provided in the Guidance as well as based on consultations with EPA as noted throughout this report.

2. Project Description and Location

The proposed corridor project is located in the High Desert area of Los Angeles and San Bernardino Counties and extends for a distance of approximately 63 miles between SR-14 in the City of Palmdale and SR-18 in the Town of Apple Valley. In Los Angeles County, the proposed High Desert Corridor (HDC) roughly follows the existing Avenue P-8. In San Bernardino County, the HDC runs slightly south of El Mirage Road and then follows Air Expressway Road near I-15. East of I-15, the proposed route curves south until it ends at SR-18 in the Town of Apple Valley at Bear Valley Road.

The High Desert region in northern Los Angeles and San Bernardino Counties has been one of the fastest growing areas in Southern California and has been the subject of several major studies to define the transportation infrastructure improvements necessary to accommodate the ever increasing travel demand. In April of 2002, the Caltrans and FHWA, SCAG, SANBAG, Metro, the Counties of Los Angeles and San Bernardino, the Cities of Palmdale, Lancaster, Adelanto, Hesperia and Victorville and the Town of Apple Valley, led an effort that culminated in the completion of the Regionally Significant Transportation Investment Study (RSTIS) for the HDC. Simultaneously, the North County Combined Highway Corridor Study was initiated to develop a multi-modal transportation plan for the northern portion of Los Angeles County, addressing both short-term and long-term requirements to accommodate a variety of trip purposes. This Corridor serves large volume of truck traffic for personal travel and goods movement. The North County Combined Highway Corridors Study, approved in June 2004, was conducted by Metro in cooperation with the Cities of Lancaster, Los Angeles, Palmdale, Santa Clarita and the County of Los Angeles. The east-west corridor study focused on SR-138 circulation as a key feature to reduce the traffic congestion.

3. Purpose and Need

The purpose of the proposed project is to improve east-west mobility within the High Desert region of southern California by addressing present and future travel demand and mobility needs within the Antelope and Victor valleys. The proposed action is intended to achieve the following objectives:

- Increase capacity of east-west transportation facilities to accommodate existing and future transportation demand;
- Improve travel safety and reliability within the High Desert region;
- Improve the regional goods movement network;
- Provide improved access and connectivity to regional transportation facilities, including airports and the existing and future passenger rail systems, including, the proposed California High Speed Rail system and the proposed XpressWest High Speed Rail system; and
- Contribute to state greenhouse gas reduction goals through the use of green energy features.

The specific needs to be addressed by the proposed action include:

- Recent and future population growth within the High Desert Region;
- Limited and unreliable east-west connectivity within the High Desert Region;

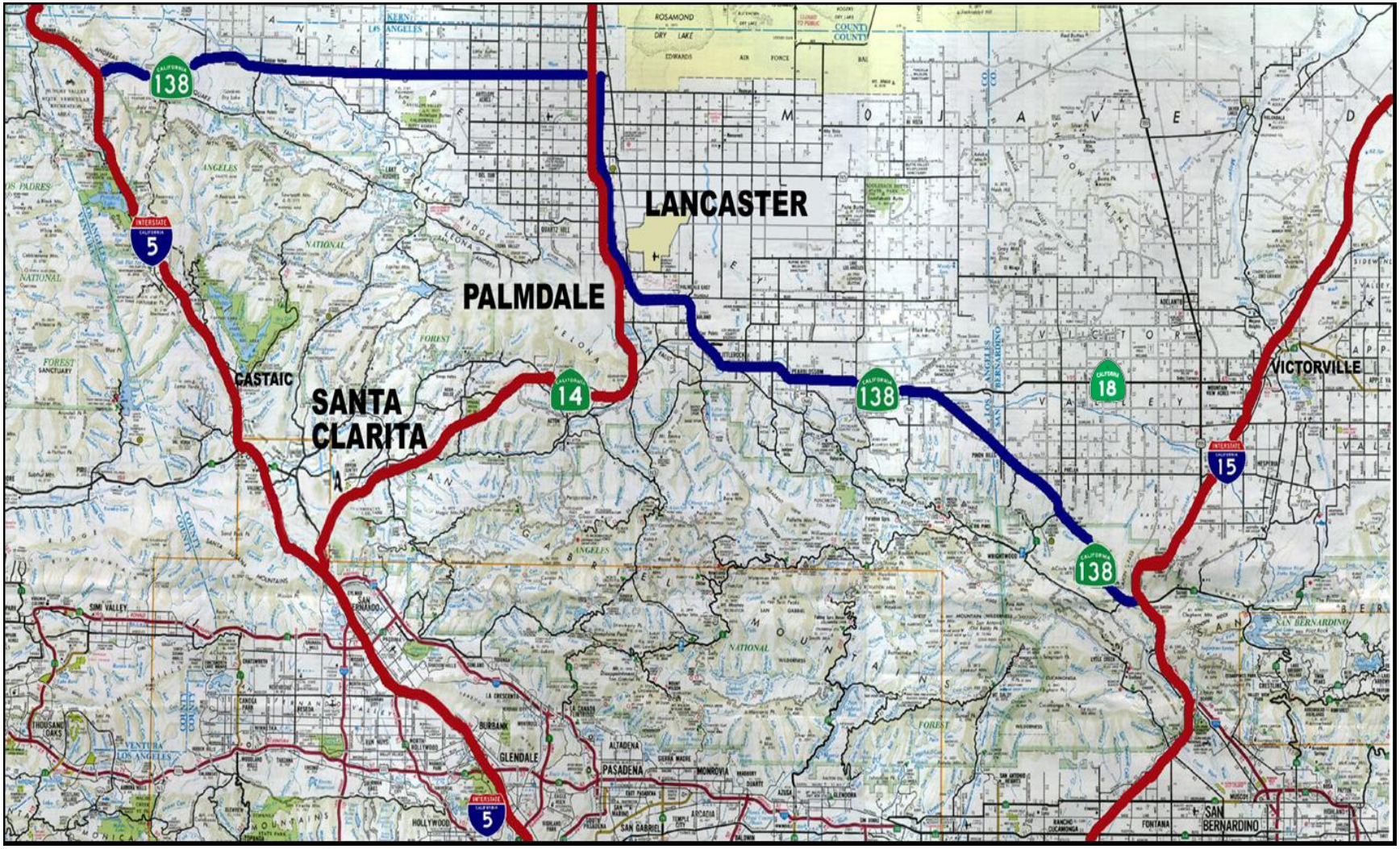


Figure 1. Project Vicinity Map

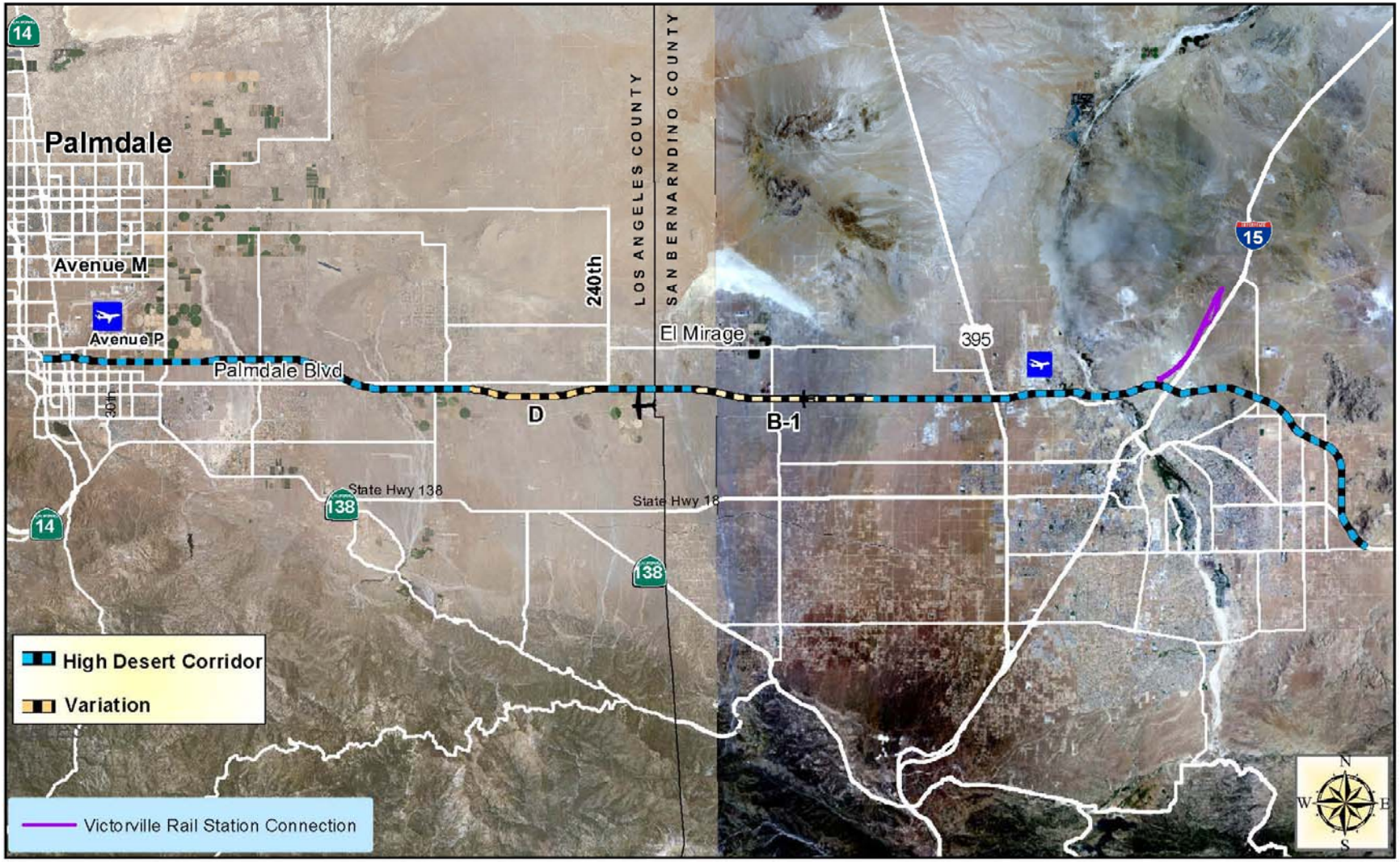


Figure 2. Project Location Map

Note: Alignment for Freeway/Tollway/Expressway/High Speed Rail Feeder Alternatives; Route Variations adopted

- Regional demands for goods movement to support the growth of the regional economy; and
- Future demands for the use of green energy, including sustainability and green energy provisions in state law and policy.

4. Project Alternative – Preferred Alternative Selected

The preferred project alternative consists of the following elements:

- The Freeway/Tollway with High Speed Rail Alternative (including Variations D and B1)
- HSR Option 1C to connect to the Palmdale Transportation Center
- HSR main alignment to connect to the Victorville XpressWest rail station
- Bike path between US-395 and 20th Street East (with funding to provide an extension along local streets to the Palmdale Transportation Center)
- Green energy production and transmission facilities within study area footprint

These elements are discussed in more detail below.

Freeway/Tollway Element: The alignment, combining a controlled-access freeway and an expressway, will generally follow Avenue P-8 in Los Angeles County and just south of El Mirage Road in San Bernardino County, then extend east to Air Expressway Boulevard near I-15, and finally curve south, ending at Bear Valley Road. Right-of-way to accommodate up to four lanes of travel in each direction will be protected, with the number of initial lanes constructed at opening based on the traffic analysis and funding availability. The toll section would begin at 100th Street East in Palmdale and end at US 395 in Victorville. The preferred project would incorporate two variations, D and B1. These selected variations are:

- **Variation D** – Near Lake Los Angeles, the freeway/tollway would dip south of the main alignment, just south of Avenue R, approximately between 180th Street East and 230th Street East.
- **Variation B1** – East of the county line, the freeway/tollway would flare out slightly south of the main alignment between Oasis Road and Coughlin Road and pass through Krey Field.

High Speed Rail Feeder Service Element: HSR Feeder/Connector Service is recommended between the cities of Palmdale and Victorville. The HSR Feeder/Connector Service would utilize steel wheel-on-steel track technology with a design speed of 180 mph and optimal operating speed of 125 mph. Two rail connections would be constructed, one at the future Victorville XpressWest Station in San Bernardino County and another one at the existing Palmdale Transportation Center in Los Angeles County.

Out of the six Palmdale Rail Connection options evaluated in the draft environmental document, Rail Option 1C is preferred. Although it would require relocation of the Palmdale Transportation Center, it would have fewer community impacts overall and would avoid conflicts with park (4(f)), UPRR and Plant 42 property.

The preferred project alternative would connect at its eastern terminus with the XpressWest station. Of the two XpressWest connection options evaluated in the draft environmental document, the Main Alignment option is preferred over the Variation E alignment. The

preferred Main Alignment variation would entail only one crossing of the Mojave River, and would leave the HDC approximately 1.8 miles after that crossing. After leaving the HDC, the HSR design speed would be reduced to 150 mph for compatibility with XpressWest.

Bicycle Path Element: The HDC Project would include bicycle facilities, extending 39 miles along the corridor from US 395 in Adelanto to 20th Street East in Palmdale. The bike facility would be designed to complement the proposed freeway/expressway and HSR feeder service. In addition, the necessary funding to provide bike lane(s) as specified in the City's general plan, along 20th Street East and Avenue Q, in its entirety to the Palmdale Transportation Center or future High Speed Rail station, will be provided by Metro as a project mitigation cost.

Green Energy Corridor Element: The green and renewable energy component would contribute to greenhouse gas reductions and reduce energy costs. Due to the ongoing development of new green and renewable energy technologies, the selection of specific technologies, including funding, construction, and operation, would be done through a PPP or utility company.

5. Interagency Consultation

Pursuant to 40 CFR 93.105(c)(1)(i), the conformity rule requires interagency consultation to evaluate and choose models and associated methods and assumptions. The interagency consultation for the area where this project is proposed has been established as a Transportation Conformity Working Group (TCWG) organized by the Southern California Association of Governments (SCAG). As required by the conformity rule, a summary of methods and assumptions applied in hot-spot analyses was submitted and reviewed by TCWG in June 2011; and is included in Attachment A.

The Guidance further provides in Section 2 that the general requirement of interagency consultation can be satisfied without consulting separately on each and every specific decision for many aspects of the hot-spot analyses. The Guidance notes that, as long as the consultation requirements are met, agencies have discretion as to how they consult on hot-spot analyses. In addition to the summary of methods and assumptions reviewed and concurred with by the TCWG in June 2011, Caltrans has also consulted with the EPA for many key decisions applied in the hot-spot analyses for this project. Table 1 below summarizes methods and assumptions concurred with by the TCWG in June 2011 and other key decisions and considerations applied in the hot-spot analyses based on consultations with EPA which are further explained in each applicable Section of this analysis.

Table 1 Summary of Methods/Assumption/Decisions for this analysis

Area for Analysis	Proposed Project within San Bernardino County only
Analysis Years	Opening Year (2020) to consider effect of additional traffic immediately after project; and Horizon year (2040) to consider traffic impact when this project area will have been developed according to the latest planning assumptions
Applicable Standard	24-Hour PM_{10} NAAQS
Type of Emissions	▪ Direct emissions of PM_{10} (exhaust and tire/brake wear)

	▪ Construction emissions are not considered (< 5 years at individual locations) ▪ Re-entrained PM_{10} road dust ▪ Nearby sources within 2 miles ▪ Fugitive dust emissions from HSR feeder service (reference provided by EPA – Attachment B)
Emission Model	EMFAC2011 for San Bernardino County in MDAB
Dispersion Model	▪ First round of Modeling using AERMOD View Message Passing Interface (MPI), a modified parallel version of EPA AERMOD (version 12345) by Lakes Environmental with FASTALL option; ▪ Second round of modeling using AERMOD MPI version 12345 by Lakes Environmental without FASTALL option. ▪ Update AERMOD and AERMET with latest version of 15181
Surface Met Data	Victorville Monitoring Station at 14306 Park Ave, Victorville, CA (Latitude: 34.51096, Longitude: -117.32555, Elevation: 764 m)
Upper Air Met Data	Mercury/Desert Rock Air Base, NV
Background Monitoring	Victorville Monitoring Station at 14306 Park Ave, Victorville, CA
Receptor Locations	▪ First round of modeling: 25 meters interval up to 50 meters; and 100 meters interval from 100 to 300 meters ▪ Second round of modeling: 15 meters interval up to 50 meters; and 50 meters interval from 50 to 250 meters
Other Input Parameters	Recommendations from EPA hot-spot training and the Guidance

An initial hot-spot analysis was prepared based on the methods and assumptions summarized in Table 1 and was submitted to the TCWG in March 2014. Based on the comments received, the hot-spot analysis was revised and submitted to the TCWG in June 2014. The revised hot-spot analysis was reviewed and concurred with by the TCWG.

Since the concurrence on the revised hot-spot analysis in June 2014, a preferred alternative has been selected and EPA has released a set of new versions of AERMOD and AERMET models. This analysis has been prepared to update the June 2014 hot-spot analysis based on the selected preferred alternative and bring the hot-spot analysis up to date with the latest and recommended dispersion modeling software (AERMOD version 15181) and meterological processing software (AERMET version 15181).

6. Hot-Spot Analysis Methodology

The proposed project spans over Los Angeles and San Bernardino Counties within the Mojave Desert Air Basin (MDAB). As illustrated in Figure 3, Los Angeles County within the MDAB is in nonattainment of the ozone standard only while San Bernardino County within the MDAB is in nonattainment of 24-hour PM_{10} standards. This analysis was therefore prepared to satisfactorily demonstrate conformity with the 24-hour PM_{10} standard only, for the proposed project in San Bernardino County within the MDAB.

A hot-spot analysis is defined in the 40CFR93.101 as an estimation of likely future localized pollutant concentrations and a comparison of those concentrations to the relevant air quality

standards. A project-level hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area such as a congested freeway corridor. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act (CAA) conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

CAA Section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area." As aforementioned, this analysis has been prepared according to the procedures and methodology provided in the Guidance and utilizes dispersion modeling.

According to the Guidance, a hot-spot analysis must include the entire transportation project. For large projects such as this HDC, the current modeling technology cannot capture the entire project length of 63 miles in a single run. The proposed HDC alignment was thus divided into four domains of approximately 15 miles in length along with connecting facilities; and a model was set up and run separately for each of the domains. Approximate limits along the proposed HDC and connecting facilities as established in each of the Domains are as follows:

- Domain 1 (Los Angeles County) – SR-14 from West Avenue S to West Avenue M; and the HDC from SR-14 Interchange to 100th Street East;
- Domain 2 (Los Angeles County) – HDC from 100th Street East to the County line;
- Domain 3 (San Bernardino County) – HDC from the County line to Bellflower Street; and
- Domain 4 (San Bernardino County) – HDC from Bellflower Street to I-15 Interchange; I-15 from Mojave Drive to Dale Evans Parkway; and HDC (as an Expressway) from I-15 Interchange to Bear Valley Cutoff in the town of Apple Valley.

As this analysis demonstrates conformity for a portion of the project within the area in nonattainment of the 24-hour PM_{10} NAAQS, only those modeling results from San Bernardino County (Domains 3 and 4) are included for discussion. Figure 4 illustrates the project covered by each Domain and its nonattainment status. Figures 5 and 6 illustrate the extent of a first-round modeling in Domains 3 and 4, respectively, in which blue lines represent line-volume sources.

Due to the extent of the project area and based on the consultation with EPA, Caltrans used an iterative modeling strategy in identifying a hot-spot location along the proposed project where the highest concentration would likely occur. Two rounds of modeling runs were completed as part of this iterative process in which the first round of modeling was run with FASTALL option and the second round of modeling was run without. The first round model was run with a coarser receptor grid to identify potential hot-spot locations while the second round model was run with a finer receptor grid to encompass the hot-spot location identified from the first round model run. Receptor grids were placed as summarized in Table 1. The non-default FASTALL option was utilized in the first round modeling to reduce run-time greatly while predicting concentrations within 2 percent of the normal model operation. The non-default FASTALL

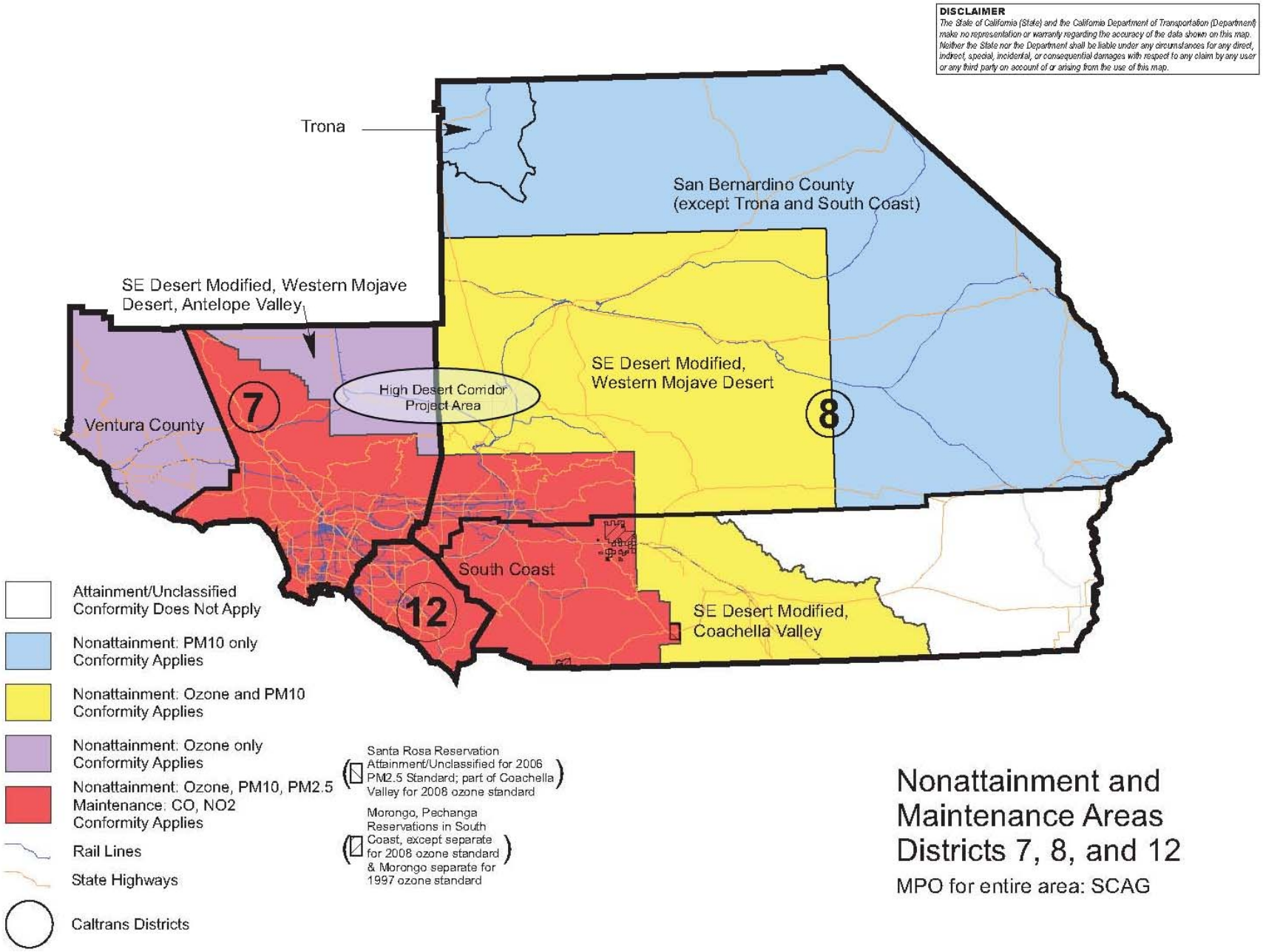


Figure 3. Attainment status of the areas surrounding the proposed project

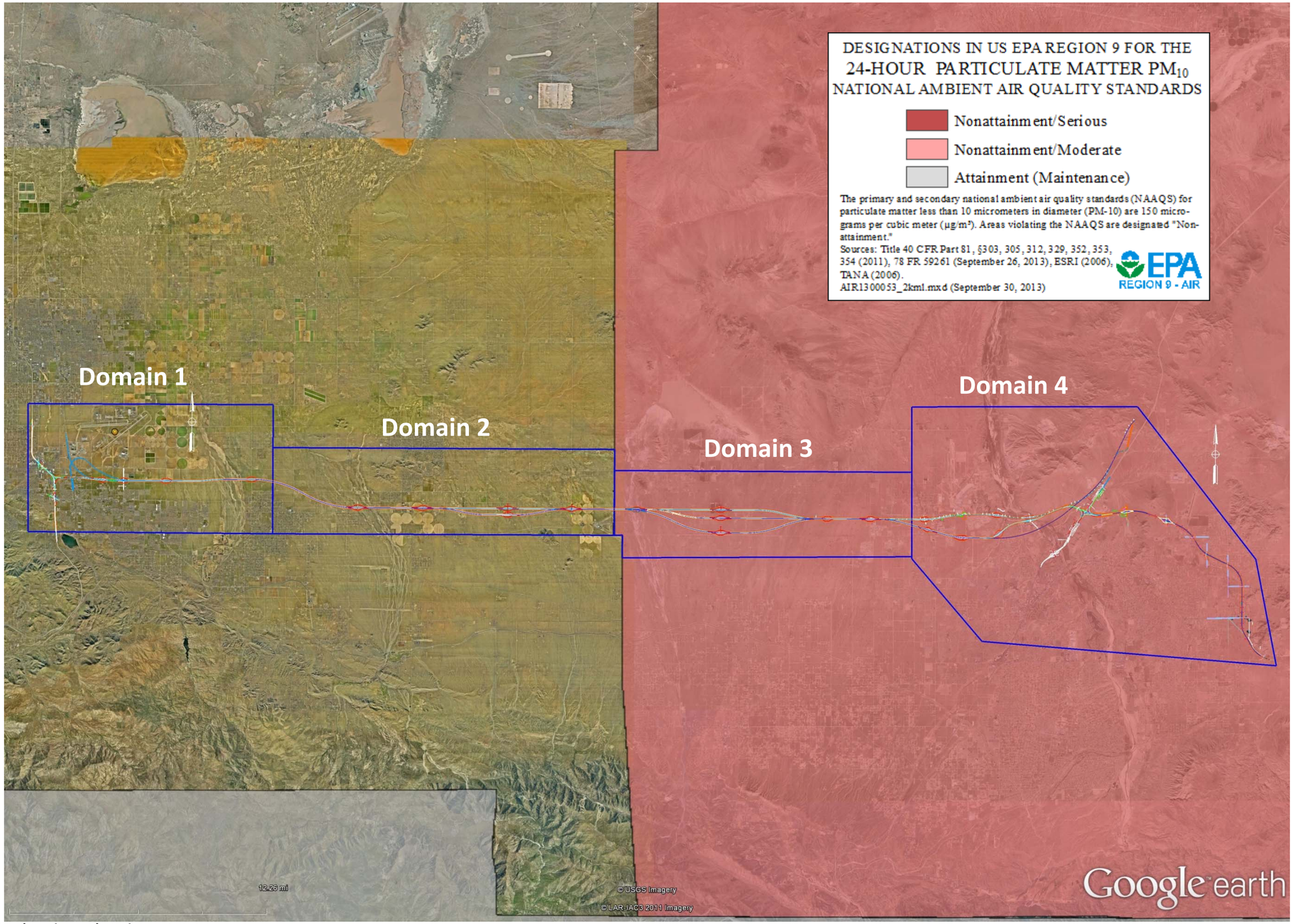


Figure 4. Modeling domains and attainment status

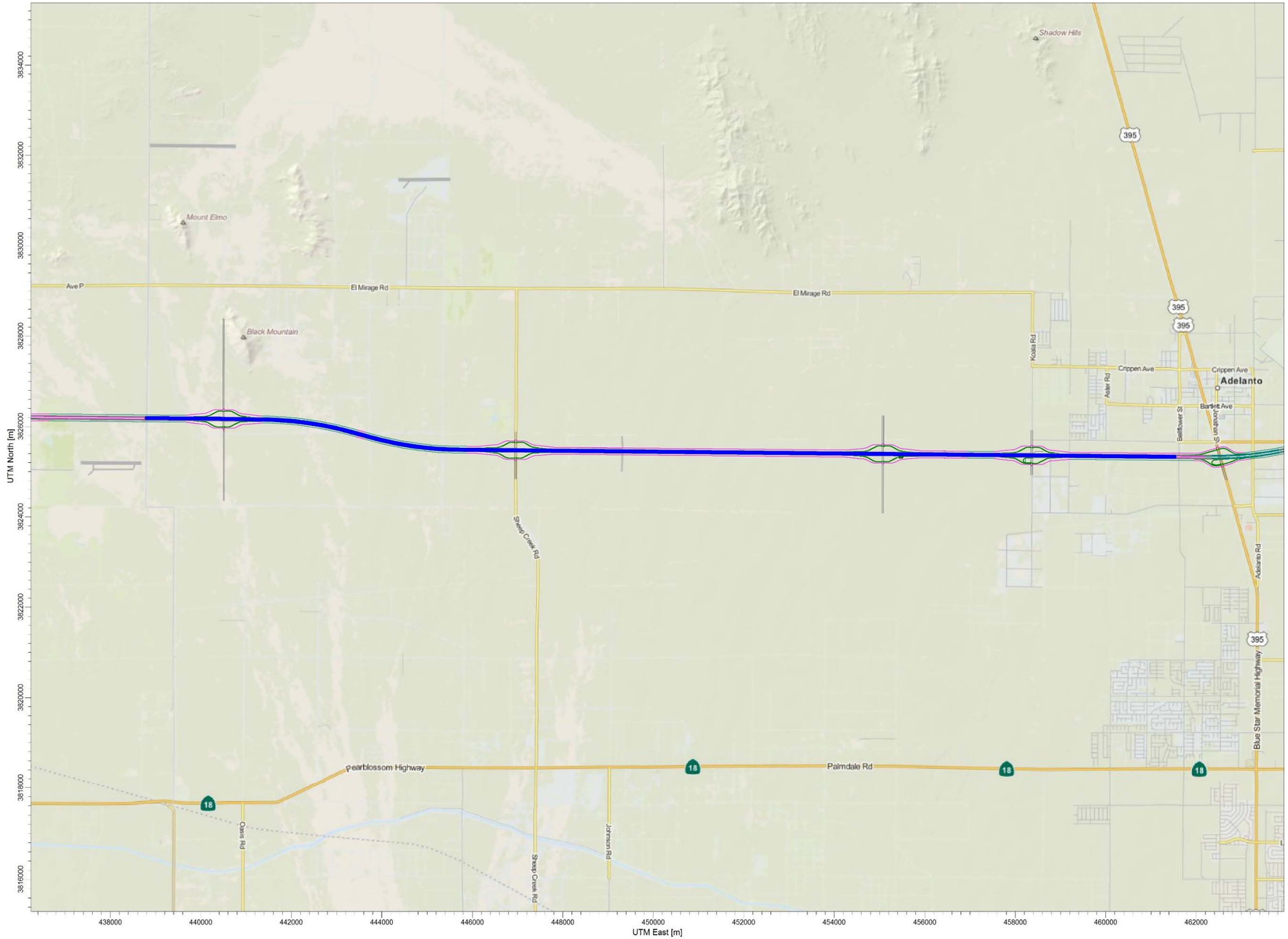


Figure 5. Extent of modeling in Domain 3 (first round model run)

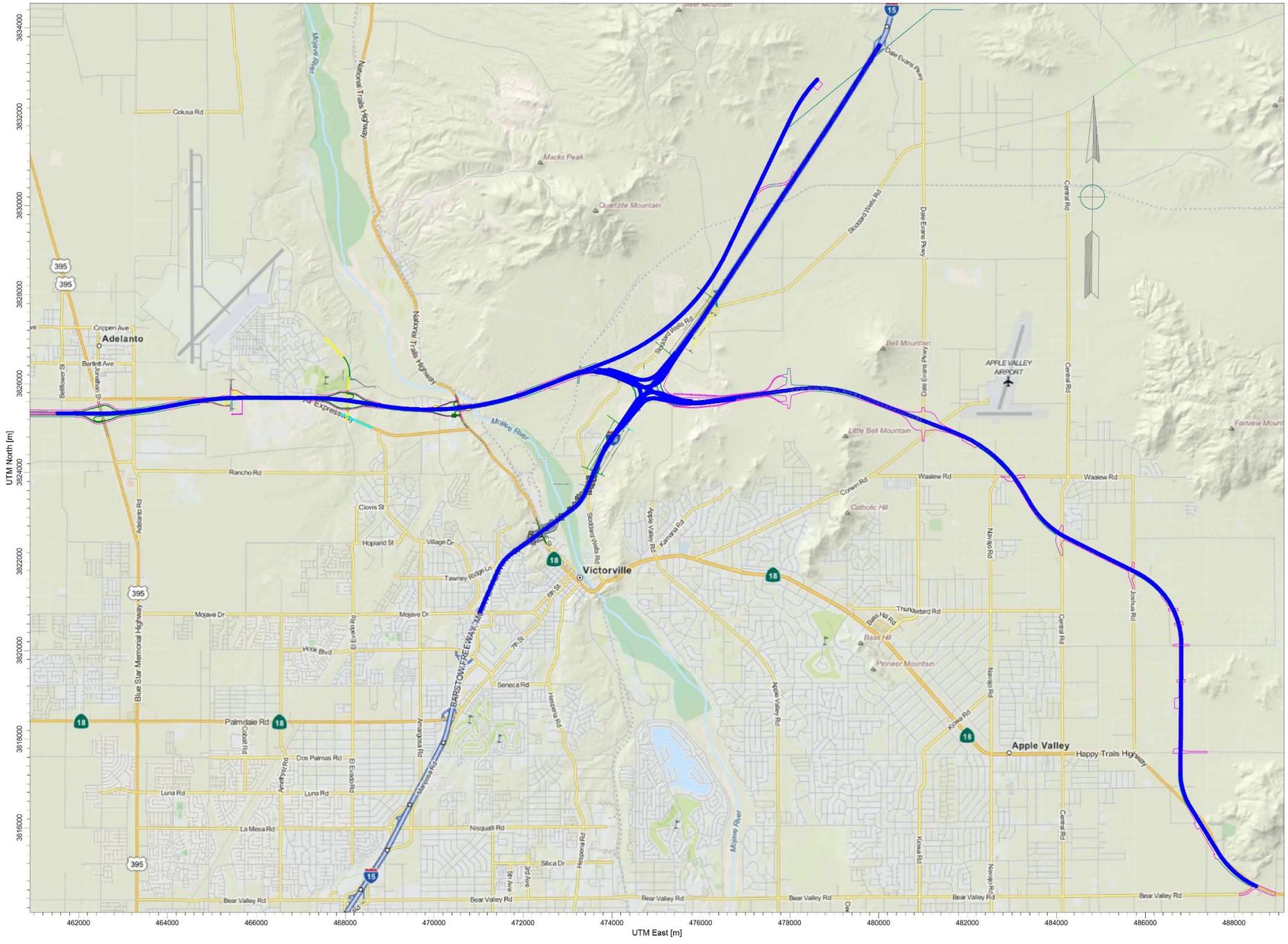


Figure 6. Extent of modeling in Domain 4 (first round model run)

option was selected only for the first round of modeling based on consultation with EPA in November 2012.

Based on the results from the first round model runs, a hot-spot location was identified within the project area, just north of the junction between I-15 and the proposed HDC in Domain 4. Figure 7 provides a contour map of concentrations from the first round of model run of Domain 4 and illustrates the location identified as hot-spot (in red, right-bottom corner of the posted concentration). As this hot-spot location identified from the first round model run, a second round of modeling was run surrounding this identified hot-spot locations with a finer receptor grid, but without the FASTALL option. The FASTALL option is not acceptable for estimating final design value concentrations and may not be used to demonstrate conformity.

7. National Ambient Air Quality Standard

Nonattainment and maintenance areas are required to attain and maintain the following standard for PM_{10}:

- 24-hour standard: 150 $\mu g/m^3$.

The 24-hour PM_{10} standard is attained when the average number of exceedance in the previous three calendar years is less than or equal to 1. The annual PM_{10} standard of 50 $\mu g/m^3$ is no longer used for determining the federal attainment status; and is not considered in this analysis.

8. Types of Emissions Considered

In accordance with the Guidance, this analysis is based on directly emitted PM emissions and also considers brake wear and tire wear emissions. Precursors of PM and secondary particles are not considered in this analysis; but they are considered as part of the regional emission analysis prepared for the conforming RTP and TIP.

Vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. According to the July 1995 Attainment Plan by the Mojave Desert Air Quality Management District, paved road dust entrainment is a significant contributor to the PM emissions, accounting for approximately seven percent of the total planning area inventory. Therefore, the re-entrained road dust has been considered in this analysis.

Implementation of a HSR feeder service between Palmdale and Victorville is proposed with a maximum operating speed of 150 mph. Turbulence caused by trains operating at such high speeds induces wind erosion, resulting in suspension of erodible debris and fine particulates from the surface of the surrounding impacted area. According to a study completed as part of the California High Speed Rail (CALHSR), estimates of the fugitive dust emissions from the particle suspension can be derived, using AP-42 Chapter 13.2.5. The CALHSR study assumes much higher operating speed of 220 mph and this project proposes the HSR feeder in the media with low inventory of fugitive dust. An estimate of fugitive dust based on the CALHSR study is thus considered conservative; and is included in this analysis to evaluate the potential impacts from the proposed HSR feeder system. This CALHSR study was obtained through discussion with the EPA; and is provided in Attachment B.

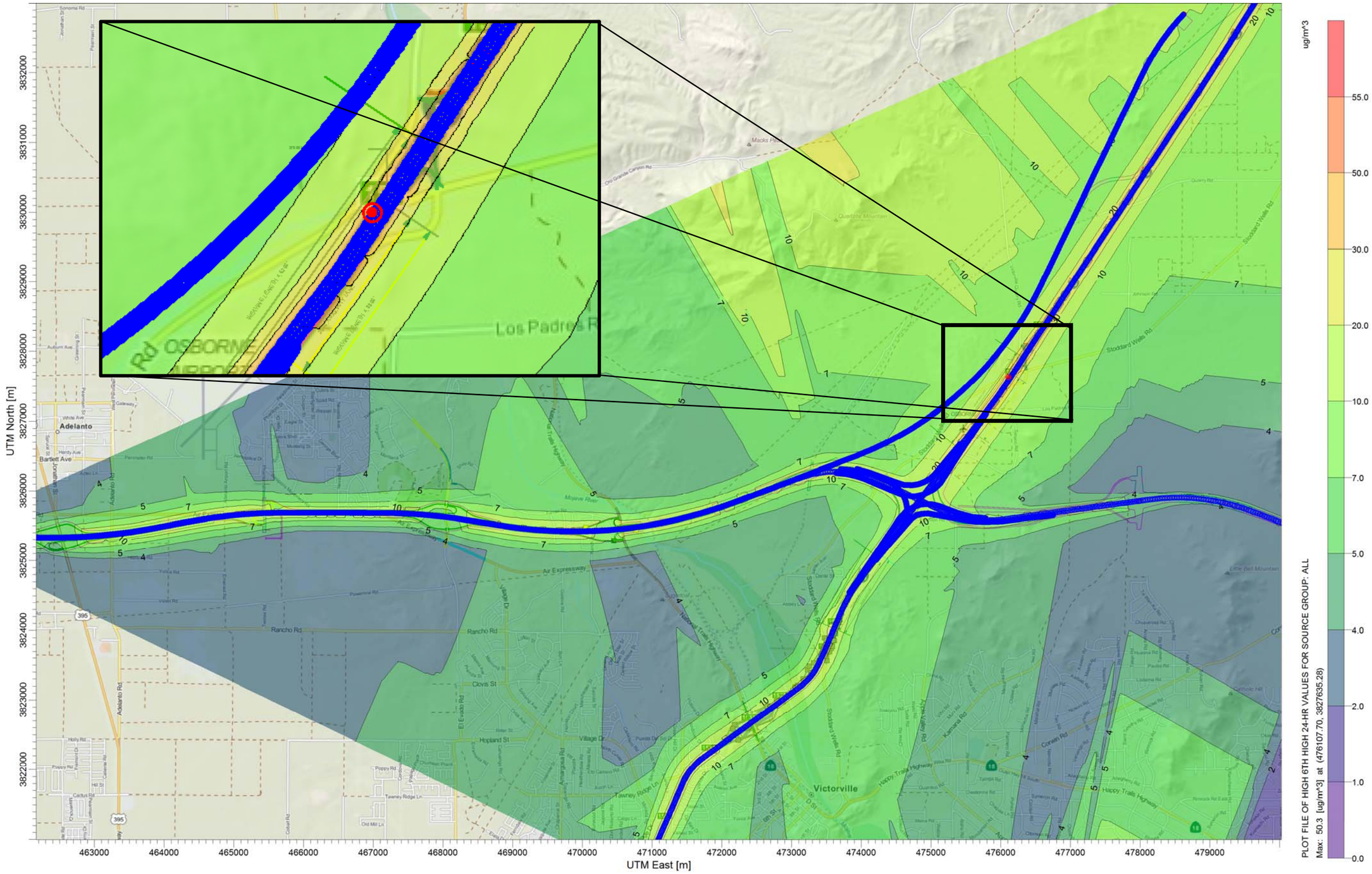


Figure 7. Contour map for Domain 4 and location of hot-spots

Project schedule indicates that the construction activities are not planned to last more than 5 years at this hot-spot location. Construction-related emissions due to this project are thus considered temporary as defined in 40 CFR 93.123(c)(5); and are not included in this analysis. This project will comply with the Mojave Desert Air Quality Management District (MDAQMD) Fugitive Dust Rules (Rule 403) for any fugitive dusts emitted during the construction. Excavation, transportation, placement, and handling of excavated soils shall result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dusts from earthwork operations. The project is required to comply with any state, federal, and/or local rules and regulations developed as a result of implementing control and mitigation measures proposed as part of their respective SIPs.

9. Emission and Dispersion Models

The Guidance requires use of the latest emissions model in hot-spot analyses. This analysis has been prepared based on the latest EPA-approved emissions model for use in California, EMFAC2011. As recommended by the Guidance, this analysis applied the simplified approach using the Project-Level Assessment tool, EMFAC2011-PL, to generate emission rates for non-trucks and trucks operating at different speeds within the MDAB portion of San Bernardino County. An EMFAC2011emissions model run was completed for each of different analysis years of 2020 and 2040.

Traffic analysts have provided forecasts for the proposed project that were divided into individual links by facilities. Average speeds and volumes for non-truck and truck traffic were obtained to represent traffic data for each link in four different time periods of a typical day: night time (7 PM – 6 AM), AM peak period (6 AM – 9 AM), mid-day period (9 AM – 3 PM), and PM peak period (3 PM – 7 PM). Emission factors for non-truck and trucks generated at different speeds were then applied to produce total exhaust emissions for each time period. Tire and brake wear emissions were estimated based on: the emission factors generated from EMFAC2011 for non-truck and truck traffic in the MDAB portion of San Bernardino County; and truck percentage for each link and for each time period. The emissions of paved road dust were estimated using the formula in the AP-42, Section 13.2.1 (January 2011); and calculated using the following values: silt loading of 0.002 g/m^2; average weights of 2 tons for non-truck and 20 tons for trucks; and particle size multipliers of 1.00 g/VMT for PM_{10}. The exhaust, tire and brake wears, and paved road dust emissions estimated for each link was prepared on a grams/second for each time period of a day. A total for all emission types for each time period was then used as input to the dispersion model.

Emissions of wind-induced fugitive dust were estimated based on the formulae and defaults utilized in estimating such emissions for the CALHSR with an assumption of operating speed of 220 mph. The estimates of annual wind-reduced emissions resulted in 636.72 lb of PM_{10} per mile of at-grade track. These estimates are considered conservative because the HSR feeder service for this project is proposed in the median of the freeway/toll facility where the inventory of dust sources is already limited and the operating speed is anticipated at 150 mph, much lower than the operating speed of the CALHSR. The emissions for the HSR feeder service was then applied according to the specific length of input source for each HSR feeder service alignment established in the dispersion model.

The Guidance recommends that hot-spot analyses be developed consistent with the EPA's recommendation under Appendix W to 40 CFR Part 51. The American Meteorological Society/EPA Regulatory Model (AERMOD) is the EPA's recommended near-field dispersion model. The previous hot-spot analysis reviewed and concurred with by the TCWG in June 2014, was prepared based on the AERMOD version 12345, using Lakes Environmental AERMOD View Message Passing Interface (Lakes AERMOD View MPI). Prior to the use of the Lakes AERMOD View MPI, Caltrans requested EPA Region 9 to determine acceptability based on validation model runs completed using two different AERMOD models.

In late July 2015, EPA released their latest version of AERMOD (version 15181). Upon consultation with EPA Region 9, Caltrans proceeded with generating updated meteorological inputs by running the latest AERMET (version 15181). There were no commercial versions of AERMOD MPI version 15181 available at the time; so the dispersion modeling was completed with the standard EPA AERMOD model (version 15181) made available from the from the Support Center for Regulatory Atmospheric Modeling (SCRAM) website (http://www.epa.gov/ttn/scram/).

Individual emission for roadway or HSR feeder service was set up in the model as a line-volume source. With the help of GUI of the Lakes AERMOD View, line-volume sources were created along the roadway and HSR feeder service alignments, with each width set to match the width of the roadway width or HSR rail width. A release height for each roadway source was estimated as a weighted average of non-truck and truck traffic based on the formula in Appendix J of the Guidance. It should be noted that each line-volume was then further divided into multiple individual and adjacent volume sources whose side equals to the width defined for each roadway or rail facility. Each line-volume source was initially assigned with an emission rate of 1 g/s; but was further directed to vary emission rates on an hourly basis for each period according to the rates summarized in Attachment D.

Receptors were placed in order to estimate the highest concentrations of PM_{10} and to determine any possible violations of the NAAQS. As concurred with by the interagency consultation in 2011 and based on subsequent consultation with EPA, a different set of receptor grids was applied for each round of model runs. A fence line receptor utility in Lakes AERMOD View was used in establishing lines of receptors at different intervals for each round as noted in Table 1. GIS software was used to delineate right-of-way (R/W) lines and define excluded areas; and the fence line receptors were developed perpendicular to the R/W at the noted intervals.

Figures 8 and 9 illustrate the extent of receptor grids for Domains 3 and 4, respectively, used in the first round of modeling. Figure 10 illustrates receptor grids used in the second round of model run while Figure 11 offers a close-up view of receptor grids in the vicinity of hot-spot location identified from the first round of model run.

10.Meteorology and Climate

The High Desert is classified as an arid desert climate. In the Mojave Desert, this is modified by the San Bernardino and San Jacinto mountains forming barriers to precipitation. The rain shadow causes the aridity of the High Desert climate, while leaving the summers hot and the winters generally mild.

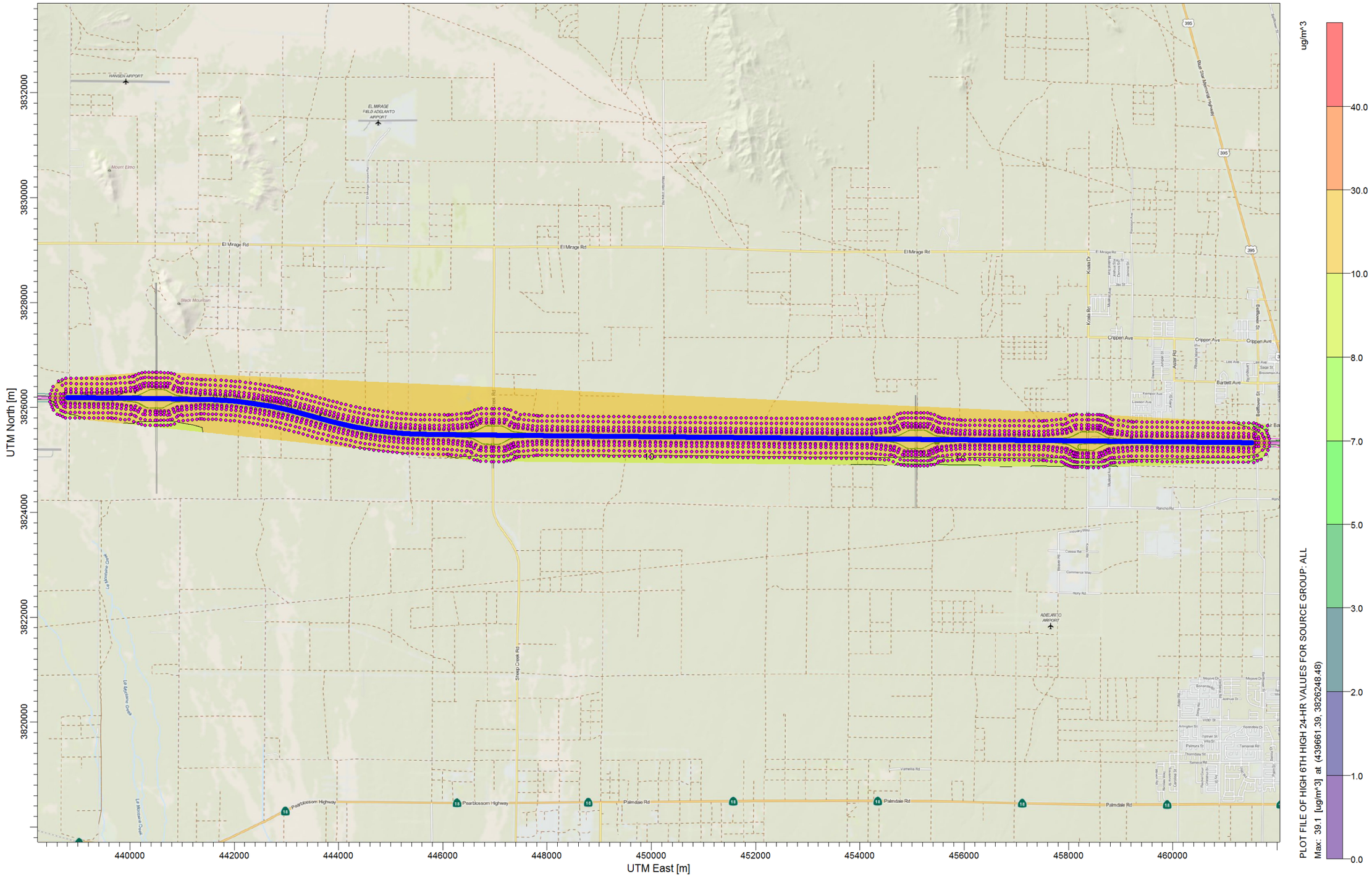


Figure 8. Extent of receptor grids in Domain 3 and contour map of concentrations (first round model run)

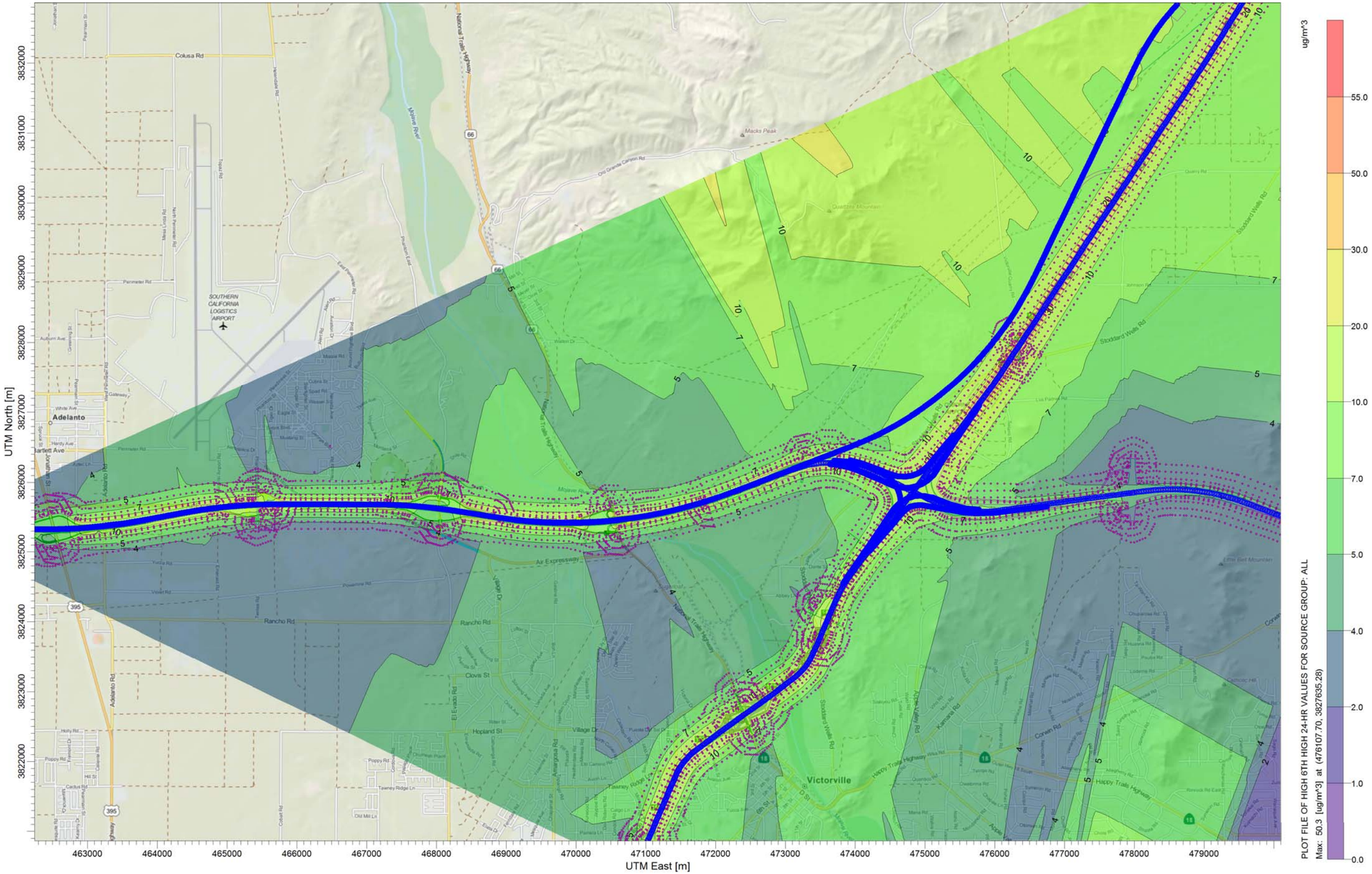


Figure 9. Extent of receptor grids in Domain 4 and contour map of concentrations (first round model run)

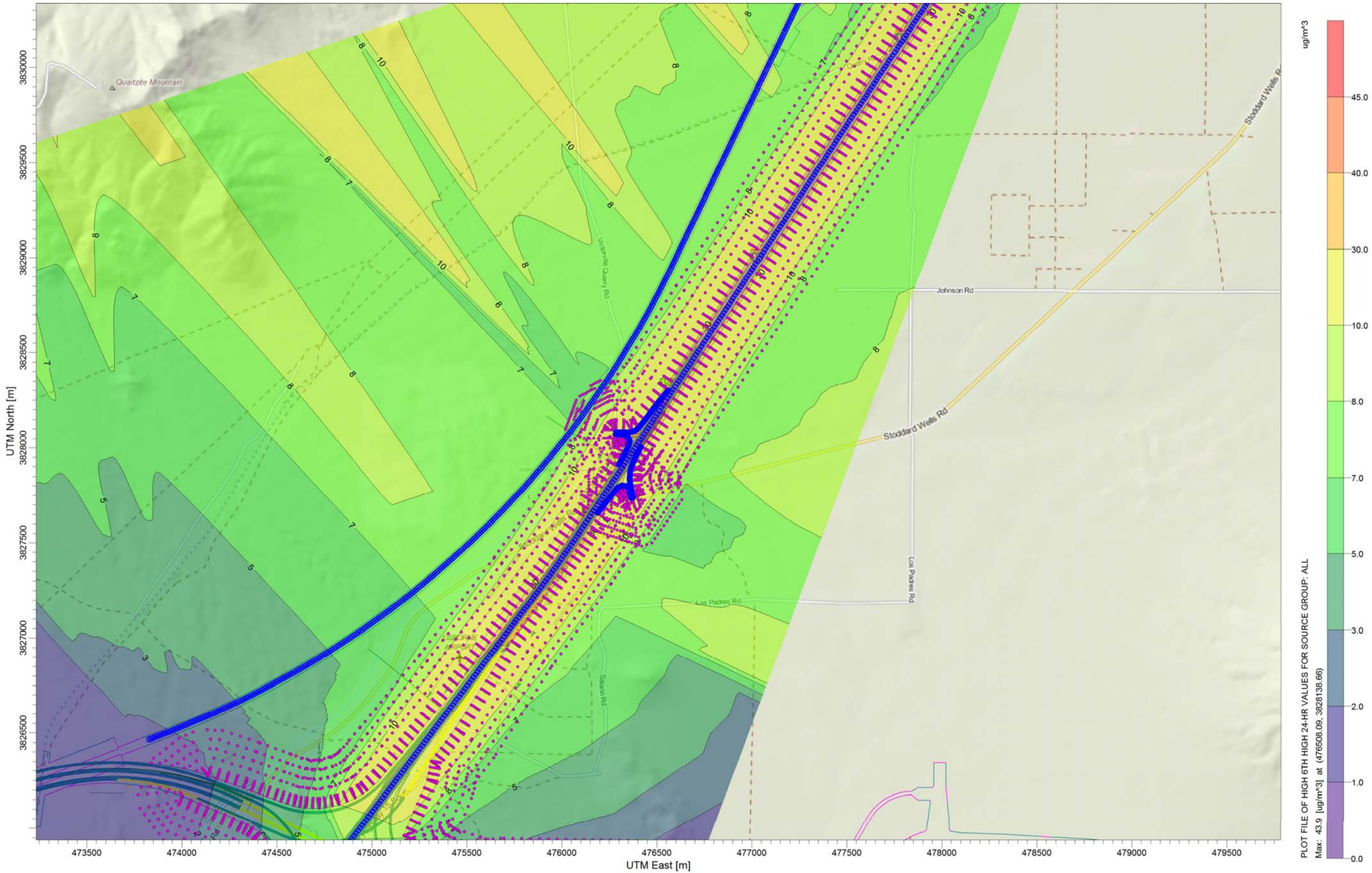


Figure 10. Receptor grids in second round of model run surrounding hot-spot locations (second round model run)

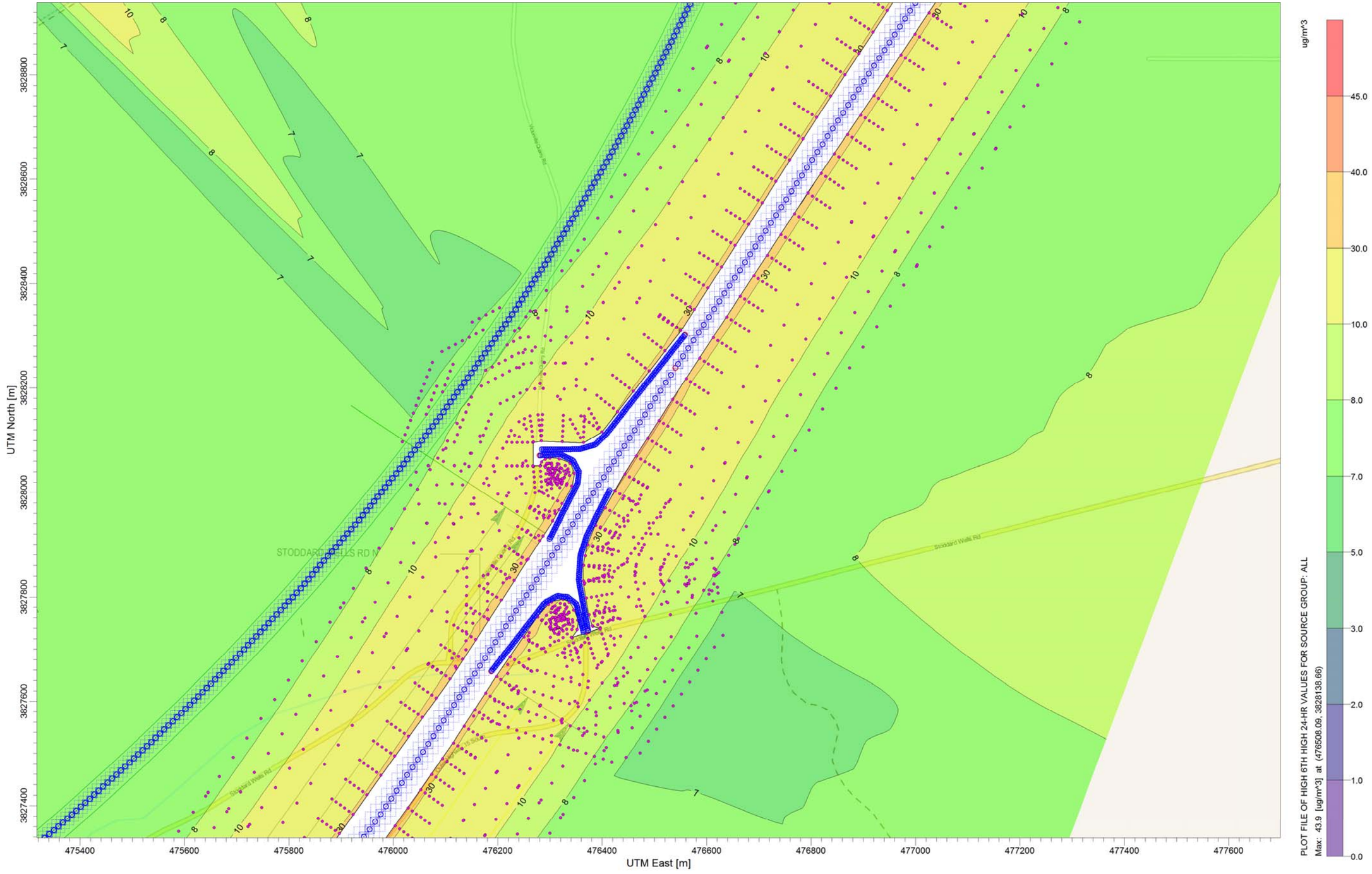


Figure 11. Close-up view of receptor grids in the vicinity of hot-spot location (second round model run)

For most of the summer, the Mojave Desert region is under edge of the Pacific Subtropical Ridge that limits cloud formation and allows strong daytime heating. This is a zone with no dominant winds, which allows more local effects such as the sea breeze passing through the Banning Pass to control the local weather. The high pressure systems also contribute to the presence of persistent inversion layers that trap pollutants by preventing their dispersion through vertical mixing. In late summer, the ridge can move far enough north to allow humid air from the Gulf of California, and even as far east as the Gulf of Mexico, into the High Desert. When this happens, thunderstorms may form causing isolated flash floods and high wind gusts.

Average high temperatures in summer are in the mid-90s to 100º Fahrenheit (F). Average low temperatures are in the mid-60s to 70s. During winter, the Polar Front Jet stream steers pressure systems from west to east across the region. Mild rains result from systems steered in from the southwest and northwest. Winter storm systems are often followed by periods of clear skies and strong westerly or northerly winds. Average high temperatures in winter are in the mid-50s and average low temperatures are in the mid-30s. The annual average maximum temperature recorded from January 1981 to December 2010 at the Victorville Station is 25.3˚C (77.5˚F), and the annual average minimum is 6.6˚C (43.8˚F) (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9325).

Prevailing winds in the MDAB are out of the west and southwest. Theses prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes from the main channels for these air masses.

The Mojave Desert receives precipitation from winter cold fronts and moist southerly air masses during the late summer. Annual average precipitation for the same period is recorded at 5.56 inches at the Victorville Station. Summer thunderstorms bring highly variable amounts of localized rain. The rain from these storms falling into the dry air often evaporates before reaching the surface. However, if the storm lasts long enough, the area beneath the storm may get several inches of rain over a short time leading to flash floods and rapid erosion in washes and gullies. The Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. Inversions are layers in the atmosphere where the temperature increases with height instead of decreasing as is normal. There are two types of inversion affecting the High Desert. The first is the regional inversions caused by subsiding air within the high-pressure systems that dominate the summer weather. These subsidence inversions can occur at varying altitudes, with corresponding variable effects on the pollution levels. The lower the inversion level is, the greater the concentration of pollutants between it and the ground becomes. The second type is the radiation inversion that forms when the ground cools rapidly after sunset, cooling the air immediately above it at the same time. Radiation inversions can cause significant concentrations of pollutants because they are generally only a few hundred feet above the ground and are strongest during early morning commuting time. Especially in the desert, rapid heating of the ground usually disperses radiation inversions within an hour of sunrise.

At a height of 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long period of time, allowing them to form secondary pollutants by reacting with sunlight. The inversion conditions in the MDAB are much less favorable for the buildup of high ozone concentrations than in the coastal areas of Southern California. When subsidence inversions occur, they are generally 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is often much lower. As a result, meteorology in the MDAB is less conducive for the chemical mixing characteristic of typical ozone formation.

The area in which the proposed project is located offers clear skies and sunshine; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerolsols emitted by trucks, automobiles, furnaces, and other sources.

Caltrans accessed the National Climatic Data Center under the National Oceanic and Atmospheric Administration in January 2012 to obtain the most recent 5 years worth of surface meteorological data at the Southern California Logistics Airport (SCLA, Station No. 23131, latitude: 34.598 and longitude: -117.383). A research of those data sets revealed that a number of hourly observations were missing from 2007 through 2010. Due to the lack of complete data set at the SCLA, therefore, local surface data were obtained from the Victorville monitoring stations (ARB Site Number 36306, AIRS Number 060710306). The Victorville station is located approximately 7 miles southwest of the identified hot-spot location; and is located less than 0.5 mile from SR-18 and I-15 with traffic volumes comparable or higher than those forecasted on the proposed HDC. The Victorville monitoring station is therefore deemed representative of the project area based on the proximity and similarity to the project area.

As the dispersion modeling also requires upper air data, Caltrans reviewed available upper data from the following sites near the project area: Edwards Air Force Base, Miramar Air Force Base, and Mercury/Desert Rock Station in Nevada. As recommended by the local air district, MDAQMD, and based on a detailed review of their representativeness, upper air data from the Mercury/Desert Rock station were selected for use in this analysis. A review of the historical upper air data revealed that considerable amount of observations was not available in recent years.

Based on a review of available upper air and surface data, Caltrans presented two options to EPA in April 2012 for establishing meteorological data sets that would satisfy EPA's modeling guidance. Option 1 proposed to utilize upper air and surface data from April 2000 to March 2005 while Option 2 proposed using the data from January 2001 to December 2005. Option 1 provided a complete data set for the Palmdale portion of the proposed project at the least; but it would still result in upper air data missing considerably for two quarters. Option 2 presented data sets that included more parameters at the Victorville station than Option 1. While some parameters for the upper air data presented in Option 2 were not as complete as the EPA requirement, they were able to be brought to above the EPA requirement by using EPA's missing data procedure. Upon consultation and teleconference in April 2012, EPA concurred that Option

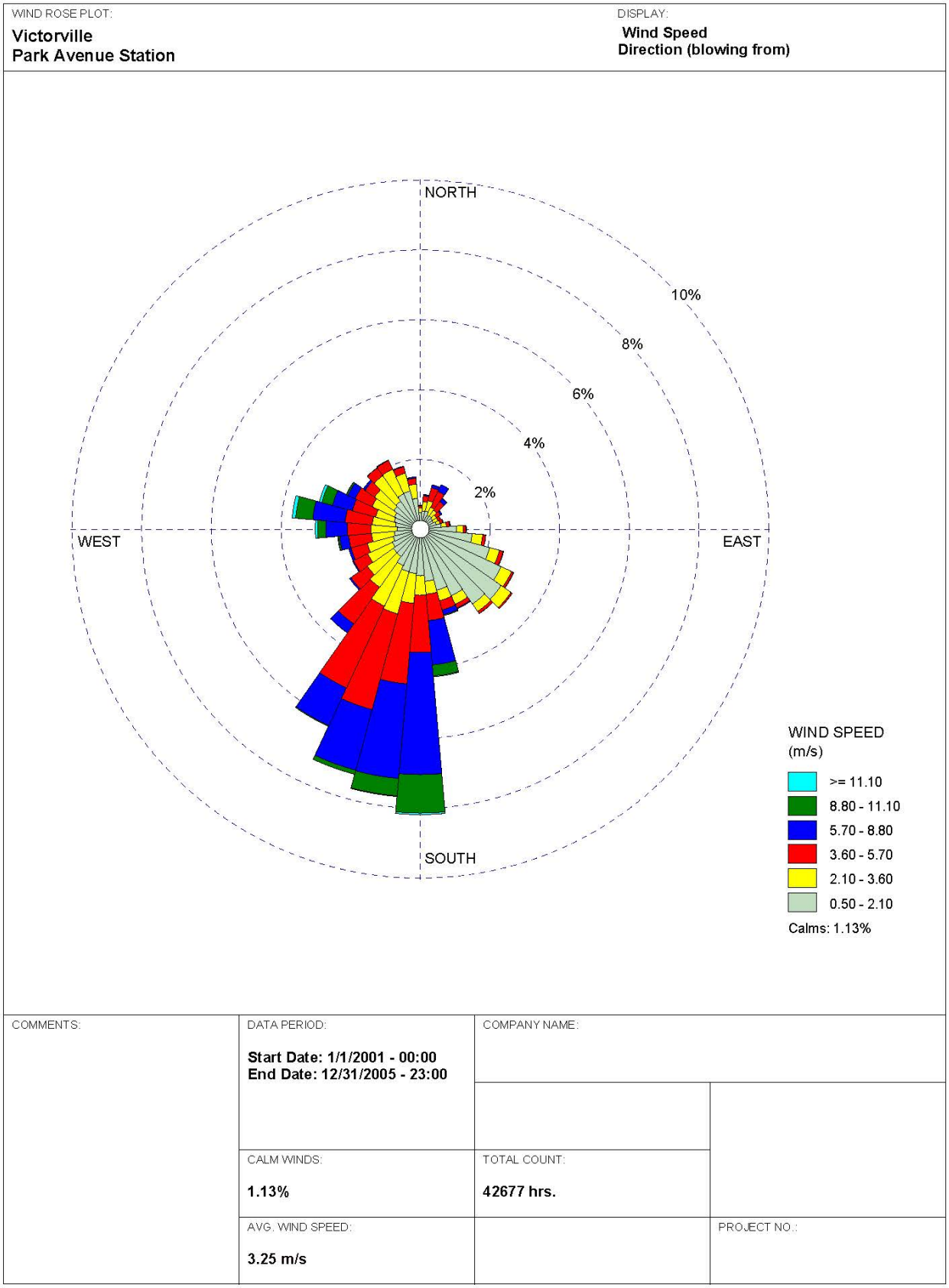


Figure 12. Predominant Wind Direction at Victorville-Park Avenue Station

2 was acceptable based on the information presented. The memorandum presented to EPA for consultation on the surface and upper air data is included in Attachment E.

11.Air Quality Trend Analysis

As discussed above, predominant wind direction and speed in Victorville area are due to the region's terrain and geographical features. Dry conditions and heavy winds contribute to the severity of air pollution issues in the MDAB. Figure 12 below indicates the predominant wind direction in the region based on meteorological data from the Victorville monitoring station. PM_{10} concentrations monitored at the Victorville station are presented in Table 2 and Figure 13 for the six-year period from 2007 to 2012. As indicated in the table and figure below, maximum 24-hour PM10 concentrations at the Victorville monitoring station has generally declined from 2007 to 2012. Maximum concentrations monitored at the Victorville station exceeded the national ambient standard of 150 µg/m^3 in 2007, according to the EPA database.

Table 2 Ambient PM10 Concentrations at the Victorville Station

	2007	2008	2009	2010	2011	2012
National maximum 24-hour concentration (µg/m^3)	358	77	53	40	37	45
National second-highest 24-hour concentration (µg/m^3)	130	74	49	34	36	43
NAAQS 24-hour (>150 (µg/m3), Estimated	7	0	0	0	0	0
Exceeds the federal 24-hour standard (150 µg/m^3)?	Yes	No	No	No	No	No

Source: United States Environmental Protection Agency 2014, compiled by Caltrans
Estimated number of days of exceedance based on ARB Air Quality Data Statistics

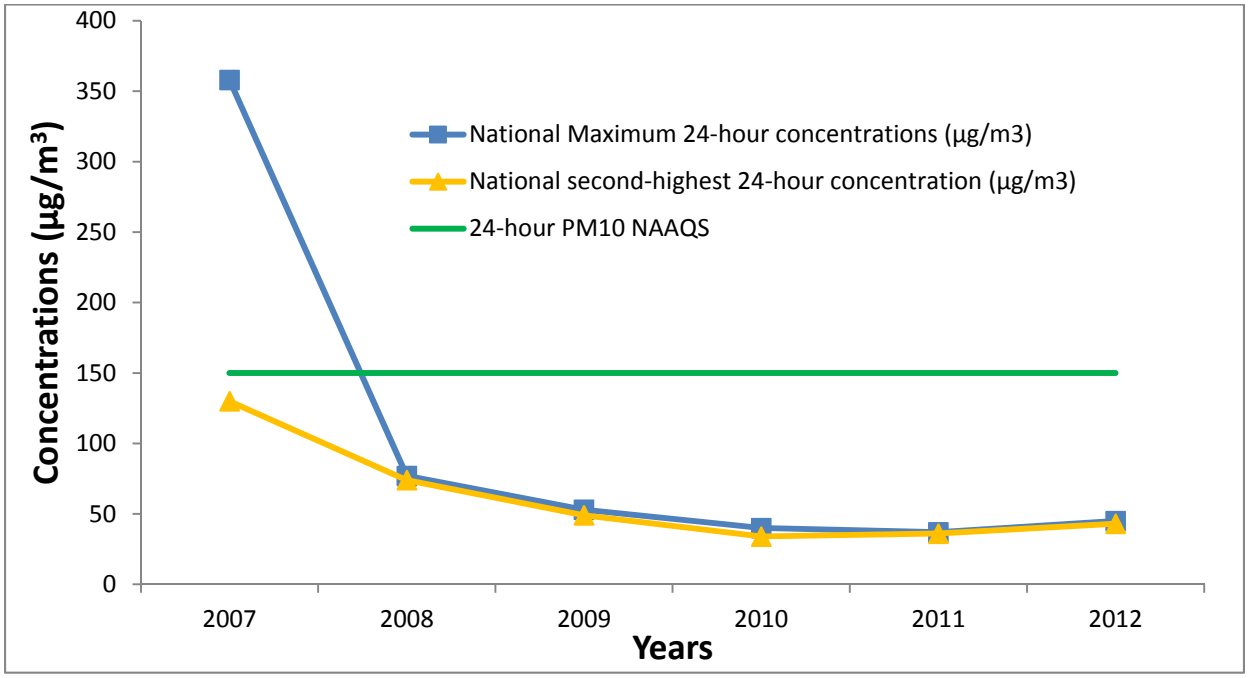


Figure 13. 24-Hour PM_{10} Concentrations at the Victorville Station

12. Background Concentration

The Guidance requires that the background concentration be determined based on available measurements for 12 consecutive quarters. Caltrans obtained the most recent measurements at 5 monitoring stations in San Bernardino County within the MDAB. The measurements were obtained through EPA's AirData website (http://www.epa.gov/airdata/). Table 3 summarizes quarterly maximum 24-hour PM_{10} measurements at all five monitoring stations reviewed as part of this analysis. Figure 14 illustrates the locations of these monitoring stations relative to the proposed project site.

Table 3 Quarterly First Maximum 24-hour PM_{10} Values at Monitoring Stations (in $\mu g/m^3$)

Year	Q1	Q2	Q3	Q4	No. of Measurements / year
Victorville – 14306 Park Ave, Victorville, CA (Noted as "A" on Figure 14)					
2012	43	45	34	41	55
2011	34	37	36	34	60
2010	35	32	44	29	60
Hesperia – 17288 Olive St, Hesperia, CA (Noted as "B" on Figure 14)					
2012	30	36	25	45	60
2011	41	38	36	31	59
2010	31	33	48	26	60
Lucerne Valley – 8560 Aliento Rd, Lucerne Valley, CA (Noted as "C" on Figure 14)					
2012	19	28	30	20	56
2011	29	33	27	17	56
2010	22	32	43	25	60
Barstow – 1301 W. Mountain View St, Barstow, CA (Noted as "D" on Figure 14)					
2012	39	39	42	31	61
2011	29	98	41	43	59
2010	28	27	38	29	55
Trona – Telescope and Athol, Trona, CA (Noted as "E" on Figure 14)					
2011	36	45	29	32	53
2010	22	37	30	51	59
2009	32	31	32	60	61

Source: EPA AirData (http://www.epa.gov/airdata/) accessed in January 2014
Note: Measurements are not available for the 2nd quarter of 2012 at Trona, CA; and 3 years of measurements from 2009 to 2011 are included.

As noted in Table 3 above, the number of measurements at the monitoring stations ranges from 53 to 61 in a year during the three-year period. The highest measurement at each monitoring station during the 12 consecutive quarters is noted as shaded cells in the table.

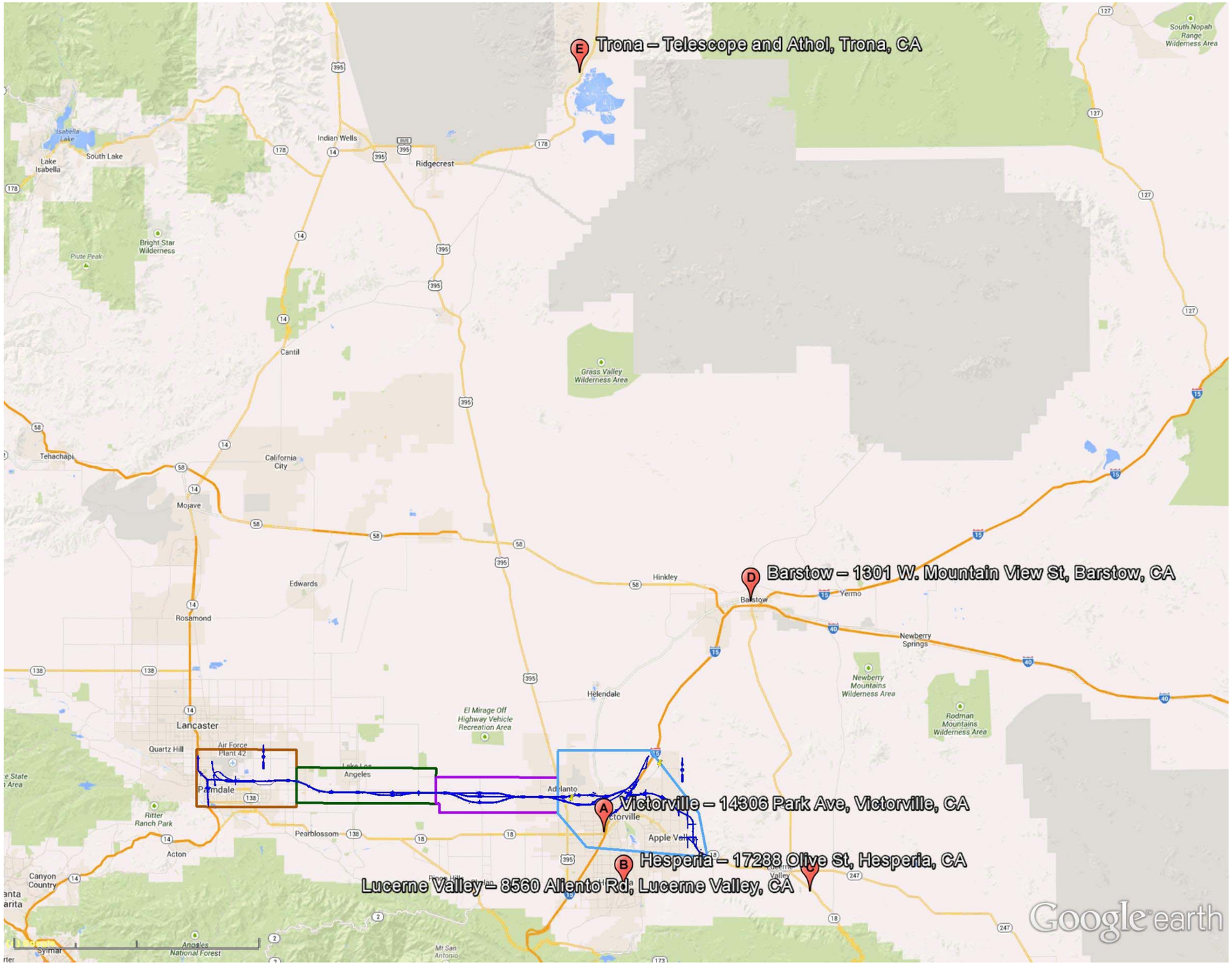


Figure 14. Monitoring stations in San Bernardino County within MDAB

Based on a review of the monitoring stations available in the vicinity of the proposed project, Caltrans selected the Victorville monitoring station for representative background concentrations for this analysis, based on an evaluation of the criteria including:

- Proximity to the proposed project;
- Similar climate and meteorology; and
- Land use and level of traffic similar to the proposed project.

The selection of the Victorville monitoring station is also consistent with the methods and assumptions reviewed and concurred with by TCWG in June 2011.

According to the summary in Table 3, the highest 24-hour PM_{10} measured at Victorville station was determined as 45 $\mu g/m^3$ and was used in the calculation of a design value in this analysis. This value is considered conservative since concentrations at the Victorville station have been decreasing since 2007; and are also anticipated to decrease in the future years due to the state and federal rules and regulations to limit emissions of PMs. It should also be noted that this value of 45 $\mu g/m^3$ is comparable to the ambient concentrations measured at other five stations around the proposed project.

13.Analysis Years and Traffic Data

According to the Guidance, a hot-spot analysis compares the air quality concentrations with the proposed project to the applicable NAAQS or to the concentrations without the project. These concentrations with the project are determined using a design value that is a combination of the modeled value and background concentration. The background concentration has been evaluated and determined as discussed above. The modeled value is determined from model runs of the proposed improvements and scope with emissions calculated for years during which peak emissions from the project are expected; and a new NAAQS violation would most likely occur due to the cumulative impacts of the project and background concentrations.

The proposed project will likely affect local and regional travel patterns in the High Desert area upon its completion, resulting in changes in vehicle fleets and increase traffic volumes, speeds, and VMT along the HDC and neighboring facilities. Coupled with the declining trend for the background concentrations as discussed above, the project area is likely to be affected with increase in emissions from additional traffic immediately following the completion of the project. In addition to the opening year (2020), this analysis also considers traffic impact after the full 20-year life span of the project when this project area will have been developed according to the latest planning assumptions in the regional plan (2040).

The conformity rule requires that the latest planning assumptions available at the time of analysis must be used in conformity determinations (40 CFR 93.110). Furthermore, assumptions applied in hot-spot analyses must be consistent with those used in the regional emissions analyses for any inputs that are required for both analyses (40 CFR 93.123(c)(3)). Traffic data used in this analysis have been estimated using the latest travel demand model consistent with the SCAG's model at the time the analysis began. The future forecast have been estimated by Parsons according to 4 individual periods of a day: AM (6 AM to 9 AM), mid-day (9 AM to 3 PM), PM (3 PM to 7 PM), and night time (7 PM to 6 AM). Traffic data have been developed in links (approximately one ramp interchange to another) and VMTs have been calculated based on

volumes and length of each link. A summary of forecast traffic data used in the analysis is provided in Attachment F.

14.Calculation of Design Values and Determine Conformity

The Guidance provides that compliance with the 24-hour PM_{10} NAAQS is based on the expected number of 24-hour exceedances of 150 μg/m^3, averaged over three consecutive years. The NAAQS is met when the expected number of exceedances is less than or equal to 1.0. According to the Guidance, the design value for 24-hour PM_{10} was calculated by combining the background concentrations with the concentration values generated for receptors in AERMOD.

DV for PM_{10} = Background Concentration + the highest 6th highest concentration from AERMOD

As discussed above, the background concentration was determined to be 45 μg/m^3. Using appropriate control and output pathways, AERMOD version 15181 was programmed to estimate and identify the highest of all 6th highest concentrations from model runs among all the receptors placed. Among the receptors in the second round of model, the highest 6th highest PM_{10} occurred in 2040 along the Stoddard Wells Road on-ramp to the northbound I-15, just north of the HDC interchange (latitude: 34° 35' 41.261", longitude: 117° 15' 22.263"); and its concentration was determined to be 43.93275 μg/m^3. The highest 6th highest PM_{10} concentration modeled with the 2020 emission rates was determined to be 38.36295 μg/m^3 at the same location. Figures 15 and 16 provide contour maps for 2020 and 2040, respectively, with the location of the highest 6th highest concentration identified in red. As this hot-spot location is the one at which the new PM_{10} NAAQS violations would most likely occur, it can be assumed that the transportation conformity requirement is satisfied for the proposed project if conformity is demonstrate at this hot-spot location.

The design value for this analysis was thus calculated based on the highest 6th highest PM_{10} concentration modeled, which is 43.93275 μg/m^3. The modeled value and the background concentration from the Victorville monitoring station were combined together to result in 88.93275 μg/m^3. As required by the Guidance, the result was then rounded to the nearest 10 μg/m^3 and the final design value was calculated to be 90 μg/m^3 for the project. The design value of 90 μg/m^3 was compared to the 24-hour PM_{10} NAAQS (150 μg/m^3). As the design value was calculated to be below the 24-hour PM_{10} NAAQS, the project was determined to conform.

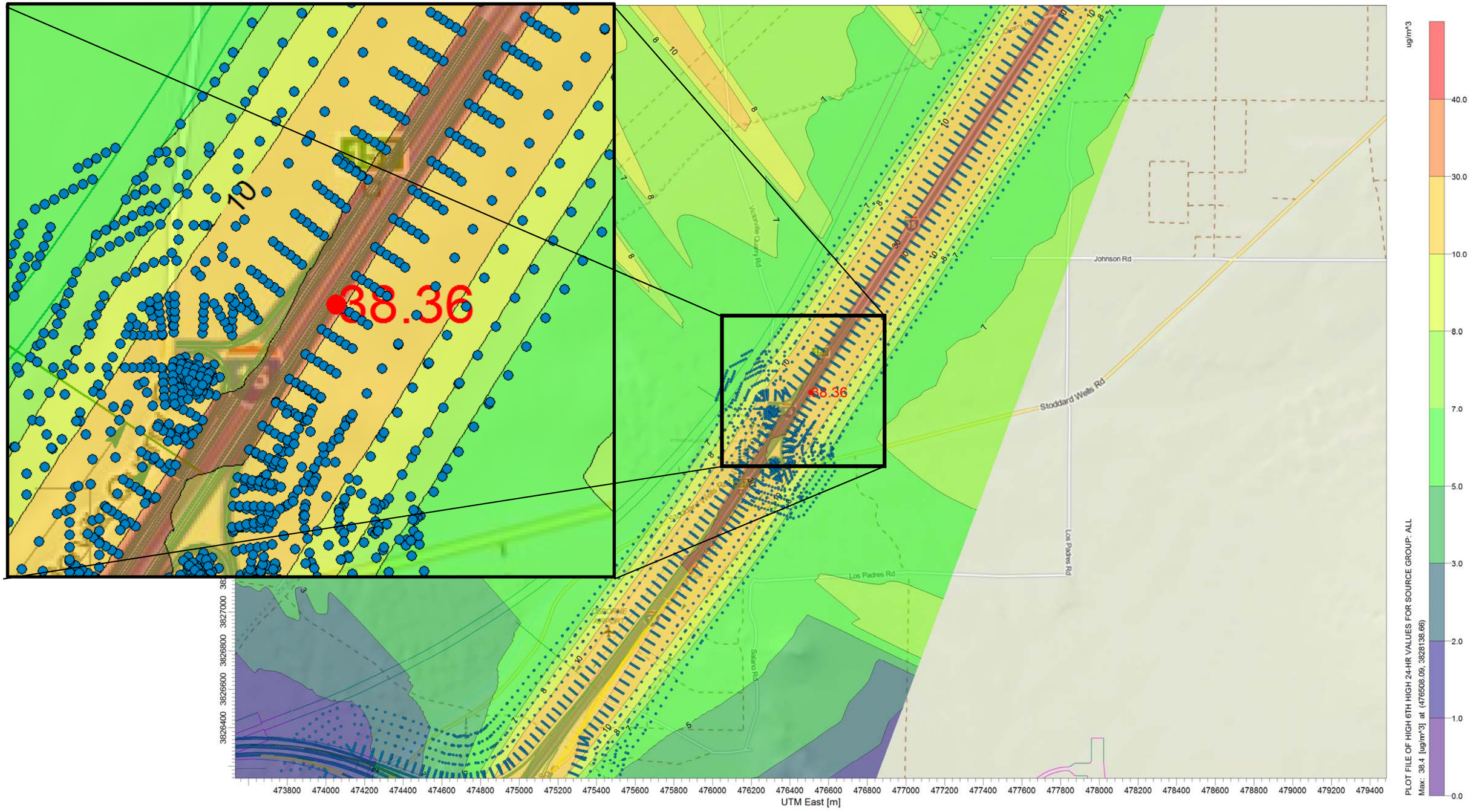


Figure 15. Contour Map of Concentrations and Location of the highest 6th highest 24-hour PM_{10} in 2020

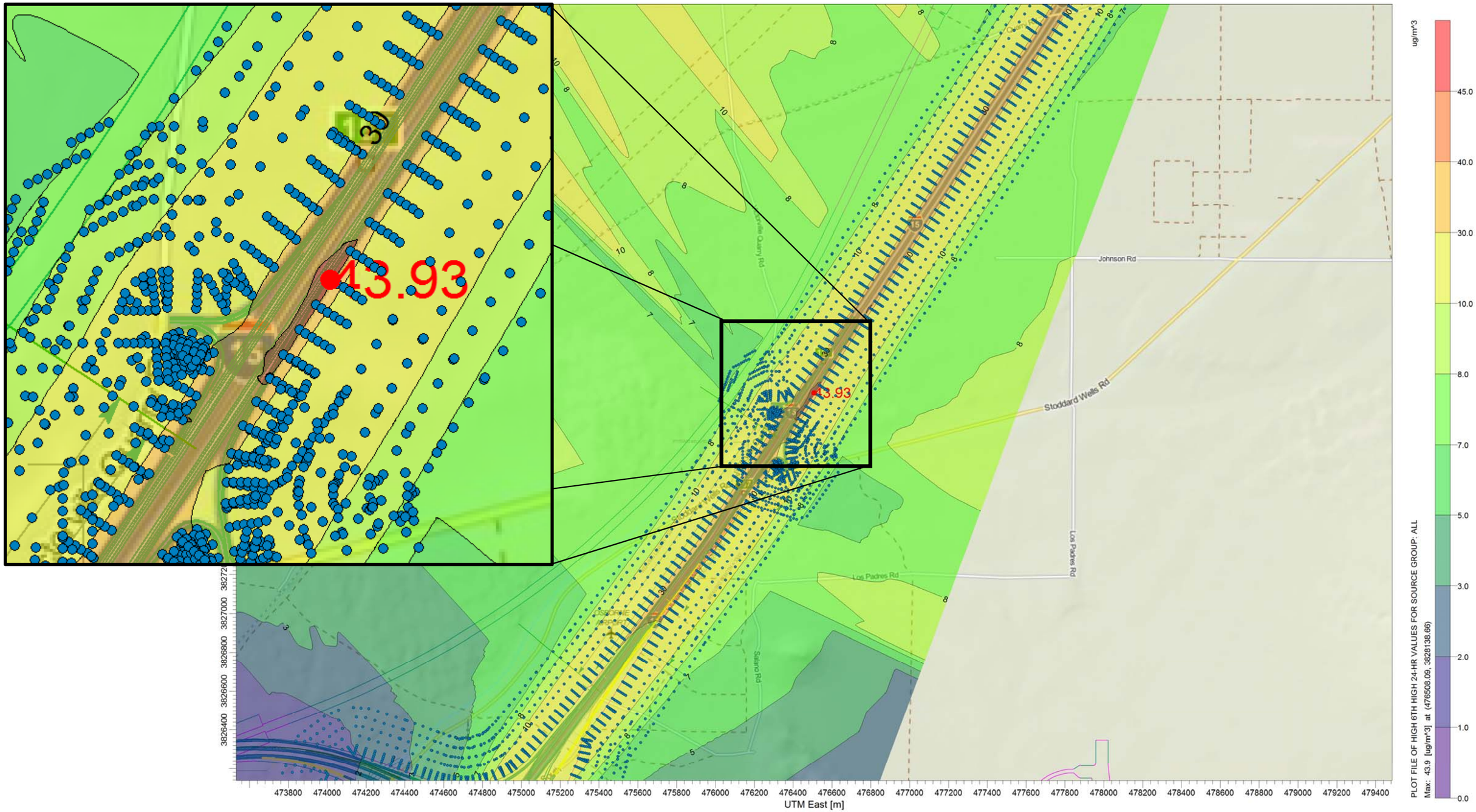


Figure 16. Contour Map of Concentrations and Location of the highest 6th highest 24-hour PM_{10} in 2040

Attachment A

Methods and Assumption Submitted to TCWG in June 2011

Method and Assumptions requiring Review and Concurrence by TCWG:

The Geographic Area covered by the analysis:

The proposed project is located in the High Desert area of Los Angeles and San Bernardino Counties and extends for a distance of approximately 63 miles between SR-14 in the City of Palmdale and SR-18 in the Town of Apple Valley. In Los Angeles County, the High Desert Corridor (HDC) roughly follows the Avenue P-8 corridor. In San Bernardino County, the HDC runs slightly south of El Mirage Road and then follows Air Expressway Road near I-15. East of I-15, the proposed route curves south until it ends at SR-18 in the Town of Apple Valley at Bear Valley Road. The hot-spot conformity analysis will be prepared for the portion of the proposed HDC in San Bernardino County, from the county line to SR-18. The portion of the proposed HDC in Los Angeles County is in an area that is in nonattainment only for ozone.

General Approach and Analysis years for emissions and air quality modeling:

The hot-spot analysis will evaluate the build scenarios first to see if a new or worsened PM_{10} NAAQS violation is predicted. There are currently 8 Alternatives as follow, including a No-Build Alternative: TSM/TDM; Freeway/Expressway; Freeway/Toll way; Avenue P-8 Corridor, SR-138 and SR-18 Improvements; Freeway/Expressway with ROW for potential High Speed Rail (HSR) facility; Freeway/Toll way with ROW for potential HSR facility; and a Hybrid of the alternatives.

The hot-spot analysis will follow the December 2010 EPA Guidance for Quantitative Analyses. The following analysis years will be evaluated for the existing, opening, and horizon years: 2010, 2020, and 2040.

Construction at each individual site is not anticipated to last more than 5 years; and therefore, the construction emissions will not be included in this hot-spot analysis because they are considered temporary as defined in 40 CFR 93.123(c)(5).

Emissions and Air Quality Models and Methods to be used:

EMFAC2007 will be used in “emfac” mode for emissions inventory; and AERMOD will be used for dispersion due to necessity for modeling of freeways and nearby sources. Future developments of EMFAC will be considered and incorporated only when required by EPA for conformity purposes for this project.

Applicable PM NAAQS to be evaluated:

The Mojave Desert Air Basin within San Bernardino County is currently in nonattainment of the 24-hour PM_{10} NAAQS; so the applicable NAAQS for the purpose of this hot-spot analysis is 150 $\mu g/m^3$ for the 24-hour PM_{10}. There are no applicable annual PM_{10} NAAQS.

Type of PM emissions to be modeled for project sources:

Direct exhaust emissions of PM_{10} (EMFAC2007); Brake and Tire wear PM_{10} (EMFAC2007); and re-entrained PM_{10} paved road dust (using the January 2011 AP-42).

Nearby Sources:

A number of nearby sources have been identified based on the State Facility Inventory Database (see attached map and spreadsheet). Among those identified are large cement and aggregate plants. Only nearby PM_{10} sources within approximately 2 miles of the proposed alignments will be considered in the modeling.

HSR alternatives only propose to preserve ROW with no engineering plans to open any stations or to implement the actual HSR; therefore, no emissions will be considered attributed by the HSR components.

Receptor Locations:

Receptors near sensitive zones will be sited just outside the proposed project ROW (< 5 meters) with finer spacing of 10 meters in a grid format out to 50 meters from the ROW; and with wider spacing of 50 meters in a grid format out to 150 meters.

Receptors in the rural or commercial/non-sensitive zones will be sited just outside the proposed project ROW with wider spacing of 50 meters in a grid format out to 150 meters from the proposed ROW.

Meteorological and Background Data:

Victorville monitoring station is maintained by the MDAQMD, located at 14306 Park Avenue in the City of Victorville, approximately 0.2 miles west of I-15 and 0.25 miles north of SR-18. The Avenue P-8 Corridor Alternative roughly follows the existing SR-18 alignment to the junction with I-15, located approximately 0.25 miles from the Victorville station. The Freeway/Expressway/Toll Alternatives of the HDC are located approximately 4 miles north of the Victorville station. As the Victorville station is located in close proximity to freeway (I-15) and highway (SR-18) facilities with a similar level of use anticipated in the HDC; it may be considered as site-specific and the hot-spot analysis will be prepared with the meteorological and monitoring data at the Victorville station upon concurrence.

No preprocessed AERMOD-ready meteorological data are readily available from the MDAQMD or ARB that utilize the most current surface or upper air data. A preprocessed AERMOD-ready data set has been identified from dispersion modeling done for a nearby power plant. However, the preprocessed data set was created to represent the Victorville station with the surface data from 2002 through 2004 and upper air data from the Mercury-Desert Rock Airport in Mercury, NV. Upon concurrence by TCWG, the hot-spot analysis will be prepared using this preprocessed AERMOD-ready data.

The Victorville station is located close to the I-15 (PM 40.509) with a daily total volume of approximately 87,000; and to SR-18 (PM 96.571) with a daily total volume of approximately 43,500 based on the Caltrans 2009 count data. The Victorville station is located in a commercial area and is similar to portions of the proposed alignments of the HDC within the urban area. It should be noted that large portions of the proposed HDC alignments are located in a rural and desert area. Upon concurrence, the hot-spot analysis will be prepared based on the background PM_{10} concentrations at the Victorville station.

Project-specific data to be used:

A traffic analysis is being prepared and operational analyses will be performed. Traffic data for the new mainlines will become available this summer. Although there are 8 Alternatives for the proposed project, the traffic analysis, for the purpose of forecast modeling, will evaluate 4 scenarios only – No-Build, and various toll and freeway/expressway options.

Schedule for conducting the analysis and points of consultation:

The analysis will be performed as the project specific traffic data become available (this summer per project schedule) and the hot-spot analysis may be submitted for review and concurrence by TCWG in the late 2011 or early 2012.

Attachment B

Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train by California High Speed Rail

URS/HMM/Arup Joint Venture

[redacted]

MEMORANDUM

To: **PMT**
From: Nathalia Prasetyo Jo (URS)
Date: July 12, 2010
Subject: **Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train**

Wind erosion occurs when drag forces or shear stresses exerted by the wind exceed the retention forces acting on particles or debris at the surface. Once the minimum wind speed required to initiate particle motion (threshold friction velocity) has been reached, wind erosion occurs as a function of wind power or wind speed.

Trains traveling at high velocity, such as the High-Speed Train, drag the surrounding air along the side of its body, which induces sideways turbulent fluctuations and rear wake. The strong turbulent airflow along the sides of a moving train and the wake at the rear of the train may resuspend erodible debris and fine particulates from the surface of the surrounding impacted area, similar to particle resuspension from wind erosion.

Methodology

To estimate the fugitive dust emission from the particle resuspension, the AP42 guidance Chapter 13.2.5 Wind Erosion was used to quantify the emission factor for wind-generated fugitive particulates emissions from a passing High-Speed Train. This memo presents the approach used to estimate the annual PM_{10} and $PM_{2.5}$ emissions from the High-Speed Train operation based on the AP42 guidance and current project description (at 15%design).

Annual wind-generated fugitive dust/particulates emissions from a passing High-Speed Train are a function of the impacted zone area and the wind erosion emission factor (per unit area). According to the AP42 guidance, the wind erosion emission factor emission factor (in terms of mass per unit area) is a function of the disturbance frequency (where disturbance is defined as an action that results in the exposure of fresh surface material) in a year and erosion potential (which depends on friction velocity and threshold friction velocity).

The influencing factors such as the impacted zone area, wind erosion emission factor, disturbance frequency, erosion potential and induced wind speed profile are discussed in detail in the following subsections.

Impacted Zone Area
The impacted zone area for the High-Speed Train scenario is defined as the surface area within both shoulders of the train track or within the right of way, at which the maximum friction

velocity on the surface material is higher than the threshold friction velocity (the minimum wind speed required to initiate particle motion).

The length of the impacted zone area is equal to the length of the at-grade track. Along the Fresno to Bakersfield alignment, the length of the at-grade track is approximately 43.56 miles (total track length subtracted by the elevated track section length)[1].

The width of the impacted zone is twice the distance from the beginning of the right of way area to the point where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity (assumed 0.19 m/s, based on the lowest value available for disturbed desert soil[2]). In this memo, the width of the impacted zone is referred to in terms of distance from the train body. The doubling of width was to account for the right of way area on the left and right side of the train track.

The boundary for the impacted zone is assumed to start at beginning of the right of way area (approximately one meter from the train body) and end at the distance where the corresponding friction velocity is equal to the threshold friction velocity. The surface area from the train body to the beginning of the right of way area was assumed to consist of non-erodible material because that area is within the embankment and rock ballast area.

To quantify the fugitive dust emissions generated by a High-Speed train passing at the speed of 220 mph, the emission factor needs to account for the induced wind speed profile and the distance within the impacted zone. Further discussion on the determination of the impacted zone boundary is presented in the induced wind speed section.

Wind Erosion Emission Factor

Based on the AP42 guidance, the emission factor for wind-generated dust emissions from the surface material of the impacted zone should be calculated as follows:

Emission factor (g/m2): $k\sum_{i=1}^{N} P_i$ (Eq.1)

Where:

k = particle size multiplier

N = number of disturbances per year

Pi = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances, g/m^2

As described in Eq.1, the emission factor is a function of the disturbance frequency and erosion potential. The approach and assumptions used to determine the disturbance frequency and

1 The length of at-grade track was estimated based on the Fresno to Bakersfield HST Alignments Preliminary Draft Map, URS, 2010.

2 Watson, J.G, "Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads", DRI Document No. 685-5200. IF2: August 2, 1996.

erosion potential for the High-Speed Train operation scenario are presented as follows:

Disturbance Frequency

The disturbance is defined as an action that results in the exposure of fresh surface material. The number of disturbances per year during normal High-Speed Train operation is equal to the frequency of right of way access in a year (for maintenance or other purposes). The wind generated emission factor is dependent on the disturbance frequency because each time that the right of way surface area is disturbed, its erosion potential is restored.

The right of way surface area is currently expected to be disturbed twice monthly for visual inspection based on the operational and maintenance schedule of the High-Speed Train. Therefore, the erosion potential is assumed to be restored twice a month, which translates to 24 disturbances/year or N=24[3].

Erosion Potential

The erosion potential (P_i) is the finite availability of erodible material (mass/area) on a surface. For the wind erosion emission factor calculation, P_i is defined as the erosion potential corresponding to the observed fastest mile of wind[4] for the i_{th} period between disturbances, and can be calculated as follows:

$$P = 58\,(u^* - u^*_t)^2 + 25\,(u^* - u^*_t) \qquad \text{(Eq.2)}$$

$$P = 0 \text{ for } u^* < u^*_t \qquad \text{(Eq.3)}$$

Where:

u^* = friction velocity (m/s)

u^*_t = threshold friction velocity (m/s). Assumed 0.19 m/s, based on the lowest value available for disturbed desert soil.

Since there was no documentation for the friction velocity from High-Speed Train operation, induced wind velocity was used to estimate the friction velocity on the right of way surface based on the correlation given by Eq.4.

$$u_z = \frac{u^*}{0.4}\ln\left(\frac{z}{z_0}\right) \qquad (z > z_0) \qquad \text{(Eq.4)}$$

Where:

u_z = induced wind speed, m/s

u^* = friction velocity, m/s

z = height above test surface, cm

z_0 = roughness height, cm

0.4 = von Karman's constant, dimensionless

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3 Email correspondence between Thomas Baily (URS) with Arnold Luft (ARUP) dated July 6, 2010.

4 Fastest mile is the fastest one minute observed wind speed taken from a multiple register that contains a time record of the passing of each mile of wind

By substituting the friction velocity (u*) from Eq.4 into Eq.2 and the erosion potential (Pi) from Eq. 2 into Eq. 1, the emission factor in Eq.1 can be expressed as a function of induced wind speed as shown in Eq. 5

$$\text{Emission factor (g/m}^2\text{):}\ k\sum_{i=1}^{N}\left[58\left(\frac{0.4\,u_z}{\ln\left(\frac{z}{z_0}\right)}-u_t^*\right)^2+25\left(\frac{0.4\,u_z}{\ln\left(\frac{z}{z_0}\right)}-u_t^*\right)\right]_i \qquad \text{(Eq.5)}$$

Where:
k = particle size multiplier (0.5 for PM_{10} and 0.075 for $PM_{2.5}$).
u_z = induced wind speed at a certain height above the surface (m/s). Note that emissions are only calculated in area with $u^* > u^*_t$. Because, when $u^* < u^*_t$, the erosion potential (P) is equal to zero.
u^*_t = threshold friction velocity. Assumed 0.19 m/s, based on the lowest value available for disturbed desert soil.
z = height above the surface (288 cm), based on 1/2 of the train height (1.88 m) and the average embankment height (3ft ~1 meter) with respect to the right of way5.
z_0 = surface roughness height (cm), assume 0.01 cm for the at grade right of way
0.4 = von Karman's constant, dimensionless

By substituting the assumptions above and other known parameters into Eq. 5, the equation can be simplified to.

$$\text{Emission factor (g/m}^2\text{):}\ k\sum_{i=1}^{N}\left[58\,(0.038955u_z-0.19)^2+25\,(0.038955u_z-0.19)\right]_i \ \text{(Eq.6)}$$

Where:
k = particle size multiplier (0.5 for PM_{10} and 0.075 for $PM_{2.5}$).
u_z = induced wind speed at a certain height above the surface (m/s). Note that emissions are only calculated in area with $u_z > 4.88$ m/s (a substitute for $u^* > u^*_t$). Because, when $u^* < u^*_t$, the erosion potential (P) is equal to zero.

As shown in Eq. 6, the emission factor can be expressed as a function of induced wind speed along the side of the train body. By integrating the emission factor function in Eq.6 across the induced wind speed values within the impacted zone boundary (u_z) area, and multiplying the emission factor by the number of disturbance (24 times per year) and the particle size multiplier (k), the annual fugitive dust emissions from the High-Speed Train activity can be estimated. Dust emissions generated by the wake at the rear of the train were not added to this calculation to avoid double counting. The erodible dust is already suspended in the air when the rear end of the train passes through and therefore additional turbulence or the rear wake will not contribute to more raised dust in the air.

Induced Wind Speed Profile

The width of the impacted zone is twice the distance from the beginning of the right of way to

5 Track related measurements are based on Technical Memorandum, Typical Cross Sections for 15% Design TM 1.1.21 Appendix A: Two Track At-Grade Drawing and Project Description Summary (June 28, 2010)

the point where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity. To determine the distance where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity, a wind speed profile analysis is required.

A study on the potential aerodynamic forces created by a passing High-Speed Train on nearby objects (such as humans standing in the proximity of the train) are influenced by train speed, distance from the train, and the geometry of the train[6]. Li, et. al. analyzed the maximum wind velocity around a human body for a specific train speed as a function of human-train distance based on different train shape models:

$$u = (1.2319)^{0.072v-4} \times (0.4575d^2 - 3.5496d + 9.1545) \qquad \text{(Eq.7)}$$

Where:

u: the maximum wind velocity around human body near the train (m/s).
d: human-train distance (m).
v: train running speed (m/s).

The range of train speeds specified for Eq. 7 are between 55.56 m/s and 97.22 m/s (between 124 mph and 217 mph) with a human-train distance between 1.0 m and 3.5 m. This raises questions about the validity of this equation to estimate aerodynamic forces from a High Speed train traveling at a speed of 220 mph.

An induced wind speed profile comparison was graphed to determine the relative accuracy of using Eq 7 to estimated aerodynamic forces for train speeds of 220 mp compared to 217 mph (the upper bound of the train speed range for Eq 7). Figure 1 shows that Eq. 7 presents a similar trend when a train speed of 220 mph is used as compared to a train speed of 217 mph. Therefore Eq. 7 can be used to determine the induced wind speed profile as a function of distance from train body for train passing at 220 mph.

6 Li, Renxian, et.al, "A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles", Trucks, Buses, and Trains, 2008.

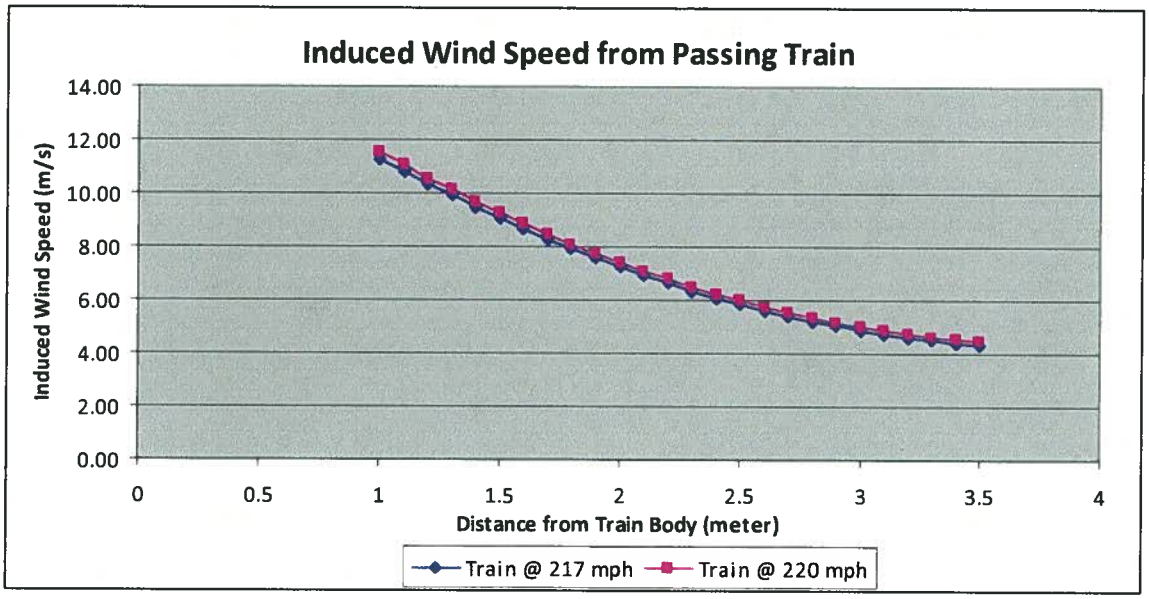

Figure 1. Wind Speed Profile Comparison from Train at 220 mph and 217 mph

Emission Calculation

The emission factor profiles over the distance from the train body are presented in Figure 2 and the emission factor over the impacted zone area is summarized in Table 1.

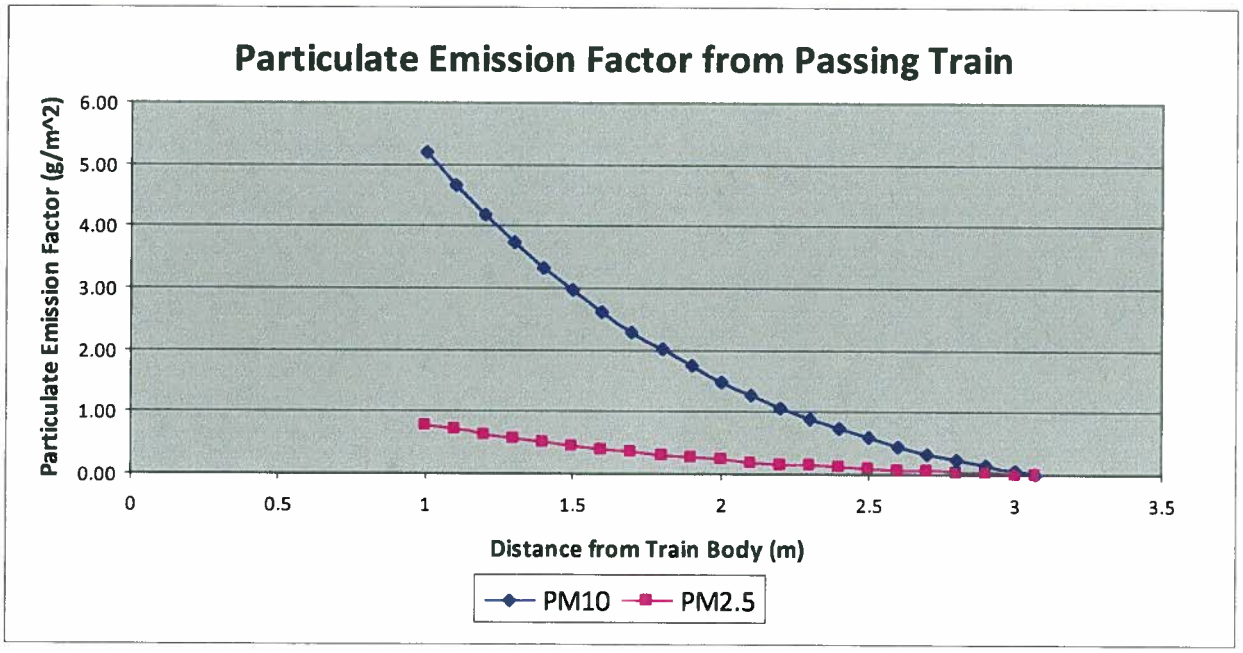

Figure 2. Particulate Emission Factor from Passing Train

Table 1. Emission Factor from Passing Train

Distance from Train-Body	Wind Speed (220 mph Train)	Friction Velocity	Erosion Potential	Emission Factor (g/m^2)	
(m)	u (m/s)	u*(m/s)	P (g/m^2)	PM_{10}	$PM_{2.5}$
1	11.53	0.45	10.37	5.18	0.78
1.1	11.03	0.43	9.33	4.67	0.70
1.2	10.56	0.41	8.38	4.19	0.63
1.3	10.10	0.39	7.49	3.75	0.56
1.4	9.66	0.38	6.68	3.34	0.50
1.5	9.24	0.36	5.92	2.96	0.44
1.6	8.83	0.34	5.23	2.62	0.39
1.7	8.45	0.33	4.60	2.30	0.34
1.8	8.08	0.31	4.02	2.01	0.30
1.9	7.72	0.30	3.48	1.74	0.26
2	7.39	0.29	3.00	1.50	0.22
2.1	7.07	0.28	2.56	1.28	0.19
2.2	6.77	0.26	2.16	1.08	0.16
2.3	6.48	0.25	1.79	0.90	0.13
2.4	6.22	0.24	1.46	0.73	0.11
2.5	5.97	0.23	1.17	0.58	0.09
2.6	5.74	0.22	0.90	0.45	0.07
2.7	5.53	0.22	0.67	0.33	0.05
2.8	5.33	0.21	0.46	0.23	0.03
2.9	5.15	0.20	0.27	0.14	0.02
3	4.99	0.19	0.11	0.05	0.01
3.07	4.88	0.19	0.01	0.00	0.00

As shown in Table 1, the corresponding friction velocity at the distance of 3.07 meters from the train body is equal to the threshold friction velocity of 0.19 m/s. Therefore, emission factor for wind-generated dust emissions should be calculated from the beginning of the right of way (1 meter from the train body) to the distance of 3.07 meters from the train body.

The emission factor for wind-generated particulate emissions from a passing High-Speed Train moving at 220 mph was calculated with the following steps:

- Using Eq. 6 and Eq. 7, integrate the emission factor over the distance of 1 meter to 3.07 meter from the train body.
- Multiply by particle size multiplier, k (0.5 for PM_{10} and 0.075 for $PM_{2.5}$)
- Multiply by 43.56 miles of at grade track length (impacted zone length).
- Multiply by two (to account for the left and right shoulders).
- Multiply by 24 disturbances per year (twice monthly).

Using the trapezoidal rule for numerical integration, the results for emission factor for wind-generated particulate emissions from a passing High-Speed train moving at 220 mph are 26.53 lb PM_{10} /miles of at grade track and 3.98 lb $PM_{2.5}$/ miles of at grade track. Multiplied by the

impacted zone length and disturbance frequency, the annual PM_{10} and $PM_{2.5}$ emissions from the High-Speed Train operation for the Fresno-Bakersfield section are 13.9 ton of PM_{10} /year and 2.1 ton of $PM_{2.5}$ /year.

Reference

H. Lee, "Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to High-Speed Trains Operations", DOT/FRA/ORD-99/11, December 1999.

U.S. Environmental Protection Agency (USEPA), "Compilation of Air Pollutant Emission Factors Chapter 13.2.5", AP-42, 5th ed., Washington, D. C., 2006.

Li, Renxian, et.al, "A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles", Trucks, Buses, and Trains, 2008.

Watson, J.G, "Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads", DRI Document No. 685-5200. IF2: August 2, 1996.

Attachment C

Request to EPA for Determination of Acceptability of Lakes' AERMOD View MPI (For Previous Hot-Spot Analysis concurred with by TCWG in June 2014)

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 SOUTH MAIN STREET, SUITE 100
LOS ANGELES, CA 90012-3606
PHONE (213) 897-0362
FAX (213) 897-0360
TTY (213) 897-4937

Flex your power!
Be energy efficient!

January 7, 2014

Dr. Deborah Jordan
Director, Air Division
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

Attention: Carol Bohnenkamp

RE: Request for Determination of Acceptability of Lakes' AERMOD parallel version with Message Passing Interface (MPI) parallel version on Project-Level Conformity Analysis

Dear Ms. Bohnenkamp:

The California Department of Transportation (Caltrans) is currently preparing an Environmental Impact Statement and project-level hot-spot analyses for the High Desert Corridor (HDC) project in the Mojave Desert Air Basin (MDAB) in Los Angeles and San Bernardino Counties. In accordance with the EPA's Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas dated November 2013 (EPA Quantitative Guidance), Caltrans has selected AERMOD to model air quality impacts within and near the limits of the HDC project that proposes several Alternatives including new 63-mile transportation corridor improvements (Caltrans EA No. 2600U).

While the EPA Quantitative Guidance recommends the use of the EPA standard AERMOD model (preferred model) available on the EPA's SCRAM website, commercial products are also available by third-party vendors as optimized versions of AERMOD that can provide the benefit of reduced model runtimes from "parallel" processing, utilizing multiple processors. Caltrans proposes to utilize one of such commercial products, AERMOD View MPI, marketed by Lakes Environmental (Lakes); and respectfully requests that EPA determine acceptability of this alternative model in accordance with the Guideline on Air Quality Models (Appendix W to 40 CFR Part 51).

The HDC project proposes Alternatives that include construction of new Freeway, Expressway, Toll lanes, and/or high-speed rail components for approximately 63 miles in total lengths in the high desert area of Los Angeles and San Bernardino Counties. Due to the complexities associated with setting up inputs and modeling various source types for these project alternatives,

the use of Lakes AERMOD View MPI is proposed. As indicated in the attached validation documentation by Lakes, Lakes has adjusted the EPA AERMOD source code (version 12345) by reorganizing the computation problem into independent parts so that each processing element can execute its part of the algorithm simultaneously with all others (i.e., in parallel). This is accomplished using the Message Passing Interface (MPI) communication protocol which makes it possible for different processors to communicate with each other.

Section 3.2 of Appendix W provides applicable guidance with which an EPA's Regional Office may determine acceptability of alternative models such as Lakes AERMOD View MPI. Paragraph 3.2.2.b under Section 3.2 cites 3 separate conditions under which the use of such an alternative model may normally be determined acceptable. Condition (1) under this Paragraph recommends a demonstration that the model produces concentration estimates equivalent to the estimates obtained using a preferred model. Condition (2) under this Paragraph recommends a statistical performance evaluation using measured air quality data whose results indicate the alternative model performs better for this project than the preferred model. Condition (3) is applicable if the preferred model is less appropriate for the specific project, or if there is no preferred model.

Condition (2) is considered not applicable for this project because the Lakes AERMOD View MPI is not expected to perform better for this project than the preferred model; but the alternative model is rather expected to perform at the same level as it relies its executable on the preferred model. Condition (3) is considered not applicable for this project because the EPA Quantitative Guidance recommends the use of the preferred model and its use is appropriate. Condition (1) evaluates if the alternative model produces concentration estimates equivalent to those obtained using a preferred model; and is considered applicable for demonstration of acceptability of the Lakes AERMOD View MPI for this project.

As part of an effort by Lakes to validate the AERMOD View MPI in comparison to the preferred model, 27 test cases, as published by EPA, were processed for six different AERMOD/AERMET scenarios. In addition to the EPA test cases, Lakes processed other test cases to ensure that all of AERMOD's options were tested in the parallel environment. At the request of EPA, Caltrans also performed additional test runs using the MPI as well as the preferred model in which an elongated area and line volume source types, frequently utilized in transportation projects such as the HDC project, were evaluated. Caltrans selected and ran a model input provided as part of the EPA's training in September 2011 on completing quantitative PM hot-spot analyses, along with updated meteorological data files compatible with the latest preferred model version 12345.

Results from the Lakes' test runs are documented in the attached Lakes Environmental Software AERMOD View MPI Validation (Version 12345); and those from Caltrans runs are documented in the attached Outputs for Elongated Area and Line Volume Source Types. As demonstrated in the attachments, the concentration estimates based on the Lakes AERMOD View MPI are consistent with those based on the EPA preferred model. The concentration estimates from the Lakes AERMOD View MPI demonstrate that they are identical or nearly identical with (and thus within two percent of) the estimates obtained from the preferred model. The results satisfy the

conditions established in Section 3.2, paragraphs 3.2.2.b.(1) and 3.2.2.c; and they demonstrate that the Lakes AERMOD View MPI is so nearly identical to the preferred model that it can be treated for practical purposes as the preferred model.

It is therefore requested that EPA Region IX determine acceptability of the Lakes AERMOD View MPI for the proposed use as a tool in conducting project-level hot-spot analyses for the HDC project described above.

If you have any questions regarding this request, please contact me at 213.897.6117 or andrew.yoon@dot.ca.gov.

Sincerely,

Andrew Yoon, P.E.
Senior Transportation Engineer
Air Quality Branch
Office of Environmental Engineering Design

Attachments

Cc: Matthew Lakin – Chief, Air Division, EPA Region IX
Karina O'Connor – EPA, Region IX
Jim Andrews – Caltrans HQ
Mike Brady – Caltrans HQ

Lakes Environmental Software
AERMOD MPI™ Validation (Version 12345)

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1 Executive Summary

Lakes Environmental Software performed extensive software validation of its parallel AERMOD MPI™ executable to substantiate that model results are identical to those generated using the U.S. EPA AERMOD executable. Study findings verify that results generated by *Lakes Environmental*'s AERMOD MPI are **identical** to results generated using the U.S. EPA AERMOD Version 12345 executable.

This document details the test cases used to validate AERMOD MPI. Explanations, project setups, and results are provided as well as a methodology description.

2 Background

The U.S. EPA AERMOD modeling executable (dated 12345) was written in a traditional manner where computations are executed serially. While a perfectly acceptable method, the U.S. EPA AERMOD serial executable is not capable of running in such a way that computation performance can be improved by taking advantage of multiple central processing units (CPUs). Parallel computing has become the modern standard in computer architecture, predominantly in the form of multicore processors. Today's modern PCs come standard with multiple CPUs, with 2 – 8 core CPUs now commonplace.

Due to increasing complexities associated with today's air quality modeling and permitting requirements, AERMOD air dispersion modeling run times have increased significantly and can require days, weeks, and even months to complete. In order to overcome this obvious limitation and take advantage of improvements in modern PC computing power, *Lakes Environmental* developed a "parallelized" version of the AERMOD executable, called AERMOD MPI. The objective of parallel processing is to reduce runs times by sharing the computation workload over multiple processors. To achieve this objective *Lakes Environmental* adjusted the U.S. EPA AERMOD source code (Version 12345) by reorganizing the computation problem into independent parts so that each processing element can execute its part of the algorithm simultaneously with all others (i.e., in parallel). This was specifically accomplished using the Message Passing Interface (MPI) communication protocol which makes it possible for different processors to communicate with each other which makes parallelization possible. Specific to implementation with AERMOD MPI, parallelization was implemented at the receptor level as shown in Figure 1.

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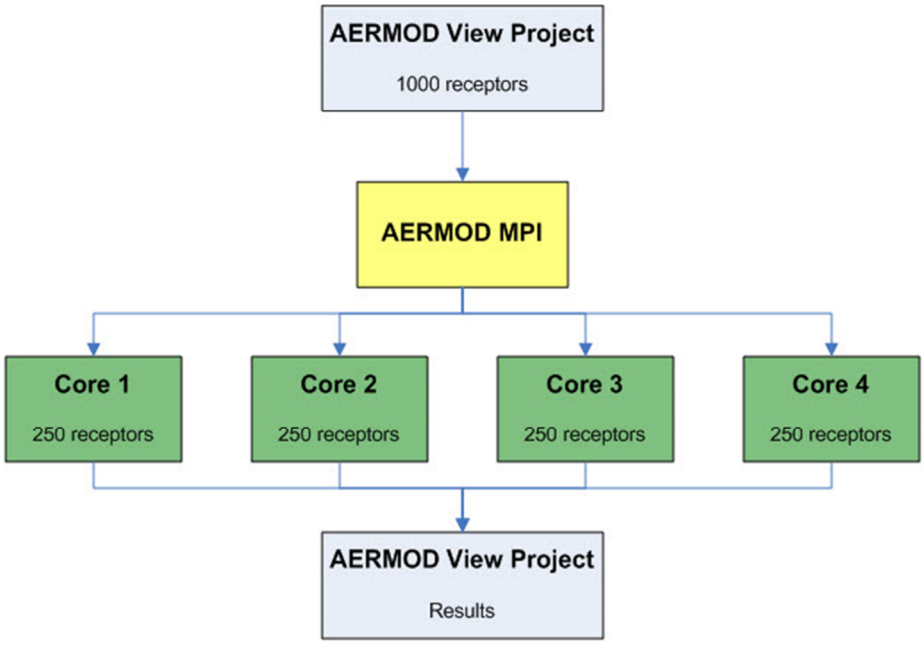

Figure 1. Example Schematic of AERMOD MPI Process on a 4 CPU System

Extensive testing of the AERMOD MPI indicates that run times decrease approximately linear with the number of processors. For example:

1. For a 4-Core processor, the gain in processing speed is approximately 3.75 times faster.
2. For an 8-Core processor, the gain is processing speed is almost a full 8 times faster.

While demonstration of improved model performance is an important accomplishment, software validation must also be performed to substantiate the numerical accuracy of model results. To accomplish this objective, *Lakes Environmental* performed extensive software validation to verify that the AERMOD MPI parallel executable produces results identical to those generated using the U.S. EPA AERMOD serial executable. Use of the term "software validation", in context of this memorandum, refers to the confirmation by examination and provision of objective evidence that software specifications conform to user needs and intended uses, and that the particular requirements implemented through software can be consistently fulfilled. This definition is further extended to apply to the numerical validation and verification of accuracy of the expected model results (for a defined set of conditions). The following Section describes validation methodologies completed in support of this study.

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3 Validation Methodology

Lakes Environmental performed extensive numeric validation by comparing results generated using the AERMOD MPI parallel version against results generated using the U.S. EPA AERMOD serial executable. To ensure that a comprehensive set of applicable test conditions was used during model validation, the extensive U.S. EPA test project library was evaluated. U.S. EPA specifically developed this set of test cases to document test results across an extensive set of model configuration options and settings.

Each test case was executed on a dual-core machine three separate times: first using the original U.S. EPA AERMOD executable, next with the AERMOD MPI executable utilizing a single processor, and finally with the AERMOD MPI executable utilizing both processors.

All output files were compared for exact matches. Noting the exceptions described in Section 5, *Lakes Environmental* AERMOD MPI produced identical results to the original U.S. EPA AERMOD model in all test cases.

3.1 EPA Test Cases

U.S. EPA published test cases with the release of the AERMOD Version 12345 executable. Each of the 27 test cases were processed for six different AERMOD/AERMET scenarios to "*document test results for AERMOD changes only versus AERMET changes only versus AERMOD and AERMET changes combined*". The 27 test cases are summarized in Table 1 while Table 2 describes the six scenarios.

Table 1. EPA Test Case Descriptions

Test Name	Description
AERTEST	Simple test case referenced in AERMOD User's Guide
ALLSRCS	Test case including all standard source types
CAPPED	Capped and horizontal stack tests with BETA option
CAPPED_NOSTD	Capped and horizontal stack tests using MC w/NOSTD option
TESTGAS	Gas deposition test case with limited screening met data
TESTGAS2	Gas deposition test case with 1 year of Houston met data
TESTPART	Particle deposition test with limited screening met data
TESTPART2	Particle deposition test with 1 year of Houston met data
OPENPITS	OPENPIT source test case
LOVETT	Lovett model evaluation data
FLATELEV	FLAT & ELEV test case based on Lovett data
MCR	Martin's Creek model evaluation data
MULTURB	Multiple urban area test case
HRDOW	Hour-of-day by day-of-week EMISFACT test case
SURFCOAL	Surface coal mine evaluation data

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Test Name	Description
OLM	OLM test case
OLMGRP	OLM test case with OLMGROUP option
PVMRM	PVMRM test case
PSDCRED	PVMRM test case with PSDCREDIT BETA option
SCIMTEST	SCIM (Sampled Chronological Input Model) test case
TESTPM25	PM-2.5 test case with 5-years of met data
TESTPM10_1986	PM-10 test case with MULTYEAR option - Year 1
TESTPM10_1987	PM-10 test case with MULTYEAR option - Year 2
TESTPM10_1988	PM-10 test case with MULTYEAR option - Year 3
TESTPM10_1989	PM-10 test case with MULTYEAR option - Year 4
TESTPM10_1990	PM-10 test case with MULTYEAR option - Year 5
TESTPM10	PM-10 test case with single 5-year data file (1986-1990)

Table 2. EPA Test Case Scenarios

Test No.	AERMOD/AERMET Runs	Description	VectorWS in AERMOD V12345
1	12060_Def_11059_Def	12060 AERMOD/11059 AERMET	N/A
2	12060_Def_12345_Def	12060 AERMOD/12345 AERMET	N/A
3	12345_Def_11059_Def	12345 AERMOD/11059 AERMET	No
4	12345_Def_12345_Def	12345 AERMOD/12345 AERMET	No
5	12345_Vect_11059_Def	12345 AERMOD/11059 AERMET	Yes
6	12345_Vect_12345_Def	12345 AERMOD/12345 AERMET	Yes

The only changes made to these test cases were the paths of input and output files in the AERMOD.INP file associated with each case. The test case files used for the AERMOD MPI validation come from the U.S. EPA Support Center for Regulatory Atmospheric Modeling (SCRAM) website located at: http://www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod.

3.2 Additional Test Cases

In addition to the EPA test cases, other test cases were used to ensure that all of AERMOD's options were tested in the parallel environment. Details for each additional test case are further described in the following sub-sections.

3.2.1 Output File Types

The various output files that AERMOD is capable of producing were evaluated with AERMOD MPI. All projects in this set contain point, volume, and area sources; elevated terrain; and gridded and discrete receptors.

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1. **MAXIFILE** Threshold violation file created
2. **POSTFILE** Post-processing file created
3. **PLOTFILE** Contour plot file created
4. **TOXXFILE** TOXX model file created
5. **RANKFILE** Ranked output values file created
6. **EVALFILE** Evaluation file created

3.2.2 Source Types

These test cases used all of the different source types, including the beta source types and a pseudo line source. Flat terrain and gridded receptors were used.

1. **AREA** Area source
2. **BETA** Beta capped and horizontal point sources with downwash
3. **LINE** Pseudo-line source using separated volume sources
4. **LINE_NEW** Line source (as implemented in AERMOD 12345)
5. **OPENPIT** Open pit source (using modified AERMOD MPI routine – see Section 5 of this report)
6. **PT** Point source, no downwash
7. **PT_DWSH** Point source with downwash
8. **VOLUME** Volume source

3.2.3 Variable Emissions

These test cases utilized the different variable emission types as well as the external hourly emission file. All projects in this set contain point, volume, and area sources; elevated terrain; with gridded and discrete receptors.

1. **EMIS1** By hour of day
2. **EMIS3** By season, by month, by hour of day, by wind speed
3. **EMIS4** By season/hour, by season/hour/day, by season/hour/7 days, by month/hour/day, by month/hour/7 days
4. **EMIS5** hourly emission file

3.2.4 Chemical Transformations

The test cases in this set modeled chemical transformation options available in AERMOD. All projects in this set contain point, volume, and area sources; elevated terrain; with gridded and discrete receptors.

1. **OLM** Ozone Limiting Method
2. **PSD** PSD groups and PVMRM
3. **PVMRM** Plume Volume Molar Ratio Method
4. **SO2** SO2 with the urban option and exponential decay

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3.2.5 Deposition

Our evaluation test cases tested different deposition types. All projects in this set contain point, volume, and area sources; elevated terrain; with gridded and discrete receptors.

1. **METH1** Particle deposition, method 1
2. **METH2** Particle deposition, method 2
3. **GAS** Gas deposition

3.2.6 Pollutants

Different pollutant types are tested in these cases. All projects in this set contain point, volume and area sources; elevated terrain; with gridded and discrete receptors.

1. **Pollute1** SO2 with urban option
2. **Pollute2** NOx with OLM
3. **Pollute3** CO
4. **Pollute4** TSP
5. **Pollute5** PM-10 Pre 1997 NAAQS
6. **Pollute6** PM-2.5
7. **Pollute7** Other

4 Sample Results Comparisons

The following sections contain samples of output files to illustrate that the *Lakes Environmental* AERMOD MPI executable gives identical results to the original U.S. EPA AERMOD executable. Comparisons included:

1. Output files from the AERTEST project from the EPA test cases (12345 met)
2. Summary files from the ALLSRCS project from the EPA test cases (12345 met)
3. Plot files from the LOVETT project from the EPA test cases (12345 met), and
4. Rank files from the RANKFILE project from *Lakes Environmental* additional test cases (see section 3.2.1).

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4.1 Output File – AERTEST (Original U.S. EPA)

```
*** THE MAXIMUM   50   1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
    INCLUDING SOURCE(S):     STACK1      ,

                    ** CONC OF SO2      IN MICROGRAMS/M**3                          **

RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   1.     753.65578 (88030111) AT (    303.11,    -175.00)  GP       26.     271.98810 (88030114) AT (    984.81,    -173.65)  GP
   2.     746.09698 (88030111) AT (    433.01,    -250.00)  GP       27.     268.29042 (88030114) AT (    350.00,       0.00)  GP
   3.     621.55497 (88030111) AT (    328.89,    -119.71)  GP       28.     256.27434 (88030116) AT (    866.03,    -500.00)  GP
   4.     611.84333 (88030111) AT (    469.85,    -171.01)  GP       29.     250.04231 (88030113) AT (    866.03,    -500.00)  GP
   5.     439.74373 (88030114) AT (    492.40,     -86.82)  GP       30.     248.67339 (88030113) AT (    321.39,    -383.02)  GP
   6.     423.53134 (88030113) AT (    433.01,    -250.00)  GP       31.     242.65242 (88030116) AT (    328.89,    -119.71)  GP
   7.     402.45797 (88030114) AT (    469.85,    -171.01)  GP       32.     242.52725 (88030114) AT (    939.69,    -342.02)  GP
   8.     392.23024 (88030113) AT (    383.02,    -321.39)  GP       33.     236.55604 (88030111) AT (    134.06,    -112.49)  GP
   9.     386.26151 (88030111) AT (    866.03,    -500.00)  GP       34.     230.60531 (88030113) AT (    766.04,    -642.79)  GP
  10.     386.22641 (88030111) AT (    151.55,     -87.50)  GP       35.     222.89094 (88030113) AT (    224.98,    -268.12)  GP
  11.     371.92116 (88030116) AT (    433.01,    -250.00)  GP       36.     221.15706 (88030116) AT (    268.12,    -224.98)  GP
  12.     367.13462 (88030111) AT (    268.12,    -224.98)  GP       37.     210.71844 (88030114) AT (    433.01,    -250.00)  GP
  13.     365.10735 (88030113) AT (    303.11,    -175.00)  GP       38.     203.08634 (88030116) AT (    939.69,    -342.02)  GP
  14.     355.47062 (88030114) AT (    344.68,     -60.78)  GP       39.     190.44350 (88030114) AT (    303.11,    -175.00)  GP
  15.     335.65680 (88030113) AT (    268.12,    -224.98)  GP       40.     177.92786 (88030116) AT (    766.04,    -642.79)  GP
  16.     333.27041 (88030116) AT (    469.85,    -171.01)  GP       41.     167.26912 (88030111) AT (    344.68,     -60.78)  GP
  17.     329.81496 (88030111) AT (    164.45,     -59.85)  GP       42.     152.14069 (88030116) AT (    492.40,     -86.82)  GP
  18.     326.47253 (88030111) AT (    383.02,    -321.39)  GP       43.     149.12870 (88030114) AT (   1000.00,       0.00)  GP
  19.     325.20497 (88030113) AT (    469.85,    -171.01)  GP       44.     146.07476 (88030111) AT (    766.04,    -642.79)  GP
  20.     324.71723 (88030114) AT (    500.00,       0.00)  GP       45.     144.17532 (88030111) AT (    172.34,     -30.39)  GP
  21.     322.70553 (88030114) AT (    328.89,    -119.71)  GP       46.     143.30852 (88030113) AT (    939.69,    -342.02)  GP
  22.     306.89487 (88030116) AT (    383.02,    -321.39)  GP       47.     137.61180 (88030111) AT (    492.40,     -86.82)  GP
  23.     297.95832 (88030111) AT (    939.69,    -342.02)  GP       48.     135.38082 (88030116) AT (    321.39,    -383.02)  GP
  24.     291.38226 (88030113) AT (    328.89,    -119.71)  GP       49.     133.58285 (88030116) AT (    344.68,     -60.78)  GP
  25.     273.59073 (88030116) AT (    303.11,    -175.00)  GP       50.     131.03984 (88030112) AT (    433.01,    -250.00)  GP

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```


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4.2 Output File – AERTEST (AERMOD MPI)

```
*** THE MAXIMUM   50   1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
    INCLUDING SOURCE(S):     STACK1      ,

                    ** CONC OF SO2      IN MICROGRAMS/M**3                          **

RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   1.     753.65578 (88030111) AT (    303.11,    -175.00)  GP       26.     271.98810 (88030114) AT (    984.81,    -173.65)  GP
   2.     746.09698 (88030111) AT (    433.01,    -250.00)  GP       27.     268.29042 (88030114) AT (    350.00,       0.00)  GP
   3.     621.55497 (88030111) AT (    328.89,    -119.71)  GP       28.     256.27434 (88030116) AT (    866.03,    -500.00)  GP
   4.     611.84333 (88030111) AT (    469.85,    -171.01)  GP       29.     250.04231 (88030113) AT (    866.03,    -500.00)  GP
   5.     439.74373 (88030114) AT (    492.40,     -86.82)  GP       30.     248.67339 (88030113) AT (    321.39,    -383.02)  GP
   6.     423.53134 (88030113) AT (    433.01,    -250.00)  GP       31.     242.65242 (88030116) AT (    328.89,    -119.71)  GP
   7.     402.45797 (88030114) AT (    469.85,    -171.01)  GP       32.     242.52725 (88030114) AT (    939.69,    -342.02)  GP
   8.     392.23024 (88030113) AT (    383.02,    -321.39)  GP       33.     236.55604 (88030111) AT (    134.06,    -112.49)  GP
   9.     386.26151 (88030111) AT (    866.03,    -500.00)  GP       34.     230.60531 (88030113) AT (    766.04,    -642.79)  GP
  10.     386.22641 (88030111) AT (    151.55,     -87.50)  GP       35.     222.89094 (88030113) AT (    224.98,    -268.12)  GP
  11.     371.92116 (88030116) AT (    433.01,    -250.00)  GP       36.     221.15706 (88030116) AT (    268.12,    -224.98)  GP
  12.     367.13462 (88030111) AT (    268.12,    -224.98)  GP       37.     210.71844 (88030114) AT (    433.01,    -250.00)  GP
  13.     365.10735 (88030113) AT (    303.11,    -175.00)  GP       38.     203.08634 (88030116) AT (    939.69,    -342.02)  GP
  14.     355.47062 (88030114) AT (    344.68,     -60.78)  GP       39.     190.44350 (88030114) AT (    303.11,    -175.00)  GP
  15.     335.65680 (88030113) AT (    268.12,    -224.98)  GP       40.     177.92786 (88030116) AT (    766.04,    -642.79)  GP
  16.     333.27041 (88030116) AT (    469.85,    -171.01)  GP       41.     167.26912 (88030111) AT (    344.68,     -60.78)  GP
  17.     329.81496 (88030111) AT (    164.45,     -59.85)  GP       42.     152.14069 (88030116) AT (    492.40,     -86.82)  GP
  18.     326.47253 (88030111) AT (    383.02,    -321.39)  GP       43.     149.12870 (88030114) AT (   1000.00,       0.00)  GP
  19.     325.20497 (88030113) AT (    469.85,    -171.01)  GP       44.     146.07476 (88030111) AT (    766.04,    -642.79)  GP
  20.     324.71723 (88030114) AT (    500.00,       0.00)  GP       45.     144.17532 (88030111) AT (    172.34,     -30.39)  GP
  21.     322.70553 (88030114) AT (    328.89,    -119.71)  GP       46.     143.30852 (88030113) AT (    939.69,    -342.02)  GP
  22.     306.89487 (88030116) AT (    383.02,    -321.39)  GP       47.     137.61180 (88030111) AT (    492.40,     -86.82)  GP
  23.     297.95832 (88030111) AT (    939.69,    -342.02)  GP       48.     135.38082 (88030116) AT (    321.39,    -383.02)  GP
  24.     291.38226 (88030113) AT (    328.89,    -119.71)  GP       49.     133.58285 (88030116) AT (    344.68,     -60.78)  GP
  25.     273.59073 (88030116) AT (    303.11,    -175.00)  GP       50.     131.03984 (88030112) AT (    433.01,    -250.00)  GP

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```


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4.3 Summary File – ALLSRCS (Original U.S. EPA)

```
                                    *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                              ** CONC OF SO2      IN MICROGRAMS/M**3                          **

                                                   DATE                                                                    NETWORK
GROUP ID                        AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

STACKDW  HIGH   1ST HIGH VALUE IS     753.65578  ON 88030111: AT (     303.11,     -175.00,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS     423.53134  ON 88030113: AT (     433.01,     -250.00,     0.00,     0.00,    0.00)  GP  POL1

AREA     HIGH   1ST HIGH VALUE IS   11648.19306  ON 88030206: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1
         HIGH   2ND HIGH VALUE IS   11326.58166  ON 88030205: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1

CIRC     HIGH   1ST HIGH VALUE IS   99248.24861  ON 88030317: AT (     134.06,      112.49,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS   73527.22719  ON 88030207: AT (     328.89,     -119.71,     0.00,     0.00,    0.00)  GP  POL1

AREAP    HIGH   1ST HIGH VALUE IS   18728.42468  ON 88030219: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1
         HIGH   2ND HIGH VALUE IS   17005.76526  ON 88030218: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1

VOL      HIGH   1ST HIGH VALUE IS      72.74275  ON 88030320: AT (     172.34,      -30.39,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS      32.84424  ON 88030124: AT (     164.45,      -59.85,     0.00,     0.00,    0.00)  GP  POL1

STACK    HIGH   1ST HIGH VALUE IS     300.73465  ON 88030111: AT (     303.11,     -175.00,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS     184.59817  ON 88030114: AT (     328.89,     -119.71,     0.00,     0.00,    0.00)  GP  POL1

OPENPIT  HIGH   1ST HIGH VALUE IS    1478.86933  ON 88030401: AT (     171.01,      469.85,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS    1417.33879  ON 88030324: AT (     171.01,      469.85,     0.00,     0.00,    0.00)  GP  POL1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```


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4.4 Summary File – ALLSRCS (AERMOD MPI)

```
                                    *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                              ** CONC OF SO2      IN MICROGRAMS/M**3                          **

                                                   DATE                                                                    NETWORK
GROUP ID                        AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

STACKDW  HIGH   1ST HIGH VALUE IS     753.65578  ON 88030111: AT (     303.11,     -175.00,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS     423.53134  ON 88030113: AT (     433.01,     -250.00,     0.00,     0.00,    0.00)  GP  POL1

AREA     HIGH   1ST HIGH VALUE IS   11648.19306  ON 88030206: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1
         HIGH   2ND HIGH VALUE IS   11326.58166  ON 88030205: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1

CIRC     HIGH   1ST HIGH VALUE IS   99248.24861  ON 88030317: AT (     134.06,      112.49,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS   73527.22719  ON 88030207: AT (     328.89,     -119.71,     0.00,     0.00,    0.00)  GP  POL1

AREAP    HIGH   1ST HIGH VALUE IS   18728.42468  ON 88030219: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1
         HIGH   2ND HIGH VALUE IS   17005.76526  ON 88030218: AT (       0.00,        0.00,     0.00,     0.00,    0.00)  GC  CAR1

VOL      HIGH   1ST HIGH VALUE IS      72.74275  ON 88030320: AT (     172.34,      -30.39,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS      32.84424  ON 88030124: AT (     164.45,      -59.85,     0.00,     0.00,    0.00)  GP  POL1

STACK    HIGH   1ST HIGH VALUE IS     300.73465  ON 88030111: AT (     303.11,     -175.00,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS     184.59817  ON 88030114: AT (     328.89,     -119.71,     0.00,     0.00,    0.00)  GP  POL1

OPENPIT  HIGH   1ST HIGH VALUE IS    1478.86933  ON 88030401: AT (     171.01,      469.85,     0.00,     0.00,    0.00)  GP  POL1
         HIGH   2ND HIGH VALUE IS    1417.33879  ON 88030324: AT (     171.01,      469.85,     0.00,     0.00,    0.00)  GP  POL1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```


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4.5 Plot File – Lovett (Original U.S. EPA)

```
* AERMOD ( 12345):  AERMOD Test Case - Lovett Complex Terrain Study
* MODELING OPTIONS USED:
* RegDFAULT CONC                                          ELEV
*         PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP      NUM HRS   NET ID
* ____________  ____________  ____________  ______   ______   ______  ______  ________  ________  ________
    3500.00000   67750.00000       0.76647   237.48   239.26     0.00  PERIOD  ALL       00008784
    3600.00000   69700.00000       2.26554   319.31   330.67     0.00  PERIOD  ALL       00008784
    4520.00000   69780.00000       4.12913   296.71   296.71     0.00  PERIOD  ALL       00008784
    5500.00000   70450.00000       2.46510   234.88   329.78     0.00  PERIOD  ALL       00008784
    4780.00000   70700.00000       4.23125   324.80   329.02     0.00  PERIOD  ALL       00008784
    5110.00000   70850.00000       4.28669   319.80   322.66     0.00  PERIOD  ALL       00008784
    5810.00000   70900.00000       2.93327   253.17   323.10     0.00  PERIOD  ALL       00008784
    5860.00000   71340.00000       1.14222   160.97   340.96     0.00  PERIOD  ALL       00008784
    6250.00000   71070.00000       3.50208   276.63   276.63     0.00  PERIOD  ALL       00008784
    6930.00000   71300.00000       0.99788   156.75   276.71     0.00  PERIOD  ALL       00008784
    7870.00000   69130.00000       0.55916    26.09    26.09     0.00  PERIOD  ALL       00008784
```

4.6 Plot File – Lovett (Parallel)

```
* AERMOD ( 12345):  AERMOD Test Case - Lovett Complex Terrain Study
* MODELING OPTIONS USED:
* RegDFAULT CONC                                          ELEV
*         PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
*         FOR A TOTAL OF    11 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP      NUM HRS   NET ID
* ____________  ____________  ____________  ______   ______   ______  ______  ________  ________  ________
    3500.00000   67750.00000       0.76647   237.48   239.26     0.00  PERIOD  ALL       00008784
    3600.00000   69700.00000       2.26554   319.31   330.67     0.00  PERIOD  ALL       00008784
    4520.00000   69780.00000       4.12913   296.71   296.71     0.00  PERIOD  ALL       00008784
    5500.00000   70450.00000       2.46510   234.88   329.78     0.00  PERIOD  ALL       00008784
    4780.00000   70700.00000       4.23125   324.80   329.02     0.00  PERIOD  ALL       00008784
    5110.00000   70850.00000       4.28669   319.80   322.66     0.00  PERIOD  ALL       00008784
    5810.00000   70900.00000       2.93327   253.17   323.10     0.00  PERIOD  ALL       00008784
    5860.00000   71340.00000       1.14222   160.97   340.96     0.00  PERIOD  ALL       00008784
    6250.00000   71070.00000       3.50208   276.63   276.63     0.00  PERIOD  ALL       00008784
    6930.00000   71300.00000       0.99788   156.75   276.71     0.00  PERIOD  ALL       00008784
    7870.00000   69130.00000       0.55916    26.09    26.09     0.00  PERIOD  ALL       00008784
```


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4.7 Rank File - Rankfile (Original U.S. EPA)

```
* AERMOD ( 12345): RANKFILE test
* MODELING OPTIONS USED:
* RegDFAULT CONC                                          ELEV
*         RANK-FILE OF UP TO   100 TOP  1-HR VALUES FOR     1 SOURCE GROUPS
*         INCLUDES OVERALL MAXIMUM VALUES WITH DUPLICATE DATA PERIODS REMOVED
*         FORMAT: (1X,I6,1X,F13.5,1X,I8.8,2(1X,F13.5),3(1X,F7.2),2X,A8)
*  RANK  AVERAGE CONC   DATE          X             Y        ZELEV   ZHILL   ZFLAG     GRP
*_______ ____________ ________  ____________  ____________  ______  ______  ______  ________
      1     459.99237 86052805  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      2     455.50758 86070603  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      3     429.59792 86100507  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      4     374.98301 86122118  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      5     328.41287 86090205  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      6     326.23265 86102017  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      7     317.15603 86123119  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      8     310.69303 86101302  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      9     307.29561 86010705  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
     10     302.41133 86101805  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
```

4.8 Rank File – Rankfile (Parallel)

```
* AERMOD ( 12345): RANKFILE test
* MODELING OPTIONS USED:
* RegDFAULT CONC                                          ELEV
*         RANK-FILE OF UP TO   100 TOP  1-HR VALUES FOR     1 SOURCE GROUPS
*         INCLUDES OVERALL MAXIMUM VALUES WITH DUPLICATE DATA PERIODS REMOVED
*         FORMAT: (1X,I6,1X,F13.5,1X,I8.8,2(1X,F13.5),3(1X,F7.2),2X,A8)
*  RANK  AVERAGE CONC   DATE          X             Y        ZELEV   ZHILL   ZFLAG     GRP
*_______ ____________ ________  ____________  ____________  ______  ______  ______  ________
      1     459.99237 86052805  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      2     455.50758 86070603  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      3     429.59792 86100507  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      4     374.98301 86122118  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      5     328.41287 86090205  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      6     326.23265 86102017  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      7     317.15603 86123119  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      8     310.69303 86101302  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
      9     307.29561 86010705  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
     10     302.41133 86101805  463906.59000 5263493.99000  694.00  694.00    0.00  ALL
```


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5 Known Issues

The following exceptions were made when comparing AERMOD MPI output to that generated with the serial U.S. EPA AERMOD executable:

1. Date/time stamps in the main output file were not compared as the two models were run at different times.
2. Evaluation Files may contain uninitialized REAL values for the "Effective Height for Stable Plume Reflections"; in cases where such values exist, an exact match is not expected.

In addition, an issue with the OPENPIT source type was identified when comparing results of multi-processor runs of the 11103 version of the AERMOD executable. There is a receptor-based calculation of the effective center coordinates that changes if the first polar gridded receptor is located inside the source footprint. In order to preserve identical results with the U.S. EPA AERMOD executable, minor changes were implemented to AERMOD MPI. Documentation of the AERMOD code changes and test projects demonstrating the issues were subsequently sent to the EPA Office of Air Quality Planning and Standards Air Quality Modeling Group.

6 Conclusion

Lakes Environmental AERMOD MPI produced identical results to the original U.S. EPA AERMOD executable dated 12345 in all test cases.

Run time using AERMOD MPI is reduced by a factor almost equal to the number of cores being used, when compared to the U.S. EPA AERMOD executable.

Due to an issue in the OPENPIT source type algorithms, the *Lakes Environmental* AERMOD MPI implements small code changes designed to fully parallelize runs using these algorithms while maintaining identical results to the U.S. EPA AERMOD results.

7 Disclaimer

Findings of this validation study in no way apply, infer, or otherwise suggest the regulatory status of *Lakes Environmental's* AERMOD MPI. The U.S. EPA has issued regulatory guidelines and clarification memoranda regarding the determination of the regulatory status of commercial software packages.[1,2]

[1] U.S. EPA. Guideline on Air Quality Models (Appendix W to 40 CFR Part 51). November 9, 2005.
[2] U.S. EPA. Clarification on Regulatory Status of Priority Versions of AERMOD. Air Quality Modeling Group. December 11, 2007.

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The general issue of whether commercial software can be considered as a preferred model is addressed in Section 3.1 of Appendix W.

In the memorandum "Clarification on Regulatory Status of Proprietary Versions of AERMOD", the EPA writes:

> "*The determination of acceptability of a model is a Regional Office responsibility, where the burden of proof is on the applicant to provide an adequate demonstration of equivalency, subject to Regional Office acceptance. The first condition for approving use of an alternate model requires that a demonstration be made that the model produces concentration estimates equivalent to the estimates obtained using a preferred model. The condition for establishing equivalency is demonstrating that the maximum or highest and second highest concentrations are within 2 percent of the estimates obtained from the preferred model."*

The memorandum goes on to say "*the standard test cases packaged with the AERMOD model on the SCRAM website provide a reasonable starting point for equivalency demonstration, with additional test to be determined as needed on a case-by-case basis."*

Lakes Environmental specifically utilized the complete set of standard test cases in our validation study as suggested by the clarification memo. As confirmed, all results generated based on standard test cases are identical. *Lakes Environmental* has made every effort to ensure the accuracy of AERMOD MPI; however, *Lakes Environmental* takes no responsibility for any modeling results using AERMOD MPI.

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Attachment D-1

Summary of 2020 Emission Rate Inputs by Period

Attachment D-1

2020 PM10 Emission Rate Input by Period

Source ID	Link Description	AM (6AM - 9AM)				MID-DAY (9AM - 3PM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	EB HDC - COUNTY LINE TO OASIS	0.00307231	0.03780350	0.09866193	0.13953774	0.00261240	0.02188080	0.05512392	0.07961712
AUT011	EB HDC - OASIS & SHEEP CREEK	0.01643553	0.11212833	0.28664482	0.41520869	0.01634585	0.06624688	0.16015282	0.24274555
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	0.02268825	0.13598238	0.36026279	0.51893343	0.02255850	0.08619596	0.21617630	0.32493076
AUT013	EB HDC - CAUGHLIN & KOALA	0.00877671	0.04815590	0.13259141	0.18952402	0.00874487	0.03178022	0.08268152	0.12320660
AUT014	EB HDC - KOALA & US395	0.00998447	0.07358392	0.19230778	0.27587616	0.00987716	0.04427132	0.10919641	0.16334488
AUT015	EB HDC - US395 & W.PHANTOM	0.00861669	0.08289640	0.19348190	0.28499500	0.00879583	0.05027659	0.11226552	0.17133793
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	0.00611318	0.04945715	0.12238301	0.17795335	0.00637045	0.03115783	0.07296133	0.11048961
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	0.00695566	0.04195879	0.11323599	0.16215045	0.00735060	0.03134673	0.08097983	0.11967717
AUT018	EB HDC - NATIONAL TRAIL & I-15	0.00893586	0.04444362	0.13361570	0.18699518	0.00954948	0.03165247	0.08867163	0.12987359
AUT019	EB HDC - I-15 & CHOCO	0.00198155	0.02106107	0.04464168	0.06768430	0.00205594	0.01449008	0.02981462	0.04636064
AUT020	EB HDC - CHOCO & DALE EVANS	0.00124857	0.01347293	0.02758112	0.04230261	0.00127549	0.00942168	0.01878652	0.02948369
AUT021	EB EXPWY- DALE EVANS & WAALEW	0.00061867	0.01230548	0.02018613	0.03311028	0.00065197	0.00863475	0.01380721	0.02309394
AUT022	EB EXPWY - WAALEW & CAHUILLA	0.00023615	0.00490165	0.00770606	0.01284385	0.00025370	0.00345149	0.00529699	0.00900218
AUT023	EB EXPWY - CAHUILLA & JOSHUA	0.00020236	0.00398847	0.00647282	0.01066366	0.00025394	0.00302483	0.00475783	0.00803660
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	0.00013518	0.00218155	0.00363082	0.00594755	0.00022387	0.00231649	0.00372816	0.00626853
AUT025	EB EXPWY - STANDING ROCSK & SR18	0.00044779	0.00543897	0.00953834	0.01542510	0.00028141	0.00363534	0.00641616	0.01033291
AUT026	EB EXPWY - SR18 & NASQUILLY	0.00032855	0.00458086	0.00766106	0.01257046	0.00021516	0.00307581	0.00515989	0.00845086
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	0.00067428	0.01024219	0.01834388	0.02926035	0.00053293	0.00653238	0.01150651	0.01857182
AUT048	NB I-15 MOJAVE DR TO SR18	0.02016923	0.05205207	0.20597603	0.27819733	0.02359837	0.06261084	0.24580388	0.33201310
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	0.01394732	0.03569737	0.14360224	0.19324693	0.01718510	0.04486865	0.17860705	0.24066081
AUT050	NB I-15 STODDARD WELLS TO HDC	0.01104602	0.02714989	0.11362736	0.15182327	0.01394414	0.03295120	0.13484078	0.18173611
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	0.02836515	0.06851741	0.28303938	0.37992194	0.03402622	0.08532377	0.35036014	0.46971013
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.05957952	0.13296309	0.53985589	0.73239851	0.07112013	0.17863570	0.73534397	0.98509980
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.00008677	0.00091596	0.00214451	0.00314724	0.00003971	0.00027268	0.00059722	0.00090961
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.00001593	0.00030770	0.00043689	0.00076053	0.00001122	0.00018476	0.00025958	0.00045556

Attachment D-1

2020 PM10 Emission Rate Input by Period

Source ID	Link Description	PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	EB HDC - COUNTY LINE TO OASIS	0.00350064	0.03553637	0.09096101	0.12999801	0.00062106	0.00402232	0.00981241	0.01445579
AUT011	EB HDC - OASIS & SHEEP CREEK	0.02048114	0.10661595	0.26427115	0.39136824	0.00420059	0.01239616	0.02850821	0.04510497
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	0.02888557	0.14109690	0.36450063	0.53448310	0.00594372	0.01741099	0.04187881	0.06523353
AUT013	EB HDC - CAUGHLIN & KOALA	0.01098396	0.05071755	0.13602945	0.19773096	0.00229727	0.00637741	0.01585860	0.02453328
AUT014	EB HDC - KOALA & US395	0.01250197	0.07137789	0.18104589	0.26492575	0.00254113	0.00792598	0.01836548	0.02883260
AUT015	EB HDC - US395 & W.PHANTOM	0.01048493	0.07480954	0.17004744	0.25534192	0.00311435	0.01168598	0.02471529	0.03951563
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	0.00802024	0.05219812	0.12621524	0.18643361	0.00183093	0.00668678	0.01508362	0.02360132
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	0.00936236	0.05898304	0.15913265	0.22747804	0.00272371	0.00816316	0.01978429	0.03067116
AUT018	EB HDC - NATIONAL TRAIL & I-15	0.01129201	0.06569847	0.20032356	0.27731404	0.00362708	0.00850256	0.02173350	0.03386314
AUT019	EB HDC - I-15 & CHOCO	0.00301498	0.02775312	0.05825887	0.08902697	0.00145036	0.00505643	0.00940061	0.01590739
AUT020	EB HDC - CHOCO & DALE EVANS	0.00191486	0.01883832	0.03833562	0.05908880	0.00088027	0.00326539	0.00593218	0.01007783
AUT021	EB EXPWY- DALE EVANS & WAALEW	0.00140629	0.02313556	0.03770112	0.06224297	0.00021233	0.00229307	0.00361817	0.00612357
AUT022	EB EXPWY - WAALEW & CAHUILLA	0.00064394	0.01131623	0.01768384	0.02964401	0.00006168	0.00086646	0.00133429	0.00226243
AUT023	EB EXPWY - CAHUILLA & JOSHUA	0.00059954	0.01050878	0.01695051	0.02805883	0.00005949	0.00076460	0.00121207	0.00203616
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	0.00059428	0.01024225	0.01709063	0.02792716	0.00005267	0.00062908	0.00102739	0.00170913
AUT025	EB EXPWY - STANDING ROCSK & SR18	0.00044045	0.00557101	0.00980198	0.01581344	0.00007212	0.00092517	0.00163514	0.00263244
AUT026	EB EXPWY - SR18 & NASQUILLY	0.00033819	0.00507510	0.00853253	0.01394582	0.00006415	0.00082130	0.00136964	0.00225510
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	0.00069332	0.01015650	0.01814147	0.02899129	0.00018782	0.00191762	0.00333626	0.00544170
AUT048	NB I-15 MOJAVE DR TO SR18	0.02058268	0.09789914	0.42343343	0.54191525	0.01765419	0.03079914	0.10678892	0.15524225
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	0.01476246	0.06777658	0.29942265	0.38196169	0.01320007	0.02252068	0.07870108	0.11442183
AUT050	NB I-15 STODDARD WELLS TO HDC	0.01174067	0.05227768	0.24192867	0.30594702	0.01051232	0.01722749	0.06212356	0.08986337
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	0.02764682	0.13292568	0.61178720	0.77235970	0.02425775	0.03974292	0.14353451	0.20753518
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.05801755	0.28096829	1.29759854	1.63658438	0.05118914	0.08456021	0.30733418	0.44308353
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.00003688	0.00035836	0.00082903	0.00122427	0.00000656	0.00002323	0.00004173	0.00007152
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.00001862	0.00036812	0.00052342	0.00091016	0.00000328	0.00005063	0.00007080	0.00012470

Attachment D-1

2020 PM10 Emission Rate Input by Period

Source ID	Link Description	AM (6AM - 9AM)				MID-DAY (9AM - 3PM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	WB HDC - COUNTY LINE TO OASIS	0.00203106	0.01502730	0.04020602	0.05726438	0.00250365	0.01825005	0.04857771	0.06933142
AUT011	WB HDC - OASIS & SHEEP CREEK	0.01322622	0.04586515	0.11681151	0.17590287	0.01636362	0.05585959	0.14113396	0.21335717
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	0.01870162	0.06596516	0.17219166	0.25685844	0.02275646	0.07365943	0.18811237	0.28452825
AUT013	WB HDC - CAUGHLIN & KOALA	0.00719628	0.02303442	0.06197063	0.09220134	0.00904564	0.02678435	0.07086266	0.10669265
AUT014	WB HDC - KOALA & US395	0.00826945	0.03455698	0.08916027	0.13198670	0.01003122	0.03825308	0.09651989	0.14480419
AUT015	WB HDC - US395 & W.PHANTOM	0.00750122	0.04451884	0.10227288	0.15429295	0.00890232	0.04713216	0.10664022	0.16267470
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	0.00589385	0.03336081	0.08189749	0.12115214	0.00664408	0.02963188	0.07049404	0.10677000
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	0.00731445	0.03936989	0.11104006	0.15772439	0.00765309	0.03039101	0.08190589	0.11994999
AUT018	WB HDC - NATIONAL TRAIL & I-15	0.00836412	0.04308241	0.13296261	0.18440914	0.00981355	0.03075499	0.08682057	0.12738911
AUT019	WB HDC - I-15 & CHOCO	0.00264054	0.01919309	0.04016157	0.06199520	0.00253035	0.01576536	0.03248730	0.05078302
AUT020	WB HDC - CHOCO & DALE EVANS	0.00162578	0.01340003	0.02740962	0.04243543	0.00157131	0.01035923	0.02081128	0.03274182
AUT021	WB EXPWY- DALE EVANS & WAALEW	0.00090992	0.01377719	0.02305843	0.03774554	0.00062972	0.00838841	0.01391684	0.02293498
AUT022	WB EXPWY - WAALEW & CAHUILLA	0.00038833	0.00602824	0.00971499	0.01613155	0.00023516	0.00335791	0.00538733	0.00898040
AUT023	WB EXPWY - CAHUILLA & JOSHUA	0.00035699	0.00470867	0.00790356	0.01296922	0.00022080	0.00303810	0.00512253	0.00838143
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	0.00035317	0.00406029	0.00733028	0.01174374	0.00019584	0.00248617	0.00453135	0.00721336
AUT025	WB EXPWY - STANDING ROCSK & SR18	0.00021014	0.00381887	0.00633258	0.01036158	0.00031069	0.00340196	0.00544972	0.00916237
AUT026	WB EXPWY - SR18 & NASQUILLY	0.00021804	0.00474386	0.00771567	0.01267757	0.00023021	0.00273252	0.00428372	0.00724645
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	0.00056070	0.00981160	0.01695006	0.02732236	0.00055545	0.00599675	0.00999089	0.01654309
AUT048	SB I-15 MOJAVE DR TO SR18	0.01913629	0.08203071	0.36656941	0.46773640	0.02486494	0.05846021	0.23006614	0.31339129
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	0.01349258	0.05360513	0.24604066	0.31313836	0.01777239	0.04185592	0.17025473	0.22988304
AUT050	SB I-15 STODDARD WELLS TO HDC	0.01071867	0.04149099	0.20099983	0.25320949	0.01440250	0.03055209	0.12800291	0.17295750
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	0.02569707	0.09900533	0.47547393	0.60017632	0.03503944	0.07857196	0.33045034	0.44406174
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.05430440	0.21094389	1.02678120	1.29202950	0.07397796	0.16579461	0.70526334	0.94503592
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.00001261	0.00017796	0.00031742	0.00050799	0.00001307	0.00015530	0.00027258	0.00044095
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.00001553	0.00030030	0.00042759	0.00074342	0.00001029	0.00016615	0.00023373	0.00041017
SLINE	HIGH SPEED RAIL	0.00000000	0.00000000	0.24749769	0.24749769	0.00000000	0.00000000	0.24749769	0.24749769

Attachment D-1

2020 PM10 Emission Rate Input by Period

Source ID	Link Description	PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	WB HDC - COUNTY LINE TO OASIS	0.00428648	0.05259089	0.14689609	0.20377346	0.00079138	0.00472871	0.01225531	0.01777541
AUT011	WB HDC - OASIS & SHEEP CREEK	0.02348458	0.15661206	0.42678064	0.60687728	0.00545989	0.01468265	0.03560565	0.05574819
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	0.03273385	0.21281450	0.59086076	0.83640911	0.00769446	0.02046692	0.05057377	0.07873516
AUT013	WB HDC - CAUGHLIN & KOALA	0.01281029	0.07727966	0.22409975	0.31418971	0.00299119	0.00756954	0.01939334	0.02995407
AUT014	WB HDC - KOALA & US395	0.01484326	0.11026564	0.30176884	0.42687774	0.00331192	0.00944350	0.02253524	0.03529066
AUT015	WB HDC - US395 & W.PHANTOM	0.01155243	0.11231336	0.26585530	0.38972109	0.00369319	0.01484079	0.03239545	0.05092942
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	0.00876995	0.06846788	0.17212238	0.24936021	0.00213361	0.00791679	0.01839136	0.02844176
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	0.01067846	0.06414976	0.18121946	0.25604768	0.00316627	0.00925758	0.02356576	0.03598961
AUT018	WB HDC - NATIONAL TRAIL & I-15	0.01314161	0.07643538	0.23730557	0.32688257	0.00427173	0.00958192	0.02462064	0.03847430
AUT019	WB HDC - I-15 & CHOCO	0.00340627	0.03744625	0.08065489	0.12150742	0.00158362	0.00544546	0.01023615	0.01726523
AUT020	WB HDC - CHOCO & DALE EVANS	0.00204941	0.02354736	0.04920448	0.07480124	0.00095855	0.00346327	0.00637464	0.01079646
AUT021	WB EXPWY- DALE EVANS & WAALEW	0.00101196	0.01650315	0.02777103	0.04528613	0.00021683	0.00242634	0.00398258	0.00662575
AUT022	WB EXPWY - WAALEW & CAHUILLA	0.00040637	0.00675207	0.01092356	0.01808200	0.00006528	0.00090570	0.00145345	0.00242444
AUT023	WB EXPWY - CAHUILLA & JOSHUA	0.00038290	0.00576637	0.00976649	0.01591576	0.00006186	0.00079647	0.00133992	0.00219825
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	0.00032784	0.00372472	0.00672394	0.01077650	0.00005256	0.00062597	0.00113690	0.00181543
AUT025	WB EXPWY - STANDING ROCSK & SR18	0.00071988	0.01234240	0.02038740	0.03344968	0.00007373	0.00097264	0.00158438	0.00263075
AUT026	WB EXPWY - SR18 & NASQUILLY	0.00053371	0.00916526	0.01473500	0.02443397	0.00006210	0.00079050	0.00124798	0.00210058
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	0.00114851	0.01748000	0.03006011	0.04868863	0.00018591	0.00184253	0.00305870	0.00508715
AUT048	SB I-15 MOJAVE DR TO SR18	0.02337762	0.06858109	0.28448659	0.37644530	0.01718379	0.03096209	0.11180193	0.15994782
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	0.01611429	0.04605945	0.19773152	0.25990527	0.01285995	0.02287266	0.08558086	0.12131347
AUT050	SB I-15 STODDARD WELLS TO HDC	0.01278543	0.03458476	0.15497808	0.20234826	0.01024794	0.01750931	0.06815973	0.09591698
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	0.03300577	0.09742543	0.43881400	0.56924520	0.02416146	0.04094915	0.15919278	0.22430340
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.06959205	0.18980122	0.84976575	1.10915902	0.05120484	0.08756532	0.34597318	0.48474334
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.00008212	0.00100542	0.00176999	0.00285752	0.00000000	0.00000000	0.00000000	0.00000000
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.00001771	0.00034937	0.00049806	0.00086514	0.00000320	0.00004972	0.00006974	0.00012267
SLINE	HIGH SPEED RAIL	0.00000000	0.00000000	0.24749769	0.24749769	0.00000000	0.00000000	0.24749769	0.24749769

Attachment D-2

Summary of 2040 Emission Rate Inputs by Period

Attachment D-2

2040 PM10 Emission Rate Input by Period

Source ID	Link Description	AM (6AM - 9AM)				MID-DAY (9AM - 3PM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	EB HDC - COUNTY LINE TO OASIS	0.00386965	0.06555544	0.16078299	0.23020808	0.00294571	0.03482343	0.08344614	0.12121528
AUT011	EB HDC - OASIS & SHEEP CREEK	0.02230055	0.18635962	0.45578646	0.66444662	0.02020998	0.10066585	0.23620215	0.35707798
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	0.02992596	0.19866860	0.52660316	0.75519772	0.02716409	0.11199716	0.28215091	0.42131216
AUT013	EB HDC - CAUGHLIN & KOALA	0.01188950	0.06929005	0.19075585	0.27193539	0.01041737	0.04080015	0.10675375	0.15797127
AUT014	EB HDC - KOALA & US395	0.01344318	0.11714182	0.30141357	0.43199857	0.01193109	0.05903136	0.14365300	0.21461546
AUT015	EB HDC - US395 & W.PHANTOM	0.01113283	0.12550049	0.30281339	0.43944672	0.01143482	0.07345031	0.17027069	0.25515582
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	0.00662090	0.07168115	0.16011398	0.23841603	0.00604900	0.03883913	0.08361149	0.12849961
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	0.01029153	0.07266224	0.20936129	0.29231507	0.01117754	0.05024382	0.13699407	0.19841543
AUT018	EB HDC - NATIONAL TRAIL & I-15	0.01556959	0.09362109	0.29128654	0.40047722	0.01628086	0.06267547	0.18232380	0.26128013
AUT019	EB HDC - I-15 & CHOCO	0.00314390	0.04942167	0.08448996	0.13705553	0.00187574	0.02000490	0.03360086	0.05548151
AUT020	EB HDC - CHOCO & DALE EVANS	0.00173958	0.02670767	0.04687730	0.07532454	0.00108007	0.01130434	0.01949121	0.03187563
AUT021	EB EXPWY- DALE EVANS & WAALEW	0.00172888	0.03089229	0.05348010	0.08610128	0.00089586	0.01336211	0.02265449	0.03691246
AUT022	EB EXPWY - WAALEW & CAHUILLA	0.00075174	0.01532067	0.02691473	0.04298714	0.00037199	0.00553776	0.00953851	0.01544825
AUT023	EB EXPWY - CAHUILLA & JOSHUA	0.00069411	0.01368107	0.02492251	0.03929770	0.00036982	0.00512192	0.00911947	0.01461121
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	0.00070930	0.01405237	0.02738743	0.04214909	0.00036014	0.00445552	0.00842690	0.01324255
AUT025	EB EXPWY - STANDING ROCSK & SR18	0.00089228	0.01650021	0.03120393	0.04859642	0.00046772	0.00605186	0.01117882	0.01769840
AUT026	EB EXPWY - SR18 & NASQUILLY	0.00054486	0.01002562	0.01874255	0.02931303	0.00032412	0.00447487	0.00820616	0.01300516
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	0.00091830	0.01592251	0.02967328	0.04651409	0.00054316	0.00784857	0.01432073	0.02271246
AUT048	NB I-15 MOJAVE DR TO SR18	0.01757378	0.05844756	0.19522412	0.27124545	0.02092962	0.06685718	0.21972372	0.30751051
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	0.01196501	0.03898670	0.13511898	0.18607069	0.01496366	0.04691902	0.15886570	0.22074839
AUT050	NB I-15 STODDARD WELLS TO HDC	0.00964122	0.03143518	0.11025636	0.15133276	0.01233869	0.03724153	0.12721888	0.17679910
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	0.03037013	0.09795595	0.35806447	0.48639055	0.03530471	0.11391819	0.41037000	0.55959290
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.06268286	0.16632523	0.62258990	0.85159799	0.06992331	0.21152295	0.79820307	1.07964932
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.00017860	0.00249282	0.00477978	0.00745120	0.00014525	0.00173797	0.00327309	0.00515632
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.00001881	0.00036663	0.00050630	0.00089174	0.00001086	0.00019954	0.00027448	0.00048487

Attachment D-2

2040 PM10 Emission Rate Input by Period

Source ID	Link Description	PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	EB HDC - COUNTY LINE TO OASIS	0.00386741	0.05193208	0.12500630	0.18080579	0.00084054	0.00660383	0.01505848	0.02250284
AUT011	EB HDC - OASIS & SHEEP CREEK	0.02551752	0.15054623	0.35622993	0.53229368	0.00706733	0.01976437	0.04248606	0.06931776
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	0.03580070	0.18558123	0.47847226	0.69985419	0.00970908	0.02589215	0.06053882	0.09614004
AUT013	EB HDC - CAUGHLIN & KOALA	0.01415569	0.06842991	0.18371243	0.26629803	0.00377906	0.00946288	0.02279646	0.03603840
AUT014	EB HDC - KOALA & US395	0.01587420	0.09679963	0.24025818	0.35293201	0.00428703	0.01244808	0.02753277	0.04426789
AUT015	EB HDC - US395 & W.PHANTOM	0.01395081	0.10566735	0.24654775	0.36616591	0.00585966	0.01987069	0.04212244	0.06785279
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	0.00925720	0.07193856	0.15563414	0.23682990	0.00236450	0.00973682	0.01987288	0.03197420
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	0.01243045	0.09439064	0.27089716	0.37771826	0.00649633	0.01618299	0.03892135	0.06160067
AUT018	EB HDC - NATIONAL TRAIL & I-15	0.01832342	0.12241985	0.38165215	0.52239542	0.00938295	0.02070054	0.05211119	0.08219469
AUT019	EB HDC - I-15 & CHOCO	0.00662937	0.06169093	0.10204651	0.17036681	0.00047758	0.00470102	0.00785475	0.01303335
AUT020	EB HDC - CHOCO & DALE EVANS	0.00369607	0.03006273	0.05065375	0.08441256	0.00028256	0.00273740	0.00469569	0.00771566
AUT021	EB EXPWY- DALE EVANS & WAALEW	0.00289374	0.03251156	0.05402172	0.08942703	0.00025099	0.00334631	0.00564599	0.00924329
AUT022	EB EXPWY - WAALEW & CAHUILLA	0.00142521	0.01570291	0.02623193	0.04336005	0.00007894	0.00123341	0.00213530	0.00344765
AUT023	EB EXPWY - CAHUILLA & JOSHUA	0.00135598	0.01378700	0.02370456	0.03884754	0.00007663	0.00115770	0.00207812	0.00331245
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	0.00152779	0.01295882	0.02338803	0.03787464	0.00006653	0.00090466	0.00172676	0.00269794
AUT025	EB EXPWY - STANDING ROCSK & SR18	0.00179853	0.01669217	0.02963753	0.04812823	0.00010318	0.00143056	0.00266302	0.00419677
AUT026	EB EXPWY - SR18 & NASQUILLY	0.00106656	0.00980075	0.01718007	0.02804738	0.00007473	0.00101509	0.00186536	0.00295519
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	0.00169106	0.01572955	0.02739988	0.04482049	0.00013066	0.00181482	0.00330883	0.00525431
AUT048	NB I-15 MOJAVE DR TO SR18	0.01704431	0.10640022	0.38248153	0.50592606	0.01485614	0.03038531	0.08973619	0.13497764
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	0.01207165	0.07504923	0.27936126	0.36648214	0.01070478	0.02157543	0.06529993	0.09758014
AUT050	NB I-15 STODDARD WELLS TO HDC	0.01043263	0.05991753	0.22525445	0.29560461	0.00884827	0.01697337	0.05150648	0.07732812
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	0.02686933	0.17288795	0.68106279	0.88082007	0.02554379	0.04965646	0.15769470	0.23289495
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.05224108	0.33774052	1.42147265	1.81145424	0.05200098	0.09777278	0.32905167	0.47882543
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.00015253	0.00193258	0.00366221	0.00574732	0.00006750	0.00045685	0.00078432	0.00130868
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.00002499	0.00049067	0.00067794	0.00119360	0.00000452	0.00007809	0.00010694	0.00018955

Attachment D-2

2040 PM10 Emission Rate Input by Period

Source ID	Link Description	AM (6AM - 9AM)				MID-DAY (9AM - 3PM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	WB HDC - COUNTY LINE TO OASIS	0.00190950	0.01891656	0.04547081	0.06629687	0.00274775	0.02937116	0.07116085	0.10327976
AUT011	WB HDC - OASIS & SHEEP CREEK	0.01436265	0.05431339	0.12592444	0.19460048	0.01996963	0.08543759	0.20137639	0.30678361
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	0.01954149	0.07060016	0.17696625	0.26710789	0.02691351	0.09547540	0.23848010	0.36086900
AUT013	WB HDC - CAUGHLIN & KOALA	0.00765215	0.02420077	0.06357981	0.09543273	0.01022637	0.03270140	0.08562440	0.12855217
AUT014	WB HDC - KOALA & US395	0.00865736	0.03843220	0.09408094	0.14117050	0.01176531	0.04902064	0.11862313	0.17940907
AUT015	WB HDC - US395 & W.PHANTOM	0.00909833	0.05497570	0.12637816	0.19045219	0.01143573	0.06776630	0.15488751	0.23408954
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	0.00554297	0.03911911	0.08429513	0.12895721	0.00621609	0.03710203	0.07863363	0.12195175
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	0.01016842	0.06147680	0.17681838	0.24846360	0.01142955	0.04888045	0.13362770	0.19393770
AUT018	WB HDC - NATIONAL TRAIL & I-15	0.01339982	0.07416907	0.22842009	0.31598899	0.01652066	0.06179421	0.17766954	0.25598441
AUT019	WB HDC - I-15 & CHOCO	0.00290907	0.03343928	0.05220998	0.08855833	0.00247577	0.02420574	0.03739877	0.06408028
AUT020	WB HDC - CHOCO & DALE EVANS	0.00165087	0.01827387	0.02881040	0.04873513	0.00145343	0.01391778	0.02173099	0.03710219
AUT021	WB EXPWY- DALE EVANS & WAALEW	0.00111665	0.01932348	0.02980864	0.05024877	0.00105826	0.01444607	0.02189900	0.03740333
AUT022	WB EXPWY - WAALEW & CAHUILLA	0.00047914	0.00804886	0.01217631	0.02070432	0.00048151	0.00618644	0.00919001	0.01585796
AUT023	WB EXPWY - CAHUILLA & JOSHUA	0.00043825	0.00639685	0.00978248	0.01661758	0.00047734	0.00548255	0.00823124	0.01419114
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	0.00038731	0.00423287	0.00658458	0.01120477	0.00048907	0.00485081	0.00747439	0.01281427
AUT025	WB EXPWY - STANDING ROCSK & SR18	0.00048375	0.00677036	0.01060852	0.01786263	0.00060977	0.00647310	0.00990757	0.01699043
AUT026	WB EXPWY - SR18 & NASQUILLY	0.00037011	0.00636903	0.01004109	0.01678023	0.00039943	0.00454074	0.00694402	0.01188419
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	0.00068106	0.01105749	0.01733553	0.02907408	0.00065774	0.00787168	0.01203829	0.02056772
AUT048	SB I-15 MOJAVE DR TO SR18	0.01608444	0.08647098	0.32793096	0.43048639	0.02136793	0.06028593	0.20513032	0.28678417
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	0.01173786	0.05796774	0.22846367	0.29816926	0.01541234	0.04214149	0.14851262	0.20606645
AUT050	SB I-15 STODDARD WELLS TO HDC	0.00941310	0.04612983	0.18746051	0.24300344	0.01228821	0.03217346	0.11546297	0.15992463
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	0.02726132	0.12448187	0.53176670	0.68350989	0.03688490	0.09939395	0.38004516	0.51632401
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.05215704	0.25142841	1.14331297	1.44689841	0.07364103	0.19089610	0.76155671	1.02609384
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.00007538	0.00091715	0.00175779	0.00275032	0.00008537	0.00100015	0.00190879	0.00299431
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.00002388	0.00047963	0.00065996	0.00116346	0.00000971	0.00017567	0.00024004	0.00042543
SLINE	HIGH SPEED RAIL	0.00000000	0.00000000	0.24749769	0.24749769	0.00000000	0.00000000	0.24749769	0.24749769

Attachment D-2

2040 PM10 Emission Rate Input by Period

Source ID	Link Description	PM (3PM - 7PM)				NIGHT (7PM - 6AM)			
		Exhaust	Tire and Brake Wear	Re-entrained Dust	Total	Exhaust	Tire and Brake Wear	Re-entrained Dust	Total
AUT010	WB HDC - COUNTY LINE TO OASIS	0.00472728	0.08256048	0.20608556	0.29337332	0.00089978	0.00753476	0.01775049	0.02618503
AUT011	WB HDC - OASIS & SHEEP CREEK	0.02650270	0.23612479	0.58712013	0.84974762	0.00734264	0.02234045	0.05011953	0.07980261
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	0.03741994	0.27264001	0.73194247	1.04200242	0.01001498	0.02818115	0.06770609	0.10590222
AUT013	WB HDC - CAUGHLIN & KOALA	0.01453178	0.09449551	0.26957571	0.37860300	0.00389847	0.01031793	0.02614556	0.04036197
AUT014	WB HDC - KOALA & US395	0.01646862	0.14742909	0.38463767	0.54853538	0.00442733	0.01368401	0.03137522	0.04948655
AUT015	WB HDC - US395 & W.PHANTOM	0.01366464	0.15104970	0.35914867	0.52386301	0.00618404	0.02424123	0.05266993	0.08309519
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	0.00818083	0.08617484	0.18960932	0.28396500	0.00234937	0.01109588	0.02292193	0.03636718
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	0.01225323	0.09983332	0.29167821	0.40376476	0.00658651	0.01708669	0.04218532	0.06585852
AUT018	WB HDC - NATIONAL TRAIL & I-15	0.01853153	0.13682584	0.42782770	0.58318507	0.00937514	0.02077954	0.05213977	0.08229446
AUT019	WB HDC - I-15 & CHOCO	0.00554210	0.08953467	0.14156103	0.23663780	0.00044996	0.00455545	0.00706776	0.01207317
AUT020	WB HDC - CHOCO & DALE EVANS	0.00292236	0.04584910	0.07333182	0.12210328	0.00027316	0.00275826	0.00433037	0.00736178
AUT021	WB EXPWY- DALE EVANS & WAALEW	0.00269663	0.03937352	0.06137198	0.10344212	0.00024165	0.00336601	0.00512863	0.00873629
AUT022	WB EXPWY - WAALEW & CAHUILLA	0.00121162	0.02090040	0.03208198	0.05419400	0.00007910	0.00130838	0.00198146	0.00336893
AUT023	WB EXPWY - CAHUILLA & JOSHUA	0.00114804	0.02106606	0.03296578	0.05517989	0.00007488	0.00114376	0.00175907	0.00297770
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	0.00095590	0.01918612	0.03121822	0.05136023	0.00006655	0.00094982	0.00151225	0.00252862
AUT025	WB EXPWY - STANDING ROCSK & SR18	0.00114099	0.02328527	0.03742016	0.06184641	0.00009670	0.00149459	0.00236252	0.00395381
AUT026	WB EXPWY - SR18 & NASQUILLY	0.00067654	0.01320114	0.02107441	0.03495209	0.00007021	0.00106396	0.00166770	0.00280186
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	0.00118732	0.02096654	0.03339865	0.05555251	0.00012328	0.00190578	0.00298159	0.00501064
AUT048	SB I-15 MOJAVE DR TO SR18	0.01912281	0.07023813	0.25195939	0.34132033	0.01441272	0.03108577	0.09854226	0.14404076
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	0.01344190	0.04916014	0.18447262	0.24707466	0.01074319	0.02254056	0.07448810	0.10777185
AUT050	SB I-15 STODDARD WELLS TO HDC	0.01106326	0.03752247	0.14375453	0.19234026	0.00863640	0.01775238	0.06007319	0.08646197
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	0.03456034	0.11716435	0.46931130	0.62103599	0.02563226	0.05147750	0.18318231	0.26029206
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	0.07062440	0.21371698	0.88416762	1.16850900	0.05216141	0.10084828	0.37698949	0.52999919
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.00012694	0.00182938	0.00358101	0.00553734	0.00005720	0.00040393	0.00071213	0.00117326
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.00002057	0.00039543	0.00054258	0.00095858	0.00000359	0.00005828	0.00007899	0.00014086
SLINE	HIGH SPEED RAIL	0.00000000	0.00000000	0.24749769	0.24749769	0.00000000	0.00000000	0.24749769	0.24749769

Attachment E

Memorandum to EPA for Consultation on Surface and Upper Air Data

April 16, 2012

Memorandum

To: Andrew Yoon, PE
Caltrans

From: Thomas Miller

Subject: Caltrans HDC $PM_{2.5}$ & PM_{10} Conformity Analysis AERMOD Modeling Project Summary of Meteorological Data Options

Upon a detailed review of available meteorological data for the project site area, between 2000 through 2005, two data packages offer a reasonable fit for this project. Of the two, only one offers complete calendar fit for five consecutive years. The data package for either option includes surface data from Palmdale and Victorville, sky cover from Palmdale and upper air data from Mercury. In order to meet U.S. EPA modeling guidance, the ideal data set would be 90%+ complete per parameter per quarter. The two options are described below, and of the two, ZMassociates recommends Option 2, as it utilizes complete four quarters for each year, and the missing data is limited to only upper air data, which can be completed to meet the 90% completeness criteria using U.S. EPA missing data procedures.
(Attached is a spreadsheet describing the data completeness for each parameter, for each station, and for each year by quarter.)

Option 1: Q2 2000 – Q1 2005

This option includes combining met data from April 2000 to March 2005 (note: this option does not use full four quarter data from each of the five years).

- All parameters from Palmdale are above 90% for this period.
- Several parameters are below 90% for Victorville.
  - Pressure is entirely missing for quarters 3 and 4 in year 2000.
  - Pressure is 42.40% complete in Q2 in year 2000.
  - Temperature, Solar Radiation, Wind Direction, and Wind Speed are all 67.39% complete for Q3 in year 2000.
  - Q1 in 2001 has 89.68%, 88.89%, and 88.89% data completeness for Temperature, Wind Direction, and Wind Speed, respectively.
- Upper Air in Q1 in 2005 is 80.22% complete for Mercury.
- Sky cover from Palmdale is 82.84% complete in Q4 in 2001.

Option 2: 2001 – 2005

This option included using full years, all four quarters, from 2001 to 2005.

- Wind Direction for Q4 in 2005 is 86.59% complete for Palmdale.
- Some parameters are below 90% for Victorville.
    - Q1 in 2001 has 89.68%, 88.89%, and 88.89% data completeness for Temperature, Wind Direction, and Wind Speed, respectively.
    - Wind Speed for Q2 in 2005 is 67.03% complete for Victorville.
- Upper Air data from Mercury for all quarters in 2005 is below 90% completeness.
    - Q1: 80.22%
    - Q2: 65.93%
    - Q3: 69.57%
    - Q4: 64.13%
- Sky cover from Palmdale is 82.84% complete in Q4 of 2001.

Although it is not possible to have 90%+ completeness for all parameters, the combined data for each option is acceptable, however, there are advantages, as well as disadvantages, to using one over the other.

Advantages and Disadvantages for Option 1:

1. The only advantage to using this option is that all parameters for Palmdale are complete.
2. The main disadvantage to using this option is that there is a lot of missing data for quarters 3 and 4. Using option 2, this disadvantage would be eliminated.
3. EPA's missing data procedures, where missing data is replaced with previous day's data, is not able to be used for these surface parameters because there is not enough good data to bring it to 90%+ completeness.

Advantages and Disadvantages for Option 2:

1. The advantage to using this option is that full years would be used not partial years. Also, there are less parameters missing for Victorville for this option.
2. Although the quarters in 2005 are below 90% completeness, by using EPA's missing data procedure, these parameters can be brought up to the following percentage:
    a. Q1: 98.90%
    b. Q2: 94.51%
    c. Q3: 97.83%
    d. Q4: 94.57%

Year		Data completeness		Total days	Missing days	
		Mercury,NV Raw	Mercury,NV Filled		Mercury,N' Raw	Mercury,NV Filled
2000	Q1	100.00%	100.00%	91	0	0
2000	Q2	100.00%	100.00%	91	0	0
2000	Q3	100.00%	100.00%	92	0	0
2000	Q4	98.91%	100.00%	92	1	0
2001	Q1	100.00%	100.00%	90	0	0
2001	Q2	100.00%	100.00%	91	0	0
2001	Q3	98.91%	100.00%	92	1	0
2001	Q4	97.83%	100.00%	92	2	0
2002	Q1	98.89%	100.00%	90	1	0
2002	Q2	100.00%	100.00%	91	0	0
2002	Q3	95.65%	100.00%	92	4	0
2002	Q4	100.00%	100.00%	92	0	0
2003	Q1	100.00%	100.00%	90	0	0
2003	Q2	98.90%	100.00%	91	1	0
2003	Q3	98.91%	100.00%	92	1	0
2003	Q4	100.00%	100.00%	92	0	0
2004	Q1	100.00%	100.00%	91	0	0
2004	Q2	98.90%	100.00%	91	1	0
2004	Q3	100.00%	100.00%	92	0	0
2004	Q4	98.91%	100.00%	92	1	0
2005	Q1	80.22%	98.90%	91	18	1
2005	Q2	65.93%	94.51%	91	31	5
2005	Q3	69.57%	97.83%	92	28	2
2005	Q4	64.13%	94.57%	92	33	5

		Data completeness						MissingNums				
Year	Quarter	Pressure	Temperature	Solar radiation	Wind directio	Wind Speed	total number	Pressure	Temperatu	Solar radiat	Wind direc	Wind Speed
2000	Q1	0.00%	21.06%	21.06%	21.06%	21.06%	2184	2184	1724	1724	1724	1724
2000	Q2	42.40%	100.00%	100.00%	100.00%	100.00%	2184	1258	0	0	0	0
2000	Q3	0.00%	67.39%	67.39%	67.39%	67.39%	2208	2208	720	720	720	720
2000	Q4	0.00%	100.00%	100.00%	100.00%	100.00%	2208	2208	0	0	0	0
2001	Q1	90.09%	89.68%	90.09%	88.89%	88.89%	2160	214	223	214	240	240
2001	Q2	99.82%	99.86%	100.00%	99.86%	99.86%	2184	4	3	0	3	3
2001	Q3	98.05%	98.14%	98.14%	98.14%	98.14%	2208	43	41	41	41	41
2001	Q4	99.91%	98.01%	99.95%	98.01%	98.01%	2208	2	44	1	44	44
2002	Q1	99.95%	99.49%	100.00%	97.87%	97.87%	2160	1	11	0	46	46
2002	Q2	99.91%	99.91%	100.00%	99.91%	99.91%	2184	2	2	0	2	2
2002	Q3	99.95%	99.95%	100.00%	99.95%	99.95%	2208	1	1	0	1	1
2002	Q4	99.91%	99.91%	100.00%	99.91%	99.91%	2208	2	2	0	2	2
2003	Q1	100.00%	100.00%	100.00%	100.00%	100.00%	2160	0	0	0	0	0
2003	Q2	99.95%	99.68%	99.95%	99.68%	99.68%	2184	1	7	1	7	7
2003	Q3	100.00%	100.00%	100.00%	100.00%	100.00%	2208	0	0	0	0	0
2003	Q4	100.00%	100.00%	100.00%	100.00%	100.00%	2208	0	0	0	0	0
2004	Q1	99.73%	99.63%	99.73%	99.31%	99.31%	2184	6	8	6	15	15
2004	Q2	99.77%	99.77%	99.77%	99.77%	99.77%	2184	5	5	5	5	5
2004	Q3	99.86%	100.00%	100.00%	99.86%	99.86%	2208	3	0	0	3	3
2004	Q4	100.00%	100.00%	100.00%	100.00%	100.00%	2208	0	0	0	0	0
2005	Q1	100.00%	99.68%	100.00%	99.68%	99.68%	2184	0	7	0	7	7
2005	Q2	100.00%	100.00%	100.00%	94.51%	67.03%	2184	0	0	0	120	720
2005	Q3	98.10%	98.10%	98.73%	98.10%	98.10%	2208	42	42	28	42	42
2005	Q4	99.73%	99.77%	100.00%	99.73%	99.77%	2208	6	5	0	6	5

Victorville

Year	Quarter	Data completeness Pressure
2000	Q1	97.71%
2000	Q2	98.81%
2000	Q3	97.87%
2000	Q4	98.05%
2001	Q1	95.69%
2001	Q2	94.28%
2001	Q3	97.28%
2001	Q4	82.84%
2002	Q1	99.17%
2002	Q2	96.98%
2002	Q3	97.42%
2002	Q4	97.42%
2003	Q1	97.41%
2003	Q2	95.97%
2003	Q3	96.01%
2003	Q4	97.10%
2004	Q1	97.76%
2004	Q2	98.49%
2004	Q3	98.14%
2004	Q4	94.61%
2005	Q1	99.35%
2005	Q2	97.48%
2005	Q3	95.06%
2005	Q4	97.78%

Sky cover

Attachment F-1

Summary of 2020 Forecast Travel Activity Data by Period

Attachment F-1

Summary of 2020 Forecast Travel Activity Data By Period

Source ID	Link Description	Length (mile)	AM Period			Mid-day Period			PM Period			Night Period		
			Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed
AUT010	EB HDC - COUNTY LINE TO OASIS	1.25	6787	540	65	7584	1132	67	8343	981	65	2475	532	69
AUT011	EB HDC - OASIS & SHEEP CREEK	3.64	6787	540	65	7584	1132	67	8343	981	65	2475	532	69
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	5.11	5802	538	66	6963	1127	67	7827	971	65	2473	537	69
AUT013	EB HDC - CAUGHLIN & KOALA	2.04	5110	518	66	6373	1105	68	6990	938	66	2241	524	70
AUT014	EB HDC - KOALA & US395	2.59	6237	520	60	7083	1104	63	7829	942	61	2184	522	65
AUT015	EB HDC - US395 & W.PHANTOM	1.95	9503	583	57	11028	1273	61	11136	1040	58	4451	824	64
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	1.48	7393	554	59	8815	1265	62	10166	1049	59	3341	642	64
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	1.54	5838	650	61	8350	1394	62	10939	1222	58	3740	945	64
AUT018	EB HDC - NATIONAL TRAIL & I-15	2.34	4009	541	62	5321	1212	63	8014	939	61	2391	857	64
AUT019	EB HDC - I-15 & CHOCO	2.65	1808	73	64	2415	183	64	3146	163	64	1396	286	65
AUT020	EB HDC - CHOCO & DALE EVANS	1.59	1935	76	64	2636	186	64	3586	166	63	1526	287	65
AUT021	EB EXPWY- DALE EVANS & WAALEW	1.80	1587	28	44	2171	103	47	3952	100	37	1043	66	50
AUT022	EB EXPWY - WAALEW & CAHUILLA	1.10	1038	16	47	1427	62	48	3176	71	39	659	26	51
AUT023	EB EXPWY - CAHUILLA & JOSHUA	1.11	836	15	48	1229	67	49	2919	73	41	574	26	51
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	1.35	373	11	50	766	53	50	2341	62	43	387	20	51
AUT025	EB EXPWY - STANDING ROCSK & SR18	1.52	805	44	48	1083	51	49	1103	56	48	506	23	51
AUT026	EB EXPWY - SR18 & NASQUILLY	0.89	1167	51	46	1572	63	48	1733	65	45	765	36	51
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	1.42	1654	60	41	2075	116	45	2181	86	41	1103	78	50
AUT048	NB I-15 MOJAVE DR TO SR18	1.57	6131	1913	64	14633	4734	62	16805	3176	54	11655	6017	66
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	1.18	5571	1759	65	13858	4588	63	15488	2883	56	11195	5987	67
AUT050	NB I-15 STODDARD WELLS TO HDC	0.93	5343	1788	65	12681	4667	63	15168	2946	57	10711	6110	67
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	1.95	6296	2244	64	15587	5695	61	18145	3697	51	11707	6681	66
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	4.14	5664	2182	64	15430	5624	61	18152	3661	51	11823	6658	66
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.22	939	64	34	523	79	35	484	40	34	67	29	35
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.23	308	3	35	366	8	35	492	4	35	183	5	35

Attachment F-1

Summary of 2020 Forecast Travel Activity Data By Period

Source ID	Link Description	Length (mile)	AM Period			Mid-day Period			PM Period			Night Period		
			Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed
AUT010	WB HDC - COUNTY LINE TO OASIS	1.25	2567	458	68	6203	1172	68	12505	1158	61	2869	701	69
AUT011	WB HDC - OASIS & SHEEP CREEK	3.64	2567	458	68	6203	1172	68	12505	1158	61	2869	701	69
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	5.11	2639	460	68	5766	1172	68	12074	1160	62	2842	705	69
AUT013	WB HDC - CAUGHLIN & KOALA	2.04	2265	451	68	5180	1148	68	10921	1123	63	2599	691	69
AUT014	WB HDC - KOALA & US395	2.59	2744	454	63	5941	1157	63	12383	1128	57	2543	689	64
AUT015	WB HDC - US395 & W.PHANTOM	1.95	4906	537	62	10231	1315	61	17004	1238	52	5698	995	64
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	1.48	4819	564	62	8296	1302	62	13504	1184	56	3968	746	64
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	1.55	5414	680	61	7987	1471	62	11781	1456	57	4213	1102	64
AUT018	WB HDC - NATIONAL TRAIL & I-15	2.34	3906	502	62	5101	1256	63	9295	1125	60	2652	1014	64
AUT019	WB HDC - I-15 & CHOCO	2.65	1604	116	64	2595	236	64	4295	163	63	1499	313	65
AUT020	WB HDC - CHOCO & DALE EVANS	1.59	1888	117	64	2867	240	64	4519	166	63	1610	314	65
AUT021	WB EXPWY- DALE EVANS & WAALEW	1.80	1748	64	43	2110	99	46	2807	85	40	1107	66	50
AUT022	WB EXPWY - WAALEW & CAHUILLA	1.10	1256	43	46	1393	55	49	1883	56	45	689	27	51
AUT023	WB EXPWY - CAHUILLA & JOSHUA	1.11	962	46	47	1247	53	49	1585	59	46	598	27	51
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	1.35	677	40	49	837	40	50	828	49	49	385	20	51
AUT025	WB EXPWY - STANDING ROCSK & SR18	1.52	581	13	49	1000	63	50	2494	67	43	533	23	51
AUT026	WB EXPWY - SR18 & NASQUILLY	0.89	1241	16	46	1378	77	49	3160	83	40	736	35	51
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	1.42	1599	41	43	1885	129	47	3781	117	36	1058	77	50
AUT048	SB I-15 MOJAVE DR TO SR18	1.57	10641	1905	61	13357	4767	64	11011	3088	63	11900	5841	67
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	1.18	9100	1809	61	12594	4658	63	9751	2837	63	11606	5813	66
AUT050	SB I-15 STODDARD WELLS TO HDC	0.93	8949	1844	61	11398	4735	64	9200	2895	63	11127	5937	67
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	1.95	10003	2216	59	13904	5754	62	12309	3832	59	12280	6637	66
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	4.14	10090	2210	59	13861	5741	62	11134	3752	60	12466	6642	66
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.18	223	8	35	383	21	35	1658	85	34	0	0	35
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.23	311	3	35	340	8	35	483	4	34	186	5	35
SLINE	HIGH SPEED RAIL	27.02	No vehiclular traffic on the HSR											

Attachment F-2

Summary of 2040 Forecast Travel Activity Data by Period

Attachment F-2

Summary of 2040 Forecast Travel Activity Data By Period

Source ID	Link Description	Length (mile)	AM Period			Mid-day Period			PM Period			Night Period		
			Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed
AUT010	EB HDC - COUNTY LINE TO OASIS	1.25	11843	817	58	12293	1441	65	12277	1323	62	4067	911	69
AUT011	EB HDC - OASIS & SHEEP CREEK	3.64	11355	813	59	11769	1429	65	11833	1315	62	3881	907	69
AUT012	EB HDC - SHEEP CREEK & CAUGHLIN	5.11	8493	764	63	9101	1386	67	10289	1271	63	3580	894	69
AUT013	EB HDC - CAUGHLIN & KOALA	2.04	7353	740	64	8230	1346	67	9442	1240	64	3222	879	69
AUT014	EB HDC - KOALA & US395	2.59	9999	748	57	9531	1358	62	10627	1255	59	3349	896	64
AUT015	EB HDC - US395 & W.PHANTOM	1.95	14383	891	49	16175	1773	58	15614	1589	53	7336	1638	64
AUT016	EB HDC - W.PHANTOM & E.PHANTOM	1.48	10901	597	55	11385	1120	61	14128	1306	55	4961	815	64
AUT017	EB HDC - E.PHANTOM & NATIONAL TRAIL	1.54	10143	1080	56	13274	2326	60	17499	1947	50	6914	2395	63
AUT018	EB HDC - NATIONAL TRAIL & I-15	2.34	8505	1061	58	10647	2239	61	14858	1817	54	5579	2315	64
AUT019	EB HDC - I-15 & CHOCO	2.65	4330	78	62	3444	131	64	6973	388	61	1476	65	65
AUT020	EB HDC - CHOCO & DALE EVANS	1.59	3907	75	63	3249	128	64	5629	372	62	1435	65	65
AUT021	EB EXPWY- DALE EVANS & WAALEW	1.80	3999	59	35	3388	130	46	5386	332	34	1548	68	50
AUT022	EB EXPWY - WAALEW & CAHUILLA	1.10	3252	46	40	2305	84	48	4226	304	40	946	29	51
AUT023	EB EXPWY - CAHUILLA & JOSHUA	1.11	2875	47	41	2104	89	48	3646	303	41	879	29	51
AUT024	EB EXPWY - JOSHUA & STANDING ROCK	1.35	2431	42	44	1496	77	50	2768	296	45	562	23	51
AUT025	EB EXPWY - STANDING ROCSK & SR18	1.52	2515	54	42	1802	87	49	3185	302	42	787	31	51
AUT026	EB EXPWY - SR18 & NASQUILLY	0.89	2606	56	42	2282	99	48	3185	307	42	951	39	51
AUT027	EB EXPWY - NASQUILLY & BEAR VALLEY	1.42	2617	45	35	2526	104	43	3222	308	35	1070	45	48
AUT048	NB I-15 MOJAVE DR TO SR18	1.57	7327	1620	64	16493	4004	63	19140	2434	56	12349	4876	67
AUT049	NB I-15 SR18 TO SOTDDARD WELLS	1.18	6461	1470	64	15193	3934	62	17811	2416	54	11449	4819	67
AUT050	NB I-15 STODDARD WELLS TO HDC	0.93	6656	1513	65	15360	4039	64	18131	2502	57	11401	4959	67
AUT051	NB I-15 HDC TO VICTOVVILE QUARRY RD	1.95	9601	2485	61	22007	6138	59	24349	3908	46	15504	7207	66
AUT052	NB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	4.14	7328	2409	62	18790	5960	59	22308	3795	42	14201	6954	66
AUT307	NB I-15 OFF-RAMP AT STODDARD WELLS	0.22	2641	80	32	3617	184	33	2698	118	33	1589	259	34
AUT309	NB I-15 ON-RAMP AT STODDARD WELLS	0.23	368	3	35	399	5	35	657	5	34	285	5	35

Attachment F-2

Summary of 2040 Forecast Travel Activity Data By Period

Source ID	Link Description	Length (mile)	AM Period			Mid-day Period			PM Period			Night Period		
			Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed	Total Vol.	Truck Vol.	Speed
AUT010	WB HDC - COUNTY LINE TO OASIS	1.25	3278	512	68	10260	1430	66	19809	1526	52	4692	937	69
AUT011	WB HDC - OASIS & SHEEP CREEK	3.64	3065	507	68	9803	1418	66	19054	1516	53	4473	930	69
AUT012	WB HDC - SHEEP CREEK & CAUGHLIN	5.11	2815	496	68	7587	1371	67	15524	1416	58	3949	915	69
AUT013	WB HDC - CAUGHLIN & KOALA	2.04	2365	483	68	6370	1329	68	13370	1346	61	3566	900	69
AUT014	WB HDC - KOALA & US395	2.59	3061	488	63	7719	1344	62	16686	1358	52	3743	917	64
AUT015	WB HDC - US395 & W.PHANTOM	1.95	6042	676	61	14810	1761	59	22894	1637	41	9233	1685	63
AUT016	WB HDC - W. PHANTOM & E.PHANTOM	1.48	5777	516	61	10778	1178	61	17326	1120	52	5760	811	64
AUT017	WB HDC - E.PHANTOM & NATIONAL TRAIL	1.55	8458	1047	58	12784	2401	60	18603	1947	49	7399	2416	63
AUT018	WB HDC - NATIONAL TRAIL & I-15	2.34	6704	878	60	10429	2283	61	16742	1881	51	5611	2312	64
AUT019	WB HDC - I-15 & CHOCO	2.65	2887	100	63	4136	193	64	10437	213	59	1433	60	65
AUT020	WB HDC - CHOCO & DALE EVANS	1.59	2631	98	63	3969	192	64	8929	187	60	1450	61	65
AUT021	WB EXPWY- DALE EVANS & WAALEW	1.80	2476	65	42	3638	168	45	6797	99	28	1562	63	50
AUT022	WB EXPWY - WAALEW & CAHUILLA	1.10	1686	49	46	2545	127	47	5923	75	32	1006	28	51
AUT023	WB EXPWY - CAHUILLA & JOSHUA	1.11	1318	51	48	2218	133	48	5922	75	35	869	28	51
AUT024	WB EXPWY - JOSHUA & STANDING ROCK	1.35	703	45	50	1596	120	49	4444	56	38	592	22	51
AUT025	WB EXPWY - STANDING ROCSK & SR18	1.52	1014	42	49	1894	130	49	4769	61	39	828	26	51
AUT026	WB EXPWY - SR18 & NASQUILLY	0.89	1647	45	46	2278	142	48	4609	61	38	1003	34	51
AUT027	WB EXPWY - NASQUILLY & BEAR VALLEY	1.42	1795	56	42	2493	149	45	4611	61	34	1132	38	49
AUT048	SB I-15 MOJAVE DR TO SR18	1.57	11579	1580	60	14486	4037	64	11862	2461	63	12758	4851	67
AUT049	SB I-15 SR18 TO SOTDDARD WELLS	1.18	10170	1563	59	13222	4002	63	10949	2376	62	12158	4817	67
AUT050	SB I-15 STODDARD WELLS TO HDC	0.93	10325	1604	59	12719	4098	64	10557	2448	62	12132	4957	67
AUT051	SB I-15 HDC TO VICTOVVILE QUARRY RD	1.95	12912	2372	57	18456	6179	61	15194	4093	59	16309	7210	66
AUT052	SB I-15 VICTORVILLE QUARRY RD TO DALE EVANS	4.14	12276	2317	55	16354	6046	61	12658	4013	59	14842	6958	65
AUT308	SB I-15 ON-RAMP AT STODDARD WELLS	0.18	1135	58	33	2465	138	33	3083	83	32	1686	256	35
AUT310	SB I-15 OFF-RAMP AT STODDARD WELLS	0.23	499	3	34	363	5	35	547	5	35	219	5	35
SLINE	HIGH SPEED RAIL	27.02	No vehiclular traffic on the HSR											

Appendix G Summary Tables for Changes in MSAT Emissions

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
44	0.00	-0.04	0.00	-0.17	-0.08	-0.01	0.00	0.00	0.00	-0.02	0.00	-0.10	-0.05	-0.01	0.00	0.00
45	0.00	0.02	0.00	0.07	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.02	-0.38	-0.02	-1.65	-0.87	-0.15	-0.01	-0.07	-0.01	-0.28	-0.02	-1.24	-0.65	-0.11	-0.01	-0.06
96	-0.03	-0.59	-0.03	-2.56	-1.35	-0.23	-0.02	-0.11	-0.02	-0.46	-0.03	-2.00	-1.06	-0.19	-0.02	-0.09
97	0.00	-0.12	0.00	-0.50	-0.25	-0.04	0.00	-0.01	0.00	-0.11	0.00	-0.49	-0.25	-0.04	0.00	-0.01
98	0.00	0.11	0.00	0.46	0.23	0.04	0.00	0.01	0.00	0.09	0.00	0.38	0.19	0.03	0.00	0.01
99	0.00	0.03	0.00	0.11	0.05	0.01	0.00	0.00	0.00	0.03	0.00	0.13	0.06	0.01	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-0.16	-2.78	-0.40	-13.68	-5.46	-1.74	-0.52	-2.21	-0.06	-0.72	-0.24	-4.30	-1.23	-0.85	-0.36	-1.50
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-0.03	-0.54	-0.05	-2.46	-1.24	-0.26	-0.05	-0.25	-0.02	-0.28	-0.03	-1.33	-0.63	-0.15	-0.03	-0.17
107	-0.20	-3.95	-0.37	-18.03	-9.04	-1.90	-0.34	-1.80	-0.11	-2.06	-0.24	-9.67	-4.60	-1.09	-0.24	-1.28
108	-0.09	-1.28	-0.28	-6.86	-2.34	-1.12	-0.42	-1.68	0.01	0.81	-0.11	2.67	1.84	-0.19	-0.24	-0.93
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-0.25	-4.21	-0.68	-21.01	-7.44	-2.84	-0.96	-3.81	-0.16	-2.39	-0.52	-12.72	-4.32	-1.98	-0.74	-3.11
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	0.02	0.00	0.08	0.03	0.01	0.00	0.01	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
147	-0.03	-0.62	-0.03	-2.70	-1.32	-0.22	-0.02	-0.10	-0.02	-0.56	-0.03	-2.43	-1.19	-0.20	-0.02	-0.09
148	-0.07	-1.49	-0.08	-6.50	-3.06	-0.54	-0.05	-0.23	-0.06	-1.34	-0.07	-5.85	-2.77	-0.49	-0.05	-0.21
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	-0.01	0.00	-0.06	-0.01	-0.01	0.00	-0.02	0.00	0.04	0.00	0.18	0.09	0.01	0.00	-0.01
151	0.00	-0.02	0.00	-0.09	-0.04	-0.01	0.00	-0.01	0.00	0.01	0.00	0.03	0.02	0.00	0.00	-0.01
152	0.00	-0.10	0.00	-0.42	-0.19	-0.03	0.00	0.00	0.00	-0.05	0.00	-0.22	-0.10	-0.02	0.00	0.00
153	-0.10	-1.70	-0.26	-8.39	-3.37	-1.07	-0.32	-1.46	-0.07	-1.13	-0.21	-5.75	-2.37	-0.80	-0.25	-1.20
154	-0.06	-1.04	-0.17	-5.16	-2.05	-0.68	-0.21	-0.92	-0.04	-0.67	-0.13	-3.44	-1.34	-0.50	-0.16	-0.75
155	-0.04	-0.69	-0.10	-3.36	-1.41	-0.41	-0.11	-0.53	-0.02	-0.40	-0.06	-1.95	-0.84	-0.24	-0.07	-0.35
156	-0.12	-2.21	-0.31	-10.72	-4.50	-1.31	-0.36	-1.70	-0.07	-1.10	-0.19	-5.50	-2.27	-0.72	-0.21	-1.07
157	-0.09	-1.62	-0.23	-7.85	-3.29	-0.96	-0.26	-1.24	-0.05	-0.81	-0.14	-4.03	-1.66	-0.52	-0.16	-0.78
158	-0.06	-1.02	-0.14	-4.94	-2.07	-0.60	-0.16	-0.78	-0.03	-0.51	-0.09	-2.54	-1.05	-0.33	-0.10	-0.49
159	-0.12	-2.30	-0.24	-10.63	-5.19	-1.15	-0.23	-1.20	-0.06	-0.97	-0.15	-4.75	-2.06	-0.58	-0.16	-0.83
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.01	-0.27	-0.01	-1.16	-0.50	-0.08	0.00	-0.01	-0.01	-0.22	-0.01	-0.92	-0.40	-0.06	0.00	-0.01
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-0.18	-3.25	-0.43	-15.53	-7.06	-1.69	-0.37	-2.30	-0.17	-3.09	-0.39	-14.69	-6.81	-1.57	-0.33	-2.07
202	-0.03	-0.68	-0.04	-2.97	-1.51	-0.26	-0.02	-0.11	-0.03	-0.62	-0.03	-2.72	-1.39	-0.24	-0.02	-0.10
203	-0.02	-0.41	-0.02	-1.79	-0.92	-0.15	-0.01	-0.05	-0.02	-0.39	-0.02	-1.69	-0.86	-0.14	-0.01	-0.05
204	0.00	0.03	0.00	0.12	0.06	0.01	0.00	0.00	0.00	0.03	0.00	0.14	0.08	0.01	0.00	0.00
205	-0.10	-1.73	-0.24	-8.36	-3.55	-0.99	-0.27	-1.32	-0.07	-1.24	-0.19	-6.11	-2.61	-0.76	-0.21	-1.08
206	-0.12	-2.07	-0.29	-10.02	-4.27	-1.19	-0.32	-1.56	-0.09	-1.49	-0.23	-7.30	-3.13	-0.90	-0.25	-1.28
207	-0.06	-1.01	-0.14	-4.90	-2.01	-0.59	-0.16	-0.78	-0.04	-0.68	-0.11	-3.38	-1.36	-0.43	-0.13	-0.63
208	-0.06	-1.09	-0.18	-5.42	-2.12	-0.69	-0.21	-1.00	-0.05	-0.74	-0.14	-3.76	-1.47	-0.51	-0.16	-0.82
209	-0.08	-1.37	-0.19	-6.65	-2.75	-0.80	-0.22	-1.06	-0.05	-0.88	-0.15	-4.41	-1.77	-0.57	-0.17	-0.85
210	0.00	-0.04	0.00	-0.17	-0.08	-0.01	0.00	0.00	0.00	-0.04	0.00	-0.15	-0.07	-0.01	0.00	0.00
211	-0.01	-0.13	-0.01	-0.55	-0.20	-0.04	-0.01	-0.01	0.02	0.21	0.05	1.15	0.37	0.23	0.09	0.33
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
222	-0.02	-0.50	-0.02	-2.14	-0.93	-0.14	-0.01	-0.02	-0.02	-0.42	-0.01	-1.79	-0.78	-0.12	0.00	-0.01
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
260	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
262	-0.05	-0.86	-0.14	-4.24	-1.73	-0.54	-0.16	-0.77	-0.04	-0.74	-0.12	-3.68	-1.47	-0.46	-0.13	-0.66
263	-0.03	-0.56	-0.10	-2.81	-1.09	-0.37	-0.12	-0.57	-0.03	-0.46	-0.08	-2.33	-0.89	-0.31	-0.10	-0.49
264	-0.05	-0.83	-0.14	-4.15	-1.60	-0.56	-0.18	-0.79	-0.04	-0.66	-0.12	-3.35	-1.31	-0.46	-0.15	-0.66
265	-0.09	-1.65	-0.24	-8.01	-3.30	-0.97	-0.27	-1.30	-0.07	-1.24	-0.19	-6.09	-2.57	-0.76	-0.22	-1.07
266	-0.03	-0.69	-0.04	-3.01	-1.58	-0.27	-0.03	-0.14	-0.03	-0.67	-0.04	-2.93	-1.54	-0.27	-0.03	-0.13
267	-0.04	-0.85	-0.05	-3.75	-1.90	-0.34	-0.04	-0.18	-0.04	-0.86	-0.05	-3.78	-1.91	-0.34	-0.04	-0.18
268	-0.01	-0.29	-0.02	-1.28	-0.61	-0.11	-0.01	-0.07	-0.01	-0.31	-0.02	-1.38	-0.66	-0.12	-0.01	-0.07
269	-0.01	-0.09	-0.01	-0.45	-0.18	-0.05	-0.01	-0.07	0.00	-0.04	-0.01	-0.23	-0.07	-0.03	-0.01	-0.07
270	-0.01	-0.23	-0.02	-1.05	-0.48	-0.10	-0.02	-0.08	-0.01	-0.17	-0.02	-0.80	-0.36	-0.08	-0.02	-0.08
271	-0.01	-0.19	-0.02	-0.85	-0.38	-0.08	-0.02	-0.08	-0.01	-0.15	-0.02	-0.71	-0.31	-0.07	-0.02	-0.08
272	-0.01	-0.16	-0.01	-0.73	-0.31	-0.07	-0.01	-0.07	-0.01	-0.10	-0.01	-0.48	-0.19	-0.05	-0.01	-0.06
273	-0.01	-0.17	-0.01	-0.76	-0.33	-0.07	-0.01	-0.07	-0.01	-0.16	-0.01	-0.74	-0.32	-0.07	-0.01	-0.07
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-0.01	-0.30	-0.03	-1.39	-0.57	-0.13	-0.03	-0.12	0.00	0.16	-0.02	0.56	0.36	-0.01	-0.03	-0.16
276	0.02	0.33	0.07	1.68	0.64	0.24	0.08	0.38	0.03	0.68	0.02	2.85	1.49	0.21	0.00	-0.01
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	-0.01
320	0.01	0.00	0.09	0.53	0.15	0.31	0.16	0.59	0.01	-0.03	0.06	0.24	0.01	0.16	0.09	0.39
321	-0.05	-1.12	-0.05	-4.81	-2.46	-0.40	-0.03	-0.13	-0.05	-1.09	-0.05	-4.71	-2.41	-0.39	-0.03	-0.13
322	-0.04	-1.01	-0.05	-4.37	-2.18	-0.36	-0.03	-0.12	-0.04	-0.98	-0.05	-4.25	-2.13	-0.35	-0.03	-0.12
323	-0.03	-0.68	-0.04	-2.99	-1.50	-0.26	-0.03	-0.13	-0.03	-0.73	-0.04	-3.19	-1.59	-0.27	-0.03	-0.15
324	-0.02	-0.39	-0.02	-1.72	-0.93	-0.16	-0.02	-0.07	-0.02	-0.36	-0.02	-1.59	-0.86	-0.15	-0.01	-0.07
325	-0.04	-0.82	-0.08	-3.78	-1.69	-0.38	-0.08	-0.36	-0.03	-0.61	-0.06	-2.83	-1.30	-0.29	-0.06	-0.28
326	0.00	-0.09	0.00	-0.37	-0.19	-0.03	0.00	-0.01	0.00	-0.07	0.00	-0.31	-0.16	-0.02	0.00	0.00
327	0.00	-0.04	0.00	-0.17	-0.08	-0.01	0.00	0.00	0.00	-0.05	0.00	-0.21	-0.10	-0.02	0.00	0.00
328	0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00	0.00	-0.01	0.00	-0.06	-0.03	0.00	0.00	0.00
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.01	-0.16	-0.01	-0.67	-0.34	-0.06	0.00	-0.02	-0.01	-0.12	-0.01	-0.52	-0.26	-0.04	0.00	-0.02
331	-0.01	-0.18	-0.01	-0.80	-0.39	-0.06	0.00	-0.02	-0.01	-0.21	-0.01	-0.90	-0.45	-0.07	-0.01	-0.02
332	0.00	-0.12	0.00	-0.50	-0.24	-0.04	0.00	-0.01	0.00	-0.08	0.00	-0.33	-0.16	-0.02	0.00	0.00
333	-0.01	-0.31	-0.02	-1.35	-0.63	-0.11	-0.01	-0.05	0.00	-0.02	0.04	0.11	-0.13	0.08	0.05	0.25
334	0.01	0.19	0.02	0.89	0.39	0.09	0.02	0.09	0.02	0.56	0.02	2.41	1.20	0.19	0.01	0.06

Appendix G-1
MSAT Emissions

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.01	-0.12	-0.01	-0.53	-0.24	-0.04	0.00	-0.02
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	0.01	0.14	0.02	0.66	0.25	0.08	0.02	0.10
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.00	-0.01	0.00	-0.04	-0.02	0.00	0.00	0.00
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	0.05	0.73	0.19	4.09	1.29	0.81	0.33	1.15
382	-0.03	-0.63	-0.03	-2.70	-1.38	-0.21	-0.01	-0.05
383	-0.04	-0.91	-0.04	-3.90	-2.00	-0.31	-0.02	-0.07
384	-0.04	-0.89	-0.04	-3.80	-1.97	-0.31	-0.02	-0.08
385	-0.03	-0.58	-0.02	-2.50	-1.34	-0.21	-0.01	-0.05
386	-0.02	-0.45	-0.04	-2.08	-0.90	-0.21	-0.04	-0.20
387	-0.01	-0.27	-0.01	-1.15	-0.60	-0.09	-0.01	-0.02
388	0.00	-0.10	0.00	-0.42	-0.20	-0.03	0.00	-0.01
389	0.00	-0.01	0.00	-0.04	-0.02	0.00	0.00	0.00
390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
391	0.00	-0.05	0.00	-0.21	-0.10	-0.02	0.00	-0.01
392	0.01	0.13	0.00	0.56	0.29	0.04	0.00	0.00
393	0.00	-0.07	0.00	-0.31	-0.15	-0.03	0.00	-0.01
394	-0.02	-0.51	-0.03	-2.25	-1.01	-0.20	-0.03	-0.12
395	0.00	0.04	0.01	0.18	0.07	0.02	0.01	0.03
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.00	-0.07	0.00	-0.31	-0.17	-0.02	0.00	0.01
399	0.01	0.22	0.03	1.07	0.43	0.12	0.03	0.16
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	0.00	-0.03	0.00	-0.13	-0.06	-0.01	0.00	0.00
403	0.00	-0.06	0.00	-0.25	-0.11	-0.02	0.00	0.00
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.01	-0.24	-0.01	-1.01	-0.44	-0.07	0.00	-0.01
406	0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	0.00	-0.05	0.00	-0.20	-0.10	-0.02	0.00	-0.01
440	0.00	0.11	0.00	0.45	0.26	0.03	0.00	0.00
441	0.06	1.04	0.19	5.28	0.17	0.86	0.46	1.06
442	-0.09	-2.07	-0.12	-9.06	-4.48	-0.79	-0.09	-0.39
443	-0.08	-1.71	-0.10	-7.54	-3.76	-0.67	-0.08	-0.38
444	-0.06	-1.41	-0.09	-6.25	-3.00	-0.57	-0.08	-0.37
445	-0.03	-0.55	-0.05	-2.53	-1.22	-0.27	-0.05	-0.26
446	-0.05	-1.18	-0.08	-5.24	-2.50	-0.48	-0.07	-0.31
447	0.02	0.41	0.02	1.80	0.79	0.15	0.02	0.07
448	-0.02	-0.57	-0.02	-2.43	-1.22	-0.19	-0.01	-0.05
449	-0.01	-0.25	0.02	-0.90	-1.19	-0.03	0.08	0.15
450	0.49	10.34	0.82	46.82	15.62	4.53	1.25	3.47
451	0.06	1.21	0.11	5.57	1.65	0.57	0.18	0.47
452	1.14	24.11	1.88	109.26	36.90	10.60	2.92	7.90
453	-0.04	-0.81	-0.05	-3.55	-1.64	-0.30	-0.04	-0.16
454	-0.01	-0.34	-0.02	-1.47	-0.69	-0.12	-0.01	-0.06
455	0.15	3.19	0.27	14.54	4.94	1.49	0.43	1.18
456	0.01	0.18	0.01	0.77	0.39	0.06	0.00	0.01
457	0.80	17.10	1.27	77.14	24.48	7.42	2.14	5.14
458	0.00	-0.02	0.00	-0.07	-0.03	0.00	0.00	0.00
459	0.19	3.99	0.31	18.09	5.58	1.78	0.53	1.29
460	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
461	-0.04	-0.92	-0.06	-4.06	-1.56	-0.34	-0.06	-0.21
462	0.96	20.71	1.49	93.15	29.90	8.74	2.43	5.91
463	0.18	3.88	0.28	17.43	5.69	1.64	0.45	1.09
464	-0.07	-1.56	-0.10	-6.92	-2.61	-0.58	-0.11	-0.36
465	0.72	15.49	1.09	69.55	22.39	6.44	1.76	4.28
466	0.16	3.40	0.23	15.22	4.86	1.40	0.39	0.90
467	0.91	19.70	1.39	88.59	29.06	8.17	2.18	5.46
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	0.00	0.04	0.00	0.18	0.09	0.01	0.00	0.00
499	0.03	0.68	0.04	2.97	1.38	0.27	0.04	0.14
500	-0.01	-0.44	0.03	-1.65	-0.81	0.01	0.08	0.26
501	0.37	8.02	0.55	35.94	11.95	3.18	0.81	2.14
502	0.33	7.08	0.51	31.78	10.97	2.90	0.72	2.03
503	0.35	7.47	0.55	33.61	11.87	3.14	0.79	2.24
504	0.04	0.81	0.06	3.66	1.15	0.35	0.10	0.25
505	0.55	11.83	0.88	53.27	18.33	5.02	1.31	3.63
506	0.33	7.02	0.55	31.76	11.28	3.12	0.82	2.34
507	0.28	6.00	0.45	27.13	9.36	2.57	0.68	1.85
508	0.00	-0.06	0.00	-0.25	-0.11	-0.02	0.00	-0.02
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	0.00	-0.05	0.00	-0.21	-0.11	-0.01	0.00	0.01
511	0.00	-0.05	0.00	-0.22	-0.09	-0.02	0.00	-0.02
512	-0.01	-0.16	-0.01	-0.72	-0.32	-0.07	-0.01	-0.05
513	0.00	0.01	0.00	0.06	0.03	0.00	0.00	0.00
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.00	0.05	0.00	0.21	0.10	0.01	0.00	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	0.02	0.50	0.02	2.12	1.10	0.16	0.01	0.02
518	-0.02	-0.49	-0.02	-2.09	-1.07	-0.16	-0.01	-0.02
519	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
520	0.00	-0.02	0.00	-0.10	-0.04	-0.01	0.00	0.00
521	0.00	-0.03	0.00	-0.12	-0.05	-0.01	0.00	0.00
522	0.01	0.16	0.00	0.69	0.28	0.04	0.00	0.00
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	0.00	-0.06	0.00	-0.27	-0.14	-0.02	0.00	0.00
525	-0.01	-0.23	-0.02	-1.05	-0.42	-0.12	-0.03	-0.12
526	-0.11	-2.36	-0.14	-10.40	-4.34	-0.86	-0.13	-0.46
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	0.00	0.04	0.00	0.15	0.07	0.01	0.00	0.00
558	0.08	1.51	0.14	6.90	3.27	0.78	0.18	0.66
559	0.01	0.17	0.01	0.73	0.38	0.07	0.01	0.03
560	0.00	0.01	0.00	0.05	0.02	0.01	0.00	0.01
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.00	0.02	0.00	0.08	0.05	0.01	0.00	0.00
563	0.00	-0.02	0.00	-0.07	-0.04	-0.01	0.00	0.00
564	0.00	-0.01	0.00	-0.06	-0.03	-0.01	0.00	0.00
565	0.01	0.19	0.01	0.80	0.37	0.06	0.00	0.01
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.00	0.04	0.00	0.14	0.08	0.01	0.00	-0.02
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.01	-0.20	-0.01	-0.86	-0.41	-0.06	0.00	-0.01
570	-0.01	-0.33	-0.02	-1.43	-0.68	-0.12	-0.01	-0.06
571	-0.01	-0.13	-0.01	-0.60	-0.27	-0.05	-0.01	-0.04
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.02	-0.57	-0.03	-2.47	-1.11	-0.19	-0.02	-0.06
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.03	-0.59	-0.02	-2.52	-1.27	-0.20	-0.01	-0.05
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.01	-0.34	-0.01	-1.46	-0.74	-0.11	-0.01	-0.02
578	-0.02	-0.36	-0.01	-1.55	-0.78	-0.12	-0.01	-0.03
579	-0.03	-0.80	-0.03	-3.46	-1.36	-0.24	-0.02	-0.06
580	-0.02	-0.37	-0.02	-1.59	-0.66	-0.11	-0.01	-0.03
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-0.05	-1.16	-0.05	-5.04	-1.97	-0.37	-0.05	-0.14
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-0.03	-0.58	-0.03	-2.54	-1.19	-0.22	-0.03	-0.12
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	0.00	0.04	0.00	0.17	0.08	0.01	0.00	0.00
598	0.05	0.97	0.09	4.49	1.94	0.48	0.13	0.42
599	0.00	-0.02	0.00	-0.07	-0.03	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.26	0.01	1.10	0.51	0.08	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.14	-0.02	-0.66	-0.27	-0.07	-0.02	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.47	0.12	2.62	0.70	0.49	0.21	0.71
-0.03	-0.64	-0.03	-2.74	-1.39	-0.22	-0.01	-0.05
-0.04	-0.89	-0.04	-3.81	-1.96	-0.30	-0.02	-0.07
-0.04	-0.91	-0.04	-3.90	-2.02	-0.32	-0.02	-0.09
-0.02	-0.57	-0.02	-2.43	-1.30	-0.20	-0.01	-0.06
-0.02	-0.36	-0.03	-1.65	-0.73	-0.16	-0.03	-0.14
-0.01	-0.23	-0.01	-1.00	-0.53	-0.08	0.00	-0.02
0.00	-0.10	0.00	-0.43	-0.21	-0.03	0.00	-0.01
0.00	-0.02	0.00	-0.07	-0.03	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.09	-0.01	-0.39	-0.19	-0.03	0.00	-0.02
0.00	0.10	0.00	0.43	0.22	0.03	0.00	0.00
0.00	-0.01	0.00	-0.04	-0.04	0.00	0.00	0.02
0.00	-0.10	0.03	-0.24	-0.24	0.04	0.04	0.20
0.01	0.18	0.01	0.77	0.39	0.06	0.01	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.07	0.01	0.30	0.14	0.03	0.00	0.02
-0.01	-0.22	-0.02	-1.02	-0.43	-0.10	-0.02	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.13	-0.05	-0.01	0.00	0.00
0.00	-0.06	0.00	-0.27	-0.12	-0.02	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.26	-0.01	-1.11	-0.48	-0.07	0.00	-0.01
0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.06	0.00	-0.25	-0.12	-0.02	0.00	-0.01
0.00	0.09	0.00	0.38	0.22	0.03	0.00	-0.01
0.04	0.67	0.11	3.36	-0.22	0.50	0.29	0.64
-0.09	-1.99	-0.11	-8.70	-4.31	-0.76	-0.08	-0.38
-0.08	-1.71	-0.10	-7.50	-3.75	-0.67	-0.08	-0.36
-0.06	-1.39	-0.09	-6.17	-2.97	-0.56	-0.08	-0.36
-0.03	-0.54	-0.05	-2.50	-1.22	-0.26	-0.05	-0.25
-0.05	-1.15	-0.07	-5.10	-2.45	-0.46	-0.06	-0.28
0.02	0.43	0.03	1.93	0.83	0.17	0.03	0.11
-0.02	-0.57	-0.02	-2.47	-1.24	-0.20	-0.01	-0.05
-0.02	-0.46	-0.01	-1.87	-1.54	-0.15	0.04	0.03
0.37	8.11	0.55	36.35	11.95	3.15	0.80	2.12
0.07	1.55	0.13	7.08	2.19	0.65	0.19	0.59
0.78	17.01	1.15	75.99	25.46	6.63	1.66	4.38
-0.02	-0.52	-0.01	-2.17	-1.07	-0.15	0.00	0.02
-0.01	-0.28	-0.02	-1.24	-0.58	-0.10	-0.01	-0.05
0.11	2.38	0.13	10.45	3.77	0.84	0.17	0.41
0.02	0.51	0.03	2.27	0.83	0.20	0.05	0.11
0.51	11.09	0.72	49.57	15.22	4.36	1.18	2.66
0.01	0.19	0.01	0.87	0.29	0.08	0.02	0.05
0.14	3.15	0.15	13.80	4.25	0.97	0.20	0.39
0.00	0.06	0.00	0.25	0.13	0.02	0.00	0.00
-0.02	-0.29	-0.03	-1.38	-0.51	-0.16	-0.05	-0.17
0.62	13.68	0.89	61.13	18.79	5.33	1.42	3.28
0.13	3.04	0.15	13.36	4.20	0.95	0.19	0.43
0.21	4.56	0.28	20.30	6.06	1.72	0.46	0.97
0.22	4.93	0.31	21.97	6.80	1.87	0.48	1.11
0.13	3.00	0.14	13.12	4.32	0.92	0.17	0.36
0.64	14.10	0.88	62.65	20.05	5.29	1.31	3.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.18	0.09	0.01	0.00	0.00
0.03	0.68	0.03	2.92	1.40	0.25	0.03	0.10
-0.03	-0.65	-0.01	-2.71	-1.17	-0.16	0.01	0.06
0.34	7.57	0.44	33.44	10.94	2.61	0.58	1.46
0.29	6.36	0.40	28.22	9.84	2.34	0.51	1.42
0.31	6.93	0.43	30.78	10.71	2.55	0.57	1.53
0.04	0.81	0.05	3.62	1.17	0.31	0.08	0.19
0.48	10.46	0.67	46.63	15.98	3.95	0.92	2.45
0.26	5.58	0.38	25.01	8.84	2.23	0.53	1.49
0.22	4.89	0.32	21.83	7.53	1.86	0.43	1.18
0.00	-0.05	0.00	-0.24	-0.11	-0.02	0.00	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.07	0.00	-0.28	-0.14	-0.02	0.00	0.00
0.00	0.01	0.00	0.04	0.03	0.00	0.00	-0.02
-0.01	-0.16	-0.01	-0.72	-0.32	-0.06	-0.01	-0.05
0.00	0.02	0.00	0.10	0.05	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.43	0.01	1.83	0.95	0.14	0.00	0.01
-0.01	-0.34	-0.01	-1.47	-0.75	-0.11	0.00	-0.02
0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
0.00	-0.02	0.00	-0.10	-0.04	-0.01	0.00	0.00
0.00	-0.03	0.00	-0.11	-0.05	-0.01	0.00	0.00
-0.01	-0.14	-0.01	-0.60	-0.28	-0.04	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.23	-0.12	-0.02	0.00	0.00
0.01	0.20	0.00	0.81	0.40	0.03	-0.01	-0.06
-0.08	-1.70	-0.11	-7.55	-3.22	-0.66	-0.11	-0.40
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.15	0.07	0.01	0.00	0.00
0.07	1.54	0.09	6.80	2.66	0.59	0.11	0.33
0.01	0.19	0.01	0.81	0.42	0.07	0.01	0.03
0.00	-0.09	-0.01	-0.41	-0.17	-0.03	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.08	0.05	0.01	0.00	0.00
0.00	-0.02	0.00	-0.07	-0.04	-0.01	0.00	0.00
0.00	-0.01	0.00	-0.06	-0.03	-0.01	0.00	0.00
0.01	0.12	0.01	0.53	0.23	0.05	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.02	0.00	-0.08	-0.05	0.00	0.00	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.25	-0.01	-1.07	-0.51	-0.08	-0.01	-0.02
-0.01	-0.31	-0.02	-1.36	-0.65	-0.12	-0.01	-0.06
-0.01	-0.10	-0.01	-0.47	-0.21	-0.04	-0.01	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.43	-0.02	-1.86	-0.83	-0.14	-0.01	-0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.54	-0.02	-2.32	-1.17	-0.19	-0.01	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.19	-0.01	-0.84	-0.42	-0.07	0.00	-0.02
-0.01	-0.28	-0.01	-1.19	-0.59	-0.09	-0.01	-0.03
-0.02	-0.58	-0.02	-2.50	-0.99	-0.18	-0.02	-0.05
-0.01	-0.26	-0.01	-1.14	-0.49	-0.08	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.59	-0.03	-2.60	-0.99	-0.19	-0.03	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.32	-0.02	-1.40	-0.67	-0.13	-0.02	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.15	0.07	0.01	0.00	0.00
0.04	0.87	0.06	3.88	1.50	0.35	0.07	0.21
0.00	-0.01	0.00	-0.06	-0.03	0.00	0.00	0.00

Appendix G-1
MSAT Emissions

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
600	0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	0.01	0.14	0.00	0.58	0.27	0.04	0.00	0.00
606	0.00	-0.08	0.00	-0.36	-0.17	-0.03	0.00	-0.01
1001	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
1002	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
1003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
1012	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
1013	-0.01	-0.23	-0.01	-0.97	-0.32	-0.05	0.00	-0.01
1014	0.01	0.25	0.02	1.10	0.37	0.09	0.02	0.07
1015	0.03	0.64	0.05	2.86	0.96	0.23	0.05	0.19
1016	-0.01	-0.17	-0.01	-0.72	-0.25	-0.04	0.00	-0.01
1017	0.00	0.06	0.00	0.26	0.10	0.02	0.00	0.01
1018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.01	-0.16	-0.01	-0.71	-0.30	-0.04	0.00	-0.01
1021	-0.03	-0.71	-0.03	-3.10	-1.14	-0.20	-0.02	-0.07
1022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023	-0.01	-0.23	-0.01	-1.01	-0.38	-0.07	-0.01	-0.03
1024	-0.08	-1.92	-0.08	-8.15	-3.59	-0.54	-0.03	-0.15
1025	0.01	0.17	0.01	0.74	0.27	0.06	0.01	0.04
1026	-0.01	-0.35	-0.01	-1.52	-0.57	-0.09	-0.01	-0.03
1027	-0.02	-0.37	-0.01	-1.59	-0.63	-0.10	0.00	-0.02
1028	-0.04	-0.59	-0.11	-3.06	-1.14	-0.81	-0.35	-0.65
1029	-0.01	-0.18	-0.05	-1.04	-0.32	-0.37	-0.18	-0.32
1030	0.00	-0.04	0.00	-0.16	-0.06	-0.01	0.00	-0.01
1031	0.00	-0.05	0.00	-0.22	-0.08	-0.02	0.00	-0.02
1032	0.00	-0.01	0.00	-0.01	-0.01	0.01	0.01	0.03
1033	-0.01	-0.12	0.00	-0.50	-0.21	-0.03	0.00	-0.01
1034	-0.01	-0.13	-0.01	-0.57	-0.23	-0.04	0.00	-0.02
1035	0.00	-0.07	0.00	-0.29	-0.10	-0.02	0.00	-0.01
1036	0.00	-0.09	0.00	-0.39	-0.14	-0.03	0.00	-0.01
1037	0.00	-0.06	0.00	-0.25	-0.08	-0.02	0.00	-0.01
1038	-0.01	-0.13	0.00	-0.54	-0.20	-0.03	0.00	0.00
1039	0.00	-0.09	0.00	-0.40	-0.12	-0.02	0.00	0.00
1040	0.00	-0.11	0.00	-0.48	-0.17	-0.03	0.00	0.00
1041	0.00	0.03	-0.01	0.08	-0.22	0.01	0.02	-0.07
1042	0.01	0.19	0.01	0.82	0.36	0.06	0.01	0.01
1043	0.07	1.60	0.11	7.11	3.41	0.53	0.02	0.46
1059	0.00	0.01	0.00	0.06	0.02	0.00	0.00	0.00
1060	0.00	0.10	0.00	0.44	0.15	0.03	0.00	0.01
1061	0.01	0.20	0.01	0.87	0.28	0.05	0.00	0.01
1062	0.01	0.26	0.02	1.16	0.39	0.09	0.02	0.07
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	0.00	0.02	0.00	0.07	0.01	0.00	0.00	0.00
1066	-0.01	-0.13	-0.01	-0.57	-0.23	-0.04	0.00	-0.01
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-0.02	-0.43	-0.02	-1.89	-0.64	-0.12	-0.02	-0.05
1069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1070	0.00	0.08	0.00	0.36	0.15	0.02	0.00	0.00
1071	-0.01	-0.12	-0.01	-0.55	-0.23	-0.05	-0.01	-0.03
1072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1073	0.00	0.05	0.00	0.23	0.08	0.02	0.01	0.02
1074	-0.02	-0.43	-0.01	-1.80	-0.62	-0.09	0.00	0.00
1075	0.00	-0.06	0.00	-0.25	-0.09	-0.02	0.00	-0.01
1076	-0.02	-0.33	-0.06	-1.71	-0.57	-0.23	-0.08	-0.36
1077	-0.02	-0.06	-0.16	-1.17	-0.44	-0.76	-0.37	-1.11
1078	0.00	0.06	0.00	0.27	0.12	0.02	0.00	0.00
1079	0.00	0.01	0.00	0.02	0.01	-0.01	0.00	-0.01
1080	0.00	0.05	0.00	0.22	0.07	0.02	0.01	0.02
1081	0.00	-0.12	0.00	-0.50	-0.21	-0.03	0.00	0.00
1082	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00
1083	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
1084	0.00	-0.02	0.00	-0.09	-0.03	-0.01	0.00	0.00
1085	0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00
1086	0.00	-0.09	-0.01	-0.41	-0.16	-0.03	0.00	-0.02
1087	-0.01	-0.25	-0.01	-1.07	-0.46	-0.07	-0.01	-0.03
1088	0.00	0.03	0.00	0.11	0.04	0.01	0.00	0.00
1089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.00	0.02	0.00	0.10	0.04	0.01	0.00	0.00
1114	-0.18	-2.68	-0.57	-14.20	-4.26	-2.84	-1.21	-3.35
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.02	0.54	0.03	2.37	0.80	0.18	0.03	0.12
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	0.00	0.12	0.00	0.50	0.19	0.03	0.00	0.01
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.01	0.25	0.01	1.05	0.41	0.06	0.00	0.01
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	0.01	0.12	0.02	0.60	0.28	0.05	0.00	0.09
1128	0.00	-0.02	0.00	-0.08	-0.03	0.00	0.00	0.02
1129	0.00	0.12	0.00	0.50	0.22	0.03	0.00	0.00
1130	-0.01	-0.02	-0.06	-0.44	-0.07	-0.21	-0.11	-0.41
1131	0.00	-0.05	0.00	-0.25	-0.08	-0.02	0.00	-0.02
1132	-0.01	-0.03	-0.09	-0.62	-0.21	-0.69	-0.36	-0.60
1133	0.00	0.11	-0.01	0.39	0.16	-0.02	-0.02	-0.09
1134	0.00	-0.02	-0.01	-0.13	-0.04	-0.02	-0.01	-0.04
1135	0.00	-0.03	-0.01	-0.16	-0.05	-0.02	-0.01	-0.04
1136	-0.01	-0.13	-0.01	-0.59	-0.20	-0.05	-0.01	-0.05
1137	-0.01	-0.11	-0.01	-0.48	-0.16	-0.04	-0.01	-0.04
1138	-0.01	-0.12	-0.01	-0.55	-0.18	-0.05	-0.01	-0.04
1139	-0.02	-0.36	-0.02	-1.59	-0.49	-0.12	-0.03	-0.07
1140	-0.02	-0.53	-0.03	-2.35	-0.79	-0.17	-0.03	-0.10
1141	-0.01	-0.09	-0.01	-0.44	-0.20	-0.06	-0.02	-0.08
1142	0.03	0.70	0.03	3.02	0.89	0.19	0.04	0.07
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	0.02	0.33	0.02	1.49	0.50	0.12	0.02	0.09
1173	-0.04	-0.40	-0.22	-2.88	-0.75	-0.72	-0.33	-1.39
1174	-0.18	-2.50	-0.62	-13.71	-5.00	-1.43	-0.39	-3.74
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-0.25	-3.72	-0.79	-19.68	-6.20	-3.58	-1.45	-4.67
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1180	-0.12	-1.75	-0.41	-9.48	-3.04	-1.86	-0.77	-2.43
1181	-0.06	-0.92	-0.22	-4.97	-1.69	-0.77	-0.29	-1.29
1182	-0.08	-1.17	-0.28	-6.38	-2.24	-0.93	-0.33	-1.70
1183	-0.11	-1.54	-0.36	-8.24	-3.09	-1.21	-0.41	-2.14
1184	-0.06	-0.93	-0.21	-5.06	-1.74	-0.83	-0.31	-1.27
1185	-0.05	-0.84	-0.14	-4.24	-1.46	-0.59	-0.21	-0.79
1186	-0.06	-0.72	-0.26	-4.48	-1.39	-0.99	-0.42	-1.64
1187	-0.07	-0.98	-0.22	-5.28	-1.85	-0.81	-0.30	-1.34
1188	-0.07	-0.88	-0.25	-5.05	-1.68	-1.13	-0.48	-1.51
1189	0.00	-0.09	0.01	-0.30	-0.02	0.02	0.01	0.08
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	0.00	-0.04	-0.01	-0.18	-0.06	-0.02	-0.01	-0.03
1192	0.00	0.04	0.00	0.17	0.06	0.01	0.00	0.01
1193	0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00
1194	0.00	-0.01	0.00	-0.04	-0.01	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	-0.01	0.00	-0.04	-0.02	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.07	0.01	0.32	0.13	0.03	0.01	0.03
0.00	-0.08	0.00	-0.33	-0.16	-0.03	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00
0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
0.00	-0.11	0.00	-0.49	-0.16	-0.03	0.00	-0.01
0.00	0.03	0.00	0.13	0.05	0.01	0.00	0.00
0.01	0.16	0.00	0.65	0.23	0.03	0.00	-0.01
0.00	-0.04	0.00	-0.16	-0.06	-0.01	0.00	0.00
0.00	0.01	0.00	0.06	0.02	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.08	0.00	-0.34	-0.13	-0.02	0.00	-0.01
-0.01	-0.35	-0.01	-1.52	-0.60	-0.10	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.17	-0.01	-0.75	-0.28	-0.05	0.00	-0.02
-0.06	-1.33	-0.05	-5.60	-2.50	-0.37	-0.02	-0.10
0.00	0.06	0.01	0.27	0.10	0.03	0.01	0.03
-0.01	-0.30	-0.01	-1.30	-0.49	-0.08	0.00	-0.02
-0.02	-0.35	-0.01	-1.52	-0.60	-0.10	-0.01	-0.03
-0.03	-0.40	-0.08	-2.01	-0.95	-0.24	-0.07	-0.46
-0.01	-0.20	-0.03	-0.98	-0.33	-0.19	-0.08	-0.15
0.00	-0.05	0.00	-0.19	-0.07	-0.01	0.00	0.00
0.00	-0.06	0.00	-0.25	-0.09	-0.01	0.00	0.00
0.00	0.02	0.00	0.09	0.03	0.01	0.00	0.02
0.00	-0.12	0.00	-0.49	-0.21	-0.03	0.00	0.00
0.00	-0.11	0.00	-0.46	-0.19	-0.03	0.00	0.00
0.00	-0.05	0.00	-0.19	-0.07	-0.01	0.00	0.00
0.00	-0.07	0.00	-0.31	-0.11	-0.02	0.00	0.00
0.00	-0.04	0.00	-0.18	-0.06	-0.01	0.00	0.01
-0.01	-0.12	0.00	-0.52	-0.19	-0.03	0.00	0.00
0.00	-0.09	0.00	-0.38	-0.12	-0.02	0.00	0.00
0.00	-0.11	0.00	-0.46	-0.17	-0.03	0.00	0.00
0.00	0.00	-0.01	-0.07	-0.28	-0.02	0.01	-0.10
0.01	0.17	0.00	0.69	0.31	0.05	0.00	-0.02
0.07	1.55	0.10	6.83	3.30	0.49	0.01	0.41
0.00	0.01	0.00	0.05	0.02	0.00	0.00	0.00
0.00	0.04	0.00	0.19	0.06	0.01	0.00	0.00
0.00	0.09	0.00	0.38	0.12	0.02	0.00	0.01
0.00	0.03	0.00	0.14	0.05	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.04	0.00	-0.19	-0.07	-0.01	0.00	-0.01
-0.01	-0.13	-0.01	-0.55	-0.22	-0.03	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.24	-0.10	-0.02	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.12	-0.06	-0.01	0.00	0.00
0.00	0.03	0.00	0.11	0.02	0.00	0.00	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.19	-0.07	0.00	0.00	0.01
-0.02	-0.46	-0.02	-1.98	-0.68	-0.11	-0.01	-0.02
-0.01	-0.12	-0.01	-0.53	-0.19	-0.03	0.00	-0.02
-0.02	-0.35	-0.06	-1.79	-0.61	-0.23	-0.08	-0.33
-0.01	-0.04	-0.10	-0.72	-0.33	-0.25	-0.11	-0.66
0.00	0.04	0.00	0.16	0.08	0.01	0.00	0.00
0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00
0.00	0.05	0.00	0.21	0.07	0.02	0.00	0.01
0.00	-0.09	0.00	-0.38	-0.16	-0.02	0.00	0.00
0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
0.00	-0.02	0.00	-0.09	-0.03	-0.01	0.00	0.00
0.00	-0.02	0.00	-0.07	-0.03	0.00	0.00	0.00
0.00	-0.08	0.00	-0.36	-0.14	-0.02	0.00	0.00
-0.01	-0.24	-0.01	-1.03	-0.45	-0.07	0.00	-0.02
0.00	0.03	0.00	0.14	0.05	0.01	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.10	0.03	0.01	0.00	0.00
-0.11	-1.36	-0.44	-8.11	-2.40	-2.05	-0.92	-2.71
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.12	0.00	0.50	0.17	0.03	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.11	0.00	0.48	0.19	0.03	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.21	0.01	0.91	0.35	0.05	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.10	0.00	-0.40	-0.16	-0.01	0.01	0.02
0.00	-0.05	0.00	-0.21	-0.07	-0.01	0.00	0.00
0.00	0.05	0.00	0.22	0.12	0.01	0.00	0.00
-0.01	-0.06	-0.06	-0.57	-0.12	-0.20	-0.10	-0.37
0.00	-0.06	0.00	-0.25	-0.08	-0.02	0.00	-0.01
0.00	0.01	-0.01	-0.06	-0.04	-0.09	-0.05	-0.10
0.00	0.10	-0.01	0.34	0.14	-0.01	-0.02	-0.07
0.00	-0.02	-0.01	-0.12	-0.04	-0.02	-0.01	-0.04
0.00	-0.04	-0.01	-0.19	-0.07	-0.02	-0.01	-0.04
-0.01	-0.12	-0.01	-0.55	-0.19	-0.05	-0.01	-0.04
0.00	-0.09	-0.01	-0.42	-0.14	-0.04	-0.01	-0.04
-0.01	-0.11	-0.01	-0.48	-0.16	-0.04	-0.01	-0.04
-0.02	-0.37	-0.02	-1.61	-0.50	-0.12	-0.03	-0.07
-0.02	-0.52	-0.03	-2.32	-0.78	-0.17	-0.03	-0.10
-0.01	-0.08	-0.01	-0.42	-0.20	-0.06	-0.02	-0.08
0.03	0.67	0.03	2.87	0.84	0.16	0.03	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.03	0.00	0.13	0.05	0.00	0.00	-0.01
-0.04	-0.25	-0.19	-2.13	-0.53	-0.58	-0.27	-1.26
-0.15	-2.00	-0.57	-11.39	-4.13	-1.15	-0.31	-3.48
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.14	-1.55	-0.60	-9.69	-3.03	-2.49	-1.10	-3.76
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-0.80	-0.31	-5.06	-1.55	-1.34	-0.60	-1.98
-0.05	-0.63	-0.18	-3.57	-1.22	-0.59	-0.22	-1.08
-0.07	-0.97	-0.24	-5.30	-1.89	-0.75	-0.26	-1.42
-0.10	-1.47	-0.32	-7.71	-2.97	-1.04	-0.34	-1.87
-0.06	-0.83	-0.19	-4.46	-1.55	-0.70	-0.26	-1.10
-0.04	-0.72	-0.12	-3.60	-1.26	-0.49	-0.17	-0.67
-0.05	-0.61	-0.23	-3.80	-1.20	-0.84	-0.36	-1.43
-0.06	-0.87	-0.20	-4.67	-1.67	-0.69	-0.25	-1.18
-0.05	-0.77	-0.19	-4.23	-1.43	-0.74	-0.29	-1.12
0.00	-0.11	0.00	-0.41	-0.06	0.00	0.01	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.16	-0.05	-0.02	-0.01	-0.03
0.00	0.02	0.00	0.08	0.03	0.01	0.00	0.00
0.00	-0.01	0.00	-0.05	-0.02	0.00	0.00	0.00
0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	0.00

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1195	-0.02	-0.35	-0.01	-1.51	-0.52	-0.09	-0.01	-0.03
1196	0.00	-0.05	0.00	-0.19	-0.07	-0.01	0.00	0.00
1197	0.00	0.04	0.00	0.18	0.06	0.01	0.00	0.00
1198	0.03	0.73	0.04	3.19	0.99	0.23	0.05	0.12
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.01	0.11	0.01	0.50	0.17	0.04	0.01	0.03
1230	0.01	0.17	0.01	0.77	0.30	0.05	0.01	0.03
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.01	-0.31	-0.02	-1.38	-0.53	-0.10	-0.02	-0.08
1239	-0.01	-0.28	-0.03	-1.30	-0.48	-0.12	-0.03	-0.12
1240	-0.13	-2.72	-0.17	-12.01	-5.39	-0.87	-0.06	-0.66
1241	-0.05	-1.14	-0.06	-5.00	-1.58	-0.34	-0.07	-0.19
1242	0.00	-0.06	0.00	-0.27	-0.09	-0.02	0.00	-0.01
1243	-0.04	-0.72	-0.07	-3.32	-1.14	-0.32	-0.08	-0.31
1244	-0.03	-0.57	-0.04	-2.53	-0.88	-0.19	-0.03	-0.14
1245	-0.08	-1.15	-0.24	-6.09	-2.12	-1.73	-0.77	-1.40
1246	0.01	0.20	0.00	0.85	0.27	0.04	0.00	-0.01
1247	-0.03	-0.69	-0.03	-2.98	-1.36	-0.20	-0.01	-0.06
1248	0.00	0.06	0.00	0.27	0.09	0.02	0.00	0.01
1249	0.00	0.08	0.00	0.36	0.12	0.02	0.00	0.01
1250	-0.02	-0.51	-0.02	-2.16	-0.81	-0.14	-0.01	-0.05
1251	-0.03	-0.81	-0.04	-3.51	-1.14	-0.22	-0.03	-0.09
1252	-0.01	-0.22	-0.01	-0.93	-0.32	-0.05	0.00	-0.01
1253	-0.01	-0.16	-0.01	-0.68	-0.25	-0.04	0.00	-0.01
1254	0.00	0.01	0.00	0.06	0.02	0.00	0.00	0.00
1255	0.04	0.82	0.05	3.59	1.12	0.26	0.06	0.15
1256	0.02	0.35	0.02	1.51	0.49	0.09	0.01	0.04
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	0.02	0.35	0.02	1.53	0.53	0.11	0.02	0.08
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1297	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1298	0.00	0.03	0.00	0.14	0.06	0.02	0.00	0.02
1299	0.00	0.05	0.01	0.24	0.09	0.03	0.01	0.04
1300	-0.04	-0.81	-0.04	-3.51	-1.37	-0.23	-0.02	-0.11
1301	-0.02	-0.40	-0.02	-1.73	-0.64	-0.12	-0.02	-0.07
1302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	-0.01	-0.26	-0.01	-1.11	-0.42	-0.08	-0.01	-0.05
1304	-0.01	-0.03	-0.06	-0.44	-0.10	-0.21	-0.11	-0.39
1305	0.00	0.08	0.00	0.31	0.12	0.01	0.00	-0.02
1306	0.00	-0.09	0.00	-0.38	-0.20	-0.01	0.01	0.02
1307	-0.01	0.61	-0.26	1.06	0.00	-1.22	-0.67	-1.91
1308	-0.04	-0.84	-0.04	-3.56	-1.70	-0.26	-0.01	-0.10
1309	-0.03	-0.69	-0.04	-3.06	-0.95	-0.22	-0.05	-0.13
1310	-0.04	-0.94	-0.05	-4.11	-1.48	-0.29	-0.04	-0.15
1311	-0.01	-0.12	-0.01	-0.54	-0.17	-0.04	-0.01	-0.02
1312	0.00	-0.03	0.00	-0.14	-0.05	-0.01	0.00	0.00
1313	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
1314	0.01	0.28	0.01	1.22	0.46	0.07	0.00	0.02
1315	0.04	0.87	0.05	3.82	1.23	0.27	0.05	0.15
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.01	-0.29	-0.01	-1.25	-0.38	-0.07	-0.01	-0.03
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	0.11	2.42	0.14	10.68	3.82	0.77	0.12	0.50
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	-0.01	-0.12	-0.01	-0.52	-0.18	-0.04	-0.01	-0.04
1358	-0.03	-0.73	-0.04	-3.20	-1.02	-0.23	-0.05	-0.13
1359	-0.01	-0.14	0.00	-0.60	-0.27	-0.03	0.00	0.00
1360	-0.01	-0.34	-0.01	-1.47	-0.54	-0.09	-0.01	-0.03
1361	-0.04	-0.92	-0.04	-3.95	-1.45	-0.24	-0.02	-0.07
1362	-0.02	-0.49	-0.03	-2.14	-0.92	-0.14	-0.01	-0.10
1363	0.01	0.13	0.01	0.56	0.22	0.04	0.00	0.03
1364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1365	-0.01	-0.02	-0.06	-0.44	-0.12	-0.20	-0.10	-0.40
1366	0.02	0.37	0.02	1.59	0.53	0.11	0.02	0.04
1367	0.00	0.05	-0.01	0.14	0.07	-0.04	-0.02	-0.08
1368	0.00	0.18	-0.02	0.61	0.40	-0.12	-0.09	-0.19
1369	-0.04	-0.09	-0.24	-1.70	-0.70	-1.11	-0.55	-1.61
1370	0.00	-0.08	0.00	-0.34	-0.14	-0.02	0.00	0.00
1371	-0.01	-0.21	-0.01	-0.87	-0.32	-0.05	0.00	-0.01
1372	-0.02	-0.38	-0.02	-1.67	-0.50	-0.13	-0.03	-0.08
1373	-0.01	-0.28	-0.01	-1.21	-0.37	-0.08	-0.02	-0.04
1374	-0.02	-0.49	-0.03	-2.17	-0.71	-0.15	-0.03	-0.09
1375	0.15	3.39	0.17	14.80	4.87	0.99	0.17	0.51
1376	-0.01	-0.24	-0.01	-1.03	-0.35	-0.06	-0.01	-0.03
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	1.42	29.83	2.37	136.25	36.20	17.14	6.44	10.02
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	0.12	2.47	0.20	11.25	3.13	1.42	0.53	0.82
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	1.79	37.65	2.98	171.99	45.03	22.17	8.48	12.55
1418	0.07	1.54	0.12	7.04	1.85	0.93	0.36	0.52
1419	0.02	0.47	0.02	2.02	0.82	0.13	0.01	0.06
1420	0.73	15.21	1.25	69.73	18.94	9.42	3.62	5.42
1421	0.16	3.20	0.30	14.91	3.68	2.14	0.87	1.38
1422	0.56	11.44	1.02	52.85	14.46	7.04	2.68	4.59
1423	0.70	14.43	1.24	66.26	18.53	8.53	3.19	5.52
1424	-0.34	-7.09	-0.58	-32.04	-13.44	-2.39	-0.27	-2.55
1425	0.35	6.81	0.76	32.24	9.80	3.81	1.31	3.78
1426	0.13	3.27	0.10	14.03	3.36	2.22	0.94	-0.02
1427	0.28	5.61	0.54	26.27	6.34	4.55	1.97	2.54
1428	0.19	3.71	0.39	17.45	5.21	2.70	1.06	1.90
1429	0.16	3.03	0.33	14.38	3.94	2.51	1.05	1.64
1430	0.27	5.63	0.46	25.86	6.68	4.30	1.78	1.98
1431	0.13	2.85	0.17	12.74	3.33	1.20	0.39	0.59
1432	0.13	2.96	0.16	13.10	3.34	1.08	0.32	0.47
1433	0.04	0.80	0.04	3.54	0.93	0.28	0.08	0.12
1434	0.14	3.27	0.18	14.48	3.69	1.17	0.34	0.53
1435	0.05	0.97	0.12	4.65	1.40	0.53	0.18	0.62
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	0.00	-0.03	0.00	-0.11	-0.03	-0.01	0.00	0.00
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	-0.02	-0.53	-0.01	-2.22	-0.79	-0.10	0.01	0.01
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.02	-0.36	-0.02	-1.56	-0.54	-0.09	-0.01	-0.03
0.00	-0.05	0.00	-0.20	-0.08	-0.01	0.00	0.00
0.00	0.04	0.00	0.16	0.06	0.01	0.00	0.00
0.03	0.70	0.04	3.04	0.95	0.20	0.04	0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
0.00	0.12	0.00	0.50	0.21	0.03	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.19	-0.01	-0.84	-0.33	-0.06	-0.01	-0.05
-0.01	-0.23	-0.02	-1.09	-0.41	-0.10	-0.02	-0.11
-0.15	-3.21	-0.21	-14.19	-6.26	-1.03	-0.08	-0.79
-0.05	-1.09	-0.06	-4.78	-1.51	-0.33	-0.06	-0.18
0.00	-0.06	0.00	-0.28	-0.09	-0.02	0.00	-0.01
-0.04	-0.73	-0.07	-3.37	-1.19	-0.32	-0.08	-0.31
-0.03	-0.69	-0.04	-3.07	-1.15	-0.24	-0.04	-0.16
-0.06	-1.08	-0.16	-5.34	-1.87	-1.09	-0.45	-0.89
0.01	0.15	0.00	0.59	0.18	0.02	-0.01	-0.04
-0.03	-0.71	-0.03	-3.05	-1.38	-0.21	-0.01	-0.08
0.00	0.05	0.00	0.22	0.08	0.01	0.00	0.00
0.00	0.07	0.00	0.31	0.11	0.02	0.00	0.01
-0.02	-0.51	-0.02	-2.19	-0.82	-0.14	-0.01	-0.05
-0.04	-0.82	-0.04	-3.57	-1.16	-0.22	-0.03	-0.09
-0.01	-0.21	-0.01	-0.91	-0.31	-0.05	0.00	-0.01
-0.01	-0.16	-0.01	-0.66	-0.24	-0.04	0.00	-0.01
0.00	0.01	0.00	0.03	0.01	0.00	0.00	-0.01
0.03	0.77	0.04	3.39	1.06	0.23	0.05	0.12
0.01	0.35	0.02	1.51	0.49	0.09	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.13	0.00	0.56	0.21	0.03	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.01
0.00	-0.01	0.00	-0.02	-0.01	0.00	0.00	0.02
-0.03	-0.70	-0.03	-3.07	-1.21	-0.21	-0.02	-0.10
-0.03	-0.57	-0.03	-2.50	-0.94	-0.18	-0.03	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.26	-0.01	-1.13	-0.43	-0.07	-0.01	-0.03
-0.01	-0.10	-0.06	-0.76	-0.21	-0.22	-0.10	-0.37
0.00	0.03	0.00	0.09	0.04	0.00	0.00	-0.03
0.00	-0.04	0.01	-0.12	-0.05	0.02	0.01	0.05
0.00	0.64	-0.17	1.74	0.20	-0.36	-0.22	-1.29
-0.04	-0.89	-0.04	-3.80	-1.77	-0.29	-0.02	-0.13
-0.03	-0.70	-0.04	-3.07	-0.96	-0.23	-0.05	-0.13
-0.04	-0.95	-0.05	-4.14	-1.49	-0.30	-0.04	-0.15
-0.01	-0.12	-0.01	-0.55	-0.17	-0.04	-0.01	-0.02
0.00	-0.04	0.00	-0.16	-0.06	-0.01	0.00	0.00
0.00	0.01	0.00	0.04	0.01	0.00	0.00	0.00
0.01	0.28	0.01	1.20	0.45	0.07	0.00	0.01
0.04	0.82	0.04	3.57	1.12	0.23	0.04	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.29	-0.01	-1.25	-0.38	-0.07	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	1.25	0.05	5.37	1.87	0.33	0.03	0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.07	0.01	0.00	0.00	-0.01
-0.01	-0.30	-0.02	-1.35	-0.46	-0.10	-0.02	-0.07
-0.01	-0.24	-0.01	-1.06	-0.43	-0.07	-0.01	-0.03
-0.01	-0.29	-0.01	-1.27	-0.47	-0.08	-0.01	-0.03
-0.04	-0.97	-0.04	-4.17	-1.58	-0.26	-0.02	-0.07
-0.05	-0.97	-0.07	-4.42	-1.83	-0.30	-0.02	-0.31
0.00	0.11	0.01	0.48	0.19	0.03	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.10	-0.06	-0.75	-0.22	-0.21	-0.10	-0.38
0.01	0.23	0.01	0.99	0.33	0.06	0.01	0.01
-0.01	-0.11	-0.03	-0.60	-0.23	-0.10	-0.03	-0.16
-0.02	-0.24	-0.06	-1.31	-0.35	-0.28	-0.12	-0.36
-0.02	0.05	-0.17	-0.75	-0.40	-0.57	-0.28	-1.20
0.00	-0.08	0.00	-0.35	-0.14	-0.02	0.00	0.00
-0.01	-0.20	-0.01	-0.87	-0.32	-0.05	0.00	-0.01
-0.02	-0.38	-0.02	-1.67	-0.50	-0.13	-0.03	-0.08
-0.01	-0.28	-0.01	-1.22	-0.38	-0.08	-0.02	-0.04
-0.02	-0.49	-0.03	-2.17	-0.71	-0.15	-0.03	-0.09
0.14	3.29	0.16	14.32	4.73	0.92	0.14	0.42
-0.01	-0.24	-0.01	-1.03	-0.35	-0.06	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	21.73	1.49	98.02	25.09	10.94	3.95	5.67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	2.20	0.12	9.73	2.49	0.80	0.24	0.36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.31	28.30	1.96	127.73	31.72	14.61	5.43	7.48
0.05	1.02	0.05	4.55	0.98	0.40	0.14	0.16
0.02	0.44	0.02	1.92	0.78	0.13	0.01	0.06
0.52	11.86	0.63	52.42	12.96	4.30	1.32	1.83
0.11	2.23	0.19	10.24	2.42	1.31	0.52	0.80
0.39	8.30	0.65	37.84	9.94	4.62	1.72	2.71
0.63	13.77	0.88	61.50	17.08	6.04	1.95	3.18
-0.34	-7.09	-0.58	-32.04	-13.44	-2.39	-0.27	-2.55
0.32	6.35	0.63	29.65	8.95	2.94	0.90	3.02
0.06	1.93	-0.10	7.46	1.01	1.08	0.50	-1.07
0.22	4.65	0.33	21.12	4.65	3.06	1.29	1.28
0.10	2.04	0.18	9.41	2.99	1.13	0.38	0.84
0.22	4.41	0.41	20.48	5.55	3.02	1.20	1.88
0.24	5.12	0.39	23.34	5.99	3.73	1.53	1.58
0.12	2.79	0.16	12.42	3.24	1.10	0.34	0.52
0.13	2.88	0.15	12.76	3.26	1.04	0.31	0.46
0.03	0.79	0.04	3.48	0.92	0.27	0.08	0.11
0.14	3.21	0.17	14.23	3.62	1.13	0.33	0.51
0.05	0.98	0.12	4.70	1.41	0.53	0.18	0.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.11	-0.03	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.52	-0.02	-2.20	-0.78	-0.12	0.00	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1479	-0.01	-0.32	-0.02	-1.41	-0.53	-0.10	-0.01	-0.05	-0.01	-0.27	-0.02	-1.19	-0.45	-0.08	-0.01	-0.05
1480	0.00	0.07	0.00	0.29	0.12	0.02	0.00	0.01	0.00	-0.01	0.00	-0.03	-0.01	0.00	0.00	-0.01
1481	-0.01	-0.23	-0.01	-0.99	-0.38	-0.07	-0.01	-0.02	-0.01	-0.30	-0.01	-1.29	-0.48	-0.08	-0.01	-0.03
1482	-0.01	-0.26	-0.01	-1.13	-0.36	-0.07	-0.01	-0.03	-0.01	-0.28	-0.01	-1.21	-0.40	-0.08	-0.01	-0.04
1483	-0.05	-0.95	-0.10	-4.41	-1.57	-0.36	-0.08	-0.46	-0.04	-0.72	-0.09	-3.46	-1.20	-0.33	-0.09	-0.49
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	0.06	1.31	0.12	6.00	2.19	0.50	0.10	0.56	0.06	1.31	0.12	5.98	2.19	0.49	0.10	0.55
1486	0.19	3.41	0.48	16.62	6.21	1.56	0.37	2.61	0.19	3.40	0.49	16.59	6.19	1.57	0.38	2.64
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1491	0.08	1.83	0.12	8.24	2.29	1.59	0.66	0.42	0.04	0.85	0.04	3.70	1.09	0.25	0.05	0.08
1492	0.00	0.04	-0.01	0.11	0.04	-0.04	-0.02	-0.07	0.00	0.01	-0.02	-0.05	-0.01	-0.09	-0.04	-0.11
1493	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	0.00	-0.01	0.00	-0.04	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	-0.04	-0.01	0.00	0.00	0.00
1496	0.03	0.47	0.09	2.44	0.78	0.36	0.14	0.52	0.03	0.49	0.09	2.55	0.82	0.38	0.14	0.55
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-0.37	-7.99	-0.55	-35.73	-12.42	-2.83	-0.56	-2.18	-0.28	-5.93	-0.46	-26.74	-9.50	-2.26	-0.48	-1.93
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-0.21	-4.60	-0.32	-20.53	-7.05	-1.63	-0.33	-1.26	-0.15	-3.22	-0.26	-14.57	-5.11	-1.28	-0.29	-1.13
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-0.14	-3.07	-0.21	-13.69	-4.70	-1.09	-0.22	-0.84	-0.10	-2.15	-0.17	-9.72	-3.41	-0.85	-0.19	-0.75
1537	-0.01	-0.24	-0.02	-1.08	-0.43	-0.08	-0.01	-0.06	-0.03	-0.56	-0.03	-2.46	-0.90	-0.18	-0.03	-0.12
1538	-0.04	-0.76	-0.07	-3.48	-1.27	-0.30	-0.06	-0.30	-0.03	-0.64	-0.06	-2.98	-1.10	-0.28	-0.07	-0.31
1539	-0.03	-0.59	-0.05	-2.69	-0.81	-0.24	-0.07	-0.21	-0.03	-0.65	-0.06	-2.98	-0.97	-0.28	-0.08	-0.26
1540	-0.04	-0.92	-0.07	-4.16	-1.61	-0.35	-0.06	-0.26	-0.03	-0.64	-0.06	-2.94	-1.12	-0.30	-0.07	-0.29
1541	-0.05	-1.03	-0.08	-4.66	-1.74	-0.39	-0.08	-0.36	-0.03	-0.65	-0.08	-3.09	-1.16	-0.33	-0.09	-0.40
1542	0.00	0.02	0.00	0.10	0.04	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.01	0.13	0.00	0.65	-0.13	-0.02	0.01	-0.04	0.01	0.23	0.01	0.99	0.34	0.05	0.00	0.01
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	0.00	0.03	0.01	0.18	0.06	-0.01	-0.01	0.09	0.00	0.01	0.01	0.06	0.02	-0.06	-0.03	0.04
1552	-0.02	-0.30	-0.05	-1.52	-0.47	-0.25	-0.10	-0.30	-0.02	-0.32	-0.05	-1.61	-0.50	-0.26	-0.10	-0.31
1553	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1554	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1555	0.02	0.23	0.05	1.23	0.40	0.16	0.05	0.31	0.02	0.24	0.05	1.29	0.42	0.16	0.06	0.32
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	-0.06	0.00	-0.25	-0.16	-0.03	0.00	-0.01
44	0.00	-0.02	0.00	-0.09	-0.07	-0.01	0.00	0.00
45	0.00	0.03	0.00	0.12	0.08	0.01	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	-0.06	0.00	-0.28	-0.18	-0.03	0.00	-0.01
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.02	-0.42	-0.02	-1.80	-1.60	-0.25	-0.01	-0.05
96	-0.03	-0.69	-0.03	-2.97	-2.71	-0.42	-0.02	-0.08
97	0.00	-0.07	0.00	-0.30	-0.23	-0.03	0.00	0.00
98	0.00	0.06	0.00	0.27	0.21	0.03	0.00	0.00
99	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-0.14	-2.60	-0.31	-12.64	-8.62	-2.11	-0.45	-1.58
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-0.04	-0.76	-0.07	-3.49	-3.27	-0.55	-0.05	-0.32
107	-0.28	-5.61	-0.50	-25.58	-23.95	-4.01	-0.35	-2.36
108	-0.09	-1.87	-0.12	-8.56	-5.24	-1.03	-0.14	-0.46
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-0.19	-3.36	-0.46	-16.44	-10.13	-2.76	-0.71	-2.47
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	-0.07	0.00	-0.29	-0.27	-0.04	0.00	0.00
147	-0.02	-0.55	-0.02	-2.37	-1.93	-0.29	-0.01	-0.05
148	-0.05	-1.21	-0.05	-5.20	-3.62	-0.57	-0.03	-0.11
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	-0.04	0.00	-0.19	-0.13	-0.03	0.00	-0.02
151	0.00	-0.02	0.00	-0.09	-0.06	-0.01	0.00	-0.01
152	-0.01	-0.20	-0.01	-0.84	-0.60	-0.09	0.00	-0.01
153	-0.07	-1.17	-0.16	-5.68	-4.24	-1.03	-0.23	-0.89
154	-0.05	-0.85	-0.11	-4.05	-3.02	-0.72	-0.15	-0.59
155	-0.02	-0.45	-0.06	-2.14	-1.58	-0.37	-0.08	-0.31
156	-0.08	-1.48	-0.19	-7.05	-5.47	-1.25	-0.26	-1.03
157	-0.06	-1.08	-0.14	-5.16	-4.00	-0.92	-0.19	-0.76
158	-0.04	-0.68	-0.09	-3.25	-2.52	-0.58	-0.12	-0.48
159	-0.13	-2.54	-0.23	-11.56	-10.41	-1.86	-0.21	-1.09
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.01	-0.17	-0.01	-0.72	-0.44	-0.07	0.00	-0.01
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-0.09	-1.54	-0.27	-7.83	-6.33	-1.44	-0.30	-1.55
202	-0.03	-0.59	-0.02	-2.54	-2.05	-0.31	-0.01	-0.05
203	-0.02	-0.47	-0.02	-2.01	-1.72	-0.26	-0.01	-0.03
204	0.00	0.02	0.00	0.09	0.07	0.01	0.00	0.00
205	-0.08	-1.61	-0.17	-7.54	-6.21	-1.26	-0.21	-0.88
206	-0.08	-1.58	-0.19	-7.49	-5.84	-1.26	-0.23	-0.98
207	-0.05	-0.98	-0.11	-4.58	-3.64	-0.75	-0.13	-0.53
208	-0.05	-0.94	-0.12	-4.48	-3.44	-0.78	-0.16	-0.64
209	-0.07	-1.30	-0.14	-6.07	-4.87	-1.00	-0.17	-0.72
210	0.00	-0.02	0.00	-0.07	-0.05	-0.01	0.00	0.00
211	-0.01	-0.12	-0.01	-0.53	-0.28	-0.05	-0.01	-0.02
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
222	-0.01	-0.28	-0.01	-1.21	-0.74	-0.11	0.00	-0.01
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	0.00	0.01	0.00	0.04	0.03	0.00	0.00	0.00
260	0.00	-0.06	0.00	-0.28	-0.20	-0.03	0.00	0.00
261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
262	-0.03	-0.41	-0.09	-2.19	-1.66	-0.48	-0.13	-0.54
263	-0.02	-0.20	-0.07	-1.19	-0.82	-0.31	-0.10	-0.42
264	-0.03	-0.50	-0.10	-2.58	-1.66	-0.51	-0.15	-0.55
265	-0.09	-1.75	-0.19	-8.17	-6.84	-1.38	-0.23	-0.98
266	-0.03	-0.67	-0.05	-2.99	-2.65	-0.45	-0.04	-0.18
267	-0.04	-0.79	-0.06	-3.53	-3.00	-0.53	-0.06	-0.24
268	-0.01	-0.18	-0.02	-0.82	-0.58	-0.12	-0.02	-0.08
269	-0.01	-0.10	-0.02	-0.52	-0.34	-0.09	-0.02	-0.09
270	-0.01	-0.15	-0.02	-0.72	-0.49	-0.11	-0.02	-0.10
271	-0.01	-0.14	-0.02	-0.68	-0.46	-0.11	-0.02	-0.10
272	-0.01	-0.13	-0.02	-0.63	-0.40	-0.10	-0.02	-0.09
273	-0.01	-0.13	-0.02	-0.63	-0.41	-0.10	-0.02	-0.08
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-0.03	-0.65	-0.06	-3.02	-1.98	-0.43	-0.08	-0.30
276	-0.03	-0.66	-0.04	-2.87	-2.08	-0.35	-0.03	-0.11
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	0.00	0.04	0.00	0.15	0.14	0.02	0.00	0.00
320	-0.02	-0.56	0.04	-2.03	-1.72	0.01	0.13	0.39
321	-0.07	-1.64	-0.07	-7.00	-5.78	-0.88	-0.03	-0.13
322	-0.07	-1.55	-0.06	-6.64	-5.35	-0.81	-0.03	-0.12
323	-0.05	-1.12	-0.05	-4.82	-3.95	-0.61	-0.03	-0.11
324	-0.04	-1.05	-0.04	-4.47	-3.71	-0.57	-0.02	-0.09
325	-0.06	-1.31	-0.07	-5.70	-4.85	-0.79	-0.05	-0.23
326	-0.01	-0.14	-0.01	-0.60	-0.53	-0.08	0.00	-0.01
327	0.00	-0.09	0.00	-0.38	-0.32	-0.05	0.00	-0.01
328	0.00	-0.03	0.00	-0.11	-0.08	-0.01	0.00	0.00
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.01	-0.13	-0.01	-0.58	-0.43	-0.08	-0.01	-0.04
331	-0.01	-0.12	-0.01	-0.53	-0.37	-0.07	-0.01	-0.04
332	0.00	-0.09	-0.01	-0.38	-0.26	-0.05	0.00	-0.02
333	-0.01	-0.25	-0.01	-1.08	-0.76	-0.13	-0.01	-0.05
334	0.00	-0.10	-0.01	-0.45	-0.31	-0.06	-0.01	-0.03

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.06	0.00	-0.25	-0.16	-0.03	0.00	-0.01
0.00	-0.01	0.00	-0.06	-0.05	-0.01	0.00	0.00
0.00	0.02	0.00	0.07	0.05	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.06	0.00	-0.28	-0.18	-0.03	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.29	-0.01	-1.26	-1.15	-0.18	-0.01	-0.03
-0.02	-0.49	-0.02	-2.10	-1.99	-0.30	-0.01	-0.05
0.00	-0.07	0.00	-0.30	-0.23	-0.03	0.00	0.00
0.00	0.05	0.00	0.22	0.17	0.03	0.00	0.00
0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.93	-0.20	-5.13	-3.51	-1.15	-0.34	-1.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.58	-0.06	-2.67	-2.55	-0.43	-0.04	-0.29
-0.22	-4.21	-0.42	-19.50	-18.66	-3.14	-0.28	-2.08
0.02	0.52	0.01	2.06	3.23	0.38	-0.03	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.12	-1.92	-0.37	-9.98	-6.50	-2.05	-0.59	-2.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.08	0.00	-0.33	-0.29	-0.04	0.00	-0.01
-0.02	-0.46	-0.02	-1.98	-1.65	-0.25	-0.01	-0.04
-0.04	-0.95	-0.04	-4.08	-2.87	-0.45	-0.02	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.05	0.00	0.19	0.14	0.02	0.00	0.00
0.00	0.01	0.00	0.05	0.04	0.00	0.00	0.00
0.00	-0.10	0.00	-0.42	-0.33	-0.05	0.00	-0.01
-0.05	-0.78	-0.13	-3.89	-2.91	-0.76	-0.19	-0.74
-0.03	-0.56	-0.09	-2.76	-2.30	-0.57	-0.13	-0.51
-0.02	-0.26	-0.04	-1.28	-0.96	-0.24	-0.06	-0.22
-0.05	-0.88	-0.14	-4.28	-3.53	-0.84	-0.19	-0.77
-0.04	-0.65	-0.10	-3.13	-2.58	-0.61	-0.14	-0.57
-0.02	-0.41	-0.06	-1.97	-1.63	-0.39	-0.09	-0.36
-0.08	-1.56	-0.18	-7.32	-6.71	-1.25	-0.17	-0.90
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.15	-0.01	-0.66	-0.40	-0.06	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-1.43	-0.25	-7.27	-5.98	-1.33	-0.27	-1.43
-0.02	-0.46	-0.02	-1.95	-1.53	-0.23	-0.01	-0.04
-0.02	-0.42	-0.02	-1.80	-1.54	-0.23	-0.01	-0.03
0.00	0.02	0.00	0.09	0.08	0.01	0.00	0.00
-0.06	-1.19	-0.14	-5.62	-4.73	-0.99	-0.17	-0.74
-0.06	-1.07	-0.15	-5.17	-4.04	-0.92	-0.19	-0.81
-0.04	-0.72	-0.09	-3.39	-2.72	-0.58	-0.11	-0.45
-0.04	-0.65	-0.10	-3.17	-2.53	-0.60	-0.13	-0.54
-0.05	-0.86	-0.11	-4.08	-3.26	-0.72	-0.14	-0.60
0.00	-0.01	0.00	-0.03	-0.02	0.00	0.00	0.00
0.01	0.11	0.02	0.55	0.32	0.11	0.04	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.28	-0.01	-1.21	-0.74	-0.11	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.00	0.04	0.03	0.00	0.00	0.00
0.00	-0.06	0.00	-0.27	-0.19	-0.03	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.34	-0.08	-1.88	-1.40	-0.41	-0.12	-0.49
-0.01	-0.17	-0.06	-1.03	-0.73	-0.28	-0.09	-0.38
-0.03	-0.42	-0.09	-2.22	-1.45	-0.45	-0.13	-0.50
-0.07	-1.29	-0.16	-6.10	-5.29	-1.10	-0.19	-0.85
-0.03	-0.60	-0.04	-2.69	-2.36	-0.41	-0.04	-0.18
-0.04	-0.77	-0.06	-3.45	-2.93	-0.52	-0.05	-0.23
-0.01	-0.18	-0.02	-0.82	-0.58	-0.12	-0.02	-0.08
0.00	-0.05	-0.01	-0.29	-0.16	-0.06	-0.02	-0.09
-0.01	-0.11	-0.02	-0.56	-0.37	-0.10	-0.02	-0.10
-0.01	-0.11	-0.02	-0.53	-0.34	-0.09	-0.02	-0.10
-0.01	-0.09	-0.02	-0.47	-0.29	-0.08	-0.02	-0.08
-0.01	-0.12	-0.01	-0.57	-0.37	-0.09	-0.02	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.09	-0.04	-0.60	-0.39	-0.19	-0.07	-0.28
0.00	0.02	-0.02	-0.04	0.08	-0.06	-0.04	-0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.15	0.13	0.02	0.00	0.00
-0.01	-0.35	0.03	-1.26	-1.60	-0.03	0.10	0.26
-0.07	-1.59	-0.06	-6.78	-5.62	-0.85	-0.03	-0.13
-0.06	-1.51	-0.06	-6.46	-5.22	-0.79	-0.03	-0.12
-0.05	-1.11	-0.05	-4.76	-3.91	-0.60	-0.03	-0.11
-0.04	-0.94	-0.04	-4.04	-3.30	-0.51	-0.02	-0.09
-0.04	-0.95	-0.05	-4.15	-3.36	-0.56	-0.04	-0.17
-0.01	-0.12	0.00	-0.51	-0.46	-0.07	0.00	-0.01
0.00	-0.10	0.00	-0.41	-0.35	-0.05	0.00	-0.01
0.00	-0.03	0.00	-0.12	-0.08	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.10	-0.01	-0.45	-0.33	-0.06	-0.01	-0.04
-0.01	-0.12	-0.01	-0.55	-0.39	-0.07	-0.01	-0.04
0.00	-0.07	0.00	-0.29	-0.20	-0.04	0.00	-0.02
0.00	-0.05	0.01	-0.14	-0.14	0.01	0.02	0.06
0.01	0.23	0.00	0.95	0.71	0.09	0.00	-0.02

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.02	-0.34	-0.02	-1.52	-0.97	-0.17	-0.02	-0.06
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	0.00	-0.03	-0.01	-0.16	-0.08	-0.04	-0.01	-0.05
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	0.07	1.20	0.17	5.94	1.76	1.02	0.42	0.91
382	-0.03	-0.66	-0.02	-2.83	-2.21	-0.33	-0.01	-0.03
383	-0.04	-0.99	-0.04	-4.20	-3.53	-0.52	-0.01	-0.04
384	-0.03	-0.81	-0.03	-3.45	-2.81	-0.42	-0.01	-0.05
385	-0.02	-0.43	-0.02	-1.82	-1.48	-0.22	-0.01	-0.02
386	-0.01	-0.19	-0.02	-0.87	-0.69	-0.14	-0.02	-0.08
387	-0.01	-0.29	-0.01	-1.22	-1.00	-0.15	0.00	-0.01
388	0.00	-0.08	0.00	-0.36	-0.26	-0.04	0.00	-0.01
389	0.00	-0.03	0.00	-0.12	-0.09	-0.01	0.00	0.00
390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
391	0.00	0.03	0.00	0.13	0.09	0.01	0.00	0.00
392	0.01	0.18	0.01	0.76	0.66	0.09	0.00	0.00
393	0.00	-0.07	0.00	-0.29	-0.22	-0.04	0.00	-0.01
394	-0.02	-0.52	-0.03	-2.28	-1.57	-0.28	-0.03	-0.11
395	0.00	-0.01	0.00	-0.05	-0.04	-0.01	0.00	-0.01
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.00	-0.10	0.00	-0.43	-0.33	-0.05	0.00	-0.01
399	0.00	-0.06	-0.02	-0.32	-0.18	-0.07	-0.02	-0.09
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	0.00	-0.05	0.00	-0.21	-0.13	-0.02	0.00	0.00
403	0.00	-0.04	0.00	-0.16	-0.11	-0.02	0.00	0.00
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.01	-0.18	-0.01	-0.78	-0.47	-0.07	0.00	-0.01
406	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	0.00	-0.08	0.00	-0.32	-0.25	-0.04	0.00	0.00
440	0.00	-0.01	0.00	-0.03	-0.04	0.00	0.00	0.00
441	0.00	-0.24	0.05	-0.57	-2.35	0.08	0.22	0.37
442	-0.08	-1.83	-0.08	-7.89	-6.72	-1.05	-0.05	-0.21
443	-0.05	-1.19	-0.06	-5.19	-4.48	-0.73	-0.05	-0.21
444	-0.04	-0.85	-0.05	-3.77	-2.91	-0.50	-0.05	-0.19
445	-0.02	-0.41	-0.03	-1.84	-1.43	-0.27	-0.04	-0.14
446	-0.03	-0.59	-0.04	-2.64	-1.92	-0.35	-0.04	-0.15
447	0.01	0.31	0.01	1.34	0.81	0.13	0.01	0.02
448	-0.03	-0.60	-0.03	-2.59	-2.10	-0.32	-0.01	-0.06
449	-0.02	-0.42	0.00	-1.68	-2.81	-0.32	0.04	0.05
450	0.44	9.59	0.62	42.79	20.64	4.60	0.91	2.22
451	0.06	1.28	0.08	5.74	2.35	0.58	0.14	0.29
452	1.09	24.00	1.50	106.98	54.28	11.62	2.18	5.26
453	-0.03	-0.78	-0.04	-3.40	-2.46	-0.41	-0.03	-0.12
454	-0.01	-0.33	-0.02	-1.45	-1.06	-0.17	-0.01	-0.05
455	0.15	3.25	0.20	14.53	6.95	1.57	0.32	0.72
456	0.01	0.15	0.01	0.64	0.48	0.07	0.00	0.01
457	0.78	17.55	1.02	77.85	35.60	7.92	1.58	3.33
458	0.00	-0.01	0.00	-0.05	0.01	0.00	0.00	0.00
459	0.18	4.08	0.23	18.09	6.93	1.69	0.38	0.69
460	0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
461	0.94	21.07	1.20	93.31	42.85	9.35	1.80	3.82
462	0.00	-0.05	0.00	-0.22	-0.15	-0.02	0.00	0.00
463	0.19	4.20	0.24	18.57	8.79	1.88	0.35	0.76
464	-0.09	-2.03	-0.13	-9.06	-5.35	-1.04	-0.15	-0.47
465	0.69	15.47	0.90	68.72	32.97	7.06	1.33	2.97
466	0.13	2.89	0.15	12.81	4.98	1.18	0.26	0.45
467	0.90	20.18	1.18	89.51	43.87	9.27	1.67	3.87
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	0.00	0.03	0.00	0.12	0.09	0.01	0.00	0.00
499	0.04	0.85	0.04	3.66	2.26	0.38	0.03	0.09
500	0.05	1.12	0.08	5.19	1.10	0.40	0.15	0.32
501	0.36	8.07	0.44	35.72	16.37	3.41	0.62	1.34
502	0.32	7.18	0.40	31.78	15.00	3.12	0.56	1.25
503	0.33	7.48	0.42	33.10	16.19	3.35	0.59	1.35
504	0.07	1.58	0.09	6.98	3.22	0.70	0.13	0.28
505	0.53	11.99	0.69	53.13	26.05	5.43	0.97	2.20
506	0.08	1.77	0.10	7.84	4.29	0.86	0.14	0.33
507	0.49	10.92	0.68	48.52	25.44	5.35	0.96	2.41
508	0.00	-0.06	0.00	-0.25	-0.17	-0.03	0.00	-0.02
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	0.00	-0.01	0.00	-0.06	-0.05	-0.01	0.00	0.00
511	0.00	-0.08	0.00	-0.36	-0.23	-0.04	-0.01	-0.02
512	-0.01	-0.23	-0.01	-1.01	-0.74	-0.13	-0.01	-0.04
513	0.00	0.02	0.00	0.07	0.05	0.01	0.00	0.00
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.00	0.03	0.00	0.14	0.09	0.01	0.00	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	0.02	0.39	0.01	1.67	1.33	0.19	0.00	0.01
518	-0.01	-0.28	-0.01	-1.17	-0.91	-0.13	0.00	-0.01
519	0.00	-0.01	0.00	-0.03	-0.02	0.00	0.00	0.00
520	0.00	-0.03	0.00	-0.11	-0.07	-0.01	0.00	0.00
521	0.00	-0.07	0.00	-0.30	-0.19	-0.03	0.00	0.00
522	0.01	0.25	0.01	1.09	0.66	0.10	0.00	0.01
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	0.00	-0.08	0.00	-0.35	-0.27	-0.04	0.00	0.00
525	-0.03	-0.57	-0.05	-2.54	-2.10	-0.39	-0.05	-0.20
526	-0.23	-5.16	-0.29	-22.76	-15.10	-2.64	-0.26	-0.93
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	0.00	0.02	0.00	0.08	0.06	0.01	0.00	0.00
558	0.11	2.56	0.13	11.22	6.09	1.14	0.16	0.37
559	0.01	0.17	0.01	0.74	0.62	0.10	0.01	0.02
560	0.00	-0.05	0.00	-0.23	-0.16	-0.02	0.00	0.00
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.00	0.02	0.00	0.08	0.06	0.01	0.00	0.00
563	0.00	-0.01	0.00	-0.06	-0.05	-0.01	0.00	0.00
564	0.00	-0.02	0.00	-0.08	-0.06	-0.01	0.00	0.00
565	0.01	0.18	0.01	0.77	0.57	0.09	0.00	0.01
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.00	-0.02	0.00	-0.07	-0.05	-0.01	0.00	0.00
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.01	-0.25	-0.01	-1.06	-0.77	-0.12	0.00	-0.02
570	-0.02	-0.37	-0.02	-1.61	-1.19	-0.19	-0.01	-0.05
571	-0.01	-0.14	-0.01	-0.63	-0.44	-0.08	-0.01	-0.03
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.03	-0.63	-0.03	-2.73	-1.78	-0.29	-0.02	-0.06
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.03	-0.60	-0.02	-2.57	-1.94	-0.30	-0.01	-0.04
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.01	-0.21	-0.01	-0.91	-0.69	-0.11	0.00	-0.02
578	-0.01	-0.31	-0.01	-1.32	-1.00	-0.15	-0.01	-0.03
579	-0.03	-0.80	-0.03	-3.46	-2.02	-0.32	-0.02	-0.06
580	-0.02	-0.38	-0.02	-1.64	-1.07	-0.17	-0.01	-0.03
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-0.06	-1.43	-0.06	-6.21	-3.61	-0.60	-0.05	-0.15
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-0.11	-2.56	-0.14	-11.13	-11.57	-1.72	-0.05	-0.46
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	0.00	0.05	0.00	0.23	0.16	0.03	0.00	0.00
598	0.04	0.80	0.07	3.67	3.48	0.67	0.08	0.32
599	0.00	-0.01	0.00	-0.06	-0.04	-0.01	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.03	-0.01	0.09	0.08	-0.01	-0.01	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.13	-0.02	-0.62	-0.39	-0.10	-0.02	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.45	0.08	2.37	0.10	0.42	0.22	0.45
-0.03	-0.68	-0.02	-2.87	-2.25	-0.33	-0.01	-0.03
-0.04	-0.98	-0.03	-4.16	-3.51	-0.51	-0.01	-0.04
-0.03	-0.82	-0.03	-3.46	-2.87	-0.43	-0.01	-0.05
-0.02	-0.41	-0.02	-1.76	-1.44	-0.21	-0.01	-0.02
-0.01	-0.09	-0.01	-0.45	-0.40	-0.08	-0.01	-0.06
-0.01	-0.22	-0.01	-0.95	-0.76	-0.11	0.00	-0.01
0.00	-0.09	0.00	-0.39	-0.28	-0.04	0.00	-0.01
0.00	-0.03	0.00	-0.13	-0.09	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.00	0.04	0.03	0.00	0.00	0.00
0.00	0.10	0.00	0.44	0.34	0.05	0.00	0.00
0.00	-0.03	0.00	-0.11	-0.09	-0.01	0.00	0.00
-0.01	-0.26	0.00	-1.07	-0.78	-0.10	0.00	0.02
0.00	0.12	0.00	0.50	0.40	0.05	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	0.00	-0.04	-0.02	-0.01	0.00	-0.01
-0.01	-0.21	-0.03	-1.02	-0.69	-0.17	-0.04	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.20	-0.12	-0.02	0.00	0.00
0.00	-0.04	0.00	-0.18	-0.12	-0.02	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.20	-0.01	-0.87	-0.53	-0.08	0.00	-0.01
0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.13	0.00	-0.55	-0.52	-0.07	0.00	-0.01
0.00	-0.08	0.00	-0.33	-0.37	-0.05	0.00	0.00
0.01	0.03	0.06	0.56	-1.83	0.13	0.21	0.35
-0.08	-1.84	-0.08	-7.90	-6.73	-1.05	-0.05	-0.21
-0.05	-1.19	-0.06	-5.19	-4.48	-0.73	-0.05	-0.21
-0.04	-0.83	-0.05	-3.67	-2.85	-0.49	-0.05	-0.19
-0.02	-0.35	-0.03	-1.57	-1.24	-0.24	-0.03	-0.13
-0.03	-0.60	-0.04	-2.63	-2.04	-0.35	-0.03	-0.13
0.01	0.27	0.01	1.20	0.58	0.10	0.01	0.03
-0.03	-0.61	-0.03	-2.63	-2.13	-0.33	-0.01	-0.06
-0.02	-0.55	-0.02	-2.27	-3.23	-0.42	0.02	-0.02
0.37	8.27	0.46	36.61	16.33	3.46	0.65	1.42
0.06	1.31	0.08	5.78	2.66	0.56	0.10	0.25
0.81	18.36	1.02	81.02	39.01	8.14	1.43	3.18
-0.02	-0.55	-0.02	-2.38	-1.76	-0.27	-0.01	-0.04
-0.01	-0.28	-0.01	-1.20	-0.88	-0.14	-0.01	-0.04
0.11	2.48	0.11	10.82	5.19	0.98	0.14	0.27
0.02	0.54	0.03	2.37	1.23	0.24	0.04	0.07
0.55	12.58	0.66	55.47	23.91	5.22	1.00	1.90
0.01	0.22	0.01	0.99	0.48	0.10	0.02	0.04
0.14	3.31	0.13	14.35	5.54	1.05	0.15	0.19
0.00	0.05	0.00	0.23	0.18	0.03	0.00	0.00
0.67	15.35	0.79	67.62	29.40	6.28	1.16	2.21
0.00	-0.05	0.00	-0.20	-0.14	-0.02	0.00	0.00
0.15	3.56	0.16	15.48	6.94	1.28	0.17	0.32
0.20	4.67	0.21	20.34	8.42	1.77	0.31	0.49
0.26	5.97	0.31	26.27	11.59	2.46	0.45	0.86
0.12	2.98	0.11	12.85	5.01	0.93	0.12	0.10
0.66	15.10	0.80	66.46	30.41	6.36	1.11	2.31
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.03	0.00	0.13	0.10	0.01	0.00	0.00
0.03	0.78	0.03	3.35	2.09	0.34	0.03	0.07
0.04	0.90	0.05	4.10	0.49	0.21	0.09	0.18
0.33	7.65	0.38	33.56	14.78	2.95	0.47	0.97
0.29	6.59	0.34	29.00	13.66	2.67	0.42	0.93
0.31	7.03	0.36	30.81	14.75	2.91	0.45	0.99
0.07	1.61	0.08	7.10	3.17	0.65	0.11	0.23
0.49	11.28	0.57	49.52	23.44	4.64	0.73	1.57
0.06	1.45	0.08	6.39	3.51	0.68	0.10	0.26
0.42	9.56	0.52	42.18	21.03	4.19	0.69	1.59
0.00	-0.05	0.00	-0.24	-0.16	-0.03	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.14	-0.10	-0.01	0.00	0.00
0.00	-0.02	0.00	-0.11	-0.07	-0.02	0.00	-0.02
-0.01	-0.23	-0.01	-1.00	-0.74	-0.12	-0.01	-0.04
0.00	0.02	0.00	0.08	0.06	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.34	0.01	1.43	1.13	0.17	0.00	0.01
-0.01	-0.20	-0.01	-0.83	-0.66	-0.10	0.00	-0.01
0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00
0.00	-0.02	0.00	-0.07	-0.04	-0.01	0.00	0.00
0.00	-0.06	0.00	-0.27	-0.18	-0.03	0.00	0.00
0.00	0.08	0.00	0.36	0.24	0.03	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.08	0.00	-0.32	-0.25	-0.04	0.00	0.00
-0.01	-0.07	-0.02	-0.40	-0.56	-0.15	-0.04	-0.15
-0.16	-3.56	-0.23	-15.86	-10.75	-1.96	-0.23	-0.82
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.08	0.06	0.01	0.00	0.00
0.10	2.34	0.11	10.19	5.58	0.98	0.11	0.26
0.01	0.18	0.01	0.75	0.63	0.10	0.01	0.02
-0.01	-0.14	-0.01	-0.63	-0.42	-0.07	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.08	0.06	0.01	0.00	0.00
0.00	-0.01	0.00	-0.06	-0.05	-0.01	0.00	0.00
0.00	-0.02	0.00	-0.07	-0.05	-0.01	0.00	0.00
0.00	0.10	0.01	0.44	0.28	0.05	0.01	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.06	0.00	-0.22	-0.17	-0.02	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.32	-0.01	-1.36	-0.98	-0.15	-0.01	-0.03
-0.02	-0.35	-0.02	-1.52	-1.13	-0.18	-0.01	-0.05
-0.01	-0.11	-0.01	-0.49	-0.34	-0.06	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.49	-0.02	-2.12	-1.38	-0.22	-0.01	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.56	-0.02	-2.39	-1.81	-0.28	-0.01	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.15	-0.01	-0.65	-0.50	-0.08	0.00	-0.01
-0.01	-0.22	-0.01	-0.93	-0.70	-0.11	-0.01	-0.02
-0.02	-0.57	-0.02	-2.45	-1.44	-0.23	-0.02	-0.05
-0.01	-0.27	-0.01	-1.18	-0.80	-0.13	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.90	-0.04	-3.91	-2.27	-0.39	-0.04	-0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.24	-0.12	-9.74	-10.51	-1.55	-0.04	-0.42
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.05	0.00	0.20	0.14	0.02	0.00	0.00
0.03	0.66	0.05	2.89	2.65	0.48	0.05	0.20
0.00	-0.01	0.00	-0.06	-0.04	-0.01	0.00	0.00

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
600	0.00	-0.01	0.00	-0.04	-0.03	0.00	0.00	0.00
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	0.00	0.11	0.00	0.47	0.35	0.05	0.00	0.00
606	-0.01	-0.12	-0.01	-0.51	-0.38	-0.06	0.00	-0.01
1001	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00
1002	0.00	-0.05	0.00	-0.23	-0.15	-0.02	0.00	-0.01
1003	0.01	0.19	0.01	0.81	0.48	0.08	0.01	0.02
1004	0.01	0.22	0.01	0.96	0.56	0.11	0.01	0.05
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	0.00	-0.07	-0.01	-0.32	-0.19	-0.04	-0.01	-0.02
1012	0.00	-0.06	-0.01	-0.30	-0.16	-0.04	-0.01	-0.02
1013	-0.02	-0.34	-0.02	-1.51	-0.84	-0.15	-0.02	-0.06
1014	0.00	0.05	0.00	0.24	0.14	0.03	0.00	0.01
1015	0.02	0.32	0.05	1.61	0.87	0.28	0.08	0.30
1016	-0.02	-0.55	-0.03	-2.41	-1.52	-0.26	-0.02	-0.10
1017	0.00	0.10	0.01	0.46	0.33	0.05	0.00	0.02
1018	-0.03	-0.73	-0.04	-3.20	-1.79	-0.33	-0.04	-0.12
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.02	-0.44	-0.02	-1.91	-1.27	-0.21	-0.02	-0.07
1021	-0.02	-0.39	-0.02	-1.70	-0.95	-0.18	-0.02	-0.07
1022	0.01	0.23	0.01	0.99	0.81	0.12	0.01	0.03
1023	-0.01	-0.21	-0.01	-0.92	-0.60	-0.11	-0.01	-0.05
1024	-0.02	-0.47	-0.03	-2.09	-1.21	-0.22	-0.03	-0.08
1025	0.01	0.07	0.03	0.44	0.35	0.08	0.01	0.16
1026	-0.01	-0.25	-0.01	-1.09	-0.70	-0.12	-0.01	-0.05
1027	-0.01	-0.24	-0.01	-1.03	-0.65	-0.11	-0.01	-0.04
1028	-0.02	-0.26	-0.11	-1.68	-1.20	-0.85	-0.37	-0.70
1029	-0.02	-0.12	-0.08	-0.93	-0.72	-0.30	-0.10	-0.56
1030	-0.01	-0.14	-0.01	-0.67	-0.40	-0.09	-0.02	-0.07
1031	-0.01	-0.20	-0.01	-0.92	-0.57	-0.11	-0.01	-0.06
1032	0.00	-0.08	0.00	-0.33	-0.21	-0.02	0.01	0.03
1033	-0.01	-0.25	-0.02	-1.11	-0.85	-0.14	-0.01	-0.06
1034	-0.02	-0.56	-0.03	-2.42	-2.02	-0.31	-0.02	-0.11
1035	-0.01	-0.18	-0.01	-0.81	-0.56	-0.10	-0.01	-0.05
1036	-0.01	-0.14	-0.01	-0.64	-0.38	-0.08	-0.01	-0.04
1037	-0.01	-0.23	-0.01	-1.03	-0.61	-0.11	-0.01	-0.05
1038	-0.01	-0.31	-0.02	-1.39	-0.84	-0.16	-0.02	-0.07
1039	-0.01	-0.34	-0.02	-1.47	-0.89	-0.16	-0.02	-0.06
1040	-0.04	-0.79	-0.05	-3.50	-2.31	-0.40	-0.04	-0.17
1041	-0.02	-0.44	-0.02	-1.94	-1.20	-0.20	-0.02	-0.07
1042	0.05	0.93	0.09	4.31	3.52	0.58	0.04	0.46
1043	0.02	0.28	0.04	1.35	0.95	0.23	0.05	0.23
1059	0.00	0.01	0.00	0.03	0.02	0.00	0.00	0.00
1060	0.00	0.08	0.00	0.35	0.22	0.03	0.00	0.01
1061	0.01	0.16	0.01	0.68	0.39	0.06	0.00	0.01
1062	0.00	0.06	0.00	0.25	0.15	0.03	0.00	0.01
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	0.01	0.20	0.00	0.84	0.47	0.06	0.00	-0.01
1066	0.00	-0.11	0.00	-0.45	-0.34	-0.05	0.00	-0.01
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	0.01	0.22	0.01	0.97	0.62	0.11	0.01	0.04
1069	-0.02	-0.53	-0.03	-2.33	-1.21	-0.23	-0.04	-0.08
1070	0.02	0.37	0.02	1.64	1.42	0.22	0.01	0.08
1071	-0.01	-0.17	-0.01	-0.73	-0.51	-0.08	0.00	-0.01
1072	-0.04	-1.01	-0.05	-4.40	-2.56	-0.45	-0.05	-0.13
1073	0.00	0.02	0.01	0.11	0.05	0.04	0.02	0.05
1074	-0.01	-0.24	-0.02	-1.06	-0.74	-0.13	-0.01	-0.06
1075	-0.01	-0.14	-0.01	-0.60	-0.39	-0.06	0.00	-0.02
1076	-0.01	-0.25	-0.04	-1.22	-0.68	-0.19	-0.05	-0.21
1077	-0.03	-0.24	-0.18	-1.97	-1.70	-0.83	-0.31	-1.19
1078	0.00	0.01	0.00	0.04	0.03	-0.01	-0.01	-0.02
1079	0.00	-0.02	0.00	-0.10	-0.06	-0.02	0.00	-0.02
1080	0.00	0.02	0.00	0.11	0.06	0.02	0.01	0.01
1081	-0.01	-0.14	0.00	-0.59	-0.46	-0.07	0.00	0.00
1082	0.00	-0.02	0.00	-0.11	-0.08	-0.01	0.00	0.00
1083	0.00	0.01	0.00	0.05	0.03	0.01	0.00	0.00
1084	0.00	-0.03	0.00	-0.12	-0.09	-0.01	0.00	0.00
1085	0.00	-0.09	0.00	-0.41	-0.25	-0.04	0.00	-0.01
1086	0.00	-0.04	0.00	-0.18	-0.11	-0.02	0.00	-0.01
1087	-0.02	-0.44	-0.03	-1.94	-1.27	-0.23	-0.03	-0.11
1088	0.00	0.04	0.00	0.19	0.12	0.02	0.00	0.01
1089	0.07	1.44	0.10	6.42	3.84	0.75	0.11	0.38
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.00	0.02	0.00	0.10	0.06	0.01	0.00	0.00
1114	-0.13	-1.76	-0.51	-10.14	-4.99	-2.77	-1.11	-3.09
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.01	0.21	0.01	0.93	0.58	0.10	0.01	0.03
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	0.00	0.09	0.00	0.37	0.25	0.04	0.00	0.01
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.01	0.13	0.00	0.54	0.38	0.05	0.00	0.01
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.01	0.33	0.01	1.40	0.98	0.14	0.00	0.01
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	0.02	0.38	0.05	1.79	1.68	0.25	0.01	0.26
1128	0.01	0.14	0.01	0.62	0.46	0.07	0.00	0.01
1129	0.00	0.09	0.01	0.40	0.35	0.06	0.00	0.03
1130	0.00	0.04	-0.03	-0.04	0.09	-0.10	-0.06	-0.25
1131	0.00	0.00	-0.03	-0.14	-0.01	-0.09	-0.05	-0.18
1132	-0.03	-0.30	-0.12	-1.93	-0.94	-0.98	-0.46	-0.75
1133	0.01	0.26	0.01	1.14	1.14	0.16	0.00	0.05
1134	-0.01	-0.22	-0.01	-0.93	-0.90	-0.12	0.00	-0.01
1135	0.00	-0.06	0.00	-0.26	-0.14	-0.03	0.00	-0.02
1136	0.00	-0.06	0.00	-0.24	-0.16	-0.02	0.00	0.00
1137	0.00	-0.03	0.00	-0.11	-0.02	-0.01	0.00	0.00
1138	0.00	-0.05	0.00	-0.23	-0.14	-0.02	0.00	-0.01
1139	-0.01	-0.31	-0.02	-1.35	-0.85	-0.15	-0.02	-0.05
1140	-0.02	-0.36	-0.02	-1.60	-1.04	-0.18	-0.02	-0.07
1141	-0.02	-0.41	-0.03	-1.85	-1.13	-0.22	-0.03	-0.12
1142	0.05	1.09	0.07	4.84	2.66	0.53	0.08	0.24
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	-0.01	-0.19	-0.06	-1.11	-0.60	-0.24	-0.08	-0.34
1173	0.01	0.70	-0.09	2.32	1.98	-0.09	-0.20	-0.72
1174	-0.02	-0.01	-0.16	-0.94	-0.76	-0.55	-0.23	-1.10
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-0.06	-0.03	-0.45	-2.75	-1.42	-2.25	-1.10	-3.07
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.00	-0.07	-0.01	-0.32	-0.19	-0.05	-0.01	-0.05
1179	-0.02	-0.46	-0.03	-2.08	-1.10	-0.24	-0.05	-0.12
1180	-0.01	0.45	-0.17	0.82	0.28	-0.89	-0.50	-1.23
1181	-0.03	-0.38	-0.12	-2.28	-1.33	-0.56	-0.20	-0.77
1182	-0.03	-0.15	-0.16	-1.54	-0.93	-0.59	-0.24	-1.07
1183	0.00	0.47	-0.12	1.23	0.73	-0.22	-0.17	-0.91
1184	-0.01	0.15	-0.10	0.03	0.16	-0.41	-0.23	-0.73
1185	-0.02	-0.05	-0.11	-0.82	-0.38	-0.47	-0.22	-0.71
1186	-0.02	-0.07	-0.16	-1.19	-0.53	-0.63	-0.30	-1.06
1187	-0.03	-0.35	-0.15	-2.26	-1.48	-0.62	-0.22	-0.94
1188	-0.04	-0.50	-0.19	-3.15	-1.75	-1.08	-0.44	-1.20
1189	0.00	-0.04	0.00	-0.16	-0.08	0.00	0.01	0.03
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	0.00	-0.03	0.00	-0.13	-0.10	-0.02	0.00	-0.01
1192	0.00	-0.03	0.00	-0.13	-0.09	-0.01	0.00	0.00
1193	0.00	-0.03	0.00	-0.12	-0.08	-0.01	0.00	0.00
1194	0.00	-0.02	0.00	-0.08	-0.05	-0.01	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	-0.01	0.00	-0.04	-0.03	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	0.00	-0.01	-0.11	-0.01	0.00	0.01
-0.01	-0.12	-0.01	-0.50	-0.38	-0.06	0.00	-0.01
0.00	-0.01	0.00	-0.06	-0.03	-0.01	0.00	0.00
0.00	-0.05	0.00	-0.24	-0.15	-0.03	0.00	-0.01
0.01	0.17	0.01	0.74	0.44	0.07	0.00	0.02
0.01	0.21	0.01	0.92	0.53	0.10	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.07	-0.01	-0.32	-0.19	-0.04	-0.01	-0.02
0.00	-0.09	-0.01	-0.38	-0.22	-0.05	-0.01	-0.03
-0.01	-0.30	-0.02	-1.34	-0.75	-0.14	-0.02	-0.05
0.00	0.03	0.00	0.15	0.09	0.02	0.00	0.01
-0.02	-0.47	-0.02	-2.06	-1.24	-0.21	-0.02	-0.06
-0.02	-0.51	-0.03	-2.22	-1.40	-0.24	-0.02	-0.09
0.00	0.04	0.00	0.17	0.14	0.02	0.00	0.01
-0.03	-0.71	-0.04	-3.10	-1.73	-0.32	-0.04	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.43	-0.02	-1.87	-1.24	-0.21	-0.02	-0.07
-0.02	-0.33	-0.02	-1.48	-0.82	-0.16	-0.02	-0.07
0.01	0.20	0.01	0.81	0.71	0.10	0.00	0.00
-0.01	-0.19	-0.01	-0.86	-0.57	-0.10	-0.01	-0.05
-0.02	-0.43	-0.02	-1.90	-1.11	-0.20	-0.02	-0.08
0.00	-0.03	0.01	-0.04	-0.05	0.05	0.03	0.09
-0.01	-0.25	-0.01	-1.10	-0.71	-0.12	-0.01	-0.05
-0.01	-0.19	-0.01	-0.84	-0.53	-0.09	-0.01	-0.03
-0.02	-0.35	-0.07	-1.84	-1.37	-0.55	-0.19	-0.42
-0.01	-0.09	-0.06	-0.71	-0.62	-0.10	0.00	-0.40
-0.01	-0.17	-0.01	-0.78	-0.47	-0.10	-0.02	-0.06
-0.01	-0.19	-0.01	-0.83	-0.52	-0.09	-0.01	-0.03
0.00	-0.11	-0.01	-0.49	-0.30	-0.05	-0.01	-0.02
-0.01	-0.27	-0.02	-1.18	-0.90	-0.14	-0.01	-0.06
-0.02	-0.55	-0.03	-2.39	-2.01	-0.31	-0.01	-0.10
-0.01	-0.18	-0.01	-0.78	-0.55	-0.10	-0.01	-0.04
-0.01	-0.13	-0.01	-0.60	-0.35	-0.07	-0.01	-0.04
-0.01	-0.23	-0.01	-1.02	-0.60	-0.11	-0.01	-0.05
-0.01	-0.31	-0.02	-1.39	-0.85	-0.15	-0.02	-0.07
-0.01	-0.33	-0.02	-1.45	-0.88	-0.16	-0.02	-0.06
-0.04	-0.79	-0.05	-3.51	-2.31	-0.40	-0.04	-0.17
-0.02	-0.45	-0.02	-1.96	-1.21	-0.21	-0.02	-0.08
0.05	0.91	0.09	4.18	3.43	0.55	0.04	0.42
0.01	0.27	0.04	1.28	0.92	0.20	0.04	0.19
0.00	0.01	0.00	0.03	0.02	0.00	0.00	0.00
0.00	0.06	0.00	0.27	0.16	0.03	0.00	0.00
0.01	0.12	0.00	0.52	0.30	0.05	0.00	0.01
0.00	0.04	0.00	0.16	0.10	0.02	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.07	0.00	0.27	0.15	0.01	-0.01	-0.02
0.00	-0.11	0.00	-0.46	-0.34	-0.05	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.22	0.01	0.94	0.60	0.10	0.01	0.03
-0.02	-0.42	-0.02	-1.84	-0.95	-0.19	-0.03	-0.07
0.02	0.41	0.02	1.78	1.53	0.21	0.00	0.04
-0.01	-0.17	-0.01	-0.71	-0.50	-0.07	0.00	-0.01
-0.03	-0.60	-0.03	-2.61	-1.50	-0.26	-0.02	-0.06
0.00	-0.03	0.01	-0.09	-0.08	0.02	0.02	0.05
0.00	-0.08	0.00	-0.35	-0.21	-0.04	0.00	-0.02
-0.01	-0.25	-0.01	-1.07	-0.82	-0.12	0.00	-0.03
-0.02	-0.27	-0.04	-1.32	-0.79	-0.20	-0.05	-0.21
-0.04	-0.63	-0.11	-3.17	-2.25	-0.79	-0.25	-0.65
0.00	-0.02	0.00	-0.09	-0.06	-0.01	0.00	-0.01
0.00	-0.02	0.00	-0.09	-0.06	-0.01	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
-0.01	-0.13	0.00	-0.56	-0.44	-0.06	0.00	0.00
0.00	-0.03	0.00	-0.11	-0.09	-0.01	0.00	0.00
0.00	0.01	0.00	0.04	0.03	0.01	0.00	0.00
0.00	-0.03	0.00	-0.12	-0.09	-0.01	0.00	0.00
0.00	-0.10	0.00	-0.43	-0.26	-0.04	0.00	-0.01
0.00	-0.04	0.00	-0.17	-0.10	-0.02	0.00	-0.01
-0.02	-0.45	-0.03	-1.98	-1.29	-0.23	-0.03	-0.11
0.00	0.04	0.00	0.19	0.12	0.02	0.00	0.01
0.06	1.41	0.09	6.30	3.78	0.72	0.10	0.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.00	0.05	0.03	0.00	0.00	0.00
-0.08	-0.76	-0.41	-5.49	-2.71	-2.04	-0.89	-2.65
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.15	0.01	0.64	0.39	0.06	0.00	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.08	0.00	0.33	0.23	0.03	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.21	0.01	0.87	0.58	0.08	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.33	0.01	1.39	0.97	0.14	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.17	0.03	0.86	0.86	0.16	0.02	0.15
0.00	0.03	0.00	0.13	0.09	0.01	0.00	0.00
0.00	-0.05	0.00	-0.21	-0.14	-0.02	0.00	0.01
0.00	0.02	-0.03	-0.11	0.04	-0.11	-0.06	-0.24
0.00	-0.02	-0.02	-0.17	-0.06	-0.05	-0.02	-0.10
-0.02	-0.29	-0.05	-1.46	-0.77	-0.39	-0.15	-0.27
0.00	0.03	0.00	0.14	0.09	0.02	0.01	0.02
-0.01	-0.16	0.00	-0.67	-0.63	-0.08	0.00	0.00
0.00	-0.05	0.00	-0.21	-0.12	-0.02	0.00	-0.01
0.00	-0.06	0.00	-0.26	-0.17	-0.03	0.00	0.00
0.00	-0.03	0.00	-0.12	-0.03	-0.01	0.00	0.00
0.00	-0.04	0.00	-0.18	-0.11	-0.02	0.00	0.00
-0.01	-0.31	-0.02	-1.35	-0.84	-0.15	-0.01	-0.05
-0.02	-0.35	-0.02	-1.53	-1.00	-0.18	-0.02	-0.06
-0.02	-0.42	-0.03	-1.90	-1.17	-0.23	-0.03	-0.12
0.05	1.08	0.06	4.81	2.66	0.52	0.08	0.22
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.23	-0.06	-1.26	-0.69	-0.25	-0.08	-0.34
0.04	1.22	-0.07	4.56	3.26	0.18	-0.15	-0.71
0.01	0.75	-0.10	2.50	1.20	-0.10	-0.14	-0.86
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	3.34	-0.23	12.32	5.93	-0.44	-0.69	-2.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.15	-0.01	-0.67	-0.44	-0.09	-0.02	-0.07
-0.02	-0.34	-0.03	-1.54	-0.82	-0.19	-0.04	-0.10
0.03	1.09	-0.10	3.81	1.73	-0.41	-0.35	-0.92
-0.02	-0.12	-0.09	-1.01	-0.66	-0.35	-0.14	-0.61
-0.01	0.05	-0.12	-0.49	-0.36	-0.37	-0.17	-0.83
0.01	0.51	-0.10	1.52	0.68	-0.13	-0.12	-0.76
0.00	0.26	-0.08	0.60	0.46	-0.27	-0.18	-0.57
-0.01	0.07	-0.08	-0.20	-0.08	-0.34	-0.17	-0.58
-0.02	0.05	-0.13	-0.55	-0.17	-0.49	-0.25	-0.92
-0.03	-0.28	-0.12	-1.82	-1.23	-0.49	-0.17	-0.77
-0.04	-0.43	-0.14	-2.56	-1.49	-0.73	-0.28	-0.88
0.00	-0.08	-0.01	-0.37	-0.24	-0.04	0.00	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.12	-0.10	-0.02	0.00	-0.01
0.00	-0.04	0.00	-0.17	-0.11	-0.02	0.00	0.00
0.00	-0.04	0.00	-0.15	-0.11	-0.02	0.00	0.00
0.00	-0.02	0.00	-0.08	-0.05	-0.01	0.00	0.00

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1195	-0.02	-0.35	-0.02	-1.51	-0.98	-0.17	-0.01	-0.05
1196	0.00	-0.09	0.00	-0.38	-0.28	-0.04	0.00	-0.01
1197	0.00	0.07	0.00	0.28	0.17	0.03	0.00	0.00
1198	0.06	1.40	0.10	6.28	3.50	0.73	0.13	0.36
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.00	0.01	0.00	0.05	0.03	0.01	0.00	0.00
1230	-0.01	-0.10	-0.02	-0.53	-0.19	-0.07	-0.02	-0.09
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	-0.17	-3.55	-0.32	-16.29	-9.33	-2.15	-0.44	-1.45
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.01	-0.01	0.00	0.05	-0.02	-0.02	-0.04
1236	-0.03	-0.60	-0.08	-2.94	-1.63	-0.47	-0.13	-0.44
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.01	-0.24	-0.02	-1.09	-0.62	-0.13	-0.02	-0.08
1239	-0.02	-0.42	-0.05	-2.00	-1.17	-0.29	-0.07	-0.27
1240	-0.03	-0.63	-0.05	-2.88	-1.88	-0.36	-0.05	-0.21
1241	-0.06	-1.26	-0.11	-5.75	-3.07	-0.76	-0.18	-0.47
1242	-0.01	-0.20	-0.01	-0.83	-0.64	-0.10	0.00	-0.01
1243	-0.04	-0.66	-0.09	-3.20	-1.84	-0.50	-0.13	-0.48
1244	-0.03	-0.52	-0.08	-2.56	-1.38	-0.40	-0.11	-0.41
1245	-0.07	-0.92	-0.26	-5.22	-2.91	-1.87	-0.78	-1.57
1246	0.01	0.24	0.01	1.04	0.77	0.11	0.00	0.03
1247	-0.03	-0.76	-0.03	-3.24	-2.73	-0.40	-0.01	-0.07
1248	0.00	0.05	0.00	0.23	0.15	0.03	0.00	0.01
1249	0.00	0.08	0.00	0.35	0.26	0.04	0.00	0.01
1250	-0.02	-0.36	-0.02	-1.57	-1.06	-0.17	-0.01	-0.05
1251	-0.03	-0.65	-0.04	-2.84	-1.77	-0.32	-0.03	-0.12
1252	-0.01	-0.13	0.00	-0.55	-0.33	-0.05	0.00	-0.01
1253	0.00	0.11	0.00	0.48	0.36	0.05	0.00	0.01
1254	0.00	0.10	0.00	0.41	0.25	0.04	0.00	0.00
1255	0.05	1.07	0.08	4.81	2.68	0.57	0.10	0.30
1256	0.01	0.28	0.01	1.22	0.69	0.12	0.01	0.04
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	0.00	-0.04	0.00	-0.20	-0.14	-0.03	0.00	-0.02
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.01	0.26	0.00	1.07	0.75	0.08	-0.02	-0.02
1297	-0.01	-0.14	-0.02	-0.70	-0.38	-0.12	-0.04	-0.13
1298	-0.01	-0.18	0.00	-0.76	-0.70	-0.10	0.00	0.00
1299	0.01	0.11	0.01	0.51	0.36	0.06	0.01	0.03
1300	-0.01	-0.33	-0.01	-1.41	-0.91	-0.14	-0.01	-0.02
1301	-0.02	-0.40	-0.01	-1.68	-1.33	-0.19	0.00	-0.02
1302	-0.01	-0.17	-0.01	-0.72	-0.39	-0.07	-0.01	-0.01
1303	-0.01	-0.29	-0.01	-1.23	-0.96	-0.14	0.00	-0.03
1304	-0.02	-0.27	-0.05	-1.36	-0.77	-0.24	-0.07	-0.26
1305	-0.01	-0.18	-0.03	-0.89	-0.60	-0.15	-0.04	-0.18
1306	-0.01	-0.31	0.00	-1.25	-0.93	-0.11	0.01	0.07
1307	-0.03	0.06	-0.27	-1.25	-1.36	-1.52	-0.71	-1.86
1308	-0.06	-1.50	-0.06	-6.37	-5.57	-0.82	-0.02	-0.15
1309	-0.04	-0.81	-0.05	-3.56	-2.28	-0.41	-0.05	-0.17
1310	-0.04	-1.01	-0.06	-4.43	-2.71	-0.49	-0.05	-0.18
1311	0.01	0.17	0.01	0.72	0.53	0.07	0.00	0.00
1312	0.00	-0.05	0.00	-0.22	-0.14	-0.02	0.00	0.00
1313	0.00	-0.08	0.00	-0.33	-0.19	-0.03	0.00	0.00
1314	0.00	-0.01	0.00	-0.02	0.02	0.00	0.00	0.00
1315	0.05	1.10	0.07	4.91	2.90	0.57	0.09	0.29
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.01	-0.24	-0.01	-1.05	-0.61	-0.10	-0.01	-0.03
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.02	0.41	0.02	1.80	1.23	0.20	0.01	0.07
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	0.03	0.69	0.06	3.17	1.90	0.41	0.08	0.28
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.02	0.57	0.02	2.48	1.60	0.25	0.01	0.05
1358	-0.03	-0.68	-0.05	-3.07	-1.57	-0.36	-0.08	-0.19
1359	-0.01	-0.24	-0.03	-1.12	-0.72	-0.16	-0.03	-0.13
1360	-0.01	-0.16	-0.03	-0.84	-0.33	-0.15	-0.05	-0.20
1361	-0.02	-0.42	-0.05	-1.98	-1.22	-0.30	-0.07	-0.26
1362	-0.04	-0.99	-0.05	-4.28	-3.07	-0.47	-0.02	-0.12
1363	-0.10	-2.17	-0.13	-9.61	-6.36	-1.13	-0.12	-0.48
1364	0.01	0.21	0.01	0.90	0.67	0.10	0.00	0.01
1365	-0.09	-1.96	-0.13	-8.72	-5.60	-1.00	-0.11	-0.46
1366	-0.06	-1.15	-0.11	-5.29	-3.44	-0.68	-0.10	-0.50
1367	-0.08	-0.66	-0.39	-4.96	-2.22	-1.42	-0.59	-2.54
1368	-0.14	-1.94	-0.49	-10.67	-6.29	-2.16	-0.68	-2.95
1369	-0.10	-0.41	-0.65	-5.47	-3.17	-3.18	-1.48	-4.35
1370	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00
1371	-0.01	-0.25	-0.01	-1.06	-0.69	-0.10	0.00	-0.01
1372	0.01	0.16	0.00	0.65	0.36	0.03	-0.01	-0.02
1373	-0.02	-0.34	-0.02	-1.51	-0.82	-0.16	-0.03	-0.07
1374	-0.01	-0.28	-0.02	-1.25	-0.71	-0.14	-0.02	-0.06
1375	0.06	1.40	0.08	6.19	3.67	0.68	0.09	0.29
1376	-0.01	-0.12	-0.01	-0.53	-0.30	-0.05	-0.01	-0.02
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.04	0.00	0.18	0.11	0.02	0.00	0.01
1410	1.23	24.92	2.27	115.31	52.38	18.98	6.24	10.35
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	0.11	2.22	0.19	10.20	4.66	1.68	0.55	0.84
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	1.63	33.69	2.90	154.72	67.49	25.67	8.62	12.81
1417	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1418	0.07	1.42	0.13	6.52	2.97	1.12	0.38	0.56
1419	-0.02	-0.23	-0.07	-1.38	-0.44	-0.42	-0.19	-0.43
1420	0.63	12.79	1.17	59.09	26.54	10.56	3.65	5.31
1421	-0.03	-0.61	-0.07	-2.90	-1.89	-0.42	-0.08	-0.35
1422	0.65	13.10	1.25	60.85	27.83	10.42	3.50	5.81
1423	0.00	0.21	-0.06	0.52	-0.23	0.08	0.06	-0.46
1424	0.46	9.08	0.89	42.34	19.62	7.62	2.59	4.21
1425	0.10	1.86	0.26	9.13	5.04	1.31	0.32	1.42
1426	0.14	5.01	-0.28	19.01	6.95	2.33	0.73	-2.98
1427	0.26	6.28	0.24	27.01	13.04	5.46	1.95	0.34
1428	0.20	3.69	0.45	17.71	8.94	3.95	1.44	2.32
1429	0.17	3.09	0.45	15.27	7.04	3.74	1.48	2.42
1430	0.30	5.70	0.68	27.19	11.82	5.77	2.20	3.43
1431	0.10	2.30	0.14	10.26	4.26	1.19	0.32	0.51
1432	0.18	4.27	0.20	18.59	8.05	1.73	0.32	0.46
1433	0.04	0.92	0.04	4.01	1.84	0.38	0.07	0.10
1434	0.14	3.23	0.15	14.07	6.07	1.34	0.26	0.38
1435	0.15	3.27	0.20	14.45	8.64	1.61	0.21	0.69
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-0.01	-0.18	-0.01	-0.77	-0.45	-0.07	0.00	-0.01
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	-0.01	-0.18	-0.01	-0.78	-0.46	-0.08	-0.01	-0.02
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	-0.04	-0.97	-0.04	-4.19	-2.53	-0.41	-0.03	-0.10
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.02	-0.35	-0.02	-1.53	-0.99	-0.17	-0.01	-0.05
0.00	-0.09	0.00	-0.38	-0.28	-0.04	0.00	-0.01
0.00	0.06	0.00	0.25	0.15	0.02	0.00	0.00
0.06	1.35	0.09	6.03	3.36	0.68	0.11	0.32
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.11	-0.01	0.36	0.47	0.01	-0.03	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.13	-2.56	-0.26	-11.96	-6.88	-1.69	-0.38	-1.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.16	-0.02	-0.75	-0.46	-0.11	-0.02	-0.07
-0.03	-0.49	-0.08	-2.44	-1.34	-0.41	-0.12	-0.41
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.18	-0.01	-0.79	-0.44	-0.09	-0.02	-0.06
-0.02	-0.38	-0.05	-1.80	-1.13	-0.27	-0.06	-0.24
-0.04	-0.76	-0.06	-3.43	-2.26	-0.42	-0.05	-0.23
-0.06	-1.13	-0.10	-5.23	-2.77	-0.71	-0.17	-0.47
-0.01	-0.26	-0.01	-1.10	-0.85	-0.13	-0.01	-0.03
-0.04	-0.63	-0.09	-3.09	-1.77	-0.49	-0.13	-0.50
-0.03	-0.53	-0.07	-2.57	-1.40	-0.38	-0.10	-0.37
-0.06	-0.85	-0.20	-4.59	-2.62	-1.33	-0.52	-1.17
0.00	0.13	0.00	0.51	0.28	0.03	-0.01	-0.04
-0.03	-0.76	-0.03	-3.24	-2.72	-0.41	-0.01	-0.09
0.00	0.04	0.00	0.19	0.13	0.02	0.00	0.00
0.00	0.07	0.00	0.30	0.22	0.03	0.00	0.01
-0.02	-0.35	-0.02	-1.52	-1.02	-0.17	-0.01	-0.05
-0.03	-0.64	-0.04	-2.83	-1.76	-0.32	-0.04	-0.12
-0.01	-0.13	0.00	-0.54	-0.33	-0.05	0.00	-0.01
0.00	0.11	0.00	0.49	0.36	0.05	0.00	0.01
0.00	0.09	0.00	0.37	0.22	0.03	0.00	0.00
0.05	1.03	0.07	4.59	2.56	0.53	0.09	0.27
0.01	0.28	0.01	1.22	0.69	0.12	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.23	-0.16	-0.03	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.01	-0.06	-0.01	-0.05	-0.03	-0.07
0.00	-0.04	-0.02	-0.27	-0.13	-0.07	-0.03	-0.11
-0.01	-0.26	-0.01	-1.10	-0.91	-0.13	0.00	-0.02
0.00	0.05	0.00	0.24	0.18	0.03	0.00	0.02
-0.01	-0.33	-0.01	-1.41	-0.92	-0.14	0.00	-0.01
-0.02	-0.51	-0.02	-2.19	-1.70	-0.26	-0.01	-0.06
-0.01	-0.33	-0.02	-1.47	-0.86	-0.17	-0.02	-0.06
-0.02	-0.41	-0.02	-1.79	-1.37	-0.21	-0.01	-0.05
-0.02	-0.36	-0.05	-1.75	-1.00	-0.28	-0.08	-0.28
-0.01	-0.23	-0.03	-1.11	-0.74	-0.16	-0.03	-0.16
-0.01	-0.36	0.00	-1.45	-1.07	-0.12	0.02	0.09
-0.03	-0.20	-0.19	-1.87	-1.45	-1.09	-0.48	-1.27
-0.07	-1.52	-0.07	-6.49	-5.62	-0.85	-0.03	-0.20
-0.04	-0.80	-0.05	-3.54	-2.27	-0.41	-0.05	-0.17
-0.04	-0.99	-0.05	-4.36	-2.67	-0.48	-0.05	-0.18
0.01	0.16	0.00	0.68	0.50	0.07	0.00	0.00
0.00	-0.06	0.00	-0.25	-0.16	-0.02	0.00	0.00
0.00	-0.08	0.00	-0.35	-0.21	-0.03	0.00	0.00
0.00	-0.01	0.00	-0.03	0.02	0.00	0.00	0.00
0.05	1.05	0.07	4.66	2.72	0.52	0.08	0.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.24	-0.01	-1.05	-0.61	-0.10	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.36	0.02	1.57	1.09	0.17	0.01	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.93	0.05	4.06	2.36	0.42	0.04	0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	-0.01	0.02	0.06	-0.02	-0.02	-0.05
-0.02	-0.38	-0.03	-1.74	-0.89	-0.22	-0.05	-0.13
-0.02	-0.41	-0.04	-1.88	-1.34	-0.26	-0.04	-0.16
-0.01	-0.20	-0.03	-1.02	-0.52	-0.17	-0.05	-0.19
-0.02	-0.50	-0.05	-2.29	-1.45	-0.32	-0.06	-0.23
-0.06	-1.35	-0.09	-5.97	-4.41	-0.66	-0.02	-0.31
-0.10	-2.25	-0.14	-9.95	-6.56	-1.16	-0.12	-0.49
0.01	0.20	0.01	0.86	0.64	0.09	0.00	0.01
-0.10	-2.18	-0.14	-9.72	-6.17	-1.13	-0.13	-0.55
-0.07	-1.36	-0.11	-6.18	-4.03	-0.75	-0.10	-0.49
-0.08	-0.76	-0.40	-5.41	-2.57	-1.48	-0.60	-2.58
-0.15	-2.10	-0.50	-11.42	-6.76	-2.25	-0.70	-3.00
-0.09	-0.19	-0.57	-4.12	-2.58	-2.45	-1.13	-3.87
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.25	-0.01	-1.08	-0.69	-0.10	0.00	-0.01
0.01	0.14	0.00	0.59	0.33	0.03	-0.01	-0.03
-0.02	-0.35	-0.02	-1.55	-0.84	-0.17	-0.03	-0.07
-0.01	-0.29	-0.02	-1.28	-0.73	-0.14	-0.02	-0.06
0.06	1.35	0.08	5.97	3.56	0.64	0.07	0.26
-0.01	-0.13	-0.01	-0.56	-0.32	-0.06	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.43	0.03	1.94	0.87	0.30	0.10	0.13
0.87	18.20	1.48	83.08	36.44	13.17	4.29	6.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	1.92	0.19	8.93	4.16	1.74	0.62	0.88
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.01	21.03	1.78	96.40	40.80	16.30	5.65	7.77
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	1.17	0.13	5.55	2.32	1.22	0.48	0.62
-0.01	-0.07	-0.06	-0.68	-0.08	-0.35	-0.18	-0.41
0.40	8.27	0.75	38.15	16.79	6.98	2.47	3.39
-0.02	-0.40	-0.06	-1.99	-1.25	-0.32	-0.08	-0.33
0.44	9.07	0.78	41.61	18.17	7.04	2.39	3.46
-0.01	-0.07	-0.07	-0.63	-0.99	0.09	0.13	-0.44
0.39	8.29	0.62	37.60	16.46	5.99	1.98	2.55
0.09	1.60	0.20	7.72	4.35	0.97	0.19	1.07
0.09	4.17	-0.46	14.52	4.56	1.01	0.19	-3.98
0.22	5.64	0.08	23.61	11.14	4.38	1.52	-0.58
0.18	3.58	0.38	16.81	8.30	3.53	1.26	1.88
0.16	2.88	0.39	14.05	6.49	3.25	1.26	2.07
0.27	5.23	0.59	24.77	10.75	5.05	1.89	2.95
0.10	2.20	0.13	9.74	4.04	1.08	0.27	0.44
0.18	4.11	0.18	17.88	7.76	1.62	0.28	0.41
0.04	0.89	0.04	3.86	1.78	0.36	0.06	0.09
0.13	3.11	0.14	13.56	5.85	1.25	0.23	0.34
0.14	3.15	0.18	13.88	8.21	1.51	0.19	0.61
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.19	-0.01	-0.82	-0.47	-0.08	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.18	-0.01	-0.78	-0.46	-0.08	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.89	-0.05	-3.88	-2.34	-0.41	-0.04	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	-0.02	-0.28	-0.05	-1.43	-0.81	-0.28	-0.09	-0.30	-0.03	-0.49	-0.06	-2.35	-1.30	-0.38	-0.10	-0.34
1479	0.00	-0.09	-0.01	-0.39	-0.23	-0.05	-0.01	-0.03	0.00	-0.06	-0.01	-0.28	-0.16	-0.04	-0.01	-0.03
1480	0.01	0.19	0.01	0.80	0.57	0.09	0.00	0.01	0.00	0.05	0.00	0.23	0.12	0.02	0.00	0.00
1481	0.00	-0.10	0.00	-0.42	-0.28	-0.04	0.00	0.01	0.00	-0.10	0.00	-0.43	-0.29	-0.04	0.00	0.00
1482	-0.01	-0.13	0.00	-0.57	-0.35	-0.05	0.00	0.00	0.00	-0.09	0.00	-0.38	-0.24	-0.03	0.00	0.00
1483	-0.03	-0.70	-0.06	-3.16	-2.32	-0.43	-0.05	-0.27	-0.03	-0.65	-0.06	-2.96	-2.26	-0.42	-0.05	-0.27
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	0.07	1.19	0.20	5.92	3.88	0.95	0.22	1.11	0.07	1.18	0.18	5.81	3.87	0.91	0.19	1.01
1486	0.43	4.61	1.94	29.97	15.81	6.00	2.02	12.26	0.44	4.62	1.97	30.21	15.84	6.10	2.07	12.52
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	-0.01	-0.13	-0.01	-0.56	-0.29	-0.05	-0.01	-0.02	-0.01	-0.13	-0.01	-0.55	-0.29	-0.05	-0.01	-0.02
1491	0.11	2.37	0.16	10.63	5.25	1.45	0.38	0.63	0.10	2.19	0.11	9.62	4.80	1.06	0.21	0.33
1492	0.01	0.17	0.01	0.77	0.45	0.10	0.02	0.06	0.01	0.18	0.01	0.78	0.44	0.10	0.02	0.03
1493	0.00	0.00	0.00	-0.02	-0.01	0.00	0.00	0.00	0.00	-0.01	0.00	-0.02	-0.01	0.00	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	0.01	0.25	0.02	1.15	0.58	0.16	0.04	0.10	0.01	0.24	0.02	1.09	0.55	0.15	0.04	0.09
1496	0.00	0.01	0.00	0.06	0.04	0.01	0.00	0.00	0.00	0.01	0.00	0.06	0.03	0.01	0.00	0.00
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	-0.27	-5.51	-0.49	-25.27	-15.04	-3.27	-0.60	-2.24	-0.19	-3.69	-0.40	-17.39	-10.45	-2.49	-0.54	-2.02
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-0.16	-3.25	-0.33	-15.13	-8.64	-2.09	-0.46	-1.57	-0.10	-1.83	-0.26	-8.94	-5.16	-1.50	-0.40	-1.41
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-0.11	-2.17	-0.22	-10.09	-5.76	-1.39	-0.31	-1.05	-0.07	-1.22	-0.17	-5.96	-3.44	-1.00	-0.27	-0.94
1537	-0.02	-0.40	-0.07	-2.02	-1.18	-0.34	-0.09	-0.37	-0.03	-0.61	-0.08	-2.95	-1.73	-0.45	-0.11	-0.43
1538	-0.01	-0.16	-0.01	-0.72	-0.42	-0.08	-0.01	-0.05	0.00	0.01	-0.01	-0.03	0.01	-0.04	-0.02	-0.07
1539	0.00	0.12	0.00	0.49	0.69	0.07	-0.01	-0.01	0.00	0.04	-0.01	0.12	0.27	-0.01	-0.02	-0.07
1540	-0.02	-0.38	-0.02	-1.65	-1.07	-0.18	-0.02	-0.04	0.00	-0.04	-0.01	-0.22	-0.10	-0.06	-0.02	-0.07
1541	-0.02	-0.58	-0.02	-2.49	-1.65	-0.26	-0.01	-0.05	-0.01	-0.18	-0.02	-0.82	-0.55	-0.12	-0.02	-0.07
1542	-0.02	-0.26	-0.05	-1.33	-0.74	-0.23	-0.07	-0.26	-0.01	-0.20	-0.04	-1.06	-0.57	-0.20	-0.07	-0.26
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.01	0.17	0.01	0.74	0.45	0.08	0.01	0.02	0.01	0.13	0.00	0.57	0.35	0.05	0.00	0.01
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	0.00	0.08	0.01	0.36	0.16	0.08	0.03	0.05	0.00	0.06	0.00	0.28	0.12	0.04	0.01	0.02
1552	-0.01	-0.12	-0.01	-0.52	-0.35	-0.05	0.00	-0.03	-0.01	-0.12	-0.01	-0.51	-0.35	-0.05	0.00	-0.02
1553	-0.01	-0.14	-0.01	-0.64	-0.42	-0.06	0.00	-0.03	-0.01	-0.13	-0.01	-0.57	-0.38	-0.05	0.00	-0.02
1554	0.00	-0.01	0.01	0.01	0.01	0.02	0.01	0.06	0.00	-0.01	0.01	0.00	0.00	0.02	0.01	0.06
1555	0.00	-0.03	0.01	-0.10	-0.07	0.00	0.01	0.04	0.00	-0.04	0.01	-0.12	-0.07	0.00	0.01	0.04
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	-0.01	-0.31	-0.01	-1.36	-0.15	-0.03	-0.01	-0.02
45	-0.01	-0.13	0.00	-0.56	0.02	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.12	-2.65	-0.14	-11.80	-2.58	-0.62	-0.14	-0.40
96	-0.17	-3.80	-0.20	-16.93	-3.69	-0.88	-0.20	-0.57
97	-0.03	-0.70	-0.03	-3.07	-0.78	-0.14	-0.01	-0.04
98	-0.02	-0.54	-0.02	-2.36	-0.21	-0.04	-0.01	0.00
99	-0.01	-0.15	-0.01	-0.65	0.00	-0.01	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-0.58	-12.77	-0.80	-58.05	-8.27	-3.79	-1.40	-2.65
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-0.08	-1.83	-0.12	-8.25	-1.67	-0.47	-0.13	-0.39
107	-0.50	-11.18	-0.66	-50.24	-9.44	-2.83	-0.80	-2.08
108	-0.40	-9.15	-0.54	-41.96	0.35	-2.43	-1.30	-1.54
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-0.65	-14.03	-0.97	-63.79	-14.07	-5.33	-1.79	-3.64
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	-0.04	-0.92	-0.03	-4.04	-0.39	-0.09	-0.02	-0.01
147	-0.09	-1.98	-0.10	-8.79	-2.15	-0.48	-0.10	-0.28
148	-0.22	-4.98	-0.24	-22.07	-5.03	-1.14	-0.23	-0.60
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-0.06	-1.40	-0.08	-6.26	-1.12	-0.32	-0.09	-0.24
151	-0.02	-0.48	-0.03	-2.17	-0.36	-0.11	-0.03	-0.08
152	0.00	-0.03	0.00	-0.13	-0.03	-0.01	0.00	0.00
153	-0.25	-5.48	-0.39	-25.05	-4.03	-1.71	-0.61	-1.44
154	-0.17	-3.60	-0.25	-16.45	-2.77	-1.18	-0.42	-0.94
155	-0.11	-2.42	-0.17	-11.03	-2.05	-0.74	-0.24	-0.62
156	-0.33	-7.08	-0.49	-32.27	-5.61	-2.17	-0.75	-1.83
157	-0.22	-4.88	-0.34	-22.25	-3.73	-1.55	-0.55	-1.23
158	-0.16	-3.47	-0.24	-15.80	-2.84	-1.05	-0.35	-0.89
159	-0.35	-7.74	-0.46	-34.77	-6.49	-1.96	-0.56	-1.46
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.02	-0.43	-0.02	-1.91	-0.36	-0.08	-0.01	-0.02
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-0.92	-21.14	-1.05	-93.97	-18.79	-4.39	-0.93	-2.61
202	-0.08	-1.90	-0.10	-8.45	-1.83	-0.43	-0.09	-0.27
203	-0.11	-2.55	-0.11	-11.21	-2.39	-0.47	-0.07	-0.18
204	-0.02	-0.55	-0.02	-2.46	0.12	0.00	-0.01	-0.01
205	-0.28	-6.18	-0.42	-28.11	-5.02	-1.80	-0.59	-1.56
206	-0.41	-9.01	-0.60	-40.77	-8.01	-2.55	-0.76	-2.14
207	-0.19	-4.16	-0.28	-18.85	-3.64	-1.20	-0.37	-1.01
208	-0.24	-5.31	-0.33	-24.04	-3.57	-1.31	-0.43	-1.09
209	-0.22	-4.77	-0.32	-21.64	-3.82	-1.37	-0.45	-1.16
210	0.00	-0.09	0.00	-0.39	-0.08	-0.01	0.00	0.00
211	-0.07	-1.73	-0.08	-7.73	-1.37	-0.43	-0.13	-0.20
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	-0.01	-0.21	-0.01	-0.90	-0.16	-0.03	0.00	-0.01
222	-0.02	-0.39	-0.01	-1.71	-0.25	-0.06	-0.01	-0.02
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	-0.07	-1.72	-0.07	-7.61	-1.04	-0.23	-0.04	-0.10
260	-0.01	-0.18	-0.01	-0.79	-0.06	-0.03	-0.01	-0.02
261	0.01	0.13	0.00	0.55	0.36	0.05	0.00	0.01
262	-0.37	-8.54	-0.42	-38.02	-6.80	-1.75	-0.43	-1.02
263	-0.27	-6.17	-0.30	-27.39	-5.29	-1.31	-0.31	-0.72
264	-0.30	-6.96	-0.35	-31.04	-5.48	-1.53	-0.40	-0.88
265	-0.33	-7.37	-0.44	-33.22	-5.37	-1.87	-0.60	-1.37
266	-0.14	-3.44	-0.14	-15.14	-2.87	-0.56	-0.08	-0.19
267	-0.22	-5.27	-0.21	-23.16	-4.91	-0.92	-0.13	-0.30
268	-0.14	-3.45	-0.14	-15.17	-2.96	-0.55	-0.07	-0.17
269	-0.04	-0.90	-0.04	-4.01	-0.61	-0.15	-0.03	-0.08
270	-0.04	-0.90	-0.04	-3.99	-0.96	-0.20	-0.03	-0.09
271	-0.04	-0.93	-0.04	-4.09	-0.99	-0.20	-0.03	-0.09
272	-0.03	-0.78	-0.04	-3.43	-0.81	-0.17	-0.03	-0.07
273	-0.03	-0.80	-0.04	-3.53	-0.81	-0.17	-0.03	-0.07
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-0.03	-0.59	-0.03	-2.62	-0.30	-0.12	-0.04	-0.05
276	-0.04	-1.14	0.00	-4.95	1.12	0.13	-0.01	0.27
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	-0.04	-1.08	-0.04	-4.86	0.28	-0.01	-0.02	-0.04
320	-0.41	-9.97	-0.35	-43.94	-5.10	-1.62	-0.47	-0.18
321	-0.18	-4.21	-0.17	-18.57	-2.93	-0.59	-0.10	-0.22
322	-0.20	-4.75	-0.18	-20.88	-3.92	-0.71	-0.09	-0.21
323	-0.35	-8.24	-0.34	-36.39	-6.21	-1.29	-0.22	-0.53
324	-0.27	-6.58	-0.23	-28.81	-5.43	-0.92	-0.08	-0.15
325	-0.62	-14.66	-0.60	-64.65	-11.11	-2.47	-0.48	-0.89
326	-0.14	-3.34	-0.13	-14.65	-2.57	-0.47	-0.06	-0.12
327	-0.03	-0.70	-0.03	-3.11	-0.34	-0.07	-0.01	-0.03
328	-0.01	-0.12	0.00	-0.55	0.08	0.01	0.00	0.00
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.10	-2.40	-0.09	-10.57	-1.66	-0.32	-0.04	-0.09
331	-0.04	-1.08	-0.04	-4.75	-0.86	-0.15	-0.02	-0.04
332	-0.02	-0.38	-0.01	-1.64	-0.37	-0.06	-0.01	-0.01
333	-0.07	-1.63	-0.08	-7.22	-1.56	-0.36	-0.08	-0.20
334	-0.02	-0.61	-0.02	-2.68	-0.10	-0.04	-0.01	0.03
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.29	-0.01	-1.30	-0.12	-0.03	-0.01	-0.01
-0.01	-0.13	-0.01	-0.59	0.00	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-2.55	-0.14	-11.39	-2.36	-0.58	-0.13	-0.38
-0.16	-3.67	-0.20	-16.37	-3.40	-0.84	-0.19	-0.55
-0.03	-0.70	-0.03	-3.06	-0.78	-0.14	-0.01	-0.04
-0.02	-0.55	-0.02	-2.45	-0.25	-0.05	-0.01	-0.01
-0.01	-0.14	-0.01	-0.64	0.00	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.48	-10.71	-0.63	-48.68	-4.03	-2.90	-1.24	-1.93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.57	-0.10	-7.12	-1.06	-0.36	-0.11	-0.32
-0.41	-9.30	-0.53	-41.87	-5.00	-2.02	-0.70	-1.55
-0.30	-7.05	-0.37	-32.43	4.53	-1.50	-1.12	-0.80
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.56	-12.21	-0.82	-55.50	-10.95	-4.47	-1.57	-2.94
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.92	-0.03	-4.08	-0.41	-0.09	-0.02	-0.02
-0.08	-1.92	-0.10	-8.52	-2.02	-0.46	-0.10	-0.27
-0.21	-4.83	-0.24	-21.42	-4.74	-1.09	-0.23	-0.59
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-1.34	-0.08	-6.03	-1.01	-0.30	-0.09	-0.23
-0.02	-0.46	-0.03	-2.05	-0.30	-0.10	-0.03	-0.08
0.00	0.02	0.00	0.07	0.06	0.01	0.00	0.00
-0.22	-4.91	-0.33	-22.41	-3.02	-1.44	-0.54	-1.18
-0.15	-3.23	-0.21	-14.73	-2.06	-0.99	-0.38	-0.76
-0.10	-2.13	-0.13	-9.62	-1.49	-0.57	-0.20	-0.44
-0.27	-5.97	-0.37	-27.06	-3.38	-1.58	-0.60	-1.21
-0.18	-4.07	-0.25	-18.43	-2.09	-1.12	-0.45	-0.77
-0.13	-2.96	-0.18	-13.40	-1.82	-0.78	-0.29	-0.60
-0.28	-6.41	-0.37	-28.88	-3.36	-1.39	-0.49	-1.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.38	-0.01	-1.67	-0.26	-0.06	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.90	-20.98	-1.01	-93.12	-18.54	-4.27	-0.89	-2.38
-0.08	-1.84	-0.10	-8.21	-1.71	-0.41	-0.09	-0.26
-0.11	-2.52	-0.11	-11.11	-2.33	-0.46	-0.07	-0.18
-0.02	-0.55	-0.02	-2.43	0.14	0.01	-0.01	-0.01
-0.26	-5.70	-0.37	-25.86	-4.07	-1.56	-0.53	-1.32
-0.38	-8.42	-0.54	-38.05	-6.87	-2.27	-0.70	-1.86
-0.17	-3.83	-0.25	-17.32	-2.98	-1.04	-0.33	-0.86
-0.22	-4.96	-0.29	-22.38	-2.92	-1.13	-0.39	-0.91
-0.19	-4.28	-0.28	-19.39	-2.85	-1.14	-0.40	-0.95
0.00	-0.09	0.00	-0.37	-0.07	-0.01	0.00	0.00
-0.05	-1.39	-0.02	-6.02	-0.80	-0.17	-0.03	0.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.21	-0.01	-0.90	-0.16	-0.03	0.00	-0.01
-0.01	-0.31	-0.01	-1.36	-0.10	-0.03	-0.01	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.72	-0.07	-7.60	-1.03	-0.23	-0.04	-0.10
-0.01	-0.18	-0.01	-0.79	-0.07	-0.03	-0.01	-0.02
0.01	0.13	0.00	0.54	0.36	0.05	0.00	0.01
-0.36	-8.43	-0.40	-37.46	-6.54	-1.67	-0.40	-0.92
-0.26	-6.07	-0.29	-26.92	-5.10	-1.25	-0.29	-0.63
-0.29	-6.80	-0.33	-30.24	-5.20	-1.43	-0.37	-0.75
-0.31	-6.97	-0.39	-31.30	-4.64	-1.67	-0.55	-1.14
-0.14	-3.42	-0.14	-15.06	-2.83	-0.55	-0.08	-0.19
-0.22	-5.28	-0.21	-23.19	-4.93	-0.92	-0.13	-0.30
-0.15	-3.47	-0.14	-15.27	-3.01	-0.56	-0.07	-0.18
-0.04	-0.85	-0.04	-3.79	-0.50	-0.13	-0.03	-0.08
-0.04	-0.85	-0.04	-3.75	-0.84	-0.18	-0.03	-0.08
-0.04	-0.89	-0.04	-3.95	-0.92	-0.19	-0.03	-0.09
-0.03	-0.72	-0.03	-3.18	-0.69	-0.15	-0.03	-0.07
-0.03	-0.80	-0.04	-3.51	-0.80	-0.17	-0.03	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.12	-0.02	-0.66	0.63	0.00	-0.05	-0.09
-0.03	-0.79	-0.05	-3.78	1.97	0.11	-0.09	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-1.08	-0.04	-4.87	0.27	-0.01	-0.02	-0.04
-0.42	-10.00	-0.38	-44.23	-5.23	-1.77	-0.54	-0.38
-0.18	-4.19	-0.17	-18.47	-2.88	-0.58	-0.10	-0.22
-0.20	-4.73	-0.18	-20.76	-3.86	-0.70	-0.09	-0.21
-0.35	-8.29	-0.35	-36.59	-6.30	-1.30	-0.23	-0.54
-0.27	-6.55	-0.23	-28.68	-5.37	-0.91	-0.08	-0.15
-0.61	-14.45	-0.58	-63.70	-10.72	-2.38	-0.46	-0.81
-0.14	-3.32	-0.12	-14.59	-2.54	-0.46	-0.05	-0.12
-0.03	-0.71	-0.03	-3.16	-0.36	-0.07	-0.01	-0.03
-0.01	-0.13	-0.01	-0.57	0.07	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.36	-0.09	-10.42	-1.58	-0.30	-0.04	-0.09
-0.05	-1.11	-0.04	-4.85	-0.92	-0.16	-0.02	-0.04
-0.01	-0.34	-0.01	-1.48	-0.29	-0.05	0.00	-0.01
-0.05	-1.34	-0.03	-5.76	-1.05	-0.17	-0.01	0.11
-0.01	-0.25	-0.01	-1.16	0.72	0.06	-0.02	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
336	-0.02	-0.54	-0.03	-2.43	-0.53	-0.17	-0.05	-0.11
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-0.03	-0.71	-0.01	-3.04	-0.39	-0.03	0.01	0.11
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.00	0.04	0.00	0.13	0.37	0.05	0.00	0.00
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	-0.74	-17.98	-0.60	-78.81	-11.58	-3.17	-0.81	-0.13
382	-0.37	-8.92	-0.32	-39.12	-7.04	-1.22	-0.13	-0.25
383	-0.37	-8.93	-0.32	-39.04	-8.14	-1.38	-0.13	-0.26
384	-0.41	-9.76	-0.37	-42.80	-8.49	-1.55	-0.19	-0.42
385	-0.31	-7.44	-0.27	-32.58	-6.03	-1.04	-0.11	-0.21
386	-0.44	-10.55	-0.43	-46.49	-8.19	-1.77	-0.33	-0.62
387	-0.19	-4.73	-0.17	-20.70	-3.65	-0.61	-0.05	-0.10
388	-0.04	-0.90	-0.03	-3.98	-0.29	-0.06	-0.01	-0.02
389	-0.04	-0.95	-0.04	-4.22	-0.65	-0.14	-0.03	-0.07
390	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
391	-0.05	-1.12	-0.05	-4.93	-0.93	-0.19	-0.03	-0.08
392	-0.03	-0.83	-0.03	-3.66	-0.23	-0.05	-0.01	-0.02
393	-0.01	-0.16	-0.01	-0.73	-0.15	-0.03	-0.01	-0.02
394	-0.08	-1.76	-0.10	-7.89	-1.74	-0.46	-0.12	-0.31
395	-0.01	-0.21	0.00	-0.89	-0.08	-0.01	0.00	0.02
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.01	0.31	0.01	1.35	0.67	0.11	0.01	0.03
399	-0.04	-1.14	-0.01	-4.86	-0.61	-0.06	0.01	0.17
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.01	-0.17	-0.01	-0.75	-0.19	-0.03	0.00	-0.01
403	0.00	-0.06	0.00	-0.27	-0.06	-0.01	0.00	0.00
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	0.00	-0.02	0.00	-0.10	0.00	0.00	0.00	0.00
406	0.00	-0.05	0.00	-0.20	-0.03	-0.01	0.00	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-0.18	-4.37	-0.16	-19.23	-2.70	-0.49	-0.06	-0.11
440	-0.12	-2.99	-0.11	-13.22	-0.94	-0.23	-0.06	-0.07
441	-0.65	-16.07	-0.51	-70.55	-8.59	-1.86	-0.34	0.16
442	-0.79	-18.92	-0.76	-83.10	-17.67	-3.38	-0.49	-1.13
443	-0.64	-15.15	-0.62	-66.61	-13.75	-2.71	-0.43	-0.94
444	-0.54	-12.78	-0.54	-56.32	-11.17	-2.31	-0.40	-0.93
445	-0.38	-9.01	-0.38	-39.78	-7.09	-1.58	-0.32	-0.66
446	-0.24	-5.72	-0.24	-25.24	-4.24	-0.99	-0.21	-0.37
447	-0.05	-1.33	-0.03	-5.87	0.62	0.07	-0.01	0.14
448	-0.08	-1.84	-0.07	-8.07	-1.82	-0.32	-0.04	-0.08
449	-0.11	-2.72	-0.08	-11.83	-2.29	-0.28	0.02	0.07
450	0.41	8.46	0.74	38.51	14.68	4.32	1.20	3.40
451	-0.04	-1.20	0.01	-5.11	0.29	0.26	0.12	0.36
452	1.07	22.36	1.81	101.57	35.73	10.34	2.87	7.81
453	-0.14	-3.33	-0.16	-14.73	-3.51	-0.75	-0.14	-0.36
454	-0.05	-1.18	-0.05	-5.17	-1.25	-0.25	-0.04	-0.10
455	0.08	1.49	0.20	7.06	3.83	1.26	0.39	1.11
456	-0.05	-1.24	-0.05	-5.49	-0.65	-0.13	-0.02	-0.03
457	0.65	13.43	1.13	60.97	22.14	6.96	2.06	5.04
458	0.00	0.05	0.00	0.12	1.47	0.21	0.00	0.02
459	0.11	2.15	0.24	9.98	4.46	1.53	0.48	1.22
460	0.00	-0.03	0.00	-0.12	-0.03	-0.01	0.00	0.00
461	-0.08	-1.82	-0.08	-8.05	-1.85	-0.45	-0.10	-0.18
462	0.96	20.71	1.49	93.11	29.89	8.73	2.43	5.91
463	0.17	3.73	0.27	16.76	5.57	1.62	0.45	1.09
464	-0.12	-2.73	-0.13	-12.12	-2.79	-0.70	-0.17	-0.29
465	0.71	15.42	1.09	69.22	22.34	6.43	1.76	4.28
466	0.11	2.23	0.19	10.08	3.99	1.16	0.32	0.84
467	0.91	19.70	1.39	88.59	29.06	8.17	2.18	5.46
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	-0.28	-6.86	-0.25	-30.07	-5.50	-0.94	-0.09	-0.18
499	-0.35	-8.71	-0.26	-38.15	-4.49	-0.63	0.00	0.15
500	-1.84	-43.65	-1.80	-192.92	-35.28	-9.10	-2.22	-2.70
501	0.03	-0.06	0.21	0.29	5.63	1.80	0.54	1.59
502	0.19	3.89	0.37	17.69	8.81	2.36	0.59	1.79
503	0.22	4.34	0.41	19.75	9.59	2.59	0.66	2.00
504	-0.21	-4.99	-0.22	-21.99	-4.66	-0.94	-0.15	-0.40
505	0.49	10.26	0.82	46.37	17.04	4.74	1.26	3.53
506	0.24	4.90	0.47	22.42	9.77	2.79	0.76	2.25
507	0.27	5.69	0.44	25.76	9.16	2.51	0.66	1.83
508	-0.03	-0.60	-0.03	-2.65	-0.64	-0.15	-0.03	-0.08
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.01	-0.31	-0.01	-1.35	-0.25	-0.04	0.00	0.00
511	-0.01	-0.14	-0.01	-0.63	-0.03	-0.02	-0.01	-0.01
512	-0.03	-0.72	-0.04	-3.23	-0.71	-0.19	-0.05	-0.12
513	0.00	-0.04	0.00	-0.20	0.00	0.00	0.00	0.00
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.00	0.03	0.00	0.14	0.09	0.01	0.00	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	-0.09	-2.27	-0.09	-9.99	-1.53	-0.29	-0.04	-0.09
518	-0.04	-0.98	-0.04	-4.26	-1.09	-0.18	-0.01	-0.03
519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
521	0.00	-0.05	0.00	-0.24	-0.06	-0.01	0.00	0.00
522	0.01	0.31	0.01	1.32	0.70	0.10	0.00	0.01
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.01	-0.16	-0.01	-0.71	-0.18	-0.03	0.00	-0.01
525	0.01	0.28	0.01	1.18	0.47	0.07	0.00	0.01
526	-0.19	-4.34	-0.19	-19.17	-4.45	-1.02	-0.21	-0.39
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	-0.05	-1.21	-0.04	-5.33	-0.77	-0.14	-0.02	-0.03
558	-1.17	-28.29	-1.06	-124.94	-17.98	-5.12	-1.38	-0.94
559	-0.07	-1.77	-0.06	-7.77	-1.10	-0.20	-0.03	-0.04
560	-0.68	-16.11	-0.71	-71.02	-15.45	-3.27	-0.58	-1.37
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.05	1.16	0.07	5.11	2.45	0.45	0.05	0.24
563	-0.01	-0.24	-0.01	-1.05	-0.27	-0.05	-0.01	-0.02
564	-0.02	-0.59	-0.03	-2.58	-0.66	-0.12	-0.02	-0.05
565	-0.07	-1.62	-0.06	-7.15	-0.88	-0.23	-0.06	-0.08
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.00	0.01	0.00	0.02	0.24	0.03	0.00	0.00
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.02	-0.55	-0.02	-2.40	-0.55	-0.09	-0.01	-0.01
570	-0.04	-1.01	-0.05	-4.47	-1.04	-0.24	-0.05	-0.13
571	-0.04	-0.89	-0.05	-3.96	-0.78	-0.20	-0.05	-0.12
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.07	-1.61	-0.06	-7.04	-1.65	-0.28	-0.03	-0.06
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.11	-2.58	-0.09	-11.23	-2.62	-0.43	-0.03	-0.07
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.02	-0.41	-0.02	-1.79	-0.42	-0.07	-0.01	-0.02
578	-0.03	-0.76	-0.03	-3.32	-0.84	-0.15	-0.02	-0.04
579	-0.07	-1.64	-0.06	-7.20	-1.61	-0.32	-0.05	-0.09
580	-0.03	-0.79	-0.03	-3.46	-0.79	-0.16	-0.02	-0.04
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-0.11	-2.56	-0.11	-11.27	-2.45	-0.53	-0.10	-0.17
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-0.05	-1.15	-0.05	-5.11	-1.02	-0.24	-0.05	-0.11
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	-0.09	-2.06	-0.08	-9.03	-1.68	-0.29	-0.03	-0.06
598	-0.86	-20.70	-0.78	-91.30	-13.57	-3.71	-0.96	-0.71
599	-0.07	-1.73	-0.06	-7.53	-1.93	-0.31	-0.02	-0.04
600	-0.01	-0.32	-0.01	-1.41	-0.35	-0.06	0.00	-0.01
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.01	-0.16	-0.02	-0.80	0.22	-0.05	-0.04	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.99	-0.04	-4.36	-0.91	-0.18	-0.03	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.14	0.37	0.05	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.75	-18.23	-0.67	-80.28	-12.18	-3.49	-0.94	-0.57
-0.37	-8.93	-0.32	-39.15	-7.05	-1.22	-0.13	-0.25
-0.37	-8.91	-0.32	-38.95	-8.10	-1.37	-0.13	-0.26
-0.41	-9.78	-0.37	-42.90	-8.54	-1.56	-0.20	-0.43
-0.31	-7.42	-0.27	-32.50	-5.99	-1.03	-0.11	-0.21
-0.44	-10.46	-0.42	-46.06	-8.03	-1.72	-0.32	-0.56
-0.19	-4.69	-0.16	-20.56	-3.59	-0.60	-0.05	-0.09
-0.04	-0.90	-0.03	-3.98	-0.29	-0.06	-0.01	-0.02
-0.04	-0.96	-0.04	-4.25	-0.66	-0.15	-0.03	-0.07
0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
-0.05	-1.16	-0.05	-5.11	-1.01	-0.21	-0.03	-0.09
-0.04	-0.86	-0.03	-3.79	-0.29	-0.06	-0.01	-0.02
0.00	-0.11	0.00	-0.47	-0.04	-0.01	0.00	0.01
-0.05	-1.35	-0.04	-5.88	-0.98	-0.22	-0.05	0.02
0.00	-0.07	0.00	-0.31	0.23	0.03	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.46	0.02	1.96	0.98	0.16	0.01	0.04
-0.07	-1.58	-0.07	-6.94	-1.47	-0.28	-0.04	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.17	-0.01	-0.74	-0.18	-0.03	0.00	-0.01
0.00	-0.07	0.00	-0.29	-0.07	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.04	0.00	-0.19	-0.04	-0.01	0.00	0.00
0.00	-0.03	0.00	-0.14	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.18	-4.38	-0.16	-19.28	-2.73	-0.50	-0.06	-0.11
-0.12	-3.00	-0.11	-13.30	-0.98	-0.24	-0.06	-0.08
-0.68	-16.44	-0.58	-72.48	-8.98	-2.22	-0.50	-0.26
-0.79	-18.84	-0.76	-82.74	-17.50	-3.35	-0.49	-1.11
-0.64	-15.14	-0.62	-66.57	-13.75	-2.71	-0.42	-0.93
-0.54	-12.76	-0.54	-56.24	-11.14	-2.30	-0.40	-0.92
-0.38	-9.00	-0.38	-39.75	-7.08	-1.58	-0.31	-0.65
-0.24	-5.69	-0.23	-25.10	-4.20	-0.97	-0.20	-0.34
-0.05	-1.31	-0.02	-5.73	0.66	0.09	0.00	0.17
-0.08	-1.85	-0.07	-8.11	-1.84	-0.33	-0.04	-0.08
-0.12	-2.93	-0.10	-12.80	-2.64	-0.41	-0.02	-0.04
0.30	6.23	0.48	28.04	11.01	2.94	0.75	2.05
-0.03	-0.87	0.04	-3.61	0.83	0.34	0.12	0.48
0.71	15.27	1.08	68.29	24.29	6.36	1.60	4.29
-0.13	-3.04	-0.12	-13.36	-2.94	-0.60	-0.10	-0.19
-0.05	-1.12	-0.05	-4.94	-1.14	-0.23	-0.04	-0.09
0.03	0.68	0.07	2.97	2.66	0.60	0.12	0.34
-0.04	-0.91	-0.02	-3.99	-0.20	0.01	0.02	0.07
0.35	7.41	0.59	33.40	12.88	3.89	1.10	2.56
0.01	0.26	0.02	1.06	1.79	0.29	0.02	0.08
0.06	1.31	0.08	5.68	3.14	0.73	0.15	0.32
0.00	0.03	0.00	0.13	0.10	0.01	0.00	0.00
-0.05	-1.20	-0.06	-5.37	-0.81	-0.26	-0.08	-0.13
0.62	13.67	0.89	61.09	18.78	5.33	1.42	3.28
0.13	2.89	0.15	12.69	4.09	0.93	0.19	0.43
0.16	3.38	0.25	15.10	5.88	1.61	0.41	1.03
0.22	4.85	0.31	21.65	6.75	1.86	0.48	1.11
0.08	1.84	0.10	7.97	3.45	0.68	0.10	0.30
0.64	14.10	0.88	62.65	20.05	5.29	1.31	3.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.28	-6.86	-0.25	-30.07	-5.50	-0.94	-0.09	-0.18
-0.35	-8.71	-0.27	-38.19	-4.47	-0.65	-0.02	0.11
-1.85	-43.86	-1.83	-193.98	-35.65	-9.26	-2.28	-2.90
0.00	-0.51	0.10	-2.21	4.62	1.23	0.32	0.91
0.15	3.17	0.26	14.13	7.68	1.80	0.38	1.18
0.18	3.80	0.29	16.93	8.42	1.99	0.44	1.28
-0.21	-4.99	-0.22	-22.02	-4.64	-0.98	-0.18	-0.46
0.41	8.90	0.61	39.73	14.69	3.66	0.86	2.35
0.17	3.46	0.30	15.67	7.33	1.89	0.47	1.40
0.21	4.58	0.31	20.45	7.32	1.80	0.42	1.16
-0.03	-0.60	-0.03	-2.64	-0.64	-0.15	-0.03	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.32	-0.01	-1.42	-0.28	-0.04	0.00	-0.01
0.00	-0.08	0.00	-0.38	0.08	0.00	-0.01	-0.01
-0.03	-0.72	-0.04	-3.23	-0.71	-0.19	-0.05	-0.12
0.00	-0.03	0.00	-0.16	0.02	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.02	0.00	-0.09	-0.02	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.34	-0.09	-10.28	-1.68	-0.32	-0.04	-0.10
-0.03	-0.83	-0.03	-3.64	-0.78	-0.13	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.23	-0.05	-0.01	0.00	0.00
0.00	0.01	0.00	0.04	0.13	0.02	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.15	-0.01	-0.68	-0.17	-0.03	0.00	-0.01
0.03	0.70	0.03	3.04	1.29	0.22	0.02	0.07
-0.16	-3.68	-0.17	-16.32	-3.33	-0.82	-0.19	-0.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.21	-0.04	-5.33	-0.77	-0.14	-0.02	-0.03
-1.18	-28.26	-1.11	-125.03	-18.59	-5.31	-1.45	-1.28
-0.07	-1.75	-0.06	-7.70	-1.06	-0.20	-0.03	-0.04
-0.69	-16.21	-0.72	-71.48	-15.64	-3.31	-0.59	-1.40
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	1.16	0.07	5.11	2.45	0.45	0.05	0.24
-0.01	-0.24	-0.01	-1.05	-0.27	-0.05	-0.01	-0.02
-0.02	-0.59	-0.02	-2.58	-0.66	-0.12	-0.02	-0.05
-0.07	-1.69	-0.06	-7.42	-1.02	-0.24	-0.05	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.20	0.11	0.03	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.60	-0.02	-2.61	-0.64	-0.11	-0.01	-0.02
-0.04	-0.99	-0.05	-4.40	-1.01	-0.23	-0.05	-0.12
-0.04	-0.86	-0.04	-3.83	-0.72	-0.19	-0.05	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-1.47	-0.05	-6.42	-1.37	-0.24	-0.02	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.53	-0.09	-11.03	-2.52	-0.41	-0.03	-0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.26	-0.01	-1.17	-0.10	-0.02	-0.01	-0.01
-0.03	-0.67	-0.03	-2.96	-0.66	-0.12	-0.02	-0.04
-0.06	-1.42	-0.06	-6.24	-1.24	-0.26	-0.05	-0.08
-0.03	-0.68	-0.03	-3.01	-0.61	-0.13	-0.02	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.08	-1.99	-0.08	-8.83	-1.48	-0.36	-0.08	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.89	-0.04	-3.98	-0.50	-0.15	-0.04	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-2.06	-0.08	-9.05	-1.69	-0.29	-0.03	-0.06
-0.87	-20.79	-0.81	-91.91	-14.02	-3.85	-1.01	-0.93
-0.07	-1.73	-0.06	-7.52	-1.93	-0.31	-0.02	-0.04
-0.01	-0.32	-0.01	-1.41	-0.35	-0.06	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix G-3
MSAT Emissions

2020 CEQA Comparison

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	-0.09	-2.05	-0.08	-9.04	-1.31	-0.31	-0.07	-0.10
606	-0.02	-0.42	-0.02	-1.84	-0.48	-0.08	-0.01	-0.02
1001	-0.09	-2.12	-0.08	-9.29	-1.61	-0.32	-0.05	-0.08
1002	-0.01	-0.25	-0.01	-1.11	-0.12	-0.03	-0.01	-0.01
1003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	0.00	-0.02	0.00	-0.11	-0.01	0.00	0.00	0.00
1012	-0.02	-0.36	-0.01	-1.60	-0.14	-0.04	-0.01	-0.02
1013	-0.03	-0.83	-0.03	-3.63	-0.59	-0.13	-0.02	-0.03
1014	0.00	0.07	0.01	0.26	0.38	0.01	-0.03	0.04
1015	-0.05	-1.19	-0.04	-5.31	-0.04	-0.18	-0.10	0.00
1016	-0.03	-0.62	-0.02	-2.74	-0.38	-0.10	-0.02	-0.03
1017	-0.02	-0.53	-0.02	-2.31	-0.25	-0.05	-0.01	-0.01
1018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.07	-1.80	-0.07	-7.94	-0.97	-0.24	-0.06	-0.08
1021	-0.16	-3.71	-0.16	-16.42	-2.35	-0.66	-0.18	-0.25
1022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023	-0.09	-2.11	-0.09	-9.35	-0.56	-0.24	-0.08	-0.11
1024	-0.09	-2.17	-0.08	-9.84	1.16	-0.03	-0.11	-0.01
1025	-0.12	-2.34	-0.27	-11.60	0.91	-2.27	-1.29	-1.25
1026	-0.13	-3.11	-0.12	-13.74	-1.54	-0.41	-0.10	-0.15
1027	-0.11	-2.75	-0.10	-12.25	-0.45	-0.26	-0.11	-0.07
1028	-2.12	-48.20	-2.70	-216.88	-36.46	-25.88	-11.14	-7.83
1029	-1.79	-40.98	-2.16	-183.27	-31.01	-15.52	-5.98	-5.78
1030	-0.65	-15.13	-0.69	-67.17	-9.90	-3.09	-0.91	-1.39
1031	-0.48	-11.24	-0.53	-50.05	-6.78	-2.24	-0.70	-1.12
1032	-1.17	-27.85	-1.16	-122.43	-21.86	-4.96	-1.02	-1.92
1033	-1.57	-37.64	-1.47	-164.99	-29.03	-5.98	-1.03	-1.91
1034	-0.89	-21.16	-0.86	-93.14	-14.86	-3.51	-0.76	-1.30
1035	-0.25	-5.94	-0.27	-26.31	-4.05	-1.23	-0.36	-0.52
1036	-0.34	-8.12	-0.35	-35.88	-5.51	-1.56	-0.42	-0.61
1037	-0.36	-8.59	-0.35	-37.92	-5.20	-1.42	-0.36	-0.49
1038	-0.24	-5.45	-0.27	-24.23	-4.18	-1.31	-0.38	-0.68
1039	-0.07	-1.69	-0.10	-7.69	-0.76	-0.43	-0.17	-0.30
1040	-0.12	-2.68	-0.14	-11.99	-2.02	-0.63	-0.19	-0.40
1041	-0.03	-0.80	-0.01	-3.74	2.49	0.05	-0.16	0.15
1042	-0.05	-1.15	-0.04	-5.34	1.95	-0.13	-0.21	0.01
1043	-0.09	-2.26	-0.05	-10.29	4.60	-0.28	-0.50	0.26
1059	0.00	-0.02	0.00	-0.09	0.00	0.00	0.00	0.00
1060	0.00	0.02	0.00	0.07	0.12	0.01	0.00	0.00
1061	0.00	0.03	0.00	0.11	0.23	0.02	-0.01	0.00
1062	0.01	0.13	0.01	0.55	0.43	0.01	-0.03	0.04
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	-0.08	-1.94	-0.07	-8.53	-1.09	-0.27	-0.06	-0.09
1066	-0.10	-2.36	-0.09	-10.39	-1.55	-0.34	-0.07	-0.13
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-0.08	-1.85	-0.08	-8.20	-1.24	-0.44	-0.15	-0.17
1069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1070	-0.01	-0.18	-0.01	-0.85	0.21	0.00	-0.02	-0.01
1071	0.14	3.31	0.13	14.18	5.71	0.92	0.07	0.24
1072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1073	-0.07	-1.37	-0.15	-6.78	0.08	-1.49	-0.81	-0.71
1074	-0.05	-1.28	-0.05	-5.68	-0.36	-0.11	-0.03	-0.02
1075	-0.21	-4.97	-0.19	-21.97	-2.08	-0.60	-0.16	-0.17
1076	-0.32	-7.73	-0.26	-33.85	-4.45	-0.89	-0.14	-0.10
1077	-3.95	-83.75	-6.56	-387.49	-71.68	-70.23	-32.28	-26.42
1078	-0.31	-7.37	-0.29	-32.47	-4.24	-1.16	-0.30	-0.33
1079	-0.29	-6.91	-0.26	-30.43	-3.86	-1.03	-0.26	-0.24
1080	-0.55	-13.16	-0.50	-57.65	-9.84	-2.18	-0.42	-0.55
1081	-0.74	-17.70	-0.66	-77.39	-13.50	-2.42	-0.27	-0.65
1082	-0.02	-0.40	-0.02	-1.75	-0.25	-0.06	-0.01	-0.02
1083	-0.24	-5.73	-0.22	-25.19	-3.57	-0.76	-0.14	-0.24
1084	-0.15	-3.71	-0.14	-16.26	-2.48	-0.51	-0.09	-0.14
1085	-0.22	-5.20	-0.19	-22.84	-3.17	-0.65	-0.11	-0.16
1086	-0.09	-2.20	-0.07	-9.63	-0.87	-0.25	-0.07	0.04
1087	-0.21	-5.09	-0.20	-22.44	-2.76	-0.74	-0.19	-0.25
1088	0.01	0.28	0.02	1.25	0.44	0.10	0.02	0.09
1089	-0.22	-5.01	-0.24	-22.21	-4.21	-1.40	-0.44	-0.58
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.00	-0.01	0.00	-0.04	0.01	0.00	0.00	0.00
1114	-0.49	-9.98	-0.92	-46.79	-9.29	-7.66	-3.42	-4.12
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.01	0.21	0.01	0.87	0.81	0.04	-0.04	0.06
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	-0.04	-0.95	-0.04	-4.20	-0.53	-0.14	-0.03	-0.05
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.08	1.82	0.06	7.69	3.42	0.49	0.01	0.03
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	-0.11	-2.21	-0.23	-10.77	0.26	-1.93	-1.06	-1.05
1128	-0.01	-0.27	-0.01	-1.22	0.10	0.00	-0.01	0.01
1129	-0.06	-1.46	-0.06	-6.50	-0.35	-0.19	-0.08	-0.06
1130	-0.19	-4.81	-0.14	-20.98	-2.55	-0.43	-0.04	0.09
1131	-0.07	-1.85	-0.04	-8.07	-0.69	-0.09	0.00	0.12
1132	0.19	0.99	1.10	9.56	8.37	6.58	2.91	7.42
1133	-0.32	-7.69	-0.27	-33.85	-3.25	-0.96	-0.28	-0.14
1134	-0.24	-5.90	-0.18	-25.82	-1.97	-0.61	-0.18	0.07
1135	0.03	0.78	0.02	3.10	3.08	0.43	0.00	0.05
1136	-0.02	-0.60	-0.03	-3.04	2.71	0.26	-0.06	-0.01
1137	-0.09	-2.09	-0.08	-9.21	-1.03	-0.24	-0.05	-0.06
1138	-0.02	-0.57	-0.02	-2.56	0.16	-0.02	-0.02	-0.01
1139	-0.22	-5.35	-0.21	-23.59	-3.25	-0.88	-0.23	-0.28
1140	-0.21	-5.04	-0.21	-22.24	-3.09	-0.90	-0.25	-0.31
1141	-0.17	-3.95	-0.17	-17.57	-2.27	-0.76	-0.24	-0.30
1142	0.08	1.79	0.09	7.81	2.54	0.52	0.09	0.26
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	0.00	0.07	0.00	0.23	0.61	-0.02	-0.06	0.02
1173	-0.19	-4.00	-0.36	-18.85	-2.38	-2.36	-1.09	-1.59
1174	-0.21	-4.38	-0.39	-20.51	-3.69	-2.47	-1.05	-1.73
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-0.76	-15.83	-1.31	-73.62	-13.16	-10.05	-4.41	-5.52
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1180	-0.34	-7.09	-0.62	-33.25	-5.65	-4.82	-2.17	-2.69
1181	-0.26	-5.62	-0.44	-25.97	-3.99	-2.47	-1.02	-1.78
1182	-0.30	-6.31	-0.51	-29.32	-3.75	-2.81	-1.22	-2.05
1183	-0.23	-4.54	-0.48	-21.91	-1.85	-3.11	-1.53	-2.26
1184	-0.15	-3.03	-0.29	-14.40	-2.01	-2.05	-0.95	-1.31
1185	-0.24	-5.29	-0.38	-24.48	-2.55	-2.26	-1.02	-1.39
1186	-0.20	-4.35	-0.30	-20.05	-2.31	-1.84	-0.81	-1.08
1187	-0.51	-11.62	-0.65	-52.38	-6.77	-3.11	-1.16	-1.90
1188	-1.83	-41.02	-2.45	-185.31	-31.24	-21.04	-8.93	-7.74
1189	-0.38	-9.30	-0.33	-40.66	-5.94	-1.25	-0.22	-0.21
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-0.05	-1.14	-0.05	-5.29	1.77	0.13	-0.06	-0.05
1192	-0.06	-1.48	-0.06	-6.59	-0.38	-0.14	-0.05	-0.05
1193	-0.09	-2.29	-0.08	-10.00	-1.69	-0.32	-0.04	-0.08
1194	-0.07	-1.63	-0.06	-7.13	-1.06	-0.22	-0.04	-0.06
1195	-0.19	-4.65	-0.19	-20.49	-2.98	-0.78	-0.19	-0.25
1196	-0.08	-1.86	-0.07	-8.18	-0.99	-0.20	-0.03	-0.06
1197	-0.02	-0.38	-0.02	-1.70	-0.16	-0.06	-0.02	-0.02

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-2.12	-0.08	-9.31	-1.45	-0.32	-0.06	-0.08
-0.02	-0.42	-0.02	-1.82	-0.47	-0.08	-0.01	-0.02
-0.09	-2.12	-0.08	-9.30	-1.61	-0.32	-0.05	-0.08
-0.01	-0.25	-0.01	-1.11	-0.12	-0.03	-0.01	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.02	0.00	-0.11	-0.01	0.00	0.00	0.00
-0.02	-0.36	-0.01	-1.60	-0.14	-0.04	-0.01	-0.02
-0.03	-0.71	-0.03	-3.14	-0.43	-0.10	-0.02	-0.03
-0.01	-0.15	-0.01	-0.70	0.06	-0.08	-0.05	-0.04
-0.07	-1.67	-0.08	-7.52	-0.77	-0.39	-0.15	-0.20
-0.02	-0.49	-0.02	-2.18	-0.18	-0.07	-0.02	-0.02
-0.02	-0.57	-0.02	-2.51	-0.32	-0.07	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.72	-0.07	-7.58	-0.80	-0.22	-0.06	-0.07
-0.14	-3.34	-0.14	-14.84	-1.81	-0.56	-0.16	-0.21
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-2.05	-0.08	-9.09	-0.46	-0.22	-0.08	-0.10
-0.06	-1.58	-0.06	-7.28	2.25	0.14	-0.10	0.04
-0.12	-2.45	-0.27	-12.07	0.74	-2.30	-1.29	-1.26
-0.13	-3.06	-0.12	-13.53	-1.47	-0.40	-0.10	-0.14
-0.11	-2.73	-0.10	-12.18	-0.42	-0.26	-0.11	-0.08
-2.11	-48.02	-2.66	-215.83	-36.26	-25.30	-10.85	-7.63
-1.78	-41.01	-2.13	-183.22	-31.02	-15.33	-5.88	-5.61
-0.65	-15.14	-0.69	-67.20	-9.92	-3.09	-0.91	-1.38
-0.48	-11.24	-0.52	-50.08	-6.80	-2.24	-0.69	-1.10
-1.17	-27.82	-1.16	-122.32	-21.82	-4.96	-1.02	-1.93
-1.57	-37.64	-1.47	-164.98	-29.03	-5.98	-1.03	-1.90
-0.89	-21.14	-0.86	-93.03	-14.82	-3.49	-0.76	-1.28
-0.25	-5.92	-0.26	-26.21	-4.02	-1.22	-0.35	-0.50
-0.34	-8.10	-0.35	-35.80	-5.48	-1.55	-0.42	-0.60
-0.36	-8.58	-0.35	-37.85	-5.18	-1.41	-0.36	-0.47
-0.24	-5.44	-0.27	-24.21	-4.18	-1.31	-0.38	-0.68
-0.07	-1.68	-0.10	-7.67	-0.76	-0.43	-0.17	-0.30
-0.12	-2.68	-0.14	-11.97	-2.02	-0.63	-0.19	-0.40
-0.03	-0.83	-0.02	-3.89	2.43	0.03	-0.17	0.12
-0.05	-1.18	-0.05	-5.46	1.90	-0.14	-0.22	-0.02
-0.09	-2.31	-0.06	-10.57	4.49	-0.32	-0.51	0.22
0.00	-0.02	0.00	-0.09	0.00	0.00	0.00	0.00
0.00	-0.04	0.00	-0.19	0.03	0.00	0.00	0.00
0.00	-0.08	0.00	-0.37	0.07	0.00	-0.01	-0.01
0.00	-0.09	-0.01	-0.46	0.09	-0.07	-0.05	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.08	-2.00	-0.08	-8.79	-1.17	-0.28	-0.06	-0.09
-0.10	-2.35	-0.09	-10.36	-1.54	-0.34	-0.07	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-1.47	-0.07	-6.55	-0.70	-0.34	-0.13	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.30	-0.01	-1.34	0.01	-0.03	-0.02	-0.02
0.15	3.46	0.14	14.84	5.96	0.97	0.07	0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.47	-0.16	-7.20	-0.07	-1.51	-0.81	-0.72
-0.05	-1.32	-0.05	-5.85	-0.42	-0.13	-0.04	-0.05
-0.21	-5.04	-0.19	-22.25	-2.18	-0.61	-0.16	-0.17
-0.32	-7.76	-0.26	-33.93	-4.48	-0.88	-0.13	-0.07
-3.94	-83.73	-6.49	-387.04	-71.57	-69.72	-32.01	-25.97
-0.31	-7.39	-0.29	-32.58	-4.28	-1.17	-0.31	-0.34
-0.29	-6.92	-0.26	-30.48	-3.88	-1.02	-0.26	-0.23
-0.55	-13.16	-0.50	-57.65	-9.83	-2.19	-0.43	-0.56
-0.73	-17.67	-0.65	-77.27	-13.45	-2.41	-0.27	-0.65
-0.02	-0.40	-0.02	-1.76	-0.25	-0.06	-0.01	-0.02
-0.24	-5.73	-0.22	-25.19	-3.57	-0.76	-0.14	-0.24
-0.15	-3.71	-0.14	-16.26	-2.48	-0.51	-0.09	-0.14
-0.22	-5.21	-0.19	-22.85	-3.18	-0.65	-0.11	-0.16
-0.09	-2.19	-0.06	-9.57	-0.85	-0.24	-0.06	0.05
-0.21	-5.08	-0.20	-22.40	-2.75	-0.74	-0.19	-0.24
0.01	0.28	0.02	1.28	0.45	0.11	0.02	0.10
-0.22	-5.01	-0.24	-22.21	-4.21	-1.40	-0.44	-0.58
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	0.00	-0.04	0.01	0.00	0.00	0.00
-0.42	-8.67	-0.79	-40.70	-7.43	-6.88	-3.14	-3.48
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.21	-0.02	-1.01	0.18	-0.11	-0.07	-0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.96	-0.04	-4.22	-0.54	-0.14	-0.03	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.07	1.78	0.05	7.55	3.37	0.48	0.01	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.12	-2.43	-0.25	-11.78	-0.17	-1.98	-1.05	-1.12
-0.01	-0.30	-0.01	-1.35	0.06	-0.01	-0.01	-0.01
-0.06	-1.52	-0.06	-6.78	-0.45	-0.21	-0.08	-0.06
-0.20	-4.85	-0.14	-21.11	-2.60	-0.42	-0.03	0.13
-0.07	-1.86	-0.04	-8.07	-0.69	-0.09	0.00	0.13
0.20	1.02	1.17	10.13	8.55	7.18	3.22	7.92
-0.32	-7.70	-0.27	-33.89	-3.27	-0.96	-0.27	-0.12
-0.24	-5.89	-0.18	-25.81	-1.97	-0.61	-0.18	0.07
0.03	0.77	0.02	3.07	3.06	0.43	0.00	0.05
-0.02	-0.59	-0.03	-3.01	2.72	0.27	-0.06	-0.01
-0.09	-2.08	-0.08	-9.15	-1.01	-0.23	-0.05	-0.06
-0.02	-0.55	-0.02	-2.49	0.18	-0.01	-0.02	-0.01
-0.22	-5.36	-0.21	-23.61	-3.26	-0.88	-0.23	-0.28
-0.21	-5.03	-0.21	-22.22	-3.08	-0.90	-0.25	-0.31
-0.17	-3.95	-0.17	-17.55	-2.26	-0.76	-0.24	-0.30
0.08	1.77	0.09	7.67	2.50	0.50	0.08	0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.23	-0.02	-1.12	0.16	-0.14	-0.09	-0.08
-0.19	-3.85	-0.34	-18.10	-2.16	-2.21	-1.02	-1.46
-0.19	-3.88	-0.34	-18.20	-2.82	-2.19	-0.97	-1.47
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.65	-13.66	-1.12	-63.64	-9.99	-8.97	-4.07	-4.61
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.30	-6.14	-0.53	-28.82	-4.16	-4.30	-2.00	-2.24
-0.25	-5.33	-0.40	-24.57	-3.52	-2.29	-0.96	-1.57
-0.28	-6.10	-0.46	-28.24	-3.40	-2.63	-1.15	-1.77
-0.22	-4.48	-0.44	-21.38	-1.73	-2.95	-1.45	-1.99
-0.14	-2.92	-0.26	-13.80	-1.82	-1.93	-0.90	-1.14
-0.24	-5.17	-0.36	-23.84	-2.35	-2.16	-0.99	-1.27
-0.19	-4.24	-0.27	-19.37	-2.12	-1.69	-0.75	-0.87
-0.50	-11.50	-0.63	-51.77	-6.59	-2.99	-1.11	-1.74
-1.82	-40.91	-2.39	-184.49	-31.00	-20.65	-8.74	-7.35
-0.38	-9.32	-0.33	-40.77	-5.97	-1.27	-0.23	-0.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.13	-0.05	-5.27	1.78	0.14	-0.06	-0.04
-0.06	-1.50	-0.06	-6.67	-0.41	-0.15	-0.05	-0.05
-0.09	-2.29	-0.08	-10.00	-1.69	-0.32	-0.04	-0.08
-0.07	-1.63	-0.06	-7.12	-1.06	-0.22	-0.04	-0.06
-0.20	-4.66	-0.19	-20.54	-2.99	-0.78	-0.19	-0.25
-0.08	-1.86	-0.07	-8.18	-1.00	-0.20	-0.03	-0.06
-0.02	-0.39	-0.02	-1.72	-0.17	-0.06	-0.02	-0.03

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1198	0.03	0.73	0.04	3.19	0.99	0.23	0.05	0.12
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.00	0.02	0.00	0.08	0.21	-0.01	-0.02	0.01
1230	-0.01	-0.23	-0.01	-1.08	0.22	-0.04	-0.04	-0.02
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.18	-4.21	-0.20	-18.89	-1.44	-0.67	-0.25	-0.41
1239	-0.11	-2.54	-0.11	-11.28	-1.22	-0.40	-0.12	-0.17
1240	-0.14	-2.89	-0.27	-14.07	2.20	-2.27	-1.38	-1.12
1241	-0.30	-7.09	-0.30	-31.36	-4.57	-1.43	-0.42	-0.51
1242	-0.03	-0.71	-0.03	-3.18	-0.25	-0.11	-0.04	-0.06
1243	-0.17	-4.00	-0.16	-17.71	-2.07	-0.68	-0.21	-0.22
1244	-0.21	-4.87	-0.21	-21.63	-2.49	-0.88	-0.28	-0.37
1245	-1.90	-41.23	-2.90	-189.04	-33.24	-32.30	-14.82	-10.73
1246	-0.72	-17.02	-0.71	-75.08	-10.91	-3.12	-0.85	-1.11
1247	-0.41	-9.86	-0.38	-43.24	-7.35	-1.71	-0.36	-0.48
1248	-0.18	-4.24	-0.17	-18.66	-2.55	-0.60	-0.13	-0.20
1249	-0.19	-4.61	-0.18	-20.29	-3.17	-0.72	-0.15	-0.24
1250	-0.55	-13.10	-0.51	-57.65	-8.21	-1.96	-0.43	-0.64
1251	-0.39	-9.33	-0.39	-41.18	-6.38	-1.78	-0.48	-0.62
1252	-0.20	-4.76	-0.18	-20.93	-3.04	-0.67	-0.13	-0.20
1253	-0.16	-3.91	-0.15	-17.23	-2.38	-0.54	-0.11	-0.18
1254	-0.02	-0.45	-0.02	-2.05	0.01	-0.05	-0.03	-0.01
1255	0.04	0.82	0.05	3.59	1.12	0.26	0.06	0.15
1256	0.02	0.35	0.02	1.51	0.49	0.09	0.01	0.04
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-0.02	-0.36	-0.02	-1.75	0.97	-0.04	-0.09	-0.06
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1297	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1298	0.00	-0.04	0.00	-0.20	0.19	0.02	0.00	0.01
1299	-0.01	-0.17	0.00	-0.79	0.49	0.05	-0.01	0.02
1300	-0.02	-0.54	-0.03	-2.52	0.73	0.00	-0.06	-0.06
1301	-0.05	-1.10	-0.11	-5.41	0.82	-0.94	-0.57	-0.50
1302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	-0.04	-1.01	-0.07	-4.83	1.13	-0.13	-0.15	-0.19
1304	0.02	0.42	0.05	1.92	1.23	0.30	0.07	0.29
1305	-0.08	-1.83	-0.07	-8.15	-0.60	-0.31	-0.12	-0.09
1306	-0.37	-8.73	-0.36	-38.56	-5.57	-1.69	-0.49	-0.56
1307	-2.18	-47.48	-3.35	-217.78	-38.31	-37.75	-17.38	-12.42
1308	-0.70	-16.52	-0.70	-72.94	-11.10	-3.16	-0.86	-1.16
1309	-0.51	-12.13	-0.52	-53.56	-8.74	-2.39	-0.62	-0.89
1310	-0.39	-9.16	-0.40	-40.53	-6.40	-1.91	-0.54	-0.71
1311	-0.20	-4.73	-0.18	-20.81	-2.83	-0.66	-0.14	-0.21
1312	-0.04	-0.92	-0.04	-4.06	-0.59	-0.14	-0.03	-0.04
1313	0.00	-0.03	0.00	-0.15	0.01	0.00	0.00	0.00
1314	0.02	0.40	0.01	1.70	0.64	0.10	0.01	0.02
1315	-0.01	-0.25	0.00	-1.13	0.41	0.07	0.01	0.08
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.07	-1.65	-0.07	-7.26	-1.16	-0.32	-0.09	-0.10
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	-0.05	-1.30	-0.05	-6.02	1.42	-0.29	-0.28	0.00
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.01	0.14	0.01	0.60	0.19	0.04	0.01	0.01
1358	-0.03	-0.69	-0.03	-3.03	-0.57	-0.17	-0.05	-0.06
1359	0.01	0.17	0.01	0.70	0.62	0.08	0.00	0.04
1360	-0.01	-0.25	-0.01	-1.14	0.23	-0.01	-0.02	0.00
1361	0.01	0.25	0.00	0.82	1.84	0.16	-0.05	-0.04
1362	-0.26	-5.36	-0.50	-25.52	-1.47	-3.94	-2.02	-2.17
1363	0.03	0.63	0.01	2.48	2.05	0.20	-0.05	-0.02
1364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1365	0.03	0.62	0.06	2.82	1.32	0.33	0.08	0.30
1366	-0.12	-2.99	-0.12	-13.36	-0.45	-0.54	-0.25	-0.10
1367	-0.04	-0.96	-0.02	-4.17	0.04	-0.08	-0.05	0.11
1368	-0.08	-2.15	-0.02	-9.30	0.46	-0.15	-0.11	0.34
1369	-1.58	-32.07	-2.98	-151.09	-29.87	-33.47	-15.72	-13.34
1370	-0.46	-10.91	-0.46	-47.98	-8.84	-2.03	-0.42	-0.78
1371	-0.03	-0.72	-0.03	-3.20	-0.30	-0.10	-0.03	-0.04
1372	-0.07	-1.67	-0.09	-7.47	-1.28	-0.50	-0.17	-0.24
1373	-0.09	-2.06	-0.10	-9.17	-1.44	-0.48	-0.15	-0.21
1374	-0.08	-1.95	-0.09	-8.66	-1.52	-0.49	-0.15	-0.22
1375	0.09	1.96	0.10	8.40	3.99	0.64	0.04	0.34
1376	-0.02	-0.48	-0.02	-2.09	-0.39	-0.09	-0.02	-0.03
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	1.42	29.83	2.37	136.25	36.20	17.14	6.44	10.02
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	0.12	2.57	0.20	11.72	3.30	1.45	0.53	0.84
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	1.79	37.65	2.98	171.99	45.03	22.17	8.48	12.55
1418	0.07	1.34	0.12	6.14	1.98	0.92	0.34	0.56
1419	0.02	0.47	0.02	2.02	0.82	0.13	0.01	0.06
1420	0.68	14.11	1.19	64.44	20.37	9.39	3.50	5.25
1421	0.16	3.25	0.29	14.89	5.04	2.21	0.80	1.34
1422	0.53	10.83	0.98	49.89	15.52	6.99	2.58	4.48
1423	0.69	13.98	1.28	64.07	23.01	8.21	2.68	5.98
1424	-0.21	-4.81	-0.23	-21.28	-4.26	-1.15	-0.29	-0.57
1425	0.18	2.73	0.59	14.17	7.58	2.83	0.95	3.51
1426	0.33	6.08	0.75	28.81	12.26	4.31	1.38	3.97
1427	0.18	2.73	0.56	14.19	6.31	4.49	1.93	3.32
1428	0.21	4.28	0.41	19.93	6.06	2.86	1.07	1.96
1429	0.16	3.04	0.33	14.41	3.95	2.51	1.05	1.64
1430	0.80	14.43	1.97	70.64	20.22	15.45	6.75	10.47
1431	0.23	5.34	0.27	23.46	7.45	1.85	0.43	0.78
1432	0.16	3.75	0.19	16.49	4.45	1.25	0.33	0.50
1433	0.04	0.80	0.04	3.54	0.93	0.28	0.08	0.12
1434	0.15	3.42	0.18	15.14	3.89	1.20	0.34	0.54
1435	0.03	0.38	0.10	1.98	1.45	0.48	0.15	0.60
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-0.05	-1.23	-0.05	-5.43	-0.54	-0.18	-0.06	-0.05
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	0.02	0.52	0.03	2.33	0.75	0.18	0.04	0.13
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.03	0.70	0.04	3.04	0.95	0.20	0.04	0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.08	-0.01	-0.38	0.05	-0.05	-0.03	-0.03
-0.01	-0.29	-0.02	-1.36	0.13	-0.06	-0.04	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.17	-4.09	-0.19	-18.35	-1.24	-0.63	-0.25	-0.38
-0.10	-2.49	-0.11	-11.07	-1.15	-0.38	-0.12	-0.16
-0.16	-3.38	-0.30	-16.26	1.33	-2.42	-1.40	-1.25
-0.30	-7.03	-0.30	-31.14	-4.50	-1.42	-0.42	-0.51
-0.03	-0.71	-0.03	-3.19	-0.25	-0.11	-0.04	-0.05
-0.17	-4.01	-0.16	-17.77	-2.11	-0.68	-0.20	-0.21
-0.21	-4.99	-0.22	-22.16	-2.76	-0.92	-0.29	-0.39
-1.88	-41.15	-2.83	-188.29	-33.00	-31.66	-14.49	-10.23
-0.72	-17.07	-0.71	-75.34	-11.00	-3.14	-0.86	-1.14
-0.41	-9.88	-0.39	-43.31	-7.37	-1.72	-0.37	-0.50
-0.18	-4.25	-0.17	-18.71	-2.57	-0.60	-0.13	-0.20
-0.19	-4.62	-0.18	-20.34	-3.19	-0.72	-0.15	-0.25
-0.55	-13.10	-0.51	-57.67	-8.21	-1.96	-0.43	-0.64
-0.39	-9.35	-0.39	-41.25	-6.40	-1.79	-0.48	-0.62
-0.20	-4.76	-0.18	-20.91	-3.03	-0.67	-0.13	-0.20
-0.16	-3.91	-0.15	-17.21	-2.38	-0.54	-0.11	-0.18
-0.02	-0.46	-0.02	-2.07	0.00	-0.05	-0.03	-0.02
0.03	0.77	0.04	3.39	1.06	0.23	0.05	0.12
0.01	0.35	0.02	1.51	0.49	0.09	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.57	-0.04	-2.72	0.65	-0.12	-0.11	-0.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.07	0.00	-0.35	0.13	0.01	-0.01	0.00
-0.01	-0.22	-0.01	-1.05	0.39	0.03	-0.01	-0.01
-0.02	-0.43	-0.03	-2.08	0.88	0.03	-0.06	-0.05
-0.06	-1.27	-0.13	-6.18	0.51	-0.99	-0.57	-0.54
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-1.02	-0.06	-4.84	1.12	-0.12	-0.15	-0.18
0.02	0.34	0.05	1.60	1.12	0.29	0.07	0.30
-0.08	-1.88	-0.08	-8.36	-0.68	-0.33	-0.12	-0.10
-0.36	-8.67	-0.36	-38.30	-5.42	-1.67	-0.48	-0.54
-2.17	-47.44	-3.26	-217.09	-38.10	-36.89	-16.94	-11.80
-0.70	-16.57	-0.70	-73.18	-11.18	-3.19	-0.87	-1.19
-0.51	-12.13	-0.52	-53.57	-8.75	-2.39	-0.62	-0.89
-0.39	-9.17	-0.40	-40.55	-6.41	-1.91	-0.54	-0.71
-0.20	-4.73	-0.18	-20.81	-2.83	-0.66	-0.14	-0.21
-0.04	-0.92	-0.04	-4.07	-0.59	-0.14	-0.03	-0.04
0.00	-0.03	0.00	-0.15	0.01	0.00	0.00	0.00
0.02	0.39	0.01	1.67	0.63	0.10	0.00	0.02
-0.01	-0.31	-0.01	-1.37	0.30	0.03	0.00	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.65	-0.07	-7.26	-1.16	-0.32	-0.09	-0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-2.47	-0.14	-11.33	-0.53	-0.73	-0.36	-0.38
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.27	0.01	1.20	0.38	0.08	0.01	0.04
-0.01	-0.26	-0.01	-1.18	0.00	-0.04	-0.02	0.01
0.00	0.07	0.00	0.24	0.46	0.05	-0.01	0.00
-0.01	-0.20	-0.01	-0.94	0.30	0.00	-0.02	0.00
0.01	0.20	0.00	0.59	1.71	0.15	-0.05	-0.04
-0.29	-5.84	-0.54	-27.80	-2.38	-4.10	-2.03	-2.38
0.02	0.61	0.01	2.40	2.02	0.19	-0.05	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.55	0.06	2.52	1.22	0.33	0.08	0.31
-0.13	-3.13	-0.12	-13.97	-0.65	-0.58	-0.26	-0.13
-0.04	-1.12	-0.03	-4.92	-0.26	-0.14	-0.06	0.04
-0.10	-2.56	-0.06	-11.21	-0.28	-0.30	-0.15	0.17
-1.56	-31.93	-2.92	-150.14	-29.58	-32.92	-15.45	-12.94
-0.46	-10.91	-0.46	-47.99	-8.84	-2.03	-0.42	-0.78
-0.03	-0.72	-0.03	-3.20	-0.30	-0.10	-0.03	-0.04
-0.07	-1.67	-0.09	-7.46	-1.28	-0.50	-0.17	-0.24
-0.09	-2.06	-0.10	-9.18	-1.45	-0.48	-0.15	-0.21
-0.08	-1.95	-0.09	-8.67	-1.52	-0.49	-0.15	-0.22
0.08	1.86	0.09	7.91	3.85	0.57	0.01	0.25
-0.02	-0.48	-0.02	-2.09	-0.40	-0.09	-0.02	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	21.73	1.49	98.02	25.09	10.94	3.95	5.67
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	2.31	0.12	10.20	2.65	0.83	0.25	0.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.31	28.30	1.96	127.73	31.72	14.61	5.43	7.48
0.04	0.82	0.05	3.65	1.12	0.39	0.12	0.19
0.02	0.44	0.02	1.92	0.78	0.13	0.01	0.06
0.47	10.75	0.56	47.14	14.39	4.28	1.21	1.66
0.11	2.28	0.18	10.22	3.79	1.38	0.45	0.76
0.37	7.69	0.61	34.89	11.00	4.58	1.62	2.60
0.62	13.32	0.92	59.31	21.55	5.72	1.44	3.63
-0.21	-4.81	-0.23	-21.28	-4.26	-1.15	-0.29	-0.57
0.15	2.27	0.46	11.58	6.72	1.95	0.54	2.75
0.25	4.74	0.56	22.24	9.90	3.17	0.95	2.92
0.11	1.78	0.35	9.05	4.62	2.99	1.26	2.06
0.13	2.61	0.21	11.89	3.83	1.29	0.40	0.91
0.22	4.42	0.41	20.51	5.56	3.02	1.20	1.88
0.77	13.93	1.90	68.13	19.54	14.89	6.50	10.07
0.23	5.28	0.26	23.14	7.35	1.75	0.38	0.71
0.16	3.68	0.18	16.15	4.37	1.22	0.32	0.48
0.03	0.79	0.04	3.48	0.92	0.27	0.08	0.11
0.15	3.37	0.18	14.88	3.82	1.16	0.33	0.52
0.03	0.39	0.10	2.03	1.47	0.49	0.15	0.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.23	-0.05	-5.43	-0.54	-0.18	-0.06	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.53	0.03	2.35	0.76	0.17	0.03	0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1479	-0.02	-0.50	-0.03	-2.24	-0.44	-0.13	-0.04	-0.08
1480	0.01	0.18	0.01	0.74	0.37	0.05	0.00	0.01
1481	0.01	0.20	0.01	0.85	0.39	0.06	0.00	0.01
1482	0.01	0.17	-0.01	0.34	2.53	0.26	-0.05	-0.05
1483	-0.09	-2.02	-0.15	-9.64	1.54	-1.76	-1.06	-0.53
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	0.09	1.80	0.21	8.49	2.94	0.90	0.26	1.05
1486	0.20	3.54	0.50	17.25	6.54	1.63	0.38	2.69
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	-0.01	-0.19	-0.01	-0.86	-0.17	-0.07	-0.03	-0.03
1491	-2.05	-43.46	-3.41	-201.28	-38.26	-40.98	-19.12	-13.75
1492	-0.17	-3.84	-0.24	-17.41	-2.90	-2.97	-1.37	-0.76
1493	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	-0.07	-1.69	-0.07	-7.45	-1.12	-0.31	-0.08	-0.09
1496	-0.01	-0.54	0.05	-2.04	0.39	0.23	0.09	0.48
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-0.64	-14.63	-0.77	-65.24	-12.59	-4.28	-1.34	-2.15
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-0.31	-6.99	-0.38	-31.23	-5.95	-2.11	-0.68	-1.06
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-0.20	-4.66	-0.25	-20.83	-3.97	-1.41	-0.46	-0.71
1537	-0.01	-0.21	-0.01	-0.97	0.04	-0.04	-0.02	0.00
1538	-0.07	-1.51	-0.09	-6.79	-1.08	-0.47	-0.17	-0.26
1539	-0.05	-1.25	-0.07	-5.67	-0.59	-0.40	-0.17	-0.19
1540	-0.02	-0.39	-0.05	-2.09	0.83	-0.27	-0.21	-0.25
1541	-0.10	-2.30	-0.16	-10.75	-0.07	-1.37	-0.73	-0.57
1542	0.01	0.28	0.00	1.07	1.03	0.07	-0.04	-0.04
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.22	5.21	0.23	22.59	7.35	1.35	0.17	0.51
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	-0.13	-2.86	-0.19	-13.03	-2.40	-2.46	-1.14	-0.65
1552	-0.05	-1.22	-0.05	-5.38	-0.79	-0.33	-0.12	-0.08
1553	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1554	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1555	-0.03	-0.92	0.01	-3.88	-0.01	0.03	0.02	0.25
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.02	-0.45	-0.03	-2.03	-0.36	-0.12	-0.04	-0.07
0.00	0.10	0.00	0.42	0.24	0.03	0.00	0.00
0.01	0.14	0.00	0.55	0.29	0.04	0.00	0.00
0.01	0.15	-0.01	0.27	2.49	0.26	-0.05	-0.06
-0.08	-1.79	-0.15	-8.68	1.91	-1.72	-1.07	-0.57
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	1.80	0.21	8.48	2.94	0.89	0.26	1.04
0.20	3.53	0.50	17.22	6.51	1.64	0.39	2.72
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.19	-0.01	-0.86	-0.17	-0.07	-0.03	-0.03
-2.10	-44.44	-3.49	-205.81	-39.46	-42.32	-19.73	-14.09
-0.17	-3.86	-0.24	-17.57	-2.95	-3.01	-1.40	-0.81
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.69	-0.07	-7.45	-1.12	-0.31	-0.08	-0.09
-0.01	-0.51	0.05	-1.92	0.42	0.25	0.10	0.50
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.55	-12.57	-0.68	-56.25	-9.67	-3.72	-1.26	-1.90
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.25	-5.62	-0.32	-25.27	-4.01	-1.76	-0.64	-0.93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.17	-3.75	-0.21	-16.85	-2.68	-1.17	-0.43	-0.62
-0.02	-0.53	-0.03	-2.35	-0.43	-0.13	-0.04	-0.06
-0.06	-1.39	-0.08	-6.30	-0.90	-0.45	-0.17	-0.27
-0.06	-1.31	-0.08	-5.96	-0.74	-0.44	-0.18	-0.24
-0.01	-0.10	-0.05	-0.88	1.31	-0.21	-0.21	-0.27
-0.09	-1.92	-0.16	-9.17	0.52	-1.30	-0.74	-0.60
0.01	0.27	0.00	1.02	1.01	0.07	-0.04	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.23	5.31	0.24	22.93	7.82	1.42	0.16	0.55
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.13	-2.88	-0.19	-13.15	-2.43	-2.51	-1.17	-0.69
-0.05	-1.24	-0.05	-5.47	-0.82	-0.34	-0.12	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.91	0.01	-3.82	0.01	0.04	0.02	0.27
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing								FWY/Toll or FWY/Toll with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.02	0.00	0.08	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	-0.01	-0.28	-0.01	-1.24	0.18	0.01	-0.01	-0.01	-0.01	-0.29	-0.01	-1.31	0.12	0.01	-0.01	-0.01
45	-0.01	-0.13	-0.01	-0.56	0.20	0.02	0.00	-0.01	0.00	-0.12	-0.01	-0.53	0.22	0.02	0.00	-0.01
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.02	0.00	0.09	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.10	-2.25	-0.13	-10.09	-0.49	-0.31	-0.13	-0.37	-0.11	-2.54	-0.14	-11.35	-1.62	-0.48	-0.14	-0.39
96	-0.14	-3.17	-0.18	-14.26	-0.50	-0.41	-0.18	-0.52	-0.16	-3.66	-0.20	-16.35	-2.41	-0.70	-0.19	-0.56
97	-0.03	-0.67	-0.03	-2.94	-0.64	-0.12	-0.01	-0.04	-0.03	-0.69	-0.03	-3.04	-0.72	-0.13	-0.01	-0.04
98	-0.03	-0.61	-0.02	-2.69	0.02	-0.01	-0.01	-0.01	-0.02	-0.60	-0.02	-2.64	0.06	-0.01	-0.01	-0.01
99	0.00	-0.11	0.00	-0.48	0.32	0.04	0.00	0.00	-0.01	-0.14	-0.01	-0.62	0.20	0.02	0.00	-0.01
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-0.45	-10.31	-0.56	-46.39	6.62	-1.06	-1.07	-1.55	-0.65	-14.18	-0.97	-64.65	-6.09	-3.95	-1.63	-3.58
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-0.04	-1.05	-0.05	-4.70	2.33	0.17	-0.09	-0.09	-0.09	-1.92	-0.13	-8.71	-1.36	-0.46	-0.14	-0.47
107	-0.22	-5.44	-0.17	-24.20	19.77	1.84	-0.50	0.15	-0.54	-11.88	-0.75	-53.61	-7.28	-2.73	-0.91	-2.61
108	-0.46	-9.96	-0.71	-46.16	9.98	-1.48	-1.55	-2.62	-0.54	-11.66	-0.84	-53.92	5.72	-2.39	-1.70	-3.11
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-0.37	-8.55	-0.44	-38.31	0.32	-1.65	-0.88	-1.11	-0.64	-13.84	-0.97	-62.99	-12.86	-5.17	-1.79	-3.65
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	-0.04	-0.88	-0.03	-3.90	0.48	0.03	-0.02	-0.03	-0.04	-0.92	-0.03	-4.08	0.29	0.01	-0.02	-0.02
147	-0.07	-1.49	-0.08	-6.71	-0.47	-0.23	-0.09	-0.24	-0.08	-1.72	-0.09	-7.69	-1.19	-0.34	-0.09	-0.26
148	-0.17	-3.92	-0.20	-17.51	-1.24	-0.56	-0.21	-0.52	-0.19	-4.48	-0.23	-19.92	-2.93	-0.82	-0.22	-0.57
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-0.06	-1.32	-0.08	-5.95	-0.45	-0.22	-0.09	-0.23	-0.06	-1.42	-0.08	-6.36	-0.74	-0.27	-0.09	-0.24
151	-0.02	-0.43	-0.03	-1.95	0.02	-0.05	-0.03	-0.08	-0.02	-0.49	-0.03	-2.18	-0.18	-0.08	-0.03	-0.08
152	0.02	0.40	0.01	1.68	1.25	0.19	0.00	0.02	0.00	0.11	0.00	0.48	0.37	0.05	0.00	0.00
153	-0.25	-5.74	-0.33	-25.70	-2.22	-1.21	-0.49	-1.02	-0.27	-5.69	-0.42	-26.11	-2.37	-1.58	-0.67	-1.66
154	-0.16	-3.70	-0.21	-16.56	-1.34	-0.81	-0.34	-0.64	-0.18	-3.76	-0.28	-17.21	-1.79	-1.11	-0.46	-1.08
155	-0.07	-1.58	-0.09	-7.19	1.97	0.00	-0.15	-0.26	-0.12	-2.49	-0.18	-11.36	-1.49	-0.69	-0.26	-0.70
156	-0.23	-5.30	-0.29	-23.94	3.58	-0.41	-0.50	-0.84	-0.34	-7.24	-0.53	-33.15	-3.49	-1.99	-0.81	-2.09
157	-0.16	-3.58	-0.19	-16.16	3.00	-0.26	-0.37	-0.51	-0.23	-5.00	-0.37	-22.90	-2.17	-1.41	-0.59	-1.42
158	-0.12	-2.65	-0.15	-11.96	1.39	-0.24	-0.24	-0.43	-0.16	-3.55	-0.26	-16.21	-1.87	-0.97	-0.38	-1.01
159	-0.15	-3.79	-0.12	-16.86	13.66	1.26	-0.35	0.10	-0.37	-8.20	-0.52	-37.03	-4.90	-1.89	-0.64	-1.83
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.02	-0.37	-0.02	-1.65	-0.09	-0.04	-0.01	-0.02	-0.02	-0.42	-0.02	-1.84	-0.21	-0.06	-0.01	-0.03
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-0.88	-20.93	-0.88	-92.12	-10.01	-2.74	-0.72	-1.48	-0.95	-21.89	-1.10	-97.30	-14.12	-3.79	-0.97	-2.81
202	-0.07	-1.54	-0.08	-6.92	-0.18	-0.19	-0.09	-0.24	-0.08	-1.88	-0.10	-8.36	-1.38	-0.37	-0.09	-0.27
203	-0.09	-2.06	-0.09	-9.17	-0.08	-0.14	-0.07	-0.17	-0.09	-2.23	-0.10	-9.87	-0.64	-0.22	-0.07	-0.18
204	-0.03	-0.69	-0.03	-3.08	0.49	0.05	-0.01	-0.02	-0.03	-0.69	-0.03	-3.08	0.49	0.05	-0.01	-0.02
205	-0.26	-5.88	-0.35	-26.47	-1.36	-1.06	-0.47	-1.10	-0.29	-6.30	-0.45	-28.76	-3.13	-1.61	-0.63	-1.74
206	-0.38	-8.63	-0.51	-38.75	-3.63	-1.67	-0.62	-1.60	-0.42	-9.15	-0.63	-41.54	-5.78	-2.32	-0.81	-2.36
207	-0.18	-4.05	-0.24	-18.18	-1.85	-0.81	-0.30	-0.76	-0.20	-4.24	-0.30	-19.26	-2.64	-1.10	-0.39	-1.13
208	-0.24	-5.45	-0.29	-24.36	-1.08	-0.79	-0.35	-0.80	-0.25	-5.54	-0.36	-25.12	-1.54	-1.08	-0.47	-1.26
209	-0.20	-4.58	-0.26	-20.59	-1.20	-0.81	-0.35	-0.80	-0.22	-4.84	-0.35	-22.06	-2.28	-1.21	-0.48	-1.32
210	0.00	-0.02	0.00	-0.08	0.14	0.02	0.00	0.00	0.00	-0.05	0.00	-0.22	0.05	0.01	0.00	0.00
211	0.04	0.96	0.05	4.08	5.45	0.78	0.02	0.17	-0.08	-1.80	-0.09	-8.04	-1.12	-0.41	-0.14	-0.23
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	-0.01	-0.21	-0.01	-0.92	-0.08	-0.02	0.00	-0.01	-0.01	-0.21	-0.01	-0.91	-0.08	-0.02	0.00	-0.01
222	-0.01	-0.35	-0.01	-1.57	0.01	-0.02	-0.01	-0.02	-0.01	-0.35	-0.01	-1.54	0.02	-0.02	-0.01	-0.02
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	-0.07	-1.66	-0.07	-7.37	0.30	-0.04	-0.05	-0.12	-0.07	-1.66	-0.07	-7.38	0.29	-0.05	-0.05	-0.12
260	-0.01	-0.19	-0.01	-0.84	0.02	-0.02	-0.01	-0.02	-0.01	-0.17	-0.01	-0.76	0.07	-0.01	-0.01	-0.02
261	0.01	0.14	0.00	0.60	0.64	0.09	0.00	0.00	0.01	0.14	0.00	0.60	0.64	0.09	0.00	0.00
262	-0.37	-8.74	-0.37	-38.54	-3.91	-1.16	-0.33	-0.63	-0.39	-8.92	-0.45	-39.75	-4.91	-1.51	-0.45	-1.11
263	-0.26	-6.29	-0.26	-27.64	-3.66	-0.92	-0.22	-0.40	-0.28	-6.40	-0.32	-28.43	-4.22	-1.18	-0.32	-0.78
264	-0.28	-6.69	-0.28	-29.52	-1.94	-0.79	-0.28	-0.43	-0.31	-7.01	-0.36	-31.31	-3.05	-1.20	-0.41	-0.93
265	-0.32	-7.23	-0.37	-32.33	-1.46	-1.11	-0.49	-0.98	-0.34	-7.48	-0.47	-33.85	-2.63	-1.56	-0.65	-1.58
266	-0.14	-3.34	-0.14	-14.74	-1.15	-0.32	-0.09	-0.21	-0.15	-3.44	-0.14	-15.19	-1.55	-0.38	-0.09	-0.21
267	-0.22	-5.19	-0.21	-22.85	-3.19	-0.68	-0.13	-0.31	-0.22	-5.33	-0.22	-23.42	-3.75	-0.76	-0.13	-0.32
268	-0.15	-3.53	-0.14	-15.56	-2.06	-0.43	-0.08	-0.19	-0.15	-3.55	-0.14	-15.61	-2.10	-0.44	-0.08	-0.19
269	-0.04	-0.91	-0.04	-4.04	-0.14	-0.08	-0.03	-0.09	-0.04	-0.92	-0.04	-4.08	-0.17	-0.09	-0.03	-0.09
270	-0.03	-0.75	-0.04	-3.32	-0.34	-0.11	-0.03	-0.09	-0.03	-0.81	-0.04	-3.58	-0.54	-0.14	-0.03	-0.09
271	-0.04	-0.88	-0.04	-3.91	-0.74	-0.17	-0.03	-0.09	-0.04	-0.91	-0.04	-4.01	-0.82	-0.18	-0.03	-0.09
272	-0.03	-0.73	-0.03	-3.24	-0.61	-0.14	-0.03	-0.08	-0.03	-0.76	-0.04	-3.33	-0.67	-0.15	-0.03	-0.08
273	-0.02	-0.47	-0.02	-2.11	0.38	0.02	-0.02	-0.02	-0.03	-0.78	-0.04	-3.44	-0.61	-0.14	-0.03	-0.08
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	0.01	0.23	0.00	0.88	2.59	0.32	-0.03	-0.01	-0.03	-0.77	-0.05	-3.47	-0.41	-0.19	-0.07	-0.17
276	-0.05	-1.15	-0.06	-5.33	4.05	0.40	-0.10	-0.15	-0.10	-2.28	-0.11	-10.16	0.27	-0.18	-0.12	-0.25
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	-0.01	-0.24	-0.02	-1.32	5.64	0.76	-0.02	-0.02	0.00	-0.09	-0.01	-0.67	6.30	0.85	-0.02	-0.01
320	-0.40	-9.32	-0.46	-41.88	2.83	-0.91	-0.69	-1.07	-0.40	-9.45	-0.41	-42.15	3.03	-0.65	-0.57	-0.69
321	-0.15	-3.47	-0.15	-15.49	1.88	0.10	-0.10	-0.21	-0.16	-3.80	-0.16	-16.88	0.73	-0.07	-0.10	-0.23
322	-0.17	-4.14	-0.16	-18.31	-0.07	-0.16	-0.09	-0.20	-0.19	-4.43	-0.17	-19.53	-0.97	-0.30	-0.09	-0.21
323	-0.35	-8.28	-0.35	-36.61	-2.58	-0.79	-0.24	-0.58	-0.35	-8.35	-0.35	-36.91	-2.81	-0.83	-0.24	-0.58
324	-0.27	-6.47	-0.23	-28.37	-2.51	-0.51	-0.08	-0.17	-0.28	-6.76	-0.24	-29.61	-3.53	-0.66	-0.09	-0.18
325	-0.66	-15.63	-0.69	-69.10	-8.15	-2.21	-0.57	-1.28	-0.65	-15.41	-0.67	-68.10	-7.50	-2.07	-0.55	-1.20
326	-0.13	-3.11	-0.12	-13.73	-0.26	-0.14	-0.06	-0.13	-0.13	-3.12	-0.12	-13.77	-0.29	-0.14	-0.06	-0.13
327	-0.02	-0.58	-0.02	-2.60	0.53	0.05	-0.01	-0.03	-0.02	-0.56	-0.02	-2.49	0.61	0.06	-0.01	-0.03
328	0.00	-0.10	0.00	-0.47	0.38	0.05	0.00	-0.01	0.00	-0.10	0.00	-0.45	0.39	0.05	0.00	-0.01
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.10	-2.43	-0.09	-10.73	-0.49	-0.15	-0.05	-0.10	-0.10	-2.46	-0.09	-10.85	-0.59	-0.17	-0.05	-0.10
331	-0.04	-1.00	-0.04	-4.39	-0.14	-0.05	-0.02	-0.03	-0.04	-1.06	-0.04	-4.68	-0.36	-0.08	-0.02	-0.04
332	-0.01	-0.26	-0.01	-1.17	0.03	0.00	-0.01	-0.01	-0.01	-0.33	-0.01	-1.45	-0.17	-0.03	-0.01	-0.01
333	0.00	-0.12	0.00	-0.60	2.72	0.38	0.00	0.03	-0.07	-1.62	-0.08	-7.18	-1.24	-0.32	-0.08	-0.21
334	-0.04	-0.98	-0.05	-4.36	-0.56	-0.16	-0.04	-0.11	-0.04	-0.84	-0.04	-3.73	-0.11	-0.09	-0.04	-0.09
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
336	-0.01	-0.17	-0.02	-0.82	0.60	0.01	-0.04	-0.10
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-0.05	-1.15	-0.05	-5.02	-1.18	-0.22	-0.03	-0.07
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.01	0.21	0.01	0.85	1.28	0.18	0.00	0.00
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	-0.76	-17.70	-0.84	-78.98	-5.61	-3.04	-1.20	-1.87
382	-0.37	-8.85	-0.32	-38.91	-3.04	-0.67	-0.14	-0.28
383	-0.37	-8.94	-0.33	-39.12	-5.56	-1.02	-0.13	-0.29
384	-0.42	-9.98	-0.39	-43.80	-6.07	-1.23	-0.21	-0.47
385	-0.31	-7.60	-0.28	-33.30	-3.67	-0.72	-0.12	-0.23
386	-0.49	-11.66	-0.51	-51.46	-7.57	-1.81	-0.40	-0.93
387	-0.21	-5.05	-0.18	-22.08	-2.62	-0.48	-0.06	-0.11
388	-0.04	-0.89	-0.03	-3.96	0.52	0.05	-0.01	-0.02
389	-0.04	-0.85	-0.04	-3.78	0.23	-0.02	-0.03	-0.08
390	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
391	-0.05	-1.16	-0.05	-5.13	-0.67	-0.16	-0.04	-0.09
392	-0.04	-0.90	-0.03	-3.98	0.40	0.04	-0.01	-0.02
393	-0.01	-0.11	-0.01	-0.52	0.05	0.00	-0.01	-0.02
394	0.02	0.51	0.02	2.12	4.42	0.64	0.00	0.04
395	-0.01	-0.23	-0.01	-1.01	0.03	-0.01	-0.01	-0.02
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.01	0.34	0.01	1.46	1.12	0.17	0.00	0.02
399	-0.08	-1.82	-0.07	-7.98	-1.88	-0.35	-0.04	-0.12
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	0.00	-0.12	0.00	-0.52	-0.04	-0.01	0.00	0.00
403	0.00	-0.06	0.00	-0.25	-0.04	-0.01	0.00	0.00
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	0.00	0.03	0.00	0.14	0.17	0.03	0.00	0.01
406	0.00	-0.04	0.00	-0.17	0.00	0.00	0.00	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-0.18	-4.33	-0.16	-19.12	0.13	-0.11	-0.07	-0.14
440	-0.13	-3.16	-0.12	-14.03	1.05	0.03	-0.07	-0.13
441	-0.78	-18.28	-0.85	-81.41	-2.71	-2.22	-0.99	-1.78
442	-0.80	-18.93	-0.78	-83.29	-13.04	-2.78	-0.52	-1.23
443	-0.65	-15.35	-0.64	-67.63	-10.36	-2.29	-0.46	-1.08
444	-0.56	-13.10	-0.57	-57.79	-8.33	-1.96	-0.43	-1.06
445	-0.38	-8.88	-0.40	-39.39	-3.00	-1.05	-0.34	-0.77
446	-0.25	-5.87	-0.27	-26.06	-2.00	-0.74	-0.25	-0.56
447	-0.10	-2.33	-0.09	-10.27	-0.11	-0.12	-0.06	-0.08
448	-0.08	-1.86	-0.07	-8.16	-1.59	-0.29	-0.04	-0.09
449	-0.15	-3.61	-0.15	-15.89	-2.98	-0.59	-0.09	-0.24
450	0.18	4.04	0.21	17.56	12.60	2.23	0.26	0.59
451	-0.01	-0.32	0.03	-1.39	5.68	0.93	0.07	0.30
452	0.02	0.26	0.04	1.16	4.76	0.80	0.07	0.26
453	-0.14	-3.29	-0.16	-14.56	-3.11	-0.69	-0.14	-0.36
454	0.15	3.42	0.21	15.12	11.13	2.00	0.23	0.73
455	-0.06	-1.51	-0.04	-6.59	0.48	0.05	-0.01	0.05
456	-0.06	-1.43	-0.05	-6.29	-0.43	-0.10	-0.02	-0.04
457	-0.11	-2.93	-0.06	-12.72	2.13	0.34	0.02	0.25
458	-0.01	-0.18	-0.01	-0.90	2.00	0.28	0.00	0.01
459	-0.06	-1.50	-0.03	-6.49	1.40	0.21	0.01	0.15
460	0.00	-0.02	0.00	-0.08	0.00	0.00	0.00	0.00
461	-0.02	-0.46	0.01	-1.97	1.56	0.24	0.01	0.15
462	0.00	0.02	0.00	0.10	0.09	0.02	0.00	0.00
463	0.03	0.60	0.05	2.71	2.36	0.44	0.06	0.22
464	-0.05	-1.15	-0.02	-5.06	1.19	0.11	-0.03	0.10
465	0.00	-0.09	0.00	-0.40	-0.06	-0.01	0.00	0.00
466	-0.02	-0.63	0.00	-2.73	1.71	0.18	-0.03	0.13
467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	-0.29	-6.91	-0.25	-30.34	-2.97	-0.59	-0.10	-0.20
499	-0.37	-8.94	-0.31	-39.40	0.97	0.01	-0.08	-0.14
500	-1.79	-41.99	-1.90	-186.58	-22.92	-7.76	-2.44	-3.79
501	-0.07	-1.69	-0.10	-8.09	9.48	1.22	-0.07	-0.24
502	0.11	2.63	0.09	11.05	10.95	1.68	0.07	0.10
503	0.12	2.83	0.10	12.05	10.66	1.66	0.09	0.12
504	-0.06	-1.40	-0.06	-6.59	9.71	1.23	-0.08	-0.05
505	0.06	1.25	0.08	5.42	7.40	1.21	0.08	0.35
506	-0.09	-2.21	-0.09	-9.73	-0.86	-0.25	-0.07	-0.13
507	0.27	6.37	0.30	27.75	15.11	2.69	0.30	0.76
508	-0.03	-0.61	-0.03	-2.69	-0.65	-0.15	-0.03	-0.08
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.01	-0.31	-0.01	-1.36	-0.14	-0.02	0.00	0.00
511	0.00	-0.07	0.00	-0.32	0.29	0.03	0.00	-0.01
512	-0.03	-0.76	-0.04	-3.39	-0.73	-0.19	-0.05	-0.13
513	0.00	-0.04	0.00	-0.20	0.05	0.01	0.00	0.00
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.00	0.00	0.00	-0.01	0.04	0.01	0.00	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	-0.11	-2.75	-0.10	-12.05	-1.86	-0.35	-0.05	-0.12
518	-0.03	-0.80	-0.03	-3.52	-0.47	-0.09	-0.01	-0.03
519	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
520	0.00	0.01	0.00	0.05	0.03	0.00	0.00	0.00
521	0.00	-0.04	0.00	-0.19	-0.02	0.00	0.00	0.00
522	0.00	-0.05	0.00	-0.25	0.10	0.01	0.00	0.00
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	0.00	-0.07	0.00	-0.33	0.12	0.01	0.00	0.00
525	0.04	0.91	0.06	4.06	2.91	0.54	0.07	0.26
526	0.05	0.92	0.10	4.04	10.95	1.68	0.06	0.57
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	-0.05	-1.28	-0.05	-5.61	-0.32	-0.08	-0.02	-0.03
558	-1.18	-27.75	-1.24	-123.53	-8.07	-4.33	-1.71	-2.36
559	-0.07	-1.77	-0.07	-7.79	-0.04	-0.06	-0.03	-0.06
560	-0.70	-16.35	-0.74	-72.16	-12.91	-2.96	-0.62	-1.54
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.04	0.80	0.05	3.49	2.58	0.44	0.04	0.15
563	-0.01	-0.23	-0.01	-1.01	-0.23	-0.05	-0.01	-0.02
564	-0.02	-0.58	-0.02	-2.53	-0.59	-0.11	-0.02	-0.05
565	-0.08	-1.85	-0.08	-8.16	-0.64	-0.20	-0.06	-0.11
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.00	0.05	0.01	0.22	0.60	0.10	0.01	0.04
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.02	-0.57	-0.02	-2.47	-0.51	-0.09	-0.01	-0.02
570	-0.04	-0.94	-0.05	-4.18	-0.73	-0.19	-0.05	-0.13
571	-0.04	-0.90	-0.05	-4.00	-0.57	-0.17	-0.05	-0.12
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.04	-1.10	-0.04	-4.79	-0.05	-0.03	-0.01	-0.01
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.09	-2.25	-0.08	-9.83	-1.10	-0.20	-0.02	-0.04
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.01	-0.34	-0.01	-1.48	-0.13	-0.03	-0.01	-0.01
578	-0.02	-0.47	-0.02	-2.09	0.13	0.00	-0.01	-0.02
579	-0.04	-0.88	-0.03	-3.91	0.29	-0.02	-0.03	-0.03
580	-0.02	-0.42	-0.02	-1.86	0.25	0.01	-0.01	-0.01
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-0.05	-1.21	-0.05	-5.45	1.08	0.04	-0.06	-0.06
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	0.03	0.72	0.04	3.03	7.02	0.96	-0.02	0.19
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	-0.08	-1.96	-0.07	-8.62	-0.65	-0.15	-0.03	-0.06
598	-0.89	-20.93	-0.92	-92.92	-6.80	-3.21	-1.20	-1.66
599	-0.07	-1.74	-0.06	-7.56	-1.83	-0.30	-0.02	-0.05
600	-0.01	-0.32	-0.01	-1.40	-0.33	-0.06	0.00	-0.01
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.02	-0.53	-0.04	-2.41	-0.43	-0.17	-0.06	-0.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-1.01	-0.04	-4.42	-0.76	-0.14	-0.02	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.22	0.01	0.89	1.31	0.18	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.71	-16.82	-0.69	-74.40	-3.12	-2.03	-0.83	-0.98
-0.37	-8.91	-0.33	-39.16	-3.23	-0.69	-0.14	-0.28
-0.38	-9.12	-0.33	-39.90	-6.14	-1.11	-0.14	-0.30
-0.42	-10.16	-0.39	-44.57	-6.77	-1.33	-0.21	-0.48
-0.32	-7.79	-0.28	-34.10	-4.40	-0.83	-0.12	-0.24
-0.48	-11.45	-0.49	-50.51	-7.00	-1.69	-0.38	-0.86
-0.21	-5.01	-0.18	-21.94	-2.52	-0.46	-0.06	-0.11
-0.04	-0.86	-0.03	-3.84	0.62	0.07	-0.01	-0.02
-0.04	-0.86	-0.04	-3.84	0.18	-0.03	-0.03	-0.08
0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
-0.05	-1.11	-0.05	-4.90	-0.50	-0.13	-0.03	-0.09
-0.03	-0.82	-0.03	-3.65	0.66	0.07	-0.01	-0.02
-0.01	-0.13	-0.01	-0.60	-0.01	-0.01	-0.01	-0.02
-0.08	-1.72	-0.10	-7.72	-1.38	-0.41	-0.12	-0.32
-0.01	-0.26	-0.01	-1.16	-0.08	-0.02	-0.01	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.27	0.01	1.15	0.88	0.13	0.00	0.01
-0.07	-1.61	-0.06	-7.05	-1.19	-0.22	-0.03	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.17	-0.01	-0.75	-0.19	-0.03	0.00	-0.01
0.00	-0.06	0.00	-0.28	-0.06	-0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.03	0.00	-0.14	0.01	0.00	0.00	0.00
0.00	-0.04	0.00	-0.17	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.18	-4.28	-0.16	-18.91	0.38	-0.07	-0.07	-0.14
-0.12	-3.00	-0.12	-13.34	1.67	0.12	-0.07	-0.12
-0.72	-17.07	-0.74	-75.76	-0.12	-1.41	-0.74	-1.26
-0.78	-18.62	-0.77	-81.92	-12.45	-2.67	-0.51	-1.20
-0.64	-15.14	-0.63	-66.70	-9.80	-2.19	-0.45	-1.05
-0.55	-12.93	-0.56	-57.05	-7.97	-1.89	-0.42	-1.04
-0.38	-8.90	-0.39	-39.40	-3.34	-1.08	-0.33	-0.75
-0.27	-6.30	-0.28	-27.89	-3.43	-0.95	-0.25	-0.57
-0.07	-1.63	-0.06	-7.25	2.15	0.24	-0.04	-0.01
-0.08	-1.84	-0.07	-8.07	-1.52	-0.28	-0.04	-0.09
-0.11	-2.69	-0.09	-11.77	-0.84	-0.14	-0.01	-0.04
0.37	8.08	0.56	36.04	22.81	4.83	0.87	2.19
-0.04	-1.11	-0.02	-4.87	2.60	0.49	0.07	0.15
1.01	22.22	1.42	99.12	53.86	11.46	2.12	5.15
-0.14	-3.35	-0.16	-14.80	-3.30	-0.72	-0.14	-0.38
-0.05	-1.17	-0.05	-5.15	-1.17	-0.24	-0.04	-0.10
0.08	1.58	0.14	7.13	6.84	1.48	0.28	0.65
-0.06	-1.44	-0.05	-6.34	-0.46	-0.11	-0.02	-0.05
0.63	13.82	0.88	61.44	35.07	7.72	1.51	3.22
-0.01	-0.25	-0.01	-1.19	1.82	0.25	-0.01	0.00
0.11	2.48	0.17	10.98	7.96	1.78	0.35	0.68
0.00	-0.03	0.00	-0.12	-0.03	-0.01	0.00	0.00
0.91	20.45	1.19	90.57	44.02	9.49	1.79	3.90
0.00	-0.01	0.00	-0.06	-0.01	0.00	0.00	0.00
0.18	4.02	0.23	17.81	8.68	1.86	0.35	0.75
-0.12	-2.69	-0.13	-11.93	-2.68	-0.69	-0.17	-0.29
0.69	15.38	0.90	68.34	32.92	7.05	1.33	2.97
0.10	2.26	0.14	10.00	6.72	1.34	0.22	0.54
0.90	20.18	1.18	89.51	43.87	9.27	1.67	3.87
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.29	-6.92	-0.25	-30.38	-3.00	-0.60	-0.10	-0.20
-0.35	-8.40	-0.29	-37.03	2.45	0.27	-0.05	-0.08
-1.79	-42.16	-1.86	-186.88	-22.18	-7.52	-2.33	-3.47
0.02	0.20	0.09	0.83	14.13	2.57	0.33	0.67
0.18	3.99	0.25	17.59	14.54	2.80	0.42	0.93
0.20	4.32	0.28	19.07	15.38	2.98	0.45	1.03
-0.19	-4.37	-0.21	-19.38	-2.04	-0.53	-0.13	-0.46
0.46	10.37	0.61	45.95	25.13	5.19	0.91	2.06
-0.01	-0.44	0.01	-1.89	3.40	0.59	0.06	0.18
0.48	10.62	0.67	47.20	25.44	5.32	0.94	2.38
-0.03	-0.58	-0.03	-2.59	-0.58	-0.14	-0.03	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.34	-0.01	-1.47	-0.21	-0.04	0.00	0.00
-0.01	-0.13	-0.01	-0.59	0.11	0.00	-0.01	-0.01
-0.03	-0.74	-0.04	-3.29	-0.65	-0.18	-0.05	-0.13
0.00	-0.04	0.00	-0.17	0.07	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.00	0.07	0.10	0.01	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.45	-0.09	-10.77	-0.86	-0.20	-0.04	-0.11
-0.04	-0.99	-0.04	-4.31	-1.07	-0.18	-0.01	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.05	0.00	-0.22	-0.04	-0.01	0.00	0.00
0.01	0.33	0.01	1.39	1.11	0.16	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.16	-0.01	-0.70	-0.16	-0.03	0.00	-0.01
0.01	0.36	0.01	1.54	0.94	0.14	0.01	0.02
-0.17	-4.00	-0.18	-17.69	-3.45	-0.87	-0.20	-0.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.30	-0.05	-5.69	-0.38	-0.08	-0.02	-0.04
-1.14	-26.93	-1.17	-119.71	-5.57	-3.82	-1.60	-2.07
-0.07	-1.77	-0.07	-7.81	-0.04	-0.06	-0.03	-0.05
-0.69	-16.20	-0.73	-71.53	-12.19	-2.86	-0.61	-1.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.79	0.05	3.48	2.58	0.44	0.04	0.15
-0.01	-0.24	-0.01	-1.06	-0.27	-0.05	-0.01	-0.02
-0.03	-0.60	-0.03	-2.62	-0.65	-0.12	-0.02	-0.05
-0.07	-1.77	-0.07	-7.85	-0.37	-0.17	-0.06	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.03	0.00	0.10	0.53	0.08	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.52	-0.02	-2.26	-0.36	-0.07	-0.01	-0.02
-0.04	-1.02	-0.05	-4.53	-0.99	-0.23	-0.05	-0.14
-0.04	-0.91	-0.05	-4.05	-0.60	-0.17	-0.05	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.59	-0.06	-6.92	-1.44	-0.25	-0.03	-0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-2.60	-0.09	-11.31	-2.19	-0.37	-0.03	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.45	-0.02	-1.95	-0.47	-0.08	-0.01	-0.02
-0.03	-0.73	-0.03	-3.19	-0.71	-0.13	-0.02	-0.04
-0.06	-1.54	-0.06	-6.77	-1.33	-0.28	-0.05	-0.08
-0.03	-0.74	-0.03	-3.24	-0.64	-0.14	-0.02	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.41	-0.10	-10.67	-2.00	-0.46	-0.10	-0.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.08	-0.05	-4.81	-0.57	-0.18	-0.05	-0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.08	-1.95	-0.07	-8.57	-0.61	-0.14	-0.03	-0.06
-0.88	-20.78	-0.87	-92.10	-5.03	-2.82	-1.14	-1.39
-0.07	-1.74	-0.06	-7.58	-1.85	-0.30	-0.02	-0.05
-0.01	-0.32	-0.01	-1.41	-0.34	-0.06	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	-0.09	-2.25	-0.09	-9.93	-0.87	-0.26	-0.07	-0.13
606	-0.02	-0.42	-0.02	-1.83	-0.47	-0.08	-0.01	-0.02
1001	-0.06	-1.39	-0.05	-6.12	0.70	0.03	-0.04	-0.03
1002	0.00	-0.11	0.00	-0.49	0.47	0.06	0.00	0.01
1003	0.01	0.19	0.01	0.81	0.49	0.08	0.01	0.02
1004	0.00	0.10	0.00	0.42	0.23	0.04	0.00	0.01
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	0.00	0.00	0.00	0.01	0.09	0.01	0.00	0.01
1012	-0.01	-0.32	-0.01	-1.40	0.31	0.03	-0.01	-0.01
1013	-0.02	-0.47	-0.02	-2.09	0.43	0.04	-0.01	0.00
1014	-0.01	-0.29	-0.02	-1.33	0.04	-0.09	-0.05	-0.06
1015	-0.06	-1.49	-0.07	-6.67	0.95	-0.11	-0.13	-0.14
1016	-0.01	-0.29	-0.01	-1.29	0.82	0.10	-0.01	0.03
1017	-0.02	-0.61	-0.02	-2.65	-0.12	-0.04	-0.01	-0.01
1018	0.03	0.62	0.03	2.69	1.52	0.25	0.02	0.06
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.07	-1.76	-0.06	-7.75	0.00	-0.09	-0.05	-0.05
1021	-0.17	-4.11	-0.17	-18.11	-2.10	-0.61	-0.17	-0.24
1022	0.07	1.58	0.07	6.84	4.58	0.73	0.04	0.18
1023	-0.11	-2.70	-0.10	-11.87	-0.21	-0.19	-0.09	-0.11
1024	-0.13	-3.21	-0.13	-14.34	2.90	0.16	-0.14	-0.15
1025	-0.19	-3.76	-0.39	-18.19	3.59	-2.18	-1.45	-1.81
1026	-0.13	-3.21	-0.12	-14.14	0.25	-0.15	-0.10	-0.13
1027	-0.15	-3.65	-0.13	-16.05	0.47	-0.15	-0.12	-0.10
1028	-2.25	-51.36	-2.77	-230.25	-28.75	-24.80	-11.16	-7.68
1029	-1.90	-43.77	-2.24	-195.17	-24.91	-14.59	-5.96	-5.81
1030	-0.70	-16.39	-0.72	-72.46	-6.82	-2.66	-0.92	-1.39
1031	-0.55	-12.93	-0.57	-57.17	-5.19	-2.03	-0.71	-1.11
1032	-1.24	-29.48	-1.21	-129.37	-20.43	-4.78	-1.03	-1.95
1033	-1.68	-40.13	-1.54	-175.54	-26.37	-5.63	-1.05	-1.92
1034	-0.97	-23.05	-0.92	-101.11	-13.13	-3.27	-0.78	-1.32
1035	-0.27	-6.36	-0.28	-28.06	-3.20	-1.11	-0.35	-0.51
1036	-0.36	-8.52	-0.36	-37.54	-3.98	-1.32	-0.41	-0.58
1037	-0.44	-10.45	-0.43	-45.89	-6.85	-1.71	-0.40	-0.67
1038	-0.20	-4.81	-0.21	-21.31	-0.98	-0.70	-0.31	-0.40
1039	-0.10	-2.46	-0.11	-10.86	-1.11	-0.43	-0.15	-0.21
1040	-0.09	-2.24	-0.10	-9.92	0.05	-0.25	-0.14	-0.18
1041	-0.16	-3.64	-0.16	-16.13	-1.26	-0.63	-0.24	-0.33
1042	-0.14	-3.35	-0.15	-14.87	-0.87	-0.59	-0.25	-0.30
1043	-0.30	-7.12	-0.33	-31.56	-2.96	-1.46	-0.56	-0.71
1059	0.00	-0.03	0.00	-0.12	0.00	0.00	0.00	0.00
1060	0.00	-0.07	0.00	-0.31	0.09	0.01	0.00	0.00
1061	-0.01	-0.15	-0.01	-0.68	0.13	0.01	-0.01	-0.01
1062	-0.01	-0.25	-0.02	-1.15	0.00	-0.10	-0.05	-0.05
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	-0.09	-2.21	-0.08	-9.69	-0.75	-0.20	-0.05	-0.06
1066	-0.10	-2.41	-0.09	-10.58	-0.64	-0.21	-0.07	-0.12
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-0.08	-1.86	-0.08	-8.23	-0.62	-0.35	-0.15	-0.17
1069	0.04	0.98	0.04	4.29	2.23	0.39	0.04	0.10
1070	0.11	2.50	0.12	10.79	7.99	1.28	0.07	0.32
1071	0.08	2.02	0.06	8.51	7.54	1.07	0.00	0.04
1072	0.09	2.20	0.09	9.54	5.22	0.86	0.07	0.19
1073	-0.11	-2.27	-0.22	-10.78	0.78	-1.58	-0.91	-0.99
1074	-0.02	-0.55	-0.01	-2.48	2.94	0.40	-0.01	0.06
1075	-0.21	-5.11	-0.18	-22.47	1.56	-0.06	-0.15	-0.10
1076	-0.34	-8.30	-0.26	-36.16	-1.85	-0.46	-0.11	0.02
1077	-4.13	-87.98	-6.76	-405.96	-67.01	-69.97	-32.50	-26.93
1078	-0.32	-7.65	-0.28	-33.55	-0.87	-0.64	-0.28	-0.22
1079	-0.33	-7.89	-0.29	-34.58	-2.46	-0.86	-0.28	-0.28
1080	-0.57	-13.69	-0.51	-59.86	-8.36	-1.97	-0.42	-0.55
1081	-0.77	-18.54	-0.68	-80.89	-10.94	-2.05	-0.28	-0.62
1082	0.01	0.13	0.00	0.52	1.53	0.21	-0.01	0.01
1083	-0.26	-6.33	-0.24	-27.74	-2.67	-0.63	-0.14	-0.26
1084	-0.16	-3.84	-0.14	-16.83	-1.46	-0.37	-0.09	-0.12
1085	-0.24	-5.78	-0.21	-25.30	-2.33	-0.55	-0.12	-0.20
1086	-0.13	-3.11	-0.13	-13.68	-1.71	-0.47	-0.12	-0.20
1087	-0.20	-4.84	-0.19	-21.37	1.31	-0.15	-0.18	-0.22
1088	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1089	-0.22	-5.01	-0.24	-22.21	-4.21	-1.40	-0.44	-0.58
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.00	-0.01	0.00	-0.05	0.05	0.01	0.00	0.00
1114	-0.29	-6.85	-0.31	-30.41	-0.68	-3.55	-1.86	-0.64
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	-0.02	-0.53	-0.03	-2.41	0.03	-0.15	-0.08	-0.10
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	-0.04	-1.00	-0.04	-4.38	-0.11	-0.08	-0.03	-0.05
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.04	1.00	0.05	4.35	2.50	0.43	0.04	0.13
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.09	2.13	0.07	8.99	7.45	1.07	0.01	0.04
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	-0.17	-3.52	-0.34	-16.77	1.28	-2.00	-1.17	-1.54
1128	-0.01	-0.28	-0.01	-1.26	0.68	0.08	-0.01	-0.01
1129	-0.06	-1.56	-0.06	-6.91	1.04	0.01	-0.08	-0.04
1130	-0.23	-5.72	-0.15	-24.71	-1.99	-0.31	-0.02	0.19
1131	-0.07	-1.98	-0.01	-8.35	0.61	0.22	0.07	0.39
1132	0.06	-2.08	0.97	-3.73	15.26	8.06	3.17	7.15
1133	-0.38	-9.12	-0.32	-39.98	-0.92	-0.68	-0.30	-0.21
1134	-0.30	-7.42	-0.23	-32.30	-0.90	-0.45	-0.18	0.07
1135	0.02	0.47	0.02	1.81	6.07	0.88	0.01	0.10
1136	-0.16	-3.80	-0.14	-16.69	-0.35	-0.23	-0.10	-0.11
1137	-0.10	-2.31	-0.08	-10.14	-0.18	-0.11	-0.05	-0.05
1138	-0.04	-0.99	-0.03	-4.34	0.26	-0.01	-0.02	-0.02
1139	-0.23	-5.52	-0.21	-24.28	-1.43	-0.59	-0.22	-0.24
1140	-0.21	-5.03	-0.20	-22.17	-0.90	-0.56	-0.24	-0.25
1141	-0.17	-4.07	-0.16	-17.98	-0.55	-0.47	-0.21	-0.22
1142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	-0.02	-0.50	-0.03	-2.31	0.14	-0.16	-0.10	-0.11
1173	-0.16	-3.68	-0.18	-16.50	0.74	-1.09	-0.64	-0.43
1174	-0.15	-3.49	-0.15	-15.46	0.03	-1.16	-0.63	-0.26
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-0.50	-11.88	-0.52	-52.78	-0.06	-4.57	-2.46	-0.94
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.01	0.26	0.02	1.15	0.71	0.13	0.02	0.05
1179	0.02	0.38	0.02	1.64	0.85	0.15	0.02	0.04
1180	-0.17	-4.08	-0.20	-18.45	5.17	-1.48	-1.20	-0.41
1181	-0.25	-5.74	-0.30	-25.63	-2.23	-1.60	-0.69	-0.78
1182	-0.23	-5.26	-0.26	-23.62	2.76	-1.14	-0.83	-0.58
1183	-0.24	-5.21	-0.33	-23.74	0.40	-2.14	-1.19	-1.13
1184	-0.11	-2.50	-0.11	-11.19	1.03	-0.91	-0.57	-0.19
1185	-0.21	-4.96	-0.20	-22.10	2.74	-0.81	-0.65	-0.28
1186	-0.16	-4.07	-0.10	-17.67	1.54	-0.50	-0.39	0.26
1187	-0.49	-11.79	-0.47	-51.98	-0.80	-1.56	-0.79	-0.60
1188	-1.88	-42.75	-2.35	-191.90	-22.39	-19.04	-8.54	-6.73
1189	-0.41	-10.03	-0.36	-43.81	-4.46	-1.05	-0.23	-0.29
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-0.10	-2.37	-0.09	-10.56	2.86	0.28	-0.07	-0.06
1192	-0.07	-1.80	-0.07	-7.93	0.50	-0.03	-0.05	-0.06
1193	-0.09	-2.16	-0.08	-9.44	-0.72	-0.17	-0.04	-0.06
1194	-0.07	-1.76	-0.06	-7.70	-0.83	-0.19	-0.04	-0.06
1195	-0.19	-4.58	-0.18	-20.16	-0.99	-0.47	-0.18	-0.20
1196	-0.08	-1.95	-0.07	-8.55	-0.09	-0.07	-0.03	-0.05
1197	-0.02	-0.44	-0.02	-1.92	-0.01	-0.04	-0.02	-0.02

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-2.18	-0.09	-9.65	-0.62	-0.23	-0.08	-0.14
-0.02	-0.43	-0.02	-1.87	-0.49	-0.08	-0.01	-0.02
-0.06	-1.39	-0.05	-6.13	0.70	0.03	-0.04	-0.03
-0.01	-0.16	-0.01	-0.71	0.32	0.04	0.00	0.00
0.02	0.38	0.02	1.66	1.00	0.17	0.01	0.04
0.01	0.31	0.02	1.34	0.77	0.14	0.02	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.02	0.00	-0.10	0.02	0.00	0.00	0.00
-0.01	-0.33	-0.01	-1.46	0.28	0.02	-0.01	-0.01
-0.03	-0.68	-0.03	-3.00	-0.08	-0.05	-0.02	-0.02
-0.01	-0.25	-0.02	-1.17	0.13	-0.07	-0.05	-0.05
-0.02	-0.67	0.01	-2.88	3.12	0.41	-0.02	0.26
-0.03	-0.61	-0.02	-2.70	-0.09	-0.06	-0.02	-0.03
-0.02	-0.47	-0.01	-2.04	0.30	0.03	-0.01	0.01
0.02	0.37	0.01	1.59	0.90	0.14	0.01	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.08	-1.90	-0.07	-8.37	-0.37	-0.15	-0.05	-0.08
-0.18	-4.26	-0.17	-18.73	-2.44	-0.68	-0.18	-0.26
0.08	1.83	0.09	7.90	5.43	0.86	0.05	0.22
-0.12	-2.78	-0.11	-12.23	-0.45	-0.23	-0.09	-0.13
-0.14	-3.45	-0.14	-15.36	2.30	0.05	-0.15	-0.18
-0.18	-3.66	-0.37	-17.65	4.02	-2.08	-1.43	-1.65
-0.14	-3.31	-0.13	-14.58	-0.04	-0.20	-0.10	-0.15
-0.16	-3.79	-0.14	-16.65	0.08	-0.21	-0.12	-0.12
-2.27	-51.52	-2.85	-231.39	-29.64	-25.47	-11.45	-8.24
-1.92	-43.92	-2.30	-196.09	-25.49	-14.93	-6.10	-6.21
-0.70	-16.49	-0.74	-72.94	-7.11	-2.73	-0.94	-1.45
-0.56	-13.12	-0.59	-58.03	-5.72	-2.14	-0.72	-1.18
-1.25	-29.60	-1.22	-129.86	-20.73	-4.83	-1.03	-1.95
-1.69	-40.39	-1.57	-176.73	-27.25	-5.79	-1.07	-2.02
-0.99	-23.65	-0.96	-103.75	-15.28	-3.62	-0.80	-1.46
-0.28	-6.57	-0.29	-29.01	-3.83	-1.23	-0.37	-0.58
-0.37	-8.69	-0.37	-38.29	-4.41	-1.41	-0.43	-0.65
-0.45	-10.72	-0.45	-47.06	-7.54	-1.85	-0.42	-0.74
-0.22	-5.14	-0.24	-22.80	-1.87	-0.88	-0.33	-0.49
-0.12	-2.82	-0.13	-12.46	-2.07	-0.61	-0.17	-0.30
-0.13	-3.04	-0.15	-13.47	-2.29	-0.66	-0.18	-0.37
-0.17	-4.08	-0.19	-18.05	-2.39	-0.83	-0.27	-0.41
-0.10	-2.43	-0.06	-10.64	2.60	-0.02	-0.21	0.14
-0.29	-6.86	-0.29	-30.31	-2.05	-1.25	-0.52	-0.51
0.00	-0.02	0.00	-0.11	0.01	0.00	0.00	0.00
0.00	-0.02	0.00	-0.09	0.23	0.03	0.00	0.00
0.00	-0.04	0.00	-0.20	0.41	0.05	-0.01	0.00
-0.01	-0.22	-0.01	-1.01	0.08	-0.08	-0.05	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-2.07	-0.08	-9.08	-0.41	-0.16	-0.05	-0.07
-0.10	-2.45	-0.10	-10.75	-0.77	-0.23	-0.07	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.69	-0.07	-7.51	-0.14	-0.27	-0.14	-0.13
0.02	0.50	0.02	2.13	1.12	0.16	0.01	0.01
0.12	2.75	0.14	11.91	8.83	1.43	0.09	0.38
0.08	1.98	0.06	8.32	7.40	1.05	0.00	0.04
0.06	1.47	0.05	6.33	3.32	0.49	0.02	0.04
-0.11	-2.22	-0.21	-10.56	0.90	-1.53	-0.89	-0.94
-0.03	-0.78	-0.03	-3.54	2.20	0.25	-0.03	-0.03
-0.21	-5.15	-0.19	-22.68	1.43	-0.09	-0.16	-0.13
-0.35	-8.41	-0.30	-36.79	-2.12	-0.60	-0.17	-0.19
-4.14	-87.84	-6.90	-406.21	-67.39	-70.45	-32.73	-27.94
-0.32	-7.65	-0.28	-33.56	-0.86	-0.65	-0.29	-0.25
-0.33	-7.90	-0.29	-34.62	-2.49	-0.86	-0.28	-0.29
-0.57	-13.74	-0.51	-60.07	-8.48	-1.99	-0.43	-0.56
-0.77	-18.62	-0.68	-81.27	-11.23	-2.09	-0.28	-0.62
0.01	0.12	0.00	0.45	1.47	0.20	-0.01	0.01
-0.26	-6.32	-0.24	-27.69	-2.63	-0.62	-0.14	-0.25
-0.16	-3.87	-0.14	-16.94	-1.55	-0.38	-0.09	-0.13
-0.24	-5.86	-0.22	-25.63	-2.54	-0.58	-0.12	-0.21
-0.13	-3.15	-0.13	-13.86	-1.82	-0.49	-0.12	-0.20
-0.22	-5.25	-0.22	-23.22	0.09	-0.37	-0.21	-0.32
0.00	0.04	0.00	0.19	0.12	0.02	0.00	0.01
-0.15	-3.57	-0.14	-15.79	-0.37	-0.65	-0.33	-0.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	0.00	-0.05	0.05	0.01	0.00	0.00
-0.49	-10.00	-0.92	-46.88	-8.58	-7.55	-3.42	-4.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.36	-0.02	-1.66	0.50	-0.07	-0.08	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.96	-0.04	-4.22	0.01	-0.06	-0.03	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.95	0.04	4.12	2.37	0.40	0.04	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.09	2.18	0.07	9.19	7.59	1.09	0.01	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.16	-3.29	-0.31	-15.64	2.21	-1.84	-1.16	-1.36
-0.01	-0.17	-0.01	-0.79	1.04	0.13	-0.01	0.00
-0.06	-1.45	-0.05	-6.42	1.44	0.07	-0.07	-0.02
-0.23	-5.68	-0.19	-24.73	-1.89	-0.41	-0.08	-0.05
-0.07	-1.96	-0.03	-8.38	0.65	0.16	0.04	0.27
0.04	-2.19	0.87	-4.74	14.76	7.31	2.81	6.53
-0.38	-9.16	-0.33	-40.17	-0.87	-0.71	-0.32	-0.25
-0.31	-7.71	-0.25	-33.58	-2.00	-0.63	-0.19	0.00
0.02	0.35	0.01	1.27	5.73	0.81	0.00	0.06
-0.16	-3.87	-0.14	-16.98	-0.54	-0.26	-0.10	-0.12
-0.10	-2.33	-0.08	-10.23	-0.19	-0.12	-0.05	-0.06
-0.04	-1.04	-0.04	-4.59	0.11	-0.03	-0.03	-0.03
-0.24	-5.81	-0.23	-25.55	-2.23	-0.73	-0.23	-0.29
-0.23	-5.39	-0.22	-23.73	-1.92	-0.74	-0.26	-0.31
-0.19	-4.46	-0.19	-19.67	-1.60	-0.67	-0.24	-0.32
0.05	1.09	0.07	4.84	2.66	0.53	0.08	0.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.50	-0.03	-2.30	0.15	-0.16	-0.10	-0.11
-0.18	-3.74	-0.33	-17.59	0.91	-1.80	-1.04	-1.39
-0.21	-4.30	-0.39	-20.13	-2.71	-2.31	-1.03	-1.71
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.75	-15.58	-1.30	-72.43	-9.85	-9.51	-4.37	-5.46
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.31	0.01	1.34	0.87	0.14	0.01	0.04
0.00	0.05	0.00	0.21	0.11	0.02	0.00	0.00
-0.25	-4.89	-0.52	-23.70	2.58	-3.50	-2.09	-2.44
-0.30	-6.44	-0.48	-29.51	-4.22	-2.54	-1.04	-1.86
-0.29	-6.03	-0.48	-28.04	0.30	-2.19	-1.20	-1.97
-0.28	-5.67	-0.53	-26.79	-0.96	-2.97	-1.53	-2.36
-0.15	-3.09	-0.29	-14.64	-0.62	-1.87	-0.96	-1.32
-0.26	-5.61	-0.38	-25.77	0.93	-1.77	-1.03	-1.38
-0.22	-4.79	-0.32	-21.93	-0.49	-1.63	-0.84	-1.15
-0.55	-12.63	-0.67	-56.64	-3.36	-2.58	-1.14	-1.85
-1.95	-43.70	-2.61	-197.22	-25.32	-20.45	-9.07	-8.28
-0.42	-10.08	-0.36	-43.99	-4.60	-1.06	-0.23	-0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.10	-2.43	-0.09	-10.81	2.68	0.25	-0.07	-0.08
-0.08	-1.83	-0.07	-8.05	0.43	-0.04	-0.05	-0.05
-0.09	-2.18	-0.08	-9.53	-0.79	-0.18	-0.04	-0.06
-0.07	-1.78	-0.07	-7.79	-0.89	-0.20	-0.04	-0.06
-0.21	-4.91	-0.19	-21.58	-1.93	-0.62	-0.19	-0.24
-0.08	-2.04	-0.07	-8.95	-0.38	-0.12	-0.03	-0.06
-0.02	-0.37	-0.01	-1.63	0.17	-0.01	-0.02	-0.02

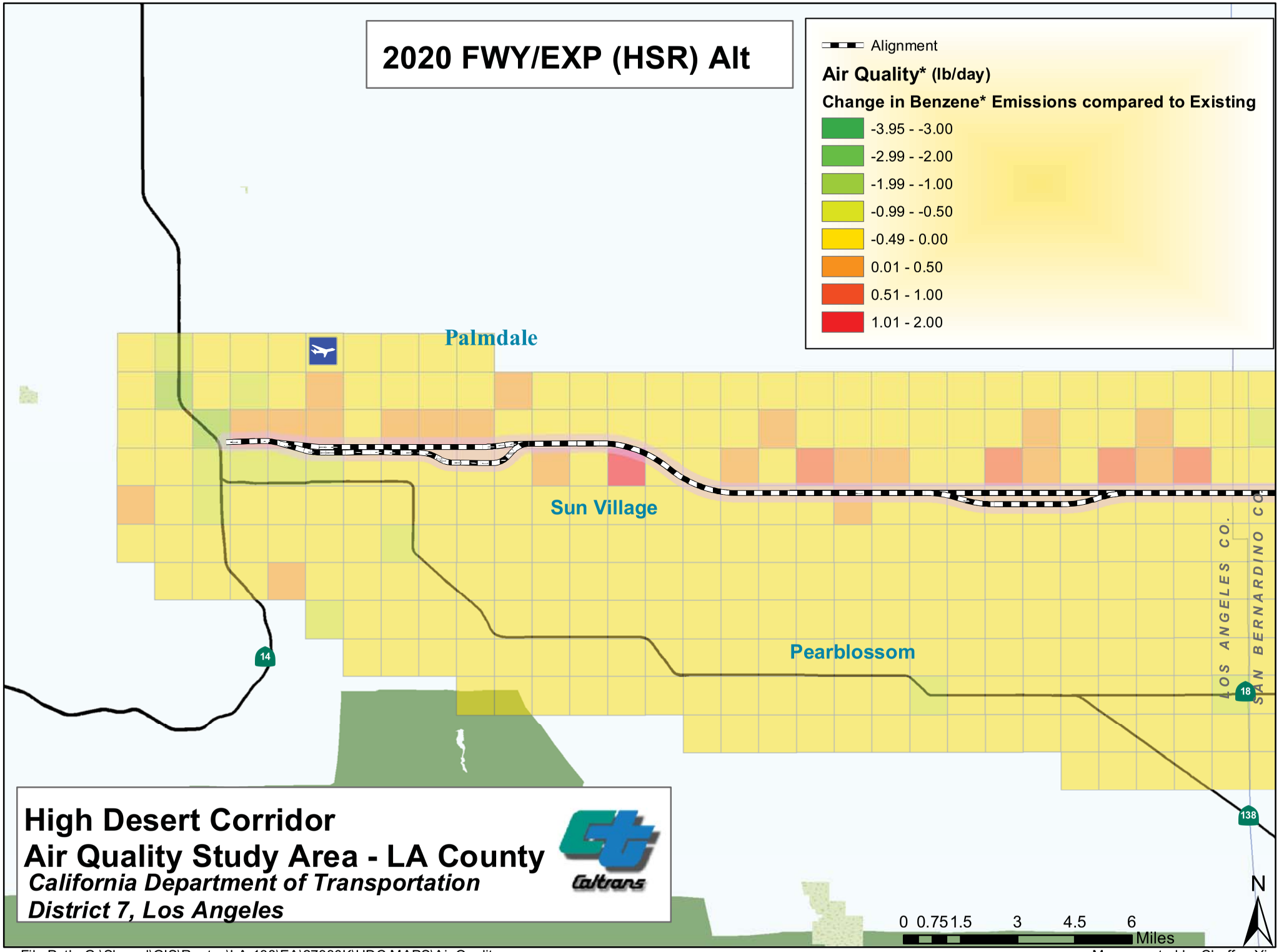
2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1198	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	-0.01	-0.18	-0.01	-0.80	0.03	-0.06	-0.03	-0.04
1230	0.00	0.02	0.00	0.00	1.72	0.19	-0.03	0.01
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.13	3.02	0.14	13.13	7.58	1.29	0.11	0.35
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.02	0.53	0.03	2.34	1.44	0.26	0.03	0.10
1236	0.03	0.68	0.03	2.95	1.74	0.31	0.03	0.10
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.21	-4.94	-0.22	-21.97	0.60	-0.39	-0.26	-0.44
1239	-0.10	-2.38	-0.09	-10.54	0.95	-0.05	-0.10	-0.10
1240	-0.28	-5.84	-0.48	-27.31	2.57	-2.59	-1.60	-1.96
1241	-0.25	-6.02	-0.25	-26.70	0.89	-0.55	-0.37	-0.37
1242	-0.02	-0.41	-0.02	-1.88	1.57	0.16	-0.04	-0.01
1243	-0.14	-3.49	-0.10	-15.28	1.97	0.04	-0.13	0.09
1244	-0.21	-5.10	-0.17	-22.33	0.08	-0.38	-0.21	-0.05
1245	-1.97	-43.65	-2.75	-198.25	-25.47	-30.43	-14.41	-9.23
1246	-0.80	-19.05	-0.78	-83.77	-9.55	-2.97	-0.87	-1.20
1247	-0.40	-9.59	-0.37	-42.06	-3.22	-1.12	-0.36	-0.42
1248	-0.19	-4.64	-0.18	-20.37	-1.37	-0.44	-0.14	-0.21
1249	-0.21	-5.09	-0.20	-22.33	-2.68	-0.67	-0.16	-0.26
1250	-0.59	-14.16	-0.54	-62.15	-5.51	-1.56	-0.43	-0.63
1251	-0.39	-9.29	-0.37	-40.93	-3.45	-1.31	-0.45	-0.53
1252	-0.21	-5.02	-0.19	-22.03	-1.71	-0.48	-0.13	-0.20
1253	-0.17	-4.17	-0.16	-18.33	-1.19	-0.37	-0.11	-0.19
1254	-0.03	-0.71	-0.03	-3.15	0.04	-0.05	-0.03	-0.03
1255	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.00
1256	0.00	0.03	0.00	0.13	0.07	0.01	0.00	0.00
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-0.04	-0.80	-0.05	-3.73	2.08	0.07	-0.12	-0.17
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.02	0.41	0.02	1.79	1.03	0.20	0.03	0.08
1297	0.01	0.15	0.02	0.72	0.40	0.11	0.03	0.10
1298	0.05	1.16	0.05	4.98	4.08	0.62	0.02	0.11
1299	0.00	0.01	0.00	-0.08	2.09	0.27	-0.02	-0.01
1300	-0.04	-0.99	-0.04	-4.46	1.53	0.10	-0.06	-0.07
1301	-0.08	-1.52	-0.16	-7.44	3.33	-0.69	-0.63	-0.73
1302	0.06	1.44	0.06	6.22	3.41	0.55	0.04	0.11
1303	-0.06	-1.48	-0.07	-6.73	3.47	0.23	-0.14	-0.13
1304	0.03	0.54	0.08	2.60	3.30	0.65	0.10	0.44
1305	-0.05	-1.54	0.05	-6.26	2.36	0.44	0.05	0.67
1306	-0.34	-9.08	-0.08	-38.35	-2.26	-0.30	0.01	1.41
1307	-2.44	-52.88	-3.72	-242.18	-34.24	-38.44	-18.06	-13.83
1308	-0.69	-16.46	-0.69	-72.72	-3.57	-2.09	-0.86	-1.09
1309	-0.51	-12.16	-0.50	-53.59	-5.08	-1.81	-0.60	-0.77
1310	-0.38	-8.91	-0.37	-39.36	-2.99	-1.35	-0.51	-0.58
1311	-0.21	-4.95	-0.19	-21.71	-1.13	-0.41	-0.14	-0.19
1312	-0.03	-0.69	-0.03	-3.06	0.40	0.00	-0.03	-0.03
1313	0.01	0.21	0.01	0.91	0.70	0.11	0.00	0.01
1314	0.01	0.26	0.01	1.14	0.63	0.10	0.01	0.02
1315	-0.04	-1.02	-0.04	-4.49	-0.35	-0.13	-0.04	-0.06
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.06	-1.38	-0.05	-6.09	-0.15	-0.16	-0.07	-0.07
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.02	0.47	0.02	2.04	1.41	0.23	0.01	0.07
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	-0.15	-3.35	-0.17	-15.06	-0.04	-0.69	-0.37	-0.43
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.03	0.66	0.04	2.90	1.65	0.30	0.03	0.11
1358	0.00	-0.08	0.01	-0.30	0.83	0.16	0.02	0.10
1359	0.10	2.37	0.12	10.24	8.00	1.26	0.06	0.32
1360	0.01	0.18	0.03	0.82	2.19	0.36	0.02	0.17
1361	0.02	0.37	0.03	1.51	5.15	0.74	0.00	0.18
1362	-0.35	-6.97	-0.73	-33.45	1.78	-4.12	-2.36	-3.39
1363	0.14	3.13	0.14	13.39	11.63	1.77	0.06	0.37
1364	0.02	0.53	0.02	2.24	1.68	0.25	0.01	0.03
1365	0.13	2.83	0.21	12.70	8.93	1.69	0.22	0.88
1366	-0.02	-1.74	0.33	-5.66	7.55	1.86	0.42	2.70
1367	0.07	0.44	0.39	3.85	6.08	1.87	0.54	2.60
1368	0.04	-0.45	0.40	-0.02	10.52	2.37	0.47	2.90
1369	-1.37	-30.00	-2.05	-137.30	-16.75	-26.10	-12.74	-7.44
1370	-0.45	-10.77	-0.45	-47.35	-7.36	-1.80	-0.41	-0.76
1371	-0.02	-0.53	-0.02	-2.37	0.86	0.07	-0.03	-0.03
1372	-0.07	-1.61	-0.08	-7.16	-0.80	-0.41	-0.16	-0.20
1373	-0.07	-1.65	-0.07	-7.35	0.09	-0.21	-0.12	-0.13
1374	-0.08	-1.76	-0.08	-7.79	-0.75	-0.35	-0.13	-0.17
1375	-0.07	-1.61	-0.08	-7.15	-0.58	-0.32	-0.13	-0.18
1376	-0.01	-0.29	-0.01	-1.29	0.07	-0.01	-0.01	0.00
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	0.00	0.09	0.00	0.39	0.23	0.04	0.00	0.01
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	0.01	0.32	0.02	1.40	0.87	0.15	0.01	0.05
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1418	-0.02	-0.55	-0.02	-2.40	-0.23	-0.10	-0.04	-0.03
1419	0.05	0.88	0.11	4.23	2.32	0.78	0.24	0.58
1420	-0.02	-0.37	-0.04	-2.09	7.90	0.93	-0.10	-0.10
1421	-0.01	-0.41	0.02	-1.68	2.54	0.36	0.00	0.27
1422	0.01	0.03	0.03	0.05	5.98	0.81	-0.02	0.24
1423	0.06	0.55	0.28	3.20	16.33	1.97	-0.19	1.93
1424	-0.07	-2.36	0.14	-9.19	3.16	0.76	0.17	1.48
1425	-0.09	-2.97	0.14	-11.80	3.85	0.65	0.05	1.62
1426	0.13	-0.53	1.06	3.52	9.48	3.53	1.17	7.41
1427	-0.09	-4.56	0.57	-15.69	-0.13	1.72	0.93	4.89
1428	0.01	0.08	0.04	0.53	0.30	0.07	0.01	0.25
1429	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1430	0.23	3.97	0.63	19.85	10.58	5.35	2.07	3.47
1431	0.10	2.25	0.09	9.66	6.58	1.01	0.04	0.17
1432	0.01	0.30	0.01	1.26	0.85	0.13	0.00	0.01
1433	0.00	0.02	0.00	0.10	0.05	0.01	0.00	0.00
1434	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1435	-0.05	-1.13	-0.04	-4.98	-0.37	-0.13	-0.04	-0.06
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-0.05	-1.10	-0.04	-4.87	0.69	0.01	-0.05	-0.03
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.01	0.18	0.01	0.78	0.46	0.08	0.01	0.02
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	0.06	1.48	0.07	6.45	3.79	0.65	0.06	0.20
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.03	0.54	0.07	2.64	1.41	0.43	0.12	0.38

FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
0.06	1.40	0.10	6.28	3.50	0.73	0.13	0.36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.17	-0.01	-0.77	0.05	-0.05	-0.03	-0.04
0.00	0.00	0.01	-0.04	1.69	0.20	-0.02	0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.87	0.03	3.77	1.97	0.30	0.01	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.70	0.03	3.05	1.99	0.32	0.02	0.09
0.01	0.28	0.01	1.18	0.70	0.11	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.22	-5.15	-0.24	-22.91	0.01	-0.49	-0.27	-0.47
-0.11	-2.60	-0.11	-11.52	0.35	-0.17	-0.12	-0.16
-0.29	-6.06	-0.48	-28.24	1.90	-2.66	-1.58	-1.92
-0.29	-6.85	-0.29	-30.33	-1.11	-0.93	-0.42	-0.48
-0.02	-0.56	-0.02	-2.50	1.07	0.08	-0.04	-0.02
-0.17	-3.96	-0.16	-17.49	0.68	-0.29	-0.21	-0.20
-0.23	-5.51	-0.21	-24.23	-1.08	-0.64	-0.26	-0.26
-2.04	-44.51	-3.04	-203.33	-28.44	-32.26	-15.17	-11.01
-0.80	-18.94	-0.78	-83.27	-9.13	-2.92	-0.88	-1.19
-0.43	-10.37	-0.40	-45.40	-6.02	-1.53	-0.37	-0.48
-0.19	-4.58	-0.18	-20.14	-1.21	-0.41	-0.13	-0.20
-0.21	-5.01	-0.20	-21.98	-2.43	-0.62	-0.15	-0.25
-0.61	-14.51	-0.56	-63.67	-6.55	-1.73	-0.44	-0.67
-0.42	-9.90	-0.41	-43.57	-5.12	-1.60	-0.48	-0.62
-0.21	-5.15	-0.19	-22.57	-2.04	-0.53	-0.13	-0.21
-0.17	-4.06	-0.16	-17.83	-0.81	-0.32	-0.11	-0.18
-0.03	-0.61	-0.02	-2.71	0.30	-0.01	-0.03	-0.02
0.05	1.08	0.08	4.85	2.70	0.58	0.10	0.30
0.01	0.31	0.01	1.36	0.76	0.13	0.01	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.84	-0.06	-3.93	1.93	0.05	-0.12	-0.19
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.66	0.03	2.86	1.78	0.30	0.02	0.08
0.00	0.02	0.00	0.07	0.04	0.01	0.00	0.00
0.04	1.04	0.05	4.46	3.62	0.56	0.02	0.12
0.01	0.15	0.01	0.56	2.54	0.35	-0.01	0.03
-0.05	-1.29	-0.06	-5.73	0.71	-0.02	-0.07	-0.09
-0.09	-1.77	-0.17	-8.49	2.51	-0.81	-0.63	-0.73
0.06	1.34	0.05	5.77	3.16	0.52	0.04	0.10
-0.07	-1.63	-0.08	-7.40	2.91	0.14	-0.15	-0.15
0.02	0.36	0.04	1.61	2.77	0.45	0.03	0.19
-0.06	-1.69	0.02	-7.03	1.84	0.30	0.02	0.49
-0.35	-9.37	-0.07	-39.44	-3.11	-0.37	0.04	1.54
-2.47	-52.83	-3.99	-243.48	-35.59	-39.98	-18.78	-15.69
-0.76	-17.95	-0.75	-79.02	-9.10	-2.90	-0.88	-1.21
-0.55	-12.96	-0.55	-57.12	-7.27	-2.20	-0.64	-0.92
-0.42	-9.89	-0.42	-43.62	-5.61	-1.81	-0.55	-0.74
-0.20	-4.78	-0.18	-21.00	-0.61	-0.33	-0.14	-0.19
-0.03	-0.74	-0.03	-3.25	0.28	-0.01	-0.03	-0.03
0.01	0.14	0.01	0.61	0.53	0.08	0.00	0.01
0.01	0.26	0.01	1.13	0.66	0.10	0.01	0.02
0.01	0.08	0.03	0.45	2.57	0.45	0.05	0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-1.62	-0.07	-7.14	-0.76	-0.26	-0.08	-0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.88	0.04	3.83	2.63	0.43	0.03	0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-2.63	-0.11	-11.74	1.94	-0.25	-0.29	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	1.27	0.06	5.55	3.35	0.57	0.05	0.17
-0.03	-0.65	-0.03	-2.88	-0.49	-0.15	-0.04	-0.05
0.09	2.15	0.10	9.26	7.35	1.12	0.04	0.24
0.00	0.04	0.00	0.09	1.92	0.23	-0.02	0.00
0.00	-0.03	-0.01	-0.40	3.97	0.46	-0.06	-0.06
-0.39	-7.78	-0.76	-36.92	-0.70	-4.49	-2.37	-3.45
0.05	1.19	0.03	4.88	6.00	0.77	-0.04	-0.03
0.02	0.58	0.02	2.48	1.85	0.28	0.01	0.04
0.05	0.96	0.10	4.46	3.61	0.77	0.14	0.50
-0.07	-2.79	0.24	-10.47	4.40	1.25	0.33	2.27
0.00	-0.14	0.01	-0.70	4.10	0.51	-0.04	0.12
-0.09	-2.27	-0.08	-10.11	4.60	0.29	-0.20	0.00
-1.48	-30.45	-2.71	-142.98	-19.99	-29.32	-14.23	-11.81
-0.46	-10.78	-0.45	-47.40	-7.39	-1.81	-0.41	-0.76
-0.03	-0.78	-0.03	-3.43	0.18	-0.03	-0.03	-0.04
-0.06	-1.45	-0.08	-6.53	-0.45	-0.37	-0.17	-0.22
-0.09	-1.99	-0.09	-8.84	-0.72	-0.37	-0.15	-0.20
-0.09	-2.04	-0.10	-9.04	-1.45	-0.48	-0.15	-0.23
-0.01	-0.21	0.01	-0.97	3.08	0.36	-0.04	0.11
-0.02	-0.41	-0.02	-1.82	-0.23	-0.06	-0.02	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.04	0.00	0.18	0.11	0.02	0.00	0.01
1.23	25.01	2.27	115.70	52.61	19.02	6.24	10.36
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.12	2.55	0.21	11.63	5.54	1.83	0.56	0.89
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	33.69	2.90	154.72	67.49	25.67	8.62	12.81
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.89	0.10	4.22	2.81	1.04	0.34	0.54
0.03	0.64	0.03	2.78	1.85	0.30	0.02	0.08
0.61	12.44	1.13	57.06	34.48	11.50	3.55	5.21
-0.04	-1.02	-0.05	-4.58	0.68	-0.07	-0.09	-0.12
0.66	13.15	1.27	60.95	33.86	11.21	3.46	5.99
0.06	0.87	0.22	4.20	16.45	2.09	-0.13	1.43
0.39	6.73	1.02	33.13	22.80	8.35	2.74	5.62
0.00	-1.44	0.35	-4.29	7.89	1.70	0.31	2.77
0.27	4.63	0.76	23.00	16.91	5.86	1.87	4.25
0.18	1.77	0.81	11.57	13.07	7.21	2.88	5.24
0.21	3.77	0.49	18.24	9.25	4.01	1.46	2.57
0.17	3.09	0.45	15.27	7.04	3.74	1.48	2.42
0.53	9.67	1.30	47.03	22.42	11.12	4.27	6.90
0.20	4.55	0.24	19.90	10.84	2.20	0.36	0.68
0.20	4.56	0.21	19.84	8.89	1.85	0.32	0.48
0.04	0.94	0.04	4.11	1.90	0.39	0.07	0.11
0.14	3.23	0.15	14.08	6.07	1.34	0.26	0.38
0.10	2.14	0.15	9.48	8.27	1.48	0.17	0.63
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-1.28	-0.05	-5.64	0.25	-0.07	-0.05	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.54	0.03	2.40	1.33	0.26	0.04	0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.33	0.02	1.47	0.79	0.16	0.02	0.06

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
Grid No.	lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
1479	-0.01	-0.30	-0.01	-1.37	0.18	-0.03	-0.03	-0.03
1480	0.02	0.49	0.02	2.06	1.63	0.23	0.00	0.02
1481	0.01	0.34	0.01	1.43	1.19	0.17	0.00	0.01
1482	0.00	0.14	-0.01	0.24	6.38	0.82	-0.05	-0.05
1483	-0.12	-2.88	-0.11	-12.99	5.79	-1.03	-1.00	-0.09
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	0.07	1.26	0.20	6.27	3.85	0.99	0.24	1.09
1486	0.12	1.64	0.45	9.28	5.27	1.90	0.62	2.72
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	0.00	-0.08	-0.01	-0.38	0.08	-0.03	-0.02	-0.02
1491	-2.21	-47.04	-3.65	-217.35	-33.96	-41.38	-19.64	-14.62
1492	-0.19	-4.27	-0.25	-19.30	-2.16	-2.87	-1.38	-0.80
1493	0.00	0.06	0.00	0.25	0.13	0.02	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	-0.05	-1.30	-0.05	-5.76	0.17	-0.12	-0.08	-0.08
1496	-0.06	-1.54	-0.06	-6.73	-0.96	-0.23	-0.05	-0.08
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-0.65	-14.93	-0.79	-66.50	-13.00	-4.35	-1.35	-2.16
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.28	5.72	0.51	26.27	15.51	3.38	0.63	2.33
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-0.14	-3.81	-0.04	-16.32	2.71	0.02	-0.20	0.60
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-0.10	-2.54	-0.03	-10.89	1.81	0.02	-0.14	0.40
1537	0.01	0.13	0.07	0.86	1.45	0.36	0.08	0.43
1538	-0.06	-1.26	-0.07	-5.68	0.05	-0.27	-0.15	-0.19
1539	-0.02	-0.31	-0.03	-1.63	2.76	0.13	-0.15	-0.13
1540	-0.01	-0.22	-0.04	-1.35	3.99	0.19	-0.20	-0.22
1541	-0.11	-2.50	-0.15	-11.50	3.52	-0.82	-0.71	-0.43
1542	0.07	1.55	0.08	6.67	5.94	0.90	0.03	0.24
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.20	4.73	0.21	20.52	12.00	2.01	0.16	0.50
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	-0.15	-3.20	-0.22	-14.61	-2.20	-2.49	-1.17	-0.77
1552	-0.02	-0.56	0.01	-2.35	1.32	0.17	-0.01	0.21
1553	0.05	1.08	0.10	4.95	2.75	0.68	0.15	0.44
1554	0.05	1.00	0.08	4.51	2.60	0.57	0.11	0.33
1555	-0.02	-0.59	0.02	-2.47	2.46	0.40	0.03	0.28
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

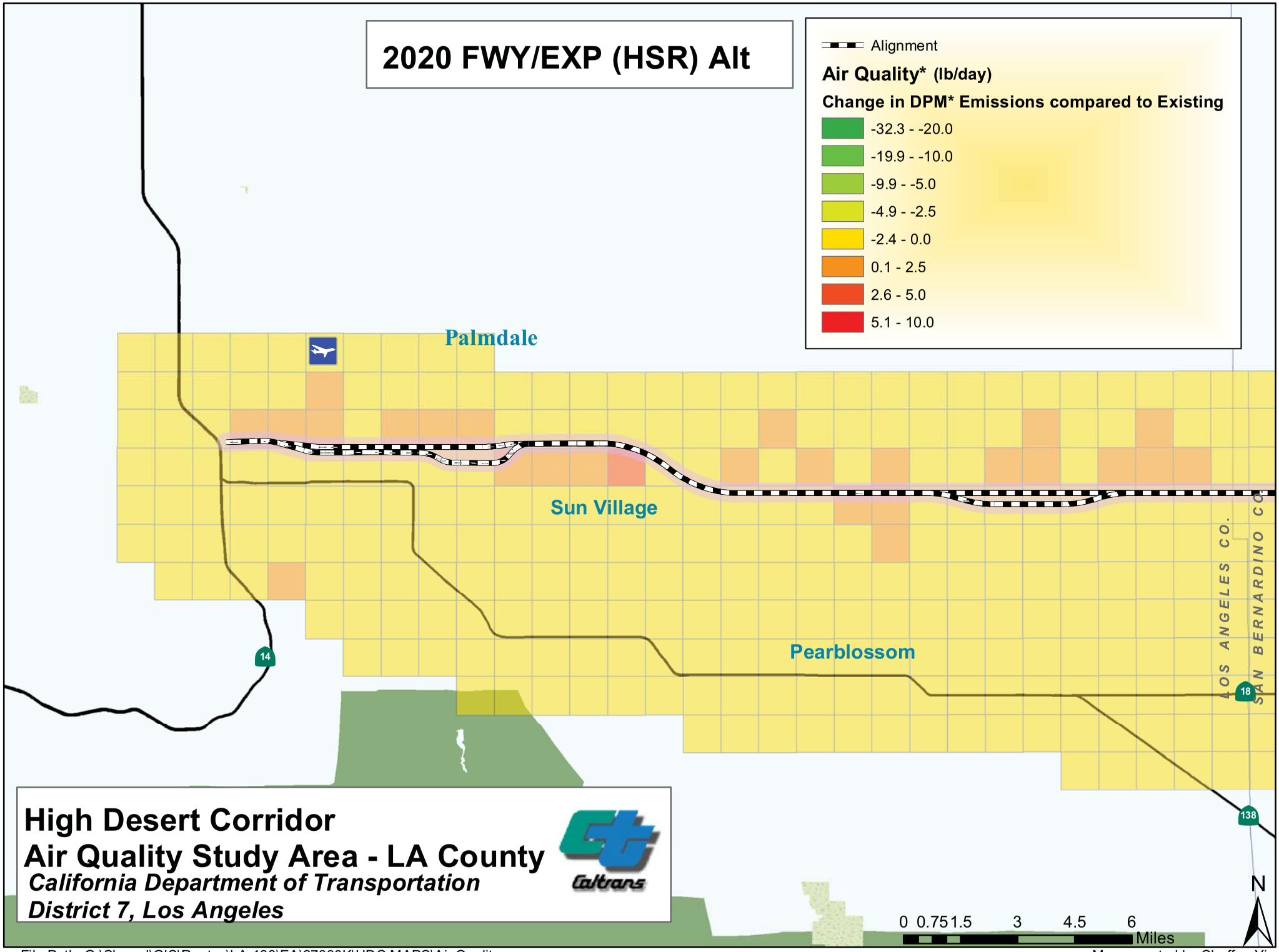
FWY/Toll or FWY/Toll with HSR Compared to Existing							
Benzene	Acrolein	Formaldehyde	Butadiene	NAPH	POM	DPM	DEOG
lb/day	g/day	lb/day	g/day	g/day	g/day	lb/day	lb/day
-0.02	-0.40	-0.02	-1.80	-0.08	-0.08	-0.04	-0.07
0.03	0.67	0.02	2.86	2.20	0.32	0.00	0.03
0.01	0.25	0.01	1.05	0.94	0.14	0.00	0.02
0.00	0.03	-0.01	-0.25	6.09	0.78	-0.05	-0.05
-0.15	-3.44	-0.16	-15.48	4.01	-1.36	-1.04	-0.29
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.14	2.32	0.38	11.59	7.34	1.87	0.45	2.15
0.55	6.20	2.37	38.94	20.90	7.85	2.62	14.89
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.18	-0.01	-0.83	-0.15	-0.07	-0.03	-0.03
-2.11	-44.76	-3.49	-207.14	-28.91	-39.99	-19.28	-14.02
-0.18	-4.11	-0.24	-18.57	-1.73	-2.77	-1.36	-0.74
0.00	0.05	0.00	0.23	0.12	0.02	0.00	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-1.05	-0.03	-4.56	0.77	0.05	-0.03	0.03
-0.06	-1.52	-0.06	-6.67	-0.92	-0.23	-0.05	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.65	-14.93	-0.79	-66.50	-13.00	-4.35	-1.35	-2.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.50	0.02	2.15	1.22	0.19	0.01	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.30	-6.75	-0.37	-30.18	-5.13	-1.98	-0.68	-1.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.20	-4.50	-0.24	-20.13	-3.42	-1.32	-0.45	-0.69
-0.01	-0.20	0.00	-0.90	0.46	0.03	-0.02	0.01
-0.06	-1.42	-0.08	-6.40	-0.38	-0.35	-0.16	-0.23
-0.01	-0.18	-0.03	-1.10	3.48	0.21	-0.16	-0.13
-0.03	-0.58	-0.06	-2.92	2.96	0.02	-0.21	-0.25
-0.13	-3.05	-0.17	-13.84	1.95	-1.06	-0.72	-0.46
0.05	1.32	0.04	5.51	5.29	0.70	-0.03	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.21	4.88	0.22	21.16	12.39	2.08	0.17	0.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.14	-3.13	-0.21	-14.26	-2.05	-2.41	-1.14	-0.73
-0.02	-0.68	0.00	-2.86	0.97	0.12	-0.01	0.18
0.05	0.93	0.09	4.32	2.34	0.61	0.15	0.40
0.05	0.99	0.09	4.52	2.61	0.59	0.12	0.38
-0.02	-0.62	0.02	-2.57	2.39	0.40	0.03	0.32
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix H Grid Maps for Changes in Emissions of DPM and Benzene



File Path: G:\Shared\GIS\Routes\LA-138\EA\27330K\HDC MAPS\Air Quality

Maps created by Chaffee Yiu
01/2014



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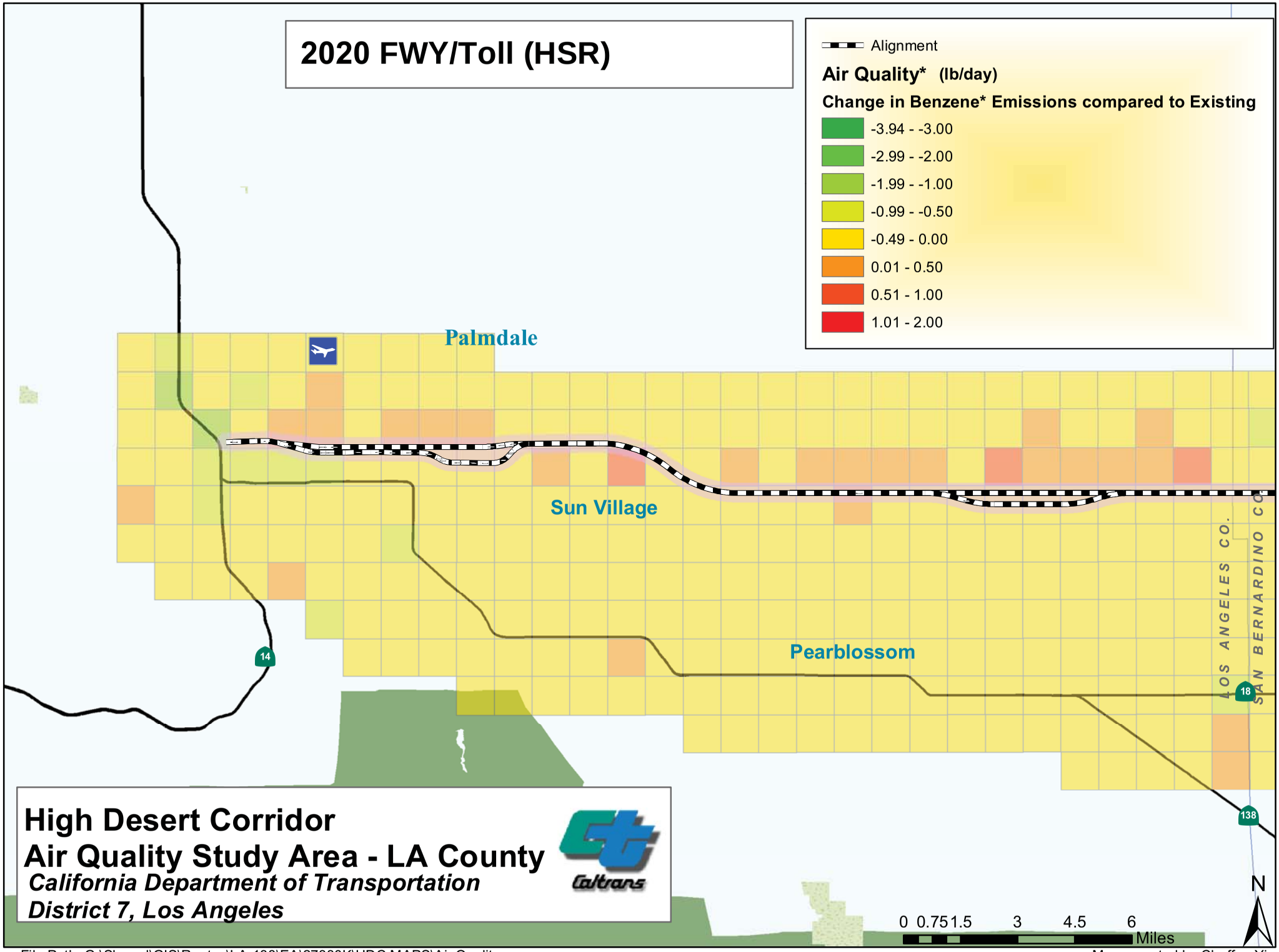
Maps created by Chaffee Yiu
01/2014



File Path: G:\Shared\GIS\Routes\LA-138\EA\27330K\HDC MAPS\Air Quality

Maps created by Chaffee Yiu
01/2014

2020 FWY/Toll (HSR)

Alignment

Air Quality* (lb/day)

Change in DPM* Emissions compared to Existing

- -32.0 - -20.0
- -19.9 - -10.0
- -9.9 - -5.0
- -4.9 - -2.5
- -2.4 - 0.0
- 0.1 - 2.5
- 2.6 - 5.0
- 5.1 - 10.0

Palmdale

Sun Village

Pearblossom

LOS ANGELES CO.

SAN BERNARDINO CO.

14

18

138

High Desert Corridor
Air Quality Study Area - LA County

California Department of Transportation
District 7, Los Angeles

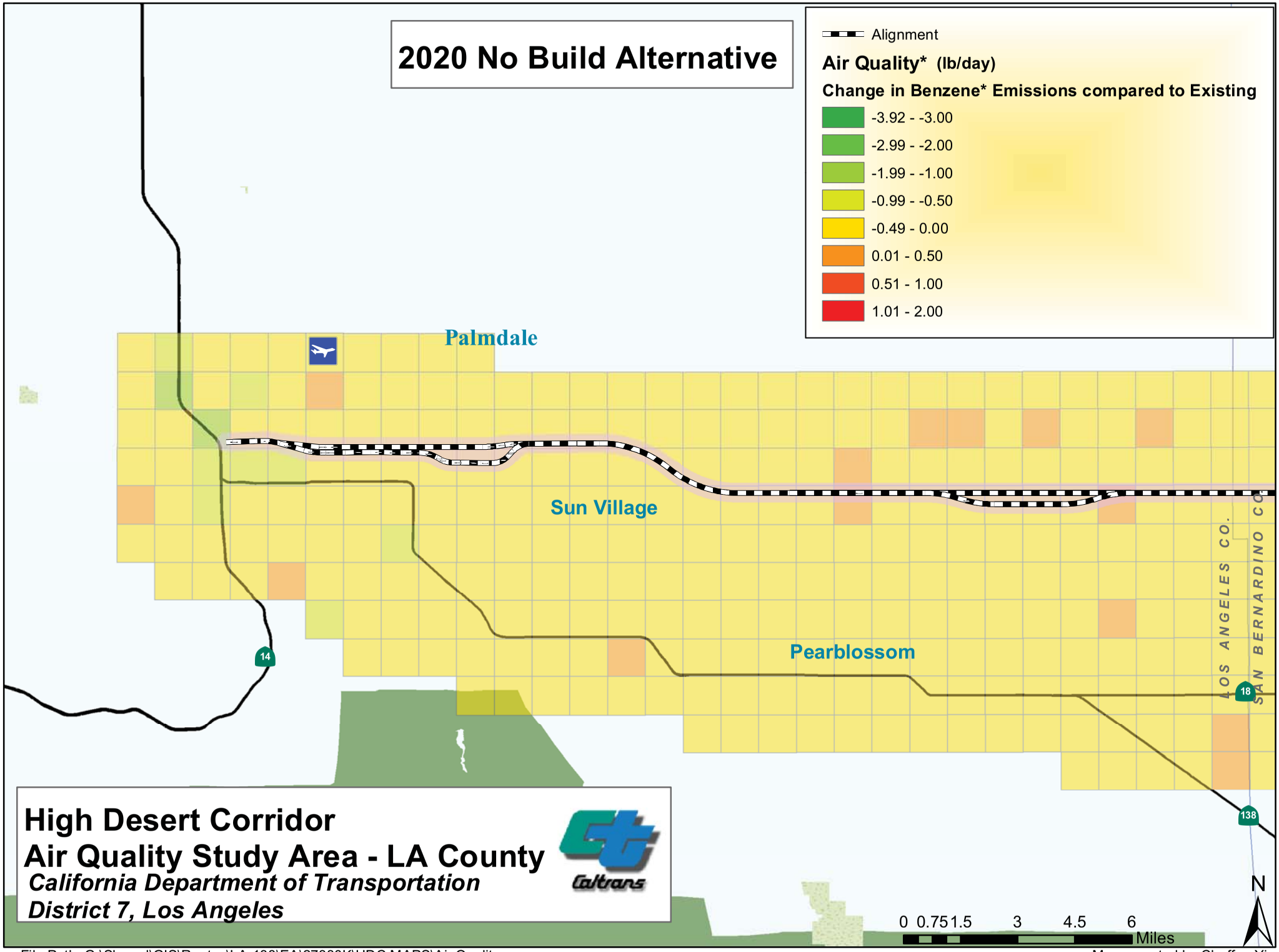
Caltrans

N

0 0.75 1.5 3 4.5 6 Miles

File Path: G:\Shared\GIS\Routes\LA-138\EA\27330K\HDC MAPS\Air Quality

Maps created by Chaffee Yiu
01/2014



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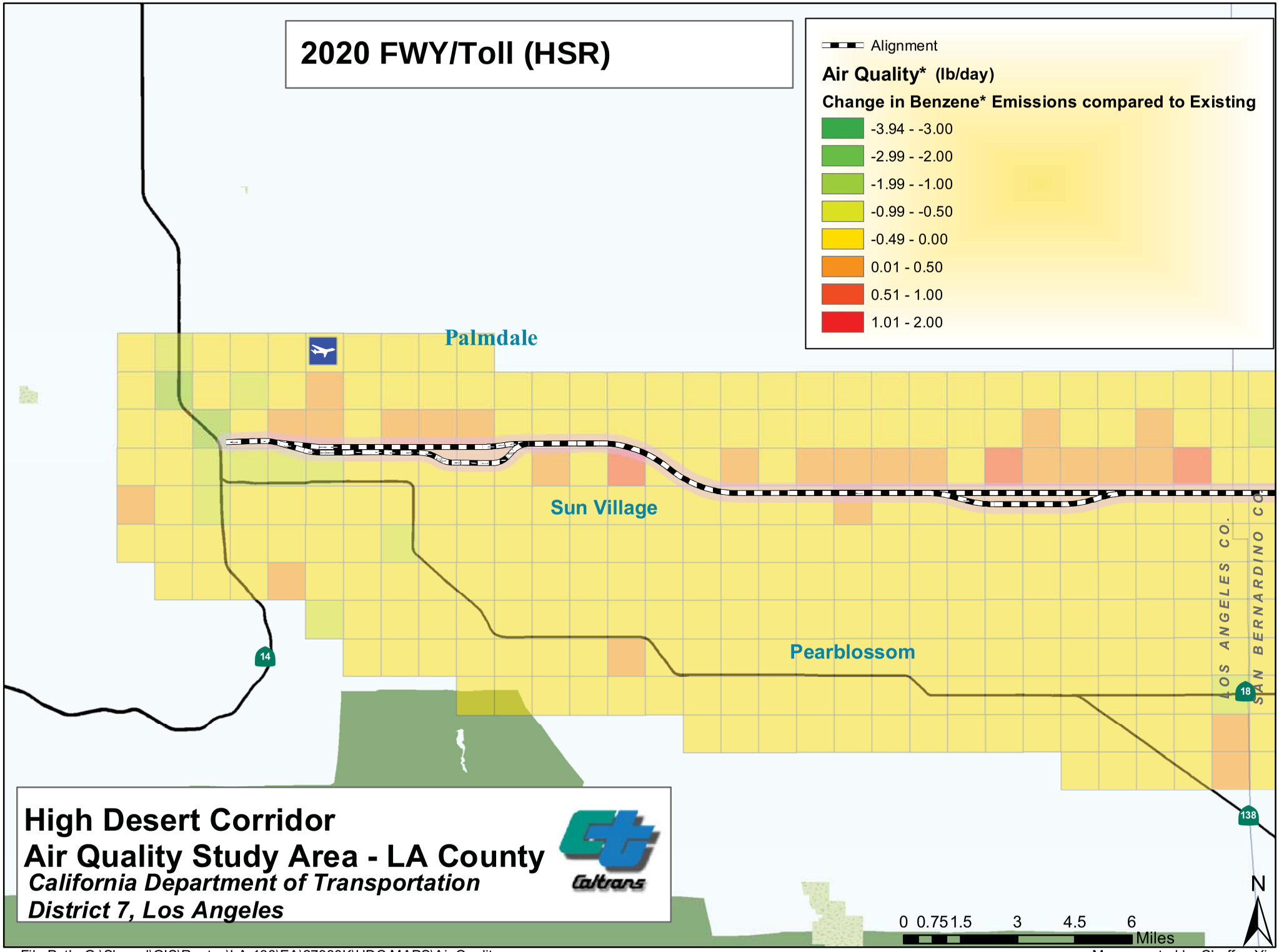
Maps created by Chaffee Yiu
01/2014



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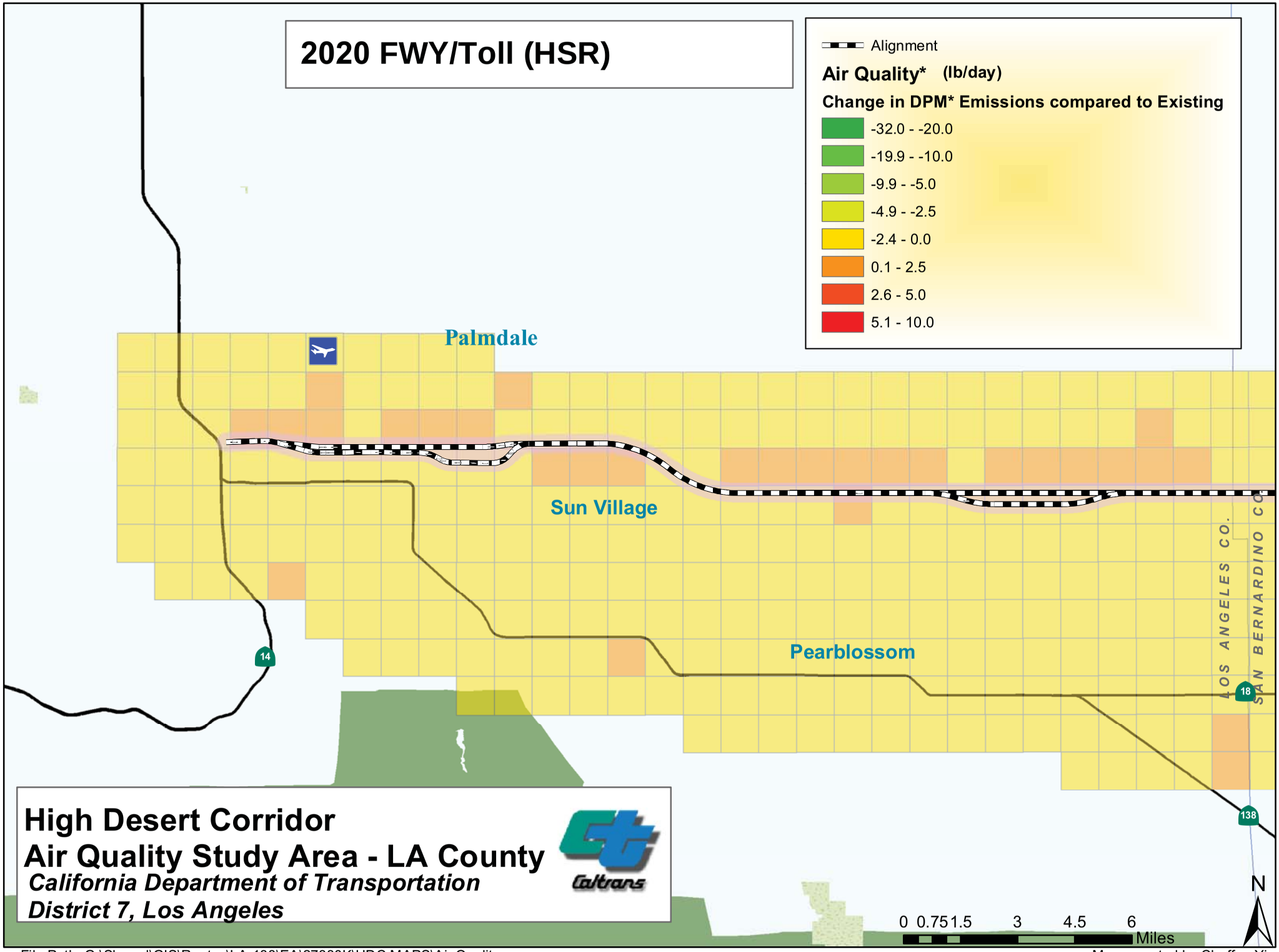
Maps created by Chaffee Yiu
01/2014



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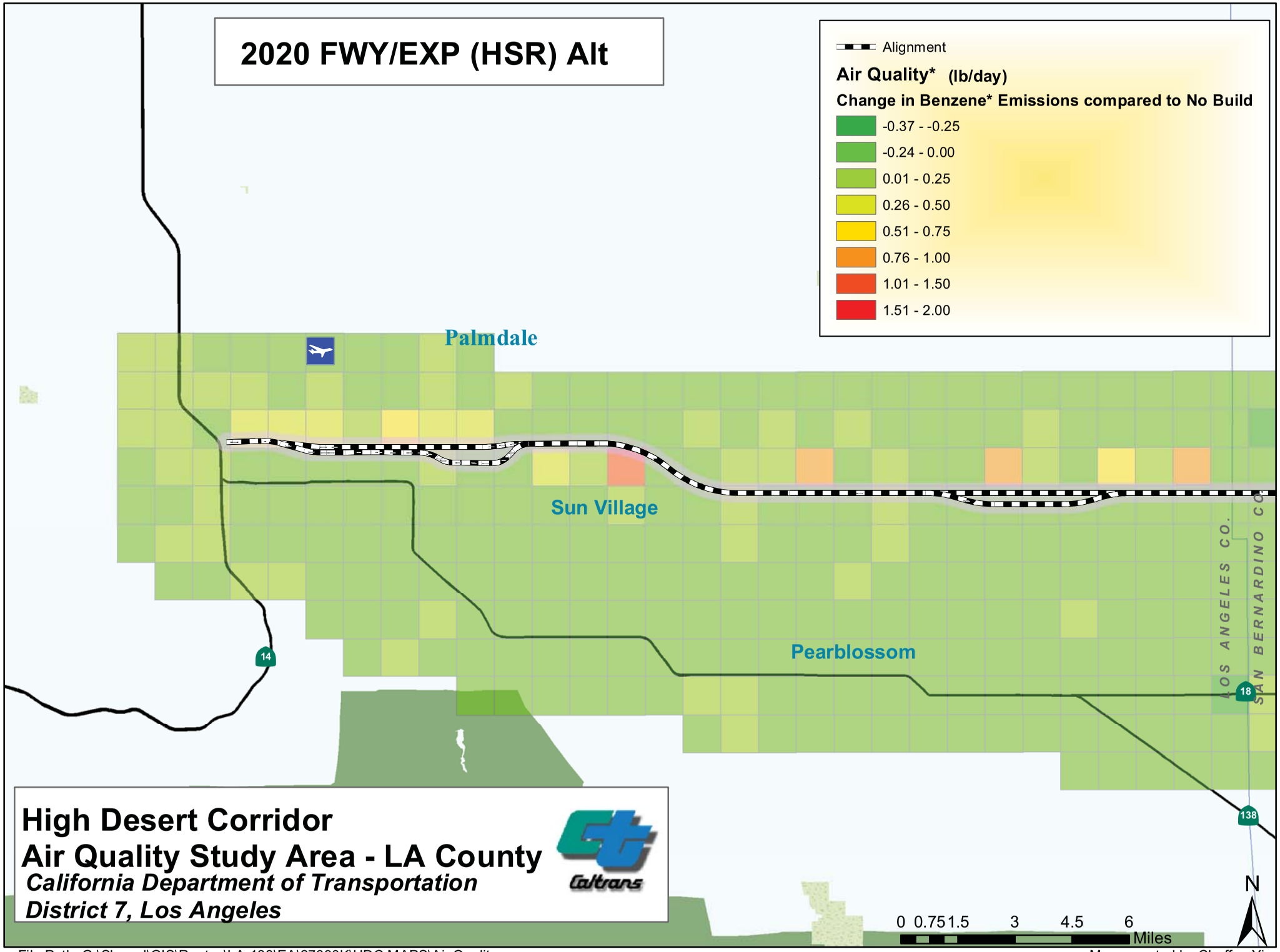
Maps created by Chaffee Yiu
01/2014



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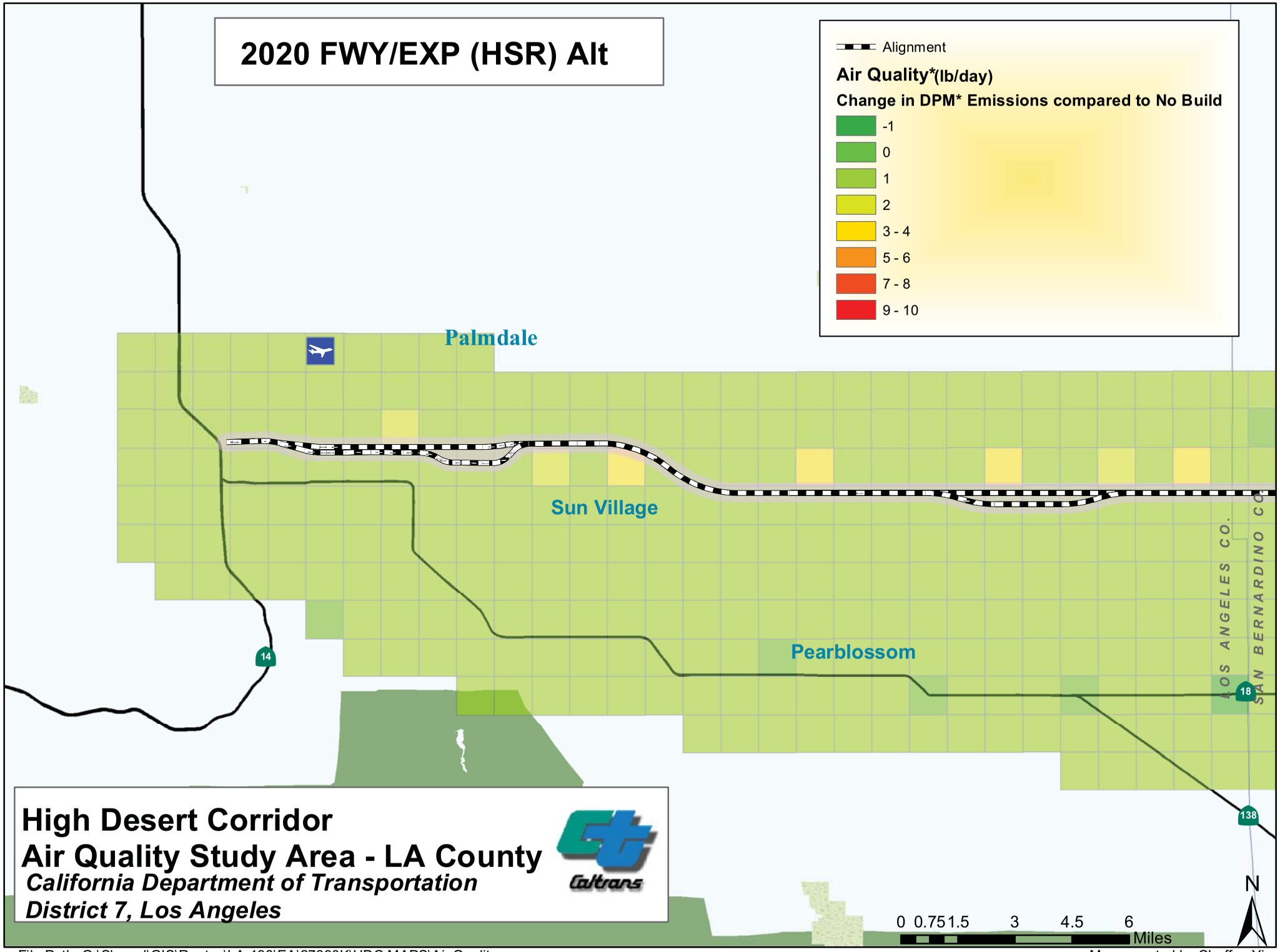
Maps created by Chaffee Yiu
01/2014



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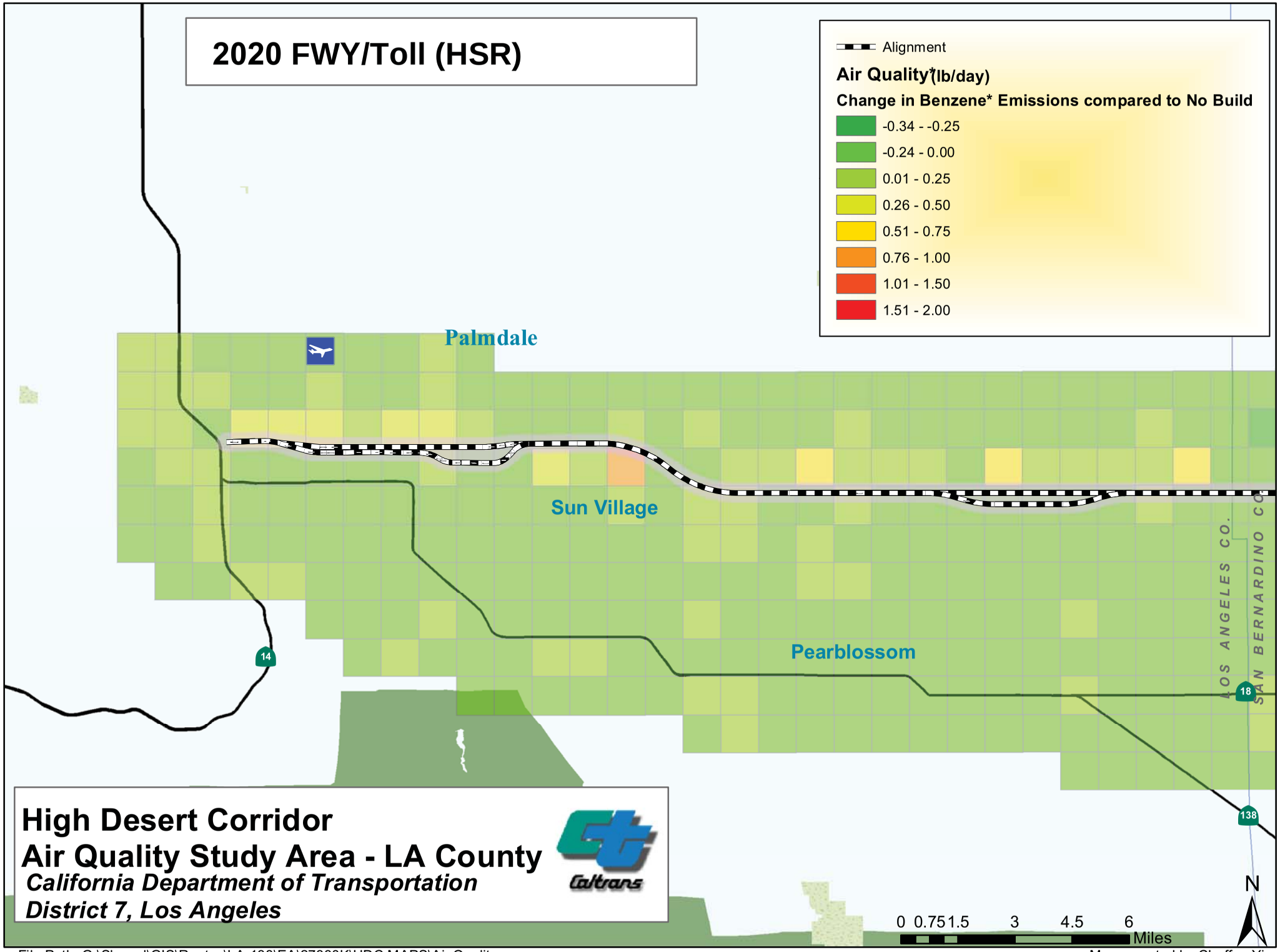
Maps created by Chaffee Yiu
01/2014



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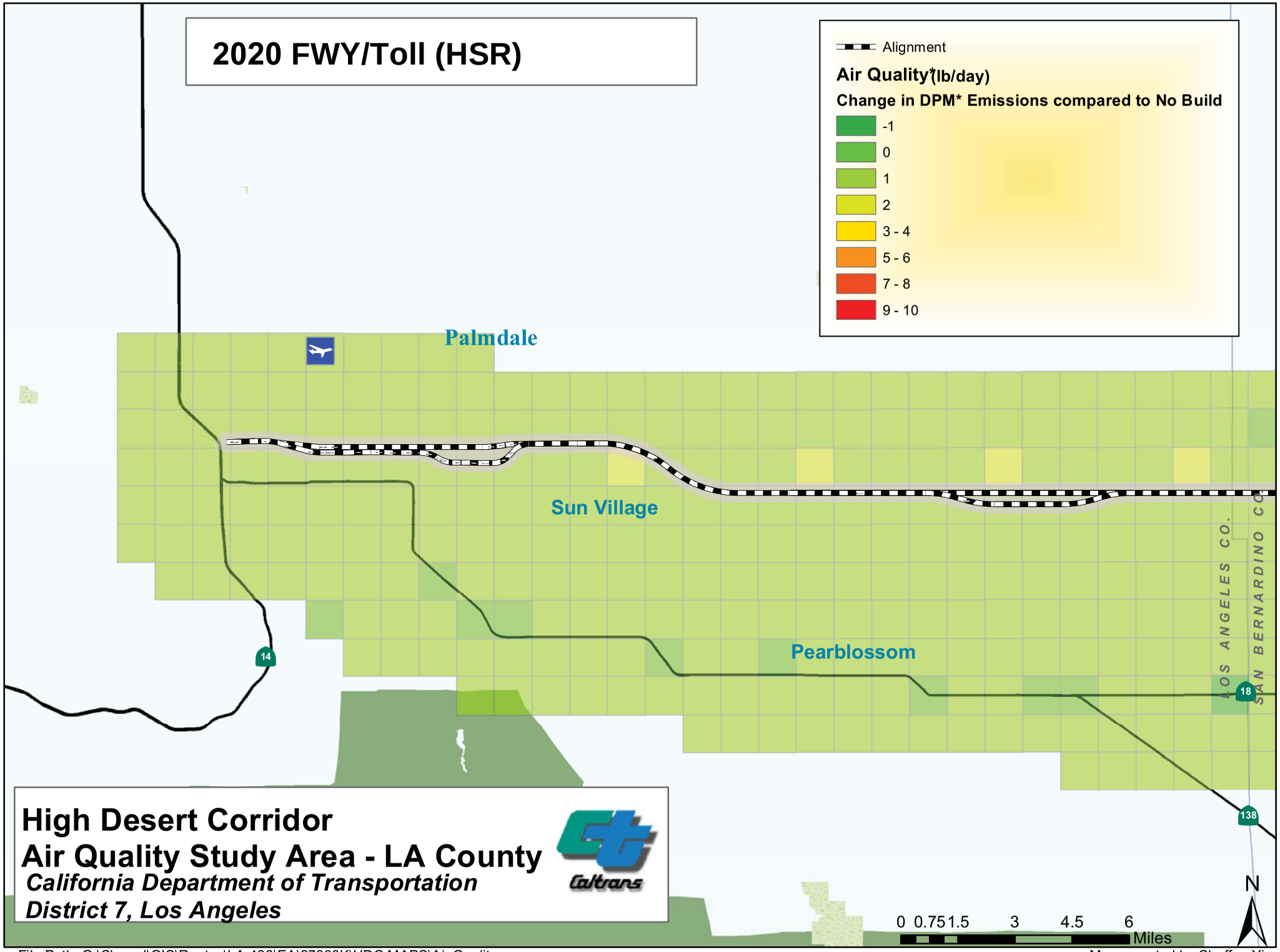
Maps created by Chaffee Yiu
01/2014



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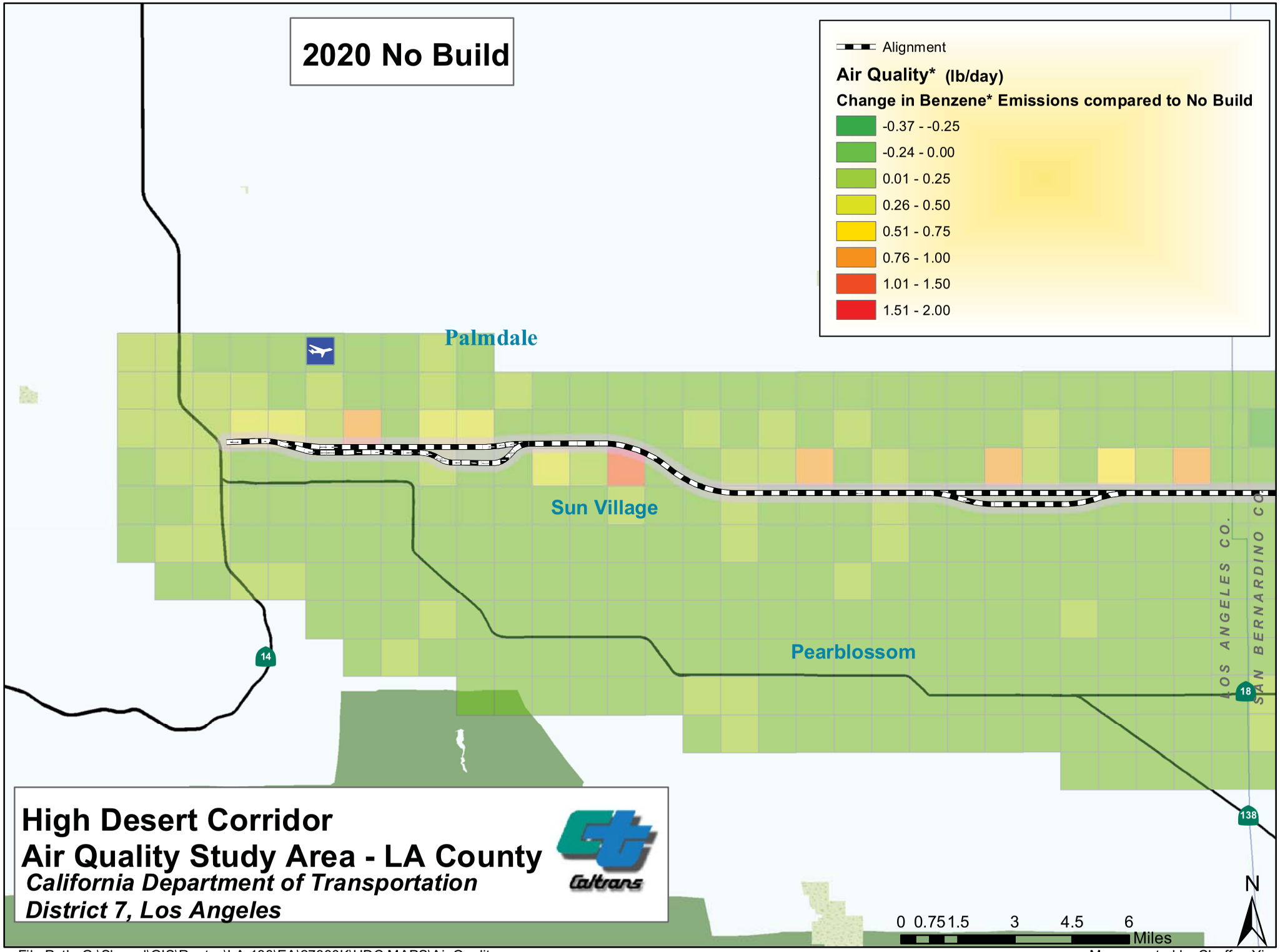
Maps created by Chaffee Yiu
01/2014



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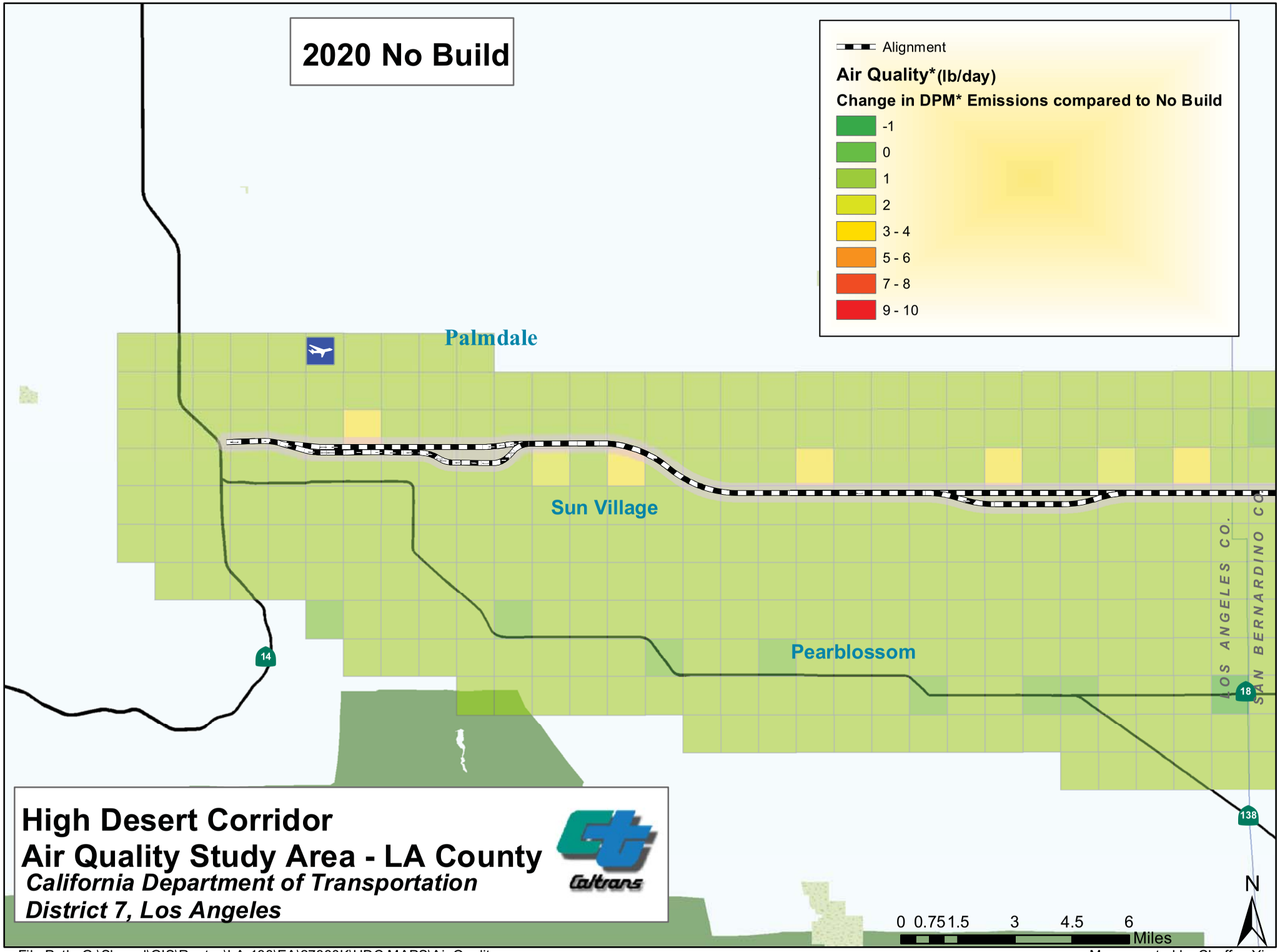
Maps created by Chaffee Yiu
01/2014



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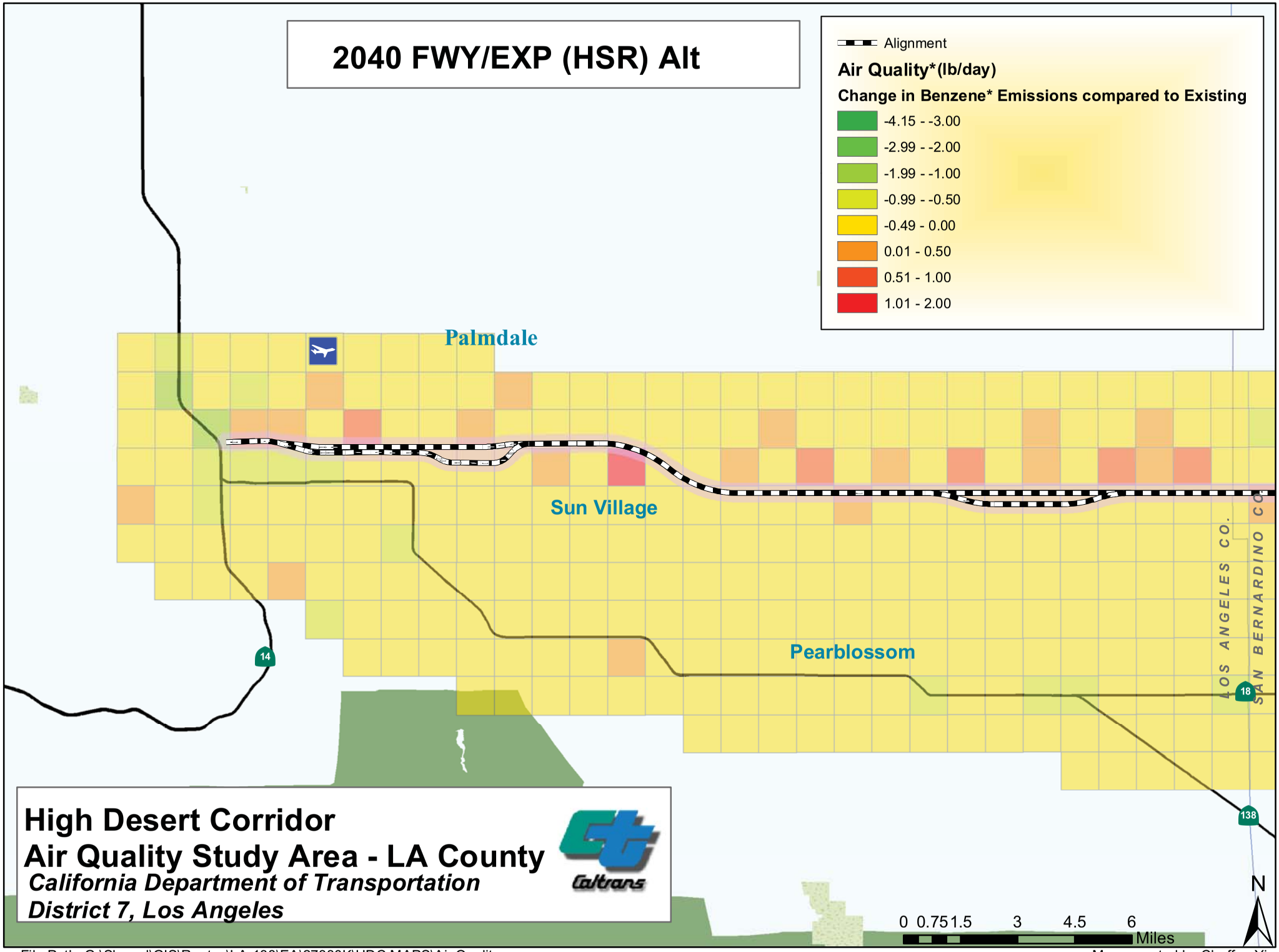
Maps created by Chaffee Yiu
01/2014



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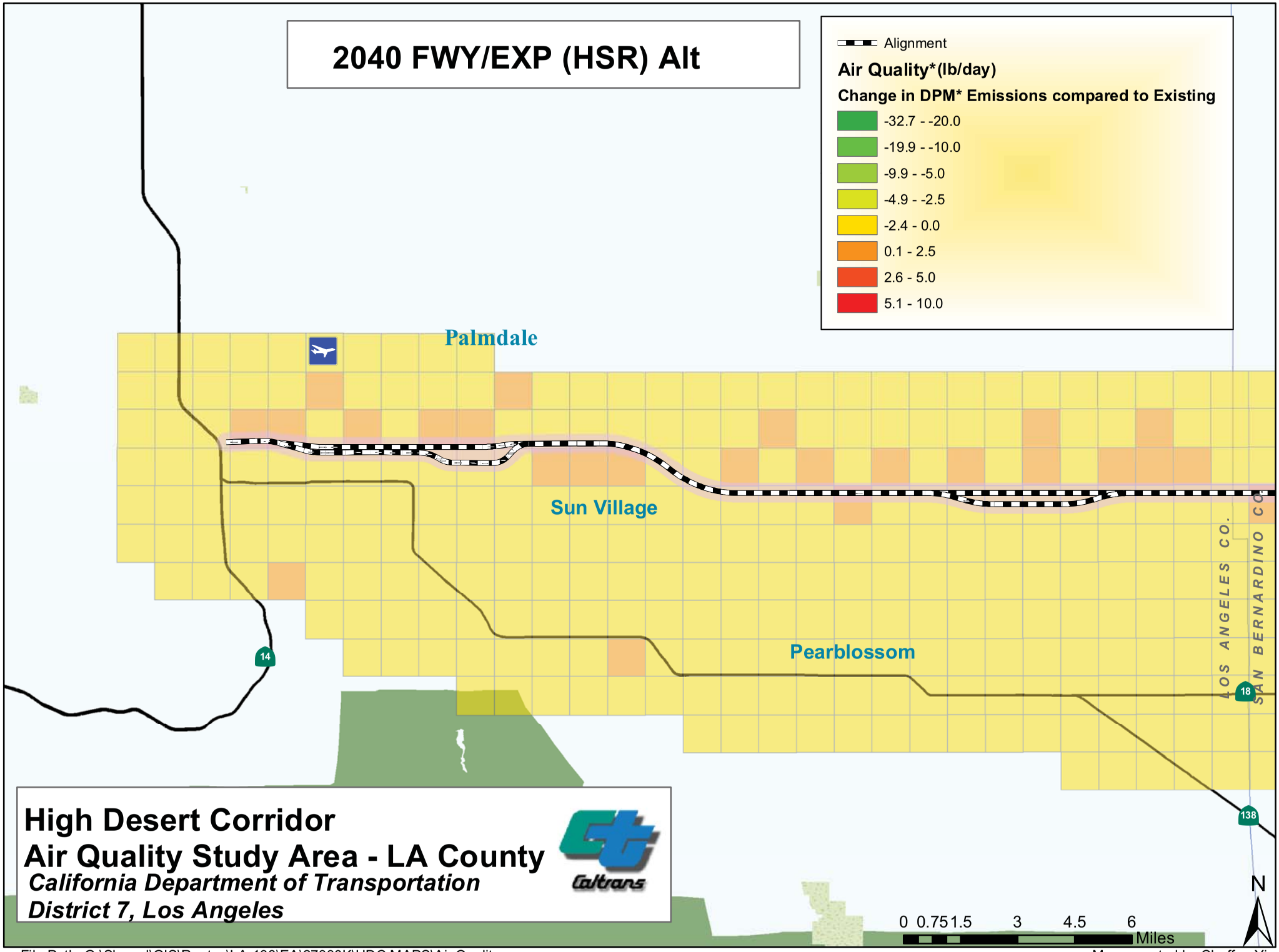
Maps created by Chaffee Yiu
01/2014



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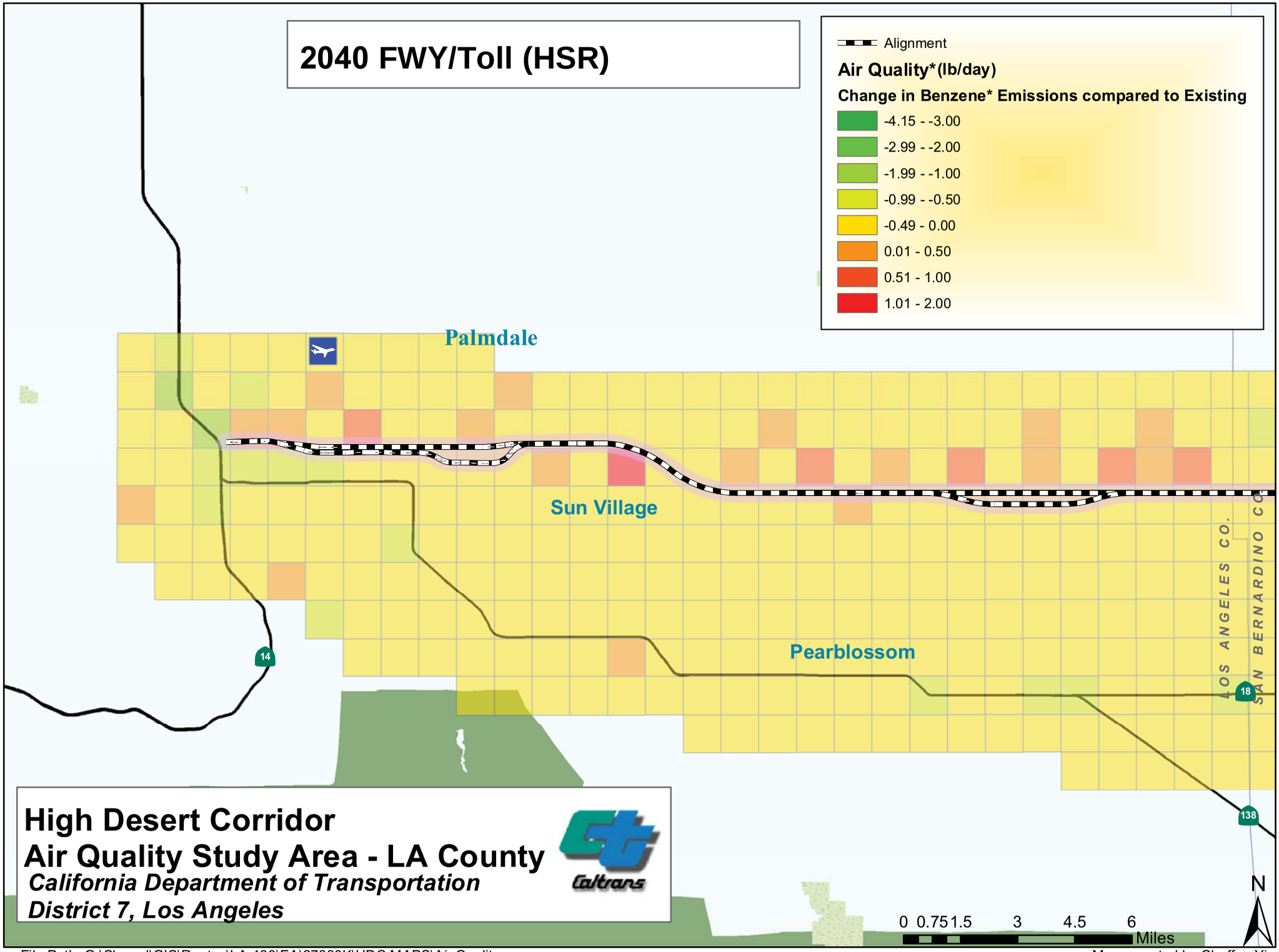
Maps created by Chaffee Yiu
01/2014



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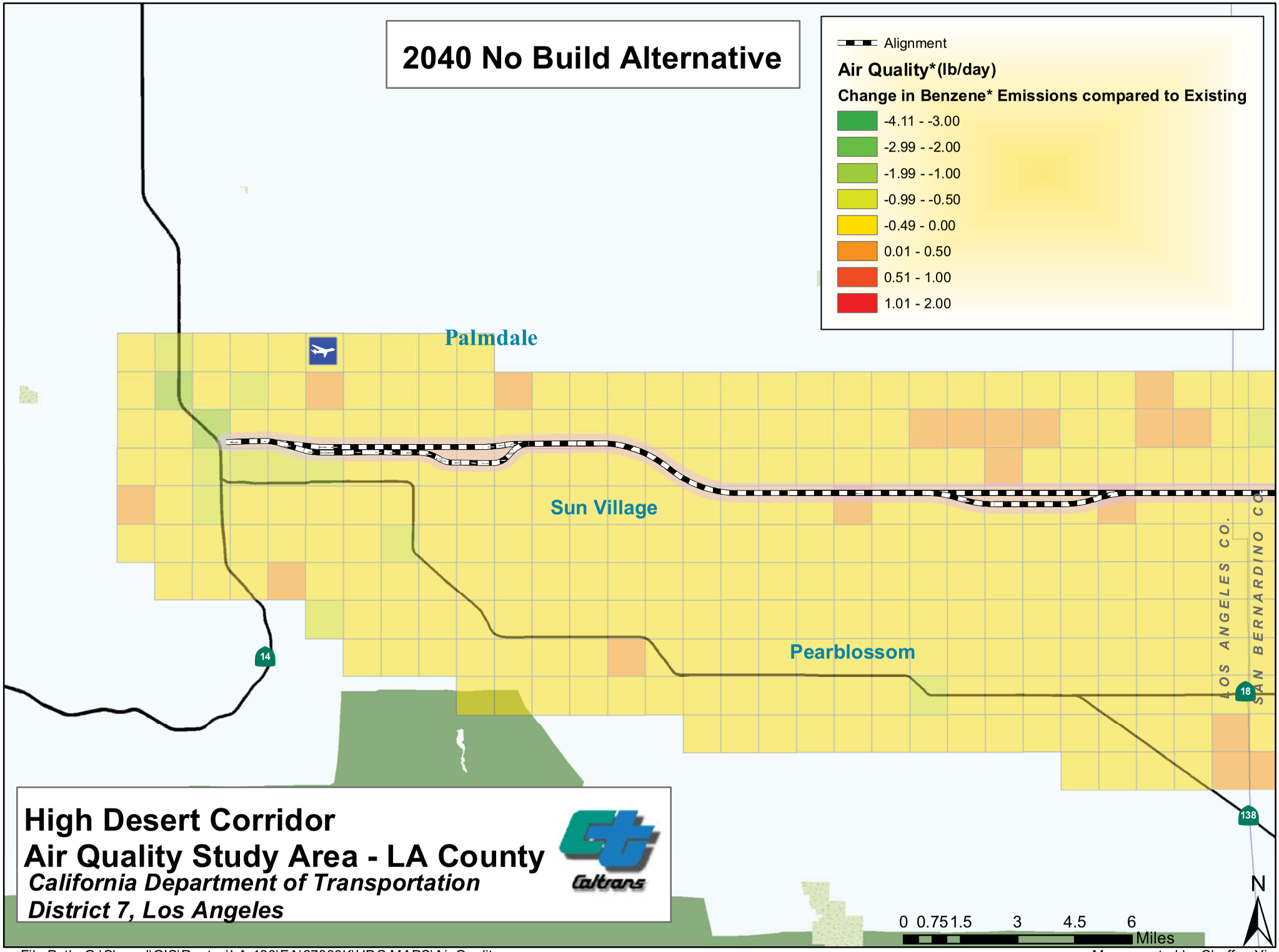

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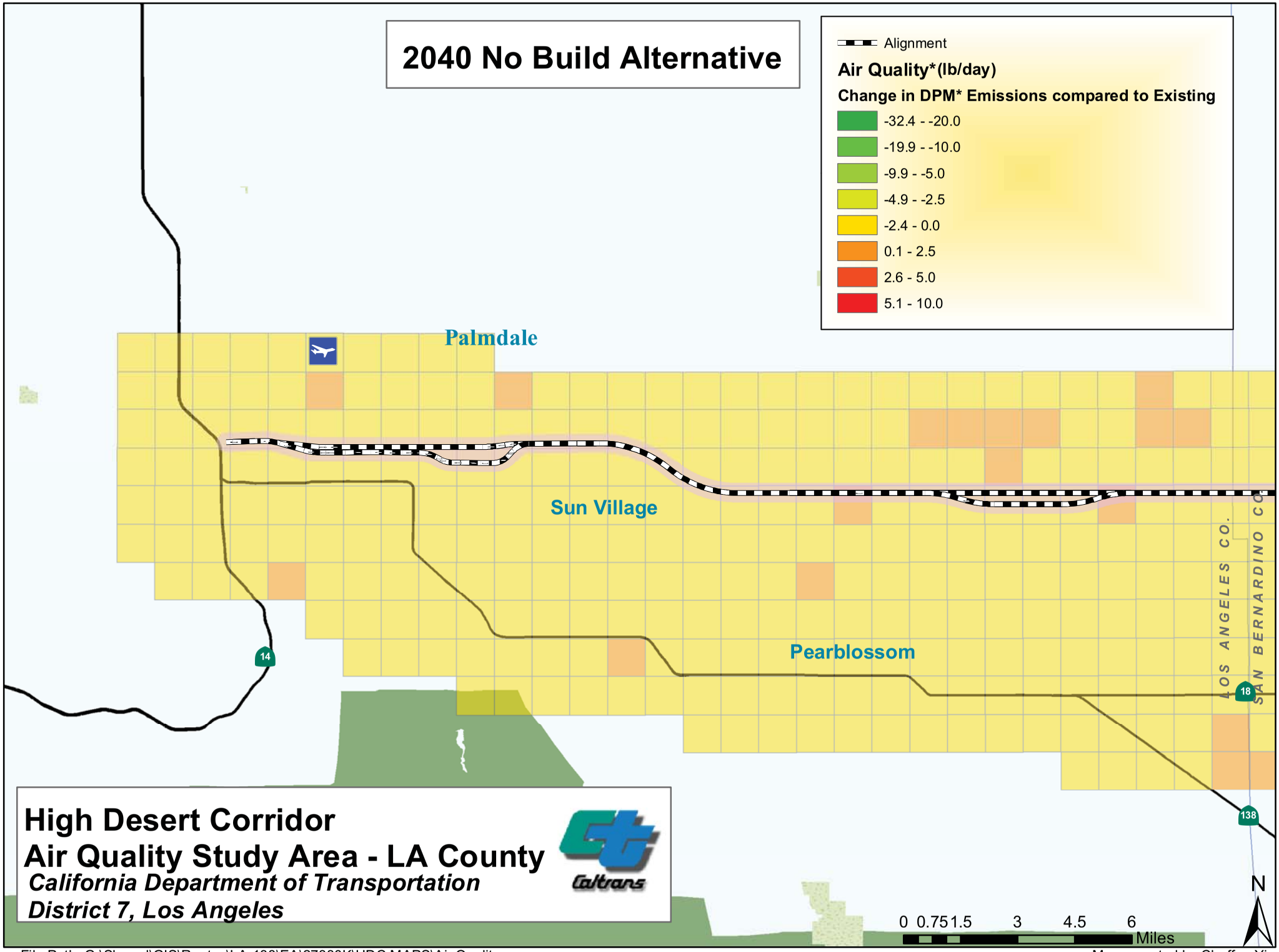

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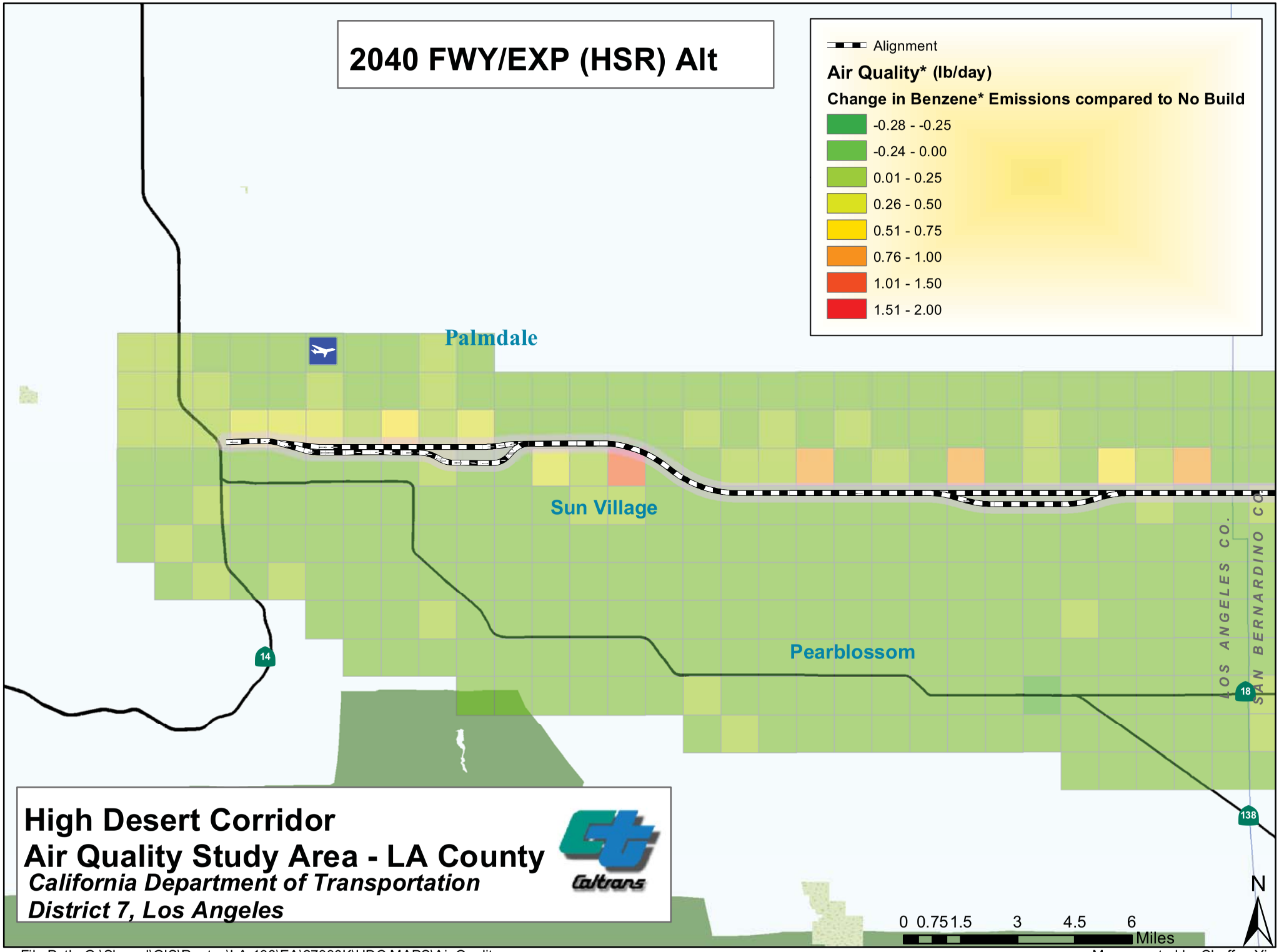

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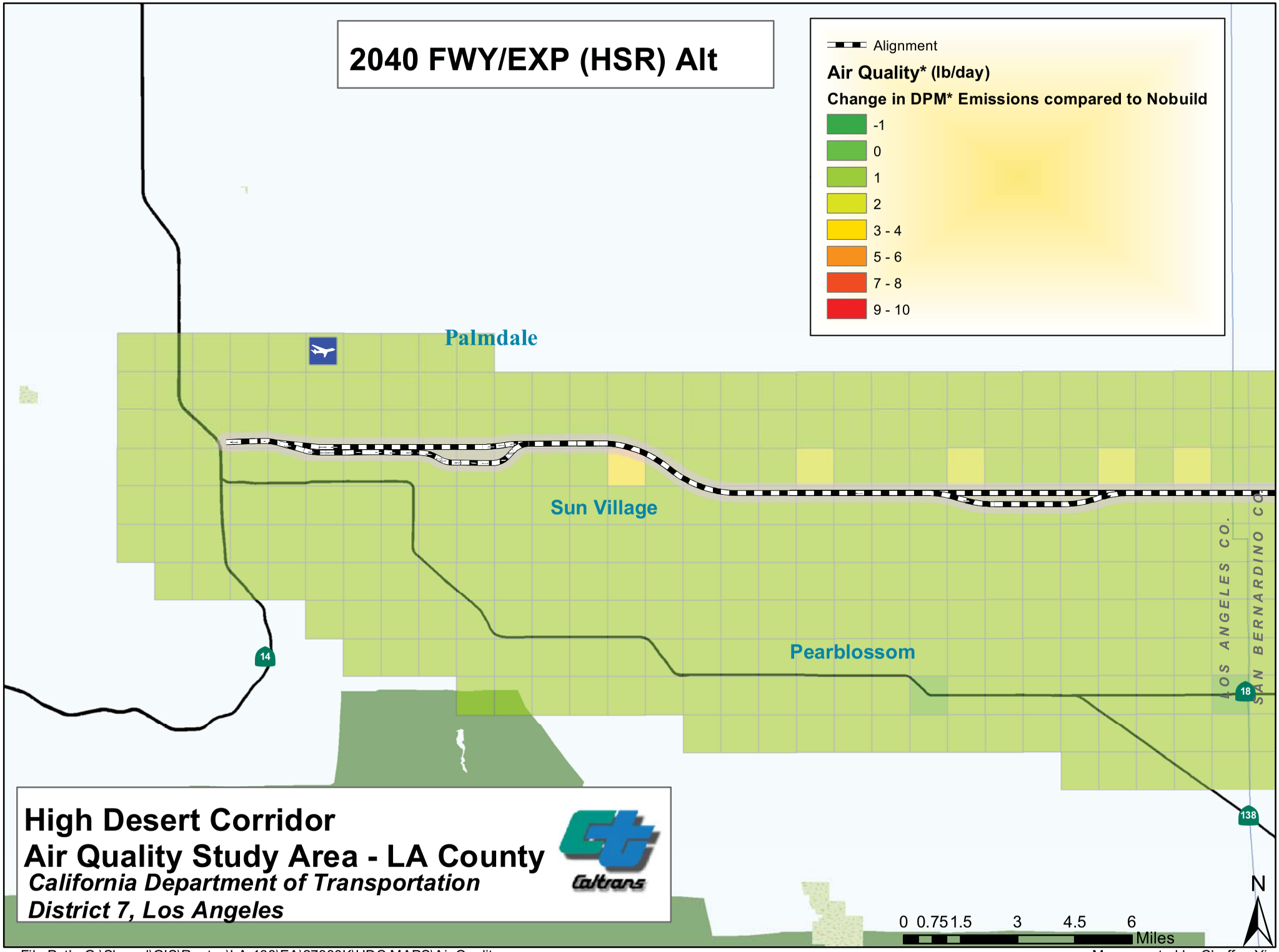

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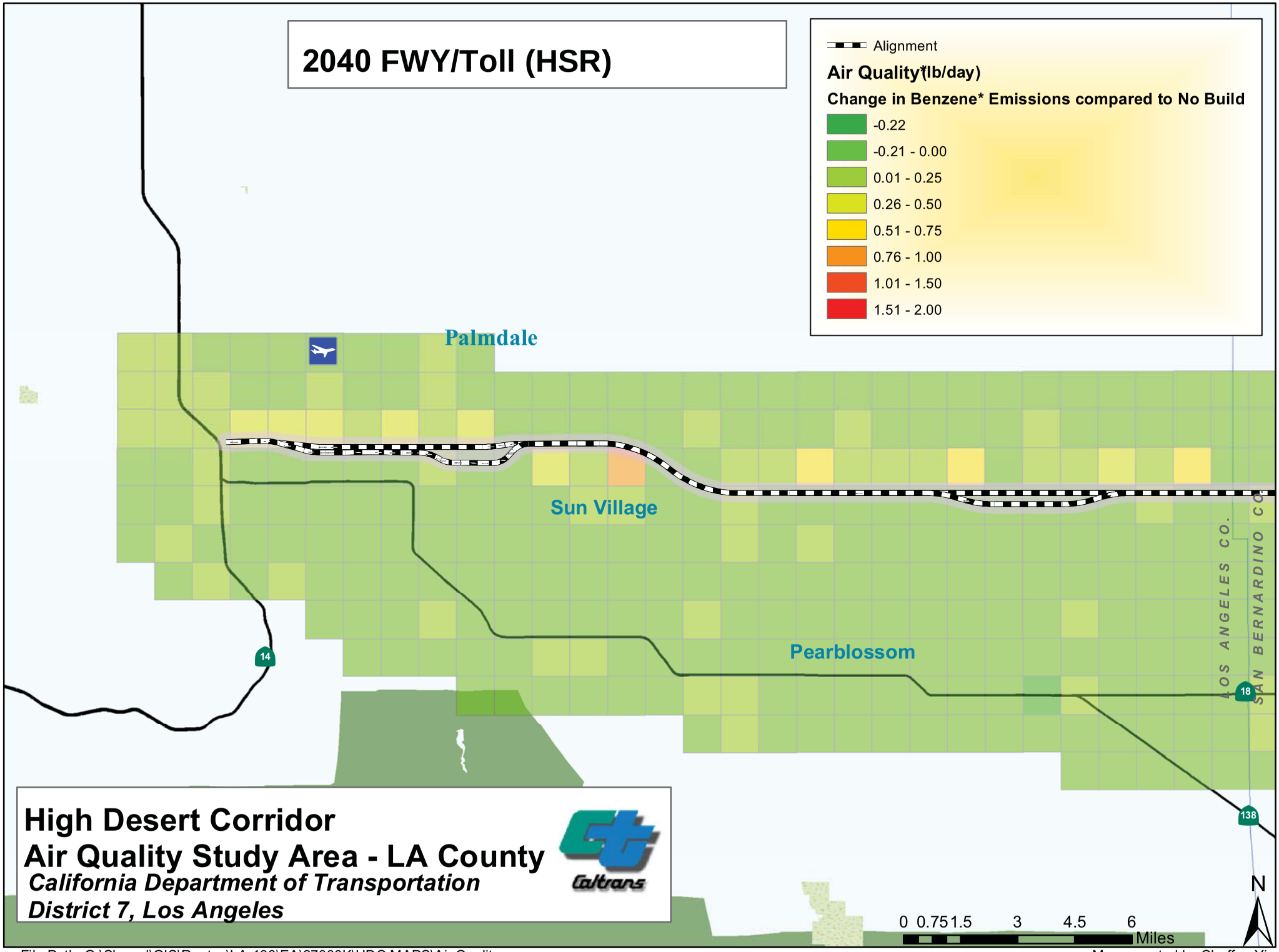

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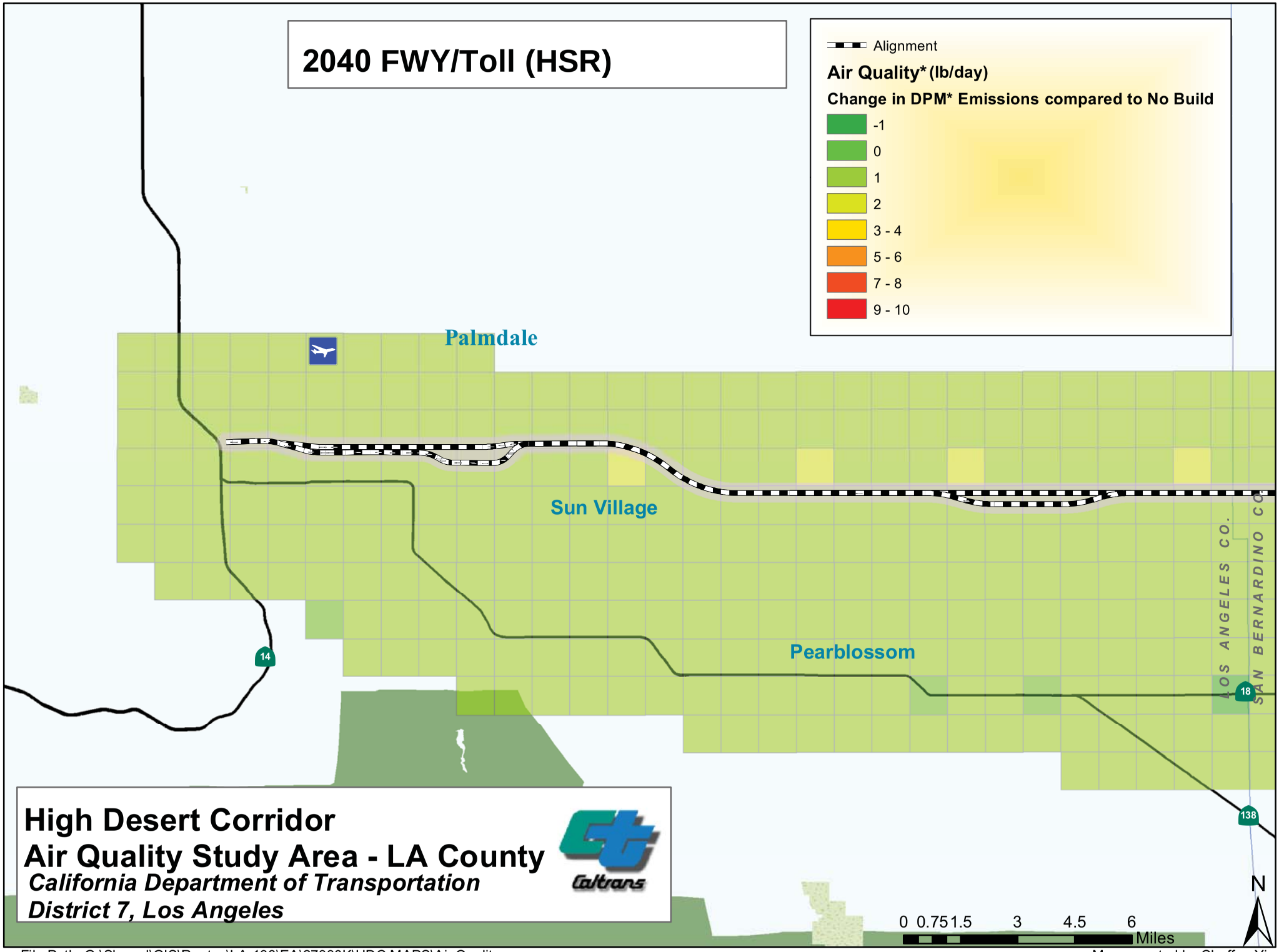

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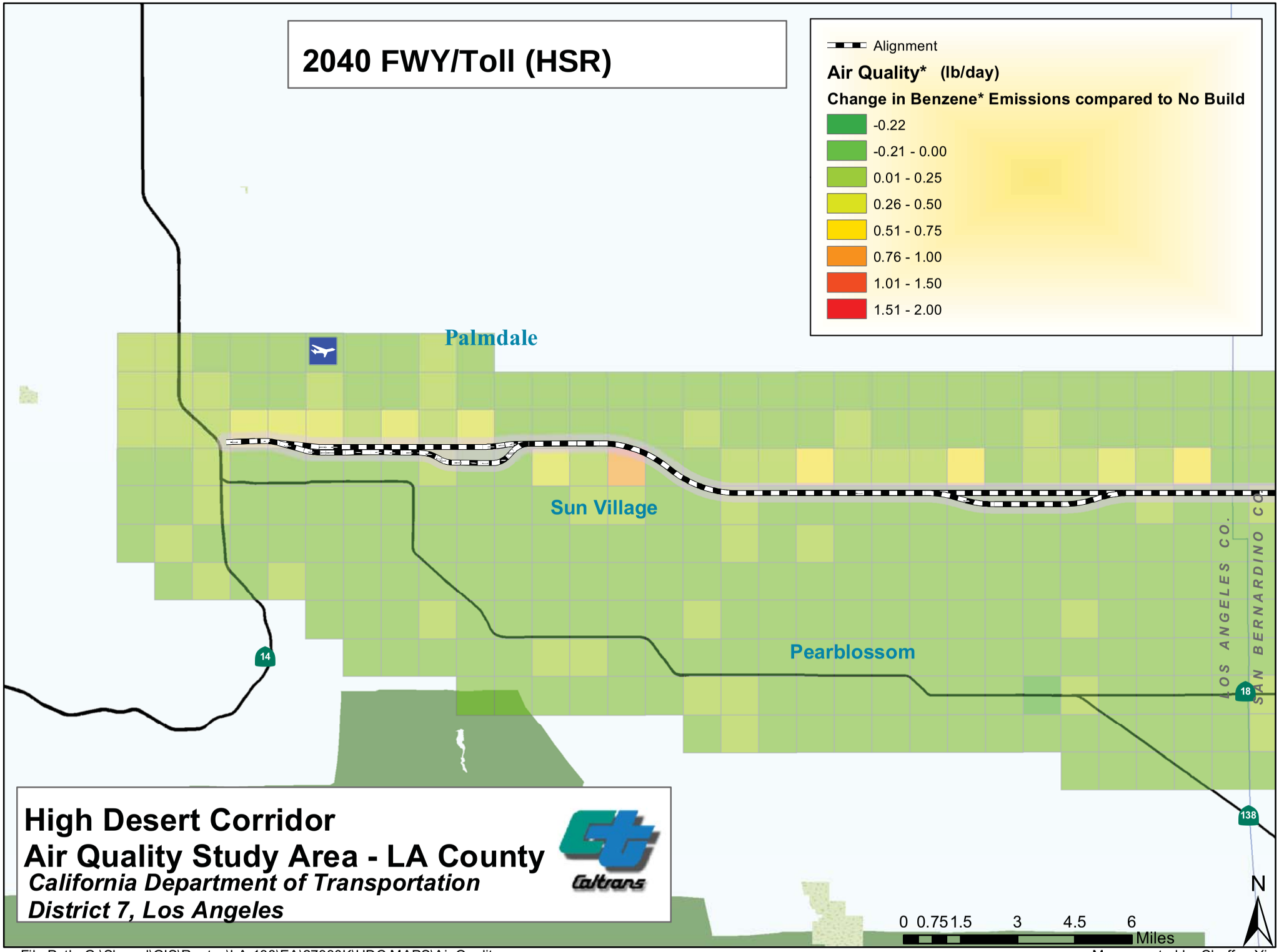

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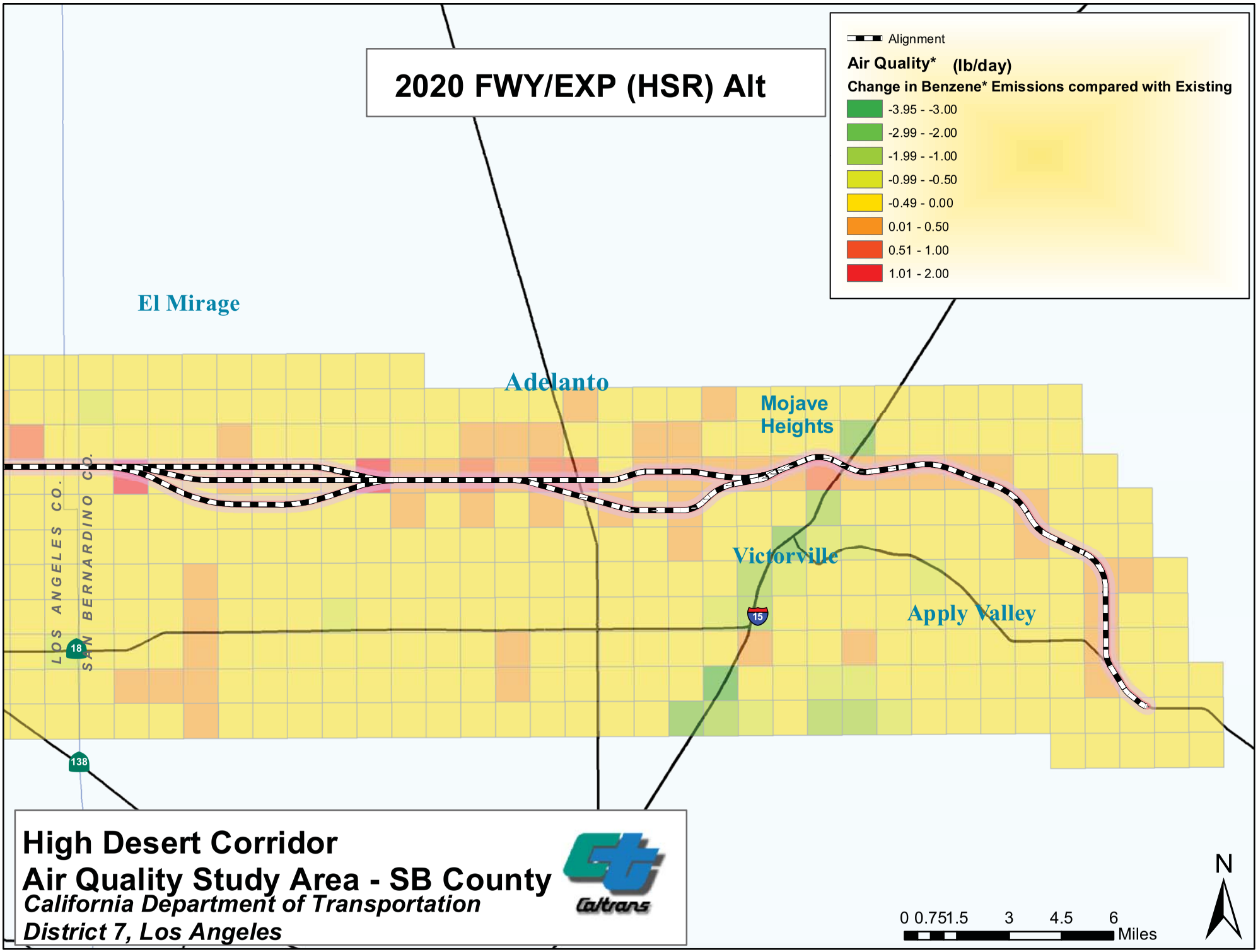

High Desert Corridor
Air Quality Study Area - SB County
California Department of Transportation
District 7, Los Angeles

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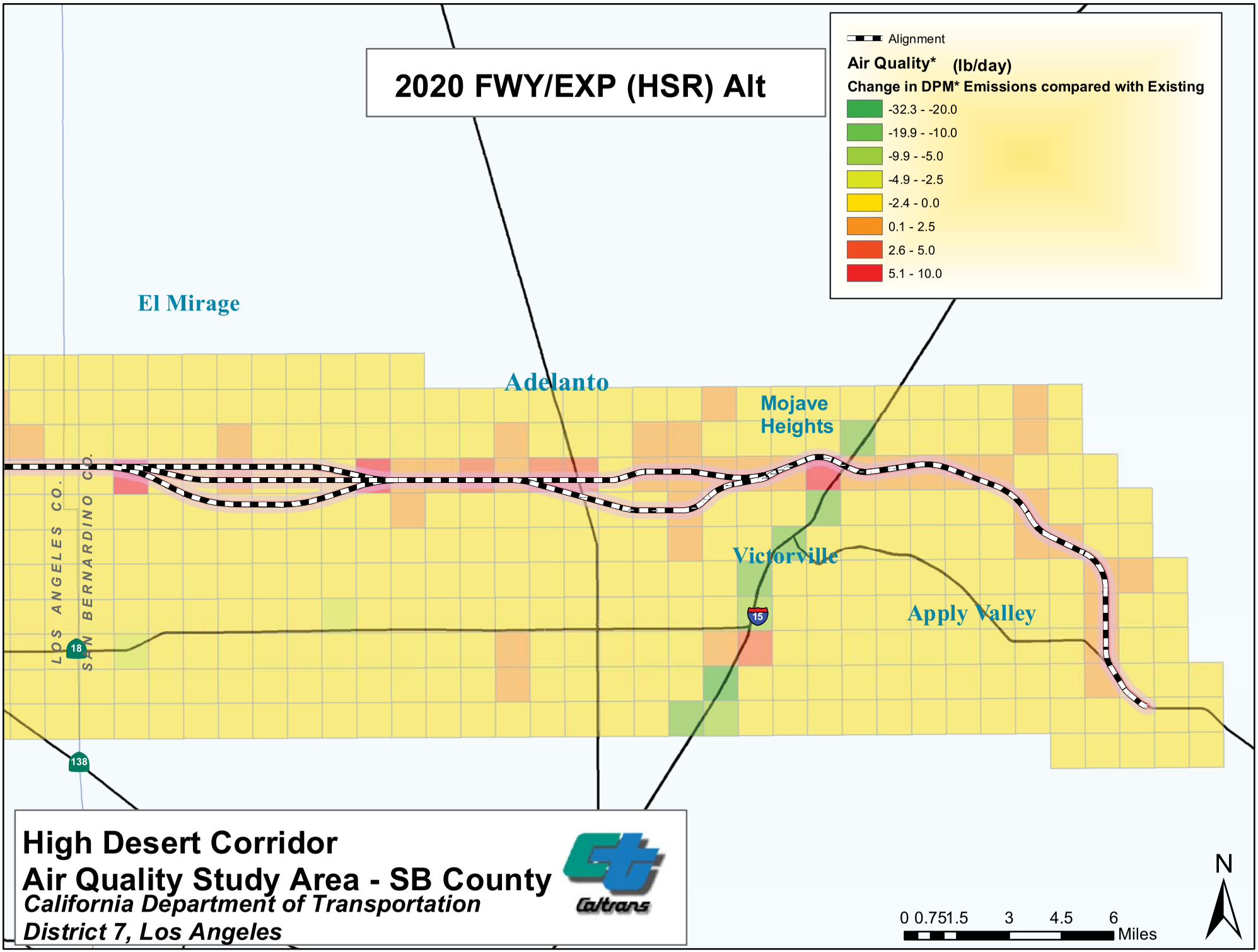

High Desert Corridor
Air Quality Study Area - SB County
California Department of Transportation
District 7, Los Angeles

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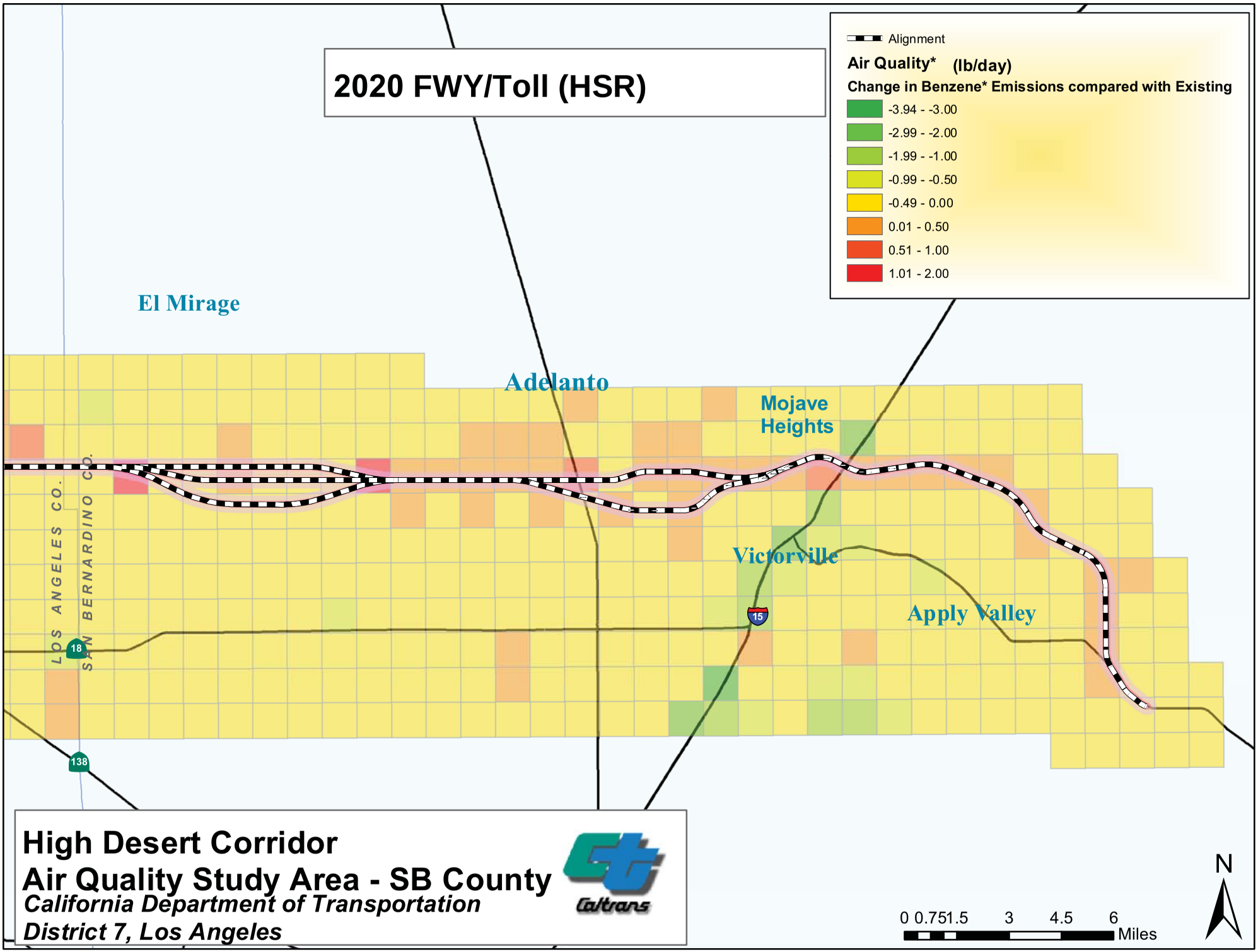

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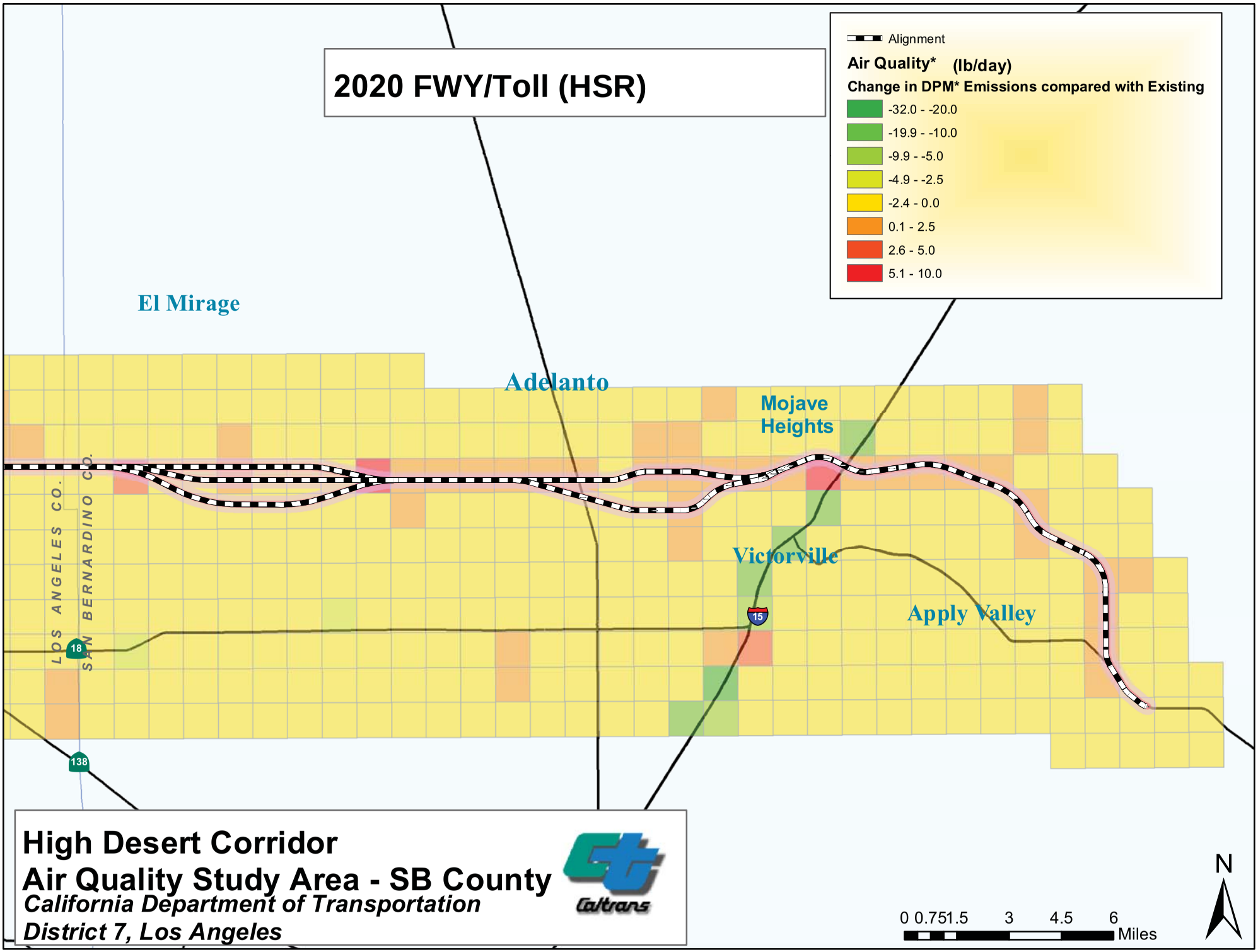

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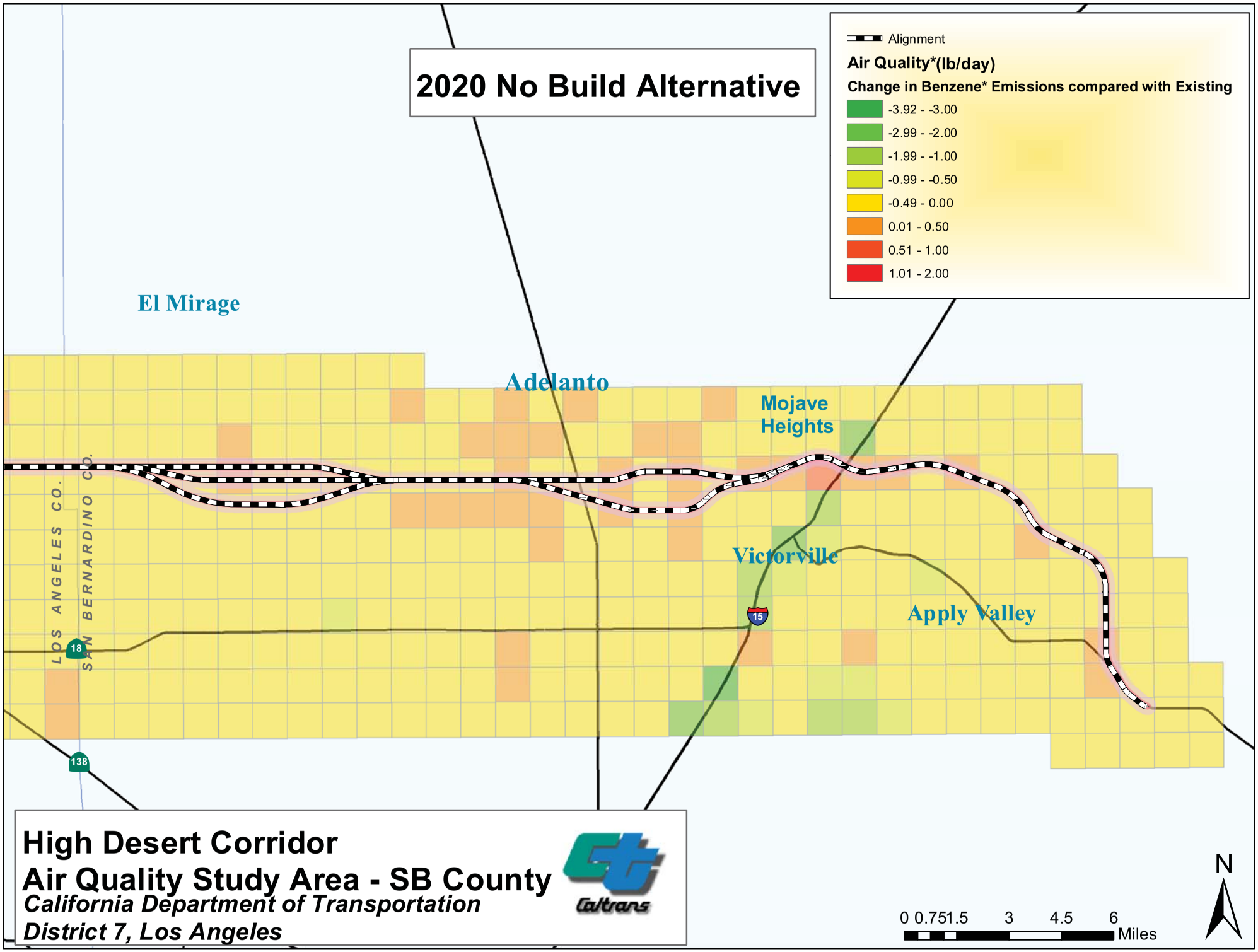

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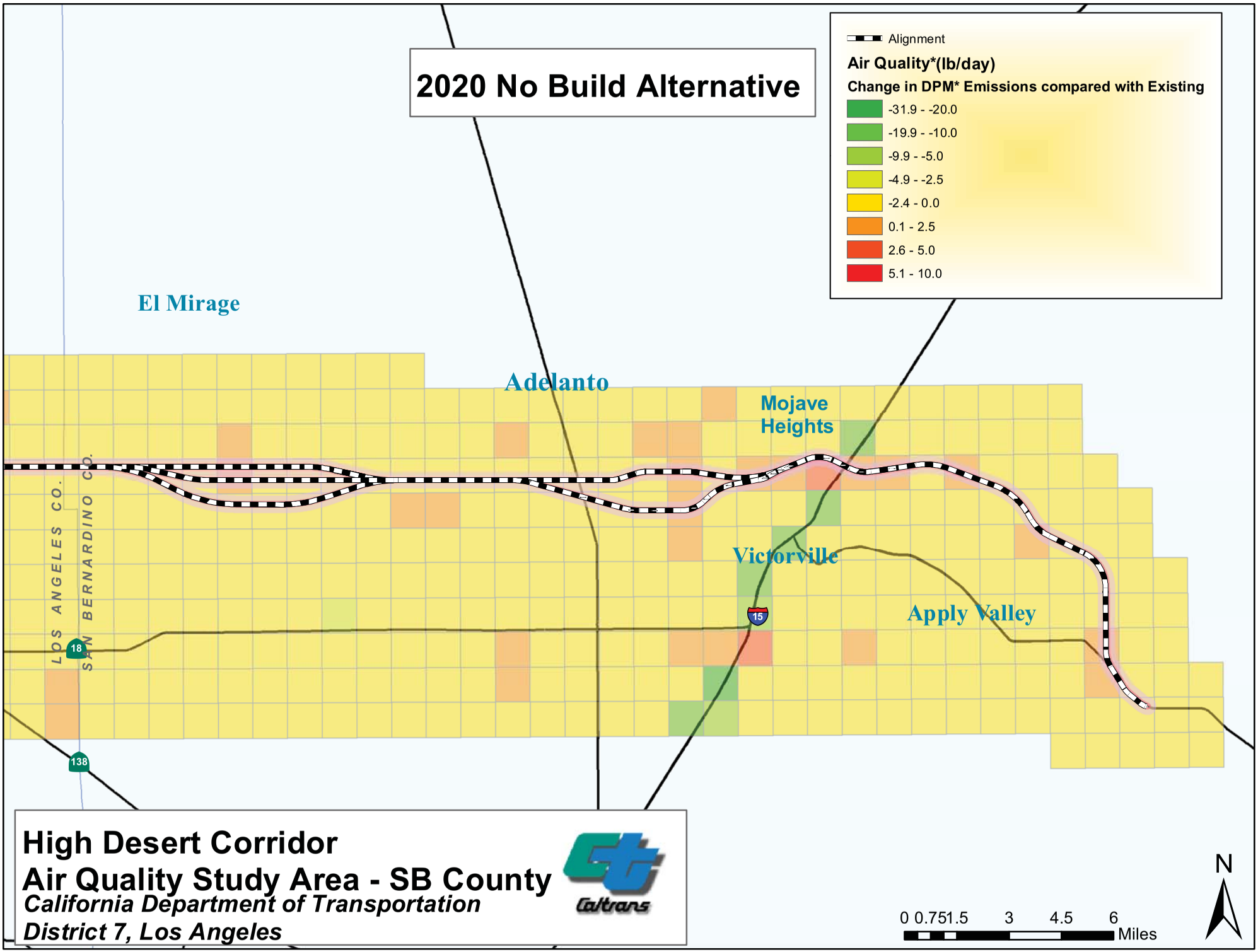

High Desert Corridor
Air Quality Study Area - SB County

California Department of Transportation

District 7, Los Angeles

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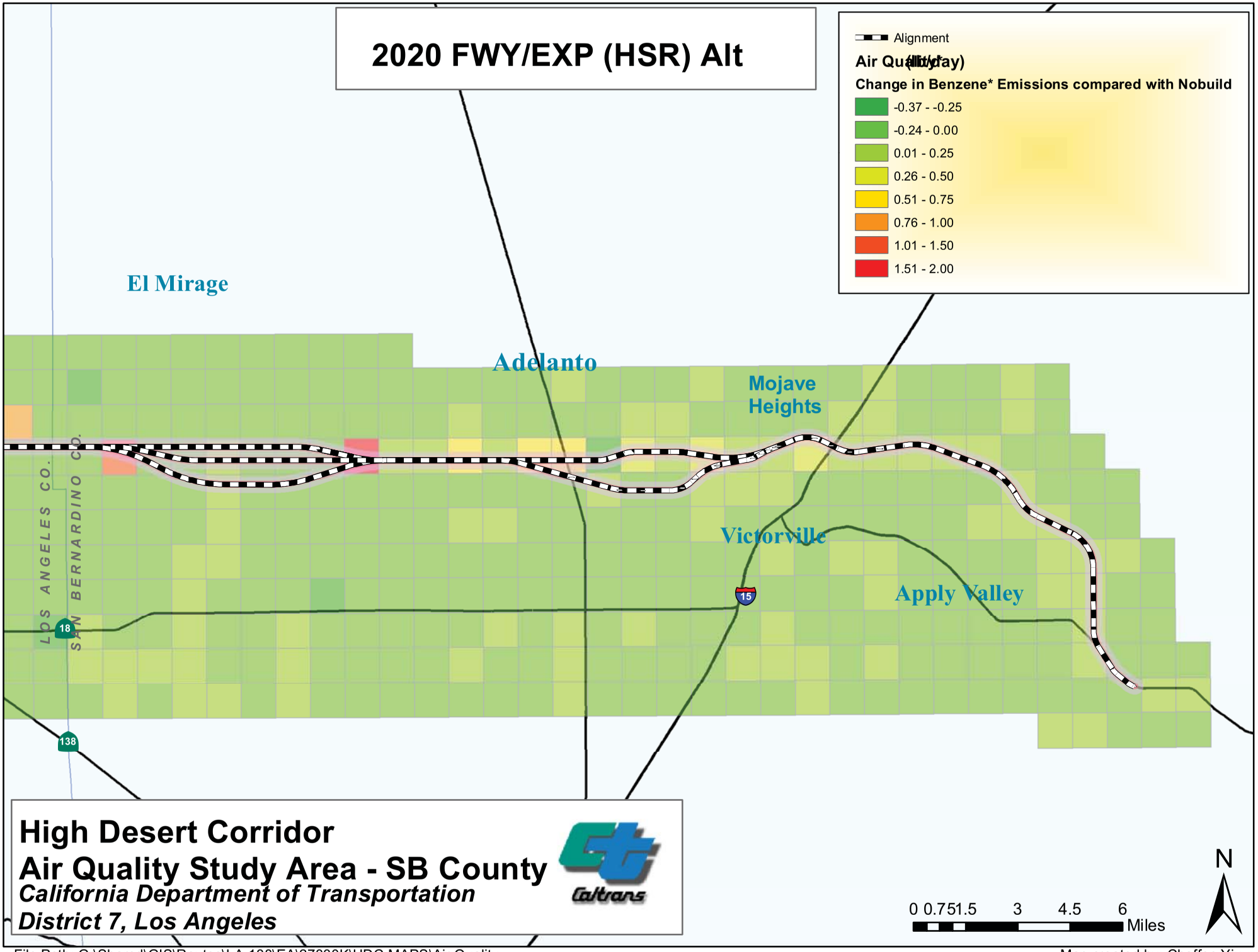

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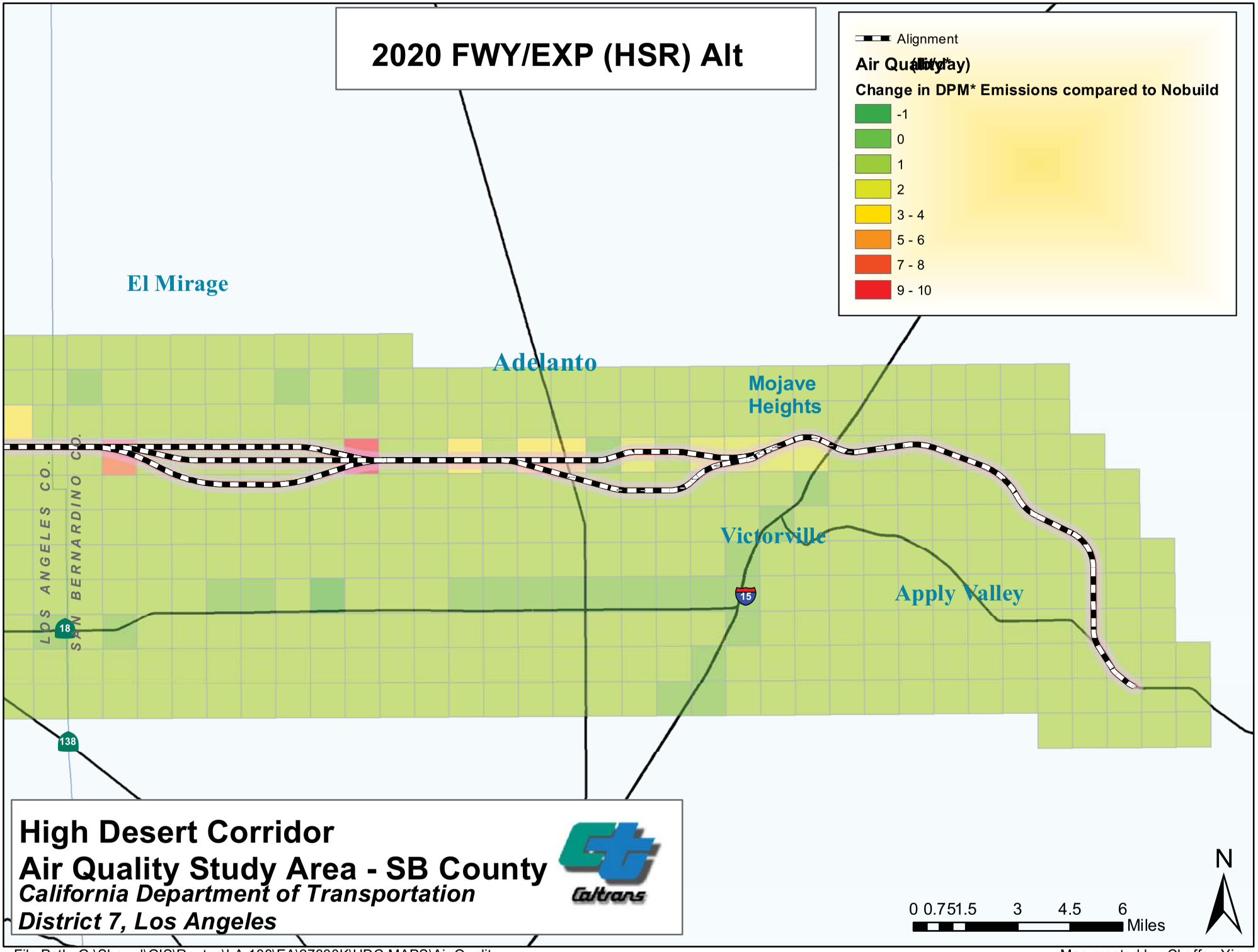

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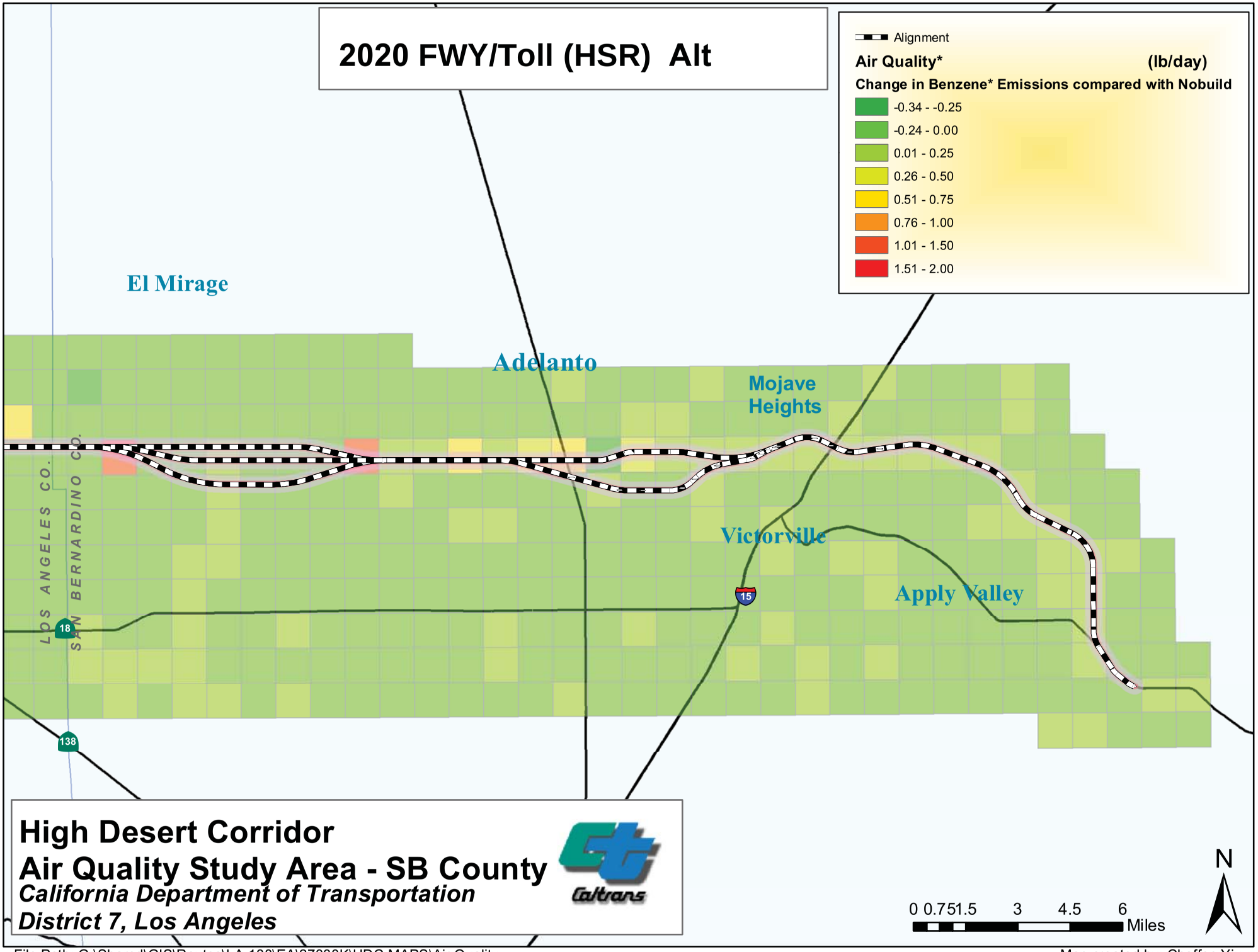

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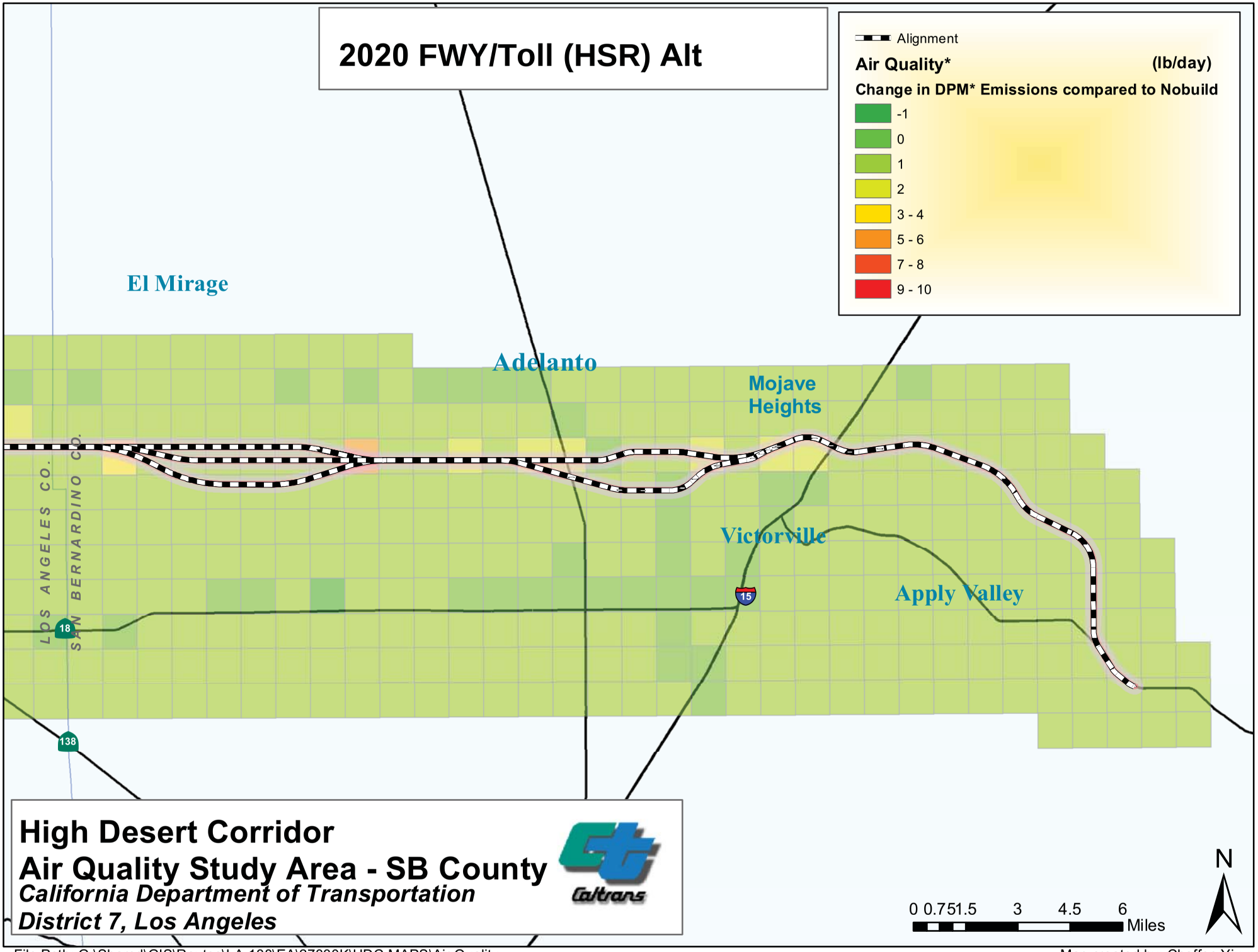

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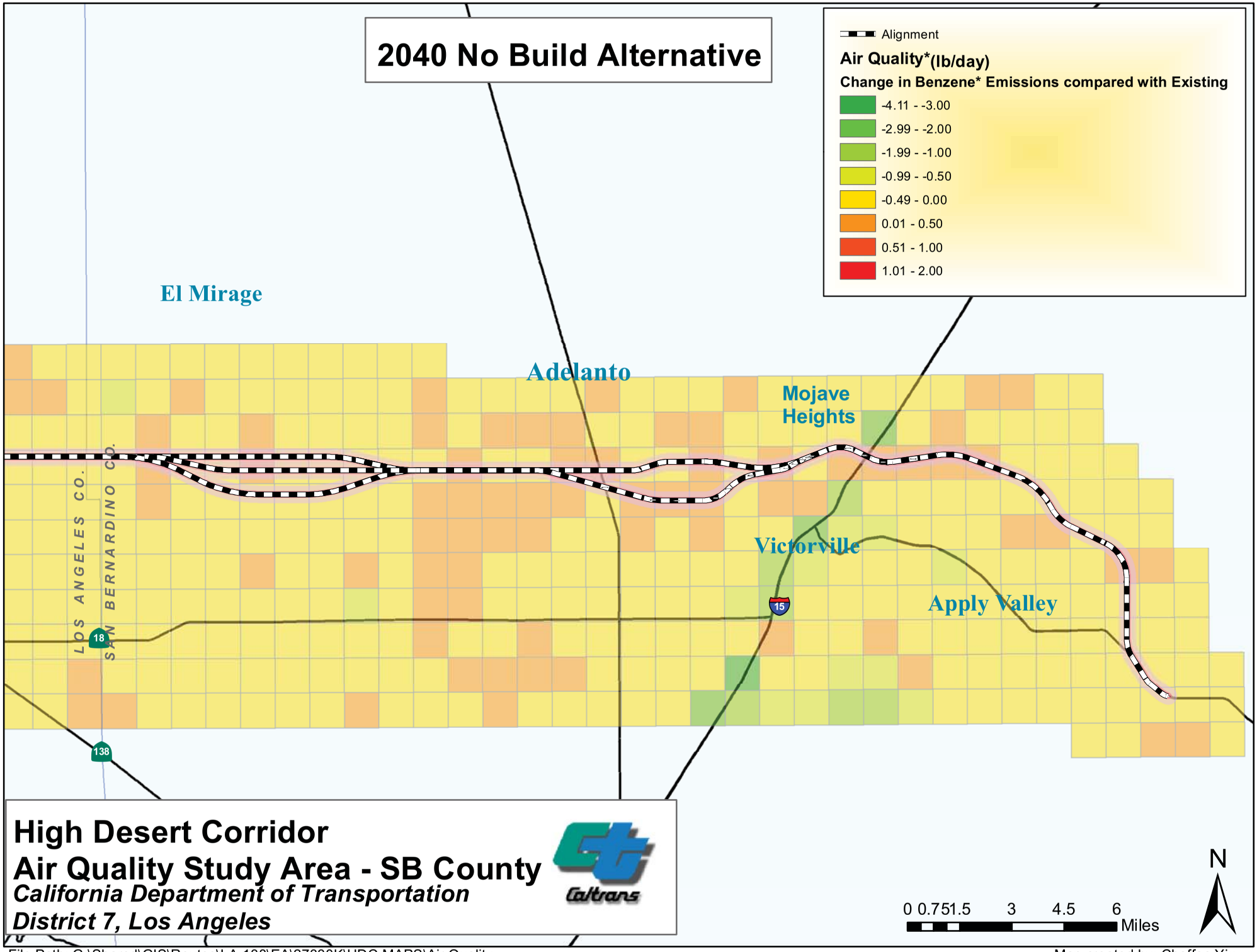

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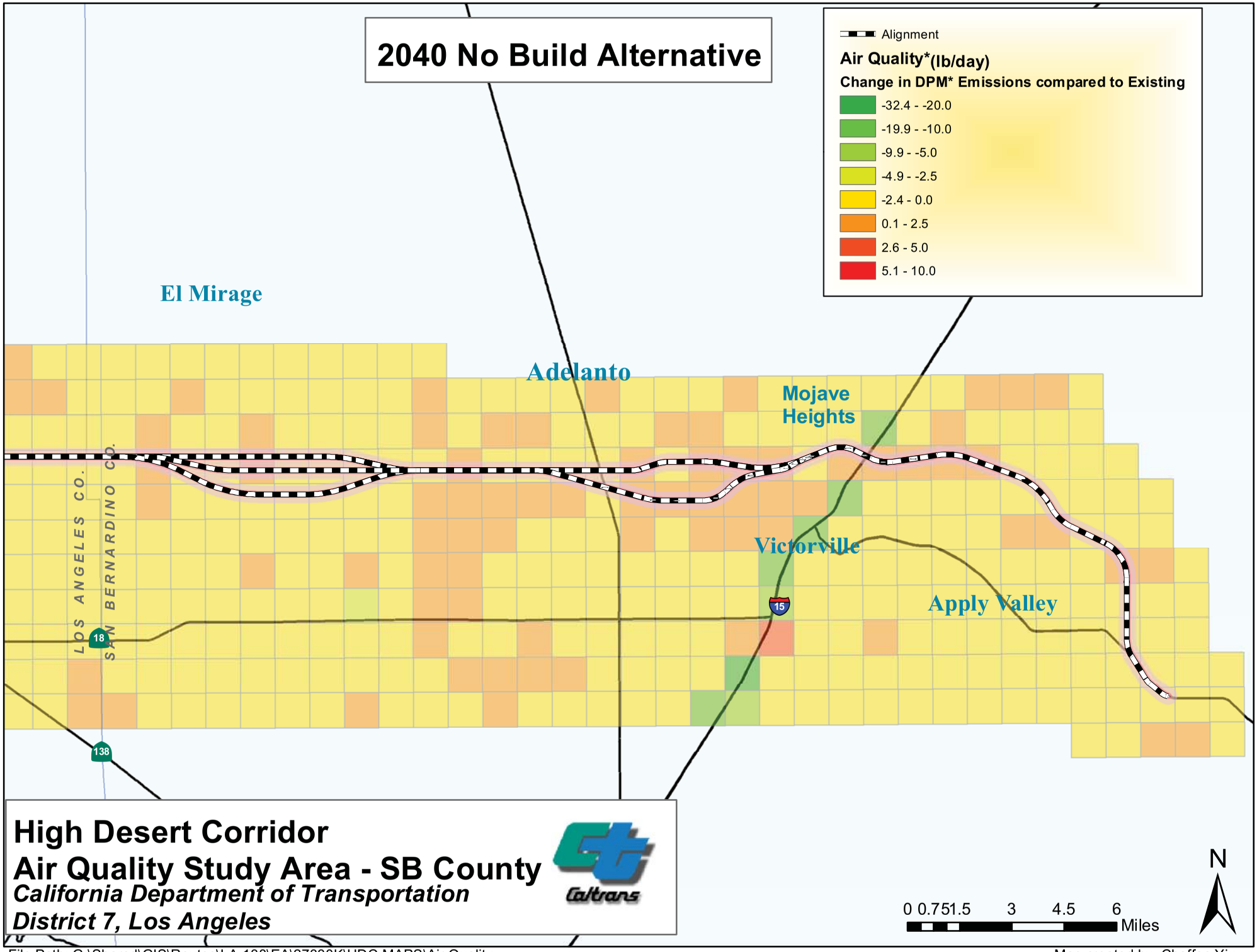

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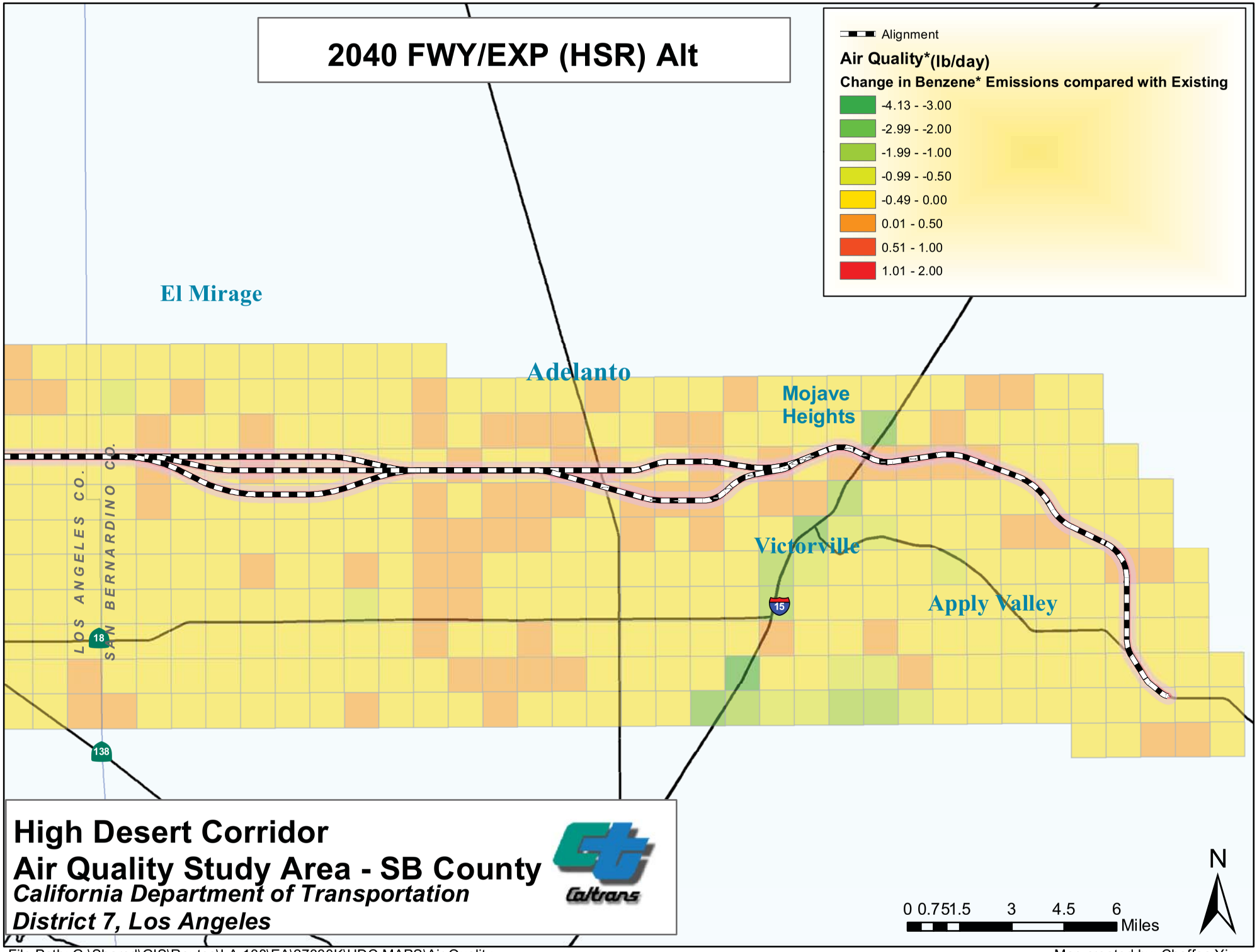

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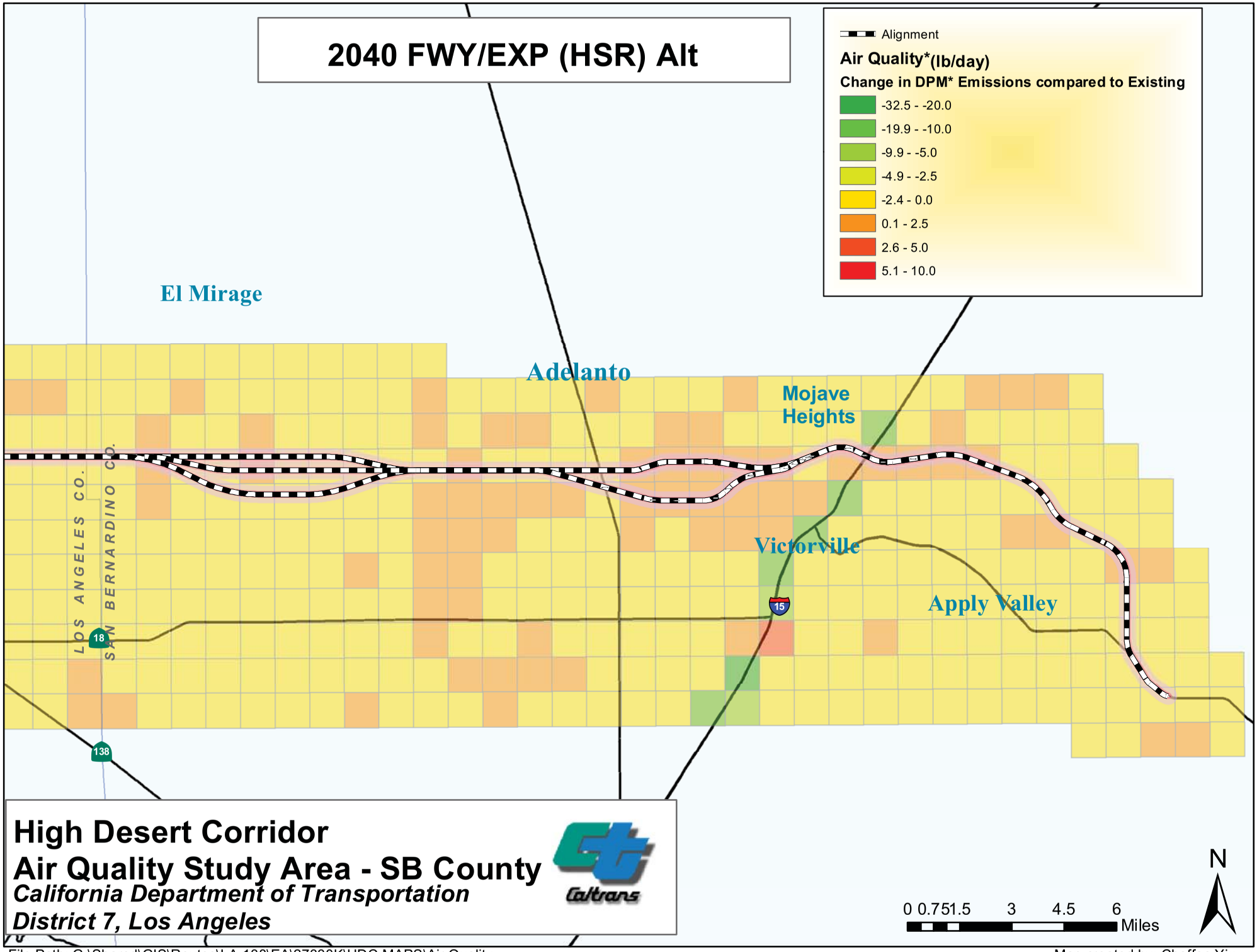

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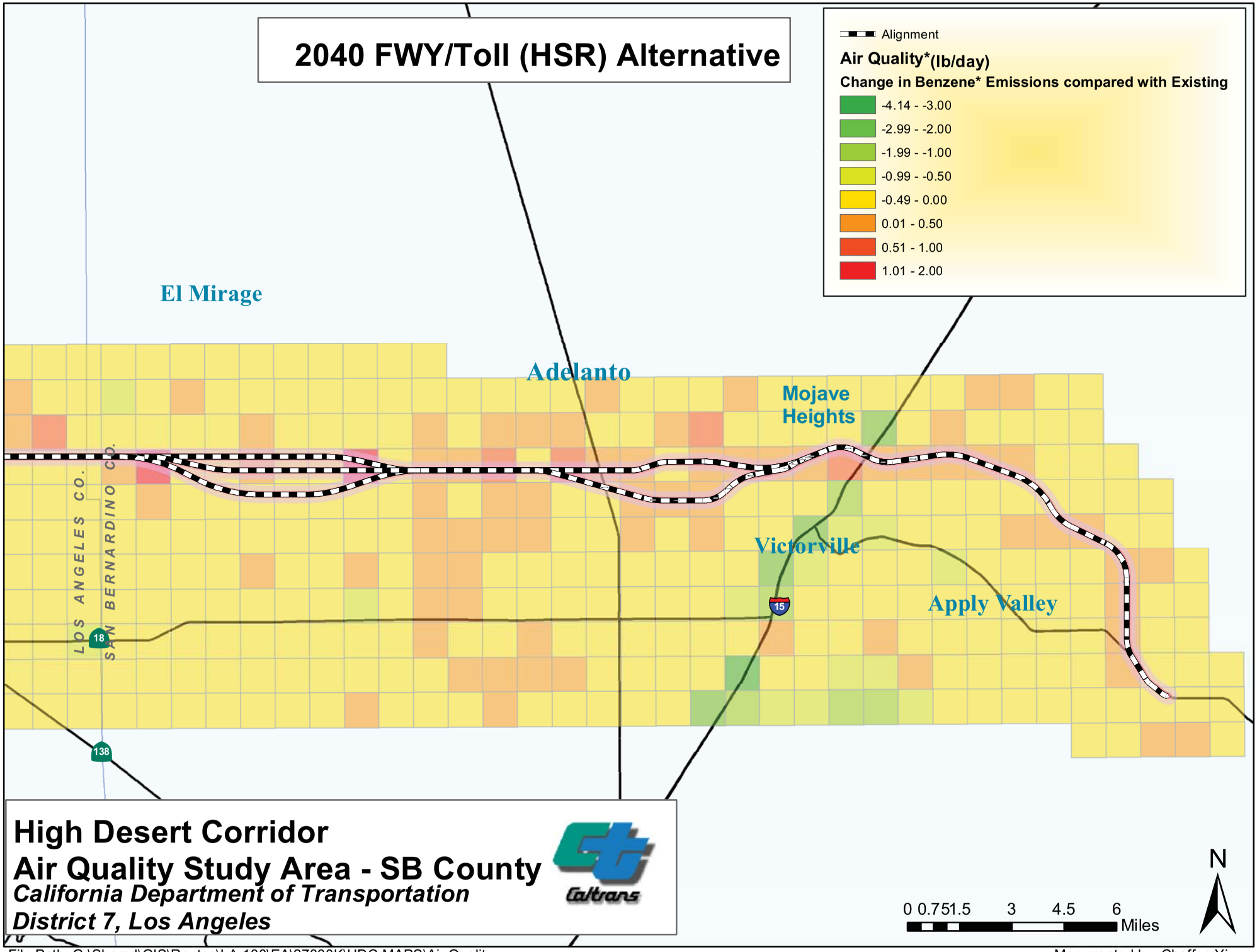

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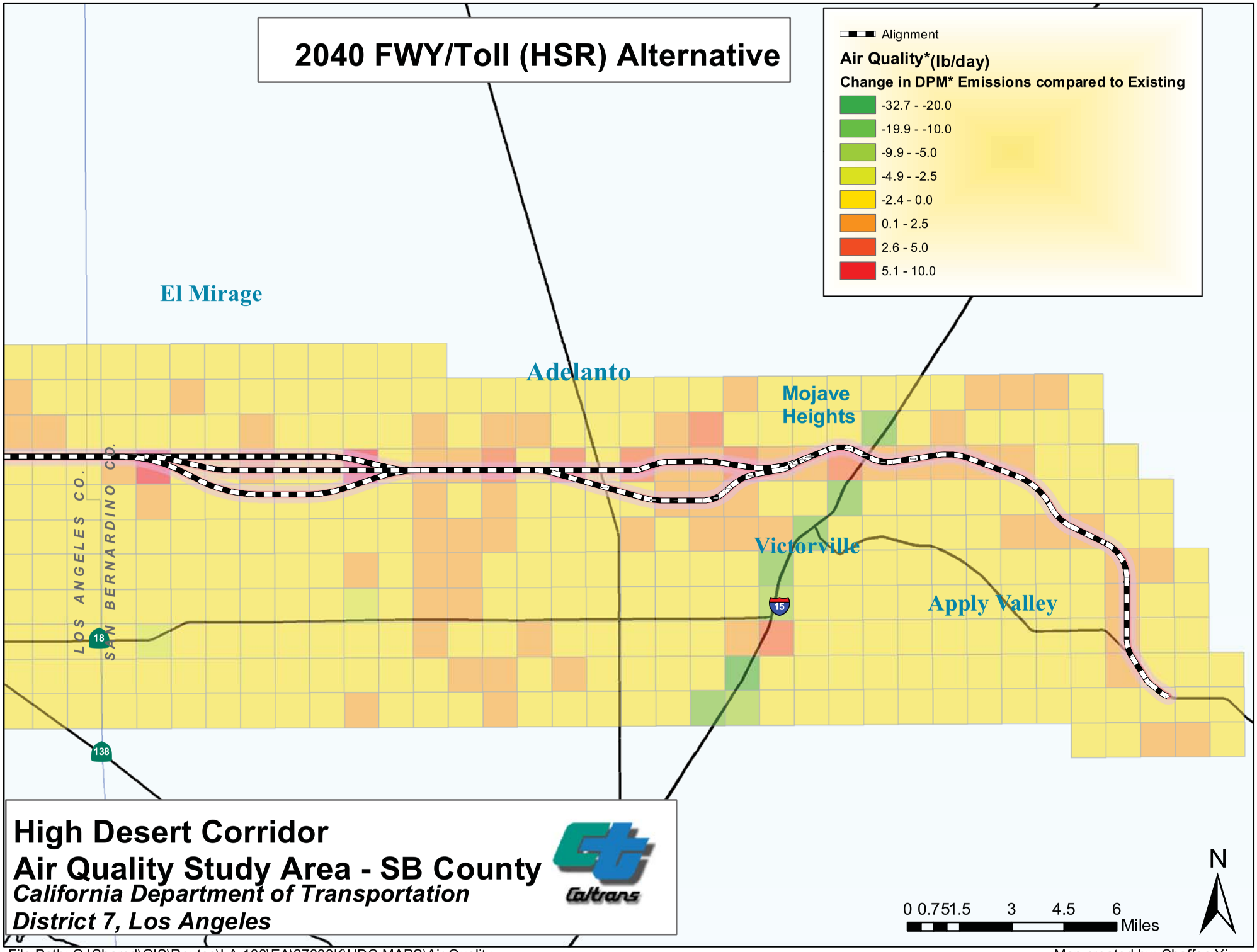

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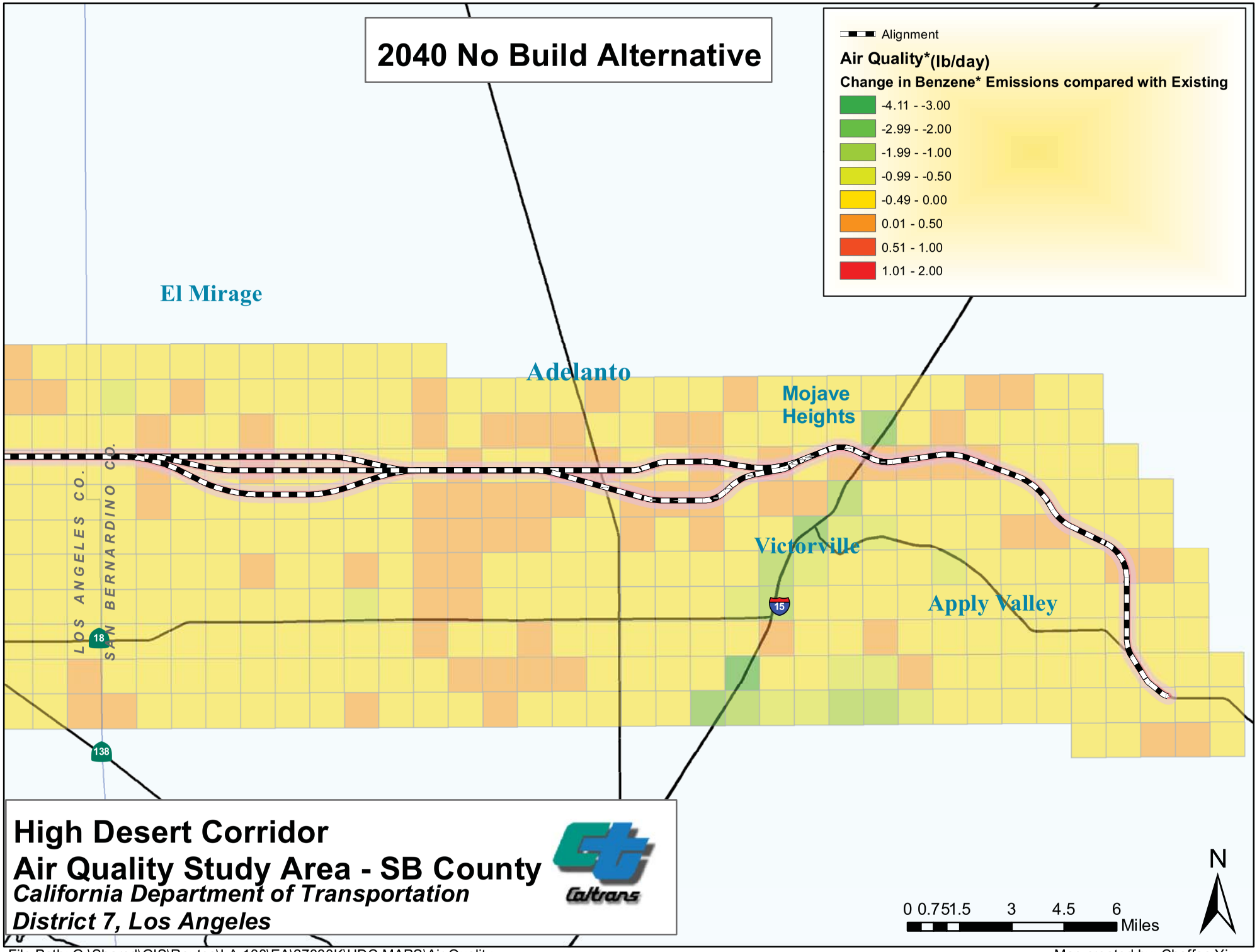

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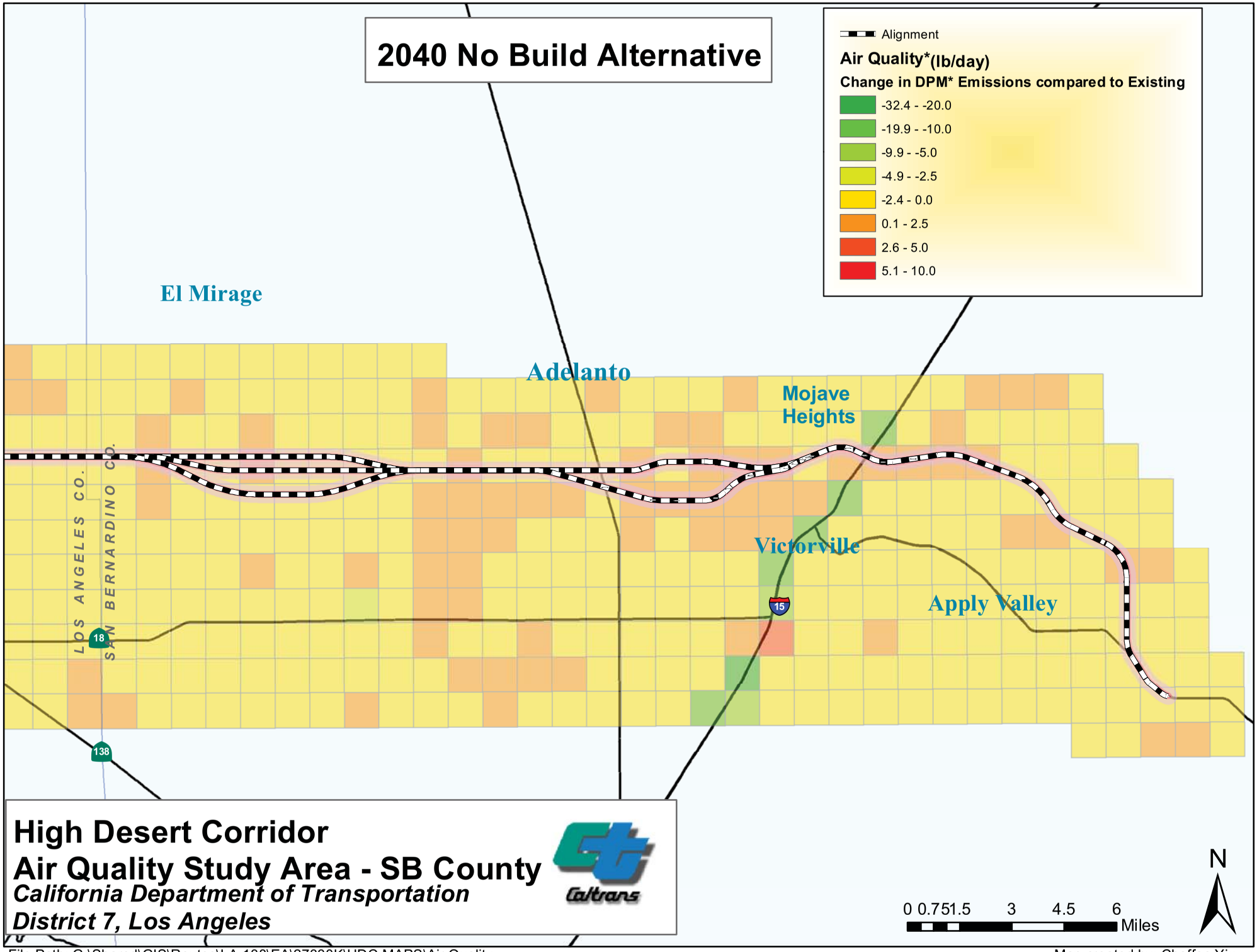

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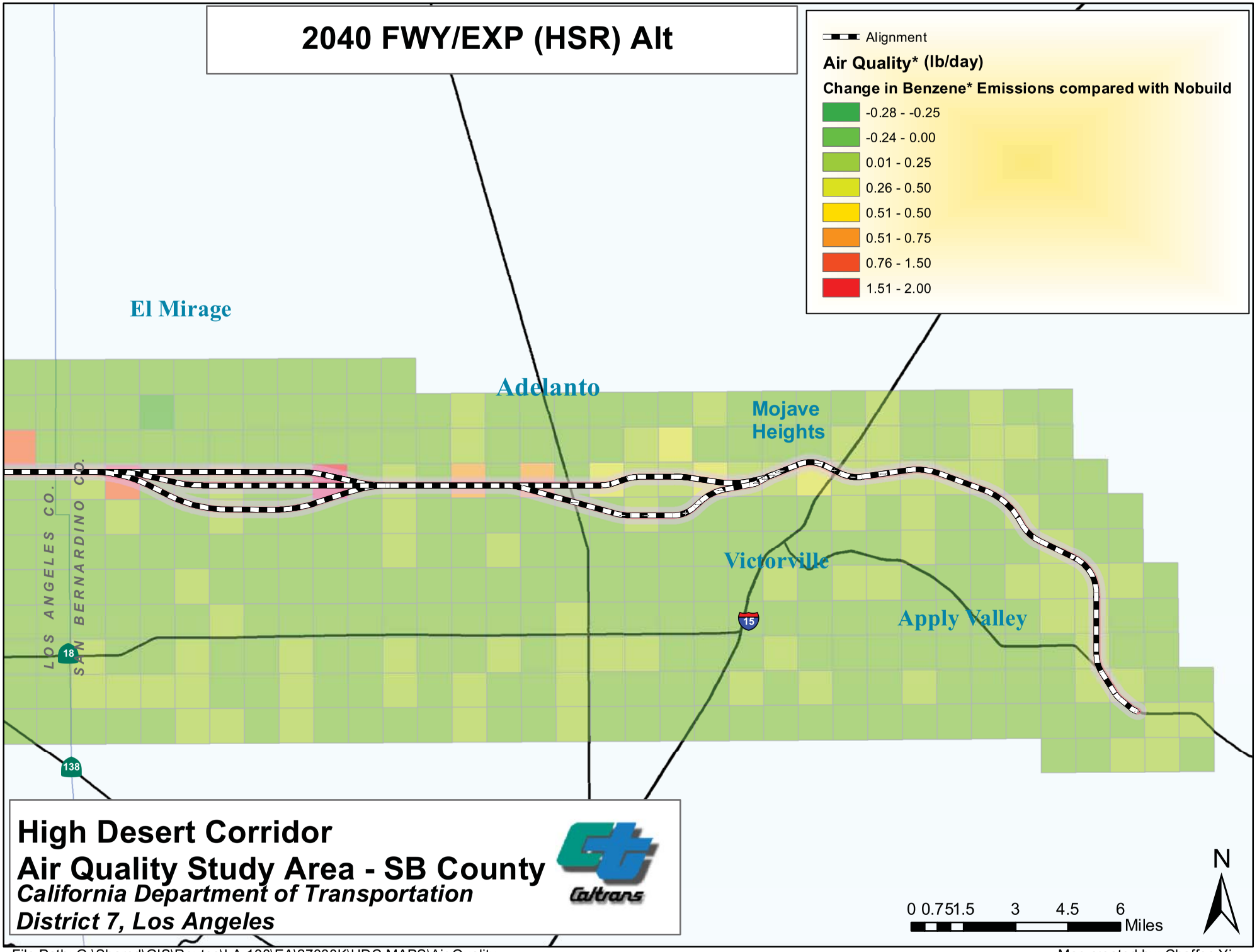

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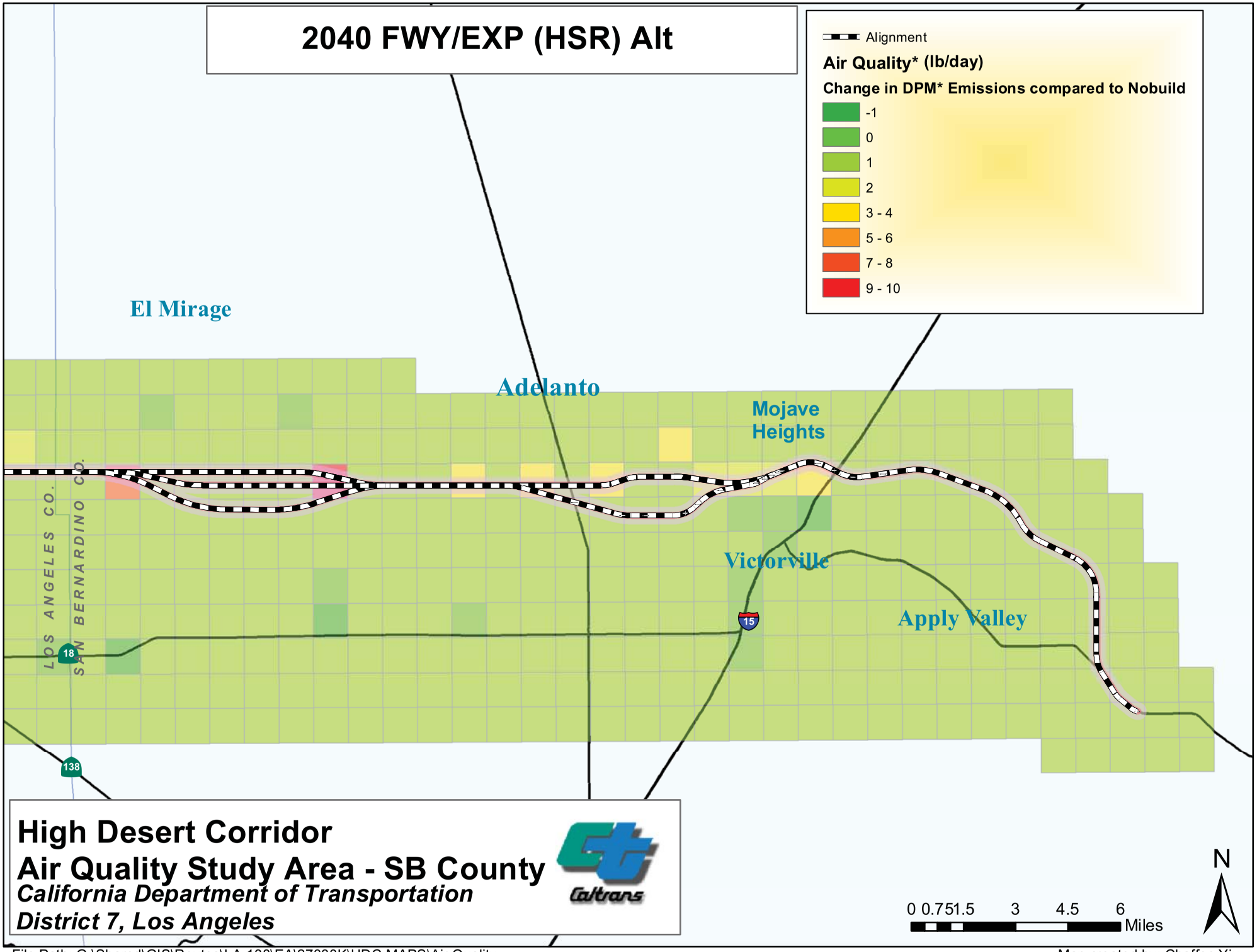

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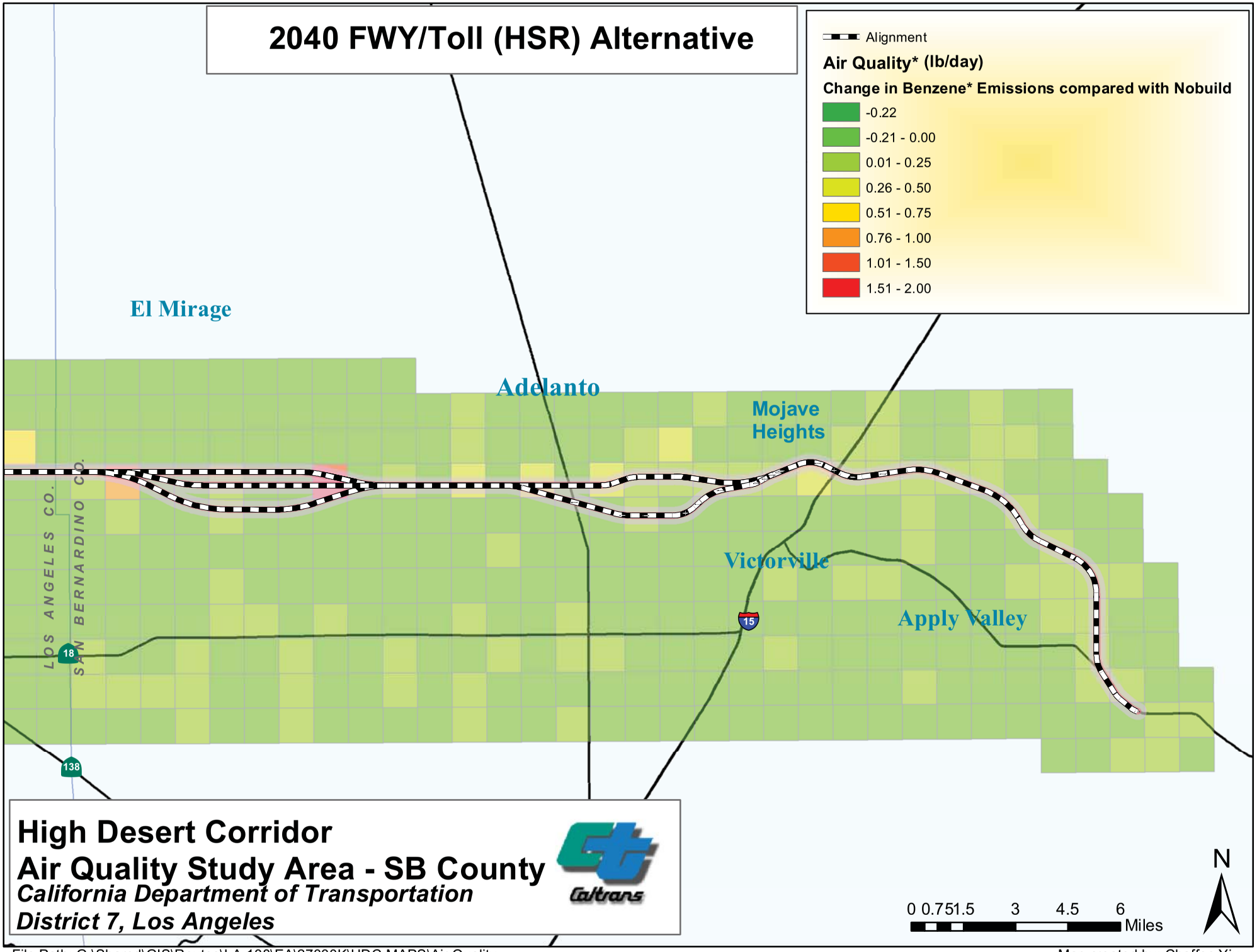

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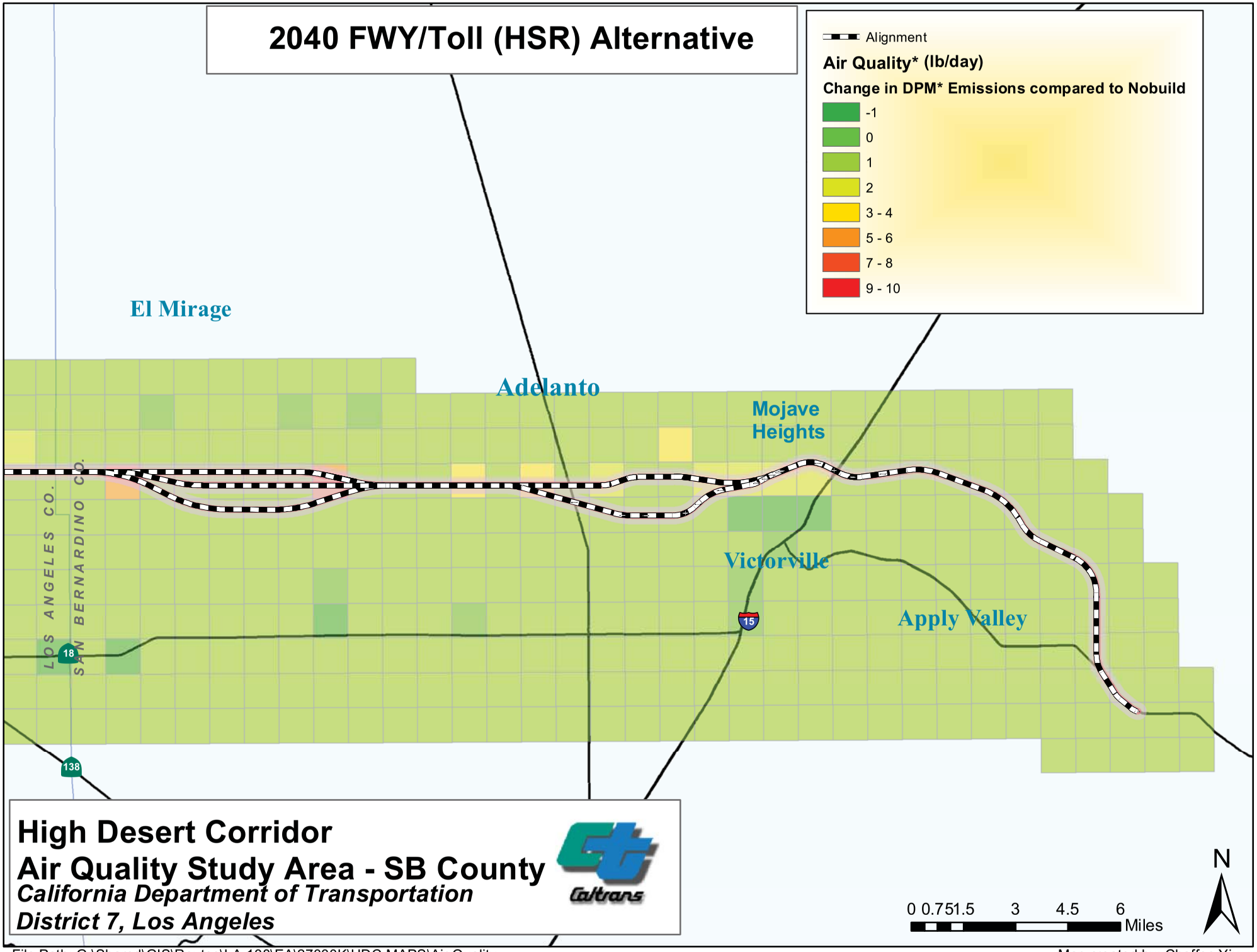

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Appendix I Summary Tables for Changes in Emissions of GHG, PM, and Other Pollutants

Appendix I-1

Emissions of GHG, PM10, PM2.5, and Others

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	-0.01	-0.01	-0.29	-0.04	-0.04	-0.03	-0.01	0.00	-0.01	-0.01	-0.29	-0.04	-0.04	-0.03	-0.01	0.00
44	-0.05	-0.07	-1.67	-0.22	-0.21	-0.15	-0.05	-0.02	-0.03	-0.05	-1.05	-0.13	-0.13	-0.10	-0.03	-0.01
45	0.02	0.03	0.78	0.10	0.09	0.07	0.03	0.01	0.01	0.02	0.46	0.05	0.05	0.04	0.02	0.01
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	-0.01	-0.01	-0.32	-0.05	-0.04	-0.03	-0.01	0.00	-0.01	-0.01	-0.32	-0.05	-0.04	-0.03	-0.01	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.55	-0.75	-13.75	-2.10	-1.93	-1.44	-0.37	-0.16	-0.42	-0.57	-10.15	-1.60	-1.45	-1.08	-0.27	-0.12
96	-0.85	-1.16	-21.21	-3.18	-2.99	-2.22	-0.57	-0.26	-0.66	-0.91	-15.93	-2.44	-2.30	-1.71	-0.42	-0.19
97	-0.16	-0.22	-5.03	-0.64	-0.62	-0.46	-0.15	-0.06	-0.16	-0.21	-4.97	-0.64	-0.62	-0.45	-0.15	-0.06
98	0.15	0.20	4.67	0.60	0.58	0.43	0.14	0.06	0.12	0.16	3.84	0.48	0.47	0.35	0.11	0.05
99	0.04	0.05	1.16	0.15	0.14	0.10	0.04	0.02	0.04	0.05	1.30	0.17	0.16	0.12	0.04	0.02
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-5.73	-7.27	-139.91	-47.16	-20.04	-15.88	-5.68	-2.59	-2.37	-2.85	-35.80	-26.52	-7.10	-6.06	-2.03	-1.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-0.93	-1.24	-16.26	-3.91	-2.70	-2.08	-0.43	-0.21	-0.54	-0.70	-7.08	-2.34	-1.38	-1.09	-0.19	-0.10
107	-6.83	-9.04	-119.30	-28.65	-19.77	-15.24	-3.16	-1.55	-3.91	-5.09	-51.46	-17.08	-10.02	-7.90	-1.37	-0.73
108	-3.28	-4.04	-63.74	-33.47	-10.77	-8.87	-3.09	-1.47	0.14	0.44	37.65	-12.56	2.16	0.96	0.45	0.08
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-9.09	-11.31	-202.98	-84.12	-31.41	-25.21	-9.40	-4.32	-6.09	-7.48	-120.83	-60.30	-19.90	-16.34	-5.93	-2.79
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.03	0.04	0.73	0.14	0.10	0.07	0.02	0.01	0.01	0.02	0.44	0.05	0.05	0.04	0.01	0.01
147	-0.89	-1.20	-26.94	-3.91	-3.39	-2.52	-0.83	-0.36	-0.80	-1.08	-24.09	-3.52	-3.05	-2.26	-0.73	-0.32
148	-2.14	-2.86	-68.46	-10.18	-8.39	-6.23	-2.21	-0.95	-1.93	-2.58	-61.41	-9.17	-7.55	-5.60	-1.97	-0.85
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-0.03	-0.04	-0.43	-0.30	-0.08	-0.07	-0.02	-0.01	0.05	0.07	2.03	0.09	0.22	0.15	0.06	0.02
151	-0.03	-0.04	-0.66	-0.17	-0.10	-0.08	-0.02	-0.01	0.01	0.01	0.39	-0.02	0.04	0.02	0.01	0.00
152	-0.13	-0.17	-4.60	-0.53	-0.53	-0.39	-0.15	-0.06	-0.07	-0.09	-2.49	-0.29	-0.29	-0.21	-0.08	-0.03
153	-3.60	-4.56	-73.71	-26.65	-11.41	-9.10	-2.84	-1.34	-2.62	-3.30	-47.48	-19.15	-7.75	-6.27	-1.75	-0.85
154	-2.23	-2.82	-50.05	-17.87	-7.42	-5.92	-2.00	-0.93	-1.58	-1.98	-31.70	-12.89	-4.95	-4.01	-1.27	-0.60
155	-1.41	-1.79	-29.63	-9.60	-4.46	-3.53	-1.08	-0.50	-0.85	-1.08	-15.43	-5.45	-2.48	-1.98	-0.53	-0.25
156	-4.49	-5.73	-94.41	-30.68	-14.24	-11.26	-3.42	-1.60	-2.46	-3.10	-42.71	-16.73	-7.09	-5.71	-1.54	-0.75
157	-3.29	-4.19	-69.09	-22.45	-10.42	-8.24	-2.50	-1.17	-1.80	-2.27	-31.25	-12.25	-5.19	-4.18	-1.13	-0.55
158	-2.07	-2.64	-43.51	-14.14	-6.56	-5.19	-1.58	-0.74	-1.13	-1.43	-19.68	-7.71	-3.27	-2.63	-0.71	-0.35
159	-4.13	-5.43	-72.29	-18.70	-11.90	-9.24	-1.99	-0.98	-2.08	-2.64	-24.62	-10.57	-5.04	-4.07	-0.74	-0.40
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.36	-0.48	-12.43	-1.62	-1.48	-1.08	-0.44	-0.18	-0.28	-0.38	-9.89	-1.24	-1.17	-0.86	-0.35	-0.14
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-6.42	-8.32	-85.54	-27.00	-15.88	-12.53	-2.36	-1.22	-5.99	-7.80	-78.83	-23.58	-14.72	-11.57	-2.05	-1.07
202	-0.98	-1.33	-27.20	-3.91	-3.59	-2.66	-0.78	-0.34	-0.90	-1.22	-24.71	-3.57	-3.28	-2.43	-0.71	-0.31
203	-0.58	-0.79	-16.31	-2.24	-2.16	-1.60	-0.47	-0.20	-0.55	-0.75	-15.24	-2.13	-2.03	-1.50	-0.44	-0.19
204	0.04	0.05	1.07	0.12	0.14	0.10	0.03	0.01	0.04	0.06	1.28	0.14	0.17	0.12	0.03	0.01
205	-3.50	-4.48	-65.10	-21.87	-10.46	-8.29	-2.28	-1.09	-2.65	-3.38	-42.94	-16.02	-7.39	-5.92	-1.44	-0.72
206	-4.19	-5.35	-78.09	-26.03	-12.52	-9.91	-2.73	-1.30	-3.16	-4.03	-51.23	-19.02	-8.82	-7.06	-1.72	-0.85
207	-2.06	-2.61	-42.52	-14.09	-6.49	-5.13	-1.59	-0.74	-1.49	-1.87	-27.52	-10.28	-4.42	-3.54	-1.04	-0.49
208	-2.38	-2.99	-45.75	-17.17	-7.24	-5.80	-1.79	-0.85	-1.75	-2.18	-29.20	-12.54	-4.95	-4.02	-1.13	-0.55
209	-2.80	-3.55	-57.39	-19.06	-8.78	-6.95	-2.13	-1.00	-1.96	-2.47	-35.10	-13.67	-5.76	-4.63	-1.32	-0.64
210	-0.05	-0.07	-1.90	-0.22	-0.22	-0.16	-0.06	-0.03	-0.05	-0.06	-1.66	-0.19	-0.19	-0.14	-0.05	-0.02
211	-0.18	-0.23	-4.75	-0.90	-0.66	-0.49	-0.18	-0.08	0.58	0.71	11.73	7.30	2.04	1.70	0.65	0.31
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
222	-0.66	-0.88	-22.99	-2.99	-2.74	-2.00	-0.81	-0.34	-0.55	-0.73	-19.24	-2.39	-2.27	-1.66	-0.67	-0.28
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	-0.01	-0.01	-0.15	-0.01	-0.02	-0.01	0.00	0.00	0.00	0.00	-0.05	0.00	-0.01	0.00	0.00	0.00
260	0.01	0.02	0.43	0.06	0.05	0.04	0.01	0.01	0.01	0.02	0.39	0.05	0.05	0.04	0.01	0.01
261	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
262	-1.85	-2.34	-31.58	-12.34	-5.35	-4.29	-1.18	-0.57	-1.60	-2.03	-26.91	-10.41	-4.57	-3.67	-1.01	-0.49
263	-1.27	-1.59	-22.41	-9.52	-3.76	-3.04	-0.90	-0.43	-1.07	-1.33	-18.18	-7.78	-3.08	-2.50	-0.73	-0.35
264	-1.83	-2.29	-37.88	-14.89	-5.91	-4.75	-1.58	-0.74	-1.50	-1.88	-30.24	-12.01	-4.75	-3.83	-1.23	-0.58
265	-3.38	-4.29	-67.19	-23.03	-10.49	-8.32	-2.52	-1.18	-2.63	-3.34	-48.12	-17.44	-7.82	-6.24	-1.74	-0.83
266	-1.01	-1.38	-25.26	-3.91	-3.54	-2.64	-0.69	-0.31	-0.98	-1.34	-24.43	-3.80	-3.44	-2.57	-0.66	-0.30
267	-1.27	-1.71	-32.96	-5.27	-4.50	-3.36	-0.94	-0.42	-1.28	-1.73	-33.29	-5.30	-4.54	-3.39	-0.95	-0.42
268	-0.44	-0.58	-12.51	-2.04	-1.61	-1.21	-0.39	-0.17	-0.47	-0.63	-13.53	-2.17	-1.74	-1.30	-0.42	-0.18
269	-0.19	-0.24	-3.66	-1.18	-0.57	-0.45	-0.13	-0.06	-0.12	-0.15	-1.41	-0.92	-0.29	-0.25	-0.06	-0.03
270	-0.38	-0.50	-9.72	-1.92	-1.31	-1.00	-0.31	-0.14	-0.30	-0.39	-7.30	-1.63	-1.01	-0.77	-0.24	-0.11
271	-0.32	-0.41	-7.90	-1.72	-1.08	-0.83	-0.26	-0.12	-0.27	-0.35	-6.45	-1.54	-0.90	-0.70	-0.22	-0.10
272	-0.27	-0.35	-7.32	-1.65	-0.97	-0.75	-0.26	-0.12	-0.19	-0.24	-4.60	-1.29	-0.65	-0.50	-0.18	-0.08
273	-0.28	-0.36	-7.56	-1.65	-1.00	-0.77	-0.27	-0.12	-0.27	-0.35	-7.35	-1.63	-0.98	-0.75	-0.26	-0.12
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-0.51	-0.66	-14.35	-3.29	-1.89	-1.44	-0.54	-0.24	0.06	0.12	7.86	-1.44	0.59	0.34	0.16	0.05
276	0.79	0.98	13.57	6.15	2.30	1.88	0.56	0.27	0.86	1.19	30.59	2.95	3.58	2.59	0.88	0.37
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	0.00	0.00	0.18	-0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.13	-0.06	0.01	0.00	0.00	0.00
320	0.59	0.68	14.34	11.94	2.44	2.16	1.07	0.51	0.35	0.39	7.29	6.64	1.31	1.19	0.64	0.30
321	-1.55	-2.12	-47.34	-6.30	-5.98	-4.42	-1.37	-0.59	-1.52	-2.08	-46.23	-6.20	-5.85	-4.32	-1.34	-0.58
322	-1.41	-1.92	-43.59	-5.93	-5.47	-4.04	-1.30	-0.56	-1.38	-1.87	-42.34	-5.80	-5.32	-3.93	-1.26	-0.55
323	-1.00	-1.35	-28.05	-4.34	-3.69	-2.75	-0.82	-0.36	-1.07	-1.44	-30.05	-4.69	-3.94	-2.94	-0.89	-0.39
324	-0.57	-0.79	-13.35	-2.06	-1.96	-1.46	-0.34	-0.16	-0.53	-0.73	-12.05	-1.92	-1.80	-1.35	-0.31	-0.14
325	-1.40	-1.83	-34.54	-8.14	-4.86	-3.72	-1.18	-0.53	-1.06	-1.39	-24.66	-5.96	-3.57	-2.74	-0.81	-0.37
326	-0.12	-0.16	-3.72	-0.45	-0.46	-0.34	-0.11	-0.05	-0.10	-0.13	-3.08	-0.37	-0.38	-0.28	-0.09	-0.04
327	-0.05	-0.07	-1.81	-0.21	-0.21	-0.16	-0.06	-0.02	-0.07	-0.09	-2.31	-0.27	-0.27	-0.20	-0.07	-0.03
328	-0.01	-0.02	-0.50	-0.05	-0.06	-0.04	-0.02	-0.01	-0.02	-0.03	-0.68	-0.07	-0.08	-0.06	-0.02	-0.01
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.22	-0.30	-6.59	-0.91	-0.84	-0.62	-0.20	-0.08	-0.17	-0.23	-5.10	-0.75	-0.65	-0.49	-0.15	-0.07
331	-0.26	-0.35	-8.18	-1.10	-1.01	-0.74	-0.25	-0.11	-0.29	-0.39	-9.10	-1.19	-1.13	-0.83	-0.27	-0.12
332	-0.16	-0.21	-5.32	-0.69	-0.64	-0.47	-0.17	-0.07	-0.10	-0.14	-3.61	-0.42	-0.43	-0.31	-0.11	-0.05
333	-0.45	-0.60	-14.16	-2.18	-1.75	-1.30	-0.46	-0.20	0.22	0.22	-1.53	3.07	0.27	0.34	0.09	0.06
334	0.33	0.43	8.59	1.96	1.17	0.89	0.30	0.13	0.77	1.05	24.32	3.10	3.01	2.21	0.72	0.31

Appendix I-1

Emissions of GHG, PM10, PM2.5, and Others

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.17	-0.23	-5.75	-0.88	-0.70	-0.52	-0.20	-0.08
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	0.27	0.34	6.11	1.93	0.89	0.70	0.24	0.11
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	-0.01	-0.02	-0.41	-0.08	-0.05	-0.04	-0.01	-0.01
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	2.06	2.51	38.08	26.00	6.99	5.87	2.03	1.00
382	-0.85	-1.17	-27.05	-3.34	-3.36	-2.47	-0.79	-0.34
383	-1.23	-1.68	-38.60	-4.72	-4.83	-3.54	-1.11	-0.48
384	-1.21	-1.66	-37.21	-4.68	-4.70	-3.46	-1.06	-0.46
385	-0.80	-1.10	-22.85	-2.90	-3.01	-2.22	-0.62	-0.27
386	-0.77	-1.00	-20.25	-4.86	-2.77	-2.12	-0.73	-0.33
387	-0.36	-0.50	-11.16	-1.37	-1.41	-1.04	-0.32	-0.14
388	-0.13	-0.18	-4.55	-0.56	-0.54	-0.40	-0.14	-0.06
389	-0.01	-0.02	-0.40	-0.04	-0.05	-0.03	-0.01	0.00
390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
391	-0.07	-0.10	-1.92	-0.32	-0.26	-0.19	-0.06	-0.02
392	0.17	0.24	5.73	0.63	0.70	0.51	0.17	0.07
393	-0.10	-0.14	-3.09	-0.47	-0.39	-0.29	-0.10	-0.04
394	-0.77	-1.02	-23.43	-4.12	-2.95	-2.21	-0.80	-0.35
395	0.07	0.09	1.63	0.52	0.24	0.19	0.06	0.03
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	-0.09	-0.12	-3.09	-0.21	-0.37	-0.26	-0.08	-0.03
399	0.44	0.56	9.24	2.77	1.37	1.08	0.34	0.16
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.04	-0.05	-1.39	-0.19	-0.17	-0.12	-0.05	-0.02
403	-0.08	-0.10	-2.76	-0.34	-0.32	-0.24	-0.09	-0.04
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.31	-0.42	-10.90	-1.40	-1.29	-0.95	-0.38	-0.16
406	-0.01	-0.02	-0.50	-0.07	-0.06	-0.04	-0.02	-0.01
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-0.07	-0.09	-1.99	-0.29	-0.25	-0.19	-0.06	-0.03
440	0.13	0.19	4.07	0.33	0.52	0.38	0.10	0.04
441	2.34	2.63	26.93	36.61	7.76	6.62	2.30	1.15
442	-3.03	-4.08	-90.74	-14.02	-11.51	-8.58	-2.76	-1.20
443	-2.56	-3.44	-72.96	-11.88	-9.50	-7.11	-2.19	-0.96
444	-2.16	-2.88	-60.45	-10.68	-7.94	-5.97	-1.89	-0.83
445	-0.95	-1.26	-22.21	-5.30	-3.21	-2.47	-0.69	-0.32
446	-1.82	-2.41	-53.10	-9.41	-6.80	-5.11	-1.70	-0.74
447	0.60	0.79	22.50	3.34	2.52	1.87	0.77	0.33
448	-0.77	-1.05	-24.54	-3.13	-3.04	-2.24	-0.73	-0.31
449	-0.17	-0.38	-11.34	5.17	-0.74	-0.38	0.17	0.09
450	16.63	20.94	407.07	132.82	61.19	47.23	17.41	7.76
451	2.02	2.50	44.73	18.12	7.30	5.70	2.09	0.94
452	38.67	48.76	926.64	307.86	141.56	109.28	39.29	17.59
453	-1.19	-1.58	-37.17	-5.93	-4.60	-3.43	-1.23	-0.53
454	-0.48	-0.65	-15.45	-2.35	-1.90	-1.41	-0.50	-0.22
455	5.24	6.60	122.98	43.84	19.13	14.85	5.27	2.38
456	0.24	0.33	8.08	0.94	0.97	0.71	0.24	0.10
457	26.98	33.78	591.80	220.58	94.40	73.20	24.15	11.01
458	-0.02	-0.03	-1.12	-0.13	-0.11	-0.08	-0.04	-0.02
459	6.39	7.97	139.19	54.06	22.32	17.37	5.79	2.65
460	0.00	0.00	-0.03	0.00	0.00	0.00	0.00	0.00
461	-1.38	-1.78	-39.62	-8.73	-5.31	-4.00	-1.58	-0.68
462	32.37	40.62	728.88	256.49	113.73	87.89	29.35	13.30
463	6.05	7.61	138.02	47.65	21.36	16.49	5.51	2.49
464	-2.35	-3.02	-66.12	-15.09	-8.99	-6.79	-2.65	-1.14
465	24.08	30.24	543.69	187.82	84.54	65.24	21.79	9.85
466	5.25	6.58	116.43	41.06	18.33	14.14	4.64	2.11
467	30.68	38.59	710.82	236.04	108.45	83.54	28.56	12.84
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	0.05	0.08	1.84	0.20	0.22	0.16	0.05	0.02
499	0.99	1.33	30.78	5.70	3.92	2.94	1.05	0.46
500	-0.31	-0.47	-8.89	4.29	-1.08	-0.60	-0.04	0.01
501	12.39	15.64	296.32	90.55	44.97	34.44	12.38	5.49
502	11.05	14.00	275.25	81.20	40.62	31.12	11.43	5.05
503	11.76	14.94	296.23	87.56	43.46	33.33	12.20	5.41
504	1.28	1.60	30.22	10.52	4.70	3.63	1.33	0.60
505	18.68	23.65	460.95	142.70	68.73	52.84	19.20	8.54
506	11.27	14.30	282.09	88.00	41.71	32.14	11.64	5.20
507	9.53	12.05	234.47	73.24	35.10	26.99	9.82	4.37
508	-0.09	-0.12	-2.57	-0.51	-0.33	-0.25	-0.09	-0.04
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.06	-0.08	-2.34	-0.14	-0.26	-0.18	-0.07	-0.03
511	-0.08	-0.10	-2.24	-0.50	-0.29	-0.22	-0.08	-0.04
512	-0.25	-0.33	-7.43	-1.42	-0.95	-0.72	-0.26	-0.11
513	0.02	0.02	0.60	0.06	0.07	0.05	0.02	0.01
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.07	0.09	2.36	0.28	0.27	0.20	0.08	0.03
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	0.65	0.90	21.11	2.37	2.62	1.91	0.61	0.26
518	-0.65	-0.89	-21.36	-2.45	-2.61	-1.91	-0.63	-0.27
519	-0.01	-0.01	-0.31	-0.04	-0.04	-0.03	-0.01	0.00
520	-0.03	-0.04	-1.09	-0.14	-0.13	-0.09	-0.04	-0.02
521	-0.04	-0.05	-1.29	-0.17	-0.15	-0.11	-0.05	-0.02
522	0.21	0.28	7.57	0.92	0.88	0.64	0.28	0.11
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.08	-0.11	-2.75	-0.31	-0.34	-0.25	-0.08	-0.03
525	-0.40	-0.51	-10.95	-3.26	-1.52	-1.18	-0.46	-0.20
526	-3.48	-4.55	-107.62	-19.80	-13.64	-10.21	-3.94	-1.69
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	0.05	0.07	1.64	0.21	0.20	0.14	0.05	0.02
558	2.57	3.38	83.99	20.27	10.37	7.97	3.03	1.34
559	0.24	0.33	6.32	1.00	0.88	0.66	0.18	0.08
560	0.02	0.03	0.46	0.11	0.06	0.05	0.01	0.01
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.03	0.04	0.91	0.08	0.10	0.07	0.02	0.01
563	-0.02	-0.03	-0.64	-0.10	-0.09	-0.06	-0.02	-0.01
564	-0.02	-0.03	-0.62	-0.12	-0.08	-0.06	-0.02	-0.01
565	0.25	0.33	8.63	1.03	1.02	0.74	0.28	0.12
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.03	0.05	1.69	-0.03	0.17	0.11	0.04	0.02
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.27	-0.36	-9.26	-1.13	-1.10	-0.80	-0.29	-0.12
570	-0.48	-0.64	-14.29	-2.23	-1.81	-1.35	-0.45	-0.19
571	-0.21	-0.28	-6.19	-1.15	-0.79	-0.59	-0.21	-0.09
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.79	-1.06	-26.90	-3.80	-3.21	-2.37	-0.91	-0.39
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.80	-1.09	-25.13	-3.21	-3.14	-2.31	-0.75	-0.32
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.46	-0.63	-14.85	-1.80	-1.83	-1.34	-0.44	-0.19
578	-0.49	-0.67	-15.66	-1.98	-1.94	-1.42	-0.47	-0.20
579	-1.09	-1.43	-33.66	-5.32	-4.29	-3.17	-1.26	-0.53
580	-0.51	-0.67	-16.54	-2.52	-2.04	-1.50	-0.60	-0.25
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-1.62	-2.11	-49.00	-8.62	-6.34	-4.71	-1.86	-0.79
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-0.86	-1.14	-25.36	-4.50	-3.28	-2.45	-0.83	-0.36
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	0.05	0.07	1.89	0.23	0.22	0.16	0.06	0.03
598	1.67	2.16	49.18	13.39	6.48	5.00	1.84	0.82
599	-0.02	-0.03	-0.77	-0.09	-0.09	-0.06	-0.03	-0.01

	FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	0.34	0.46	12.24	1.43	1.42	1.04	0.40	0.17
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-0.25	-0.33	-6.36	-1.62	-0.88	-0.68	-0.23	-0.10
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	-0.01	-0.02	-0.34	-0.08	-0.05	-0.03	-0.01	-0.01
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	1.30	1.55	20.55	16.37	4.20	3.55	1.25	0.61
382	-0.87	-1.18	-27.44	-3.40	-3.41	-2.51	-0.80	-0.34
383	-1.20	-1.65	-37.63	-4.61	-4.71	-3.46	-1.08	-0.47
384	-1.25	-1.71	-38.28	-4.89	-4.83	-3.56	-1.10	-0.47
385	-0.77	-1.07	-22.02	-2.81	-2.92	-2.15	-0.60	-0.26
386	-0.60	-0.79	-16.10	-3.61	-2.17	-1.66	-0.56	-0.25
387	-0.32	-0.44	-9.57	-1.17	-1.22	-0.90	-0.26	-0.11
388	-0.13	-0.18	-4.60	-0.57	-0.55	-0.40	-0.14	-0.06
389	-0.02	-0.03	-0.71	-0.08	-0.08	-0.06	-0.02	-0.01
390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
391	-0.13	-0.18	-3.75	-0.57	-0.48	-0.36	-0.11	-0.05
392	0.13	0.18	4.40	0.48	0.54	0.39	0.13	0.05
393	0.00	-0.01	-0.66	0.14	-0.05	-0.03	-0.01	0.00
394	0.07	0.04	-4.98	1.92	-0.22	-0.06	-0.06	-0.01
395	0.25	0.34	7.50	1.02	0.95	0.70	0.22	0.10
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.11	0.14	2.89	0.55	0.38	0.29	0.09	0.04
399	-0.40	-0.51	-9.24	-2.30	-1.30	-1.00	-0.32	-0.14
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.04	-0.05	-1.35	-0.18	-0.16	-0.12	-0.05	-0.02
403	-0.08	-0.11	-2.94	-0.36	-0.34	-0.25	-0.10	-0.04
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.34	-0.46	-11.89	-1.52	-1.41	-1.03	-0.42	-0.17
406	0.01	0.01	0.22	0.04	0.03	0.02	0.01	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-0.08	-0.11	-2.51	-0.37	-0.32	-0.24	-0.08	-0.03
440	0.11	0.16	3.35	0.21	0.43	0.31	0.07	0.03
441	1.46	1.59	10.97	23.03	4.55	3.92	1.34	0.68
442	-2.91	-3.92	-87.03	-13.44	-11.05	-8.24	-2.64	-1.15
443	-2.53	-3.42	-72.66	-11.68	-9.45	-7.06	-2.17	-0.95
444	-2.13	-2.84	-59.73	-10.48	-7.83	-5.89	-1.86	-0.82
445	-0.94	-1.24	-21.96	-5.17	-3.17	-2.44	-0.67	-0.31
446	-1.75	-2.34	-51.85	-8.82	-6.60	-4.95	-1.64	-0.72
447	0.66	0.87	23.67	4.00	2.73	2.05	0.83	0.36
448	-0.78	-1.07	-24.93	-3.15	-3.08	-2.27	-0.74	-0.32
449	-0.54	-0.85	-20.70	1.42	-2.16	-1.50	-0.24	-0.10
450	12.51	15.76	307.00	90.64	45.81	35.02	12.95	5.71
451	2.56	3.20	56.16	19.23	8.85	6.86	2.43	1.09
452	26.10	33.01	622.04	185.75	94.40	72.19	25.50	11.32
453	-0.64	-0.88	-24.12	-2.34	-2.77	-2.00	-0.74	-0.31
454	-0.41	-0.55	-13.02	-2.01	-1.60	-1.19	-0.43	-0.18
455	3.45	4.42	82.34	21.00	12.32	9.31	3.08	1.36
456	0.76	0.98	18.72	5.29	2.76	2.10	0.70	0.31
457	16.88	21.09	357.69	126.72	56.32	43.46	13.57	6.20
458	0.30	0.38	6.01	2.12	0.98	0.76	0.22	0.10
459	4.45	5.59	97.77	25.61	14.64	11.05	3.54	1.56
460	0.08	0.11	2.56	0.29	0.31	0.23	0.08	0.03
461	-0.53	-0.68	-13.78	-4.66	-2.00	-1.56	-0.61	-0.27
462	20.82	26.02	449.77	154.50	69.78	53.78	17.11	7.78
463	4.34	5.47	95.76	24.30	14.24	10.75	3.44	1.52
464	6.83	8.51	144.69	50.64	22.48	17.32	5.30	2.42
465	7.44	9.31	161.57	53.40	24.89	19.12	6.09	2.76
466	4.23	5.36	96.70	22.84	14.09	10.59	3.39	1.49
467	21.14	26.58	465.15	147.59	72.37	55.39	18.06	8.11
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	0.05	0.08	1.85	0.20	0.22	0.16	0.05	0.02
499	0.95	1.28	30.67	4.77	3.80	2.82	1.00	0.43
500	-0.77	-1.04	-18.75	-1.06	-2.75	-1.96	-0.52	-0.21
501	11.15	14.10	264.29	71.52	39.93	30.26	10.69	4.69
502	9.54	12.14	243.32	62.82	35.11	26.63	9.85	4.30
503	10.40	13.23	258.99	68.59	37.99	28.84	10.38	4.56
504	1.23	1.55	29.91	8.86	4.51	3.44	1.27	0.56
505	15.84	20.11	392.25	108.53	57.98	44.13	15.98	7.03
506	8.63	10.98	215.91	60.79	31.71	24.21	8.73	3.86
507	7.44	9.45	184.36	50.92	27.23	20.74	7.50	3.30
508	-0.09	-0.11	-2.45	-0.48	-0.32	-0.24	-0.08	-0.04
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.08	-0.12	-3.02	-0.33	-0.35	-0.26	-0.09	-0.04
511	0.00	0.00	0.56	-0.17	0.03	0.01	0.01	0.00
512	-0.25	-0.33	-7.36	-1.40	-0.94	-0.71	-0.25	-0.11
513	0.03	0.04	1.03	0.12	0.13	0.09	0.03	0.01
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.00	-0.01	-0.18	-0.02	-0.02	-0.02	-0.01	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	0.56	0.78	18.19	2.03	2.25	1.64	0.52	0.22
518	-0.46	-0.63	-14.96	-1.74	-1.83	-1.34	-0.44	-0.19
519	-0.01	-0.01	-0.31	-0.04	-0.04	-0.03	-0.01	0.00
520	-0.03	-0.04	-1.09	-0.14	-0.13	-0.09	-0.04	-0.02
521	-0.03	-0.05	-1.18	-0.15	-0.14	-0.10	-0.04	-0.02
522	-0.19	-0.25	-6.31	-0.80	-0.76	-0.56	-0.21	-0.09
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.07	-0.10	-2.37	-0.27	-0.29	-0.21	-0.07	-0.03
525	0.20	0.29	9.21	-0.02	0.94	0.65	0.26	0.10
526	-2.57	-3.38	-79.95	-15.35	-10.10	-7.60	-2.90	-1.25
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	0.05	0.07	1.65	0.21	0.20	0.15	0.05	0.02
558	2.29	2.97	65.85	15.01	8.85	6.68	2.49	1.08
559	0.27	0.37	7.00	1.08	0.97	0.72	0.20	0.09
560	-0.14	-0.18	-4.25	-0.82	-0.54	-0.41	-0.16	-0.07
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.03	0.04	0.89	0.08	0.10	0.07	0.02	0.01
563	-0.02	-0.03	-0.63	-0.10	-0.09	-0.06	-0.02	-0.01
564	-0.02	-0.03	-0.60	-0.11	-0.08	-0.06	-0.02	-0.01
565	0.19	0.24	5.46	1.08	0.70	0.53	0.20	0.09
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	-0.01	-0.02	-1.11	0.16	-0.09	-0.05	-0.02	-0.01
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.34	-0.46	-11.50	-1.52	-1.38	-1.02	-0.37	-0.16
570	-0.46	-0.61	-13.52	-2.12	-1.72	-1.28	-0.42	-0.18
571	-0.17	-0.22	-4.74	-0.97	-0.62	-0.47	-0.16	-0.07
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.60	-0.80	-20.14	-2.98	-2.42	-1.80	-0.69	-0.29
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.74	-1.00	-23.09	-2.96	-2.89	-2.12	-0.69	-0.30
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.27	-0.36	-8.36	-1.08	-1.04	-0.77	-0.25	-0.11
578	-0.38	-0.51	-11.97	-1.54	-1.48	-1.09	-0.36	-0.15
579	-0.79	-1.04	-24.80	-3.99	-3.14	-2.32	-0.93	-0.39
580	-0.37	-0.48	-12.16	-1.88	-1.48	-1.10	-0.44	-0.19
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-0.85	-1.10	-24.76	-4.68	-3.27	-2.44	-0.95	-0.41
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-0.49	-0.65	-13.38	-2.66	-1.80	-1.36	-0.43	-0.19
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	0.05	0.06	1.66	0.20	0.20	0.14	0.05	0.02
598	1.32	1.71	37.66	9.17	5.11	3.87	1.45	0.63
599	-0.02	-0.03	-0.72	-0.08	-0.08	-0.06	-0.02	-0.01

Appendix I-1

Emissions of GHG, PM10, PM2.5, and Others

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
600	-0.01	-0.02	-0.49	-0.07	-0.06	-0.04	-0.02	-0.01
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	0.18	0.24	6.45	0.70	0.74	0.54	0.21	0.09
606	-0.12	-0.16	-3.62	-0.52	-0.45	-0.33	-0.11	-0.05
1001	0.00	0.00	0.07	0.01	0.01	0.01	0.00	0.00
1002	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00
1003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	0.00	-0.01	-0.13	-0.03	-0.02	-0.01	0.00	0.00
1012	0.01	0.02	0.30	0.02	0.03	0.02	0.00	0.00
1013	-0.31	-0.40	-9.65	-1.33	-0.97	-0.71	-0.28	-0.12
1014	0.39	0.50	10.89	2.14	1.24	0.95	0.34	0.15
1015	1.01	1.29	28.28	5.59	3.23	2.47	0.87	0.38
1016	-0.23	-0.30	-7.36	-0.95	-0.72	-0.53	-0.20	-0.08
1017	0.08	0.11	2.59	0.34	0.26	0.19	0.07	0.03
1018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.23	-0.31	-5.89	-0.70	-0.66	-0.48	-0.12	-0.05
1021	-1.01	-1.32	-30.38	-4.17	-3.12	-2.31	-0.80	-0.34
1022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023	-0.33	-0.44	-9.82	-1.39	-1.03	-0.76	-0.26	-0.11
1024	-2.62	-3.59	-60.42	-7.55	-7.34	-5.41	-1.17	-0.53
1025	0.26	0.33	7.03	1.25	0.80	0.60	0.20	0.09
1026	-0.49	-0.64	-14.87	-1.93	-1.51	-1.11	-0.38	-0.16
1027	-0.51	-0.68	-15.47	-1.88	-1.56	-1.15	-0.37	-0.16
1028	-1.36	-1.71	-24.77	-14.07	-5.05	-4.20	-1.24	-0.68
1029	-0.52	-0.63	-8.96	-6.67	-2.08	-1.77	-0.58	-0.32
1030	-0.06	-0.07	-1.61	-0.29	-0.18	-0.13	-0.05	-0.02
1031	-0.08	-0.10	-2.07	-0.43	-0.25	-0.19	-0.07	-0.03
1032	0.01	0.01	-0.43	0.31	0.05	0.05	0.01	0.01
1033	-0.16	-0.22	-4.41	-0.55	-0.48	-0.36	-0.10	-0.04
1034	-0.19	-0.25	-4.98	-0.75	-0.56	-0.42	-0.12	-0.05
1035	-0.10	-0.13	-2.85	-0.45	-0.30	-0.23	-0.08	-0.03
1036	-0.13	-0.17	-3.89	-0.59	-0.41	-0.30	-0.11	-0.05
1037	-0.08	-0.11	-2.55	-0.39	-0.26	-0.20	-0.07	-0.03
1038	-0.17	-0.22	-5.57	-0.62	-0.53	-0.38	-0.14	-0.06
1039	-0.13	-0.16	-3.77	-0.46	-0.37	-0.27	-0.11	-0.04
1040	-0.15	-0.20	-4.75	-0.58	-0.47	-0.34	-0.12	-0.05
1041	-0.01	-0.07	4.47	1.11	0.27	0.21	0.37	0.15
1042	0.26	0.35	5.80	0.89	0.75	0.56	0.14	0.06
1043	2.45	3.40	22.10	3.66	4.56	3.37	0.33	0.19
1059	0.02	0.02	0.56	0.07	0.06	0.04	0.02	0.01
1060	0.14	0.18	4.49	0.59	0.44	0.33	0.12	0.05
1061	0.28	0.36	8.59	1.17	0.86	0.63	0.25	0.10
1062	0.41	0.52	11.46	2.23	1.30	0.99	0.35	0.15
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	0.02	0.02	0.77	0.07	0.06	0.04	0.03	0.01
1066	-0.18	-0.25	-4.86	-0.62	-0.54	-0.40	-0.11	-0.05
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-0.62	-0.80	-19.19	-2.96	-1.98	-1.47	-0.57	-0.24
1069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1070	0.11	0.15	3.49	0.39	0.35	0.25	0.08	0.03
1071	-0.19	-0.25	-4.74	-0.81	-0.57	-0.43	-0.11	-0.05
1072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1073	0.08	0.10	2.25	0.47	0.26	0.20	0.07	0.03
1074	-0.56	-0.73	-18.73	-2.07	-1.74	-1.26	-0.50	-0.21
1075	-0.09	-0.11	-2.36	-0.44	-0.27	-0.20	-0.07	-0.03
1076	-0.76	-0.95	-14.70	-5.74	-2.40	-1.95	-0.55	-0.27
1077	-1.06	-1.25	-13.27	-16.38	-4.43	-3.94	-1.25	-0.68
1078	0.09	0.12	2.54	0.27	0.26	0.19	0.05	0.02
1079	0.00	0.00	0.36	-0.11	-0.01	-0.01	0.00	0.00
1080	0.08	0.10	2.30	0.58	0.28	0.22	0.08	0.04
1081	-0.16	-0.21	-4.15	-0.46	-0.45	-0.33	-0.09	-0.04
1082	0.01	0.01	0.18	0.03	0.02	0.01	0.01	0.00
1083	0.00	0.00	-0.10	-0.01	-0.01	-0.01	0.00	0.00
1084	-0.03	-0.04	-0.89	-0.11	-0.09	-0.07	-0.02	-0.01
1085	-0.02	-0.02	-0.54	-0.03	-0.05	-0.03	-0.01	0.00
1086	-0.14	-0.18	-4.00	-0.64	-0.43	-0.33	-0.11	-0.05
1087	-0.35	-0.48	-7.91	-1.10	-0.98	-0.72	-0.17	-0.07
1088	0.04	0.05	1.10	0.15	0.11	0.08	0.03	0.01
1089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.03	0.04	1.04	0.14	0.10	0.08	0.03	0.01
1114	-6.53	-7.98	-130.14	-63.18	-23.53	-19.44	-6.43	-3.19
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.82	1.05	23.67	4.19	2.59	1.96	0.71	0.31
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	0.16	0.22	4.70	0.62	0.49	0.36	0.12	0.05
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.33	0.44	9.88	1.17	1.01	0.74	0.24	0.10
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	0.24	0.33	4.39	1.04	0.63	0.49	0.06	0.03
1128	-0.02	-0.02	-0.99	0.08	-0.04	-0.02	-0.02	-0.01
1129	0.15	0.21	4.63	0.43	0.46	0.33	0.09	0.04
1130	-0.39	-0.45	-2.51	-5.38	-1.43	-1.29	-0.34	-0.19
1131	-0.09	-0.11	-2.43	-0.50	-0.28	-0.22	-0.08	-0.03
1132	-0.57	-0.65	-5.42	-11.59	-2.81	-2.54	-0.80	-0.50
1133	0.07	0.10	4.33	-0.56	0.17	0.07	0.05	0.01
1134	-0.06	-0.08	-0.95	-0.51	-0.19	-0.16	-0.04	-0.02
1135	-0.08	-0.10	-1.48	-0.63	-0.25	-0.20	-0.06	-0.03
1136	-0.21	-0.27	-5.67	-1.20	-0.68	-0.52	-0.18	-0.08
1137	-0.18	-0.22	-4.69	-1.07	-0.57	-0.44	-0.16	-0.07
1138	-0.20	-0.25	-5.37	-1.15	-0.63	-0.49	-0.17	-0.08
1139	-0.54	-0.69	-15.04	-2.83	-1.70	-1.29	-0.48	-0.21
1140	-0.80	-1.03	-23.54	-4.12	-2.55	-1.93	-0.72	-0.31
1141	-0.18	-0.24	-3.55	-1.21	-0.58	-0.47	-0.09	-0.05
1142	0.98	1.25	28.84	4.81	3.09	2.31	0.93	0.40
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	0.52	0.67	14.79	2.82	1.67	1.27	0.45	0.20
1173	-1.77	-2.11	-21.77	-18.67	-5.80	-5.00	-1.36	-0.71
1174	-6.57	-8.32	-67.79	-29.78	-13.58	-10.96	-1.98	-1.04
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-9.07	-11.18	-183.86	-82.73	-31.74	-26.11	-8.31	-4.07
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1180	-4.48	-5.52	-89.28	-42.58	-15.93	-13.18	-4.17	-2.06
1181	-2.36	-2.94	-38.83	-18.86	-7.38	-6.08	-1.59	-0.79
1182	-3.06	-3.83	-41.80	-22.32	-8.77	-7.25	-1.62	-0.83
1183	-3.90	-4.94	-44.95	-27.07	-10.83	-8.97	-1.76	-0.94
1184	-2.37	-2.96	-41.94	-19.62	-7.69	-6.33	-1.72	-0.86
1185	-1.81	-2.28	-38.82	-13.85	-5.98	-4.82	-1.44	-0.69
1186	-2.42	-2.95	-36.60	-24.05	-8.24	-6.98	-1.92	-0.98
1187	-2.48	-3.11	-37.84	-19.22	-7.58	-6.25	-1.54	-0.78
1188	-2.52	-3.10	-40.70	-24.29	-8.52	-7.14	-2.00	-1.05
1189	-0.04	-0.05	-5.76	0.06	-0.22	-0.12	-0.19	-0.07
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-0.07	-0.09	-1.57	-0.49	-0.22	-0.18	-0.05	-0.02
1192	0.06	0.07	1.67	0.29	0.18	0.14	0.05	0.02
1193	-0.02	-0.02	-0.51	-0.06	-0.05	-0.04	-0.01	-0.01
1194	-0.01	-0.02	-0.40	-0.05	-0.04	-0.03	-0.01	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.01	-0.02	-0.47	-0.07	-0.06	-0.04	-0.02	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.12	0.15	3.34	0.78	0.44	0.34	0.13	0.06
-0.11	-0.15	-3.35	-0.48	-0.42	-0.31	-0.10	-0.04
0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.01	-0.15	-0.03	-0.02	-0.01	0.00	0.00
0.01	0.02	0.30	0.02	0.03	0.02	0.00	0.00
-0.16	-0.20	-4.83	-0.69	-0.49	-0.36	-0.14	-0.06
0.04	0.05	1.38	0.14	0.13	0.09	0.04	0.01
0.20	0.26	6.70	0.67	0.61	0.44	0.17	0.07
-0.05	-0.07	-1.67	-0.23	-0.17	-0.12	-0.05	-0.02
0.02	0.03	0.61	0.08	0.06	0.05	0.02	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-0.14	-3.30	-0.42	-0.33	-0.25	-0.08	-0.04
-0.49	-0.65	-14.47	-1.81	-1.49	-1.09	-0.34	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.24	-0.32	-7.22	-1.02	-0.75	-0.56	-0.19	-0.08
-1.80	-2.47	-39.69	-4.96	-4.96	-3.65	-0.75	-0.34
0.10	0.13	2.45	0.67	0.34	0.27	0.08	0.04
-0.42	-0.55	-12.74	-1.60	-1.28	-0.94	-0.32	-0.14
-0.49	-0.65	-14.68	-1.87	-1.51	-1.11	-0.35	-0.15
-0.92	-1.21	-22.41	-6.74	-3.20	-2.57	-0.70	-0.32
-0.40	-0.50	-8.95	-3.52	-1.42	-1.15	-0.38	-0.19
-0.06	-0.08	-1.94	-0.26	-0.19	-0.14	-0.05	-0.02
-0.08	-0.10	-2.37	-0.24	-0.23	-0.17	-0.06	-0.02
0.04	0.05	0.67	0.30	0.13	0.10	0.03	0.01
-0.15	-0.21	-4.16	-0.39	-0.44	-0.32	-0.08	-0.03
-0.15	-0.20	-4.06	-0.47	-0.43	-0.31	-0.09	-0.04
-0.06	-0.08	-1.97	-0.20	-0.18	-0.13	-0.05	-0.02
-0.10	-0.13	-3.11	-0.35	-0.30	-0.22	-0.08	-0.03
-0.05	-0.07	-1.95	-0.15	-0.16	-0.12	-0.05	-0.02
-0.16	-0.22	-5.37	-0.60	-0.51	-0.37	-0.13	-0.06
-0.12	-0.15	-3.58	-0.44	-0.35	-0.26	-0.10	-0.04
-0.15	-0.19	-4.56	-0.56	-0.45	-0.33	-0.12	-0.05
-0.08	-0.15	3.31	0.58	0.06	0.03	0.32	0.13
0.20	0.28	4.98	0.53	0.60	0.43	0.11	0.05
2.33	3.25	20.47	2.99	4.24	3.12	0.27	0.16
0.02	0.02	0.54	0.07	0.05	0.04	0.02	0.01
0.06	0.08	1.86	0.26	0.19	0.14	0.05	0.02
0.12	0.16	3.73	0.52	0.38	0.28	0.11	0.05
0.04	0.06	1.46	0.15	0.13	0.10	0.04	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.08	-1.78	-0.27	-0.19	-0.14	-0.05	-0.02
-0.18	-0.24	-4.63	-0.58	-0.51	-0.38	-0.10	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.08	-0.11	-2.81	-0.43	-0.28	-0.21	-0.08	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.05	-1.15	-0.10	-0.11	-0.08	-0.02	-0.01
0.02	0.03	1.47	0.01	0.08	0.05	0.04	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.05	-0.07	-1.91	-0.04	-0.14	-0.10	-0.04	-0.01
-0.63	-0.82	-20.42	-2.54	-1.96	-1.44	-0.56	-0.23
-0.17	-0.23	-5.20	-0.76	-0.54	-0.40	-0.14	-0.06
-0.76	-0.96	-15.60	-5.52	-2.41	-1.94	-0.56	-0.27
-0.64	-0.78	-9.82	-7.69	-2.37	-2.06	-0.66	-0.31
0.05	0.07	1.41	0.11	0.14	0.10	0.02	0.01
-0.01	-0.02	-0.18	-0.07	-0.03	-0.03	-0.01	0.00
0.07	0.09	2.27	0.43	0.25	0.19	0.07	0.03
-0.12	-0.16	-3.19	-0.35	-0.35	-0.25	-0.07	-0.03
0.00	0.00	0.09	0.01	0.01	0.01	0.00	0.00
0.00	0.00	-0.09	-0.01	-0.01	-0.01	0.00	0.00
-0.03	-0.04	-0.89	-0.11	-0.09	-0.06	-0.02	-0.01
-0.02	-0.03	-0.71	-0.04	-0.06	-0.04	-0.02	-0.01
-0.11	-0.15	-3.54	-0.42	-0.35	-0.26	-0.09	-0.04
-0.33	-0.45	-7.62	-0.96	-0.92	-0.68	-0.15	-0.07
0.05	0.06	1.39	0.25	0.16	0.12	0.04	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.04	1.02	0.13	0.10	0.07	0.03	0.01
-4.23	-5.11	-73.06	-46.20	-15.69	-13.25	-4.19	-2.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.16	0.20	5.04	0.61	0.48	0.35	0.14	0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.16	0.21	4.50	0.58	0.47	0.35	0.11	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.29	0.38	8.54	1.00	0.87	0.64	0.20	0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-0.15	-4.02	-0.15	-0.32	-0.22	-0.08	-0.03
-0.06	-0.09	-2.16	-0.24	-0.20	-0.15	-0.06	-0.02
0.07	0.09	1.82	0.09	0.18	0.13	0.02	0.01
-0.41	-0.48	-4.05	-5.09	-1.47	-1.29	-0.36	-0.19
-0.08	-0.11	-2.47	-0.40	-0.26	-0.20	-0.07	-0.03
-0.08	-0.09	-1.03	-1.69	-0.42	-0.38	-0.12	-0.07
0.06	0.09	3.82	-0.45	0.16	0.07	0.05	0.01
-0.06	-0.08	-0.80	-0.55	-0.19	-0.16	-0.04	-0.02
-0.08	-0.10	-1.61	-0.58	-0.25	-0.20	-0.05	-0.03
-0.20	-0.25	-5.31	-1.12	-0.63	-0.48	-0.16	-0.07
-0.15	-0.20	-4.10	-0.93	-0.50	-0.38	-0.14	-0.06
-0.17	-0.22	-4.72	-1.01	-0.56	-0.43	-0.15	-0.07
-0.55	-0.70	-15.26	-2.84	-1.72	-1.30	-0.49	-0.21
-0.79	-1.01	-23.28	-4.03	-2.51	-1.89	-0.70	-0.31
-0.18	-0.24	-3.36	-1.21	-0.57	-0.46	-0.09	-0.05
0.92	1.16	27.54	4.18	2.85	2.11	0.87	0.37
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.05	1.39	0.06	0.11	0.07	0.03	0.01
-1.46	-1.73	-14.07	-15.53	-4.58	-4.01	-0.98	-0.52
-5.69	-7.18	-46.51	-24.10	-10.69	-8.69	-1.30	-0.72
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-5.38	-6.53	-87.01	-58.01	-19.42	-16.51	-4.83	-2.48
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.82	-3.41	-44.26	-30.84	-10.21	-8.70	-2.56	-1.32
-1.79	-2.22	-25.34	-14.63	-5.46	-4.56	-1.09	-0.55
-2.54	-3.19	-32.52	-17.92	-7.07	-5.84	-1.22	-0.63
-3.57	-4.55	-40.88	-23.09	-9.63	-7.93	-1.45	-0.77
-2.08	-2.60	-36.31	-16.70	-6.64	-5.45	-1.45	-0.72
-1.54	-1.94	-32.95	-11.52	-5.03	-4.05	-1.19	-0.57
-2.08	-2.54	-30.79	-20.51	-7.01	-5.94	-1.60	-0.82
-2.19	-2.76	-32.52	-16.50	-6.57	-5.42	-1.28	-0.65
-2.02	-2.51	-33.81	-17.15	-6.49	-5.37	-1.45	-0.73
-0.09	-0.11	-6.63	-0.39	-0.39	-0.26	-0.23	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-0.08	-1.39	-0.43	-0.20	-0.16	-0.05	-0.02
0.03	0.04	0.83	0.14	0.09	0.07	0.02	0.01
-0.02	-0.02	-0.49	-0.06	-0.05	-0.04	-0.01	-0.01
-0.01	-0.01	-0.34	-0.04	-0.03	-0.02	-0.01	0.00

Appendix I-1

Emissions of GHG, PM10, PM2.5, and Others

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1195	-0.49	-0.64	-14.29	-2.08	-1.51	-1.12	-0.40	-0.17
1196	-0.06	-0.08	-1.87	-0.22	-0.19	-0.14	-0.05	-0.02
1197	0.06	0.08	1.85	0.23	0.18	0.13	0.05	0.02
1198	1.07	1.36	30.38	5.45	3.37	2.54	0.96	0.42
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.17	0.22	4.94	0.94	0.56	0.42	0.15	0.07
1230	0.26	0.34	7.06	1.08	0.78	0.58	0.18	0.08
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.48	-0.63	-12.24	-2.12	-1.43	-1.08	-0.32	-0.14
1239	-0.48	-0.62	-12.07	-2.70	-1.50	-1.16	-0.35	-0.16
1240	-4.11	-5.60	-62.94	-9.99	-9.47	-7.05	-1.23	-0.59
1241	-1.68	-2.14	-48.09	-8.34	-5.25	-3.95	-1.50	-0.65
1242	-0.09	-0.12	-2.68	-0.42	-0.28	-0.21	-0.08	-0.03
1243	-1.23	-1.57	-31.83	-7.43	-3.95	-3.07	-1.02	-0.46
1244	-0.88	-1.13	-24.92	-4.45	-2.76	-2.09	-0.73	-0.32
1245	-2.77	-3.42	-53.23	-30.56	-10.57	-8.81	-2.80	-1.52
1246	0.26	0.33	9.67	1.09	0.86	0.62	0.28	0.12
1247	-0.96	-1.33	-22.77	-2.69	-2.69	-1.98	-0.40	-0.18
1248	0.09	0.11	2.72	0.38	0.27	0.20	0.08	0.03
1249	0.12	0.15	3.64	0.52	0.37	0.27	0.10	0.04
1250	-0.71	-0.93	-21.81	-2.95	-2.22	-1.65	-0.56	-0.24
1251	-1.15	-1.48	-34.27	-5.29	-3.58	-2.67	-1.02	-0.44
1252	-0.30	-0.39	-9.39	-1.22	-0.93	-0.68	-0.26	-0.11
1253	-0.22	-0.29	-6.97	-0.89	-0.69	-0.51	-0.18	-0.08
1254	0.02	0.02	0.61	0.06	0.05	0.04	0.02	0.01
1255	1.22	1.55	34.24	6.33	3.84	2.90	1.09	0.48
1256	0.49	0.64	14.89	2.28	1.55	1.15	0.44	0.19
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	0.52	0.68	15.17	2.65	1.66	1.25	0.44	0.19
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1297	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1298	0.06	0.07	1.24	0.35	0.18	0.14	0.04	0.02
1299	0.10	0.13	1.88	0.62	0.29	0.23	0.06	0.03
1300	-1.16	-1.54	-31.62	-4.57	-3.49	-2.59	-0.77	-0.34
1301	-0.58	-0.76	-16.64	-2.66	-1.81	-1.36	-0.45	-0.20
1302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	-0.38	-0.50	-10.87	-1.69	-1.17	-0.88	-0.28	-0.12
1304	-0.38	-0.44	-2.40	-5.16	-1.39	-1.25	-0.32	-0.18
1305	0.09	0.12	3.26	0.22	0.28	0.19	0.08	0.03
1306	-0.10	-0.15	-3.28	0.13	-0.25	-0.16	-0.01	0.00
1307	-0.89	-0.97	-13.41	-29.20	-7.19	-6.64	-2.59	-1.35
1308	-1.17	-1.62	-23.72	-3.02	-3.15	-2.33	-0.36	-0.17
1309	-1.04	-1.32	-29.33	-5.43	-3.28	-2.48	-0.94	-0.41
1310	-1.38	-1.80	-43.05	-6.64	-4.44	-3.32	-1.21	-0.52
1311	-0.18	-0.23	-5.00	-0.96	-0.58	-0.44	-0.16	-0.07
1312	-0.04	-0.06	-1.47	-0.15	-0.14	-0.10	-0.04	-0.02
1313	0.01	0.02	0.41	0.05	0.04	0.03	0.01	0.00
1314	0.39	0.52	11.80	1.46	1.19	0.88	0.29	0.12
1315	1.28	1.64	37.02	6.43	4.04	3.04	1.14	0.49
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.40	-0.52	-11.67	-1.81	-1.24	-0.92	-0.36	-0.15
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	3.64	4.73	104.71	17.41	11.37	8.56	2.92	1.27
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	-0.19	-0.24	-5.23	-1.04	-0.60	-0.46	-0.16	-0.07
1358	-1.08	-1.38	-31.04	-5.56	-3.42	-2.58	-0.97	-0.42
1359	-0.19	-0.26	-4.98	-0.43	-0.53	-0.38	-0.08	-0.04
1360	-0.47	-0.63	-14.50	-1.91	-1.47	-1.08	-0.37	-0.16
1361	-1.27	-1.68	-38.47	-5.06	-3.92	-2.89	-1.00	-0.42
1362	-0.72	-0.98	-16.26	-2.31	-1.98	-1.47	-0.30	-0.14
1363	0.19	0.25	4.66	0.75	0.55	0.41	0.11	0.05
1364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1365	-0.39	-0.45	-1.98	-4.99	-1.35	-1.21	-0.28	-0.16
1366	0.52	0.67	16.34	2.49	1.68	1.25	0.48	0.21
1367	-0.01	0.00	1.74	-0.91	-0.09	-0.12	-0.02	-0.02
1368	0.07	0.16	3.07	-3.13	-0.28	-0.37	-0.26	-0.14
1369	-1.54	-1.83	-25.33	-25.52	-7.46	-6.56	-2.26	-1.17
1370	-0.11	-0.15	-3.91	-0.45	-0.36	-0.26	-0.10	-0.04
1371	-0.28	-0.37	-8.85	-1.05	-0.86	-0.63	-0.22	-0.09
1372	-0.57	-0.72	-15.49	-3.06	-1.79	-1.36	-0.51	-0.23
1373	-0.40	-0.51	-11.42	-2.00	-1.26	-0.95	-0.36	-0.16
1374	-0.73	-0.94	-21.40	-3.68	-2.31	-1.74	-0.66	-0.28
1375	4.93	6.34	145.87	23.80	15.52	11.62	4.36	1.88
1376	-0.34	-0.44	-10.36	-1.52	-1.06	-0.79	-0.30	-0.13
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	48.57	59.76	1022.76	319.17	148.20	116.39	39.01	19.14
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	4.01	4.96	85.69	26.12	12.29	9.64	3.17	1.56
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	61.21	75.21	1258.08	404.42	185.79	146.13	48.35	23.98
1418	2.51	3.08	51.45	16.92	7.67	6.04	2.01	1.00
1419	0.67	0.89	17.07	2.39	1.94	1.44	0.40	0.17
1420	25.03	30.86	517.43	170.02	77.09	60.79	19.96	9.96
1421	5.49	6.68	107.32	40.42	17.40	13.85	4.73	2.35
1422	19.29	23.78	418.95	136.35	62.04	48.95	16.97	8.24
1423	24.05	29.78	543.34	167.16	77.67	61.07	21.34	10.28
1424	-11.48	-15.33	-199.14	-36.59	-27.88	-21.01	-4.49	-2.09
1425	12.35	15.45	217.19	71.30	34.15	26.88	8.13	4.00
1426	4.33	5.26	107.90	34.20	15.73	12.27	5.03	2.51
1427	9.74	11.75	200.05	82.02	33.06	26.54	9.60	4.86
1428	6.61	8.21	139.85	50.05	21.64	17.25	5.63	2.82
1429	5.49	6.72	110.49	45.17	18.31	14.73	4.94	2.53
1430	9.26	11.30	184.03	69.98	29.10	23.13	7.65	4.01
1431	4.32	5.35	90.95	22.63	12.38	9.51	3.09	1.46
1432	4.35	5.39	91.35	20.63	12.07	9.19	2.97	1.38
1433	1.17	1.46	25.50	5.45	3.27	2.48	0.81	0.37
1434	4.82	5.97	99.84	22.49	13.25	10.09	3.21	1.49
1435	1.84	2.29	39.00	12.45	5.76	4.57	1.44	0.68
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-0.04	-0.05	-1.03	-0.16	-0.11	-0.08	-0.03	-0.01
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	-0.69	-0.91	-22.98	-2.37	-2.11	-1.53	-0.58	-0.24
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.51	-0.66	-14.76	-2.15	-1.56	-1.15	-0.42	-0.18
-0.06	-0.08	-1.94	-0.23	-0.19	-0.14	-0.05	-0.02
0.05	0.07	1.67	0.17	0.15	0.11	0.04	0.02
1.01	1.29	28.99	4.93	3.15	2.36	0.90	0.39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.02	0.46	0.02	0.04	0.02	0.01	0.00
0.16	0.21	4.48	0.49	0.46	0.34	0.10	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.29	-0.39	-7.13	-1.27	-0.86	-0.65	-0.18	-0.08
-0.41	-0.53	-9.92	-2.30	-1.27	-0.98	-0.28	-0.13
-4.87	-6.61	-80.80	-13.03	-11.64	-8.68	-1.65	-0.78
-1.61	-2.05	-45.97	-8.06	-5.04	-3.79	-1.44	-0.62
-0.09	-0.12	-2.79	-0.40	-0.28	-0.21	-0.08	-0.03
-1.24	-1.60	-32.13	-7.33	-3.97	-3.07	-1.00	-0.45
-1.05	-1.38	-29.40	-5.04	-3.28	-2.48	-0.79	-0.35
-2.22	-2.78	-46.87	-20.06	-7.93	-6.46	-2.04	-1.05
0.16	0.21	7.23	0.46	0.54	0.37	0.20	0.08
-1.00	-1.37	-23.31	-2.95	-2.79	-2.06	-0.43	-0.19
0.07	0.09	2.28	0.30	0.22	0.17	0.06	0.03
0.10	0.13	3.17	0.43	0.32	0.23	0.09	0.04
-0.71	-0.94	-22.08	-2.97	-2.24	-1.66	-0.57	-0.24
-1.17	-1.50	-34.92	-5.37	-3.65	-2.71	-1.04	-0.44
-0.29	-0.38	-9.17	-1.18	-0.90	-0.66	-0.25	-0.11
-0.21	-0.28	-6.79	-0.86	-0.67	-0.49	-0.18	-0.07
0.01	0.01	0.38	-0.03	0.02	0.01	0.01	0.00
1.13	1.44	32.36	5.61	3.54	2.66	1.01	0.44
0.49	0.63	14.87	2.28	1.54	1.15	0.44	0.19
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.18	0.23	5.61	0.65	0.55	0.40	0.14	0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.13	0.08	0.01	0.01	0.00	0.00
0.01	0.00	-0.24	0.17	0.02	0.02	0.00	0.00
-1.02	-1.35	-27.22	-3.95	-3.04	-2.26	-0.65	-0.29
-0.85	-1.12	-22.93	-3.75	-2.58	-1.94	-0.60	-0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.37	-0.49	-11.13	-1.52	-1.15	-0.85	-0.28	-0.12
-0.47	-0.56	-5.73	-5.35	-1.66	-1.44	-0.40	-0.21
0.01	0.02	1.12	-0.14	0.05	0.02	0.02	0.01
-0.01	-0.02	-1.34	0.47	0.02	0.04	0.00	0.01
-0.28	-0.29	-8.14	-15.68	-4.05	-3.79	-1.66	-0.75
-1.26	-1.74	-25.92	-3.70	-3.46	-2.58	-0.44	-0.21
-1.04	-1.32	-29.47	-5.46	-3.29	-2.49	-0.94	-0.41
-1.39	-1.81	-43.33	-6.67	-4.46	-3.34	-1.22	-0.52
-0.18	-0.23	-5.07	-0.97	-0.58	-0.44	-0.16	-0.07
-0.05	-0.06	-1.63	-0.18	-0.15	-0.11	-0.04	-0.02
0.01	0.02	0.41	0.05	0.04	0.03	0.01	0.00
0.38	0.51	11.59	1.42	1.17	0.86	0.29	0.12
1.18	1.51	34.23	5.72	3.69	2.76	1.06	0.46
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.41	-0.52	-11.72	-1.81	-1.24	-0.92	-0.36	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.75	2.28	54.66	7.66	5.51	4.08	1.51	0.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.02	0.61	-0.02	0.04	0.02	0.02	0.01
-0.47	-0.60	-13.80	-2.51	-1.51	-1.14	-0.43	-0.19
-0.35	-0.47	-9.47	-1.33	-1.04	-0.78	-0.22	-0.10
-0.41	-0.55	-12.49	-1.72	-1.28	-0.95	-0.32	-0.14
-1.34	-1.77	-40.33	-5.12	-4.11	-3.02	-1.01	-0.43
-1.56	-2.08	-35.92	-5.99	-4.34	-3.27	-0.74	-0.33
0.16	0.21	4.03	0.55	0.46	0.34	0.09	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.47	-0.57	-5.17	-5.18	-1.61	-1.39	-0.35	-0.19
0.31	0.41	10.34	1.46	1.03	0.76	0.31	0.13
-0.29	-0.36	-4.41	-2.20	-0.89	-0.73	-0.16	-0.08
-0.64	-0.77	-12.22	-6.51	-2.32	-1.93	-0.65	-0.32
-1.00	-1.18	-17.29	-16.61	-5.03	-4.44	-1.56	-0.76
-0.11	-0.15	-3.98	-0.46	-0.37	-0.27	-0.10	-0.04
-0.28	-0.36	-8.83	-1.05	-0.86	-0.63	-0.22	-0.09
-0.57	-0.72	-15.46	-3.06	-1.79	-1.36	-0.51	-0.23
-0.41	-0.52	-11.55	-2.02	-1.28	-0.96	-0.36	-0.16
-0.73	-0.94	-21.48	-3.70	-2.32	-1.75	-0.66	-0.28
4.73	6.09	141.57	22.08	14.82	11.06	4.17	1.78
-0.34	-0.44	-10.37	-1.52	-1.06	-0.79	-0.30	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33.94	41.75	686.98	198.70	98.43	76.62	24.72	12.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.24	4.01	67.90	15.18	8.72	6.66	2.12	0.99
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44.29	54.20	877.17	261.57	125.24	97.82	31.32	15.54
1.51	1.82	25.60	6.92	3.72	2.87	0.84	0.42
0.63	0.84	16.17	2.29	1.84	1.37	0.38	0.17
17.40	21.42	356.93	80.77	46.14	35.20	11.19	5.27
3.68	4.47	70.85	24.85	11.18	8.83	2.98	1.47
13.44	16.55	281.39	87.24	41.33	32.39	10.92	5.32
21.08	26.28	484.43	120.07	64.09	49.32	17.21	8.02
-11.48	-15.33	-199.14	-36.59	-27.88	-21.01	-4.49	-2.09
11.06	13.90	190.45	54.97	28.87	22.44	6.55	3.16
1.64	1.86	66.96	15.53	7.91	5.95	3.25	1.56
7.34	8.83	148.71	53.87	23.46	18.54	6.76	3.39
3.45	4.35	77.90	22.21	10.86	8.51	2.71	1.30
7.53	9.26	155.98	55.40	24.20	19.22	6.46	3.23
8.22	10.05	164.81	59.96	25.45	20.13	6.65	3.48
4.18	5.18	88.44	20.93	11.82	9.05	2.94	1.38
4.24	5.25	89.04	20.01	11.74	8.94	2.89	1.34
1.15	1.43	25.09	5.30	3.21	2.43	0.79	0.37
4.73	5.86	98.02	21.86	12.97	9.87	3.14	1.46
1.86	2.32	39.54	12.68	5.85	4.65	1.46	0.69
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.05	-1.04	-0.14	-0.11	-0.08	-0.03	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.70	-0.92	-22.64	-2.74	-2.18	-1.60	-0.60	-0.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-1

Emissions of GHG, PM10, PM2.5, and Others

2020 NEPA Comparison

2020 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1479	-0.47	-0.62	-12.85	-1.99	-1.42	-1.06	-0.34	-0.15	-0.40	-0.53	-10.83	-1.75	-1.22	-0.91	-0.29	-0.13
1480	0.10	0.13	2.82	0.41	0.30	0.23	0.07	0.03	-0.01	-0.02	-0.30	-0.09	-0.04	-0.03	-0.01	0.00
1481	-0.32	-0.43	-9.65	-1.29	-1.00	-0.74	-0.24	-0.10	-0.42	-0.55	-12.66	-1.72	-1.30	-0.96	-0.32	-0.14
1482	-0.37	-0.48	-12.27	-1.82	-1.20	-0.90	-0.37	-0.15	-0.40	-0.52	-12.55	-1.90	-1.27	-0.95	-0.37	-0.16
1483	-1.67	-2.14	-38.37	-8.84	-4.90	-3.79	-1.10	-0.49	-1.39	-1.77	-28.96	-8.22	-4.08	-3.21	-0.89	-0.41
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	2.22	2.87	52.83	11.49	6.62	5.10	1.49	0.67	2.21	2.86	52.70	11.35	6.58	5.06	1.48	0.66
1486	6.78	8.73	114.08	32.84	17.35	13.61	3.31	1.57	6.79	8.74	113.95	33.07	17.38	13.64	3.32	1.58
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1491	2.82	3.46	59.55	22.18	8.75	6.91	2.25	1.26	1.20	1.52	32.23	5.48	3.60	2.68	1.00	0.44
1492	-0.01	0.00	1.79	-0.72	-0.06	-0.08	0.00	-0.01	-0.09	-0.09	0.37	-1.61	-0.36	-0.34	-0.08	-0.05
1493	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	-0.01	-0.02	-0.42	-0.05	-0.04	-0.03	-0.01	0.00	-0.01	-0.02	-0.43	-0.05	-0.04	-0.03	-0.01	-0.01
1496	1.09	1.35	21.84	8.86	3.60	2.93	0.89	0.43	1.14	1.41	22.87	9.26	3.76	3.06	0.93	0.45
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-12.49	-16.12	-349.35	-65.43	-39.48	-30.00	-10.33	-4.53	-9.54	-12.32	-260.73	-51.61	-30.22	-23.10	-7.68	-3.40
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-7.19	-9.25	-201.63	-38.08	-22.78	-17.32	-6.04	-2.65	-5.25	-6.76	-142.71	-29.38	-16.74	-12.84	-4.30	-1.91
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-4.79	-6.17	-134.48	-25.40	-15.19	-11.55	-4.03	-1.77	-3.50	-4.51	-95.18	-19.60	-11.17	-8.57	-2.87	-1.28
1537	-0.37	-0.49	-9.39	-1.59	-1.10	-0.83	-0.23	-0.10	-0.84	-1.10	-23.26	-3.88	-2.58	-1.94	-0.63	-0.28
1538	-1.27	-1.64	-32.00	-6.81	-3.91	-3.01	-0.92	-0.41	-1.12	-1.45	-26.87	-6.39	-3.47	-2.69	-0.79	-0.36
1539	-0.97	-1.22	-26.29	-5.96	-3.15	-2.43	-0.92	-0.41	-1.09	-1.38	-28.91	-6.68	-3.53	-2.73	-0.97	-0.43
1540	-1.46	-1.91	-41.02	-7.43	-4.64	-3.52	-1.11	-0.49	-1.10	-1.43	-29.32	-6.49	-3.56	-2.76	-0.86	-0.39
1541	-1.68	-2.19	-43.20	-8.71	-5.19	-3.97	-1.21	-0.54	-1.21	-1.56	-27.80	-7.46	-3.79	-2.98	-0.85	-0.40
1542	0.03	0.04	0.95	0.10	0.09	0.07	0.02	0.01	0.01	0.02	0.39	0.03	0.04	0.03	0.01	0.00
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.18	0.15	1.75	1.13	0.38	0.28	0.32	0.13	0.31	0.41	10.06	1.22	0.97	0.71	0.27	0.11
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	0.11	0.14	2.47	0.84	0.46	0.38	0.14	0.05	0.05	0.06	1.48	-0.03	0.20	0.15	0.07	0.01
1552	-0.66	-0.82	-14.08	-5.70	-2.29	-1.87	-0.61	-0.30	-0.69	-0.86	-14.93	-5.94	-2.41	-1.96	-0.64	-0.31
1553	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1554	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1555	0.58	0.72	9.05	4.08	1.64	1.34	0.33	0.16	0.60	0.75	9.51	4.27	1.72	1.41	0.35	0.17
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-2

Emissions of GHG, PM10, PM2.5, and Others

2040 NEPA Comparison

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build								FWY/Toll or FWY/Toll with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	-0.08	-0.11	-2.52	-0.33	-0.47	-0.31	-0.13	-0.06	-0.08	-0.11	-2.52	-0.33	-0.47	-0.31	-0.13	-0.06
44	-0.03	-0.04	-0.90	-0.09	-0.17	-0.11	-0.04	-0.02	-0.02	-0.02	-0.56	-0.05	-0.10	-0.07	-0.02	-0.01
45	0.04	0.05	1.20	0.13	0.21	0.14	0.06	0.02	0.02	0.03	0.68	0.07	0.12	0.08	0.03	0.01
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	-0.09	-0.12	-2.77	-0.37	-0.51	-0.35	-0.14	-0.06	-0.09	-0.12	-2.77	-0.37	-0.51	-0.35	-0.14	-0.06
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-0.54	-0.79	-13.09	-1.56	-3.02	-2.01	-0.51	-0.23	-0.38	-0.55	-8.31	-0.98	-2.04	-1.35	-0.31	-0.14
96	-0.89	-1.31	-20.51	-2.40	-4.92	-3.27	-0.76	-0.35	-0.62	-0.92	-12.79	-1.49	-3.34	-2.22	-0.43	-0.20
97	-0.09	-0.13	-2.86	-0.31	-0.54	-0.35	-0.13	-0.05	-0.09	-0.12	-2.82	-0.30	-0.53	-0.35	-0.12	-0.05
98	0.08	0.11	2.56	0.27	0.48	0.32	0.11	0.05	0.07	0.09	2.14	0.22	0.40	0.26	0.09	0.04
99	0.00	0.00	0.08	-0.01	-0.01	-0.01	0.01	0.00	0.01	0.01	0.31	0.03	0.04	0.02	0.02	0.01
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-4.65	-6.21	-134.11	-29.15	-28.45	-20.56	-7.81	-3.45	-2.23	-2.93	-54.77	-17.42	-13.59	-10.41	-3.63	-1.66
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-1.19	-1.71	-17.01	-3.06	-5.36	-3.73	-0.62	-0.31	-0.93	-1.34	-10.46	-2.18	-3.90	-2.74	-0.34	-0.19
107	-8.70	-12.55	-125.50	-22.50	-39.37	-27.37	-4.59	-2.32	-6.79	-9.81	-76.89	-15.93	-28.53	-20.03	-2.53	-1.40
108	-2.79	-3.72	-103.94	-14.59	-18.07	-12.34	-5.34	-2.26	0.55	0.98	-14.26	-2.26	0.50	0.18	-0.89	-0.33
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-6.35	-8.30	-163.81	-41.79	-37.34	-27.54	-10.42	-4.64	-4.23	-5.53	-104.12	-31.20	-25.27	-19.18	-6.85	-3.11
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	-0.08	-0.12	-1.87	-0.18	-0.46	-0.30	-0.06	-0.03	-0.10	-0.14	-2.17	-0.25	-0.53	-0.35	-0.08	-0.04
147	-0.71	-1.01	-20.76	-2.29	-4.17	-2.75	-0.88	-0.38	-0.59	-0.85	-16.94	-1.85	-3.46	-2.28	-0.70	-0.30
148	-1.58	-2.17	-52.13	-5.94	-9.45	-6.25	-2.50	-1.06	-1.24	-1.71	-40.96	-4.60	-7.42	-4.90	-1.95	-0.82
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-0.07	-0.09	-1.91	-0.35	-0.39	-0.28	-0.10	-0.05	0.05	0.07	1.93	0.14	0.32	0.20	0.08	0.03
151	-0.03	-0.04	-0.90	-0.15	-0.18	-0.13	-0.05	-0.02	0.01	0.02	0.52	0.03	0.09	0.05	0.02	0.01
152	-0.25	-0.35	-8.43	-0.88	-1.51	-0.99	-0.39	-0.16	-0.13	-0.18	-4.24	-0.44	-0.77	-0.51	-0.18	-0.08
153	-2.19	-2.96	-56.17	-13.09	-12.91	-9.46	-3.08	-1.40	-1.59	-2.13	-35.89	-9.84	-9.08	-6.79	-2.03	-0.94
154	-1.54	-2.08	-40.08	-9.05	-9.10	-6.63	-2.18	-0.99	-1.11	-1.52	-28.19	-6.88	-6.67	-4.94	-1.47	-0.68
155	-0.81	-1.10	-21.17	-4.70	-4.77	-3.47	-1.15	-0.52	-0.51	-0.69	-11.61	-3.02	-2.90	-2.15	-0.64	-0.30
156	-2.68	-3.65	-66.02	-14.89	-15.49	-11.28	-3.45	-1.57	-1.71	-2.34	-35.82	-9.55	-9.55	-7.10	-1.81	-0.86
157	-1.96	-2.67	-48.31	-10.89	-11.33	-8.25	-2.52	-1.15	-1.25	-1.72	-26.21	-6.99	-6.99	-5.20	-1.32	-0.63
158	-1.23	-1.68	-30.42	-6.86	-7.14	-5.20	-1.59	-0.73	-0.79	-1.08	-16.51	-4.40	-4.40	-3.27	-0.83	-0.40
159	-3.96	-5.65	-70.15	-13.09	-19.84	-13.92	-2.80	-1.36	-2.63	-3.74	-36.41	-8.52	-12.28	-8.81	-1.38	-0.72
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.22	-0.29	-6.94	-0.77	-1.24	-0.81	-0.36	-0.15	-0.20	-0.26	-6.36	-0.71	-1.13	-0.74	-0.33	-0.14
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-3.21	-4.37	-43.14	-13.43	-14.53	-10.93	-2.15	-1.09	-2.97	-4.06	-38.09	-12.00	-13.25	-9.96	-1.84	-0.95
202	-0.76	-1.08	-22.37	-2.45	-4.46	-2.94	-0.95	-0.41	-0.59	-0.83	-18.06	-1.97	-3.48	-2.29	-0.79	-0.34
203	-0.59	-0.86	-15.79	-1.69	-3.37	-2.22	-0.64	-0.28	-0.53	-0.77	-13.92	-1.51	-3.01	-1.98	-0.56	-0.25
204	0.02	0.04	0.74	0.07	0.15	0.10	0.03	0.01	0.03	0.04	0.81	0.08	0.16	0.10	0.03	0.01
205	-2.71	-3.76	-57.60	-12.17	-14.73	-10.56	-2.73	-1.28	-2.07	-2.87	-37.87	-9.21	-10.83	-7.88	-1.80	-0.87
206	-2.77	-3.79	-63.97	-13.78	-15.45	-11.15	-3.20	-1.47	-1.99	-2.71	-40.11	-10.23	-10.75	-7.91	-2.08	-0.98
207	-1.65	-2.27	-39.16	-7.87	-9.28	-6.64	-1.89	-0.86	-1.26	-1.73	-27.85	-6.09	-6.95	-5.02	-1.34	-0.62
208	-1.69	-2.30	-38.74	-8.92	-9.48	-6.91	-2.02	-0.93	-1.25	-1.71	-25.30	-6.73	-6.84	-5.07	-1.31	-0.62
209	-2.19	-3.03	-51.86	-10.49	-12.35	-8.84	-2.49	-1.14	-1.55	-2.12	-32.75	-7.75	-8.47	-6.19	-1.62	-0.76
210	-0.02	-0.03	-0.71	-0.07	-0.12	-0.08	-0.03	-0.01	-0.01	-0.01	-0.34	-0.03	-0.06	-0.04	-0.02	-0.01
211	-0.17	-0.22	-4.37	-0.68	-0.89	-0.60	-0.25	-0.11	0.23	0.30	5.95	2.07	1.48	1.14	0.46	0.21
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	0.00	0.00	0.04	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.01	0.00	0.00
222	-0.36	-0.49	-11.70	-1.30	-2.09	-1.37	-0.61	-0.25	-0.36	-0.49	-11.67	-1.30	-2.08	-1.36	-0.61	-0.25
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	0.01	0.02	0.39	0.04	0.07	0.05	0.02	0.01	0.01	0.02	0.37	0.04	0.07	0.04	0.02	0.01
260	-0.08	-0.12	-2.95	-0.31	-0.51	-0.34	-0.14	-0.06	-0.08	-0.11	-2.85	-0.30	-0.50	-0.32	-0.13	-0.06
261	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
262	-0.97	-1.29	-16.48	-5.92	-5.10	-3.94	-0.98	-0.48	-0.85	-1.13	-14.21	-5.23	-4.43	-3.45	-0.86	-0.42
263	-0.61	-0.79	-10.56	-4.65	-3.33	-2.67	-0.76	-0.37	-0.53	-0.69	-9.01	-4.07	-2.91	-2.34	-0.64	-0.31
264	-1.10	-1.43	-22.79	-7.49	-6.13	-4.68	-1.53	-0.71	-0.96	-1.25	-19.27	-6.55	-5.31	-4.08	-1.30	-0.60
265	-2.95	-4.11	-64.25	-13.45	-16.18	-11.60	-3.00	-1.40	-2.27	-3.17	-46.06	-10.46	-12.27	-8.90	-2.09	-1.00
266	-0.96	-1.38	-19.42	-3.09	-5.10	-3.51	-0.78	-0.37	-0.88	-1.25	-17.44	-2.89	-4.61	-3.18	-0.72	-0.34
267	-1.16	-1.64	-25.27	-4.12	-6.25	-4.32	-1.09	-0.50	-1.13	-1.61	-24.47	-4.04	-6.10	-4.22	-1.05	-0.49
268	-0.29	-0.39	-7.62	-1.38	-1.63	-1.15	-0.39	-0.17	-0.29	-0.39	-7.63	-1.39	-1.64	-1.16	-0.39	-0.17
269	-0.21	-0.28	-4.78	-1.22	-1.15	-0.86	-0.28	-0.13	-0.14	-0.18	-2.54	-0.99	-0.73	-0.58	-0.18	-0.09
270	-0.27	-0.36	-6.67	-1.46	-1.52	-1.11	-0.37	-0.16	-0.22	-0.30	-5.09	-1.29	-1.23	-0.91	-0.30	-0.13
271	-0.26	-0.35	-6.29	-1.42	-1.45	-1.06	-0.35	-0.16	-0.22	-0.28	-4.91	-1.26	-1.18	-0.88	-0.29	-0.13
272	-0.24	-0.31	-6.09	-1.37	-1.36	-0.99	-0.36	-0.16	-0.19	-0.25	-4.53	-1.20	-1.07	-0.80	-0.28	-0.13
273	-0.23	-0.31	-6.05	-1.30	-1.33	-0.96	-0.35	-0.15	-0.22	-0.29	-5.55	-1.24	-1.24	-0.90	-0.32	-0.14
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-1.07	-1.42	-29.69	-5.67	-6.21	-4.41	-1.65	-0.72	-0.35	-0.44	-5.48	-3.11	-1.96	-1.62	-0.46	-0.22
276	-0.90	-1.25	-28.72	-3.61	-5.40	-3.63	-1.36	-0.58	-0.11	-0.12	0.05	-1.46	-0.51	-0.53	-0.15	-0.08
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	0.04	0.06	1.09	0.08	0.24	0.15	0.04	0.02	0.04	0.06	1.12	0.09	0.23	0.15	0.04	0.02
320	-0.34	-0.56	0.02	5.00	-0.07	0.55	0.89	0.40	-0.18	-0.38	-2.21	3.85	-0.41	0.18	0.51	0.23
321	-2.09	-2.99	-60.70	-6.60	-12.27	-8.09	-2.52	-1.09	-2.03	-2.90	-58.54	-6.38	-11.88	-7.84	-2.42	-1.05
322	-1.98	-2.82	-58.63	-6.40	-11.65	-7.69	-2.50	-1.08	-1.93	-2.75	-56.84	-6.22	-11.33	-7.48	-2.42	-1.05
323	-1.45	-2.08	-41.14	-4.70	-8.45	-5.60	-1.73	-0.76	-1.44	-2.05	-40.57	-4.64	-8.35	-5.54	-1.71	-0.75
324	-1.34	-1.92	-38.49	-4.26	-7.85	-5.19	-1.60	-0.70	-1.22	-1.73	-35.01	-3.93	-7.10	-4.70	-1.48	-0.64
325	-1.78	-2.54	-50.45	-6.36	-10.50	-7.06	-2.09	-0.92	-1.30	-1.84	-35.18	-4.72	-7.49	-5.06	-1.55	-0.68
326	-0.18	-0.26	-4.56	-0.49	-1.02	-0.67	-0.17	-0.08	-0.15	-0.22	-3.63	-0.39	-0.84	-0.56	-0.13	-0.06
327	-0.11	-0.16	-3.35	-0.37	-0.68	-0.45	-0.13	-0.06	-0.12	-0.18	-3.68	-0.40	-0.74	-0.49	-0.15	-0.07
328	-0.03	-0.04	-1.08	-0.12	-0.19	-0.13	-0.05	-0.02	-0.04	-0.05	-1.18	-0.13	-0.21	-0.14	-0.06	-0.02
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-0.19	-0.26	-5.30	-0.81	-1.10	-0.76	-0.25	-0.11	-0.15	-0.21	-4.10	-0.70	-0.88	-0.62	-0.20	-0.09
331	-0.18	-0.24	-5.17	-0.82	-1.04	-0.72	-0.26	-0.11	-0.18	-0.25	-5.31	-0.83	-1.07	-0.74	-0.26	-0.11
332	-0.12	-0.17	-3.79	-0.53	-0.72	-0.49	-0.19	-0.08	-0.10	-0.13	-2.89	-0.44	-0.56	-0.39	-0.15	-0.06
333	-0.35	-0.48	-10.78	-1.50	-2.06	-1.40	-0.53	-0.23	0.00	-0.02	-1.60	0.42	-0.07	0.03	-0.01	0.00
334	-0.15	-0.20	-4.64	-0.69	-0.89	-0.61	-0.23	-0.10	0.26	0.37	9.55	0.71	1.61	1.02	0.41	0.17

Appendix I-2

Emissions of GHG, PM10, PM2.5, and Others

2040 NEPA Comparison

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.48	-0.65	-15.12	-2.09	-2.83	-1.91	-0.80	-0.34
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-0.08	-0.10	-1.51	-0.62	-0.44	-0.35	-0.12	-0.05
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.00	-0.01	-0.11	-0.03	-0.02	-0.02	-0.01	0.00
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	2.37	2.83	31.67	19.93	11.81	9.40	3.06	1.45
382	-0.84	-1.18	-27.25	-2.78	-5.05	-3.31	-1.18	-0.50
383	-1.23	-1.78	-36.45	-3.67	-7.28	-4.76	-1.47	-0.64
384	-1.02	-1.46	-31.54	-3.28	-6.11	-4.01	-1.32	-0.57
385	-0.54	-0.77	-16.61	-1.73	-3.21	-2.11	-0.70	-0.30
386	-0.30	-0.42	-9.10	-1.51	-1.85	-1.29	-0.43	-0.19
387	-0.36	-0.52	-10.92	-1.12	-2.14	-1.40	-0.45	-0.20
388	-0.11	-0.15	-3.62	-0.39	-0.65	-0.43	-0.17	-0.07
389	-0.04	-0.05	-1.19	-0.14	-0.22	-0.14	-0.06	-0.02
390	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
391	0.04	0.05	1.34	0.13	0.23	0.15	0.06	0.03
392	0.22	0.32	6.18	0.55	1.27	0.82	0.23	0.10
393	-0.09	-0.13	-2.78	-0.36	-0.54	-0.37	-0.13	-0.06
394	-0.74	-1.00	-22.70	-3.20	-4.35	-2.96	-1.14	-0.49
395	-0.02	-0.03	-0.53	-0.12	-0.12	-0.08	-0.03	-0.01
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	-0.13	-0.19	-4.12	-0.48	-0.79	-0.52	-0.19	-0.08
399	-0.15	-0.19	-2.87	-1.03	-0.80	-0.62	-0.20	-0.09
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.06	-0.08	-2.03	-0.23	-0.36	-0.24	-0.11	-0.04
403	-0.05	-0.07	-1.63	-0.18	-0.29	-0.19	-0.08	-0.03
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.23	-0.31	-7.47	-0.83	-1.33	-0.87	-0.39	-0.16
406	0.01	0.01	0.19	0.02	0.03	0.02	0.01	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-0.09	-0.13	-3.08	-0.30	-0.57	-0.37	-0.13	-0.06
440	-0.01	-0.01	-0.26	0.00	-0.05	-0.03	-0.01	0.00
441	0.13	-0.14	-23.26	7.05	-1.06	0.19	-0.17	0.01
442	-2.39	-3.44	-68.53	-7.98	-14.14	-9.41	-2.80	-1.23
443	-1.61	-2.31	-43.36	-5.71	-9.41	-6.34	-1.80	-0.80
444	-1.21	-1.68	-34.21	-4.91	-7.06	-4.81	-1.60	-0.70
445	-0.62	-0.85	-16.01	-2.82	-3.56	-2.48	-0.79	-0.35
446	-0.86	-1.18	-26.01	-3.80	-5.11	-3.49	-1.28	-0.55
447	0.40	0.54	15.83	1.78	2.57	1.69	0.81	0.34
448	-0.78	-1.11	-22.98	-2.56	-4.59	-3.04	-0.97	-0.42
449	-0.41	-0.79	-10.88	1.23	-2.63	-1.53	0.21	0.07
450	14.11	18.03	369.11	72.32	76.89	53.69	22.60	9.72
451	1.90	2.37	42.60	9.78	9.62	6.79	2.81	1.22
452	35.04	45.08	860.19	171.14	185.69	129.49	51.49	22.30
453	-1.06	-1.47	-33.16	-4.17	-6.30	-4.23	-1.58	-0.68
454	-0.45	-0.62	-14.11	-1.72	-2.67	-1.78	-0.66	-0.28
455	4.78	6.09	111.16	23.97	24.88	17.46	6.89	3.00
456	0.19	0.27	6.29	0.64	1.14	0.75	0.28	0.12
457	25.32	32.09	551.91	117.92	123.81	86.77	32.34	14.14
458	-0.02	-0.02	-1.44	-0.15	-0.15	-0.09	-0.09	-0.03
459	5.87	7.27	120.70	27.84	27.51	19.36	7.46	3.25
460	0.00	-0.01	-0.13	-0.01	-0.02	-0.02	-0.01	0.00
461	30.23	38.36	669.55	138.16	147.92	103.31	38.74	16.89
462	-0.06	-0.09	-2.19	-0.23	-0.39	-0.25	-0.10	-0.04
463	6.01	7.66	136.85	27.47	29.86	20.80	7.86	3.42
464	-2.96	-3.90	-85.68	-14.11	-16.96	-11.67	-4.87	-2.09
465	22.33	28.50	523.86	104.92	113.22	78.92	30.79	13.36
466	4.14	5.13	100.72	20.91	20.94	14.63	6.24	2.68
467	29.04	37.19	696.54	135.00	148.25	103.08	40.32	17.46
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	0.04	0.05	1.21	0.12	0.22	0.14	0.05	0.02
499	1.13	1.51	31.85	4.40	6.28	4.21	1.65	0.70
500	1.79	2.10	37.90	10.44	8.52	6.15	3.06	1.31
501	11.51	14.60	261.07	51.17	57.36	39.69	15.82	6.82
502	10.25	13.07	239.86	46.31	52.16	36.09	14.47	6.24
503	10.69	13.70	255.67	48.98	55.27	38.26	15.25	6.58
504	2.26	2.87	51.65	10.46	11.46	7.96	3.16	1.37
505	17.18	22.02	409.53	79.51	88.95	61.66	24.49	10.58
506	2.53	3.29	64.51	11.74	13.63	9.41	3.67	1.59
507	15.86	20.54	408.95	77.58	86.25	59.95	24.29	10.48
508	-0.08	-0.11	-2.50	-0.38	-0.49	-0.33	-0.13	-0.06
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.02	-0.02	-0.61	-0.03	-0.10	-0.06	-0.02	-0.01
511	-0.12	-0.16	-3.60	-0.53	-0.69	-0.47	-0.19	-0.08
512	-0.32	-0.44	-9.71	-1.28	-1.89	-1.27	-0.46	-0.20
513	0.02	0.03	0.62	0.06	0.11	0.07	0.03	0.01
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.04	0.06	1.43	0.15	0.25	0.16	0.07	0.03
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	0.49	0.70	15.33	1.53	2.92	1.90	0.65	0.28
518	-0.35	-0.49	-11.07	-1.13	-2.07	-1.35	-0.48	-0.20
519	-0.01	-0.01	-0.30	-0.03	-0.05	-0.04	-0.01	-0.01
520	-0.03	-0.04	-1.08	-0.12	-0.19	-0.13	-0.06	-0.02
521	-0.09	-0.12	-2.98	-0.33	-0.53	-0.35	-0.15	-0.06
522	0.33	0.44	10.83	1.19	1.89	1.24	0.56	0.23
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.10	-0.15	-3.39	-0.34	-0.63	-0.41	-0.15	-0.06
525	-0.85	-1.20	-19.90	-3.52	-4.76	-3.33	-0.91	-0.41
526	-7.21	-9.77	-226.69	-31.08	-42.66	-28.84	-11.67	-4.97
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	0.02	0.03	0.78	0.09	0.14	0.09	0.04	0.02
558	3.55	4.64	93.05	15.41	19.09	13.02	5.26	2.25
559	0.23	0.32	6.18	0.75	1.31	0.87	0.26	0.11
560	-0.07	-0.09	-2.23	-0.24	-0.40	-0.26	-0.11	-0.05
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	0.03	0.04	1.15	0.09	0.17	0.11	0.05	0.02
563	-0.02	-0.03	-0.52	-0.07	-0.11	-0.07	-0.02	-0.01
564	-0.02	-0.03	-0.70	-0.10	-0.14	-0.10	-0.03	-0.01
565	0.23	0.32	7.72	0.80	1.40	0.92	0.35	0.15
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	-0.02	-0.03	-0.68	-0.06	-0.12	-0.08	-0.03	-0.01
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.32	-0.44	-10.32	-1.13	-1.90	-1.25	-0.48	-0.20
570	-0.50	-0.69	-15.62	-1.90	-2.97	-1.98	-0.73	-0.31
571	-0.20	-0.28	-6.33	-0.86	-1.20	-0.82	-0.31	-0.13
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-0.83	-1.13	-27.27	-3.24	-4.91	-3.26	-1.38	-0.58
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-0.77	-1.08	-24.42	-2.68	-4.60	-3.03	-1.11	-0.47
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.27	-0.38	-8.81	-0.95	-1.64	-1.08	-0.40	-0.17
578	-0.40	-0.56	-12.59	-1.40	-2.37	-1.57	-0.57	-0.24
579	-1.06	-1.41	-32.27	-4.07	-5.97	-3.96	-1.74	-0.73
580	-0.50	-0.68	-16.05	-1.94	-2.94	-1.95	-0.81	-0.34
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-1.92	-2.54	-57.89	-7.77	-10.86	-7.26	-3.18	-1.34
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-3.40	-5.12	-48.25	-6.42	-15.52	-10.33	-1.75	-0.88
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	0.07	0.10	2.29	0.26	0.41	0.27	0.11	0.05
598	1.23	1.79	55.88	7.94	9.67	6.66	2.86	1.23
599	-0.02	-0.02	-0.62	-0.06	-0.11	-0.07	-0.03	-0.01

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.01	0.94	-0.33	0.01	-0.04	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.24	-0.31	-6.05	-1.40	-1.36	-0.99	-0.36	-0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	-0.09	-0.02	-0.02	-0.02	-0.01	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.03	1.14	2.94	9.12	4.09	3.55	0.92	0.48
-0.85	-1.20	-27.69	-2.82	-5.14	-3.36	-1.20	-0.51
-1.22	-1.76	-36.10	-3.63	-7.22	-4.72	-1.45	-0.63
-1.02	-1.47	-31.68	-3.26	-6.15	-4.04	-1.30	-0.56
-0.52	-0.74	-16.07	-1.67	-3.11	-2.04	-0.67	-0.29
-0.16	-0.23	-4.99	-0.88	-1.02	-0.73	-0.23	-0.10
-0.28	-0.40	-8.60	-0.88	-1.66	-1.09	-0.37	-0.16
-0.12	-0.16	-3.91	-0.42	-0.70	-0.46	-0.18	-0.08
-0.04	-0.05	-1.26	-0.14	-0.23	-0.15	-0.06	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.50	0.02	0.07	0.04	0.02	0.01
0.12	0.18	4.21	0.37	0.76	0.49	0.18	0.08
-0.03	-0.05	-1.02	-0.12	-0.20	-0.14	-0.04	-0.02
-0.30	-0.42	-10.84	-0.85	-1.83	-1.17	-0.48	-0.20
0.14	0.20	4.75	0.41	0.86	0.56	0.20	0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.02	-0.36	-0.11	-0.09	-0.07	-0.02	-0.01
-0.39	-0.52	-9.38	-2.15	-2.18	-1.59	-0.53	-0.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.08	-1.97	-0.22	-0.35	-0.23	-0.10	-0.04
-0.05	-0.07	-1.78	-0.19	-0.31	-0.21	-0.09	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.26	-0.35	-8.34	-0.93	-1.49	-0.97	-0.43	-0.18
0.01	0.02	0.39	0.04	0.07	0.05	0.02	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.16	-0.24	-4.50	-0.44	-0.96	-0.63	-0.16	-0.07
-0.10	-0.15	-2.19	-0.21	-0.56	-0.37	-0.05	-0.02
0.46	0.28	-16.04	7.34	0.29	1.01	0.19	0.16
-2.40	-3.44	-68.67	-7.98	-14.16	-9.42	-2.80	-1.23
-1.61	-2.31	-43.30	-5.70	-9.40	-6.33	-1.79	-0.80
-1.18	-1.64	-33.23	-4.79	-6.87	-4.68	-1.55	-0.68
-0.53	-0.74	-13.38	-2.45	-3.05	-2.14	-0.66	-0.29
-0.84	-1.18	-26.14	-3.58	-5.12	-3.48	-1.21	-0.52
0.37	0.48	15.38	1.90	2.38	1.59	0.86	0.36
-0.79	-1.13	-23.34	-2.60	-4.65	-3.08	-0.99	-0.43
-0.62	-1.07	-18.21	-0.33	-4.10	-2.59	-0.23	-0.12
11.83	14.97	291.25	55.06	61.16	42.28	17.81	7.63
1.88	2.39	42.65	8.17	9.37	6.49	2.58	1.11
26.09	33.39	610.79	117.54	133.63	92.44	36.56	15.78
-0.72	-1.00	-23.03	-2.50	-4.26	-2.81	-1.05	-0.45
-0.37	-0.52	-11.64	-1.45	-2.22	-1.48	-0.55	-0.24
3.39	4.34	79.00	13.51	16.89	11.48	4.54	1.94
0.75	0.97	17.54	3.20	3.80	2.61	0.95	0.41
17.80	22.39	353.16	76.08	82.10	57.24	20.40	8.94
0.32	0.41	5.70	1.26	1.40	0.98	0.30	0.14
4.44	5.52	89.57	15.34	19.31	13.05	5.05	2.16
0.07	0.09	2.19	0.22	0.40	0.26	0.10	0.04
21.63	27.25	436.50	90.72	100.04	69.49	24.94	10.90
-0.06	-0.08	-2.06	-0.21	-0.36	-0.24	-0.10	-0.04
4.83	6.13	100.83	16.79	21.89	14.84	5.45	2.34
6.41	8.03	130.07	25.86	29.02	20.03	7.30	3.17
8.40	10.60	171.25	35.09	39.09	27.13	9.72	4.24
3.93	4.89	90.16	14.20	18.14	12.19	4.99	2.11
21.27	27.02	466.70	90.92	102.94	71.24	26.84	11.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.05	1.26	0.12	0.23	0.15	0.06	0.02
1.02	1.38	29.16	3.80	5.69	3.79	1.48	0.63
1.38	1.57	27.19	7.04	5.97	4.24	2.32	0.97
10.64	13.46	235.25	42.95	51.42	35.20	14.08	6.03
9.23	11.78	217.48	38.61	46.36	31.74	12.88	5.52
9.79	12.53	230.17	40.85	49.37	33.81	13.48	5.78
2.26	2.87	50.14	9.54	11.07	7.62	3.03	1.30
15.74	20.10	358.68	65.32	78.16	53.59	21.03	9.04
2.06	2.68	52.44	9.18	11.01	7.57	2.96	1.28
13.53	17.40	329.24	59.95	70.16	48.29	19.39	8.34
-0.08	-0.11	-2.39	-0.36	-0.47	-0.32	-0.12	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.06	-1.37	-0.13	-0.24	-0.16	-0.06	-0.03
-0.04	-0.06	-1.10	-0.27	-0.25	-0.18	-0.07	-0.03
-0.32	-0.44	-9.65	-1.25	-1.87	-1.26	-0.45	-0.20
0.02	0.03	0.74	0.07	0.14	0.09	0.03	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-0.01	-0.15	-0.02	-0.03	-0.02	-0.01	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.42	0.59	13.15	1.31	2.50	1.63	0.56	0.24
-0.25	-0.35	-7.82	-0.80	-1.48	-0.97	-0.34	-0.14
-0.01	-0.01	-0.19	-0.02	-0.03	-0.02	-0.01	0.00
-0.02	-0.03	-0.67	-0.07	-0.12	-0.08	-0.03	-0.01
-0.08	-0.11	-2.69	-0.29	-0.47	-0.31	-0.13	-0.06
0.10	0.14	3.86	0.36	0.63	0.41	0.19	0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.09	-0.13	-3.07	-0.31	-0.57	-0.37	-0.13	-0.06
-0.20	-0.29	1.95	-1.02	-0.80	-0.70	0.12	0.02
-5.13	-6.96	-158.95	-23.27	-30.51	-20.83	-8.20	-3.52
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.03	0.76	0.09	0.14	0.09	0.04	0.02
3.18	4.16	84.52	12.71	16.95	11.43	4.65	1.98
0.23	0.33	6.26	0.75	1.33	0.89	0.26	0.11
-0.19	-0.26	-6.09	-0.79	-1.14	-0.77	-0.31	-0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.04	1.25	0.10	0.18	0.12	0.05	0.02
-0.02	-0.03	-0.52	-0.07	-0.11	-0.07	-0.02	-0.01
-0.02	-0.03	-0.65	-0.09	-0.13	-0.09	-0.03	-0.01
0.14	0.19	4.37	0.65	0.84	0.57	0.23	0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.08	-2.30	-0.10	-0.36	-0.22	-0.09	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.41	-0.57	-13.29	-1.49	-2.45	-1.62	-0.62	-0.26
-0.47	-0.65	-14.67	-1.77	-2.79	-1.86	-0.68	-0.29
-0.16	-0.22	-4.90	-0.69	-0.94	-0.64	-0.24	-0.10
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.65	-0.88	-21.19	-2.57	-3.84	-2.55	-1.08	-0.45
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.72	-1.01	-22.55	-2.48	-4.26	-2.81	-1.02	-0.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.20	-0.28	-6.17	-0.69	-1.17	-0.78	-0.27	-0.12
-0.28	-0.40	-8.97	-1.02	-1.69	-1.12	-0.41	-0.17
-0.75	-1.00	-23.05	-2.95	-4.27	-2.84	-1.24	-0.52
-0.36	-0.49	-11.79	-1.43	-2.16	-1.44	-0.58	-0.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.22	-1.61	-36.28	-5.01	-6.87	-4.61	-1.99	-0.84
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.98	-4.53	-35.12	-4.88	-13.01	-8.66	-1.16	-0.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	0.08	2.00	0.22	0.36	0.24	0.09	0.04
0.94	1.37	45.81	6.02	7.63	5.20	2.44	1.03
-0.02	-0.02	-0.60	-0.06	-0.10	-0.07	-0.03	-0.01

Appendix I-2

Emissions of GHG, PM10, PM2.5, and Others

2040 NEPA Comparison

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
600	-0.01	-0.02	-0.38	-0.04	-0.07	-0.05	-0.02	-0.01
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	0.14	0.19	4.74	0.45	0.84	0.55	0.20	0.09
606	-0.16	-0.22	-4.88	-0.57	-0.92	-0.61	-0.22	-0.10
1001	-0.01	-0.01	-0.22	-0.03	-0.03	-0.02	-0.01	0.00
1002	-0.07	-0.10	-2.48	-0.30	-0.39	-0.26	-0.10	-0.04
1003	0.25	0.34	8.84	1.07	1.36	0.90	0.37	0.16
1004	0.31	0.42	10.28	1.46	1.66	1.12	0.45	0.19
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	-0.11	-0.14	-3.43	-0.54	-0.57	-0.39	-0.15	-0.07
1012	-0.10	-0.13	-3.25	-0.54	-0.54	-0.37	-0.15	-0.07
1013	-0.48	-0.64	-15.83	-2.17	-2.53	-1.70	-0.72	-0.30
1014	0.08	0.10	2.59	0.36	0.42	0.28	0.11	0.05
1015	0.66	0.85	16.43	4.34	3.33	2.46	0.86	0.39
1016	-0.76	-1.05	-26.12	-3.37	-4.13	-2.76	-1.06	-0.45
1017	0.14	0.20	4.46	0.55	0.75	0.50	0.16	0.07
1018	-1.02	-1.36	-33.62	-4.62	-5.38	-3.62	-1.52	-0.65
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-0.60	-0.84	-20.85	-2.59	-3.28	-2.19	-0.81	-0.35
1021	-0.55	-0.73	-17.84	-2.54	-2.89	-1.95	-0.81	-0.35
1022	0.30	0.44	7.28	0.89	1.48	0.98	0.22	0.10
1023	-0.30	-0.41	-9.56	-1.32	-1.58	-1.06	-0.38	-0.16
1024	-0.66	-0.90	-22.42	-3.03	-3.56	-2.39	-0.98	-0.42
1025	0.22	0.30	5.14	1.43	1.04	0.79	0.16	0.08
1026	-0.35	-0.48	-11.48	-1.52	-1.86	-1.25	-0.46	-0.20
1027	-0.32	-0.45	-11.17	-1.40	-1.75	-1.17	-0.45	-0.19
1028	-0.92	-1.18	-14.24	-9.28	-5.07	-4.16	-1.11	-0.63
1029	-0.61	-0.78	-14.58	-5.83	-3.38	-2.70	-0.86	-0.40
1030	-0.24	-0.32	-6.97	-1.29	-1.24	-0.87	-0.31	-0.14
1031	-0.30	-0.41	-9.82	-1.46	-1.62	-1.10	-0.42	-0.18
1032	-0.08	-0.11	-3.89	-0.16	-0.48	-0.29	-0.14	-0.06
1033	-0.36	-0.51	-11.40	-1.48	-1.92	-1.29	-0.38	-0.17
1034	-0.76	-1.12	-21.85	-2.69	-3.98	-2.65	-0.62	-0.28
1035	-0.27	-0.37	-8.63	-1.21	-1.43	-0.97	-0.33	-0.14
1036	-0.21	-0.29	-6.94	-1.07	-1.14	-0.78	-0.31	-0.13
1037	-0.33	-0.45	-11.17	-1.56	-1.78	-1.20	-0.48	-0.21
1038	-0.45	-0.61	-14.92	-2.10	-2.41	-1.63	-0.63	-0.27
1039	-0.46	-0.63	-16.17	-2.10	-2.53	-1.69	-0.68	-0.29
1040	-1.12	-1.56	-36.50	-4.94	-5.99	-4.03	-1.44	-0.62
1041	-0.61	-0.84	-22.92	-2.78	-3.42	-2.28	-0.92	-0.39
1042	1.50	2.16	22.64	4.16	5.86	4.01	0.64	0.32
1043	0.53	0.72	9.83	2.80	2.44	1.78	0.42	0.20
1059	0.01	0.01	0.37	0.04	0.05	0.03	0.02	0.01
1060	0.11	0.15	3.93	0.43	0.58	0.38	0.16	0.07
1061	0.21	0.28	7.25	0.84	1.11	0.73	0.31	0.13
1062	0.08	0.11	2.74	0.38	0.44	0.30	0.12	0.05
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	0.24	0.33	9.02	0.85	1.30	0.83	0.38	0.16
1066	-0.13	-0.19	-4.21	-0.44	-0.71	-0.46	-0.14	-0.06
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	0.31	0.43	11.00	1.43	1.71	1.15	0.45	0.19
1069	-0.74	-0.98	-22.77	-3.29	-3.80	-2.56	-1.07	-0.46
1070	0.51	0.76	17.52	1.97	2.87	1.92	0.48	0.22
1071	-0.22	-0.31	-7.60	-0.78	-1.19	-0.78	-0.28	-0.12
1072	-1.37	-1.86	-47.96	-6.15	-7.44	-4.96	-2.11	-0.90
1073	0.06	0.08	1.05	0.60	0.33	0.27	0.08	0.04
1074	-0.34	-0.48	-11.51	-1.55	-1.87	-1.27	-0.43	-0.19
1075	-0.18	-0.26	-6.42	-0.75	-1.00	-0.66	-0.25	-0.11
1076	-0.49	-0.64	-12.92	-3.08	-2.47	-1.80	-0.63	-0.28
1077	-1.30	-1.68	-23.11	-12.58	-7.12	-5.82	-1.62	-0.81
1078	0.00	0.00	0.63	-0.13	0.02	-0.01	0.01	0.00
1079	-0.04	-0.06	-0.95	-0.26	-0.21	-0.15	-0.05	-0.02
1080	0.04	0.06	1.25	0.27	0.23	0.17	0.06	0.03
1081	-0.17	-0.25	-4.95	-0.49	-0.88	-0.57	-0.16	-0.07
1082	-0.03	-0.05	-0.97	-0.10	-0.17	-0.11	-0.03	-0.01
1083	0.02	0.02	0.43	0.07	0.08	0.05	0.02	0.01
1084	-0.04	-0.05	-1.13	-0.13	-0.19	-0.13	-0.04	-0.02
1085	-0.12	-0.17	-4.43	-0.52	-0.68	-0.45	-0.18	-0.08
1086	-0.05	-0.08	-1.92	-0.24	-0.30	-0.20	-0.08	-0.03
1087	-0.63	-0.87	-20.20	-2.86	-3.35	-2.27	-0.81	-0.35
1088	0.06	0.08	2.03	0.26	0.32	0.21	0.08	0.03
1089	2.11	2.86	67.64	10.15	11.21	7.64	2.93	1.27
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	0.03	0.04	1.08	0.12	0.16	0.11	0.04	0.02
1114	-4.91	-6.13	-101.83	-40.83	-25.42	-19.90	-6.79	-3.29
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.29	0.40	10.12	1.23	1.57	1.04	0.41	0.18
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	0.11	0.16	3.77	0.41	0.60	0.39	0.14	0.06
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.16	0.23	6.55	0.62	0.92	0.60	0.23	0.10
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	0.41	0.59	14.51	1.47	2.26	1.48	0.52	0.22
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	0.66	0.97	13.39	2.52	3.01	2.09	0.21	0.11
1128	0.19	0.27	6.19	0.69	1.01	0.67	0.21	0.09
1129	0.13	0.19	3.05	0.47	0.65	0.44	0.08	0.04
1130	-0.17	-0.17	0.83	-2.06	-0.61	-0.63	-0.12	-0.08
1131	-0.15	-0.18	-0.61	-1.66	-0.64	-0.59	-0.14	-0.08
1132	-1.04	-1.26	-18.07	-11.01	-5.78	-4.75	-1.57	-0.86
1133	0.35	0.55	8.46	0.93	1.77	1.17	0.11	0.06
1134	-0.27	-0.42	-6.49	-0.58	-1.37	-0.89	-0.10	-0.05
1135	-0.09	-0.12	-3.20	-0.49	-0.49	-0.34	-0.14	-0.06
1136	-0.07	-0.10	-2.61	-0.28	-0.40	-0.26	-0.10	-0.04
1137	-0.04	-0.04	-1.88	-0.24	-0.22	-0.15	-0.10	-0.04
1138	-0.07	-0.10	-2.47	-0.30	-0.38	-0.25	-0.10	-0.04
1139	-0.43	-0.59	-15.20	-1.95	-2.35	-1.58	-0.63	-0.27
1140	-0.50	-0.70	-18.10	-2.33	-2.81	-1.88	-0.73	-0.31
1141	-0.61	-0.83	-20.50	-3.06	-3.32	-2.27	-0.88	-0.38
1142	1.57	2.10	49.80	7.44	8.25	5.60	2.29	0.98
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	-0.54	-0.68	-10.47	-3.92	-2.55	-1.97	-0.59	-0.28
1173	0.22	0.50	22.65	-4.34	1.64	0.34	0.26	0.03
1174	-0.94	-1.17	-5.81	-9.14	-3.93	-3.50	-0.50	-0.32
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-2.71	-3.22	-36.78	-33.39	-14.80	-12.98	-3.82	-2.06
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	-0.12	-0.16	-3.38	-0.75	-0.64	-0.46	-0.16	-0.07
1179	-0.69	-0.91	-20.80	-3.43	-3.58	-2.46	-1.00	-0.44
1180	-0.51	-0.54	1.27	-12.11	-3.55	-3.73	-0.87	-0.58
1181	-1.14	-1.46	-21.17	-8.72	-5.50	-4.30	-1.21	-0.59
1182	-1.10	-1.37	-11.85	-9.80	-4.84	-4.10	-0.83	-0.46
1183	-0.20	-0.14	20.61	-4.94	0.31	-0.56	0.62	0.17
1184	-0.44	-0.48	1.51	-6.59	-2.05	-2.09	-0.42	-0.27
1185	-0.68	-0.81	-7.23	-7.26	-3.31	-2.89	-0.75	-0.41
1186	-1.01	-1.20	-9.95	-10.37	-4.68	-4.09	-1.00	-0.55
1187	-1.24	-1.59	-18.70	-9.55	-5.70	-4.56	-1.03	-0.53
1188	-1.66	-2.09	-26.35	-14.26	-8.11	-6.53	-1.84	-0.97
1189	-0.03	-0.04	-2.20	-0.01	-0.21	-0.11	-0.08	-0.03
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-0.04	-0.06	-1.04	-0.17	-0.21	-0.15	-0.03	-0.02
1192	-0.04	-0.05	-1.38	-0.12	-0.20	-0.13	-0.05	-0.02
1193	-0.03	-0.05	-1.18	-0.12	-0.19	-0.12	-0.04	-0.02
1194	-0.02	-0.03	-0.89	-0.10	-0.13	-0.09	-0.03	-0.01

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.01	-0.02	-0.37	-0.04	-0.07	-0.04	-0.02	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.00	0.54	0.23	0.05	0.05	0.09	0.03
-0.15	-0.21	-4.83	-0.56	-0.91	-0.61	-0.22	-0.09
-0.02	-0.02	-0.62	-0.09	-0.10	-0.07	-0.03	-0.01
-0.07	-0.10	-2.57	-0.32	-0.40	-0.27	-0.10	-0.04
0.23	0.31	8.10	0.96	1.24	0.82	0.34	0.14
0.29	0.40	9.82	1.37	1.57	1.06	0.43	0.18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.11	-0.14	-3.43	-0.54	-0.57	-0.39	-0.15	-0.07
-0.13	-0.17	-4.17	-0.64	-0.68	-0.47	-0.18	-0.08
-0.43	-0.57	-14.05	-1.97	-2.26	-1.52	-0.64	-0.27
0.05	0.07	1.67	0.23	0.27	0.18	0.07	0.03
-0.64	-0.87	-22.58	-2.75	-3.47	-2.30	-0.95	-0.40
-0.70	-0.97	-24.01	-3.09	-3.79	-2.54	-0.97	-0.42
0.05	0.08	1.45	0.19	0.28	0.19	0.04	0.02
-0.99	-1.32	-32.58	-4.49	-5.22	-3.51	-1.47	-0.63
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.59	-0.82	-20.38	-2.55	-3.21	-2.15	-0.79	-0.34
-0.48	-0.64	-15.51	-2.27	-2.53	-1.72	-0.71	-0.31
0.23	0.35	5.57	0.49	1.14	0.74	0.13	0.06
-0.28	-0.39	-8.95	-1.25	-1.48	-1.00	-0.35	-0.15
-0.60	-0.82	-20.39	-2.77	-3.24	-2.18	-0.89	-0.38
0.04	0.04	-0.70	0.76	0.18	0.21	0.04	0.03
-0.35	-0.48	-11.53	-1.52	-1.86	-1.25	-0.46	-0.20
-0.26	-0.37	-9.08	-1.17	-1.43	-0.96	-0.37	-0.16
-0.79	-1.06	-15.76	-5.95	-4.21	-3.22	-0.85	-0.45
-0.45	-0.59	-12.45	-3.62	-2.41	-1.86	-0.59	-0.24
-0.26	-0.36	-8.24	-1.32	-1.39	-0.96	-0.35	-0.15
-0.26	-0.36	-8.97	-1.14	-1.41	-0.94	-0.36	-0.15
-0.15	-0.21	-5.43	-0.69	-0.84	-0.57	-0.23	-0.10
-0.38	-0.54	-12.10	-1.53	-2.02	-1.36	-0.40	-0.17
-0.74	-1.10	-21.54	-2.59	-3.91	-2.60	-0.61	-0.27
-0.25	-0.35	-8.30	-1.13	-1.37	-0.93	-0.31	-0.14
-0.20	-0.27	-6.47	-0.96	-1.05	-0.72	-0.28	-0.12
-0.33	-0.44	-11.08	-1.53	-1.76	-1.19	-0.48	-0.20
-0.45	-0.61	-15.00	-2.06	-2.40	-1.62	-0.63	-0.27
-0.46	-0.62	-15.94	-2.07	-2.49	-1.67	-0.67	-0.29
-1.12	-1.56	-36.59	-4.94	-6.00	-4.04	-1.44	-0.62
-0.62	-0.85	-23.07	-2.87	-3.47	-2.32	-0.93	-0.39
1.44	2.08	21.82	3.82	5.62	3.82	0.60	0.30
0.48	0.67	9.33	2.38	2.23	1.60	0.38	0.18
0.01	0.01	0.32	0.03	0.05	0.03	0.01	0.01
0.08	0.11	2.94	0.33	0.44	0.29	0.12	0.05
0.16	0.21	5.55	0.64	0.85	0.56	0.24	0.10
0.05	0.07	1.78	0.24	0.28	0.19	0.08	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.06	0.09	2.93	0.08	0.35	0.20	0.11	0.04
-0.14	-0.20	-4.27	-0.46	-0.72	-0.47	-0.15	-0.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.29	0.40	10.71	1.26	1.62	1.08	0.42	0.18
-0.59	-0.78	-18.02	-2.62	-3.01	-2.03	-0.85	-0.36
0.53	0.79	19.17	1.79	3.00	1.96	0.52	0.23
-0.21	-0.30	-7.34	-0.74	-1.14	-0.75	-0.26	-0.11
-0.81	-1.09	-28.10	-3.50	-4.34	-2.88	-1.23	-0.52
0.00	-0.01	-1.24	0.37	-0.01	0.05	-0.01	0.00
-0.11	-0.15	-3.95	-0.54	-0.61	-0.42	-0.17	-0.07
-0.33	-0.47	-11.35	-1.24	-1.81	-1.20	-0.37	-0.16
-0.51	-0.68	-12.97	-3.01	-2.55	-1.84	-0.61	-0.28
-1.32	-1.77	-23.71	-8.71	-6.51	-4.92	-1.24	-0.64
-0.03	-0.05	-0.90	-0.19	-0.17	-0.12	-0.04	-0.02
-0.03	-0.05	-0.84	-0.20	-0.17	-0.12	-0.04	-0.02
0.00	0.00	0.07	-0.04	-0.01	-0.01	0.00	0.00
-0.16	-0.24	-4.75	-0.46	-0.84	-0.54	-0.16	-0.07
-0.03	-0.05	-1.04	-0.11	-0.18	-0.12	-0.03	-0.01
0.01	0.02	0.37	0.06	0.07	0.05	0.01	0.01
-0.04	-0.05	-1.14	-0.13	-0.19	-0.13	-0.04	-0.02
-0.13	-0.18	-4.70	-0.57	-0.72	-0.48	-0.20	-0.08
-0.05	-0.07	-1.82	-0.22	-0.28	-0.19	-0.07	-0.03
-0.64	-0.89	-20.67	-2.93	-3.43	-2.33	-0.83	-0.36
0.06	0.08	2.10	0.27	0.33	0.22	0.08	0.04
2.06	2.79	66.50	9.72	10.93	7.43	2.87	1.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.02	0.51	0.05	0.08	0.05	0.02	0.01
-3.26	-4.00	-59.06	-31.29	-17.01	-13.89	-4.45	-2.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.20	0.27	7.05	0.85	1.08	0.72	0.29	0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	0.14	3.38	0.37	0.53	0.35	0.12	0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.25	0.36	10.15	0.90	1.42	0.91	0.37	0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.41	0.58	14.40	1.45	2.24	1.46	0.52	0.22
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.33	0.49	5.26	1.43	1.50	1.08	0.06	0.04
0.04	0.06	1.50	0.17	0.23	0.15	0.06	0.03
-0.06	-0.08	-2.31	-0.17	-0.32	-0.20	-0.08	-0.03
-0.18	-0.20	-0.01	-2.10	-0.72	-0.69	-0.15	-0.09
-0.11	-0.13	-1.33	-0.98	-0.49	-0.41	-0.11	-0.06
-0.60	-0.77	-13.93	-4.63	-3.22	-2.44	-0.86	-0.43
0.05	0.07	1.14	0.32	0.26	0.19	0.05	0.03
-0.19	-0.30	-5.00	-0.39	-0.98	-0.63	-0.09	-0.04
-0.07	-0.09	-2.64	-0.36	-0.39	-0.26	-0.11	-0.05
-0.08	-0.11	-2.84	-0.30	-0.43	-0.28	-0.11	-0.05
-0.04	-0.05	-1.99	-0.23	-0.23	-0.15	-0.10	-0.04
-0.05	-0.07	-1.96	-0.21	-0.29	-0.19	-0.08	-0.03
-0.42	-0.58	-15.15	-1.95	-2.35	-1.57	-0.63	-0.27
-0.48	-0.67	-17.46	-2.23	-2.70	-1.81	-0.70	-0.30
-0.63	-0.86	-21.04	-3.14	-3.41	-2.33	-0.90	-0.39
1.55	2.07	49.69	7.26	8.16	5.53	2.27	0.97
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.58	-0.74	-12.13	-4.12	-2.80	-2.14	-0.66	-0.31
0.88	1.40	44.27	-1.50	5.25	2.75	1.24	0.47
0.21	0.37	30.66	-3.08	2.27	0.79	1.19	0.42
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.27	3.26	97.70	-9.40	9.92	4.07	3.02	0.95
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.24	-0.32	-7.01	-1.23	-1.24	-0.86	-0.29	-0.13
-0.52	-0.68	-15.54	-2.64	-2.69	-1.86	-0.75	-0.33
0.57	0.84	30.50	-5.57	2.08	0.30	0.75	0.15
-0.67	-0.84	-8.26	-5.77	-3.02	-2.51	-0.53	-0.28
-0.65	-0.79	-1.03	-6.55	-2.52	-2.35	-0.24	-0.18
-0.01	0.06	23.37	-3.08	1.18	0.17	0.94	0.33
-0.18	-0.15	7.56	-4.48	-0.67	-1.03	-0.05	-0.10
-0.41	-0.48	-1.49	-5.33	-1.97	-1.87	-0.39	-0.24
-0.73	-0.84	-2.83	-8.30	-3.20	-2.97	-0.61	-0.36
-1.00	-1.29	-13.72	-7.55	-4.49	-3.60	-0.74	-0.39
-1.30	-1.64	-20.56	-10.10	-6.10	-4.83	-1.30	-0.67
-0.12	-0.16	-3.94	-0.54	-0.64	-0.43	-0.16	-0.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.04	-0.06	-0.94	-0.13	-0.19	-0.13	-0.03	-0.01
-0.05	-0.07	-1.78	-0.19	-0.27	-0.18	-0.07	-0.03
-0.05	-0.07	-1.56	-0.17	-0.25	-0.16	-0.06	-0.02
-0.02	-0.03	-0.90	-0.10	-0.14	-0.09	-0.03	-0.01

Appendix I-2

Emissions of GHG, PM10, PM2.5, and Others

2040 NEPA Comparison

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1195	-0.47	-0.65	-16.78	-2.06	-2.59	-1.73	-0.67	-0.29
1196	-0.12	-0.17	-3.62	-0.41	-0.61	-0.40	-0.12	-0.05
1197	0.08	0.11	3.09	0.33	0.46	0.30	0.13	0.05
1198	2.07	2.76	65.22	10.18	10.91	7.46	3.01	1.30
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.02	0.02	0.55	0.07	0.08	0.06	0.02	0.01
1230	-0.22	-0.26	-7.03	-1.54	-1.15	-0.84	-0.38	-0.17
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	-5.68	-7.55	-173.81	-30.79	-30.00	-20.93	-8.10	-3.55
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	-0.03	-0.02	0.09	-0.42	-0.11	-0.12	-0.05	-0.03
1236	-1.14	-1.48	-30.58	-7.04	-5.84	-4.23	-1.53	-0.69
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-0.37	-0.49	-11.23	-1.83	-1.90	-1.31	-0.52	-0.22
1239	-0.75	-0.99	-20.88	-4.36	-3.85	-2.75	-0.97	-0.43
1240	-0.97	-1.33	-30.42	-4.64	-5.12	-3.50	-1.22	-0.53
1241	-1.99	-2.61	-59.37	-10.84	-10.43	-7.29	-2.94	-1.29
1242	-0.25	-0.36	-7.07	-0.76	-1.27	-0.83	-0.23	-0.10
1243	-1.23	-1.62	-32.95	-7.45	-6.29	-4.54	-1.59	-0.71
1244	-1.00	-1.30	-26.29	-6.20	-5.06	-3.67	-1.33	-0.60
1245	-2.51	-3.16	-47.80	-22.17	-13.26	-10.50	-3.31	-1.73
1246	0.32	0.46	11.65	1.23	1.77	1.16	0.39	0.16
1247	-0.96	-1.44	-23.28	-2.62	-4.74	-3.12	-0.66	-0.30
1248	0.07	0.10	2.41	0.30	0.39	0.26	0.09	0.04
1249	0.11	0.15	3.73	0.44	0.60	0.40	0.13	0.06
1250	-0.49	-0.68	-16.71	-2.02	-2.65	-1.77	-0.64	-0.27
1251	-0.90	-1.24	-31.96	-4.21	-4.97	-3.34	-1.33	-0.57
1252	-0.16	-0.23	-6.05	-0.65	-0.90	-0.59	-0.25	-0.10
1253	0.14	0.21	4.78	0.51	0.78	0.51	0.16	0.07
1254	0.12	0.17	4.54	0.49	0.68	0.44	0.19	0.08
1255	1.60	2.13	50.00	8.01	8.43	5.79	2.32	1.01
1256	0.38	0.51	12.88	1.67	2.03	1.35	0.57	0.24
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-0.07	-0.09	-1.94	-0.31	-0.35	-0.24	-0.07	-0.03
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.30	0.43	12.08	0.84	1.66	1.04	0.41	0.16
1297	-0.29	-0.37	-7.15	-1.91	-1.46	-1.08	-0.38	-0.17
1298	-0.21	-0.33	-5.85	-0.46	-1.12	-0.72	-0.12	-0.06
1299	0.17	0.24	4.56	0.70	0.84	0.58	0.17	0.07
1300	-0.42	-0.59	-15.39	-1.69	-2.33	-1.53	-0.60	-0.25
1301	-0.50	-0.73	-14.60	-1.50	-2.59	-1.69	-0.46	-0.20
1302	-0.22	-0.29	-7.33	-0.91	-1.15	-0.76	-0.33	-0.14
1303	-0.37	-0.54	-11.03	-1.23	-1.94	-1.28	-0.35	-0.16
1304	-0.56	-0.72	-13.73	-3.62	-2.81	-2.07	-0.70	-0.32
1305	-0.37	-0.49	-7.55	-2.14	-1.72	-1.27	-0.33	-0.15
1306	-0.32	-0.48	-12.94	-0.68	-1.85	-1.14	-0.42	-0.17
1307	-1.49	-1.84	-36.71	-22.80	-10.96	-9.32	-3.52	-1.75
1308	-1.90	-2.86	-39.68	-4.66	-8.99	-5.93	-0.98	-0.48
1309	-1.14	-1.57	-39.84	-5.31	-6.26	-4.22	-1.63	-0.70
1310	-1.40	-1.92	-48.86	-6.38	-7.65	-5.13	-2.04	-0.87
1311	0.21	0.31	7.63	0.72	1.17	0.76	0.26	0.11
1312	-0.06	-0.09	-2.44	-0.22	-0.35	-0.23	-0.09	-0.04
1313	-0.10	-0.13	-3.38	-0.38	-0.52	-0.34	-0.14	-0.06
1314	-0.01	-0.01	-0.38	-0.07	-0.04	-0.03	-0.04	-0.01
1315	1.61	2.18	51.10	7.71	8.52	5.81	2.23	0.97
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-0.32	-0.44	-11.43	-1.42	-1.76	-1.17	-0.50	-0.21
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.56	0.79	18.41	2.29	3.01	2.01	0.69	0.30
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	1.10	1.47	34.54	5.83	5.85	4.06	1.53	0.67
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.75	1.05	27.17	2.97	4.11	2.70	1.05	0.44
1358	-1.02	-1.34	-29.82	-5.11	-5.25	-3.62	-1.47	-0.64
1359	-0.41	-0.55	-11.17	-2.19	-2.09	-1.48	-0.49	-0.22
1360	-0.37	-0.46	-9.31	-2.72	-1.85	-1.39	-0.55	-0.25
1361	-0.74	-0.98	-19.69	-4.15	-3.75	-2.68	-0.90	-0.40
1362	-1.31	-1.87	-42.22	-4.89	-6.97	-4.61	-1.50	-0.65
1363	-3.08	-4.28	-99.54	-13.68	-16.49	-11.13	-3.95	-1.71
1364	0.27	0.39	8.36	0.89	1.41	0.93	0.29	0.12
1365	-2.82	-3.89	-93.93	-12.92	-15.18	-10.26	-3.79	-1.63
1366	-1.85	-2.52	-52.62	-9.06	-9.39	-6.51	-2.14	-0.94
1367	-3.04	-3.71	-39.58	-25.29	-13.30	-10.93	-2.90	-1.46
1368	-4.93	-6.37	-89.79	-33.29	-22.77	-17.42	-4.79	-2.31
1369	-4.28	-5.21	-71.83	-48.81	-23.79	-20.10	-6.42	-3.29
1370	0.00	0.00	0.21	0.00	0.02	0.01	0.01	0.00
1371	-0.32	-0.44	-11.13	-1.22	-1.72	-1.13	-0.44	-0.18
1372	0.18	0.24	6.60	0.45	0.92	0.57	0.27	0.11
1373	-0.49	-0.65	-15.42	-2.29	-2.55	-1.73	-0.72	-0.31
1374	-0.40	-0.54	-13.29	-1.93	-2.15	-1.46	-0.61	-0.26
1375	1.99	2.70	64.78	9.13	10.57	7.14	2.79	1.20
1376	-0.17	-0.22	-5.64	-0.75	-0.89	-0.60	-0.25	-0.11
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.06	0.08	1.92	0.24	0.30	0.20	0.08	0.03
1410	40.80	51.85	946.51	228.75	195.14	140.31	52.32	24.52
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	3.57	4.54	79.55	19.16	16.70	11.98	4.29	2.03
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	54.23	68.52	1175.18	292.64	251.01	180.57	65.43	31.10
1417	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1418	2.29	2.92	51.13	12.68	10.82	7.79	2.80	1.34
1419	-0.68	-0.81	-13.12	-6.09	-3.52	-2.81	-1.07	-0.52
1420	20.94	26.53	447.59	117.38	97.95	70.95	25.17	12.14
1421	-1.06	-1.43	-29.97	-5.71	-5.46	-3.85	-1.26	-0.56
1422	21.72	27.63	507.17	126.44	106.86	77.09	28.98	13.58
1423	-0.11	-0.18	1.57	-1.56	-0.21	-0.36	0.32	0.16
1424	15.21	19.36	381.25	93.23	77.54	56.06	21.77	10.17
1425	3.55	4.63	53.41	13.33	12.91	9.17	2.65	1.28
1426	3.91	5.04	181.54	12.30	26.07	16.17	10.26	4.54
1427	8.27	10.71	239.45	48.48	46.21	32.46	13.85	6.64
1428	6.68	8.55	162.69	46.73	35.51	26.28	9.57	4.62
1429	6.05	7.59	129.32	43.71	30.82	23.25	8.36	4.13
1430	10.25	12.84	216.03	67.43	50.56	37.53	13.80	6.71
1431	3.38	4.30	72.00	14.39	14.92	10.37	3.76	1.70
1432	5.84	7.51	132.30	20.66	25.43	17.13	6.28	2.76
1433	1.26	1.63	31.13	4.67	5.72	3.84	1.45	0.63
1434	4.44	5.70	99.89	15.95	19.34	13.06	4.77	2.10
1435	4.65	6.32	142.45	20.44	24.01	16.24	6.02	2.60
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-0.24	-0.32	-8.33	-0.98	-1.27	-0.84	-0.36	-0.15
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	-0.24	-0.33	-8.39	-1.04	-1.30	-0.86	-0.36	-0.15
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	-1.29	-1.77	-45.99	-5.45	-7.01	-4.64	-1.91	-0.81
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.47	-0.66	-16.98	-2.09	-2.63	-1.75	-0.68	-0.29
-0.12	-0.17	-3.62	-0.41	-0.61	-0.40	-0.12	-0.05
0.07	0.10	2.75	0.26	0.40	0.26	0.11	0.05
1.97	2.63	62.66	9.51	10.39	7.08	2.86	1.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
0.03	0.09	1.84	-0.84	0.22	0.04	-0.09	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-4.30	-5.70	-127.74	-24.40	-22.63	-15.97	-6.02	-2.66
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.26	-0.35	-8.15	-1.44	-1.41	-0.98	-0.36	-0.16
-0.97	-1.26	-25.22	-6.22	-4.96	-3.63	-1.29	-0.58
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.27	-0.36	-8.23	-1.39	-1.40	-0.97	-0.38	-0.17
-0.67	-0.90	-18.80	-3.84	-3.48	-2.48	-0.83	-0.37
-1.14	-1.57	-36.25	-5.33	-6.04	-4.12	-1.44	-0.63
-1.84	-2.40	-52.62	-10.16	-9.53	-6.70	-2.65	-1.17
-0.34	-0.49	-9.48	-1.13	-1.73	-1.14	-0.31	-0.14
-1.21	-1.59	-31.71	-7.44	-6.15	-4.46	-1.55	-0.70
-0.98	-1.28	-26.60	-5.90	-5.00	-3.59	-1.31	-0.59
-2.07	-2.65	-41.87	-16.47	-10.70	-8.28	-2.60	-1.32
0.12	0.17	6.53	0.30	0.77	0.46	0.26	0.10
-0.98	-1.45	-23.15	-2.77	-4.77	-3.16	-0.66	-0.30
0.06	0.08	1.98	0.23	0.31	0.21	0.08	0.03
0.09	0.13	3.16	0.34	0.50	0.33	0.11	0.05
-0.47	-0.66	-16.24	-1.97	-2.58	-1.72	-0.62	-0.27
-0.90	-1.24	-31.90	-4.23	-4.97	-3.34	-1.33	-0.57
-0.16	-0.22	-5.99	-0.64	-0.89	-0.58	-0.24	-0.10
0.14	0.21	4.79	0.51	0.79	0.52	0.16	0.07
0.11	0.15	4.06	0.40	0.59	0.38	0.16	0.07
1.51	2.02	47.74	7.41	7.97	5.45	2.19	0.95
0.38	0.52	12.87	1.70	2.04	1.36	0.58	0.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.07	-0.10	-2.36	-0.33	-0.40	-0.27	-0.09	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.07	-0.29	-0.78	-0.31	-0.28	-0.08	-0.04
-0.15	-0.18	-2.50	-1.21	-0.70	-0.56	-0.17	-0.08
-0.32	-0.48	-9.44	-0.98	-1.71	-1.12	-0.27	-0.12
0.08	0.11	2.11	0.34	0.40	0.28	0.08	0.03
-0.42	-0.59	-15.50	-1.60	-2.32	-1.51	-0.60	-0.25
-0.67	-0.97	-19.13	-2.22	-3.44	-2.27	-0.61	-0.27
-0.47	-0.63	-16.21	-2.27	-2.56	-1.73	-0.73	-0.31
-0.54	-0.79	-16.94	-1.94	-2.89	-1.92	-0.56	-0.24
-0.69	-0.90	-17.92	-4.26	-3.50	-2.54	-0.88	-0.40
-0.42	-0.57	-10.16	-2.21	-2.04	-1.45	-0.42	-0.19
-0.36	-0.54	-15.14	-0.72	-2.11	-1.29	-0.49	-0.20
-1.31	-1.65	-30.90	-16.30	-8.79	-7.22	-2.67	-1.30
-1.96	-2.94	-40.78	-5.17	-9.29	-6.16	-1.06	-0.51
-1.13	-1.56	-39.65	-5.28	-6.23	-4.20	-1.62	-0.69
-1.38	-1.89	-48.16	-6.29	-7.54	-5.06	-2.01	-0.86
0.20	0.29	7.17	0.66	1.09	0.71	0.24	0.10
-0.07	-0.10	-2.79	-0.27	-0.41	-0.26	-0.11	-0.05
-0.11	-0.14	-3.63	-0.41	-0.56	-0.37	-0.15	-0.06
-0.01	-0.01	-0.41	-0.08	-0.04	-0.03	-0.04	-0.01
1.52	2.05	48.15	7.10	7.99	5.43	2.11	0.91
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.33	-0.44	-11.47	-1.43	-1.76	-1.17	-0.50	-0.21
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.49	0.69	16.16	1.93	2.61	1.73	0.60	0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.27	1.73	43.68	5.66	6.85	4.58	1.90	0.80
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.02	0.73	-0.42	-0.07	-0.10	-0.03	-0.02
-0.59	-0.77	-16.91	-3.11	-3.05	-2.13	-0.85	-0.38
-0.64	-0.89	-17.58	-3.01	-3.30	-2.28	-0.68	-0.30
-0.42	-0.54	-10.46	-2.75	-2.10	-1.55	-0.56	-0.25
-0.81	-1.09	-23.57	-4.26	-4.22	-2.95	-1.02	-0.45
-1.91	-2.72	-58.01	-7.28	-9.83	-6.56	-1.92	-0.83
-3.19	-4.42	-103.46	-14.14	-17.07	-11.52	-4.12	-1.78
0.25	0.37	8.02	0.83	1.35	0.88	0.27	0.12
-3.16	-4.34	-104.53	-14.72	-16.98	-11.51	-4.28	-1.84
-2.09	-2.87	-62.51	-9.83	-10.78	-7.39	-2.50	-1.09
-3.19	-3.93	-44.25	-26.00	-14.11	-11.49	-3.05	-1.53
-5.19	-6.71	-97.63	-34.52	-24.11	-18.33	-5.12	-2.45
-3.58	-4.36	-60.84	-41.25	-19.93	-16.91	-5.36	-2.69
0.00	0.00	0.00	-0.03	-0.01	-0.01	0.00	0.00
-0.32	-0.45	-11.09	-1.22	-1.74	-1.14	-0.44	-0.19
0.16	0.22	6.03	0.37	0.82	0.50	0.24	0.09
-0.50	-0.66	-15.78	-2.34	-2.61	-1.77	-0.74	-0.32
-0.41	-0.55	-13.69	-1.97	-2.21	-1.49	-0.62	-0.27
1.90	2.59	62.71	8.56	10.13	6.82	2.67	1.14
-0.18	-0.24	-5.97	-0.79	-0.94	-0.63	-0.26	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.66	0.84	14.74	3.38	3.07	2.18	0.79	0.37
28.78	36.48	631.08	151.10	133.49	95.43	34.76	16.39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.21	4.08	68.77	18.90	15.33	11.18	3.88	1.90
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33.68	42.42	687.88	179.27	153.07	110.41	38.86	18.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.05	2.56	38.63	12.70	9.50	7.08	2.39	1.21
-0.46	-0.52	-6.31	-5.16	-2.41	-2.06	-0.75	-0.39
13.50	17.07	274.05	75.18	62.35	45.30	15.67	7.66
-0.78	-1.04	-20.01	-4.67	-3.94	-2.86	-0.90	-0.41
14.58	18.44	319.15	80.59	69.30	49.86	18.35	8.70
-0.43	-0.64	-11.40	-2.01	-1.87	-1.35	-0.08	0.02
12.81	16.27	319.16	71.27	63.76	45.33	18.13	8.39
2.91	3.83	42.73	9.01	10.07	6.98	1.96	0.93
1.98	2.57	133.22	-3.95	15.27	7.90	7.28	3.07
6.69	8.72	204.57	35.09	37.88	25.98	11.67	5.54
6.15	7.87	147.93	40.89	32.16	23.61	8.61	4.14
5.47	6.88	119.09	38.28	27.74	20.77	7.52	3.69
9.23	11.57	196.43	59.23	45.31	33.46	12.38	5.98
3.19	4.05	68.15	13.11	13.97	9.66	3.51	1.58
5.60	7.20	127.45	19.46	24.35	16.36	6.01	2.63
1.21	1.57	30.01	4.40	5.48	3.67	1.39	0.60
4.26	5.48	96.16	15.02	18.51	12.47	4.56	2.00
4.44	6.02	137.05	19.28	22.92	15.46	5.81	2.51
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.25	-0.34	-8.81	-1.04	-1.34	-0.88	-0.38	-0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.24	-0.33	-8.38	-1.04	-1.30	-0.86	-0.36	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.21	-1.66	-42.59	-5.39	-6.61	-4.41	-1.79	-0.76
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2040 NEPA	FWY/EXP or FWY/EXP with HSR Compared to No-Build							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	-0.60	-0.78	-15.18	-4.18	-3.11	-2.32	-0.80	-0.37
1479	-0.14	-0.18	-3.99	-0.69	-0.69	-0.48	-0.18	-0.08
1480	0.24	0.34	8.10	0.83	1.29	0.84	0.29	0.12
1481	-0.12	-0.17	-4.66	-0.38	-0.67	-0.42	-0.17	-0.07
1482	-0.17	-0.23	-6.69	-0.66	-0.95	-0.62	-0.27	-0.11
1483	-1.08	-1.51	-26.94	-4.62	-5.29	-3.65	-0.98	-0.44
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	2.40	3.21	49.86	13.44	11.12	8.13	2.17	1.01
1486	16.35	20.53	208.08	101.46	61.39	48.39	11.62	5.77
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	-0.18	-0.23	-5.49	-0.77	-0.91	-0.61	-0.26	-0.11
1491	3.54	4.60	93.55	17.65	17.54	12.21	4.70	2.12
1492	0.27	0.36	7.27	1.38	1.38	0.97	0.35	0.16
1493	0.00	0.00	-0.17	0.01	-0.02	-0.01	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	0.40	0.52	11.09	2.26	2.08	1.47	0.58	0.26
1496	0.02	0.03	0.66	0.08	0.10	0.07	0.03	0.01
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	-8.76	-11.76	-268.38	-46.16	-46.15	-32.08	-11.98	-5.24
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-5.40	-7.16	-160.44	-30.24	-28.36	-19.96	-7.55	-3.33
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-3.60	-4.78	-107.01	-20.17	-18.91	-13.31	-5.03	-2.22
1537	-0.82	-1.07	-20.35	-5.15	-4.10	-3.00	-0.99	-0.45
1538	-0.24	-0.32	-7.76	-1.19	-1.28	-0.87	-0.34	-0.15
1539	0.12	0.23	2.74	-0.14	0.64	0.39	-0.12	-0.04
1540	-0.50	-0.70	-18.43	-2.16	-2.82	-1.87	-0.73	-0.31
1541	-0.75	-1.06	-26.42	-2.98	-4.12	-2.71	-1.02	-0.43
1542	-0.55	-0.71	-13.35	-3.56	-2.74	-2.02	-0.68	-0.31
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	0.23	0.31	8.11	1.00	1.25	0.83	0.34	0.14
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	0.14	0.17	2.77	0.92	0.68	0.50	0.18	0.09
1552	-0.17	-0.23	-6.09	-0.73	-0.91	-0.61	-0.22	-0.09
1553	-0.20	-0.28	-7.34	-0.87	-1.10	-0.73	-0.28	-0.12
1554	0.04	0.04	0.29	0.46	0.16	0.16	0.03	0.02
1555	0.00	-0.01	-1.24	0.19	-0.09	-0.02	-0.04	-0.01
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to No-Build							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.90	-1.18	-24.54	-5.60	-4.68	-3.38	-1.24	-0.56
-0.10	-0.14	-2.92	-0.57	-0.52	-0.37	-0.14	-0.06
0.07	0.09	2.56	0.26	0.36	0.23	0.12	0.05
-0.13	-0.18	-4.78	-0.47	-0.71	-0.46	-0.18	-0.08
-0.11	-0.15	-4.44	-0.44	-0.63	-0.41	-0.17	-0.07
-1.02	-1.44	-24.40	-4.33	-4.97	-3.44	-0.84	-0.39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.31	3.10	49.23	12.50	10.74	7.78	2.08	0.97
16.58	20.79	209.40	103.47	62.20	49.12	11.79	5.86
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.17	-0.23	-5.40	-0.75	-0.89	-0.60	-0.25	-0.11
3.05	4.01	84.84	13.14	14.96	10.14	4.00	1.75
0.25	0.33	6.80	1.11	1.25	0.85	0.30	0.14
0.00	-0.01	-0.20	0.00	-0.02	-0.01	-0.01	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.38	0.50	10.53	2.11	1.96	1.38	0.55	0.24
0.02	0.02	0.61	0.07	0.09	0.06	0.03	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-6.32	-8.43	-183.57	-35.54	-32.99	-23.32	-8.33	-3.70
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.48	-4.57	-95.13	-21.97	-18.15	-13.17	-4.65	-2.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.32	-3.05	-63.45	-14.66	-12.10	-8.79	-3.10	-1.40
-1.13	-1.49	-30.48	-6.65	-5.74	-4.12	-1.43	-0.64
-0.06	-0.06	0.01	-0.68	-0.23	-0.23	-0.05	-0.03
-0.01	0.02	-0.01	-0.72	-0.05	-0.11	-0.14	-0.06
-0.11	-0.13	-2.07	-0.87	-0.54	-0.42	-0.14	-0.07
-0.28	-0.39	-7.65	-1.41	-1.46	-1.02	-0.32	-0.15
-0.47	-0.60	-10.35	-3.28	-2.30	-1.74	-0.56	-0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.17	0.23	6.31	0.67	0.93	0.61	0.25	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.10	0.12	2.05	0.50	0.45	0.32	0.12	0.06
-0.16	-0.23	-5.97	-0.66	-0.88	-0.58	-0.21	-0.09
-0.18	-0.25	-6.69	-0.74	-0.98	-0.65	-0.24	-0.10
0.03	0.04	0.17	0.45	0.15	0.14	0.03	0.01
-0.01	-0.02	-1.38	0.17	-0.11	-0.04	-0.05	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-3

Emissions of GHG, PM10, PM2.5, and Others

2020 CEQA Comparison

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing								FWY/Toll or FWY/Toll with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	-0.35	-0.41	-6.55	-0.94	0.36	0.06	0.07	0.02	-0.33	-0.38	-5.94	-0.85	0.44	0.12	0.09	0.03
45	-0.13	-0.14	-1.79	-0.36	0.55	0.27	0.14	0.06	-0.14	-0.15	-2.11	-0.40	0.51	0.24	0.13	0.05
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-3.47	-4.21	-68.53	-13.17	-1.93	-2.64	-0.52	-0.31	-3.33	-4.02	-64.93	-12.68	-1.44	-2.28	-0.43	-0.27
96	-4.98	-6.04	-99.50	-19.06	-2.89	-3.87	-0.82	-0.47	-4.80	-5.79	-94.21	-18.32	-2.20	-3.36	-0.67	-0.41
97	-0.86	-1.06	-20.71	-2.75	-0.88	-0.93	-0.23	-0.11	-0.86	-1.06	-20.66	-2.75	-0.87	-0.92	-0.23	-0.11
98	-0.59	-0.67	-10.72	-1.25	0.88	0.28	0.18	0.07	-0.61	-0.70	-11.55	-1.37	0.77	0.20	0.16	0.06
99	-0.16	-0.17	-2.46	-0.41	0.46	0.22	0.11	0.04	-0.15	-0.16	-2.32	-0.40	0.48	0.23	0.11	0.04
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-17.05	-19.79	-350.71	-112.52	8.37	-2.58	0.91	-0.46	-13.70	-15.37	-246.61	-91.87	21.31	7.24	4.55	1.13
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-2.49	-3.00	-36.12	-8.51	-0.23	-1.01	-0.01	-0.09	-2.10	-2.46	-26.94	-6.94	1.09	-0.01	0.23	0.02
107	-14.93	-17.81	-238.07	-58.04	0.26	-5.38	0.08	-0.50	-12.02	-13.86	-170.23	-46.47	10.02	1.97	1.87	0.32
108	-11.13	-11.77	-154.02	-85.84	37.34	18.32	9.12	2.97	-7.72	-7.29	-52.63	-64.93	50.26	28.15	12.66	4.52
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-20.17	-24.25	-469.70	-152.25	-22.13	-23.50	-8.23	-4.37	-17.17	-20.42	-387.55	-128.43	-10.63	-14.64	-4.76	-2.84
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	-1.03	-1.18	-25.53	-3.70	0.90	0.04	0.08	0.02	-1.04	-1.19	-25.82	-3.79	0.86	0.00	0.07	0.01
147	-2.60	-3.19	-59.64	-10.88	-2.65	-2.78	-0.77	-0.38	-2.52	-3.08	-56.79	-10.49	-2.30	-2.53	-0.68	-0.34
148	-6.41	-7.81	-154.94	-28.49	-5.50	-6.36	-1.74	-0.88	-6.21	-7.53	-147.89	-27.48	-4.65	-5.74	-1.50	-0.77
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-1.84	-2.18	-38.52	-8.65	-0.40	-1.07	-0.21	-0.14	-1.76	-2.08	-36.06	-8.27	-0.10	-0.85	-0.13	-0.11
151	-0.64	-0.75	-13.32	-3.04	-0.09	-0.34	-0.07	-0.05	-0.60	-0.70	-12.26	-2.89	0.06	-0.23	-0.04	-0.04
152	-0.03	-0.04	-0.98	-0.12	-0.04	-0.04	-0.01	-0.01	0.02	0.04	1.14	0.12	0.20	0.14	0.06	0.02
153	-7.69	-9.00	-147.53	-47.87	0.97	-2.75	-0.22	-0.45	-6.71	-7.75	-121.30	-40.38	4.63	0.08	0.87	0.03
154	-5.05	-5.93	-100.89	-33.05	0.19	-2.13	-0.29	-0.37	-4.40	-5.10	-82.55	-28.07	2.65	-0.23	0.44	-0.04
155	-3.41	-4.05	-63.36	-18.56	-0.48	-1.71	-0.24	-0.25	-2.86	-3.34	-49.16	-14.41	1.50	-0.16	0.31	0.00
156	-9.96	-11.73	-191.05	-58.58	-0.35	-4.47	-0.61	-0.70	-7.93	-9.11	-139.34	-44.64	6.79	1.08	1.27	0.15
157	-6.82	-8.01	-133.48	-43.25	0.05	-2.96	-0.44	-0.50	-5.33	-6.09	-95.64	-33.05	5.28	1.10	0.93	0.12
158	-4.88	-5.77	-91.51	-27.30	-0.38	-2.28	-0.30	-0.33	-3.94	-4.56	-67.68	-20.87	2.91	0.28	0.57	0.06
159	-10.35	-12.33	-163.93	-40.40	0.35	-3.61	0.10	-0.33	-8.29	-9.55	-116.26	-32.27	7.21	1.55	1.35	0.24
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.52	-0.62	-13.20	-2.13	-0.14	-0.34	-0.06	-0.04	-0.44	-0.52	-10.66	-1.75	0.17	-0.11	0.03	0.00
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-26.89	-32.45	-487.69	-87.22	-8.20	-15.78	-2.71	-1.79	-26.47	-31.94	-480.97	-83.80	-7.04	-14.82	-2.40	-1.64
202	-2.48	-3.00	-52.23	-9.77	-1.55	-2.02	-0.48	-0.26	-2.40	-2.89	-49.74	-9.42	-1.24	-1.79	-0.41	-0.23
203	-3.12	-3.79	-69.96	-10.50	-1.56	-2.36	-0.49	-0.26	-3.09	-3.74	-68.88	-10.39	-1.43	-2.26	-0.46	-0.25
204	-0.58	-0.60	-6.68	-0.84	1.90	0.93	0.36	0.14	-0.57	-0.59	-6.48	-0.82	1.93	0.95	0.37	0.14
205	-8.68	-10.26	-158.03	-46.00	-1.07	-4.23	-0.65	-0.62	-7.83	-9.16	-135.87	-40.15	2.00	-1.86	0.19	-0.25
206	-12.57	-15.01	-212.93	-56.89	-3.00	-6.73	-0.88	-0.84	-11.54	-13.69	-186.07	-49.88	0.70	-3.87	0.13	-0.39
207	-5.83	-6.94	-100.55	-27.62	-1.15	-3.00	-0.38	-0.39	-5.25	-6.20	-85.55	-23.81	0.91	-1.41	0.17	-0.14
208	-7.11	-8.31	-125.67	-34.48	2.02	-1.70	0.11	-0.22	-6.48	-7.50	-109.12	-29.85	4.32	0.08	0.78	0.08
209	-6.63	-7.83	-119.95	-34.70	-0.21	-2.85	-0.28	-0.39	-5.80	-6.75	-97.66	-29.31	2.81	-0.53	0.53	-0.03
210	-0.11	-0.13	-2.80	-0.36	-0.06	-0.09	-0.02	-0.01	-0.10	-0.12	-2.56	-0.33	-0.03	-0.07	-0.01	-0.01
211	-2.19	-2.59	-52.09	-12.58	-0.62	-1.46	-0.32	-0.21	-1.43	-1.65	-35.61	-4.38	2.08	0.73	0.52	0.18
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	-0.24	-0.29	-5.18	-0.71	0.01	-0.10	-0.01	-0.01	-0.24	-0.29	-5.18	-0.71	0.01	-0.10	-0.01	-0.01
222	-0.45	-0.53	-10.77	-1.69	0.24	-0.08	0.05	0.01	-0.34	-0.38	-7.01	-1.10	0.70	0.26	0.19	0.07
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	-2.00	-2.35	-31.47	-4.63	1.70	0.24	0.43	0.14	-2.00	-2.34	-31.37	-4.62	1.72	0.25	0.43	0.14
260	-0.21	-0.23	-4.07	-0.93	0.33	0.10	0.08	0.03	-0.21	-0.24	-4.11	-0.93	0.32	0.10	0.08	0.02
261	0.18	0.25	5.80	0.64	0.88	0.62	0.18	0.08	0.18	0.25	5.79	0.64	0.88	0.62	0.18	0.08
262	-10.79	-12.83	-235.99	-46.59	-1.76	-5.99	-1.10	-0.74	-10.54	-12.51	-231.32	-44.66	-0.99	-5.37	-0.93	-0.66
263	-7.79	-9.34	-170.90	-33.68	-2.48	-5.06	-1.03	-0.63	-7.58	-9.08	-166.67	-31.94	-1.80	-4.51	-0.86	-0.55
264	-8.83	-10.48	-200.51	-43.13	-1.49	-5.10	-0.98	-0.66	-8.50	-10.07	-192.87	-40.24	-0.33	-4.18	-0.63	-0.50
265	-9.78	-11.49	-199.35	-53.06	0.39	-4.13	-0.60	-0.61	-9.03	-10.54	-180.28	-47.47	3.07	-2.04	0.18	-0.26
266	-4.12	-4.95	-93.23	-13.42	-0.83	-2.38	-0.39	-0.23	-4.09	-4.91	-92.40	-13.31	-0.73	-2.31	-0.37	-0.22
267	-6.37	-7.73	-148.44	-21.02	-3.14	-4.84	-1.00	-0.52	-6.38	-7.75	-148.77	-21.06	-3.18	-4.87	-1.01	-0.53
268	-4.11	-4.95	-90.44	-12.27	-0.91	-2.40	-0.36	-0.22	-4.15	-5.00	-91.45	-12.40	-1.03	-2.49	-0.39	-0.23
269	-1.10	-1.29	-22.62	-3.87	0.29	-0.31	0.00	-0.02	-1.03	-1.20	-20.36	-3.61	0.56	-0.11	0.07	0.01
270	-1.14	-1.40	-26.58	-4.31	-1.01	-1.13	-0.29	-0.14	-1.07	-1.30	-24.16	-4.02	-0.71	-0.91	-0.22	-0.11
271	-1.17	-1.44	-26.92	-4.32	-1.03	-1.15	-0.29	-0.15	-1.13	-1.38	-25.48	-4.13	-0.85	-1.02	-0.25	-0.13
272	-0.98	-1.21	-24.55	-4.15	-0.93	-1.03	-0.29	-0.14	-0.90	-1.10	-21.83	-3.79	-0.60	-0.79	-0.20	-0.10
273	-1.00	-1.23	-23.31	-3.78	-0.75	-0.91	-0.23	-0.11	-1.00	-1.22	-23.10	-3.77	-0.72	-0.89	-0.22	-0.11
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-0.71	-0.81	-14.06	-3.60	0.86	0.25	0.17	0.04	-0.14	-0.03	8.14	-1.74	3.34	2.03	0.87	0.33
276	-0.82	-0.65	-6.37	-1.06	9.18	5.39	2.19	0.88	-0.75	-0.45	10.65	-4.26	10.46	6.11	2.51	0.98
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	-1.16	-1.20	-17.08	-2.79	3.89	1.87	0.74	0.29	-1.16	-1.20	-17.13	-2.82	3.88	1.86	0.74	0.29
320	-11.24	-12.91	-247.54	-44.90	13.51	3.54	2.78	0.80	-11.48	-13.20	-254.59	-50.19	12.39	2.57	2.34	0.59
321	-4.93	-5.83	-98.61	-14.21	2.32	-0.78	0.56	0.14	-4.90	-5.79	-97.51	-14.11	2.44	-0.69	0.60	0.15
322	-5.59	-6.72	-117.79	-15.52	-0.14	-2.58	-0.11	-0.14	-5.56	-6.68	-116.54	-15.39	0.00	-2.47	-0.07	-0.12
323	-9.87	-11.74	-211.76	-32.20	0.57	-4.10	-0.33	-0.32	-9.94	-11.83	-213.76	-32.55	0.31	-4.29	-0.40	-0.35
324	-7.61	-9.17	-162.30	-19.00	-0.59	-3.73	-0.36	-0.25	-7.57	-9.12	-161.00	-18.86	-0.43	-3.62	-0.32	-0.24
325	-17.51	-20.83	-387.77	-64.41	0.71	-7.53	-0.81	-0.70	-17.17	-20.38	-377.89	-62.22	1.99	-6.55	-0.43	-0.54
326	-3.89	-4.65	-79.16	-9.91	0.32	-1.50	-0.06	-0.08	-3.87	-4.62	-78.51	-9.83	0.39	-1.44	-0.04	-0.07
327	-0.80	-0.92	-15.21	-2.14	0.87	0.18	0.19	0.07	-0.81	-0.94	-15.72	-2.20	0.81	0.13	0.17	0.06
328	-0.12	-0.12	-1.40	-0.32	0.65	0.34	0.14	0.05	-0.13	-0.13	-1.59	-0.34	0.63	0.33	0.13	0.05
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-2.79	-3.30	-56.84	-7.40	0.87	-0.70	0.09	0.00	-2.74	-3.24	-55.35	-7.24	1.06	-0.57	0.14	0.01
331	-1.26	-1.52	-27.70	-3.46	-0.12	-0.65	-0.09	-0.06	-1.30	-1.56	-28.62	-3.55	-0.24	-0.73	-0.12	-0.07
332	-0.45	-0.55	-11.53	-1.52	-0.33	-0.42	-0.10	-0.05	-0.39	-0.48	-9.82	-1.24	-0.12	-0.26	-0.05	-0.02
333	-2.08	-2.52	-48.48	-8.95	-1.36	-1.79	-0.45	-0.24	-1.42	-1.70	-35.84	-3.70	0.66	-0.15	0.10	0.02
334	-0.63	-0.69	-11.07	-1.68	1.79	0.86	0.41	0.15	-0.19	-0.07	4.66	-0.54	3.63	2.18	0.83	0.33

Appendix I-3

Emissions of GHG, PM10, PM2.5, and Others

2020 CEQA Comparison

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.75	-0.90	-17.12	-4.53	-0.61	-0.71	-0.23	-0.12
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-0.68	-0.79	-16.79	-0.91	1.12	0.41	0.26	0.10
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.08	0.15	5.49	0.49	1.39	0.89	0.35	0.15
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	-20.33	-23.78	-476.40	-83.34	14.49	0.17	2.72	0.52
382	-10.35	-12.39	-227.69	-28.03	0.11	-4.62	-0.33	-0.28
383	-10.47	-12.73	-238.92	-29.19	-3.87	-7.12	-1.20	-0.64
384	-11.56	-13.97	-266.81	-36.32	-3.32	-7.36	-1.22	-0.69
385	-8.65	-10.38	-198.77	-24.97	-0.76	-4.47	-0.51	-0.33
386	-12.61	-15.02	-289.88	-47.07	-0.16	-5.93	-0.69	-0.54
387	-5.43	-6.50	-118.93	-14.02	0.36	-2.25	-0.09	-0.11
388	-0.99	-1.12	-19.17	-2.47	1.54	0.48	0.31	0.12
389	-1.14	-1.35	-21.45	-3.37	0.40	-0.24	0.05	0.00
390	0.00	0.00	-0.04	-0.01	0.00	0.00	0.00	0.00
391	-1.36	-1.63	-29.48	-4.52	-0.25	-0.76	-0.12	-0.08
392	-0.91	-1.02	-15.96	-2.01	1.61	0.58	0.34	0.13
393	-0.21	-0.25	-4.60	-0.82	-0.11	-0.16	-0.04	-0.02
394	-2.37	-2.86	-53.82	-11.74	-1.91	-2.25	-0.64	-0.33
395	-0.21	-0.24	-4.50	-0.39	0.41	0.16	0.10	0.04
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.43	0.59	13.71	1.78	1.69	1.25	0.41	0.18
399	-1.09	-1.27	-24.93	-1.27	1.72	0.63	0.36	0.14
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.21	-0.26	-5.89	-0.79	-0.27	-0.27	-0.08	-0.04
403	-0.07	-0.09	-2.04	-0.28	-0.07	-0.08	-0.02	-0.01
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.02	-0.02	-0.33	-0.08	0.11	0.05	0.03	0.01
406	-0.05	-0.06	-1.34	-0.20	0.01	-0.02	0.00	0.00
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-4.97	-5.83	-98.24	-12.23	3.09	-0.31	0.58	0.17
440	-3.32	-3.74	-68.32	-9.95	5.12	1.56	1.01	0.36
441	-17.38	-20.02	-388.81	-37.59	32.10	12.91	7.49	2.70
442	-22.91	-27.81	-549.73	-81.16	-11.87	-17.96	-3.79	-1.98
443	-18.36	-22.21	-436.23	-66.31	-8.26	-13.58	-2.84	-1.52
444	-15.58	-18.77	-362.47	-57.50	-5.51	-10.56	-2.11	-1.18
445	-10.92	-13.02	-252.58	-42.82	-1.34	-5.91	-1.02	-0.66
446	-6.84	-8.10	-154.84	-26.62	1.41	-2.25	0.07	-0.13
447	-1.20	-1.16	-17.23	-2.17	7.21	3.91	1.69	0.68
448	-2.22	-2.71	-55.80	-7.59	-1.60	-2.03	-0.49	-0.24
449	-2.98	-3.60	-68.14	-3.09	2.29	0.25	0.66	0.24
450	14.47	18.45	361.74	126.15	62.94	47.35	17.62	7.81
451	-0.79	-0.76	-17.11	8.27	9.22	5.57	2.38	1.01
452	36.62	46.35	879.03	299.87	142.29	108.75	39.36	17.58
453	-4.26	-5.22	-104.49	-18.03	-4.15	-4.52	-1.27	-0.62
454	-1.47	-1.81	-37.66	-5.95	-1.52	-1.63	-0.46	-0.22
455	3.26	4.28	78.39	37.02	20.01	14.48	5.39	2.39
456	-1.41	-1.64	-31.16	-4.25	1.14	0.03	0.18	0.05
457	22.76	28.83	499.63	207.53	96.88	72.81	24.62	11.13
458	0.21	0.50	13.65	1.34	4.78	3.04	0.94	0.39
459	4.26	5.48	97.01	47.87	23.80	17.38	6.04	2.71
460	-0.03	-0.04	-0.92	-0.11	-0.04	-0.04	-0.01	-0.01
461	-2.33	-2.84	-60.00	-12.25	-3.00	-2.99	-0.96	-0.46
462	32.36	40.60	728.63	256.45	113.74	87.89	29.35	13.30
463	5.88	7.40	134.52	47.25	21.44	16.46	5.54	2.50
464	-3.54	-4.30	-90.25	-19.34	-4.55	-4.54	-1.48	-0.71
465	23.99	30.13	541.93	187.58	84.58	65.22	21.79	9.85
466	3.84	4.92	83.03	33.75	18.11	13.35	4.50	2.00
467	30.68	38.59	710.82	236.04	108.45	83.54	28.56	12.84
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	-7.96	-9.54	-182.83	-22.76	-0.28	-3.87	-0.33	-0.24
499	-9.33	-10.80	-184.99	-13.60	14.53	4.93	3.56	1.36
500	-52.89	-63.01	-1272.41	-243.03	-14.13	-33.48	-6.73	-4.25
501	2.65	4.03	77.06	54.68	44.79	29.92	11.85	5.06
502	7.22	9.50	193.89	66.46	42.06	30.33	11.58	5.03
503	7.96	10.44	212.58	72.43	44.04	32.00	12.11	5.28
504	-6.11	-7.41	-126.05	-16.57	-0.11	-2.42	-0.07	-0.17
505	16.80	21.39	418.49	135.73	68.55	51.90	19.06	8.44
506	8.78	11.36	222.63	78.25	42.43	31.39	11.73	5.18
507	9.16	11.62	225.86	71.52	35.31	26.95	9.86	4.38
508	-0.78	-0.96	-19.17	-3.60	-0.86	-0.89	-0.27	-0.13
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.35	-0.42	-8.62	-0.93	0.00	-0.16	-0.01	-0.01
511	-0.16	-0.18	-2.86	-0.66	0.33	0.12	0.08	0.03
512	-0.97	-1.17	-22.22	-4.84	-0.78	-0.92	-0.26	-0.14
513	-0.05	-0.05	-0.72	-0.11	0.12	0.05	0.03	0.01
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.05	0.07	1.95	0.23	0.29	0.20	0.08	0.03
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	-2.63	-3.11	-50.38	-6.51	0.96	-0.54	0.12	0.01
518	-1.18	-1.46	-29.07	-3.55	-1.20	-1.28	-0.31	-0.15
519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
521	-0.07	-0.08	-1.81	-0.25	-0.07	-0.07	-0.02	-0.01
522	0.43	0.58	16.03	1.92	2.25	1.58	0.66	0.27
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.20	-0.24	-4.86	-0.59	-0.21	-0.22	-0.05	-0.03
525	0.36	0.48	11.52	1.53	1.44	1.05	0.42	0.17
526	-5.51	-6.72	-144.16	-27.96	-6.79	-6.89	-2.23	-1.05
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	-1.38	-1.62	-29.24	-3.70	0.85	-0.12	0.19	0.06
558	-32.86	-38.32	-768.64	-143.00	16.05	-5.32	2.62	0.12
559	-2.02	-2.37	-44.18	-5.60	0.84	-0.40	0.03	-0.01
560	-19.99	-24.30	-460.91	-75.75	-11.44	-16.05	-3.55	-1.90
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	1.72	2.31	49.56	7.98	6.40	4.78	1.55	0.68
563	-0.30	-0.37	-6.40	-0.91	-0.30	-0.31	-0.07	-0.04
564	-0.73	-0.91	-17.03	-2.47	-0.74	-0.78	-0.20	-0.10
565	-1.88	-2.18	-42.79	-7.65	1.40	-0.05	0.23	0.05
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.04	0.08	3.52	0.31	0.98	0.62	0.25	0.10
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.65	-0.80	-17.26	-2.21	-0.50	-0.62	-0.16	-0.07
570	-1.31	-1.59	-31.64	-5.91	-1.22	-1.35	-0.39	-0.19
571	-1.14	-1.37	-25.41	-5.04	-0.52	-0.84	-0.21	-0.12
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-1.93	-2.38	-52.65	-6.98	-1.87	-2.10	-0.58	-0.27
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-3.03	-3.74	-68.10	-7.83	-2.03	-2.59	-0.53	-0.26
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.49	-0.60	-12.63	-1.64	-0.41	-0.49	-0.12	-0.06
578	-0.93	-1.15	-23.48	-3.21	-1.01	-1.05	-0.28	-0.13
579	-2.02	-2.46	-53.13	-8.83	-2.29	-2.41	-0.72	-0.33
580	-0.97	-1.19	-25.94	-4.32	-1.11	-1.17	-0.36	-0.17
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-3.17	-3.85	-82.37	-14.75	-3.28	-3.59	-1.06	-0.50
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-1.44	-1.73	-36.12	-7.02	-0.89	-1.26	-0.33	-0.17
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	-2.40	-2.88	-56.16	-7.29	-0.18	-1.24	-0.11	-0.08
598	-24.06	-28.15	-567.91	-102.54	10.26	-4.84	1.44	-0.08
599	-2.05	-2.56	-49.72	-5.78	-2.02	-2.17	-0.52	-0.24

	FWY/Toll or FWY/Toll with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.24	-0.21	0.87	-2.22	1.50	0.84	0.37	0.13
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-1.21	-1.47	-29.26	-4.46	-0.64	-0.97	-0.21	-0.11
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.08	0.16	5.55	0.49	1.39	0.89	0.36	0.15
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	-21.10	-24.73	-493.94	-92.96	11.71	-2.15	1.94	0.14
382	-10.36	-12.41	-228.08	-28.09	0.06	-4.66	-0.35	-0.29
383	-10.45	-12.69	-237.95	-29.08	-3.76	-7.04	-1.17	-0.63
384	-11.60	-14.02	-267.88	-36.53	-3.46	-7.46	-1.26	-0.71
385	-8.62	-10.35	-197.95	-24.88	-0.67	-4.40	-0.48	-0.32
386	-12.44	-14.81	-285.73	-45.82	0.44	-5.47	-0.52	-0.47
387	-5.38	-6.44	-117.35	-13.82	0.55	-2.11	-0.04	-0.09
388	-0.99	-1.12	-19.22	-2.48	1.54	0.48	0.31	0.12
389	-1.15	-1.36	-21.76	-3.41	0.36	-0.27	0.05	-0.01
390	0.00	0.00	-0.04	-0.01	0.00	0.00	0.00	0.00
391	-1.42	-1.71	-31.30	-4.78	-0.47	-0.93	-0.18	-0.10
392	-0.95	-1.07	-17.29	-2.16	1.45	0.46	0.30	0.11
393	-0.11	-0.12	-2.18	-0.21	0.23	0.10	0.05	0.02
394	-1.52	-1.80	-35.37	-5.70	0.81	-0.09	0.10	0.00
395	-0.03	0.01	1.36	0.11	1.12	0.68	0.25	0.10
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.63	0.85	19.69	2.54	2.45	1.80	0.59	0.25
399	-1.93	-2.34	-43.41	-6.34	-0.94	-1.45	-0.30	-0.16
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.21	-0.25	-5.84	-0.79	-0.27	-0.27	-0.08	-0.04
403	-0.08	-0.10	-2.22	-0.30	-0.09	-0.10	-0.03	-0.01
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.05	-0.06	-1.31	-0.20	-0.01	-0.03	0.00	0.00
406	-0.03	-0.04	-0.62	-0.10	0.09	0.04	0.03	0.01
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-4.99	-5.86	-98.76	-12.31	3.03	-0.36	0.56	0.16
440	-3.35	-3.77	-69.04	-10.07	5.03	1.49	0.99	0.35
441	-18.26	-21.06	-404.77	-51.17	28.89	10.21	6.53	2.23
442	-22.79	-27.65	-546.02	-80.57	-11.41	-17.61	-3.68	-1.93
443	-18.34	-22.19	-435.93	-66.12	-8.20	-13.53	-2.82	-1.51
444	-15.55	-18.74	-361.75	-57.30	-5.41	-10.48	-2.09	-1.17
445	-10.91	-13.00	-252.33	-42.69	-1.30	-5.88	-1.01	-0.65
446	-6.77	-8.02	-153.59	-26.03	1.61	-2.09	0.13	-0.11
447	-1.13	-1.07	-16.06	-1.51	7.41	4.08	1.76	0.71
448	-2.23	-2.73	-56.19	-7.61	-1.64	-2.05	-0.50	-0.24
449	-3.35	-4.07	-77.49	-6.85	0.88	-0.87	0.25	0.06
450	10.34	13.27	261.67	83.97	47.57	35.14	13.16	5.76
451	-0.24	-0.06	-5.68	9.39	10.77	6.72	2.73	1.16
452	24.04	30.59	574.43	177.76	95.13	71.67	25.57	11.30
453	-3.72	-4.53	-91.45	-14.43	-2.32	-3.09	-0.78	-0.40
454	-1.40	-1.71	-35.23	-5.61	-1.23	-1.41	-0.38	-0.19
455	1.48	2.11	37.75	14.18	13.21	8.93	3.20	1.37
456	-0.89	-0.98	-20.53	0.10	2.93	1.42	0.64	0.26
457	12.66	16.14	265.52	113.67	58.81	43.07	14.04	6.32
458	0.54	0.90	20.78	3.60	5.87	3.87	1.20	0.51
459	2.32	3.11	55.58	19.42	16.11	11.05	3.79	1.63
460	0.04	0.06	1.67	0.18	0.27	0.19	0.06	0.03
461	-1.49	-1.74	-34.17	-8.18	0.31	-0.55	0.00	-0.05
462	20.81	26.01	449.52	154.47	69.79	53.77	17.11	7.78
463	4.17	5.27	92.26	23.89	14.32	10.71	3.47	1.53
464	5.64	7.23	120.56	46.39	26.91	19.57	6.47	2.86
465	7.35	9.21	159.81	53.16	24.92	19.11	6.10	2.76
466	2.82	3.70	63.30	15.53	13.88	9.79	3.24	1.39
467	21.14	26.58	465.15	147.59	72.37	55.39	18.06	8.11
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	-7.96	-9.54	-182.82	-22.77	-0.28	-3.87	-0.33	-0.24
499	-9.37	-10.85	-185.10	-14.54	14.41	4.81	3.51	1.34
500	-53.35	-63.59	-1282.27	-248.38	-15.80	-34.84	-7.21	-4.48
501	1.40	2.49	45.04	35.65	39.74	25.74	10.16	4.26
502	5.71	7.64	161.96	48.08	36.55	25.84	10.01	4.27
503	6.60	8.74	175.34	53.46	38.57	27.51	10.30	4.43
504	-6.16	-7.46	-126.36	-18.23	-0.30	-2.61	-0.13	-0.20
505	13.95	17.85	349.79	101.55	57.79	43.19	15.84	6.93
506	6.14	8.04	156.45	51.04	32.42	23.46	8.81	3.84
507	7.07	9.02	175.75	49.20	27.44	20.69	7.54	3.31
508	-0.78	-0.96	-19.05	-3.57	-0.85	-0.88	-0.26	-0.13
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.38	-0.45	-9.29	-1.12	-0.09	-0.24	-0.04	-0.02
511	-0.09	-0.08	-0.06	-0.33	0.66	0.36	0.17	0.07
512	-0.97	-1.17	-22.14	-4.82	-0.77	-0.91	-0.26	-0.14
513	-0.04	-0.04	-0.29	-0.06	0.17	0.09	0.04	0.02
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	-0.02	-0.03	-0.59	-0.07	0.00	-0.01	0.00	0.00
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	-2.72	-3.24	-53.30	-6.84	0.60	-0.81	0.04	-0.03
518	-0.99	-1.20	-22.67	-2.84	-0.43	-0.71	-0.13	-0.07
519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
521	-0.06	-0.08	-1.71	-0.24	-0.06	-0.07	-0.02	-0.01
522	0.03	0.06	2.15	0.20	0.61	0.38	0.17	0.07
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.19	-0.23	-4.49	-0.54	-0.16	-0.18	-0.04	-0.02
525	0.97	1.28	31.68	4.78	3.89	2.88	1.13	0.48
526	-4.61	-5.55	-116.50	-23.51	-3.25	-4.27	-1.19	-0.61
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	-1.38	-1.62	-29.22	-3.69	0.86	-0.11	0.19	0.06
558	-33.14	-38.73	-786.77	-148.26	14.53	-6.61	2.08	-0.13
559	-1.99	-2.34	-43.51	-5.52	0.92	-0.33	0.05	-0.01
560	-20.15	-24.50	-465.61	-76.68	-12.05	-16.50	-3.72	-1.98
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	1.72	2.31	49.53	7.97	6.40	4.78	1.55	0.68
563	-0.30	-0.37	-6.39	-0.91	-0.30	-0.31	-0.07	-0.04
564	-0.73	-0.91	-17.01	-2.46	-0.74	-0.78	-0.20	-0.10
565	-1.94	-2.27	-45.97	-7.60	1.08	-0.27	0.15	0.02
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.00	0.02	0.73	0.50	0.72	0.45	0.18	0.08
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.73	-0.90	-19.50	-2.61	-0.79	-0.83	-0.23	-0.11
570	-1.28	-1.56	-30.87	-5.80	-1.13	-1.29	-0.36	-0.18
571	-1.10	-1.32	-23.96	-4.86	-0.35	-0.72	-0.16	-0.09
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-1.74	-2.12	-45.89	-6.16	-1.08	-1.52	-0.36	-0.17
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-2.97	-3.65	-66.07	-7.59	-1.78	-2.41	-0.47	-0.23
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.30	-0.34	-6.14	-0.93	0.37	0.08	0.07	0.02
578	-0.82	-1.00	-19.79	-2.76	-0.56	-0.72	-0.17	-0.08
579	-1.72	-2.07	-44.28	-7.50	-1.14	-1.56	-0.39	-0.20
580	-0.83	-1.00	-21.55	-3.68	-0.56	-0.76	-0.20	-0.10
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-2.40	-2.83	-58.13	-10.81	-0.20	-1.32	-0.15	-0.12
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-1.07	-1.24	-24.14	-5.17	0.58	-0.17	0.07	0.00
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	-2.41	-2.89	-56.39	-7.32	-0.21	-1.26	-0.12	-0.08
598	-24.41	-28.60	-579.44	-106.75	8.89	-5.97	1.05	-0.27
599	-2.05	-2.56	-49.68	-5.78	-2.02	-2.16	-0.52	-0.24

Appendix I-3

Emissions of GHG, PM10, PM2.5, and Others **2020 CEQA Comparison**

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
600	-0.39	-0.48	-10.35	-1.29	-0.42	-0.44	-0.12	-0.05
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	-2.41	-2.82	-56.28	-9.62	0.94	-0.58	0.09	-0.01
606	-0.51	-0.64	-12.85	-1.66	-0.59	-0.60	-0.16	-0.07
1001	-2.60	-3.12	-62.59	-8.84	-1.70	-2.00	-0.54	-0.26
1002	-0.29	-0.34	-5.27	-0.75	0.13	-0.02	0.02	0.00
1003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	-0.03	-0.03	-0.48	-0.09	0.04	0.02	0.01	0.00
1012	-0.42	-0.48	-7.04	-1.08	0.32	0.06	0.06	0.02
1013	-1.01	-1.20	-24.21	-3.67	-0.55	-0.71	-0.19	-0.10
1014	0.17	0.27	8.57	0.50	1.92	1.29	0.46	0.18
1015	-1.25	-1.33	-17.30	-4.44	3.90	2.07	0.88	0.30
1016	-0.75	-0.88	-16.45	-2.69	-0.01	-0.28	-0.04	-0.03
1017	-0.61	-0.70	-11.90	-1.66	0.27	-0.04	0.05	0.01
1018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-2.14	-2.49	-44.53	-6.90	0.40	-0.52	0.01	-0.04
1021	-4.56	-5.35	-101.30	-17.72	-0.81	-2.20	-0.46	-0.30
1022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1023	-2.45	-2.72	-48.03	-8.50	2.26	0.48	0.33	0.09
1024	-2.14	-2.00	-16.73	-5.50	10.71	5.84	2.54	0.97
1025	-3.37	-3.30	-14.45	-40.38	14.06	7.98	1.96	0.12
1026	-3.69	-4.26	-77.08	-12.39	1.13	-0.67	0.12	-0.02
1027	-3.06	-3.34	-52.13	-9.44	5.29	2.17	1.16	0.40
1028	-63.59	-74.60	-1293.16	-357.16	-3.86	-21.01	-13.17	-11.46
1029	-52.95	-62.89	-971.43	-231.63	-5.76	-19.25	-7.26	-6.36
1030	-18.83	-22.20	-385.35	-72.82	-1.93	-7.85	-1.41	-1.15
1031	-13.93	-16.32	-267.73	-52.54	1.84	-3.73	-0.10	-0.48
1032	-34.48	-41.61	-685.83	-105.70	-16.30	-21.58	-4.45	-2.56
1033	-45.72	-55.29	-838.31	-118.29	-16.60	-24.92	-3.82	-2.40
1034	-25.83	-30.84	-497.25	-77.02	-6.07	-12.32	-2.12	-1.42
1035	-7.42	-8.77	-159.64	-29.75	-1.88	-3.81	-0.93	-0.60
1036	-10.05	-11.89	-217.40	-38.29	-2.46	-5.10	-1.16	-0.75
1037	-10.38	-12.21	-208.18	-34.03	0.02	-3.50	-0.61	-0.49
1038	-7.02	-8.39	-153.98	-30.31	-3.62	-4.86	-1.25	-0.74
1039	-2.14	-2.44	-37.22	-9.85	1.68	0.20	0.34	0.04
1040	-3.50	-4.19	-67.36	-13.83	-1.54	-2.18	-0.50	-0.32
1041	-0.44	0.11	-4.49	-4.38	9.93	5.95	1.81	0.67
1042	-1.06	-0.67	-30.07	-10.00	7.16	3.90	0.65	0.18
1043	-1.87	-0.89	-87.74	-24.98	12.97	6.74	0.43	-0.02
1059	-0.02	-0.02	-0.37	-0.07	0.05	0.02	0.01	0.00
1060	0.04	0.07	2.66	0.22	0.55	0.36	0.15	0.06
1061	0.08	0.14	4.93	0.44	1.08	0.69	0.30	0.12
1062	0.25	0.37	10.42	0.75	1.96	1.35	0.47	0.18
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	-2.29	-2.68	-44.01	-6.60	0.59	-0.42	0.10	0.00
1066	-2.85	-3.39	-51.17	-7.24	-0.40	-1.16	-0.18	-0.13
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-2.32	-2.73	-52.64	-10.65	-0.74	-1.36	-0.37	-0.23
1069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1070	-0.17	-0.14	0.39	-0.53	1.33	0.75	0.32	0.12
1071	4.67	6.23	147.69	19.30	16.33	11.83	4.15	1.76
1072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1073	-2.01	-2.06	-15.06	-25.11	6.90	3.78	0.87	-0.07
1074	-1.44	-1.61	-25.44	-3.88	1.80	0.61	0.40	0.14
1075	-5.77	-6.60	-108.97	-17.27	3.75	0.31	0.63	0.14
1076	-8.98	-10.56	-170.52	-21.48	1.67	-1.83	0.11	-0.08
1077	-123.49	-144.39	-2449.51	-941.84	-64.89	-82.80	-48.35	-36.70
1078	-8.75	-10.25	-162.29	-26.05	2.56	-1.17	0.27	-0.10
1079	-8.14	-9.52	-152.45	-23.36	2.86	-0.75	0.32	-0.06
1080	-16.03	-19.23	-351.25	-51.42	-7.29	-9.93	-2.51	-1.34
1081	-21.22	-25.73	-361.11	-43.75	-7.65	-11.18	-1.76	-1.01
1082	-0.48	-0.56	-10.66	-1.58	-0.03	-0.19	-0.02	-0.02
1083	-6.83	-8.10	-121.60	-16.38	-0.27	-2.34	-0.29	-0.23
1084	-4.45	-5.29	-95.45	-13.40	-0.96	-2.15	-0.37	-0.22
1085	-6.15	-7.27	-116.78	-15.49	0.10	-1.94	-0.17	-0.16
1086	-2.45	-2.79	-49.55	-7.08	2.20	0.58	0.34	0.09
1087	-6.04	-7.05	-109.70	-17.19	1.80	-0.85	0.18	-0.06
1088	0.44	0.57	12.01	2.37	1.39	1.06	0.35	0.16
1089	-6.58	-7.90	-157.96	-32.41	-6.70	-6.67	-2.33	-1.20
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	-0.01	0.00	0.12	-0.01	0.09	0.06	0.02	0.01
1114	-15.67	-18.53	-321.60	-137.39	-15.78	-16.64	-7.33	-4.77
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	0.42	0.64	19.26	1.44	3.73	2.53	0.93	0.36
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	-1.14	-1.33	-21.25	-3.26	0.19	-0.26	-0.01	-0.03
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	2.49	3.39	79.66	8.79	8.90	6.34	2.08	0.87
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	-3.17	-3.25	-24.60	-34.57	10.09	5.50	1.25	-0.05
1128	-0.27	-0.26	-2.40	-0.44	1.20	0.65	0.29	0.11
1129	-1.66	-1.83	-29.45	-5.78	2.38	0.89	0.49	0.15
1130	-5.40	-6.33	-92.88	-9.20	2.73	0.15	0.55	0.17
1131	-1.97	-2.24	-40.49	-3.96	2.41	0.87	0.55	0.21
1132	9.55	12.31	188.18	145.63	83.11	63.99	20.37	9.56
1133	-8.80	-10.05	-171.47	-27.09	7.06	1.41	1.30	0.34
1134	-6.50	-7.34	-115.59	-16.26	7.58	2.71	1.36	0.42
1135	1.32	2.07	56.22	6.42	9.47	6.34	2.02	0.84
1136	-0.18	0.41	37.66	2.47	13.70	8.39	3.43	1.37
1137	-2.43	-2.81	-45.78	-6.53	1.32	-0.03	0.30	0.08
1138	-0.57	-0.57	-4.50	-1.08	2.52	1.35	0.67	0.26
1139	-6.48	-7.59	-143.24	-23.77	-0.57	-2.74	-0.48	-0.35
1140	-6.15	-7.20	-136.26	-23.91	-0.86	-2.83	-0.60	-0.40
1141	-4.85	-5.64	-102.71	-19.51	0.39	-1.56	-0.19	-0.22
1142	2.60	3.33	76.39	12.49	8.15	6.10	2.29	0.99
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	0.21	0.37	13.40	0.06	3.18	2.10	0.76	0.28
1173	-6.02	-6.90	-107.97	-47.93	-0.48	-2.78	-1.28	-1.09
1174	-6.73	-7.96	-124.66	-48.52	-4.45	-5.44	-1.98	-1.37
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-23.75	-27.92	-483.19	-188.61	-17.45	-20.96	-8.65	-5.85
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1179	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1180	-10.77	-12.57	-211.76	-89.32	-6.28	-8.57	-3.60	-2.60
1181	-8.15	-9.55	-152.41	-52.15	-3.00	-5.00	-1.74	-1.26
1182	-9.10	-10.50	-164.67	-61.03	-0.73	-4.11	-1.38	-1.22
1183	-7.09	-7.92	-105.28	-62.97	3.78	-0.44	-0.71	-1.08
1184	-4.67	-5.37	-82.60	-40.28	-1.01	-2.67	-1.11	-0.95
1185	-7.24	-8.23	-122.52	-46.46	2.39	-1.39	-0.45	-0.73
1186	-5.92	-6.77	-107.20	-38.83	2.10	-1.00	-0.22	-0.53
1187	-15.07	-17.55	-278.62	-69.39	0.27	-5.29	-1.26	-1.17
1188	-55.04	-64.74	-1095.51	-307.09	-8.07	-22.03	-11.41	-9.54
1189	-11.00	-13.03	-225.94	-30.62	-1.08	-4.27	-0.79	-0.50
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-1.00	-0.69	9.12	-0.51	8.91	5.20	1.80	0.71
1192	-1.67	-1.86	-28.41	-4.74	2.46	0.92	0.59	0.21
1193	-2.76	-3.32	-56.29	-7.36	-1.17	-1.64	-0.34	-0.18
1194	-1.95	-2.31	-41.99	-5.92	-0.37	-0.91	-0.16	-0.10

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.39	-0.48	-10.33	-1.29	-0.41	-0.44	-0.12	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.47	-2.91	-59.39	-9.54	0.63	-0.79	0.01	-0.05
-0.51	-0.63	-12.59	-1.62	-0.55	-0.57	-0.15	-0.07
-2.60	-3.12	-62.62	-8.84	-1.70	-2.00	-0.54	-0.26
-0.30	-0.34	-5.28	-0.75	0.12	-0.02	0.02	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.03	-0.50	-0.09	0.04	0.02	0.01	0.00
-0.42	-0.48	-7.05	-1.08	0.32	0.06	0.06	0.02
-0.86	-1.00	-19.39	-3.03	-0.07	-0.36	-0.05	-0.04
-0.18	-0.17	-0.93	-1.51	0.80	0.44	0.16	0.04
-2.07	-2.36	-38.88	-9.36	1.28	0.04	0.18	-0.02
-0.57	-0.65	-10.76	-1.97	0.54	0.13	0.11	0.03
-0.67	-0.79	-13.88	-1.92	0.08	-0.19	0.00	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.03	-2.33	-41.94	-6.62	0.72	-0.29	0.05	-0.02
-4.04	-4.68	-85.39	-15.35	0.83	-0.98	0.00	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.36	-2.61	-45.44	-8.12	2.54	0.68	0.40	0.11
-1.32	-0.88	4.00	-2.92	13.09	7.59	2.96	1.16
-3.52	-3.50	-19.03	-40.96	13.60	7.64	1.85	0.07
-3.62	-4.17	-74.95	-12.06	1.35	-0.50	0.18	0.00
-3.05	-3.32	-51.34	-9.43	5.34	2.21	1.18	0.41
-63.14	-74.11	-1290.80	-349.83	-2.01	-19.39	-12.63	-11.10
-52.83	-62.77	-971.41	-228.48	-5.10	-18.63	-7.06	-6.24
-18.83	-22.21	-385.68	-72.79	-1.94	-7.86	-1.42	-1.15
-13.93	-16.32	-268.02	-52.34	1.86	-3.71	-0.10	-0.47
-34.46	-41.58	-684.72	-105.71	-16.23	-21.53	-4.43	-2.55
-45.71	-55.28	-838.07	-118.13	-16.56	-24.88	-3.80	-2.40
-25.78	-30.78	-496.32	-76.75	-5.93	-12.21	-2.09	-1.40
-7.38	-8.73	-158.75	-29.50	-1.76	-3.71	-0.90	-0.59
-10.01	-11.85	-216.63	-38.06	-2.35	-5.01	-1.14	-0.73
-10.36	-12.17	-207.58	-33.79	0.11	-3.42	-0.58	-0.48
-7.01	-8.38	-153.78	-30.28	-3.60	-4.85	-1.25	-0.74
-2.13	-2.43	-37.04	-9.83	1.70	0.21	0.35	0.04
-3.50	-4.18	-67.17	-13.80	-1.52	-2.17	-0.50	-0.32
-0.50	0.03	-5.66	-4.91	9.71	5.77	1.76	0.64
-1.11	-0.74	-30.89	-10.37	7.01	3.78	0.62	0.16
-1.99	-1.03	-89.37	-25.66	12.65	6.49	0.37	-0.05
-0.02	-0.03	-0.39	-0.08	0.04	0.02	0.01	0.00
-0.04	-0.03	0.04	-0.10	0.30	0.17	0.08	0.03
-0.08	-0.06	0.07	-0.21	0.60	0.34	0.16	0.06
-0.11	-0.10	0.42	-1.33	0.79	0.45	0.16	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.37	-2.79	-46.55	-6.94	0.34	-0.60	0.03	-0.03
-2.84	-3.38	-50.95	-7.19	-0.37	-1.14	-0.18	-0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.78	-2.03	-36.25	-8.12	0.96	-0.09	0.12	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.33	-0.34	-4.25	-1.02	0.87	0.42	0.22	0.08
4.88	6.52	153.90	20.13	16.98	12.32	4.31	1.82
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.15	-2.24	-19.23	-25.62	6.49	3.48	0.76	-0.12
-1.51	-1.70	-27.13	-4.35	1.58	0.43	0.34	0.11
-5.86	-6.72	-111.81	-17.59	3.48	0.11	0.56	0.11
-8.99	-10.58	-171.43	-21.26	1.65	-1.83	0.10	-0.08
-123.07	-143.92	-2446.05	-933.16	-62.83	-80.93	-47.75	-36.33
-8.79	-10.30	-163.42	-26.21	2.45	-1.26	0.23	-0.12
-8.15	-9.53	-152.99	-23.32	2.84	-0.76	0.31	-0.06
-16.04	-19.24	-351.29	-51.57	-7.32	-9.96	-2.52	-1.34
-21.18	-25.68	-360.14	-43.64	-7.54	-11.10	-1.73	-1.00
-0.48	-0.57	-10.76	-1.59	-0.04	-0.20	-0.02	-0.02
-6.83	-8.10	-121.60	-16.38	-0.27	-2.34	-0.29	-0.23
-4.45	-5.29	-95.46	-13.40	-0.96	-2.15	-0.37	-0.22
-6.16	-7.27	-116.95	-15.50	0.09	-1.95	-0.17	-0.16
-2.42	-2.76	-49.10	-6.86	2.28	0.65	0.36	0.10
-6.02	-7.03	-109.40	-17.05	1.85	-0.81	0.19	-0.05
0.46	0.59	12.30	2.47	1.44	1.10	0.36	0.16
-6.58	-7.90	-157.96	-32.41	-6.70	-6.67	-2.33	-1.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.01	-0.01	0.10	-0.01	0.09	0.05	0.02	0.01
-13.37	-15.66	-264.52	-120.41	-7.94	-10.46	-5.10	-3.72
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.24	-0.20	0.63	-2.14	1.63	0.93	0.36	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.15	-1.34	-21.45	-3.30	0.16	-0.28	-0.01	-0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.44	3.33	78.33	8.62	8.76	6.24	2.04	0.86
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.53	-3.73	-33.02	-35.76	9.14	4.79	1.11	-0.11
-0.32	-0.32	-3.57	-0.76	1.04	0.53	0.25	0.10
-1.75	-1.95	-32.27	-6.11	2.11	0.69	0.42	0.12
-5.42	-6.36	-94.42	-8.91	2.70	0.15	0.53	0.16
-1.97	-2.23	-40.52	-3.86	2.43	0.89	0.56	0.22
10.04	12.86	192.58	155.53	85.51	66.15	21.05	9.98
-8.81	-10.06	-171.98	-26.98	7.05	1.41	1.30	0.34
-6.50	-7.34	-115.43	-16.30	7.58	2.71	1.36	0.42
1.31	2.06	56.09	6.47	9.46	6.33	2.02	0.84
-0.16	0.43	38.02	2.55	13.74	8.42	3.44	1.37
-2.40	-2.78	-45.19	-6.40	1.39	0.03	0.32	0.09
-0.55	-0.54	-3.85	-0.94	2.59	1.41	0.69	0.27
-6.49	-7.60	-143.45	-23.78	-0.59	-2.76	-0.49	-0.35
-6.14	-7.19	-136.00	-23.81	-0.82	-2.80	-0.59	-0.40
-4.84	-5.63	-102.53	-19.51	0.40	-1.55	-0.18	-0.22
2.53	3.25	75.09	11.87	7.92	5.91	2.23	0.96
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.28	-0.25	0.00	-2.71	1.62	0.91	0.34	0.09
-5.70	-6.51	-100.26	-44.79	0.75	-1.78	-0.91	-0.91
-5.85	-6.82	-103.37	-42.84	-1.56	-3.18	-1.30	-1.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-20.06	-23.27	-386.33	-163.89	-5.13	-11.36	-5.17	-4.25
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-9.10	-10.46	-166.74	-77.58	-0.57	-4.10	-1.99	-1.86
-7.58	-8.83	-138.91	-47.93	-1.09	-3.48	-1.24	-1.03
-8.58	-9.86	-155.39	-56.63	0.97	-2.70	-0.98	-1.02
-6.76	-7.52	-101.21	-58.99	4.98	0.60	-0.40	-0.92
-4.38	-5.01	-76.97	-37.36	0.05	-1.79	-0.83	-0.81
-6.96	-7.89	-116.65	-44.13	3.34	-0.63	-0.19	-0.61
-5.58	-6.35	-101.38	-35.28	3.32	0.03	0.10	-0.37
-14.79	-17.19	-273.30	-66.67	1.27	-4.46	-1.00	-1.04
-54.54	-64.15	-1088.62	-299.95	-6.04	-20.27	-10.86	-9.22
-11.05	-13.09	-226.80	-31.08	-1.24	-4.41	-0.83	-0.52
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.99	-0.68	9.29	-0.45	8.94	5.22	1.81	0.72
-1.70	-1.89	-29.25	-4.89	2.36	0.85	0.57	0.20
-2.76	-3.32	-56.28	-7.35	-1.17	-1.64	-0.34	-0.18
-1.95	-2.31	-41.94	-5.92	-0.36	-0.91	-0.16	-0.10

Appendix I-3

Emissions of GHG, PM10, PM2.5, and Others

2020 CEQA Comparison

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1195	-5.66	-6.67	-126.34	-20.83	-1.20	-2.83	-0.59	-0.37
1196	-2.18	-2.55	-39.19	-5.11	0.48	-0.42	0.04	-0.01
1197	-0.45	-0.51	-8.75	-1.66	0.35	0.06	0.07	0.01
1198	1.07	1.36	30.38	5.45	3.37	2.54	0.96	0.42
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	0.07	0.12	4.48	0.02	1.06	0.70	0.25	0.09
1230	-0.24	-0.20	-1.01	-1.23	1.48	0.84	0.29	0.10
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-5.06	-5.73	-74.38	-15.23	4.42	1.13	0.66	0.12
1239	-3.05	-3.51	-58.50	-10.64	1.42	-0.21	0.21	0.01
1240	-3.67	-3.32	-11.62	-41.93	20.46	11.94	3.07	0.53
1241	-8.77	-10.28	-198.08	-36.81	-2.11	-4.63	-1.10	-0.71
1242	-0.83	-0.94	-13.46	-2.83	1.04	0.36	0.25	0.07
1243	-4.78	-5.52	-99.18	-17.87	1.79	-0.59	0.17	-0.06
1244	-5.91	-6.82	-121.55	-23.27	1.74	-1.09	0.04	-0.16
1245	-57.94	-67.59	-1118.06	-403.06	1.23	-15.23	-15.30	-14.17
1246	-20.79	-24.51	-439.21	-76.21	-1.85	-8.35	-1.68	-1.24
1247	-12.00	-14.40	-245.30	-37.26	-4.12	-6.52	-1.32	-0.80
1248	-5.06	-5.96	-99.07	-14.85	0.51	-1.42	0.01	-0.09
1249	-5.58	-6.64	-111.92	-16.79	-0.69	-2.32	-0.22	-0.20
1250	-15.78	-18.62	-317.56	-48.16	-1.57	-6.38	-1.09	-0.75
1251	-11.53	-13.64	-260.71	-45.30	-4.06	-6.78	-1.69	-0.99
1252	-5.70	-6.75	-114.86	-16.44	-0.46	-2.23	-0.29	-0.22
1253	-4.68	-5.52	-89.54	-12.90	0.00	-1.56	-0.17	-0.15
1254	-0.49	-0.52	-6.47	-1.50	1.41	0.70	0.34	0.12
1255	1.22	1.55	34.24	6.33	3.84	2.90	1.09	0.48
1256	0.49	0.64	14.89	2.28	1.55	1.15	0.44	0.19
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-0.27	-0.08	13.28	-0.85	5.29	3.27	1.14	0.42
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1297	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1298	0.00	0.04	2.83	0.23	1.02	0.64	0.25	0.10
1299	-0.10	0.00	4.48	0.45	2.14	1.32	0.40	0.16
1300	-0.50	-0.37	4.57	-1.48	4.48	2.58	1.07	0.41
1301	-1.44	-1.32	-0.48	-16.76	7.99	4.62	1.30	0.23
1302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	-1.07	-0.90	3.93	-3.73	6.95	4.00	1.38	0.49
1304	0.91	1.26	30.69	6.70	5.56	3.95	1.48	0.63
1305	-2.13	-2.39	-40.10	-8.31	2.35	0.73	0.39	0.09
1306	-10.64	-12.54	-215.23	-38.26	-0.04	-3.53	-0.71	-0.60
1307	-66.40	-77.43	-1284.48	-469.14	14.02	-8.18	-16.53	-16.07
1308	-20.35	-24.07	-431.63	-75.54	-4.43	-9.92	-2.20	-1.45
1309	-15.05	-17.90	-327.72	-56.54	-5.45	-8.81	-1.97	-1.21
1310	-11.43	-13.52	-260.30	-47.55	-4.30	-6.93	-1.79	-1.07
1311	-5.66	-6.66	-111.50	-16.51	-0.15	-2.02	-0.30	-0.22
1312	-1.11	-1.31	-24.95	-3.91	-0.17	-0.51	-0.10	-0.06
1313	-0.03	-0.03	-0.29	-0.07	0.13	0.07	0.03	0.01
1314	0.54	0.72	16.57	2.03	1.66	1.22	0.42	0.18
1315	-0.11	-0.01	4.63	1.16	3.35	2.11	0.89	0.36
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-2.04	-2.41	-48.11	-8.35	-1.02	-1.40	-0.40	-0.21
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	-1.17	-0.88	1.78	-7.58	10.38	6.11	2.19	0.75
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.20	0.25	5.85	0.91	0.61	0.46	0.18	0.08
1358	-0.88	-1.06	-21.51	-4.01	-0.89	-0.89	-0.30	-0.15
1359	0.32	0.48	13.98	1.66	2.47	1.66	0.64	0.26
1360	-0.22	-0.18	0.23	-0.57	1.76	1.01	0.42	0.16
1361	0.52	0.96	36.01	2.38	7.15	4.61	1.72	0.68
1362	-7.71	-8.42	-91.47	-71.64	14.01	6.58	1.30	-0.54
1363	0.93	1.43	35.52	2.80	5.92	4.01	1.13	0.45
1364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1365	1.15	1.53	35.41	7.62	5.39	3.93	1.45	0.63
1366	-3.36	-3.65	-54.52	-13.05	6.35	2.91	1.07	0.29
1367	-0.91	-0.95	-11.52	-1.68	3.41	1.94	0.71	0.25
1368	-1.88	-1.86	-23.94	-3.55	9.63	5.66	2.04	0.75
1369	-49.95	-58.42	-971.49	-462.77	-17.88	-27.87	-21.39	-16.97
1370	-13.67	-16.51	-304.26	-47.79	-9.41	-10.66	-2.80	-1.43
1371	-0.83	-0.95	-13.84	-2.37	0.88	0.25	0.25	0.08
1372	-2.20	-2.61	-50.24	-11.47	-1.38	-1.71	-0.56	-0.33
1373	-2.62	-3.09	-59.68	-11.98	-1.13	-1.70	-0.49	-0.29
1374	-2.52	-3.01	-58.29	-11.65	-1.71	-2.01	-0.62	-0.34
1375	3.12	4.23	109.10	15.62	15.73	11.10	4.29	1.78
1376	-0.60	-0.73	-14.99	-2.40	-0.59	-0.59	-0.19	-0.09
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	48.57	59.76	1022.76	319.17	148.20	116.39	39.01	19.14
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	4.16	5.17	90.38	26.80	12.77	10.00	3.30	1.61
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	61.21	75.21	1258.08	404.42	185.79	146.13	48.35	23.98
1418	2.35	2.95	50.84	16.57	9.06	6.88	2.34	1.12
1419	0.67	0.89	17.07	2.39	1.94	1.44	0.40	0.17
1420	23.89	29.94	521.99	167.20	84.67	65.13	21.40	10.50
1421	5.73	7.24	131.73	40.89	23.35	17.61	6.17	2.91
1422	18.71	23.40	425.86	133.58	67.99	52.40	18.32	8.74
1423	24.63	31.49	592.18	161.55	99.70	75.48	25.39	11.68
1424	-6.29	-7.64	-142.25	-25.98	-6.01	-5.98	-1.82	-0.93
1425	7.39	9.71	113.84	49.22	35.48	26.08	7.82	3.66
1426	12.06	15.69	243.96	79.46	49.18	37.11	11.41	5.36
1427	7.38	9.29	155.23	81.06	43.46	32.88	11.60	5.63
1428	7.42	9.26	164.92	53.69	24.19	19.14	6.34	3.12
1429	5.50	6.74	110.80	45.22	18.34	14.75	4.95	2.53
1430	28.50	34.80	562.28	270.16	100.40	82.06	27.36	14.45
1431	7.77	9.93	191.51	35.51	22.83	17.21	5.55	2.51
1432	5.44	6.79	124.81	25.03	15.49	11.69	3.95	1.79
1433	1.17	1.46	25.50	5.45	3.27	2.48	0.81	0.37
1434	5.03	6.24	105.96	23.33	13.87	10.55	3.39	1.57
1435	1.20	1.63	31.49	10.68	7.79	5.60	1.95	0.86
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-1.42	-1.62	-30.04	-5.17	1.11	0.14	0.23	0.06
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	0.81	1.03	22.73	4.44	2.58	1.96	0.73	0.32
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	FWY/Toll or FWY/Toll with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1195	-5.68	-6.69	-126.81	-20.90	-1.25	-2.86	-0.61	-0.38
1196	-2.18	-2.55	-39.25	-5.12	0.47	-0.42	0.04	-0.01
1197	-0.46	-0.52	-8.93	-1.73	0.32	0.03	0.06	0.01
1198	1.01	1.29	28.99	4.93	3.15	2.36	0.90	0.39
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	-0.09	-0.08	0.00	-0.90	0.54	0.30	0.11	0.03
1230	-0.34	-0.33	-3.59	-1.82	1.16	0.59	0.21	0.06
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1236	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-4.87	-5.49	-69.27	-14.38	4.98	1.55	0.80	0.18
1239	-2.97	-3.41	-56.34	-10.25	1.66	-0.03	0.28	0.04
1240	-4.43	-4.33	-29.48	-44.97	18.29	10.30	2.66	0.35
1241	-8.70	-10.19	-195.96	-36.53	-1.90	-4.47	-1.04	-0.68
1242	-0.84	-0.94	-13.56	-2.81	1.04	0.36	0.25	0.07
1243	-4.79	-5.54	-99.48	-17.77	1.77	-0.60	0.19	-0.06
1244	-6.09	-7.07	-126.03	-23.85	1.21	-1.48	-0.03	-0.19
1245	-57.39	-66.95	-1111.70	-392.56	3.87	-12.87	-14.55	-13.71
1246	-20.89	-24.63	-441.65	-76.84	-2.17	-8.60	-1.76	-1.27
1247	-12.03	-14.44	-245.85	-37.52	-4.22	-6.60	-1.34	-0.81
1248	-5.08	-5.98	-99.51	-14.93	0.46	-1.45	0.00	-0.10
1249	-5.60	-6.66	-112.38	-16.88	-0.74	-2.37	-0.23	-0.21
1250	-15.78	-18.63	-317.82	-48.18	-1.60	-6.40	-1.10	-0.76
1251	-11.55	-13.66	-261.36	-45.38	-4.12	-6.82	-1.71	-1.00
1252	-5.70	-6.74	-114.64	-16.40	-0.43	-2.21	-0.28	-0.21
1253	-4.68	-5.52	-89.35	-12.87	0.02	-1.55	-0.16	-0.15
1254	-0.50	-0.53	-6.70	-1.58	1.37	0.67	0.34	0.12
1255	1.13	1.44	32.36	5.61	3.54	2.66	1.01	0.44
1256	0.49	0.63	14.87	2.28	1.54	1.15	0.44	0.19
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-0.62	-0.52	3.72	-2.84	4.17	2.42	0.84	0.29
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1297	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1298	-0.05	-0.03	1.46	-0.04	0.85	0.51	0.22	0.09
1299	-0.19	-0.12	2.35	0.00	1.87	1.11	0.35	0.14
1300	-0.36	-0.18	8.97	-0.85	4.93	2.91	1.19	0.46
1301	-1.71	-1.67	-6.77	-17.85	7.22	4.04	1.15	0.17
1302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1303	-1.07	-0.90	3.67	-3.56	6.97	4.02	1.39	0.49
1304	0.82	1.14	27.36	6.51	5.28	3.76	1.40	0.60
1305	-2.20	-2.48	-42.23	-8.67	2.12	0.55	0.33	0.06
1306	-10.54	-12.41	-213.29	-37.92	0.22	-3.32	-0.69	-0.59
1307	-65.80	-76.76	-1279.22	-455.62	17.16	-5.33	-15.60	-15.47
1308	-20.44	-24.18	-433.84	-76.23	-4.74	-10.17	-2.28	-1.49
1309	-15.05	-17.91	-327.86	-56.57	-5.46	-8.82	-1.97	-1.21
1310	-11.44	-13.53	-260.58	-47.58	-4.32	-6.95	-1.79	-1.07
1311	-5.66	-6.66	-111.56	-16.51	-0.16	-2.03	-0.30	-0.22
1312	-1.12	-1.32	-25.11	-3.94	-0.19	-0.53	-0.10	-0.06
1313	-0.03	-0.04	-0.30	-0.07	0.13	0.07	0.03	0.01
1314	0.53	0.70	16.36	1.99	1.63	1.20	0.41	0.17
1315	-0.21	-0.15	1.84	0.45	3.00	1.82	0.81	0.32
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-2.04	-2.42	-48.16	-8.36	-1.03	-1.41	-0.40	-0.22
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	-3.06	-3.33	-48.27	-17.32	4.52	1.63	0.78	0.12
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	0.40	0.51	11.69	1.92	1.25	0.93	0.36	0.15
1358	-0.27	-0.28	-4.28	-0.96	1.03	0.55	0.25	0.09
1359	0.16	0.27	9.49	0.75	1.95	1.26	0.50	0.20
1360	-0.16	-0.10	2.24	-0.38	1.94	1.15	0.47	0.18
1361	0.46	0.87	34.16	2.31	6.96	4.47	1.71	0.68
1362	-8.55	-9.52	-111.13	-75.33	11.65	4.79	0.86	-0.73
1363	0.89	1.39	34.89	2.60	5.83	3.94	1.11	0.44
1364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1365	1.07	1.42	32.22	7.44	5.13	3.75	1.37	0.60
1366	-3.56	-3.91	-60.53	-14.08	5.70	2.42	0.90	0.21
1367	-1.19	-1.31	-17.67	-2.97	2.61	1.33	0.56	0.19
1368	-2.59	-2.79	-39.23	-6.93	7.59	4.10	1.65	0.57
1369	-49.40	-57.77	-963.44	-453.86	-15.45	-25.74	-20.70	-16.56
1370	-13.67	-16.51	-304.33	-47.80	-9.42	-10.67	-2.80	-1.44
1371	-0.83	-0.95	-13.82	-2.37	0.88	0.25	0.25	0.08
1372	-2.20	-2.61	-50.21	-11.47	-1.37	-1.71	-0.56	-0.33
1373	-2.62	-3.10	-59.81	-12.01	-1.14	-1.71	-0.50	-0.29
1374	-2.52	-3.01	-58.36	-11.66	-1.72	-2.02	-0.63	-0.34
1375	2.92	3.98	104.81	13.90	15.03	10.54	4.10	1.68
1376	-0.60	-0.73	-15.00	-2.40	-0.59	-0.59	-0.19	-0.09
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1410	33.94	41.75	686.98	198.70	98.43	76.62	24.72	12.10
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	3.40	4.21	72.59	15.86	9.21	7.02	2.25	1.05
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1417	44.29	54.20	877.17	261.57	125.24	97.82	31.32	15.54
1418	1.34	1.69	24.99	6.58	5.11	3.70	1.17	0.54
1419	0.63	0.84	16.17	2.29	1.84	1.37	0.38	0.17
1420	16.26	20.51	361.50	77.94	53.72	39.54	12.63	5.80
1421	3.92	5.03	95.26	25.32	17.13	12.58	4.43	2.03
1422	12.86	16.17	288.30	84.47	47.28	35.84	12.27	5.82
1423	21.67	27.99	533.27	114.45	86.13	63.72	21.26	9.42
1424	-6.29	-7.64	-142.25	-25.98	-6.01	-5.98	-1.82	-0.93
1425	6.10	8.16	87.10	32.89	30.20	21.64	6.24	2.83
1426	9.37	12.29	203.02	60.79	41.35	30.79	9.63	4.41
1427	4.98	6.36	103.88	52.92	33.86	24.89	8.76	4.15
1428	4.27	5.41	102.97	25.85	13.42	10.40	3.42	1.61
1429	7.54	9.28	156.28	55.44	24.23	19.24	6.47	3.23
1430	27.47	33.55	543.05	260.14	96.76	79.07	26.36	13.92
1431	7.63	9.76	189.00	33.81	22.28	16.75	5.40	2.43
1432	5.32	6.65	122.50	24.40	15.16	11.43	3.87	1.75
1433	1.15	1.43	25.09	5.30	3.21	2.43	0.79	0.37
1434	4.94	6.12	104.14	22.69	13.59	10.32	3.32	1.53
1435	1.23	1.67	32.03	10.90	7.88	5.67	1.97	0.87
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-1.42	-1.62	-30.05	-5.16	1.11	0.15	0.23	0.06
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	0.80	1.02	23.06	4.06	2.52	1.90	0.72	0.31
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-3

Emissions of GHG, PM10, PM2.5, and Others

2020 CEQA Comparison

2020 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1479	-0.67	-0.81	-13.78	-2.83	-0.56	-0.58	-0.17	-0.09
1480	0.26	0.36	9.29	1.04	1.19	0.83	0.31	0.13
1481	0.29	0.40	10.60	1.23	1.30	0.90	0.36	0.15
1482	0.47	1.05	34.72	2.38	8.40	5.35	1.66	0.67
1483	-2.36	-2.06	-12.79	-31.58	14.49	8.48	2.00	0.27
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	3.31	4.21	75.33	20.81	10.35	8.13	2.49	1.15
1486	7.05	9.09	121.53	34.40	18.57	14.50	3.58	1.69
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	-0.26	-0.31	-6.08	-1.56	-0.28	-0.28	-0.10	-0.06
1491	-63.46	-74.11	-1265.26	-545.43	6.95	-11.93	-21.01	-18.75
1492	-5.13	-5.94	-103.34	-38.46	3.60	1.21	-0.85	-1.09
1493	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	-2.08	-2.44	-47.95	-8.24	-0.74	-1.24	-0.32	-0.18
1496	-0.09	0.02	-0.64	4.92	4.59	3.11	1.10	0.49
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-19.55	-23.53	-459.01	-98.30	-18.98	-19.23	-6.51	-3.43
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-9.37	-11.26	-219.15	-48.38	-8.92	-9.13	-3.13	-1.67
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-6.25	-7.51	-146.17	-32.27	-5.95	-6.09	-2.09	-1.11
1537	-0.22	-0.22	-2.29	-0.88	0.91	0.50	0.21	0.07
1538	-2.00	-2.36	-42.45	-10.52	-0.73	-1.20	-0.37	-0.25
1539	-1.61	-1.83	-31.65	-9.23	0.46	-0.34	-0.11	-0.14
1540	-0.46	-0.29	10.70	-5.34	5.46	3.15	1.31	0.43
1541	-2.92	-3.06	-36.84	-25.57	7.75	3.90	1.06	0.04
1542	0.44	0.69	22.80	1.31	3.77	2.49	0.91	0.36
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	7.36	9.46	223.12	33.23	22.94	17.02	6.59	2.80
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	-3.92	-4.57	-80.67	-30.86	2.34	0.78	-0.91	-0.99
1552	-1.50	-1.75	-33.54	-7.16	-0.04	-0.54	-0.17	-0.14
1553	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1554	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1555	-0.76	-0.81	-11.31	1.08	2.66	1.56	0.48	0.20
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.60	-0.72	-11.75	-2.58	-0.36	-0.43	-0.12	-0.07
0.15	0.21	6.18	0.53	0.84	0.57	0.23	0.09
0.19	0.27	7.58	0.80	0.99	0.68	0.27	0.11
0.44	1.01	34.44	2.31	8.34	5.30	1.66	0.67
-2.08	-1.68	-3.37	-30.95	15.32	9.06	2.21	0.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.29	4.20	75.19	20.68	10.31	8.09	2.48	1.15
7.06	9.10	121.40	34.64	18.60	14.53	3.59	1.70
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.26	-0.31	-6.08	-1.56	-0.28	-0.28	-0.10	-0.06
-65.07	-76.05	-1292.58	-562.14	1.80	-16.16	-22.26	-19.57
-5.20	-6.03	-104.77	-39.36	3.30	0.96	-0.93	-1.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.08	-2.44	-47.96	-8.24	-0.75	-1.24	-0.32	-0.18
-0.04	0.08	0.39	5.32	4.75	3.25	1.14	0.51
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-16.59	-19.74	-370.38	-84.49	-9.73	-12.34	-3.86	-2.30
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-7.43	-8.76	-160.23	-39.68	-2.88	-4.66	-1.39	-0.93
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-4.96	-5.84	-106.87	-26.47	-1.92	-3.11	-0.93	-0.62
-0.69	-0.83	-16.16	-3.18	-0.57	-0.62	-0.20	-0.10
-1.86	-2.17	-37.32	-10.10	-0.29	-0.89	-0.24	-0.19
-1.73	-1.99	-34.27	-9.96	0.08	-0.64	-0.16	-0.17
-0.10	0.20	22.40	-4.40	6.54	3.92	1.56	0.53
-2.45	-2.43	-21.44	-24.32	9.14	4.89	1.42	0.19
0.42	0.67	22.24	1.23	3.71	2.45	0.90	0.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.49	9.72	231.42	33.33	23.52	17.45	6.53	2.78
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.98	-4.65	-81.66	-31.72	2.08	0.56	-0.99	-1.03
-1.53	-1.79	-34.39	-7.40	-0.16	-0.63	-0.20	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.73	-0.77	-10.86	1.27	2.74	1.62	0.49	0.21
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-4

Emissions of GHG, PM10, PM2.5, and Others

2040 CEQA Comparison

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing								FWY/Toll or FWY/Toll with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	-0.35	-0.39	-6.66	-1.06	0.92	0.34	0.20	0.08	-0.34	-0.38	-6.32	-1.02	0.98	0.38	0.21	0.08
45	-0.13	-0.13	-2.19	-0.60	1.00	0.49	0.26	0.10	-0.15	-0.15	-2.71	-0.67	0.90	0.42	0.23	0.09
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	-3.37	-4.03	-67.60	-13.47	-0.11	-1.66	-0.19	-0.16	-3.20	-3.79	-62.83	-12.89	0.88	-1.00	0.01	-0.08
96	-4.85	-5.81	-97.81	-19.37	-0.38	-2.52	-0.33	-0.26	-4.58	-5.43	-90.09	-18.45	1.19	-1.47	0.00	-0.12
97	-0.85	-1.05	-20.53	-2.76	-0.74	-0.85	-0.20	-0.10	-0.85	-1.05	-20.49	-2.76	-0.73	-0.85	-0.20	-0.10
98	-0.70	-0.80	-14.41	-1.95	1.36	0.42	0.29	0.11	-0.71	-0.82	-14.84	-2.00	1.28	0.36	0.27	0.10
99	-0.16	-0.17	-2.64	-0.63	0.91	0.43	0.22	0.09	-0.16	-0.16	-2.41	-0.59	0.95	0.46	0.23	0.09
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	-19.99	-23.40	-442.35	-146.28	11.26	-4.36	1.51	-0.31	-17.56	-20.11	-363.00	-134.55	26.11	5.79	5.68	1.48
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106	-2.71	-3.26	-42.56	-10.62	0.13	-1.03	0.03	-0.08	-2.46	-2.89	-36.01	-9.73	1.60	-0.04	0.30	0.04
107	-16.54	-19.70	-285.45	-73.43	2.76	-5.63	0.33	-0.43	-14.64	-16.96	-236.84	-66.86	13.61	1.72	2.38	0.49
108	-16.44	-18.09	-326.83	-145.68	41.53	14.75	9.10	2.83	-13.10	-13.38	-237.16	-133.34	60.09	27.27	13.55	4.77
109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	-19.97	-23.97	-465.59	-153.18	-18.89	-21.80	-7.29	-3.98	-17.85	-21.20	-405.90	-142.59	-6.82	-13.45	-3.72	-2.45
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	-1.09	-1.22	-28.70	-4.53	2.15	0.60	0.32	0.12	-1.10	-1.24	-29.00	-4.60	2.08	0.55	0.30	0.11
147	-2.28	-2.73	-49.66	-9.90	-0.47	-1.39	-0.27	-0.17	-2.16	-2.57	-45.83	-9.46	0.24	-0.92	-0.09	-0.09
148	-5.80	-6.94	-135.91	-26.98	-0.31	-3.21	-0.40	-0.31	-5.46	-6.48	-124.74	-25.64	1.72	-1.86	0.15	-0.08
149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	-1.90	-2.24	-41.04	-9.29	0.45	-0.71	0.00	-0.05	-1.78	-2.08	-37.20	-8.80	1.16	-0.23	0.19	0.03
151	-0.65	-0.76	-14.05	-3.25	0.29	-0.17	0.01	-0.01	-0.61	-0.70	-12.63	-3.07	0.56	0.01	0.08	0.02
152	0.15	0.20	5.12	0.51	1.02	0.65	0.29	0.12	0.27	0.37	9.31	0.95	1.76	1.13	0.49	0.21
153	-8.29	-9.68	-167.61	-56.45	4.30	-1.75	0.56	-0.15	-7.68	-8.86	-147.33	-53.20	8.14	0.92	1.61	0.31
154	-5.45	-6.39	-112.65	-38.74	2.16	-1.58	0.20	-0.18	-5.02	-5.83	-100.76	-36.56	4.60	0.12	0.91	0.13
155	-3.61	-4.27	-69.73	-21.50	0.66	-1.35	0.02	-0.14	-3.31	-3.86	-60.17	-19.82	2.53	-0.03	0.53	0.08
156	-10.54	-12.37	-209.64	-68.03	3.94	-2.96	0.38	-0.30	-9.58	-11.07	-179.45	-62.70	9.88	1.21	2.02	0.41
157	-7.25	-8.48	-147.08	-50.17	3.19	-1.86	0.29	-0.21	-6.54	-7.52	-124.99	-46.26	7.53	1.19	1.49	0.31
158	-5.15	-6.06	-100.08	-31.65	1.60	-1.58	0.16	-0.15	-4.71	-5.46	-86.16	-29.20	4.33	0.34	0.92	0.18
159	-11.45	-13.62	-196.23	-51.12	2.29	-3.67	0.31	-0.26	-10.12	-11.71	-162.49	-46.55	9.84	1.45	1.73	0.37
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
163	-0.51	-0.60	-13.20	-2.32	0.25	-0.15	0.05	0.01	-0.49	-0.58	-12.63	-2.25	0.35	-0.08	0.08	0.02
164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	-28.41	-34.16	-532.22	-96.80	-0.99	-13.31	-1.57	-1.29	-28.17	-33.85	-527.18	-95.36	0.29	-12.34	-1.26	-1.15
202	-2.47	-2.97	-52.38	-9.97	-0.61	-1.54	-0.27	-0.17	-2.30	-2.72	-48.07	-9.50	0.37	-0.89	-0.11	-0.10
203	-2.76	-3.25	-60.69	-10.02	1.98	-0.27	0.25	0.06	-2.70	-3.16	-58.81	-9.84	2.34	-0.04	0.32	0.09
204	-0.81	-0.89	-13.69	-1.88	2.43	0.99	0.46	0.19	-0.81	-0.89	-13.62	-1.87	2.45	1.00	0.47	0.19
205	-9.13	-10.73	-172.74	-52.37	2.49	-2.89	0.09	-0.32	-8.49	-9.84	-153.00	-49.41	6.38	-0.21	1.02	0.08
206	-13.11	-15.57	-230.33	-64.43	1.20	-5.16	-0.01	-0.49	-12.33	-14.50	-206.47	-60.88	5.90	-1.92	1.11	0.00
207	-6.10	-7.24	-108.92	-31.48	0.85	-2.27	0.10	-0.20	-5.71	-6.69	-97.61	-29.70	3.19	-0.66	0.64	0.05
208	-7.70	-8.97	-143.59	-40.73	5.87	-0.33	0.97	0.13	-7.26	-8.37	-130.16	-38.55	8.51	1.51	1.68	0.44
209	-6.97	-8.19	-130.45	-40.02	2.94	-1.62	0.47	-0.09	-6.33	-7.28	-111.34	-37.28	6.81	1.03	1.34	0.29
210	-0.06	-0.06	-1.17	-0.20	0.28	0.12	0.08	0.03	-0.05	-0.05	-0.81	-0.16	0.34	0.17	0.09	0.04
211	-2.33	-2.76	-57.31	-14.47	-0.09	-1.37	-0.18	-0.15	-1.93	-2.25	-46.99	-11.72	2.28	0.37	0.53	0.16
212	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
221	-0.25	-0.30	-5.44	-0.81	0.17	-0.03	0.03	0.01	-0.25	-0.30	-5.44	-0.81	0.17	-0.03	0.03	0.01
222	-0.41	-0.47	-10.08	-1.85	0.96	0.30	0.26	0.10	-0.41	-0.47	-10.05	-1.84	0.96	0.30	0.26	0.10
223	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
258	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
259	-2.01	-2.31	-31.94	-5.54	4.47	1.61	1.07	0.41	-2.02	-2.31	-31.96	-5.54	4.46	1.61	1.07	0.41
260	-0.21	-0.23	-4.35	-1.18	0.68	0.27	0.18	0.07	-0.21	-0.23	-4.25	-1.17	0.70	0.28	0.19	0.07
261	0.18	0.27	5.85	0.55	1.40	0.89	0.29	0.12	0.18	0.27	5.85	0.55	1.40	0.89	0.29	0.12
262	-11.53	-13.71	-262.35	-52.61	1.76	-4.95	-0.35	-0.42	-11.41	-13.54	-260.07	-51.92	2.43	-4.45	-0.22	-0.36
263	-8.24	-9.88	-186.55	-37.38	-0.30	-4.39	-0.51	-0.42	-8.16	-9.79	-185.00	-36.80	0.11	-4.07	-0.38	-0.36
264	-9.09	-10.71	-211.33	-47.32	3.55	-2.86	0.16	-0.18	-8.95	-10.53	-207.81	-46.38	4.36	-2.26	0.39	-0.08
265	-10.29	-12.02	-216.24	-60.58	6.05	-1.82	0.75	-0.06	-9.61	-11.09	-198.05	-57.59	9.97	0.88	1.66	0.34
266	-4.22	-5.01	-98.41	-14.87	1.50	-1.32	0.03	-0.05	-4.13	-4.88	-96.43	-14.67	1.99	-1.00	0.09	-0.02
267	-6.53	-7.89	-155.02	-22.69	-0.91	-3.88	-0.54	-0.33	-6.51	-7.86	-154.23	-22.61	-0.76	-3.78	-0.50	-0.31
268	-4.32	-5.19	-97.38	-13.71	0.73	-1.77	0.01	-0.06	-4.32	-5.19	-97.39	-13.72	0.72	-1.77	0.01	-0.06
269	-1.15	-1.34	-24.46	-4.41	1.14	0.07	0.19	0.06	-1.08	-1.24	-22.22	-4.18	1.56	0.34	0.29	0.10
270	-1.03	-1.24	-22.94	-4.11	-0.08	-0.56	-0.08	-0.05	-0.99	-1.17	-21.35	-3.94	0.21	-0.36	0.00	-0.02
271	-1.16	-1.42	-26.29	-4.41	-0.67	-0.95	-0.21	-0.11	-1.12	-1.35	-24.91	-4.26	-0.40	-0.77	-0.15	-0.08
272	-0.96	-1.17	-23.78	-4.23	-0.59	-0.84	-0.20	-0.10	-0.92	-1.11	-22.22	-4.06	-0.31	-0.65	-0.13	-0.07
273	-0.99	-1.19	-22.63	-3.87	-0.30	-0.66	-0.12	-0.07	-0.97	-1.17	-22.13	-3.81	-0.20	-0.60	-0.09	-0.06
274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
275	-1.06	-1.26	-23.33	-6.56	0.22	-0.43	-0.02	-0.05	-0.35	-0.28	0.89	-3.99	4.47	2.35	1.18	0.45
276	-2.86	-3.25	-62.56	-14.76	5.77	1.79	1.29	0.46	-2.07	-2.13	-33.79	-12.60	10.65	4.89	2.50	0.96
277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
278	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
280	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
282	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
285	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
286	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
319	-0.06	0.57	-1.85	-2.13	13.14	7.31	1.97	0.86	-0.06	0.57	-1.83	-2.12	13.14	7.31	1.97	0.86
320	-11.50	-12.85	-265.91	-67.93	30.98	12.23	6.55	2.36	-11.34	-12.67	-268.15	-69.08	30.64	11.86	6.17	2.20
321	-4.58	-5.21	-90.89	-15.31	9.97	3.31	2.26	0.86	-4.51	-5.11	-88.73	-15.08	10.36	3.57	2.36	0.90
322	-5.31	-6.23	-110.75	-16.04	6.01	0.73	1.27	0.45	-5.26	-6.16	-108.95	-15.86	6.33	0.94	1.35	0.49
323	-10.26	-12.10	-227.22	-36.33	7.03	-1.27	1.02	0.26	-10.24	-12.07	-226.64	-36.27	7.13	-1.20	1.05	0.27
324	-8.00	-9.61	-173.63	-21.49	3.26	-2.15	0.57	0.14	-7.87	-9.42	-170.15	-21.15	4.00	-1.66	0.69	0.19
325	-19.09	-22.70	-435.05	-77.23	7.78	-5.41	0.91	0.00	-18.61	-22.00	-419.77	-75.59	10.79	-3.41	1.45	0.24
326	-3.72	-4.34	-74.15	-10.22	4.87	0.94	0.92	0.34	-3.69	-4.30	-73.23	-10.12	5.04	1.05	0.96	0.35
327	-0.65	-0.69	-10.44	-2.02	3.05	1.39	0.74	0.29	-0.66	-0.70	-10.78	-2.05	2.99	1.35	0.72	0.29
328	-0.11	-0.09	-0.97	-0.45	1.31	0.68	0.29	0.12	-0.11	-0.09	-1.07	-0.46	1.29	0.67	0.29	0.12
329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	-2.95	-3.46	-62.34	-8.63	2.92	0.18	0.54	0.19	-2.91	-3.41	-61.14	-8.51	3.15	0.32	0.59	0.21
331	-1.27	-1.50	-27.87	-3.66	0.86	-0.16	0.12	0.04	-1.27	-1.51	-28.02	-3.67	0.82	-0.18	0.12	0.03
332	-0.40	-0.47	-9.84	-1.39	0.15	-0.13	0.02	0.00	-0.37	-0.44	-8.94	-1.29	0.31	-0.03	0.06	0.02
333	-2.10	-2.53	-48.98	-9.43	-0.64	-1.45	-0.27	-0.16	-1.76	-2.07	-39.80	-7.51	1.35	-0.02	0.26	0.07
334	-1.06	-1.23	-22.51	-4.75	1.39	0.26	0.29	0.09	-0.65	-0.65	-8.32	-3.35	3.90	1.89	0.94	0.37

Appendix I-4

Emissions of GHG, PM10, PM2.5, and Others

2040 CEQA Comparison

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
336	-0.77	-0.92	-16.95	-5.01	-0.44	-0.65	-0.18	-0.11
337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
338	-1.22	-1.48	-30.83	-4.42	-0.17	-0.71	-0.09	-0.06
339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
341	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
343	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
346	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
379	0.28	0.45	11.26	0.80	3.44	2.08	0.83	0.35
380	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
381	-20.10	-23.39	-516.93	-116.43	39.57	13.24	8.64	2.99
382	-10.59	-12.55	-237.98	-31.33	7.57	-1.15	1.29	0.41
383	-10.89	-13.19	-254.22	-32.41	-0.19	-5.68	-0.45	-0.32
384	-12.29	-14.83	-292.39	-41.21	-0.11	-6.47	-0.52	-0.39
385	-9.27	-11.13	-221.16	-29.05	2.35	-3.54	0.21	-0.03
386	-14.18	-17.00	-341.09	-58.23	1.63	-6.53	-0.29	-0.39
387	-5.91	-7.08	-135.86	-16.81	2.35	-1.72	0.32	0.07
388	-1.00	-1.09	-20.00	-3.00	3.44	1.41	0.76	0.30
389	-1.07	-1.21	-19.07	-3.51	2.11	0.69	0.43	0.16
390	0.00	0.00	-0.04	-0.01	0.00	0.00	0.00	0.00
391	-1.38	-1.63	-30.11	-4.86	0.64	-0.33	0.08	0.01
392	-0.95	-1.03	-18.99	-2.73	3.20	1.31	0.64	0.26
393	-0.17	-0.20	-3.39	-0.72	0.21	0.03	0.04	0.01
394	-2.34	-2.81	-52.79	-12.03	-1.08	-1.81	-0.43	-0.25
395	-0.32	-0.38	-7.48	-1.21	0.30	0.01	0.06	0.02
396	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
398	0.34	0.48	10.93	1.14	2.04	1.34	0.48	0.20
399	-1.94	-2.36	-45.85	-6.29	-0.20	-1.05	-0.13	-0.08
400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
402	-0.21	-0.26	-5.88	-0.79	-0.27	-0.27	-0.08	-0.04
403	-0.08	-0.09	-2.15	-0.30	-0.07	-0.08	-0.02	-0.01
404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
405	-0.04	-0.04	-0.90	-0.18	0.10	0.04	0.03	0.01
406	-0.05	-0.05	-1.12	-0.20	0.10	0.03	0.03	0.01
407	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
439	-5.05	-5.80	-102.73	-14.41	9.03	2.56	1.82	0.70
440	-3.54	-3.90	-76.05	-12.87	10.51	4.02	2.25	0.89
441	-20.51	-23.63	-488.59	-102.88	48.49	17.71	11.15	4.07
442	-22.87	-27.54	-554.65	-85.94	-0.64	-12.45	-1.14	-0.86
443	-18.69	-22.46	-449.86	-72.03	-0.15	-9.88	-1.02	-0.75
444	-16.09	-19.28	-379.58	-63.15	1.16	-7.71	-0.53	-0.52
445	-11.08	-13.05	-258.01	-47.11	6.61	-2.07	0.84	0.13
446	-7.90	-9.41	-188.53	-35.02	2.39	-2.74	0.17	-0.10
447	-1.85	-1.91	-37.54	-8.00	10.03	4.79	2.27	0.92
448	-2.24	-2.73	-56.75	-8.00	-0.93	-1.71	-0.32	-0.17
449	-3.12	-3.70	-70.49	-8.90	5.65	1.87	1.52	0.59
450	12.31	16.20	325.16	64.90	83.48	56.52	23.46	10.08
451	-0.99	-0.93	-23.57	-1.91	14.90	8.25	3.87	1.61
452	32.87	42.55	808.11	161.57	188.10	129.72	51.97	22.46
453	-4.31	-5.27	-106.08	-18.57	-3.70	-4.35	-1.15	-0.57
454	-1.47	-1.81	-37.88	-6.02	-1.33	-1.55	-0.41	-0.20
455	2.77	3.77	63.97	15.97	27.93	18.16	7.50	3.22
456	-1.72	-2.02	-41.66	-5.86	1.37	-0.14	0.23	0.07
457	20.89	26.95	451.95	102.08	130.65	88.46	33.90	14.72
458	-0.26	-0.12	1.55	-0.57	5.55	3.03	1.22	0.51
459	3.99	5.22	82.67	21.39	33.39	21.93	8.54	3.68
460	-0.03	-0.04	-0.93	-0.11	-0.04	-0.04	-0.01	-0.01
461	29.62	37.78	658.70	134.07	154.71	107.04	40.62	17.65
462	-0.02	-0.02	-0.47	-0.07	-0.02	-0.02	-0.01	0.00
463	5.80	7.41	132.22	26.89	29.94	20.74	7.89	3.43
464	-3.48	-4.23	-88.76	-19.18	-4.25	-4.35	-1.39	-0.67
465	22.22	28.37	521.48	104.58	113.25	78.88	30.80	13.36
466	3.46	4.56	78.87	14.29	25.41	16.86	6.75	2.88
467	29.04	37.19	696.54	135.00	148.25	103.08	40.32	17.46
468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
498	-8.22	-9.77	-194.21	-25.71	4.74	-1.65	0.80	0.23
499	-9.52	-10.82	-203.96	-25.91	29.92	12.18	7.17	2.87
500	-52.22	-61.92	-1296.62	-281.45	20.40	-16.20	2.12	-0.61
501	1.69	3.11	39.01	10.60	65.48	39.32	17.07	7.15
502	6.22	8.41	152.57	28.32	57.13	36.98	15.39	6.53
503	6.69	9.03	166.09	30.93	58.77	38.29	15.75	6.70
504	-5.48	-6.54	-112.34	-19.36	7.76	2.28	2.00	0.70
505	15.14	19.58	363.45	70.97	89.60	61.05	24.56	10.56
506	-0.17	0.11	-2.74	-0.54	15.75	9.14	4.13	1.72
507	15.49	20.12	400.53	75.42	86.96	60.16	24.46	10.54
508	-0.77	-0.94	-18.61	-3.55	-0.70	-0.80	-0.22	-0.11
509	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
510	-0.39	-0.48	-10.12	-1.25	0.05	-0.18	0.00	0.00
511	-0.16	-0.18	-3.14	-0.78	0.68	0.29	0.18	0.07
512	-1.00	-1.21	-23.10	-5.11	-0.67	-0.89	-0.23	-0.13
513	-0.04	-0.04	-0.61	-0.13	0.27	0.13	0.06	0.02
514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
515	0.02	0.04	0.99	0.09	0.30	0.18	0.08	0.03
516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517	-2.94	-3.48	-60.06	-8.05	2.08	-0.26	0.34	0.10
518	-1.19	-1.48	-29.75	-3.65	-1.17	-1.28	-0.31	-0.14
519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
521	-0.06	-0.07	-1.69	-0.24	-0.03	-0.05	-0.01	-0.01
522	0.43	0.60	14.77	1.48	3.26	2.06	0.93	0.38
523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
524	-0.19	-0.24	-4.72	-0.58	-0.16	-0.19	-0.04	-0.02
525	0.46	0.62	14.57	1.63	2.63	1.73	0.75	0.31
526	-5.07	-6.13	-129.71	-26.47	-4.02	-5.11	-1.42	-0.71
527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557	-1.53	-1.80	-35.14	-4.78	1.66	0.13	0.39	0.14
558	-32.68	-37.94	-823.31	-192.67	48.69	9.85	10.86	3.45
559	-2.10	-2.43	-46.52	-6.55	2.86	0.56	0.46	0.17
560	-20.45	-24.72	-476.93	-82.67	-5.07	-13.27	-2.22	-1.35
561	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
562	1.10	1.53	32.48	4.31	6.43	4.34	1.53	0.66
563	-0.30	-0.38	-6.49	-0.93	-0.29	-0.31	-0.07	-0.04
564	-0.75	-0.93	-17.40	-2.55	-0.73	-0.79	-0.20	-0.09
565	-2.17	-2.52	-53.15	-10.10	2.34	0.13	0.43	0.14
566	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
567	0.06	0.12	3.51	0.25	1.69	0.99	0.44	0.18
568	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
569	-0.62	-0.75	-16.06	-2.24	-0.06	-0.37	-0.05	-0.03
570	-1.34	-1.63	-32.53	-6.18	-1.12	-1.34	-0.36	-0.18
571	-1.19	-1.42	-26.83	-5.43	-0.17	-0.71	-0.12	-0.08
572	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	-1.91	-2.34	-52.21	-7.05	-1.34	-1.82	-0.43	-0.20
574	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
575	-3.08	-3.79	-69.77	-8.19	-1.23	-2.24	-0.37	-0.19
576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
577	-0.54	-0.67	-14.34	-1.84	-0.56	-0.61	-0.16	-0.07
578	-0.89	-1.10	-22.33	-3.12	-0.71	-0.87	-0.21	-0.10
579	-1.89	-2.29	-50.14	-8.58	-1.49	-1.92	-0.50	-0.24
580	-0.91	-1.10	-24.13	-4.15	-0.68	-0.90	-0.24	-0.11
581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
582	-3.00	-3.62	-78.80	-14.53	-1.98	-2.84	-0.70	-0.36
583	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
584	-1.36	-1.61	-34.17	-7.04	0.17	-0.68	-0.07	-0.06
585	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597	-2.31	-2.73	-54.08	-7.63	2.24	0.03	0.49	0.17
598	-25.28	-29.35	-609.21	-139.36	30.29	3.87	6.59	1.99
599	-2.08	-2.59	-50.37	-6.03	-1.84	-2.09	-0.47	-0.22

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.29	-0.27	-0.89	-3.24	2.40	1.21	0.62	0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.37	-1.69	-35.37	-5.21	-1.09	-1.35	-0.33	-0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.28	0.46	11.28	0.80	3.44	2.08	0.83	0.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-21.45	-25.08	-545.66	-127.23	31.85	7.39	6.51	2.01
-10.61	-12.57	-238.43	-31.37	7.49	-1.21	1.27	0.40
-10.88	-13.17	-253.87	-32.37	-0.13	-5.64	-0.43	-0.31
-12.29	-14.84	-292.53	-41.18	-0.15	-6.49	-0.49	-0.38
-9.25	-11.11	-220.62	-28.99	2.45	-3.47	0.24	-0.02
-14.04	-16.81	-336.98	-57.60	2.45	-5.97	-0.08	-0.30
-5.83	-6.97	-133.55	-16.56	2.83	-1.40	0.41	0.11
-1.00	-1.10	-20.30	-3.03	3.38	1.37	0.74	0.30
-1.07	-1.22	-19.14	-3.52	2.09	0.68	0.43	0.16
0.00	0.00	-0.04	-0.01	0.00	0.00	0.00	0.00
-1.40	-1.67	-30.96	-4.98	0.47	-0.44	0.04	-0.01
-1.04	-1.17	-20.95	-2.91	2.69	0.98	0.58	0.23
-0.12	-0.12	-1.63	-0.49	0.55	0.26	0.12	0.05
-1.91	-2.23	-40.93	-9.68	1.43	-0.01	0.24	0.04
-0.16	-0.14	-2.20	-0.69	1.29	0.65	0.29	0.12
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.46	0.64	14.69	1.51	2.73	1.79	0.64	0.27
-2.19	-2.68	-52.37	-7.41	-1.58	-2.01	-0.46	-0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.21	-0.25	-5.82	-0.79	-0.26	-0.26	-0.08	-0.04
-0.08	-0.10	-2.30	-0.32	-0.10	-0.10	-0.03	-0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.06	-0.08	-1.77	-0.27	-0.05	-0.07	-0.02	-0.01
-0.04	-0.04	-0.91	-0.18	0.14	0.06	0.04	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-5.12	-5.91	-104.16	-14.55	8.64	2.30	1.80	0.69
-3.62	-4.04	-77.98	-13.07	10.00	3.69	2.21	0.87
-20.19	-23.22	-481.38	-102.59	49.84	18.53	11.50	4.21
-22.87	-27.55	-554.79	-85.94	-0.66	-12.46	-1.14	-0.86
-18.69	-22.46	-449.80	-72.02	-0.14	-9.87	-1.01	-0.75
-16.06	-19.24	-378.60	-63.03	1.35	-7.59	-0.48	-0.50
-10.99	-12.93	-255.38	-46.74	7.12	-1.72	0.97	0.18
-7.89	-9.41	-188.66	-34.80	2.38	-2.72	0.24	-0.07
-1.88	-1.97	-38.00	-7.89	9.85	4.68	2.32	0.93
-2.25	-2.74	-57.10	-8.03	-0.99	-1.75	-0.34	-0.17
-3.33	-3.98	-77.82	-10.46	4.18	0.81	1.07	0.39
10.04	13.13	247.30	47.64	67.75	45.12	18.68	7.98
-1.02	-0.91	-23.52	-3.52	14.65	7.95	3.63	1.50
23.92	30.86	558.71	107.96	136.04	92.66	37.05	15.94
-3.96	-4.80	-95.95	-16.90	-1.66	-2.93	-0.63	-0.34
-1.40	-1.70	-35.42	-5.75	-0.88	-1.25	-0.30	-0.15
1.38	2.02	31.81	5.52	19.94	12.18	5.14	2.16
-1.16	-1.32	-30.41	-3.30	4.04	1.73	0.90	0.37
13.38	17.25	253.20	60.24	88.94	58.93	21.96	9.52
0.08	0.31	8.70	0.84	7.10	4.11	1.60	0.67
2.56	3.46	51.54	8.89	25.19	15.62	6.12	2.58
0.04	0.06	1.39	0.12	0.39	0.24	0.09	0.04
21.02	26.67	425.66	86.63	106.83	73.22	26.82	11.66
-0.01	-0.02	-0.34	-0.05	0.01	0.00	0.00	0.00
4.63	5.88	96.20	16.21	21.97	14.78	5.47	2.35
5.88	7.71	126.99	20.79	41.73	27.35	10.78	4.59
8.29	10.48	168.87	34.76	39.12	27.09	9.72	4.24
3.25	4.32	68.31	7.58	22.61	14.42	5.50	2.32
21.27	27.02	466.70	90.92	102.94	71.24	26.84	11.64
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-8.21	-9.77	-194.16	-25.70	4.75	-1.64	0.80	0.23
-9.63	-10.96	-206.65	-26.52	29.32	11.76	7.00	2.79
-52.63	-62.45	-1307.33	-284.84	17.85	-18.10	1.38	-0.95
0.82	1.97	13.19	2.38	59.54	34.82	15.33	6.36
5.20	7.11	130.19	20.63	51.33	32.63	13.80	5.80
5.78	7.87	140.59	22.80	52.87	33.85	13.98	5.90
-5.47	-6.55	-113.86	-20.28	7.37	1.93	1.87	0.64
13.69	17.66	312.59	56.79	78.80	52.99	21.10	9.03
-0.64	-0.50	-14.81	-3.10	13.13	7.30	3.42	1.41
13.16	16.98	320.82	57.79	70.87	48.51	19.56	8.40
-0.76	-0.93	-18.50	-3.54	-0.68	-0.78	-0.22	-0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.42	-0.51	-10.88	-1.35	-0.09	-0.28	-0.04	-0.02
-0.09	-0.07	-0.64	-0.52	1.12	0.58	0.30	0.12
-0.99	-1.20	-23.05	-5.08	-0.65	-0.88	-0.23	-0.12
-0.04	-0.04	-0.49	-0.12	0.30	0.15	0.07	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.02	-0.03	-0.59	-0.08	0.02	0.00	0.01	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.01	-3.58	-62.23	-8.27	1.66	-0.53	0.25	0.06
-1.09	-1.34	-26.49	-3.33	-0.58	-0.89	-0.16	-0.08
0.00	0.00	0.11	0.01	0.02	0.01	0.01	0.00
0.01	0.02	0.41	0.04	0.07	0.05	0.02	0.01
-0.05	-0.06	-1.39	-0.20	0.02	-0.02	0.00	0.00
0.21	0.30	7.80	0.64	2.00	1.23	0.55	0.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.18	-0.22	-4.40	-0.55	-0.10	-0.15	-0.03	-0.01
1.11	1.52	36.41	4.13	6.59	4.35	1.78	0.75
-2.99	-3.32	-61.97	-18.66	8.13	2.90	2.05	0.74
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.53	-1.80	-35.15	-4.78	1.66	0.12	0.39	0.14
-33.06	-38.41	-831.83	-195.37	46.55	8.26	10.26	3.18
-2.10	-2.42	-46.43	-6.54	2.88	0.57	0.46	0.17
-20.58	-24.89	-480.80	-83.22	-5.81	-13.77	-2.42	-1.43
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.10	1.53	32.58	4.32	6.44	4.35	1.54	0.66
-0.30	-0.38	-6.49	-0.93	-0.29	-0.31	-0.07	-0.04
-0.75	-0.92	-17.36	-2.55	-0.72	-0.78	-0.19	-0.09
-2.26	-2.66	-56.50	-10.25	1.78	-0.22	0.32	0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.06	1.89	0.21	1.45	0.85	0.37	0.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.71	-0.87	-19.03	-2.60	-0.61	-0.73	-0.19	-0.09
-1.31	-1.59	-31.58	-6.05	-0.94	-1.22	-0.32	-0.16
-1.14	-1.36	-25.41	-5.26	0.09	-0.54	-0.06	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.73	-2.09	-46.12	-6.38	-0.26	-1.11	-0.13	-0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.03	-3.71	-67.90	-7.99	-0.90	-2.02	-0.28	-0.15
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.46	-0.56	-11.70	-1.58	-0.10	-0.30	-0.04	-0.02
-0.78	-0.94	-18.71	-2.73	-0.03	-0.42	-0.05	-0.03
-1.59	-1.89	-40.92	-7.46	0.21	-0.79	0.00	-0.03
-0.77	-0.91	-19.87	-3.65	0.10	-0.38	-0.01	-0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.30	-2.69	-57.18	-11.77	2.01	-0.19	0.48	0.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.94	-1.02	-21.04	-5.51	2.68	0.99	0.52	0.19
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.32	-2.74	-54.36	-7.67	2.19	0.00	0.47	0.17
-25.57	-29.77	-619.28	-141.29	28.25	2.40	6.17	1.80
-2.08	-2.59	-50.35	-6.03	-1.83	-2.08	-0.47	-0.22

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
600	-0.39	-0.48	-10.43	-1.33	-0.38	-0.42	-0.11	-0.05
601	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
602	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
603	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605	-2.67	-3.13	-66.49	-12.13	2.14	-0.26	0.30	0.08
606	-0.52	-0.65	-13.16	-1.70	-0.62	-0.62	-0.16	-0.08
1001	-1.68	-1.80	-26.92	-5.17	4.29	1.84	1.04	0.40
1002	-0.19	-0.17	-0.47	-0.29	1.17	0.62	0.27	0.11
1003	0.51	0.70	18.19	2.18	2.78	1.84	0.76	0.32
1004	0.43	0.58	14.29	1.92	2.27	1.52	0.63	0.27
1005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1011	-0.03	-0.03	-0.33	-0.09	0.12	0.06	0.03	0.01
1012	-0.40	-0.42	-4.59	-0.98	1.23	0.58	0.27	0.10
1013	-0.83	-0.95	-17.11	-2.98	0.88	0.17	0.21	0.07
1014	-0.35	-0.37	-4.79	-2.41	0.91	0.40	0.19	0.05
1015	-0.52	-0.20	14.45	-1.07	12.96	7.72	3.29	1.33
1016	-0.76	-0.87	-15.18	-2.78	0.71	0.11	0.16	0.05
1017	-0.54	-0.58	-8.35	-1.36	1.54	0.71	0.33	0.13
1018	0.48	0.65	16.89	1.90	2.56	1.67	0.73	0.30
1019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1020	-2.34	-2.69	-45.98	-7.57	2.03	0.27	0.49	0.16
1021	-5.34	-6.32	-123.19	-20.88	-1.15	-2.82	-0.54	-0.33
1022	2.42	3.42	80.11	9.44	13.00	8.61	3.01	1.29
1023	-3.44	-3.94	-72.45	-12.14	2.14	-0.14	0.28	0.06
1024	-4.21	-4.47	-61.02	-14.43	13.39	6.05	3.49	1.34
1025	-5.88	-6.04	-64.04	-59.05	17.90	8.60	2.25	0.21
1026	-4.08	-4.61	-81.66	-14.06	4.24	0.83	0.80	0.27
1027	-4.62	-5.20	-90.01	-15.99	5.85	1.61	1.22	0.43
1028	-69.22	-80.77	-1380.84	-425.36	12.75	-14.11	-9.24	-9.98
1029	-57.95	-68.49	-1063.53	-274.44	5.49	-15.41	-4.90	-5.41
1030	-21.02	-24.64	-427.94	-83.01	3.52	-6.05	-0.22	-0.65
1031	-16.74	-19.64	-336.50	-64.76	2.79	-4.74	-0.14	-0.49
1032	-37.10	-44.72	-747.79	-116.60	-14.84	-22.17	-4.27	-2.48
1033	-49.89	-60.26	-929.11	-134.38	-13.98	-25.69	-3.28	-2.19
1034	-29.52	-35.44	-575.08	-90.31	-6.71	-14.61	-1.82	-1.32
1035	-8.39	-9.95	-182.12	-34.26	-1.54	-4.17	-0.80	-0.56
1036	-10.98	-12.95	-234.10	-42.51	0.23	-4.12	-0.39	-0.43
1037	-13.48	-16.22	-284.39	-46.33	-5.83	-8.48	-1.77	-1.01
1038	-6.59	-7.67	-133.19	-27.73	2.43	-1.13	0.25	-0.09
1039	-3.65	-4.38	-82.48	-15.43	-2.14	-2.71	-0.73	-0.40
1040	-3.97	-4.78	-81.41	-15.30	-2.21	-2.78	-0.69	-0.40
1041	-5.26	-6.24	-114.69	-22.19	-1.66	-2.98	-0.87	-0.51
1042	-2.83	-2.83	-68.29	-15.61	7.58	3.33	0.58	0.16
1043	-8.68	-10.03	-184.42	-39.76	3.75	-1.03	-0.08	-0.32
1059	-0.03	-0.03	-0.50	-0.11	0.08	0.03	0.02	0.01
1060	-0.02	0.01	1.63	-0.05	0.79	0.45	0.21	0.08
1061	-0.04	0.01	2.65	-0.12	1.52	0.86	0.42	0.17
1062	-0.31	-0.33	-4.51	-2.33	0.69	0.29	0.12	0.03
1063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1064	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1065	-2.52	-2.91	-46.57	-7.41	2.29	0.42	0.55	0.19
1066	-3.02	-3.54	-51.92	-7.68	1.07	-0.42	0.10	0.00
1067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1068	-2.14	-2.41	-41.76	-9.82	2.11	0.36	0.40	0.09
1069	0.64	0.85	20.93	2.36	3.26	2.13	0.93	0.39
1070	3.74	5.33	141.57	16.32	24.39	15.90	6.34	2.68
1071	2.46	3.71	98.99	9.13	17.67	11.23	4.07	1.71
1072	1.89	2.54	62.30	7.01	9.71	6.34	2.77	1.15
1073	-3.49	-3.77	-44.10	-35.85	7.81	3.41	1.00	-0.05
1074	-0.92	-0.76	2.17	-2.01	8.23	4.43	2.12	0.85
1075	-6.25	-6.88	-104.78	-19.21	11.41	4.34	2.39	0.89
1076	-10.20	-11.85	-189.12	-26.91	5.74	-0.25	0.92	0.26
1077	-131.05	-153.08	-2580.51	-1034.96	-55.93	-81.48	-46.49	-36.14
1078	-9.32	-10.68	-159.88	-29.05	10.48	3.04	2.17	0.70
1079	-9.69	-11.30	-183.30	-30.78	5.20	-0.24	0.74	0.12
1080	-16.95	-20.25	-366.86	-55.81	-4.33	-8.71	-1.82	-1.05
1081	-22.67	-27.35	-391.17	-48.33	-4.69	-10.29	-1.37	-0.82
1082	0.16	0.37	12.78	0.71	3.96	2.36	0.91	0.38
1083	-7.76	-9.17	-137.38	-19.07	1.33	-1.90	0.04	-0.09
1084	-4.74	-5.56	-99.58	-14.61	0.94	-1.25	0.03	-0.05
1085	-7.17	-8.47	-137.78	-19.34	0.87	-2.07	-0.05	-0.11
1086	-3.96	-4.70	-87.73	-14.46	-1.00	-2.14	-0.45	-0.26
1087	-6.54	-7.41	-111.74	-20.11	7.04	1.74	1.19	0.37
1088	0.06	0.08	2.03	0.26	0.32	0.21	0.08	0.03
1089	-4.46	-5.04	-90.32	-22.27	4.51	0.97	0.61	0.07
1090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1113	-0.01	-0.01	0.21	-0.02	0.19	0.10	0.05	0.02
1114	-15.74	-18.57	-321.74	-138.06	-13.83	-15.62	-6.81	-4.55
1115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1116	-0.49	-0.49	-4.21	-3.52	2.25	1.13	0.50	0.16
1117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1119	-1.18	-1.34	-19.75	-3.42	1.33	0.35	0.25	0.08
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1122	1.28	1.73	43.95	5.51	6.84	4.55	1.91	0.81
1123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1125	2.71	4.01	104.60	10.00	17.90	11.45	4.13	1.75
1126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1127	-5.16	-5.47	-61.64	-48.87	12.70	5.79	1.57	0.06
1128	-0.19	-0.08	3.81	-0.36	3.24	1.82	0.76	0.31
1129	-1.74	-1.77	-25.09	-6.43	6.28	3.02	1.33	0.51
1130	-6.80	-7.99	-121.41	-15.73	3.08	-0.45	0.51	0.14
1131	-2.10	-2.28	-39.82	-4.33	6.02	2.93	1.43	0.59
1132	3.69	5.83	87.12	53.38	100.87	71.82	24.62	11.27
1133	-11.17	-12.72	-224.33	-38.91	10.54	2.00	1.75	0.52
1134	-9.20	-10.68	-176.34	-27.12	7.54	1.34	1.53	0.48
1135	0.51	1.28	50.89	4.42	14.82	8.92	3.22	1.36
1136	-4.72	-5.41	-91.55	-14.83	4.48	0.80	1.01	0.35
1137	-2.83	-3.23	-52.55	-8.15	3.07	0.73	0.69	0.25
1138	-1.26	-1.41	-22.79	-3.94	2.10	0.74	0.52	0.20
1139	-7.22	-8.40	-157.56	-26.90	1.71	-1.89	0.08	-0.11
1140	-6.73	-7.81	-146.56	-26.45	1.67	-1.76	-0.01	-0.15
1141	-5.62	-6.52	-120.87	-22.98	1.71	-1.27	0.10	-0.10
1142	1.57	2.10	49.80	7.44	8.25	5.60	2.29	0.98
1143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1172	-0.70	-0.76	-10.55	-4.84	1.37	0.52	0.26	0.05
1173	-5.71	-6.27	-89.11	-46.34	7.68	2.05	0.64	-0.26
1174	-6.67	-7.82	-121.18	-48.47	-1.56	-3.83	-1.17	-1.02
1175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1176	-23.57	-27.50	-475.75	-189.41	-7.89	-15.68	-6.08	-4.76
1177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1178	0.41	0.58	14.13	1.71	2.24	1.49	0.56	0.24
1179	0.06	0.08	2.03	0.23	0.32	0.21	0.09	0.04
1180	-7.99	-8.53	-115.18	-79.32	14.44	4.44	1.45	-0.45
1181	-9.39	-11.09	-182.63	-57.30	-3.77	-6.14	-1.87	-1.32
1182	-8.93	-9.99	-138.96	-59.86	9.98	1.96	1.58	0.03
1183	-8.89	-10.08	-137.37	-70.74	6.67	0.28	0.38	-0.64
1184	-4.88	-5.51	-81.57	-41.45	2.54	-0.87	-0.12	-0.54
1185	-7.92	-8.78	-124.35	-49.36	9.87	2.38	1.27	0.00
1186	-6.74	-7.62	-118.85	-43.82	6.36	0.83	0.92	-0.07
1187	-16.74	-19.34	-305.28	-75.12	7.74	-1.97	0.55	-0.40
1188	-59.81	-69.98	-1182.84	-358.75	4.56	-17.26	-8.76	-8.48
1189	-12.26	-14.49	-245.61	-35.41	1.99	-3.18	0.07	-0.14
1190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1191	-2.95	-3.02	-34.41	-6.96	9.66	4.60	1.82	0.72
1192	-2.22	-2.45	-40.99	-7.23	3.84	1.37	0.83	0.31
1193	-2.65	-3.11	-49.69	-6.84	0.86	-0.45	0.13	0.02
1194	-2.19	-2.59	-47.18	-6.83	-0.05	-0.86	-0.09	-0.07

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-0.39	-0.48	-10.42	-1.33	-0.38	-0.42	-0.11	-0.05
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.80	-3.32	-70.68	-12.34	1.34	-0.75	0.18	0.02
-0.52	-0.65	-13.11	-1.69	-0.61	-0.61	-0.16	-0.07
-1.69	-1.82	-27.32	-5.23	4.23	1.79	1.02	0.40
-0.19	-0.18	-0.56	-0.31	1.15	0.61	0.27	0.11
0.49	0.67	17.45	2.07	2.66	1.76	0.73	0.31
0.41	0.56	13.83	1.84	2.19	1.47	0.60	0.26
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.03	-0.33	-0.09	0.12	0.06	0.03	0.01
-0.43	-0.46	-5.50	-1.08	1.09	0.48	0.23	0.09
-0.78	-0.88	-15.33	-2.78	1.15	0.35	0.29	0.10
-0.38	-0.41	-5.71	-2.54	0.77	0.30	0.15	0.03
-1.82	-1.92	-24.56	-8.16	6.15	2.95	1.48	0.54
-0.70	-0.78	-13.08	-2.50	1.04	0.34	0.25	0.09
-0.63	-0.70	-11.36	-1.72	1.07	0.39	0.22	0.08
0.51	0.69	17.93	2.02	2.72	1.78	0.77	0.32
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.32	-2.67	-45.50	-7.53	2.10	0.32	0.51	0.17
-5.27	-6.23	-120.85	-20.61	-0.79	-2.59	-0.44	-0.29
2.35	3.33	78.40	9.04	12.66	8.37	2.92	1.25
-3.43	-3.91	-71.84	-12.07	2.23	-0.08	0.30	0.07
-4.15	-4.39	-58.99	-14.17	13.71	6.26	3.58	1.38
-6.05	-6.29	-69.88	-59.72	17.03	8.02	2.12	0.16
-4.08	-4.61	-81.71	-14.07	4.24	0.82	0.80	0.27
-4.57	-5.12	-87.92	-15.76	6.16	1.82	1.31	0.46
-69.09	-80.65	-1382.35	-422.03	13.60	-13.17	-8.98	-9.79
-57.78	-68.29	-1061.39	-272.24	6.45	-14.57	-4.63	-5.26
-21.05	-24.68	-429.21	-83.04	3.36	-6.13	-0.27	-0.67
-16.70	-19.59	-335.66	-64.44	2.99	-4.59	-0.08	-0.47
-37.18	-44.82	-749.34	-117.13	-15.20	-22.44	-4.35	-2.52
-49.91	-60.29	-929.81	-134.43	-14.08	-25.76	-3.30	-2.19
-29.50	-35.42	-574.78	-90.21	-6.65	-14.56	-1.81	-1.31
-8.38	-9.94	-181.79	-34.18	-1.48	-4.12	-0.79	-0.55
-10.96	-12.93	-233.63	-42.40	0.32	-4.05	-0.36	-0.42
-13.48	-16.21	-284.30	-46.30	-5.81	-8.46	-1.77	-1.01
-6.59	-7.67	-133.28	-27.69	2.44	-1.12	0.26	-0.09
-3.64	-4.37	-82.24	-15.39	-2.10	-2.68	-0.72	-0.40
-3.97	-4.78	-81.51	-15.30	-2.22	-2.79	-0.69	-0.40
-5.28	-6.26	-114.83	-22.27	-1.71	-3.02	-0.88	-0.52
-2.88	-2.90	-69.11	-15.95	7.34	3.15	0.53	0.14
-8.73	-10.08	-184.92	-40.18	3.54	-1.21	-0.12	-0.35
-0.03	-0.03	-0.55	-0.11	0.07	0.03	0.02	0.01
-0.04	-0.03	0.64	-0.15	0.64	0.36	0.17	0.07
-0.09	-0.06	0.95	-0.31	1.26	0.69	0.34	0.14
-0.34	-0.37	-5.46	-2.47	0.54	0.18	0.08	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.70	-3.15	-52.66	-8.18	1.35	-0.21	0.28	0.07
-3.02	-3.54	-51.98	-7.70	1.06	-0.43	0.10	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.16	-2.43	-42.05	-9.98	2.02	0.28	0.38	0.08
0.79	1.06	25.68	3.03	4.05	2.66	1.15	0.48
3.76	5.36	143.22	16.14	24.52	15.95	6.37	2.69
2.47	3.72	99.25	9.17	17.71	11.26	4.08	1.72
2.46	3.31	82.16	9.66	12.81	8.41	3.64	1.52
-3.55	-3.85	-46.39	-36.08	7.47	3.19	0.90	-0.09
-0.69	-0.44	9.72	-1.00	9.49	5.28	2.38	0.97
-6.39	-7.10	-109.71	-19.70	10.61	3.81	2.27	0.84
-10.22	-11.89	-189.17	-26.83	5.66	-0.29	0.93	0.26
-131.07	-153.16	-2581.11	-1031.08	-55.32	-80.58	-46.11	-35.97
-9.35	-10.73	-161.41	-29.11	10.29	2.92	2.11	0.68
-9.68	-11.29	-183.20	-30.72	5.23	-0.22	0.75	0.12
-17.00	-20.31	-368.04	-56.11	-4.57	-8.88	-1.88	-1.08
-22.66	-27.33	-390.97	-48.30	-4.65	-10.26	-1.36	-0.82
0.16	0.36	12.71	0.69	3.94	2.36	0.91	0.38
-7.76	-9.17	-137.43	-19.08	1.32	-1.90	0.04	-0.09
-4.74	-5.56	-99.59	-14.61	0.94	-1.25	0.03	-0.05
-7.18	-8.48	-138.05	-19.38	0.83	-2.10	-0.06	-0.12
-3.96	-4.70	-87.63	-14.44	-0.99	-2.13	-0.44	-0.26
-6.56	-7.43	-112.21	-20.18	6.96	1.69	1.17	0.36
0.06	0.08	2.10	0.27	0.33	0.22	0.08	0.04
-4.52	-5.10	-91.46	-22.69	4.24	0.76	0.54	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.03	-0.03	-0.35	-0.09	0.10	0.05	0.03	0.01
-14.09	-16.44	-278.98	-128.52	-5.42	-9.62	-4.47	-3.49
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.58	-0.61	-7.27	-3.90	1.77	0.80	0.38	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.19	-1.36	-20.14	-3.47	1.27	0.31	0.24	0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.37	1.86	47.55	5.79	7.34	4.86	2.05	0.86
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.71	4.01	104.49	9.97	17.88	11.44	4.13	1.74
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-5.48	-5.95	-69.78	-49.97	11.19	4.77	1.42	-0.01
-0.34	-0.30	-0.87	-0.88	2.46	1.30	0.61	0.24
-1.92	-2.05	-30.45	-7.07	5.31	2.38	1.17	0.44
-6.82	-8.01	-122.26	-15.77	2.97	-0.52	0.48	0.13
-2.05	-2.24	-40.54	-3.66	6.17	3.11	1.45	0.61
4.13	6.33	91.27	59.75	103.43	74.13	25.33	11.70
-11.47	-13.19	-231.65	-39.52	9.03	1.02	1.69	0.49
-9.12	-10.55	-174.84	-26.93	7.93	1.60	1.54	0.49
0.53	1.31	51.45	4.55	14.92	8.99	3.25	1.37
-4.73	-5.41	-91.77	-14.85	4.45	0.78	1.01	0.34
-2.83	-3.23	-52.65	-8.13	3.06	0.73	0.69	0.25
-1.25	-1.39	-22.29	-3.85	2.19	0.80	0.55	0.21
-7.21	-8.40	-157.51	-26.89	1.72	-1.89	0.08	-0.11
-6.71	-7.78	-145.91	-26.35	1.78	-1.68	0.02	-0.14
-5.63	-6.55	-121.41	-23.06	1.62	-1.33	0.08	-0.11
1.55	2.07	49.69	7.26	8.16	5.53	2.27	0.97
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.75	-0.83	-12.20	-5.03	1.12	0.36	0.19	0.02
-5.05	-5.36	-67.48	-43.50	11.29	4.46	1.63	0.17
-5.51	-6.28	-84.72	-42.41	4.63	0.45	0.52	-0.28
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-18.59	-21.02	-341.27	-165.41	16.83	1.37	0.76	-1.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.30	0.42	10.50	1.23	1.64	1.09	0.42	0.18
0.23	0.31	7.29	1.02	1.20	0.81	0.34	0.15
-6.91	-7.14	-85.95	-72.78	20.07	8.47	3.07	0.29
-8.92	-10.48	-169.72	-54.35	-1.30	-4.35	-1.19	-1.02
-8.48	-9.41	-128.14	-56.61	12.30	3.71	2.17	0.30
-8.71	-9.88	-134.61	-68.88	7.54	1.01	0.71	-0.49
-4.61	-5.18	-75.52	-39.34	3.92	0.20	0.25	-0.37
-7.66	-8.45	-118.61	-47.43	11.21	3.40	1.63	0.17
-6.46	-7.26	-111.73	-41.75	7.84	1.95	1.31	0.12
-16.51	-19.04	-300.29	-73.11	8.94	-1.01	0.84	-0.26
-59.44	-69.54	-1177.05	-354.60	6.57	-15.57	-8.21	-8.17
-12.35	-14.61	-247.34	-35.95	1.56	-3.50	-0.01	-0.18
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.94	-3.02	-34.31	-6.93	9.68	4.62	1.82	0.73
-2.23	-2.47	-41.40	-7.30	3.77	1.32	0.81	0.30
-2.66	-3.13	-50.07	-6.88	0.80	-0.49	0.11	0.02
-2.19	-2.59	-47.19	-6.83	-0.05	-0.87	-0.09	-0.07

Appendix I-4

Emissions of GHG, PM10, PM2.5, and Others

2040 CEQA Comparison

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1195	-6.10	-7.11	-133.72	-22.78	1.12	-1.79	-0.05	-0.14
1196	-2.48	-2.87	-43.77	-6.05	1.60	0.05	0.27	0.08
1197	-0.45	-0.49	-6.98	-1.72	1.21	0.53	0.30	0.11
1198	2.07	2.76	65.22	10.18	10.91	7.46	3.01	1.30
1199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1229	-0.23	-0.25	-3.52	-1.62	0.46	0.17	0.09	0.02
1230	0.06	0.29	10.59	-0.02	4.86	2.92	1.02	0.42
1231	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1233	1.13	1.52	37.05	4.29	5.82	3.81	1.66	0.69
1234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1235	0.94	1.31	32.41	3.91	5.11	3.39	1.27	0.54
1236	0.35	0.49	12.88	1.42	1.93	1.26	0.53	0.22
1237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1238	-6.56	-7.46	-103.45	-20.78	6.45	1.47	0.98	0.25
1239	-3.23	-3.61	-55.60	-11.39	5.18	1.78	1.17	0.41
1240	-8.96	-9.79	-122.48	-71.39	17.52	7.26	2.51	0.21
1241	-8.64	-9.82	-185.73	-37.59	5.52	-0.38	0.61	0.02
1242	-0.67	-0.62	-5.25	-2.41	3.88	2.03	0.84	0.33
1243	-4.90	-5.43	-89.03	-19.20	8.10	2.85	1.69	0.57
1244	-6.83	-7.82	-141.63	-26.73	4.83	0.22	0.67	0.12
1245	-63.31	-73.59	-1217.59	-482.19	14.63	-9.78	-12.37	-13.13
1246	-23.75	-27.97	-505.42	-89.88	1.14	-8.25	-1.12	-1.01
1247	-12.83	-15.29	-261.63	-41.59	-1.58	-5.54	-0.83	-0.59
1248	-5.65	-6.56	-110.03	-17.47	2.93	-0.40	0.46	0.10
1249	-6.21	-7.34	-125.05	-19.61	0.69	-1.91	0.05	-0.09
1250	-17.95	-21.15	-361.07	-55.90	1.31	-5.90	-0.47	-0.49
1251	-12.43	-14.63	-278.34	-49.34	-1.13	-5.66	-0.95	-0.68
1252	-6.33	-7.44	-125.25	-18.76	1.50	-1.47	0.15	-0.03
1253	-5.00	-5.78	-89.72	-13.96	3.14	0.02	0.51	0.14
1254	-0.75	-0.80	-11.55	-2.66	2.06	0.91	0.51	0.19
1255	1.61	2.15	50.44	8.07	8.50	5.84	2.34	1.01
1256	0.42	0.57	14.28	1.85	2.25	1.50	0.64	0.27
1257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1287	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1288	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1291	-1.16	-1.07	-2.52	-5.22	6.62	3.48	1.37	0.51
1292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1293	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1295	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1296	0.89	1.22	31.08	3.79	4.82	3.21	1.27	0.54
1297	0.02	0.03	0.72	0.08	0.11	0.07	0.03	0.01
1298	1.39	2.02	54.92	5.82	9.77	6.30	2.48	1.04
1299	0.22	0.56	20.85	1.61	6.44	3.89	1.33	0.56
1300	-1.61	-1.73	-23.70	-5.76	4.02	1.70	0.93	0.34
1301	-2.75	-2.76	-20.39	-25.33	10.93	5.48	1.94	0.48
1302	1.76	2.37	59.29	7.22	9.27	6.12	2.63	1.11
1303	-2.05	-1.97	-8.61	-6.77	10.73	5.66	2.26	0.86
1304	0.63	1.06	32.73	3.65	8.69	5.46	2.20	0.92
1305	-1.57	-1.54	-28.75	-3.89	9.35	5.37	1.86	0.77
1306	-9.86	-11.55	-222.08	-24.84	12.10	5.42	1.90	0.71
1307	-77.30	-90.15	-1490.72	-614.79	12.95	-16.09	-17.57	-17.14
1308	-22.58	-26.62	-477.18	-85.54	-0.41	-8.88	-1.26	-1.06
1309	-16.36	-19.35	-355.05	-62.79	-2.79	-8.08	-1.46	-1.00
1310	-12.53	-14.79	-284.46	-52.60	-2.68	-6.66	-1.37	-0.90
1311	-5.87	-6.73	-106.74	-17.04	4.47	0.45	0.71	0.21
1312	-0.90	-0.98	-15.06	-3.10	2.01	0.81	0.47	0.18
1313	0.19	0.28	7.90	0.82	1.51	0.96	0.40	0.17
1314	0.34	0.47	11.50	1.32	1.80	1.18	0.48	0.20
1315	0.35	0.72	24.26	2.95	9.21	5.71	2.38	1.00
1316	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1317	-2.03	-2.37	-46.26	-8.44	0.07	-0.80	-0.09	-0.09
1348	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1349	1.19	1.67	39.24	4.78	6.38	4.24	1.47	0.63
1350	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1351	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1352	-3.23	-3.37	-44.90	-17.22	11.56	5.66	2.63	0.92
1353	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1357	1.73	2.36	59.69	7.46	9.32	6.21	2.49	1.06
1358	-0.84	-1.00	-20.03	-3.79	-0.64	-0.72	-0.23	-0.12
1359	2.85	4.15	105.83	11.33	18.61	12.07	4.46	1.89
1360	0.07	0.32	15.33	0.18	5.55	3.27	1.31	0.53
1361	-0.05	0.44	30.64	0.04	11.51	6.70	2.70	1.10
1362	-12.42	-13.98	-184.81	-105.41	10.76	1.55	0.22	-1.13
1363	1.44	2.38	70.03	5.06	14.83	9.26	3.30	1.37
1364	0.74	1.07	23.16	2.46	3.91	2.56	0.79	0.34
1365	1.65	2.31	57.23	9.62	12.04	8.08	3.21	1.39
1366	-1.31	-0.93	-23.61	6.70	24.94	16.29	5.21	2.27
1367	-0.02	0.49	28.51	0.38	12.59	7.54	2.83	1.16
1368	-2.66	-2.42	-18.43	-11.36	17.46	9.43	3.74	1.44
1369	-47.09	-54.40	-912.93	-480.56	19.83	-2.15	-12.01	-12.39
1370	-13.58	-16.30	-295.16	-47.39	-5.35	-8.38	-1.62	-0.94
1371	-0.95	-1.05	-15.37	-3.05	1.99	0.78	0.52	0.19
1372	-1.93	-2.22	-39.62	-10.47	0.96	-0.27	0.10	-0.05
1373	-2.56	-2.96	-54.42	-11.81	0.82	-0.59	0.07	-0.06
1374	-2.65	-3.17	-61.48	-12.25	-1.57	-2.01	-0.58	-0.33
1375	-0.10	0.28	22.46	-0.55	11.34	6.78	2.84	1.15
1376	-0.52	-0.61	-12.03	-2.05	-0.14	-0.29	-0.07	-0.04
1377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1378	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1409	0.06	0.08	1.92	0.24	0.30	0.20	0.08	0.03
1410	40.92	52.02	950.74	229.27	195.80	140.74	52.50	24.59
1411	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1412	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1413	4.01	5.16	95.06	21.12	19.13	13.60	4.93	2.31
1414	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1415	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1416	54.23	68.52	1175.18	292.64	251.01	180.57	65.43	31.10
1417	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1418	1.65	2.17	37.20	9.79	11.16	7.74	2.84	1.33
1419	0.86	1.20	26.27	3.24	4.45	2.95	1.01	0.44
1420	20.49	26.99	497.87	117.63	119.34	83.39	29.64	13.96
1421	-1.31	-1.39	-17.61	-5.85	3.86	1.71	0.94	0.34
1422	22.00	28.71	550.45	127.89	124.53	87.68	32.94	15.22
1423	2.44	4.86	127.90	1.89	53.06	33.68	11.23	4.59
1424	13.66	18.01	353.50	94.69	94.72	66.86	25.19	11.63
1425	0.78	1.89	-7.10	5.71	29.98	19.46	5.59	2.46
1426	9.80	13.02	227.58	62.00	71.47	49.94	18.31	8.39
1427	7.19	9.49	157.40	71.80	70.35	50.59	18.66	8.98
1428	6.99	8.94	164.76	47.64	36.15	26.77	9.64	4.66
1429	6.05	7.59	129.32	43.71	30.82	23.25	8.36	4.13
1430	18.25	23.07	398.52	128.05	93.11	69.71	24.95	12.28
1431	6.29	8.40	171.59	25.37	30.67	20.72	7.48	3.29
1432	6.21	8.04	146.87	22.16	27.76	18.64	6.92	3.02
1433	1.29	1.67	32.14	4.79	5.88	3.95	1.49	0.65
1434	4.44	5.70	99.90	15.95	19.34	13.07	4.77	2.10
1435	3.25	4.69	112.50	15.39	24.68	16.07	6.15	2.63
1436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1437	-1.54	-1.70	-29.23	-5.90	3.15	1.20	0.79	0.29
1438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1473	0.78	1.04	25.06	3.73	4.11	2.79	1.16	0.50
1474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
-6.11	-7.12	-133.92	-22.82	1.09	-1.81	-0.06	-0.15
-2.48	-2.87	-43.77	-6.05	1.60	0.05	0.27	0.08
-0.46	-0.50	-7.33	-1.78	1.14	0.49	0.28	0.10
1.97	2.63	62.66	9.51	10.39	7.08	2.86	1.23
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.25	-0.28	-4.09	-1.68	0.37	0.12	0.06	0.01
0.30	0.64	19.46	0.68	6.23	3.79	1.32	0.54
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.51	3.37	83.12	10.69	13.19	8.77	3.74	1.58
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.71	0.98	24.16	2.89	3.81	2.53	0.97	0.41
0.52	0.71	18.24	2.24	2.81	1.87	0.78	0.33
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-6.46	-7.33	-100.46	-20.34	6.95	1.80	1.11	0.31
-3.16	-3.52	-53.53	-10.87	5.55	2.05	1.31	0.47
-9.13	-10.03	-128.31	-72.08	16.60	6.64	2.29	0.12
-8.49	-9.61	-178.98	-36.91	6.42	0.21	0.90	0.14
-0.76	-0.75	-7.65	-2.78	3.43	1.72	0.76	0.29
-4.88	-5.40	-87.79	-19.20	8.24	2.93	1.73	0.59
-6.81	-7.81	-141.94	-26.43	4.90	0.30	0.69	0.13
-62.87	-73.08	-1211.65	-476.49	17.19	-7.56	-11.66	-12.71
-23.95	-28.25	-510.53	-90.80	0.13	-8.96	-1.25	-1.07
-12.84	-15.30	-261.50	-41.74	-1.62	-5.58	-0.84	-0.60
-5.67	-6.58	-110.46	-17.54	2.86	-0.45	0.44	0.09
-6.22	-7.36	-125.62	-19.70	0.59	-1.98	0.03	-0.10
-17.93	-21.13	-360.60	-55.85	1.39	-5.86	-0.46	-0.48
-12.43	-14.63	-278.28	-49.35	-1.13	-5.66	-0.95	-0.68
-6.33	-7.43	-125.19	-18.75	1.51	-1.46	0.16	-0.03
-5.00	-5.78	-89.71	-13.97	3.14	0.02	0.51	0.14
-0.76	-0.82	-12.04	-2.75	1.97	0.85	0.49	0.18
1.52	2.04	48.18	7.46	8.04	5.49	2.21	0.96
0.42	0.57	14.27	1.87	2.25	1.50	0.64	0.27
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.16	-1.08	-2.94	-5.24	6.57	3.45	1.35	0.50
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.53	0.72	18.70	2.18	2.85	1.88	0.79	0.33
0.16	0.22	5.37	0.78	0.87	0.59	0.24	0.10
1.28	1.87	51.33	5.31	9.18	5.90	2.33	0.98
0.14	0.44	18.40	1.25	6.00	3.59	1.24	0.52
-1.60	-1.72	-23.81	-5.67	4.04	1.73	0.93	0.35
-2.92	-3.00	-24.92	-26.05	10.08	4.90	1.78	0.41
1.51	2.03	50.41	5.85	7.86	5.15	2.24	0.93
-2.23	-2.22	-14.53	-7.48	9.78	5.02	2.06	0.77
0.50	0.89	28.54	3.01	7.99	4.99	2.02	0.85
-1.63	-1.61	-31.36	-3.96	9.03	5.18	1.77	0.73
-9.91	-11.62	-224.29	-24.88	11.84	5.27	1.83	0.68
-77.12	-89.97	-1484.91	-608.29	15.12	-13.99	-16.71	-16.69
-22.64	-26.70	-478.28	-86.06	-0.70	-9.12	-1.34	-1.10
-16.35	-19.34	-354.85	-62.77	-2.76	-8.06	-1.45	-0.99
-12.51	-14.76	-283.76	-52.51	-2.57	-6.59	-1.34	-0.88
-5.88	-6.75	-107.20	-17.09	4.40	0.40	0.70	0.20
-0.91	-0.99	-15.41	-3.15	1.95	0.78	0.46	0.17
0.18	0.27	7.65	0.79	1.47	0.93	0.39	0.16
0.34	0.47	11.48	1.31	1.80	1.18	0.48	0.20
0.26	0.58	21.31	2.33	8.68	5.33	2.26	0.94
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.03	-2.37	-46.30	-8.44	0.06	-0.81	-0.09	-0.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.11	1.57	36.99	4.42	5.98	3.97	1.38	0.59
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.06	-3.12	-35.75	-17.39	12.56	6.17	2.99	1.06
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.95	1.30	33.25	4.07	5.14	3.41	1.42	0.60
-0.41	-0.43	-7.12	-1.79	1.56	0.78	0.39	0.15
2.62	3.80	99.43	10.51	17.40	11.26	4.27	1.80
0.02	0.24	14.18	0.15	5.31	3.11	1.31	0.53
-0.12	0.33	26.76	-0.07	11.05	6.42	2.58	1.05
-13.02	-14.83	-200.60	-107.80	7.91	-0.40	-0.21	-1.31
1.34	2.23	66.10	4.60	14.25	8.87	3.13	1.30
0.72	1.05	22.82	2.40	3.84	2.52	0.78	0.34
1.31	1.85	46.63	7.83	10.24	6.83	2.73	1.18
-1.56	-1.28	-33.49	5.93	23.55	15.41	4.85	2.13
-0.18	0.27	23.84	-0.32	11.78	6.98	2.68	1.09
-2.92	-2.76	-26.26	-12.59	16.13	8.51	3.41	1.30
-46.39	-53.55	-901.94	-473.00	23.69	1.04	-10.95	-11.80
-13.59	-16.30	-295.37	-47.42	-5.38	-8.40	-1.62	-0.95
-0.96	-1.06	-15.33	-3.06	1.97	0.77	0.52	0.19
-1.95	-2.25	-40.19	-10.56	0.86	-0.34	0.07	-0.06
-2.57	-2.98	-54.78	-11.86	0.77	-0.63	0.05	-0.06
-2.66	-3.18	-61.88	-12.30	-1.62	-2.05	-0.60	-0.33
-0.18	0.17	20.38	-1.12	10.90	6.46	2.72	1.09
-0.53	-0.62	-12.37	-2.09	-0.19	-0.32	-0.08	-0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.66	0.84	14.74	3.38	3.07	2.18	0.79	0.37
28.90	36.64	635.31	151.62	134.14	95.86	34.94	16.46
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.66	4.69	84.27	20.87	17.76	12.80	4.52	2.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33.68	42.42	687.88	179.27	153.07	110.41	38.86	18.75
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.40	1.81	24.70	9.81	9.84	7.02	2.43	1.21
1.07	1.49	33.08	4.17	5.56	3.70	1.33	0.57
13.05	17.53	324.33	75.43	83.73	57.73	20.14	9.49
-1.03	-1.00	-7.65	-4.81	5.38	2.70	1.30	0.49
14.86	19.52	362.43	82.03	86.97	60.46	22.32	10.34
2.12	4.40	114.93	1.44	51.40	32.69	10.83	4.45
11.26	14.92	291.41	72.73	80.95	56.14	21.55	9.85
0.14	1.09	-17.77	1.40	27.14	17.27	4.90	2.12
7.86	10.55	179.26	45.75	60.67	41.66	15.33	6.91
5.62	7.50	122.52	58.42	62.03	44.12	16.49	7.88
6.46	8.26	150.00	41.80	32.80	24.09	8.68	4.18
5.47	6.88	119.09	38.28	27.74	20.77	7.52	3.69
17.23	21.80	378.91	119.85	87.87	65.64	23.54	11.56
6.09	8.15	167.73	24.09	29.72	20.01	7.23	3.17
5.97	7.73	142.02	20.97	26.68	17.87	6.64	2.89
1.24	1.61	31.03	4.53	5.64	3.78	1.43	0.62
4.26	5.48	96.16	15.02	18.51	12.47	4.56	2.00
3.04	4.40	107.09	14.23	23.59	15.28	5.94	2.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.56	-1.72	-29.71	-5.95	3.07	1.15	0.77	0.28
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.85	1.14	28.47	3.79	4.52	3.02	1.28	0.54
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix I-4

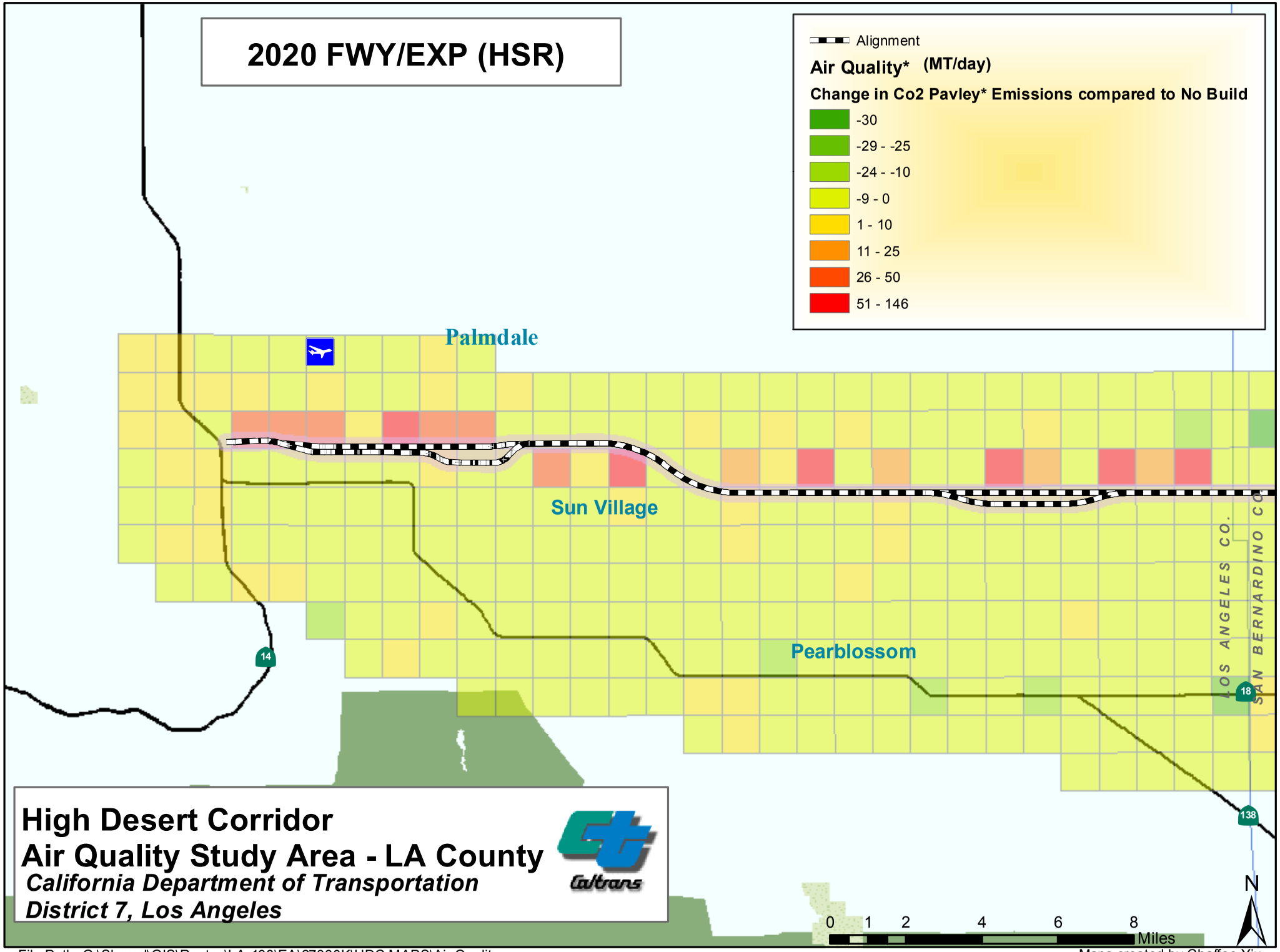
Emissions of GHG, PM10, PM2.5, and Others

2040 CEQA Comparison

2040 CEQA	FWY/EXP or FWY/EXP with HSR Compared to Existing							
	ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
Grid No.	lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
1475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1476	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1478	0.47	0.63	14.92	2.19	2.47	1.67	0.70	0.30
1479	-0.54	-0.62	-9.52	-2.42	0.19	-0.10	-0.02	-0.03
1480	0.85	1.24	33.14	3.18	5.53	3.56	1.37	0.57
1481	0.33	0.48	13.96	1.36	2.61	1.65	0.69	0.29
1482	0.02	0.78	41.48	1.54	15.51	9.08	3.19	1.33
1483	-4.39	-4.35	-56.32	-43.31	20.29	10.99	3.11	0.74
1484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1485	4.70	6.23	102.40	27.02	22.15	16.18	4.62	2.14
1486	20.62	25.98	291.45	131.37	81.98	64.06	16.29	7.98
1487	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1490	-0.25	-0.30	-5.77	-1.53	-0.23	-0.24	-0.09	-0.05
1491	-66.37	-76.75	-1281.19	-652.58	37.85	5.88	-13.25	-15.65
1492	-5.60	-6.40	-109.62	-49.35	7.12	3.19	-0.04	-0.75
1493	0.07	0.10	2.25	0.30	0.37	0.25	0.10	0.04
1494	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1495	-1.18	-1.23	-19.51	-4.35	5.14	2.58	1.34	0.53
1496	-1.90	-2.26	-44.13	-6.98	-0.65	-1.14	-0.25	-0.14
1497	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1528	-19.95	-24.05	-471.48	-99.97	-20.22	-20.14	-6.87	-3.58
1529	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1530	0.65	0.89	22.76	2.68	3.49	2.30	0.99	0.42
1531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1533	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1534	-9.07	-10.83	-207.39	-47.18	-6.62	-7.69	-2.48	-1.39
1535	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1536	-6.05	-7.22	-138.32	-31.47	-4.41	-5.13	-1.65	-0.93
1537	-0.22	-0.19	-0.42	-0.95	2.05	1.15	0.52	0.20
1538	-1.91	-2.19	-36.63	-10.18	1.15	-0.09	0.14	-0.03
1539	-0.31	0.10	18.38	-4.67	9.92	5.63	2.10	0.80
1540	-0.88	-0.61	7.64	-7.74	9.80	5.30	2.23	0.82
1541	-4.05	-4.27	-58.60	-32.47	12.40	6.04	2.04	0.46
1542	1.65	2.53	75.42	6.00	14.27	8.98	3.60	1.49
1543	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1544	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1546	6.53	8.89	228.38	28.00	35.24	23.39	9.78	4.13
1547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1549	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1551	-4.42	-5.13	-89.58	-41.18	3.55	1.38	-0.64	-0.88
1552	-0.62	-0.58	-6.72	-2.51	5.89	3.49	1.47	0.59
1553	1.52	2.00	44.36	8.59	7.99	5.63	2.21	0.98
1554	1.56	2.08	47.39	8.32	8.23	5.73	2.19	0.96
1555	-0.45	-0.22	4.74	1.77	7.70	4.61	1.48	0.63
1556	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1587	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1589	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1590	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1591	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1592	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1593	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1595	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1596	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FWY/Toll or FWY/Toll with HSR Compared to Existing							
ROG	TOG	CO	NOx	CO2	CO2_Pavley	PM10, Exh+TBW	PM2.5, Exh+TBW
lb/day	lb/day	lb/day	lb/day	MT/day	MT/day	lb/day	lb/day
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.17	0.23	5.56	0.77	0.90	0.61	0.26	0.11
-0.51	-0.58	-8.45	-2.31	0.36	0.01	0.02	-0.01
0.68	0.99	27.60	2.61	4.60	2.95	1.20	0.50
0.32	0.47	13.84	1.27	2.57	1.62	0.68	0.28
0.08	0.85	43.73	1.76	15.82	9.29	3.29	1.36
-4.33	-4.27	-53.78	-43.02	20.62	11.20	3.24	0.80
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.60	6.12	101.76	26.08	21.77	15.84	4.53	2.10
20.85	26.25	292.76	133.38	82.78	64.78	16.46	8.07
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.25	-0.30	-5.68	-1.51	-0.21	-0.23	-0.08	-0.05
-66.86	-77.34	-1289.90	-657.09	35.27	3.82	-13.96	-16.02
-5.61	-6.42	-110.08	-49.61	6.98	3.07	-0.09	-0.77
0.07	0.09	2.21	0.29	0.36	0.24	0.10	0.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-1.20	-1.26	-20.08	-4.50	5.02	2.49	1.30	0.51
-1.90	-2.26	-44.19	-6.99	-0.66	-1.15	-0.26	-0.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-19.95	-24.05	-471.48	-99.97	-20.22	-20.14	-6.87	-3.58
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.10	4.21	107.56	13.30	16.65	11.06	4.65	1.96
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-7.15	-8.24	-142.08	-38.92	3.60	-0.91	0.42	-0.17
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-4.77	-5.50	-94.76	-25.96	2.40	-0.60	0.28	-0.11
-0.53	-0.61	-10.55	-2.45	0.41	0.03	0.07	0.01
-1.72	-1.93	-28.86	-9.67	2.19	0.56	0.43	0.09
-0.45	-0.10	15.62	-5.25	9.23	5.13	2.08	0.78
-0.49	-0.04	24.01	-6.45	12.08	6.75	2.82	1.06
-3.58	-3.60	-39.82	-30.89	15.05	7.74	2.74	0.75
1.73	2.64	78.42	6.29	14.70	9.26	3.72	1.53
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.47	8.81	226.59	27.67	34.93	23.17	9.69	4.09
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-4.46	-5.18	-90.30	-41.60	3.32	1.19	-0.70	-0.91
-0.62	-0.57	-6.60	-2.45	5.92	3.52	1.48	0.59
1.54	2.03	45.01	8.73	8.11	5.72	2.24	0.99
1.56	2.08	47.27	8.31	8.21	5.72	2.19	0.96
-0.45	-0.22	4.60	1.75	7.67	4.59	1.47	0.63
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix J Grid Maps for Changes in Emissions of GHG and PM



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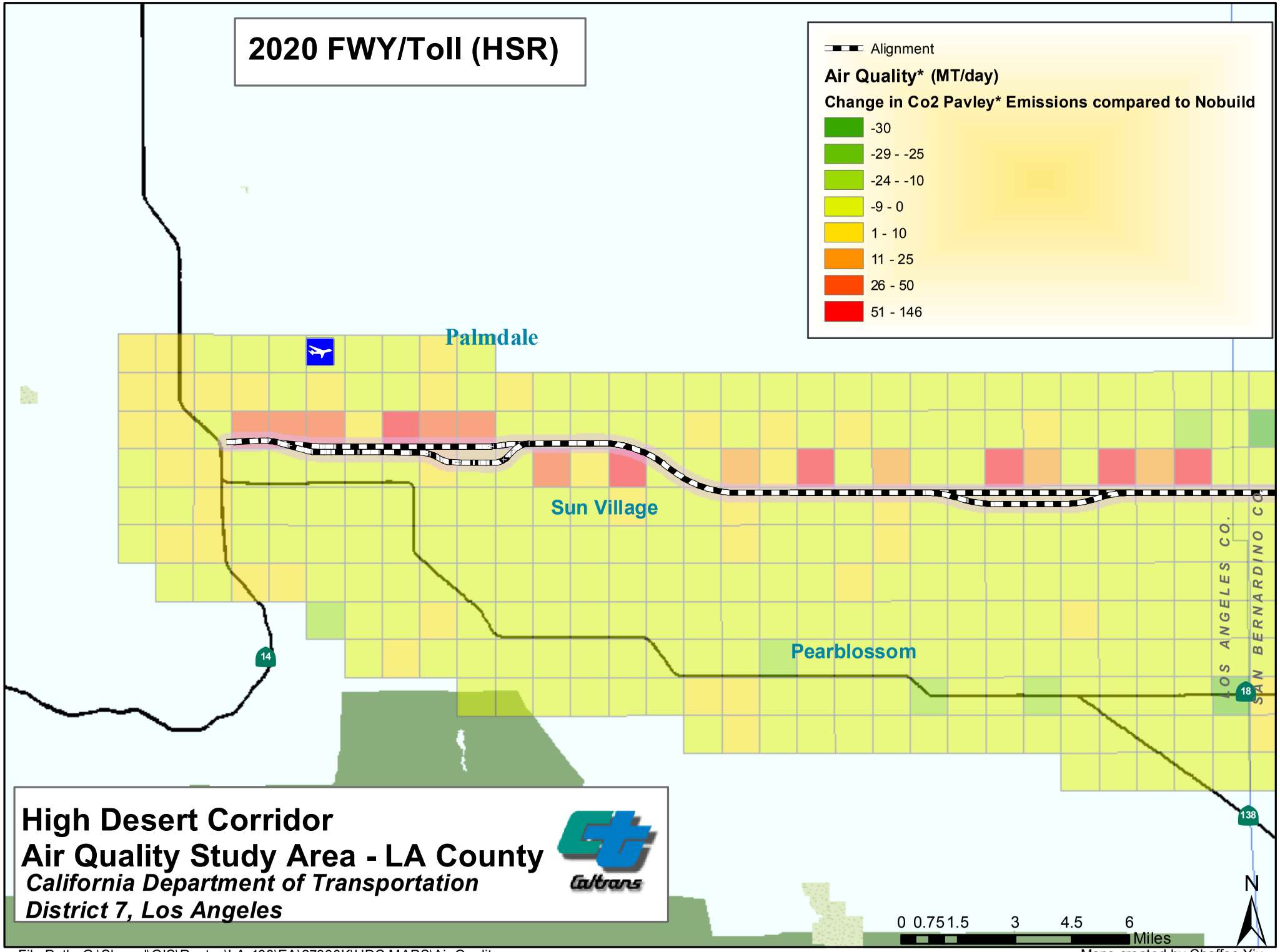

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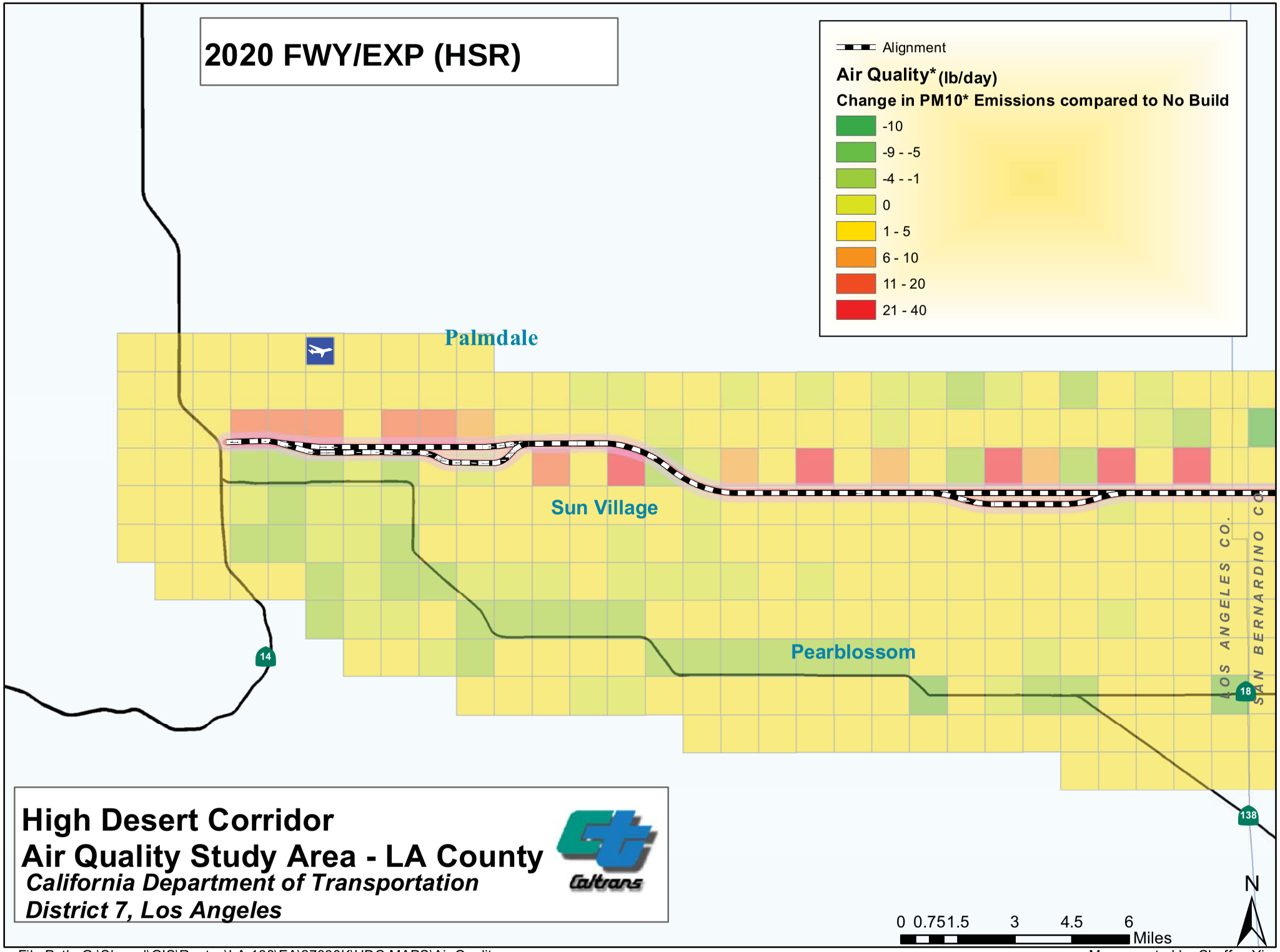

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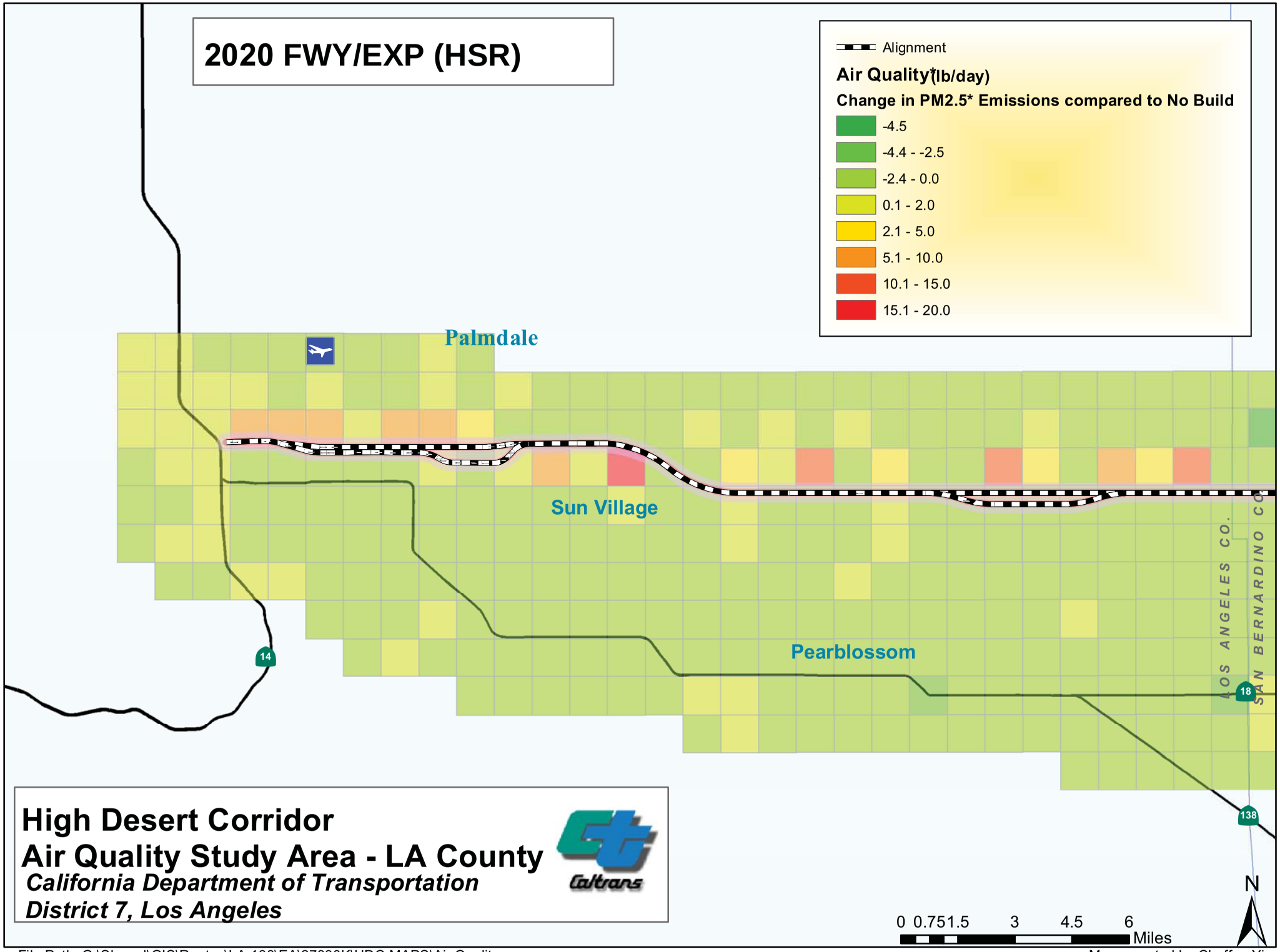

High Desert Corridor
Air Quality Study Area - LA County

California Department of Transportation
District 7, Los Angeles

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Maps created by Chaffee Yiu
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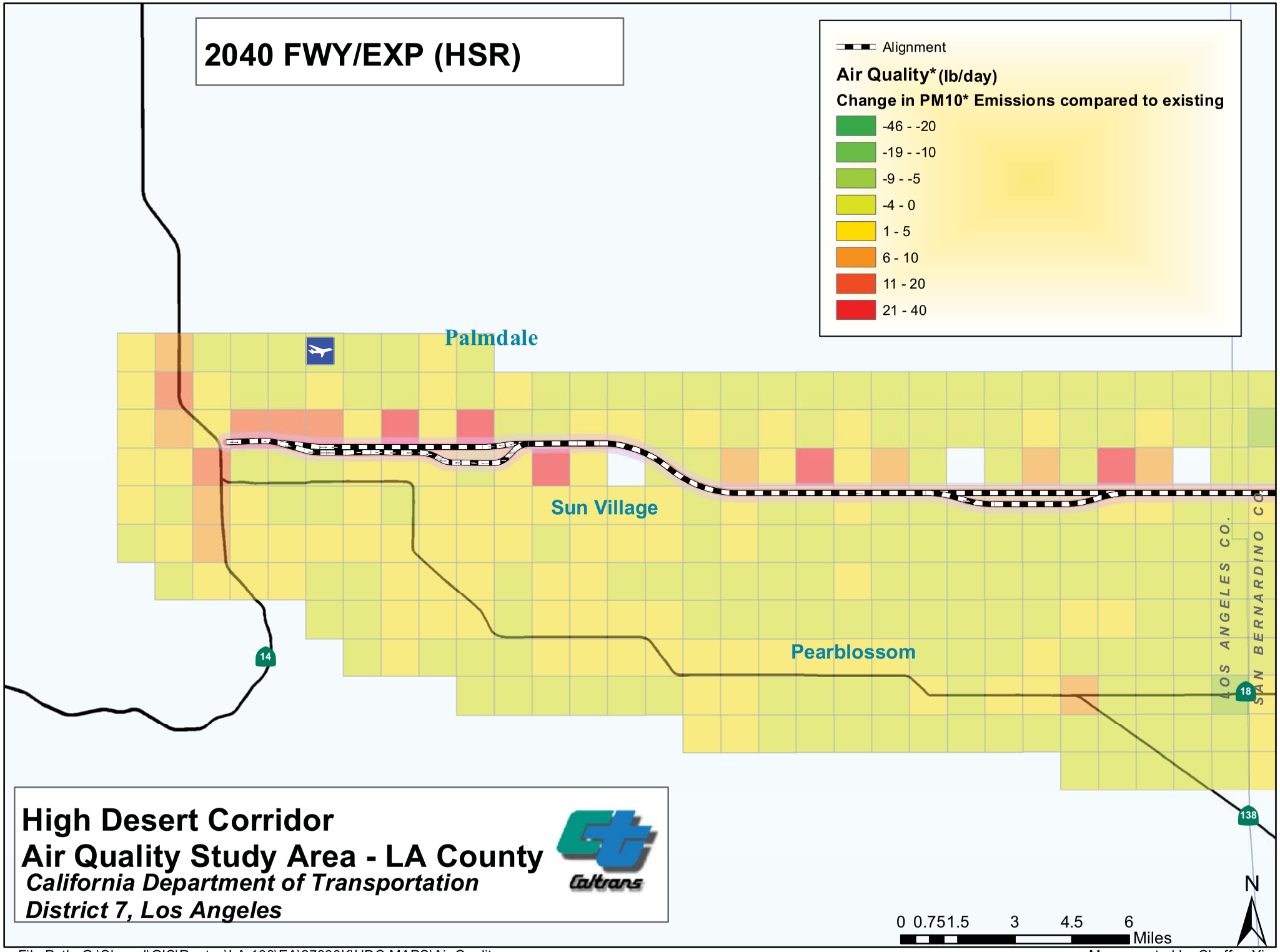

High Desert Corridor
Air Quality Study Area - LA County

California Department of Transportation
District 7, Los Angeles

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Maps created by Chaffee Yiu
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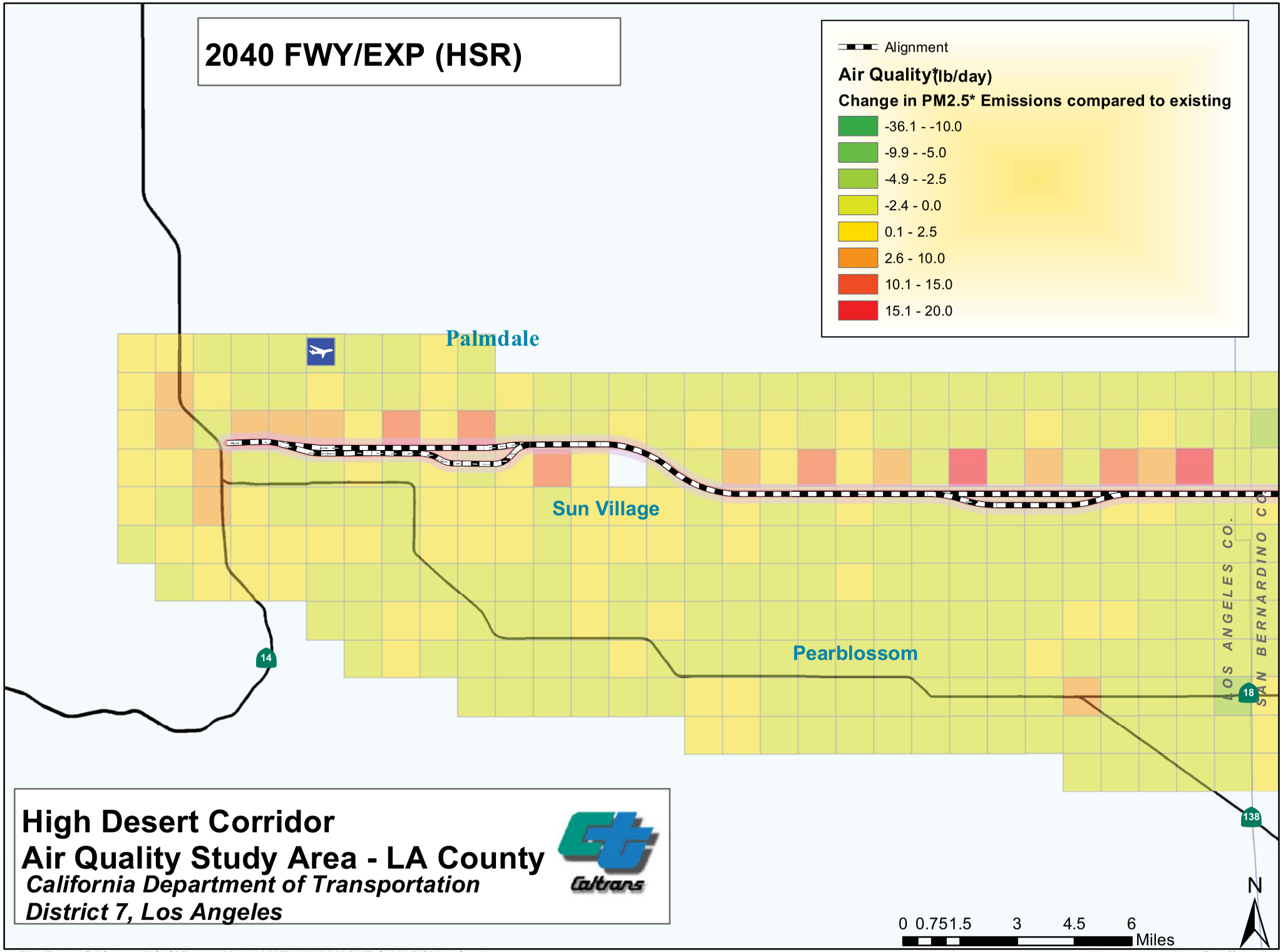

High Desert Corridor
Air Quality Study Area - LA County

California Department of Transportation
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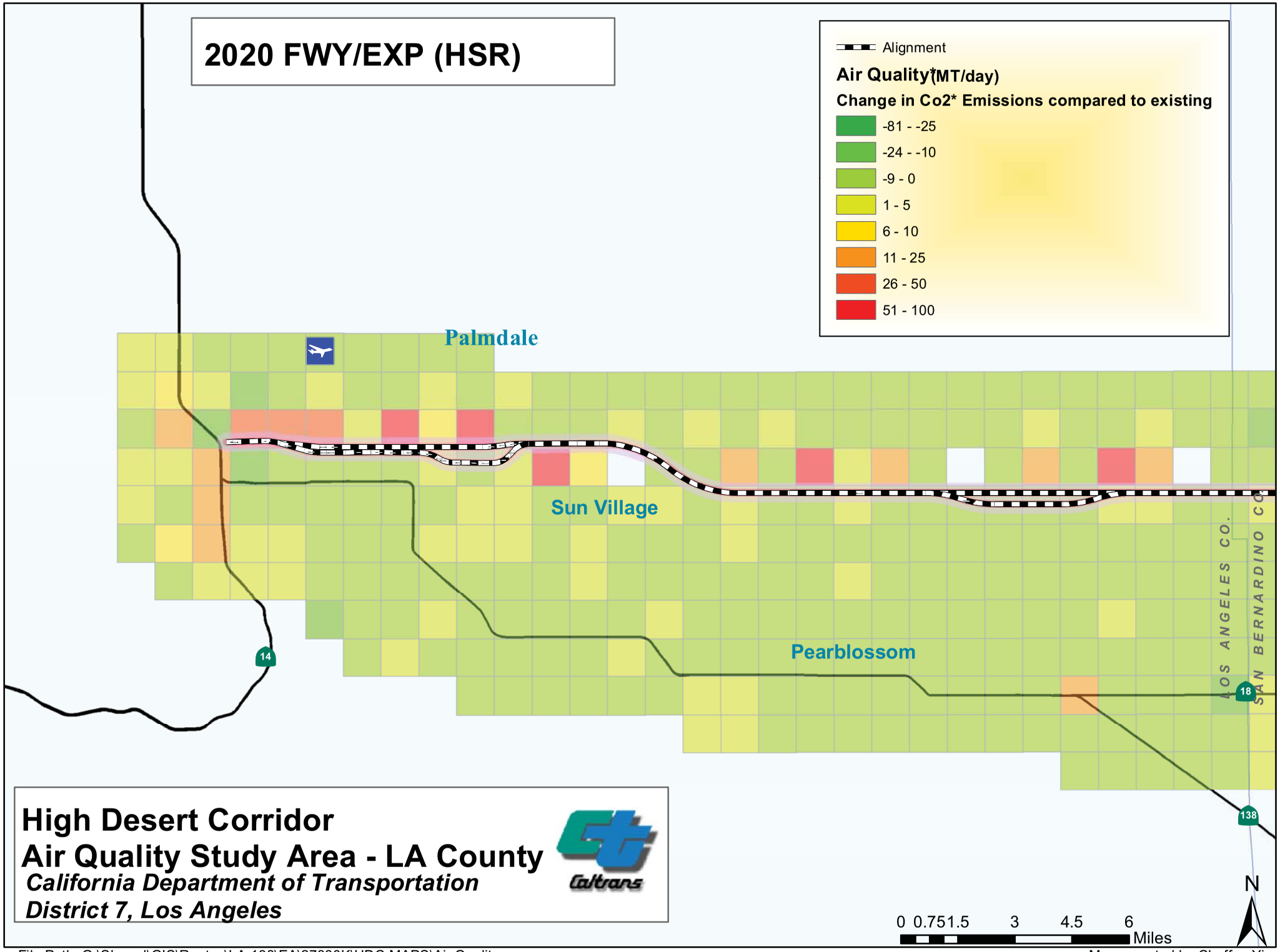

High Desert Corridor
Air Quality Study Area - LA County

California Department of Transportation
District 7, Los Angeles

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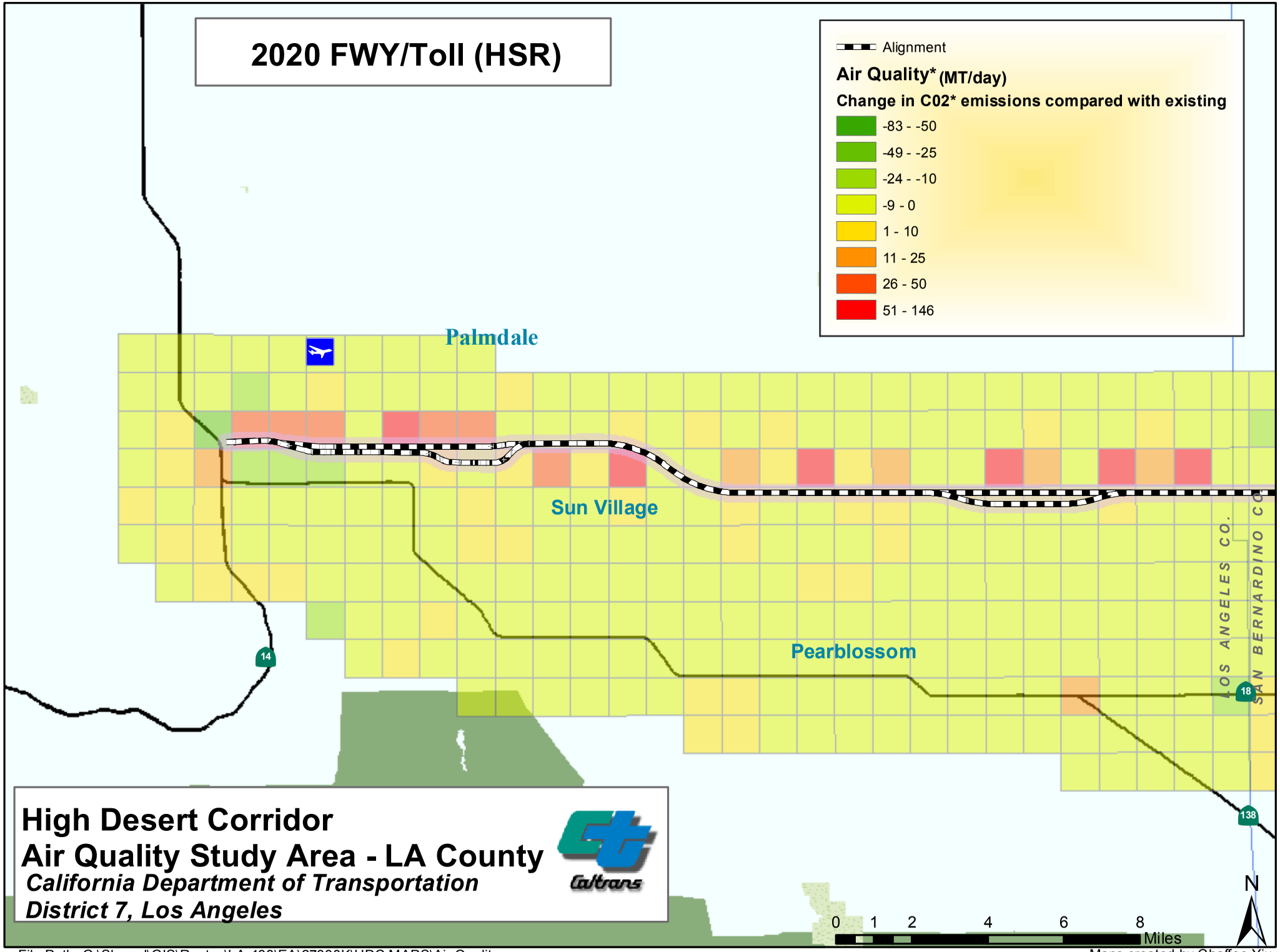
Maps created by Chaffee Yiu
01/2014



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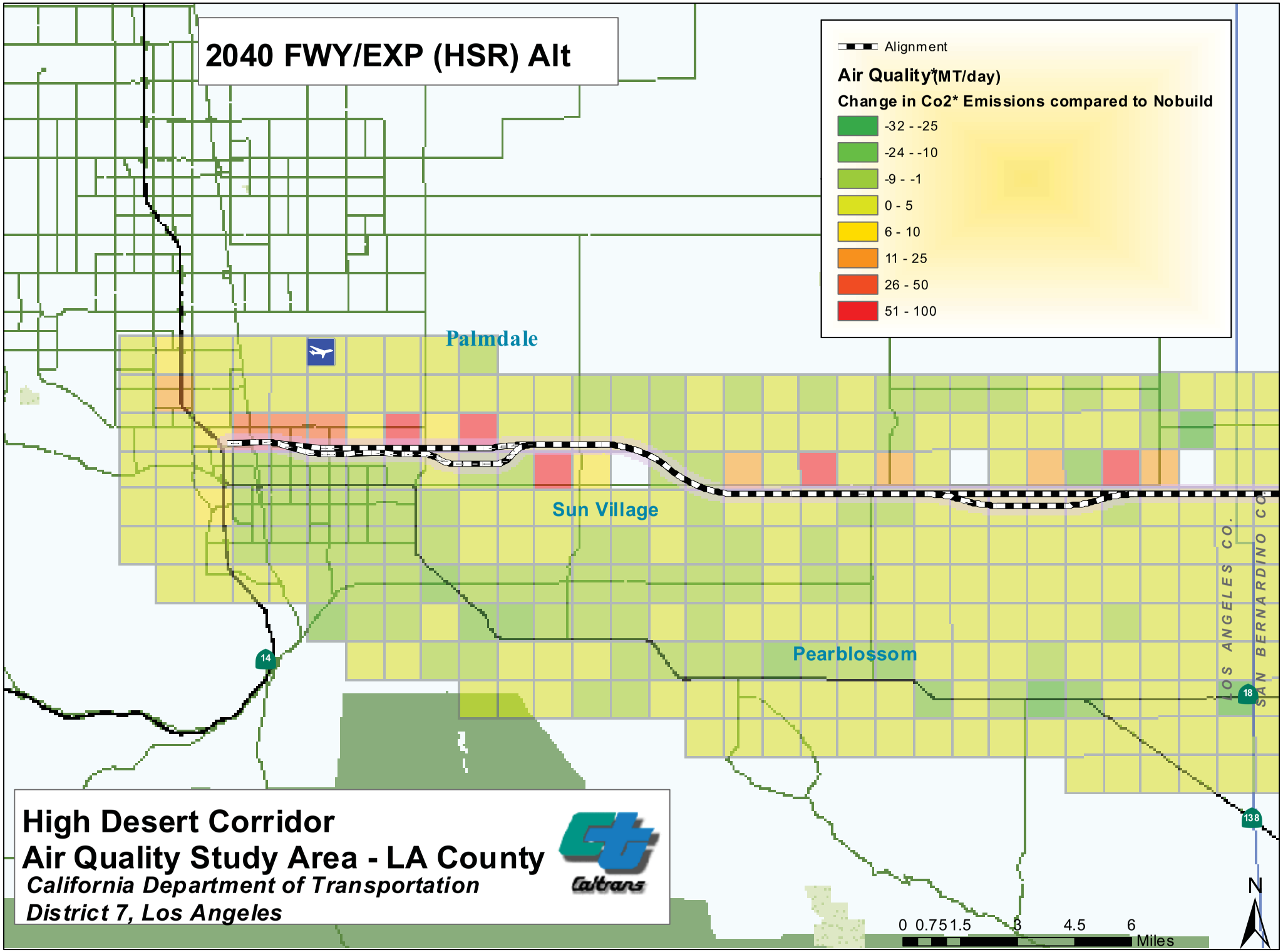

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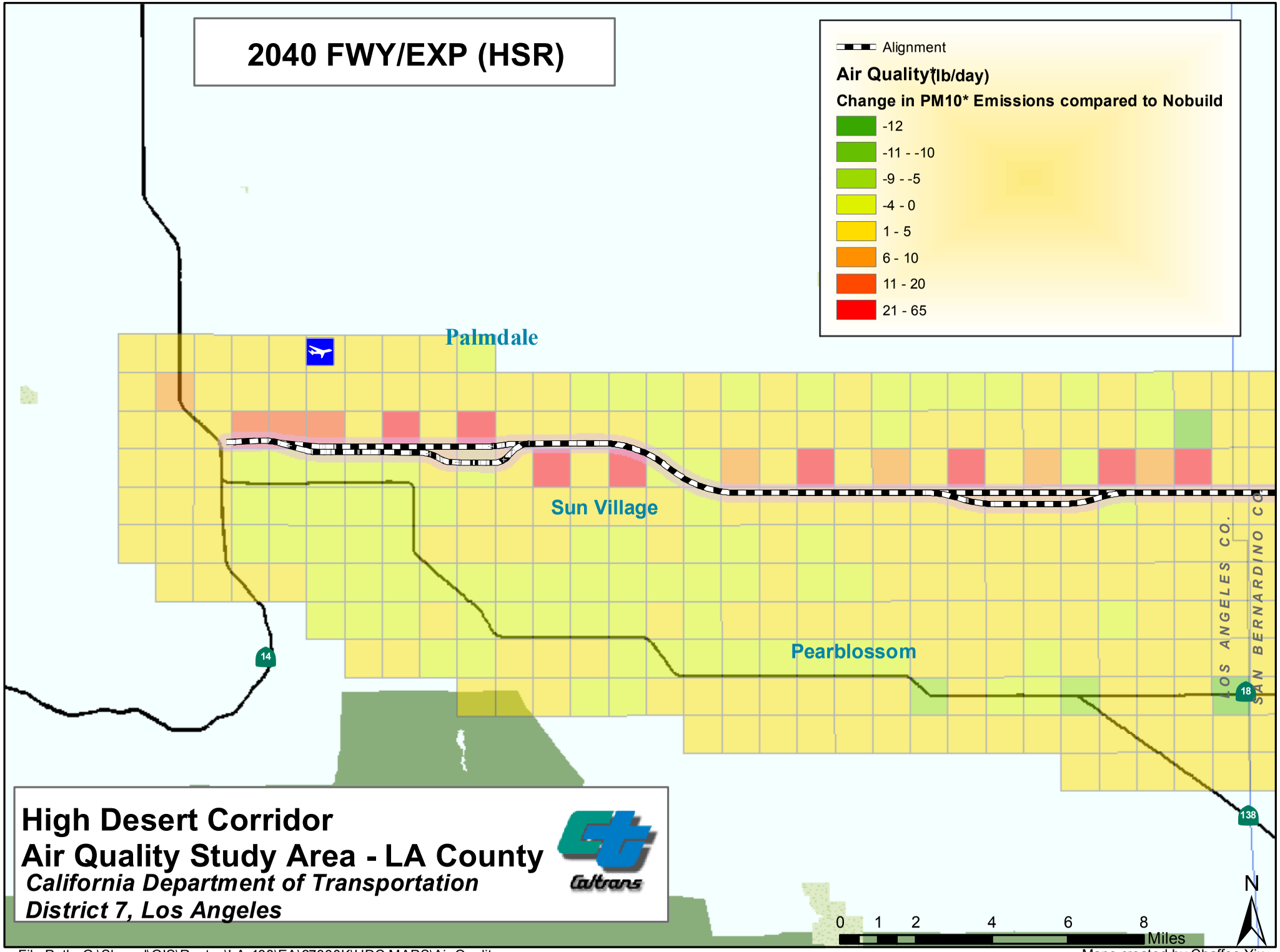

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Maps created by Chaffee Yiu
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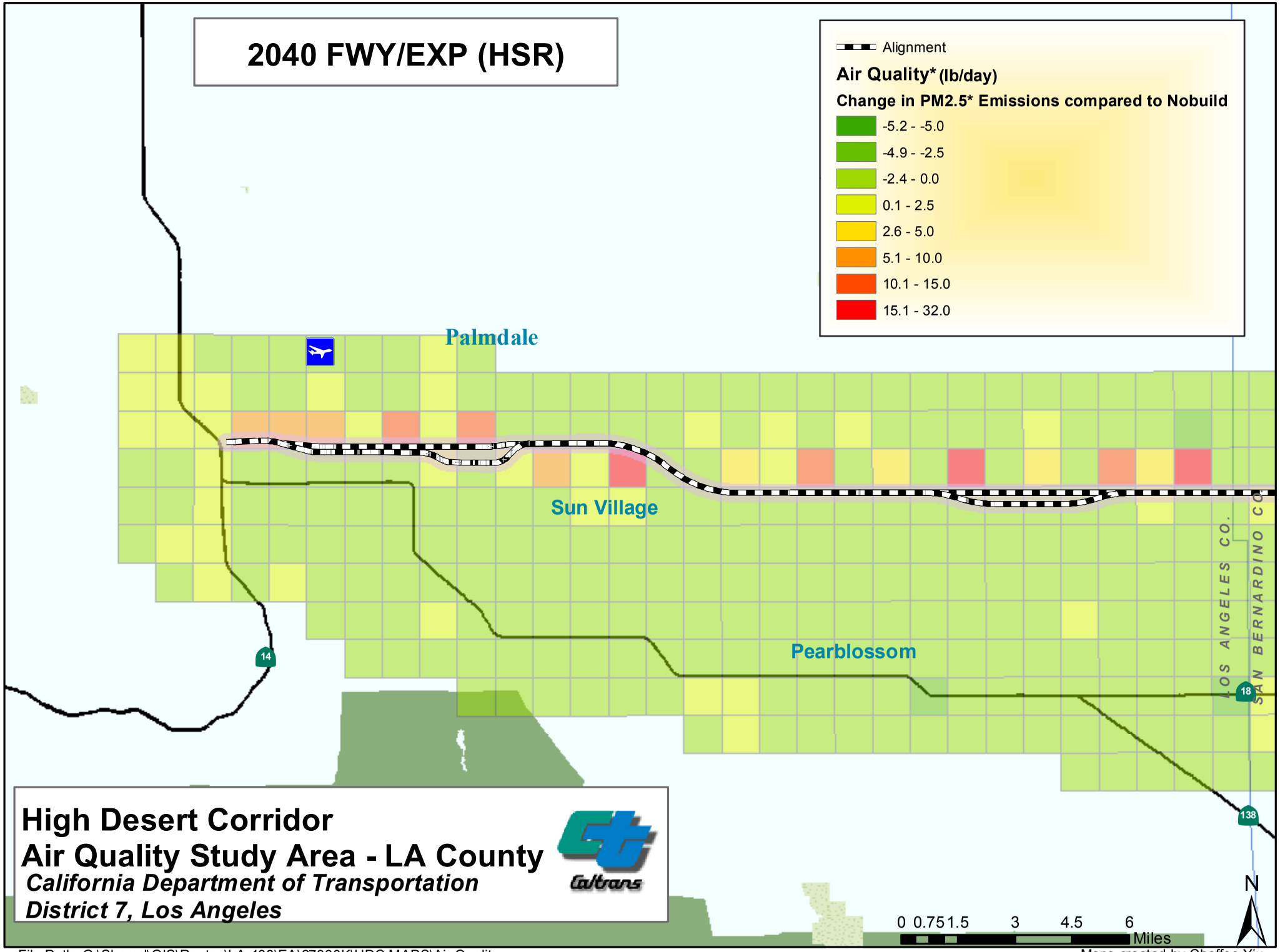

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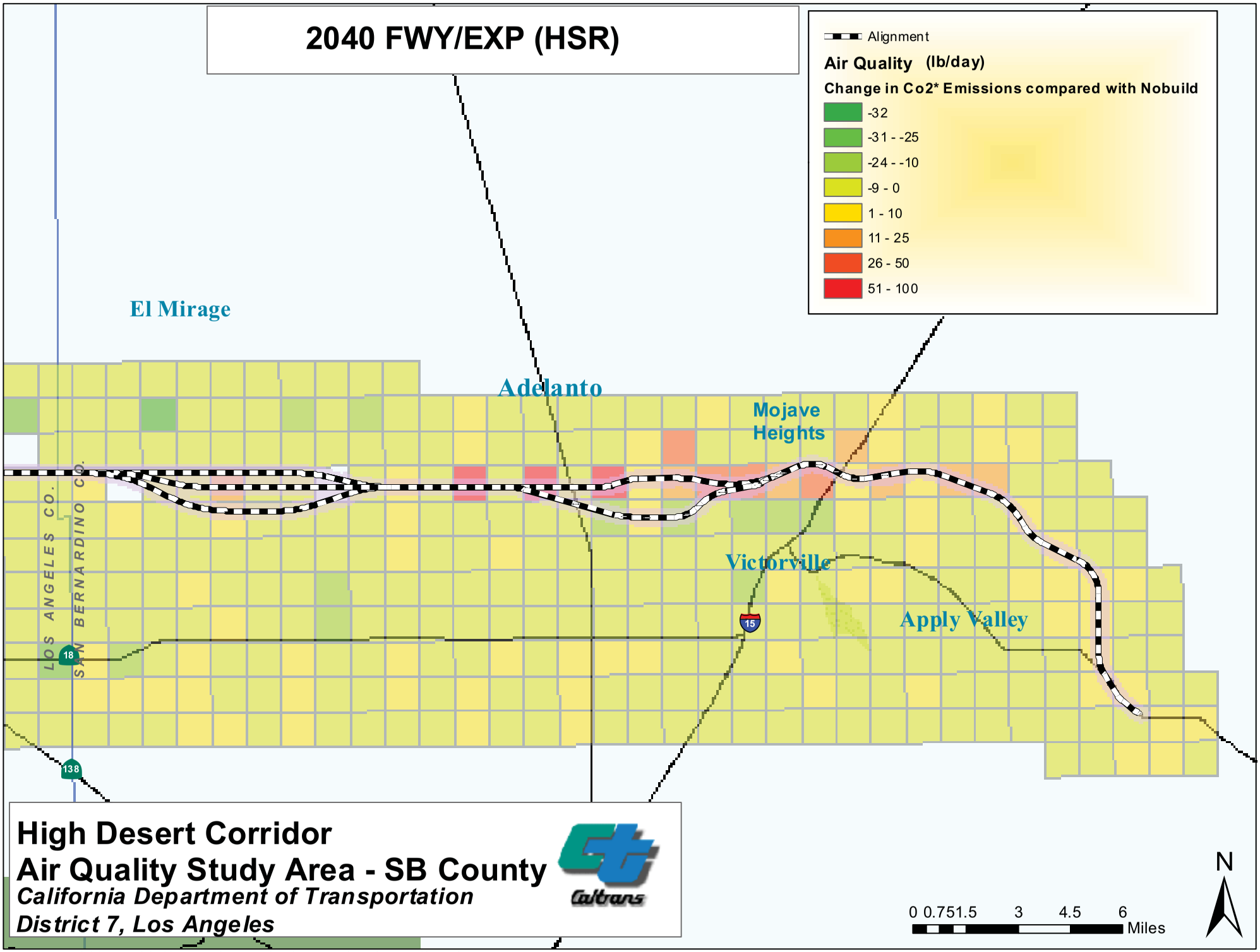
Maps created by Chaffee Yiu
01/2014 Robert Wang 8/20/14



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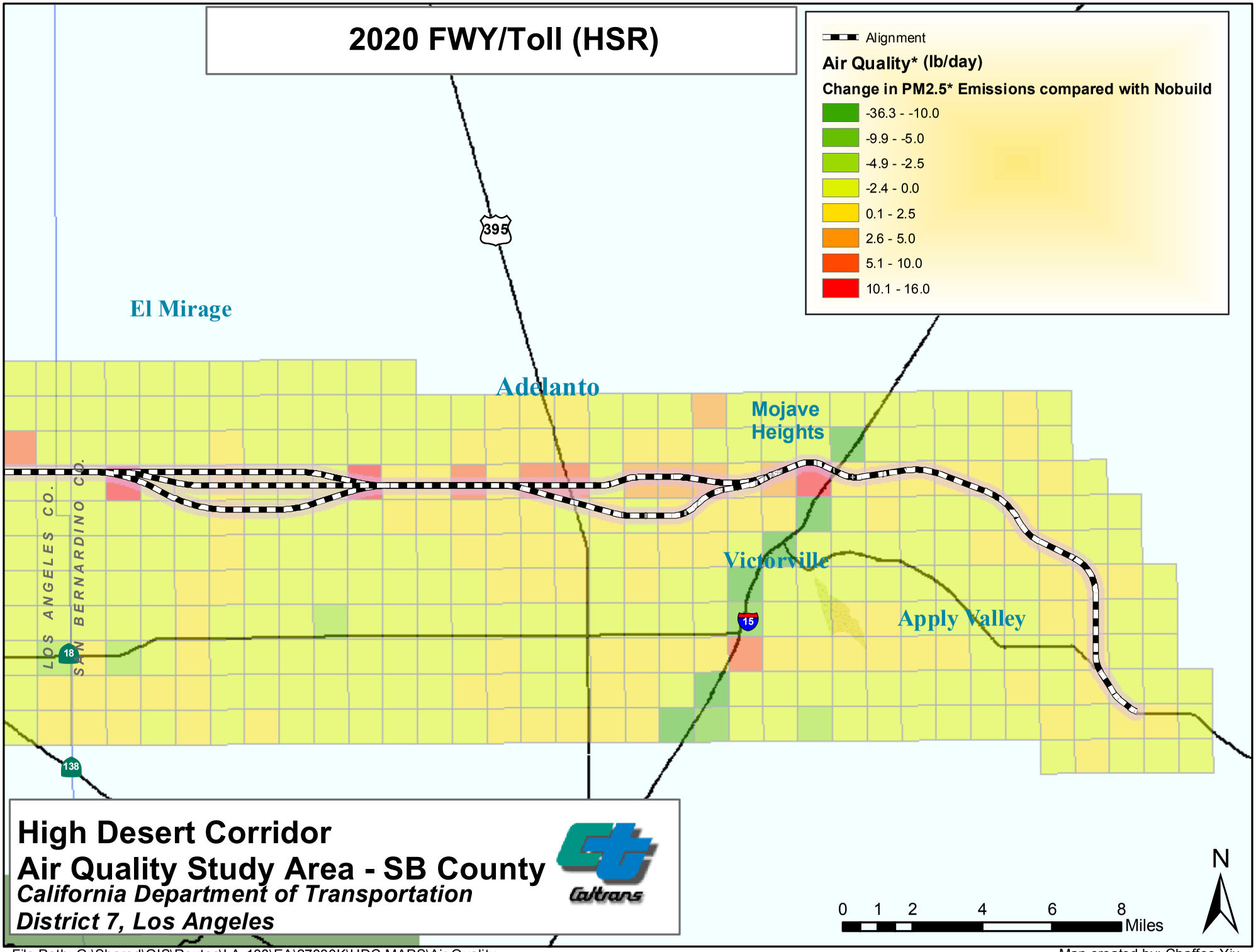
Map created by: Chaffee Yiu
01/2014



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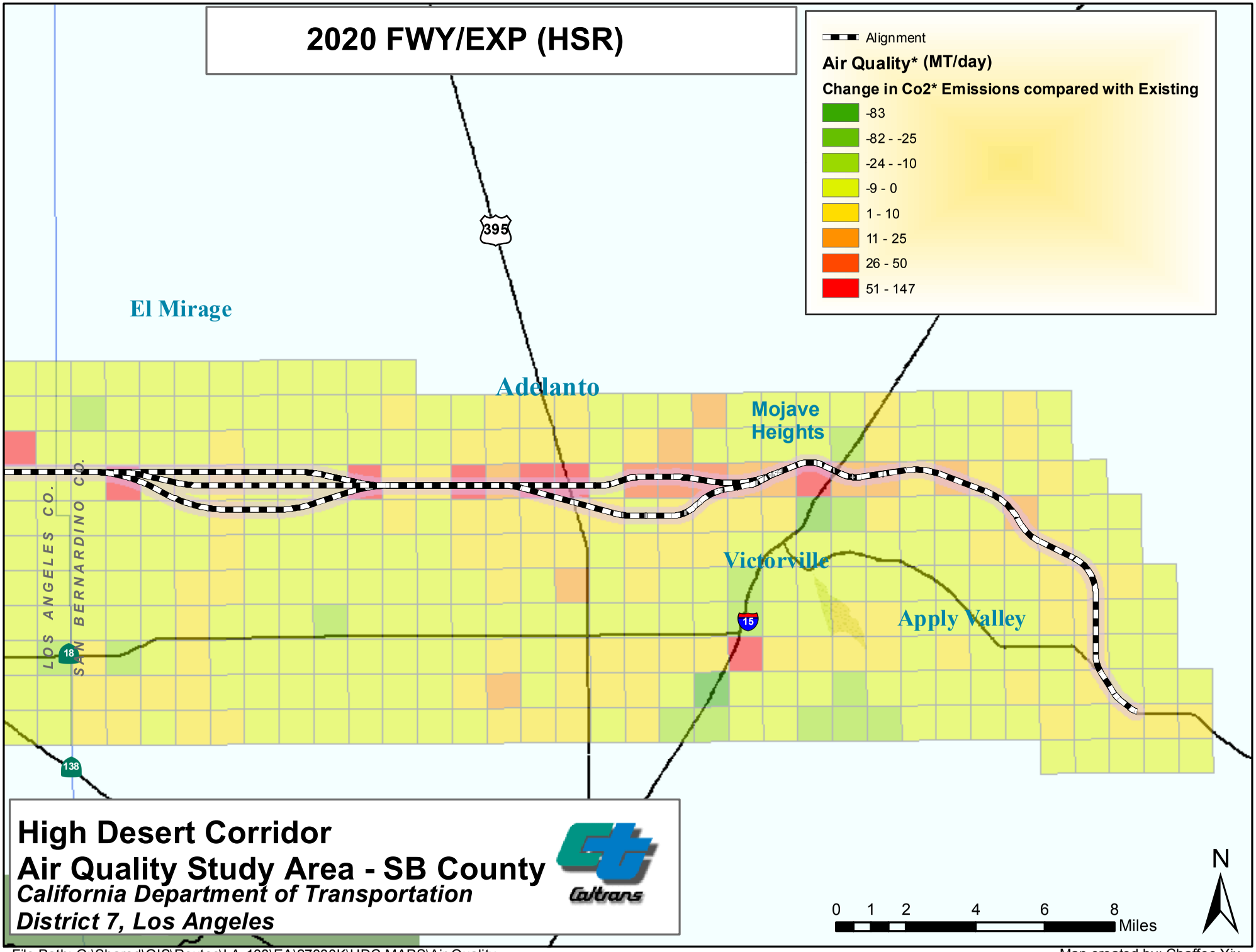

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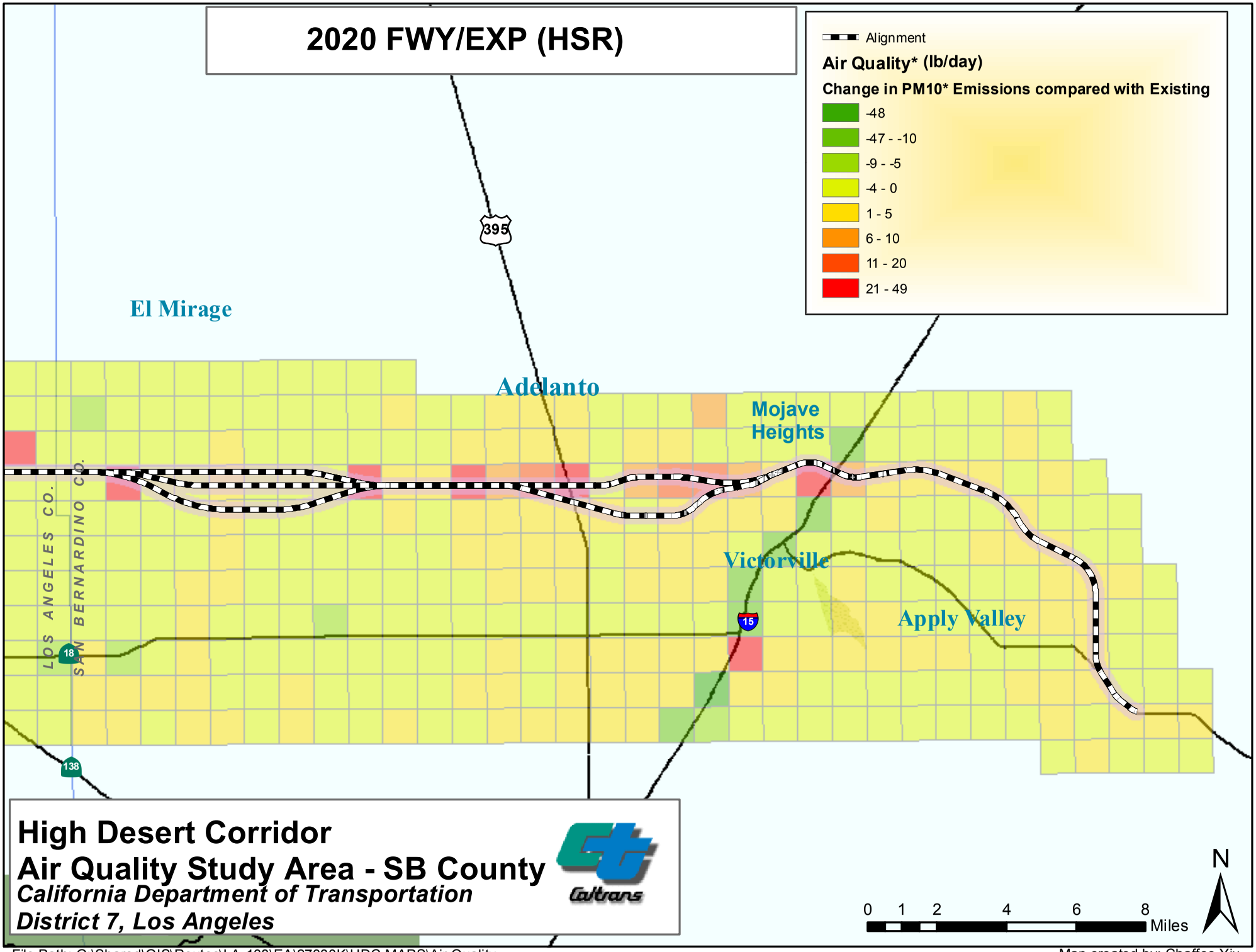

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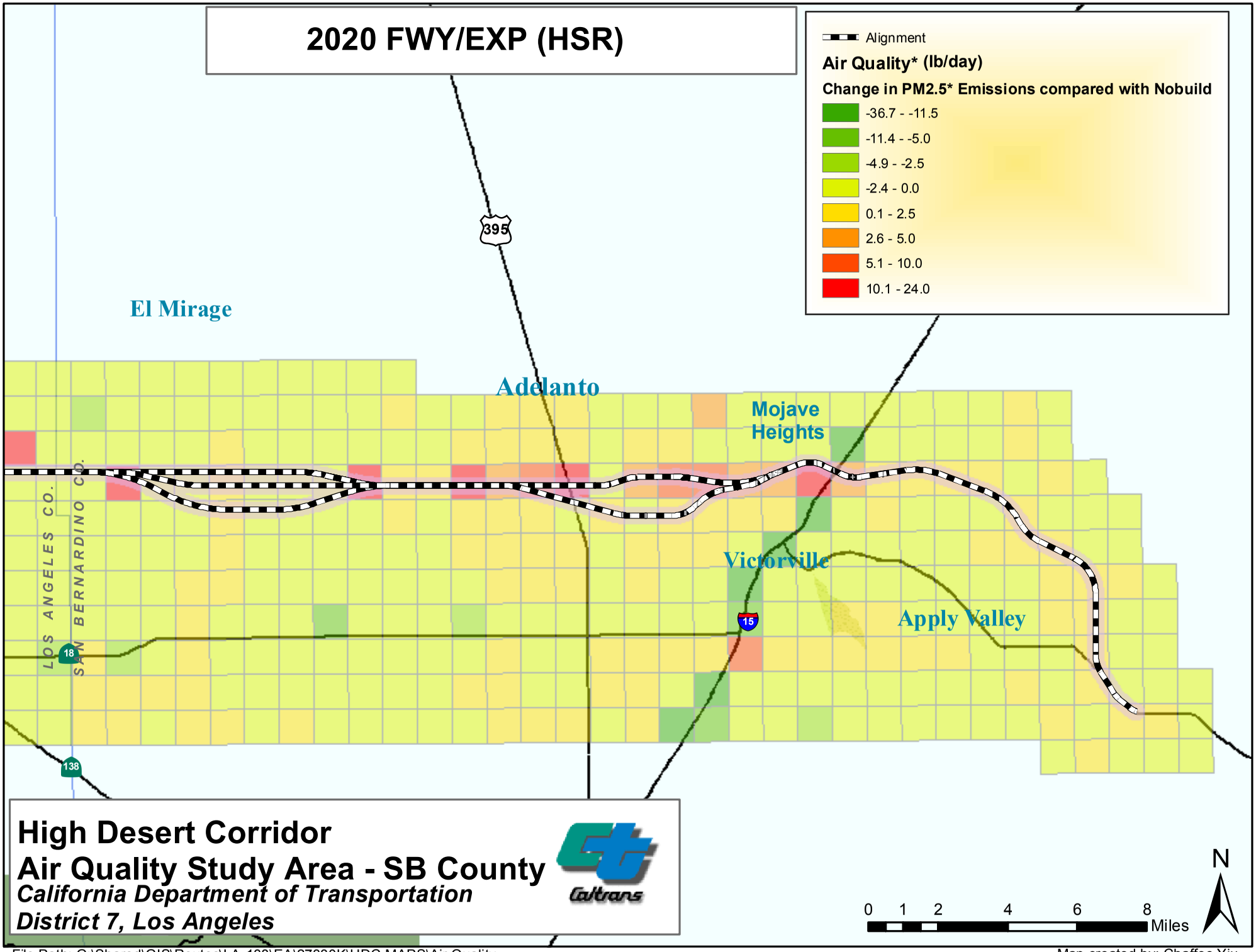

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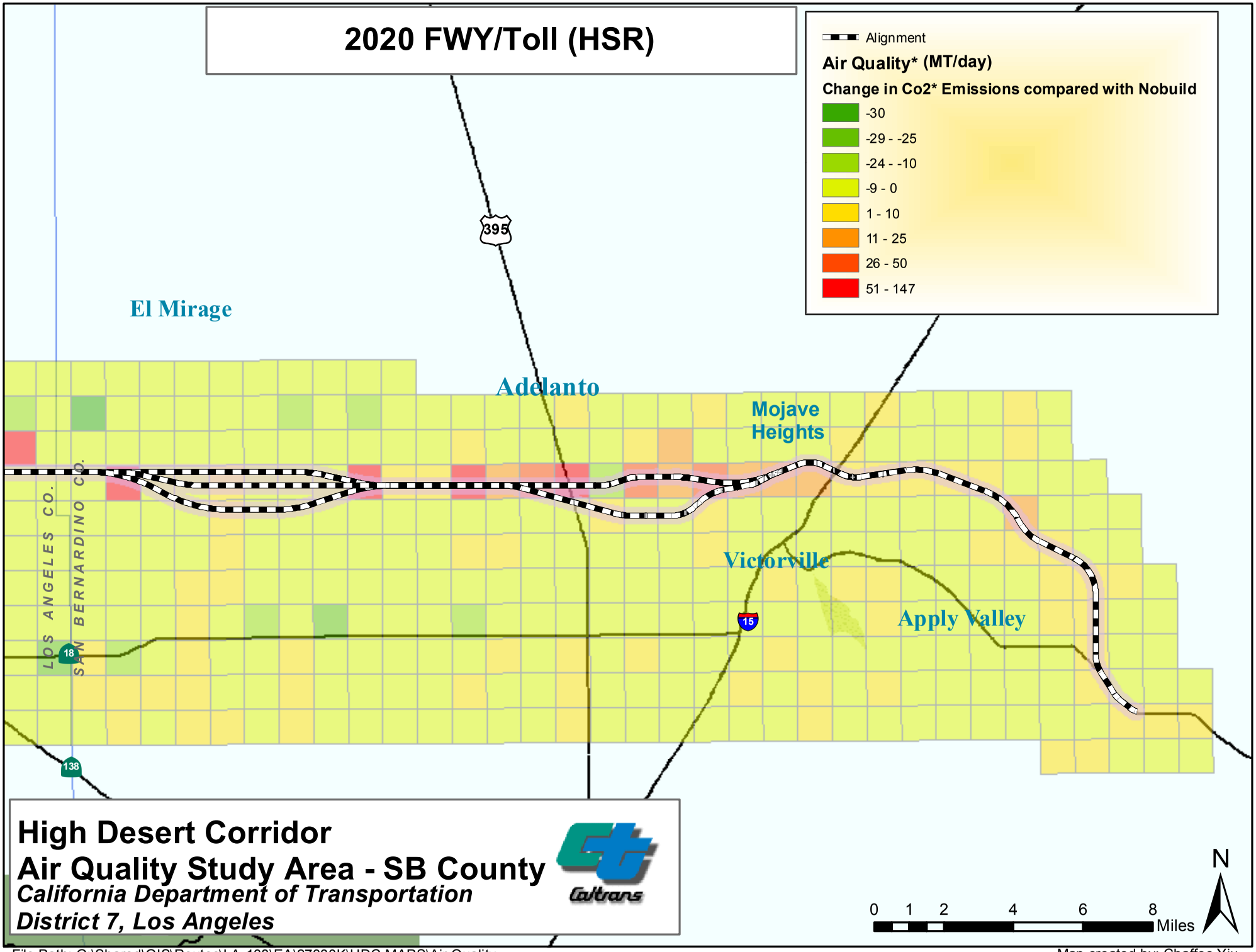

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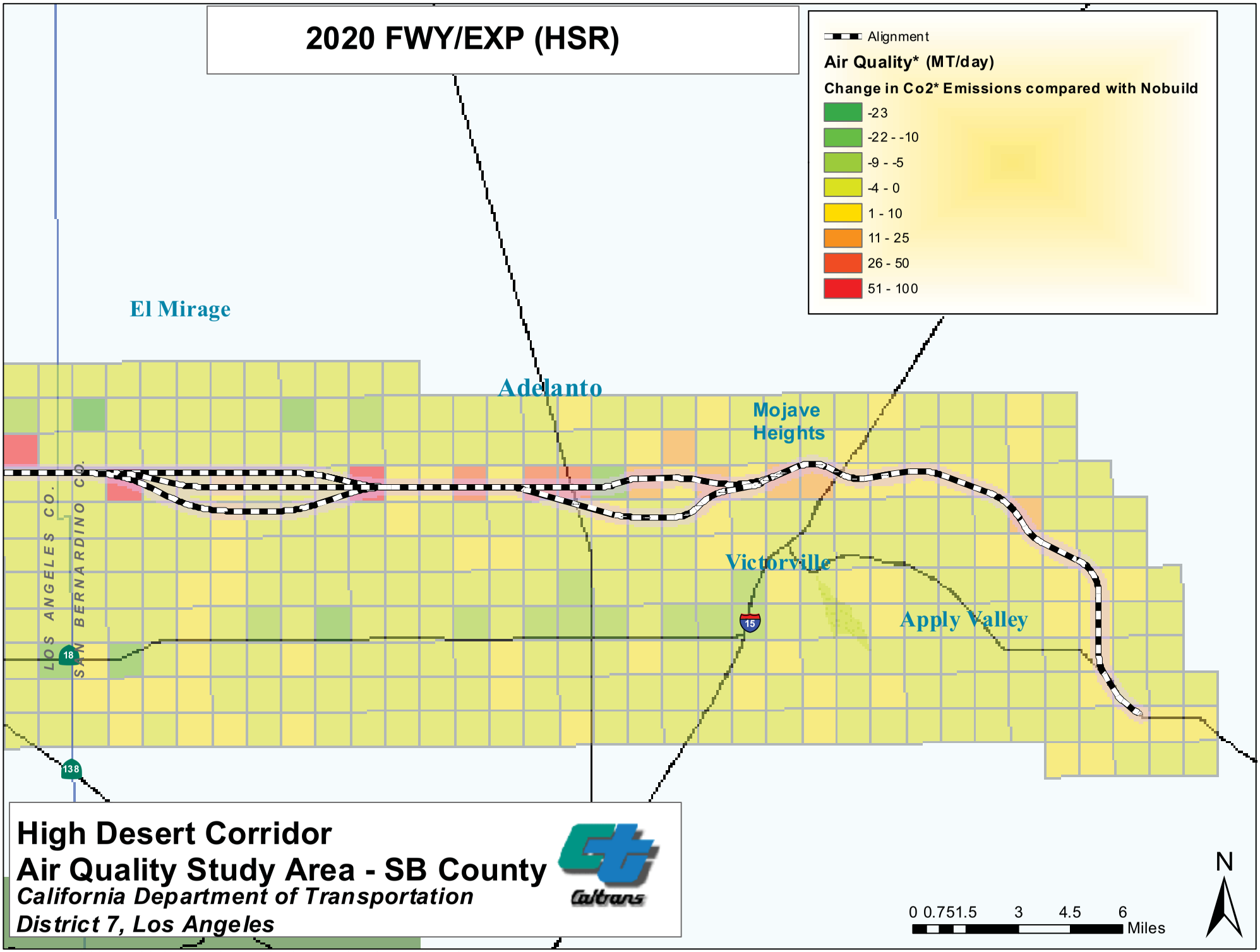

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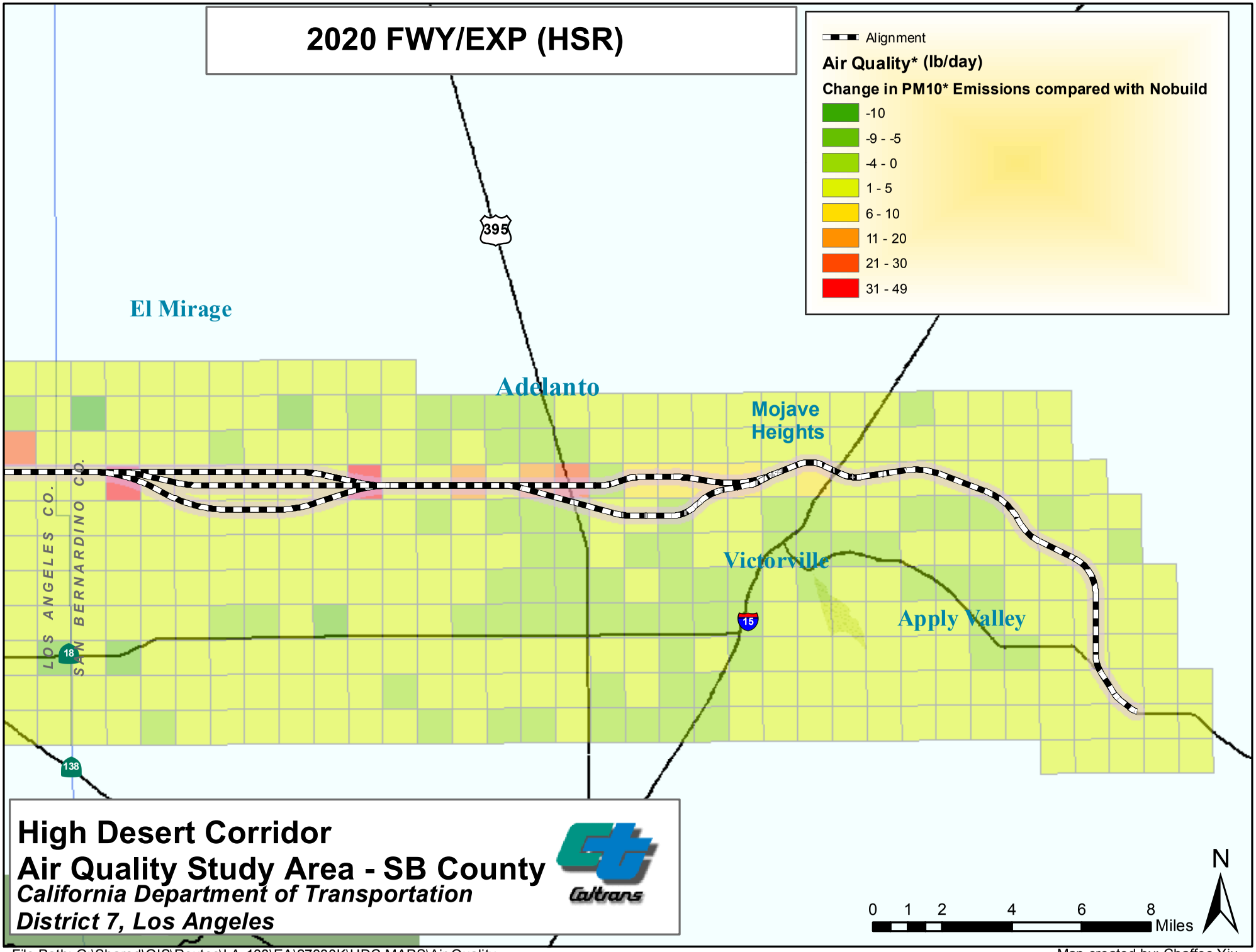

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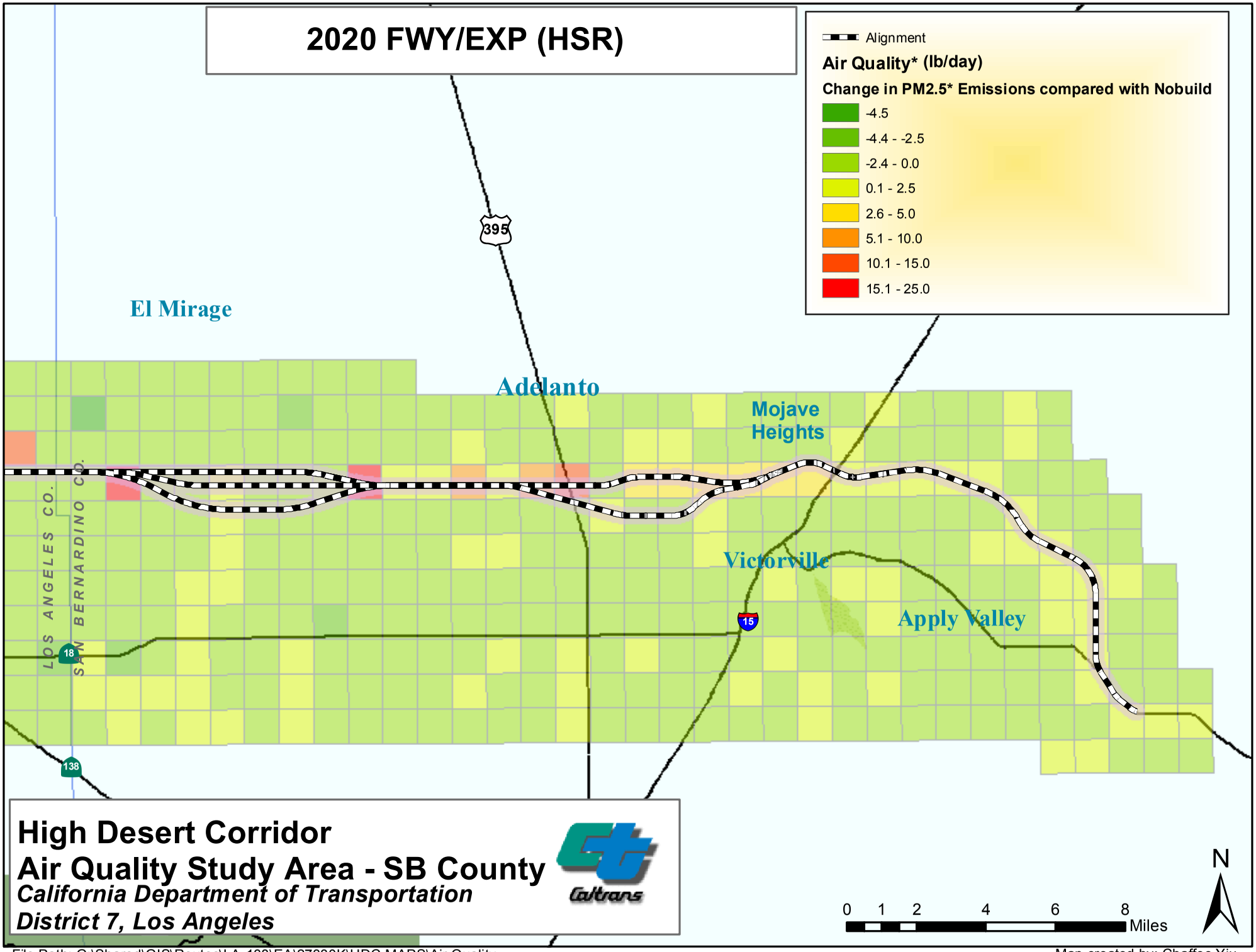

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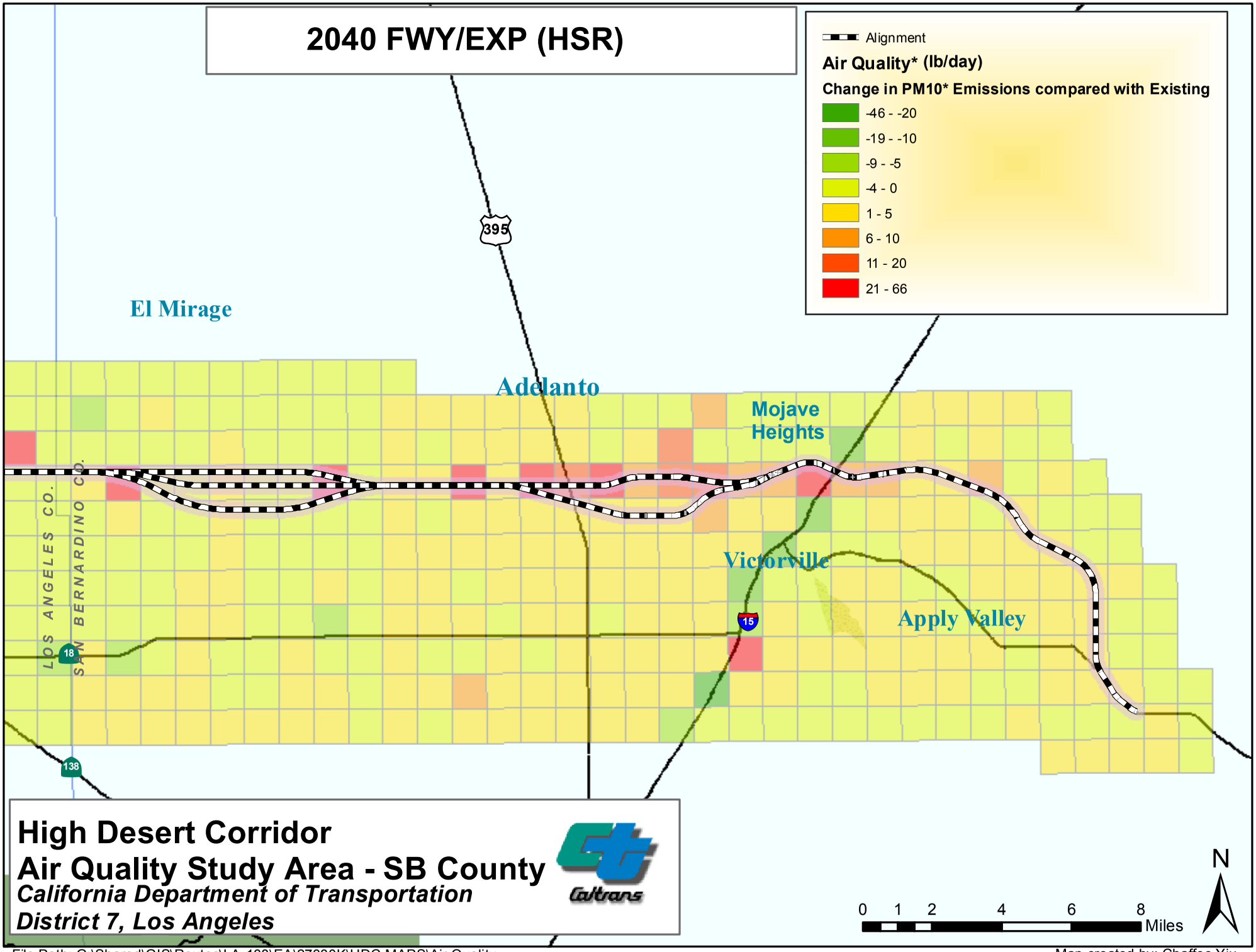

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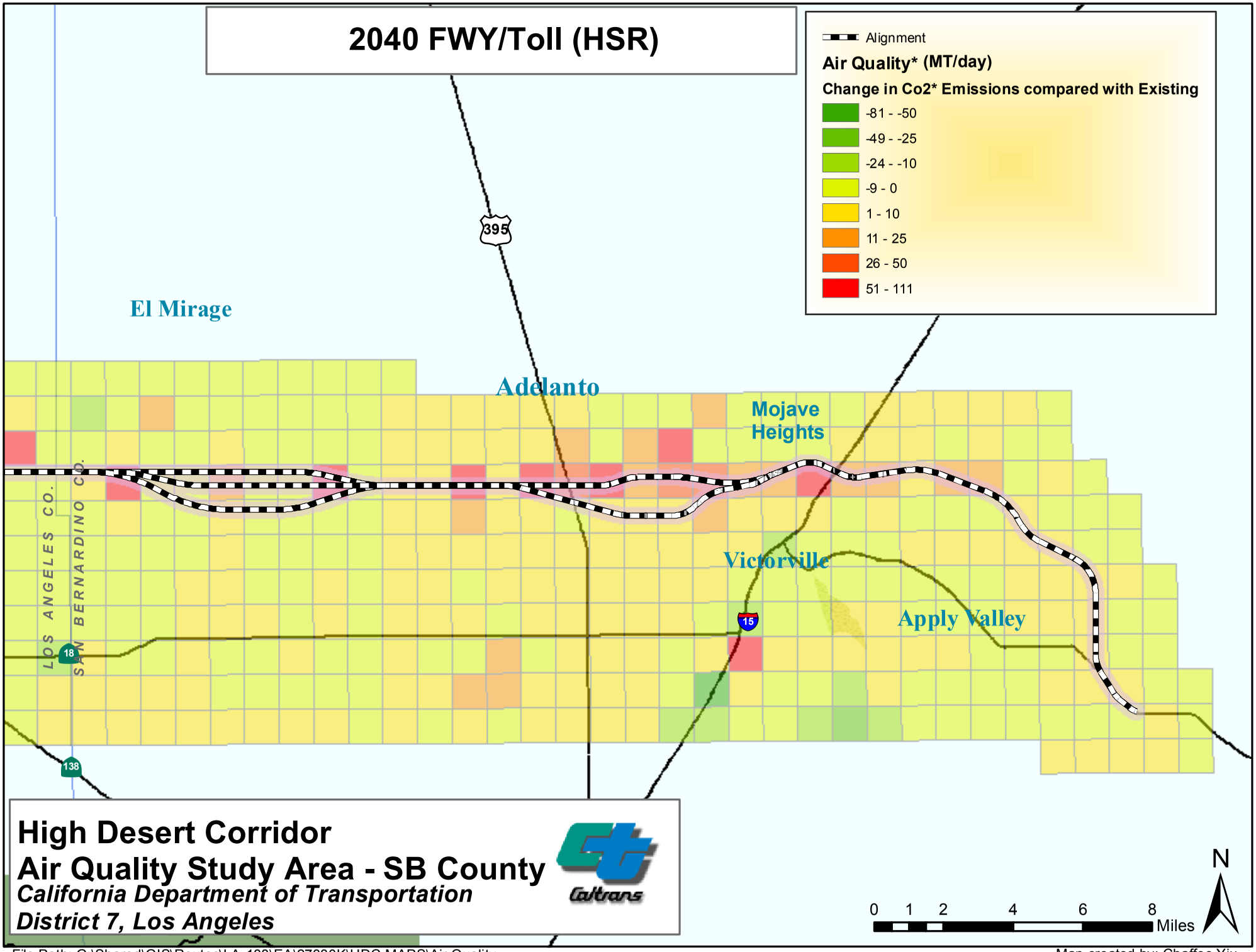

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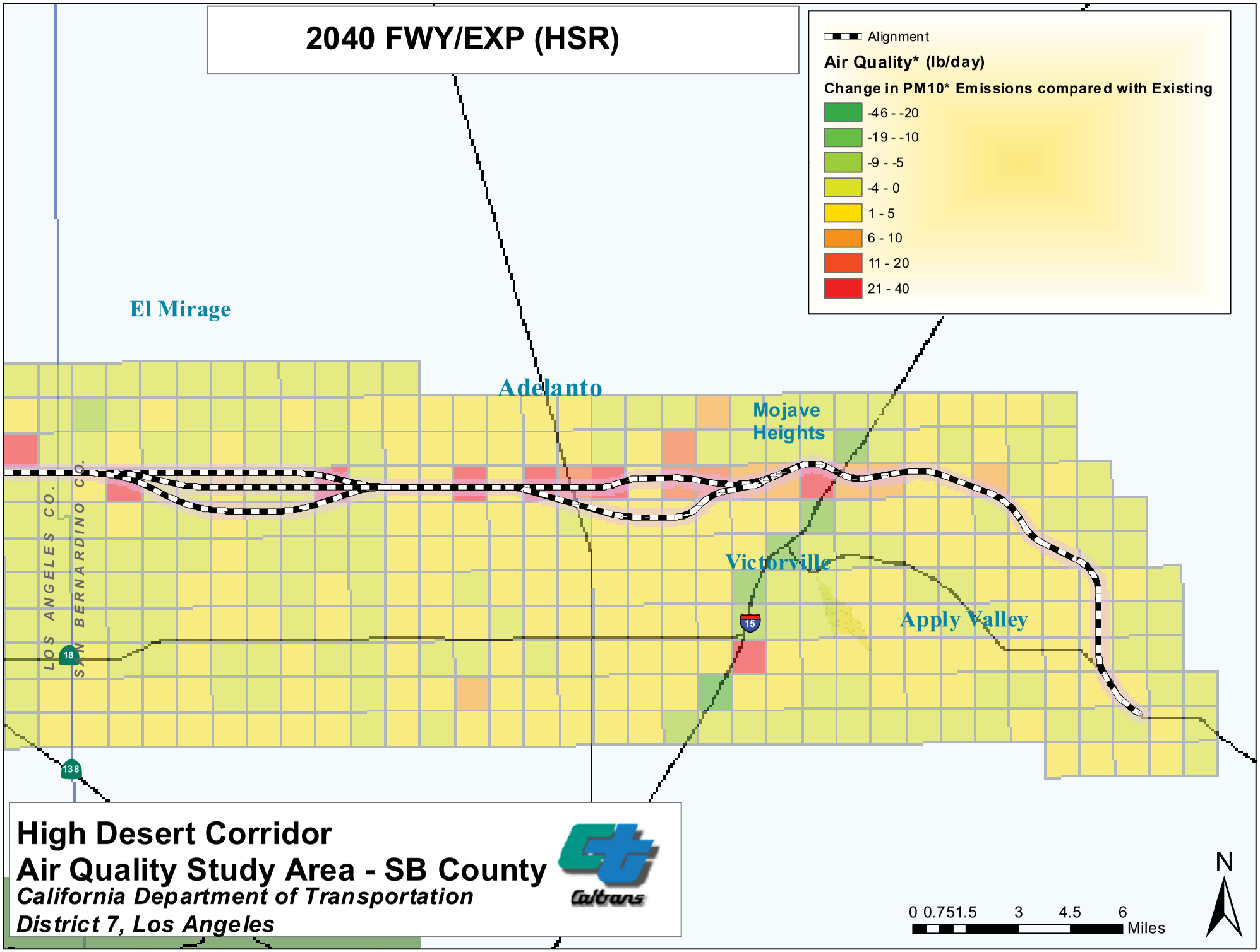

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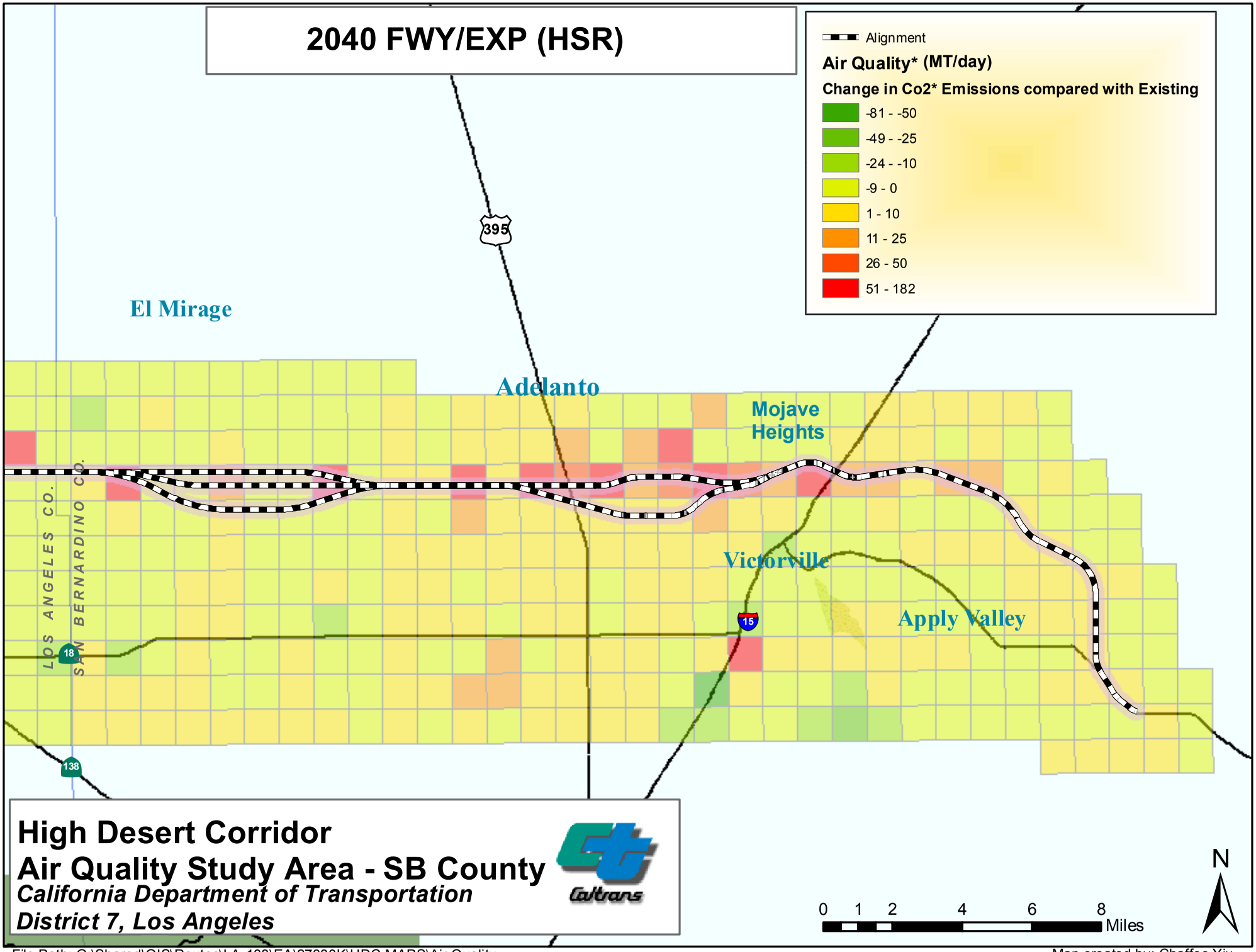

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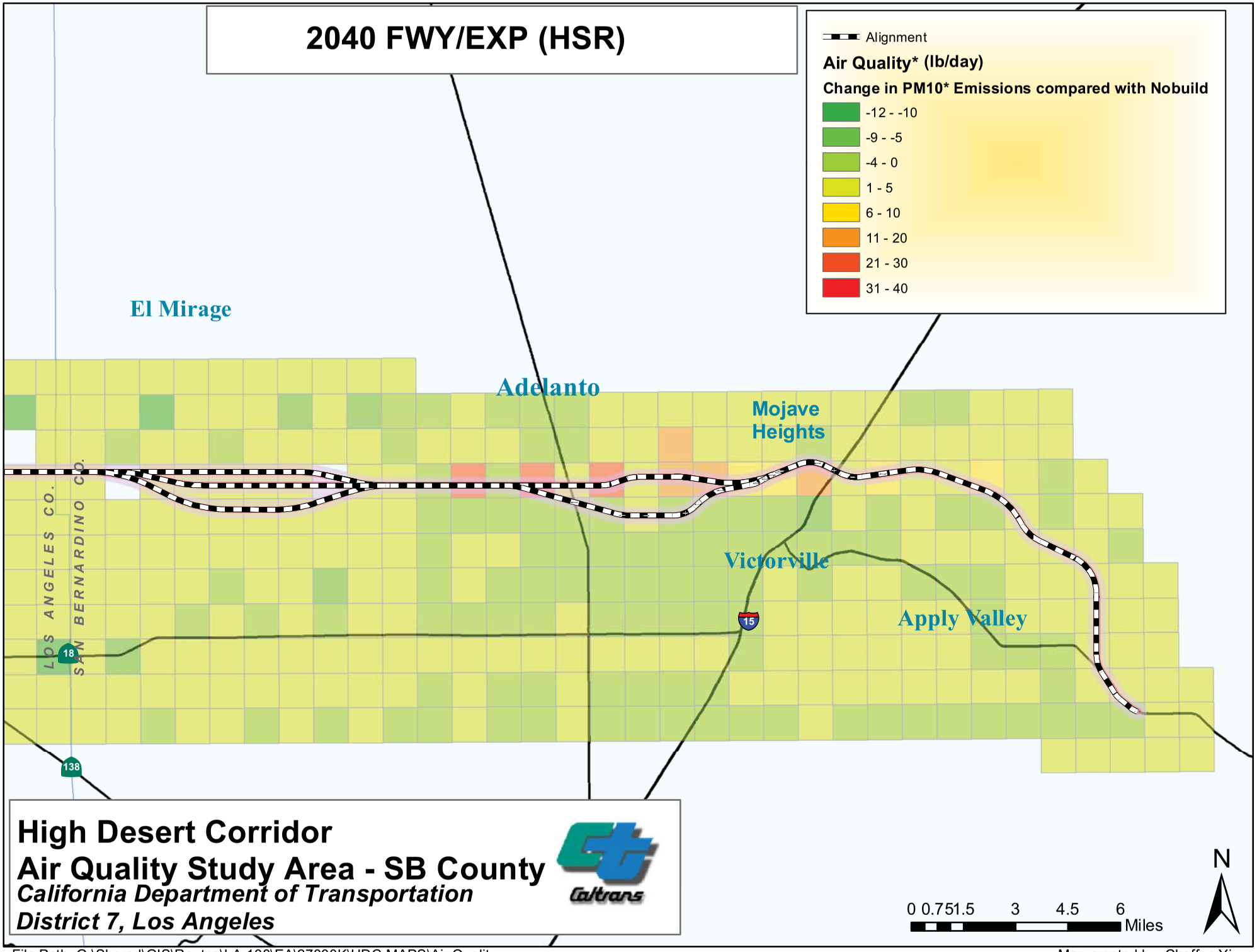

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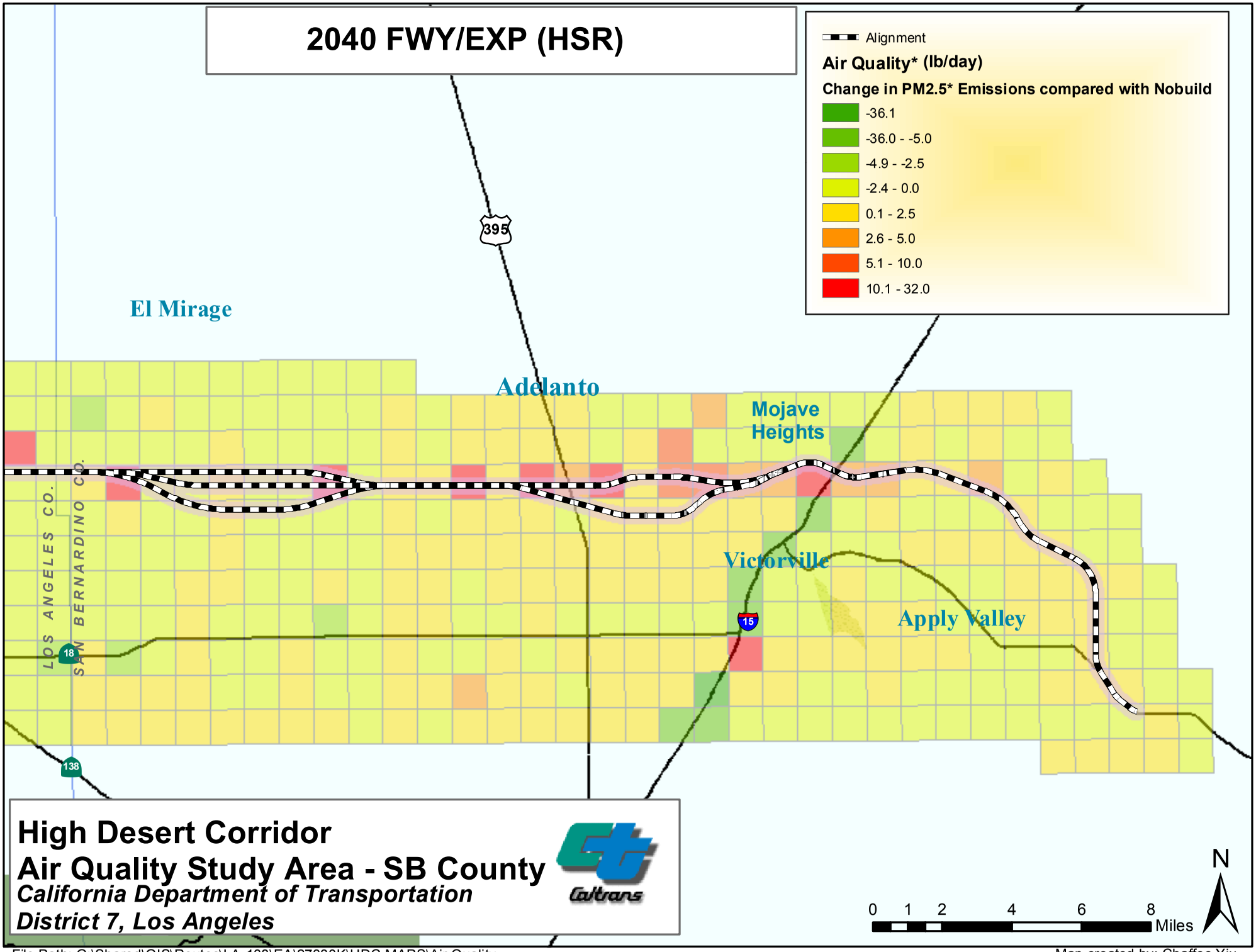

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