AIR QUALITY REPORT

I-215/University Parkway Interchange Improvement Project

San Bernardino, CA

08-SBd-215-PM 11.35/11.95
EA 0E4200
Project No. 0800000083

Caltrans

September 2018

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SAN BERNARDINO COUNTY, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 8

E.A. 0E4200
Project No. 0800000083

08-SBd-215-PM 11.35/11.95

Reviewed by: Olufemi Odufalu Date: 9/27/18

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Acronyms and Abbreviations

Term	Definition
ºF	Degrees Fahrenheit
AADT	Average annual daily traffic
AB	Assembly bill
ADT	Average daily traffic
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ATM	Active Traffic Management
BACM	Best available control measures
BMP	Best Management Practice
BRT	Bus rapid transit
CAAQS	California Ambient Air Quality Standards
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Climate Action Program
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
City	City of San Bernardino
CO	Carbon monoxide
CO_2	Carbon dioxide
County	County of San Bernardino
EO	Executive Order
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration

Term	Definition
ft	Feet
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
IPCC	International Panel on Climate Change
ITS	Intelligent Transportation Systems
LOS	Level of service
LRTP	Long Range Transportation Plan
mi	Miles
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSAT	Mobile Source Air Toxics
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NO_x	Nitrogen oxide
O&M	Operations and maintenance
O_3	Ozone
OMB	White House Office of Management & Budget
OPR	Office of Planning and Research
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter

Term	Definition
ppm	Parts per million
Protocol	Transportation Project-Level Carbon Monoxide Protocol
ROGs	Reactive organic gases
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SBCTA	San Bernardino County Transportation Authority
SCAG	Southern California Association of Governments
SIP	State Implementation Plan
SO_2	Sulfur dioxide
TACs	Toxic air contaminants
TDM	Transportation Demand Management
TSM	Transportation System Management
TIP	Transportation Improvement Program
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
UV	Ultraviolet
VHT	Vehicle hours traveled
VMT	Vehicle miles traveled
VOCs	Volatile organic compounds

1. Proposed Project Description

1.1 Introduction

The San Bernardino County Transportation Authority (SBCTA), in cooperation with the California Department of Transportation (Caltrans) and the City of San Bernardino (City), is proposing to improve the Interstate 215 (I-215)/University Parkway Interchange in the City of San Bernardino, California (Figure 1-1 Regional Location and Project Vicinity). Caltrans is the lead agency under the California Environmental Quality Act (CEQA). Caltrans is also the lead agency under the National Environmental Policy Act (NEPA), as assigned by the Federal Highway Administration (FHWA), in accordance with NEPA (42 United States Code [USC] 4321 et seq.) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508).

1.2 Location and Background

The proposed Project is included in the 2017 Federal Transportation Improvement Program (FTIP) and the Southern California Association of Government's (SCAG) 2016 Regional Transportation Plan (RTP) for San Bernardino County as Project ID: SBD59204. The Project location is shown in Figure 1-1.

1.3 Purpose and Need

1.3.1 Purpose of the Project

The purpose of the proposed Project is to plan for the projected regional population growth, California State University San Bernardino (CSUSB) enrollment increases, and increase traffic demands at the existing I-215/University Parkway interchange for the planning design year of 2040. The Project proposes to reconfigure the interchanges to improve traffic operations. The Project objectives are to:

- Support planned regional growth and proposed local-area projects
- Relieve traffic congestion and related GHG emissions by providing improved signalized intersection operational efficiency through the interchange area
- Improve vehicular, bicycle, pedestrian and transit access through the freeway ramp intersections accommodating all modes of transportation (Complete Street).

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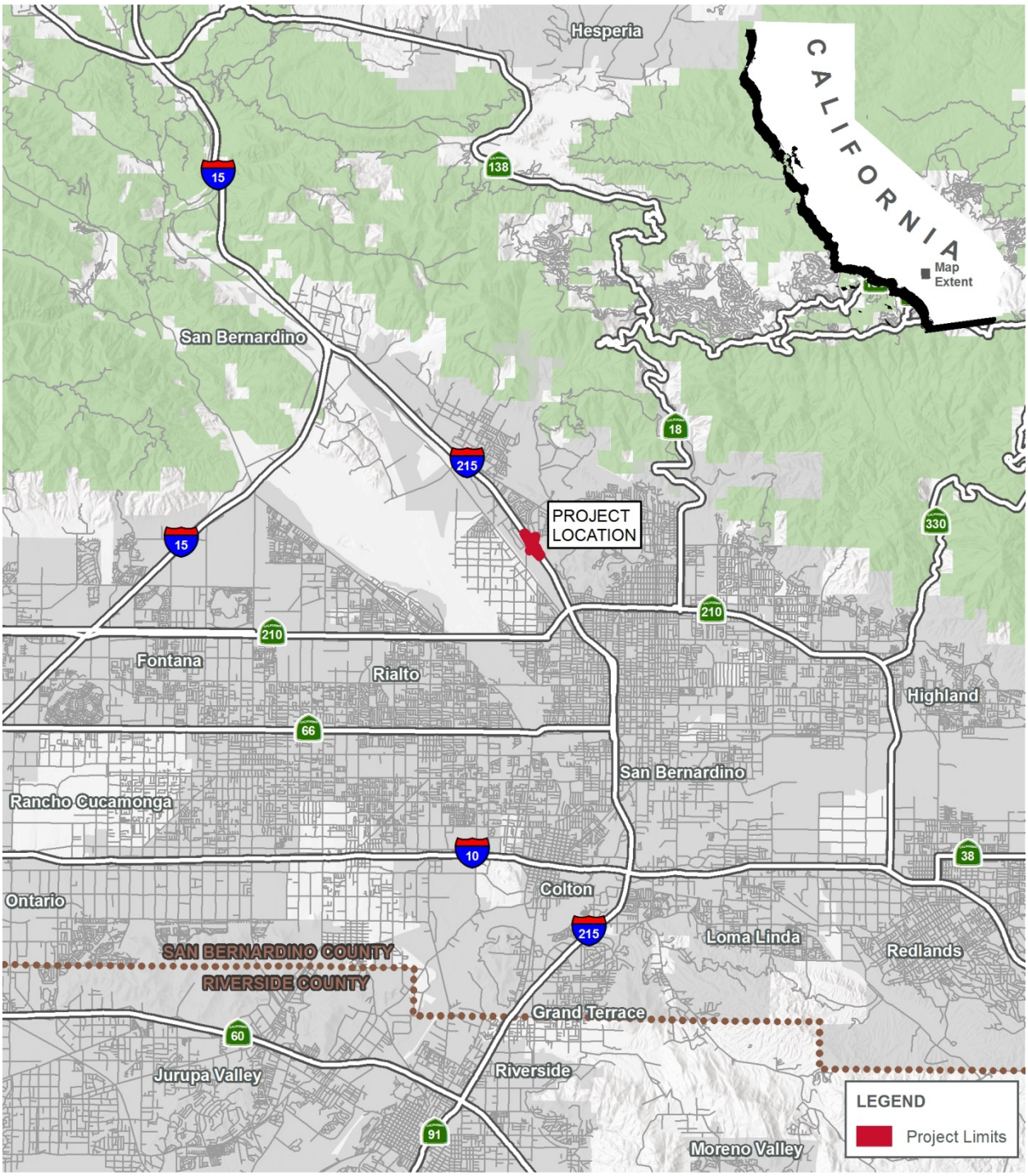

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I-215 University Parkway Interchange Improvement Project

Figure 1-1. Regional Location and Project Vicinity

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1.3.2 Need for the Project

Ongoing growth and development in the area has increased commuter traffic at the I-215/University Parkway interchange. The interchange is the primary freeway access for CSUSB, as well as a number of businesses and area residents. This has caused inadequate interchange queuing capacity and existing geometric deficiencies, including the following:

- Southbound I-215 entrance and exit ramps are operating near or over the design capacity during peak period traffic volumes
- Northbound I-215 entrance and exit ramps are operating near or over the design capacity during peak period traffic volumes
- Intersection delays attributable to excessive traffic and deficient traffic signal operations

The accident analysis provided in the *Project Study Report* (PSR) (dated October 2016) indicates the collision rates at the northbound exit and southbound entrance interchange ramps have higher than state average accident rates. Improvements at these locations would alleviate traffic collisions related to congestion by making the intersection operations more efficient for commuters.

To accommodate the anticipated increase in traffic vehicular volumes and future operational needs within the corridor, the existing interchange would require improved operational efficiency and employ improved vehicular, bicycle, and pedestrian access. The proposed Project would address these local circulation issues.

1.4 Baseline and Forecasted Conditions for No-Build and Project Alternatives

A single build alternative and a No Build alternative are being evaluated as part of the Project. The Project limits (Figure 1-2) are located within Caltrans and City right-of-way (ROW). The areas within and immediately adjacent to the Project limits are predominately developed and generally consist of commercial/retail land uses. The existing interchange serves as a main point of access for students, faculty, and visitors of CSUSB.

1.4.1 Existing Roadways and Traffic Conditions

Existing traffic counts at the driveways, roadway segments, and freeway facilities were collected in spring (March 3 through 8, 2017) when CSUSB and other schools were in session and were used in the development of future forecasts. Freeway traffic volumes under the Existing (2017) conditions are shown in Figure 1-3.

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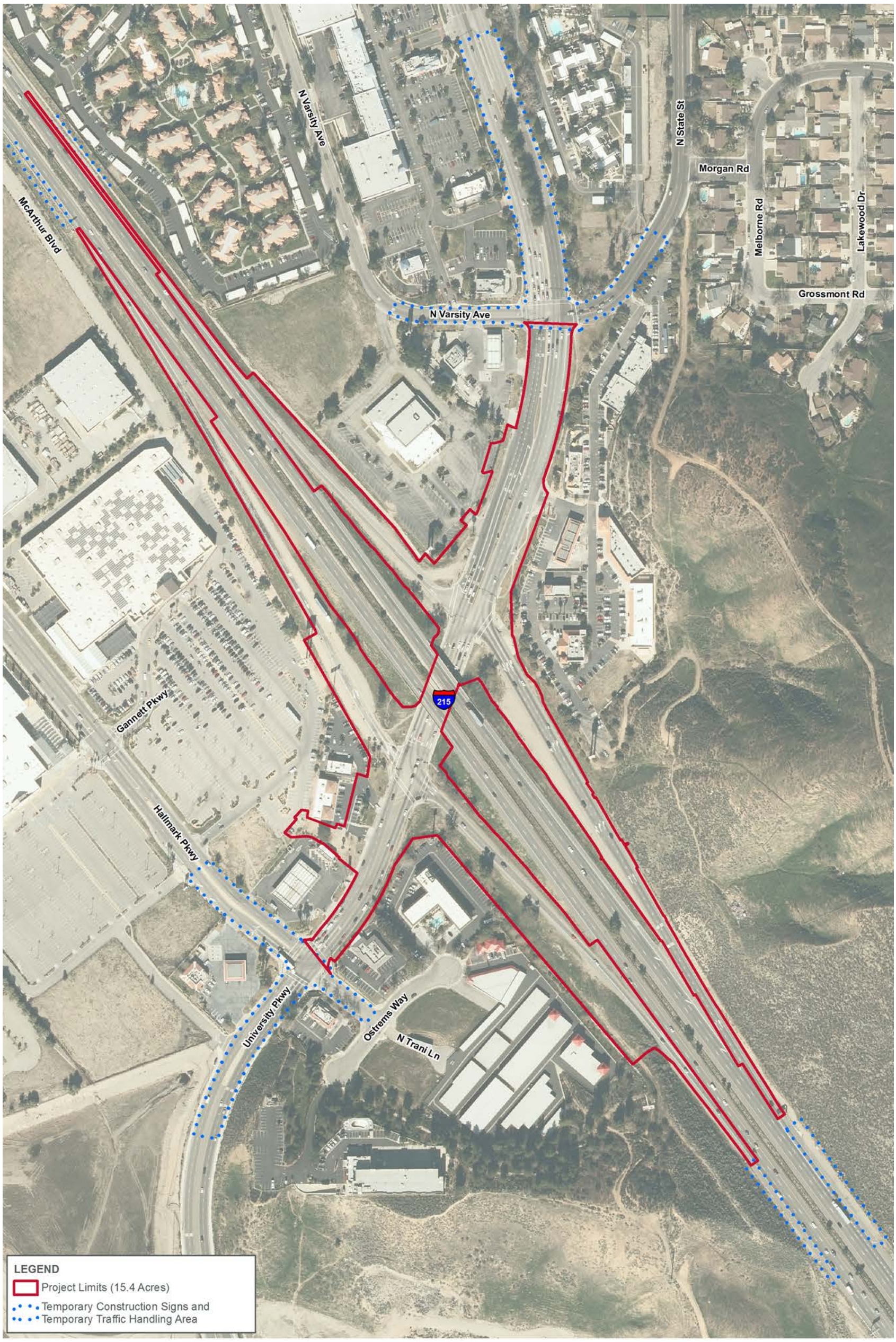

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I-215 University Parkway Interchange Improvement Project

Figure 1-2. Project Limits

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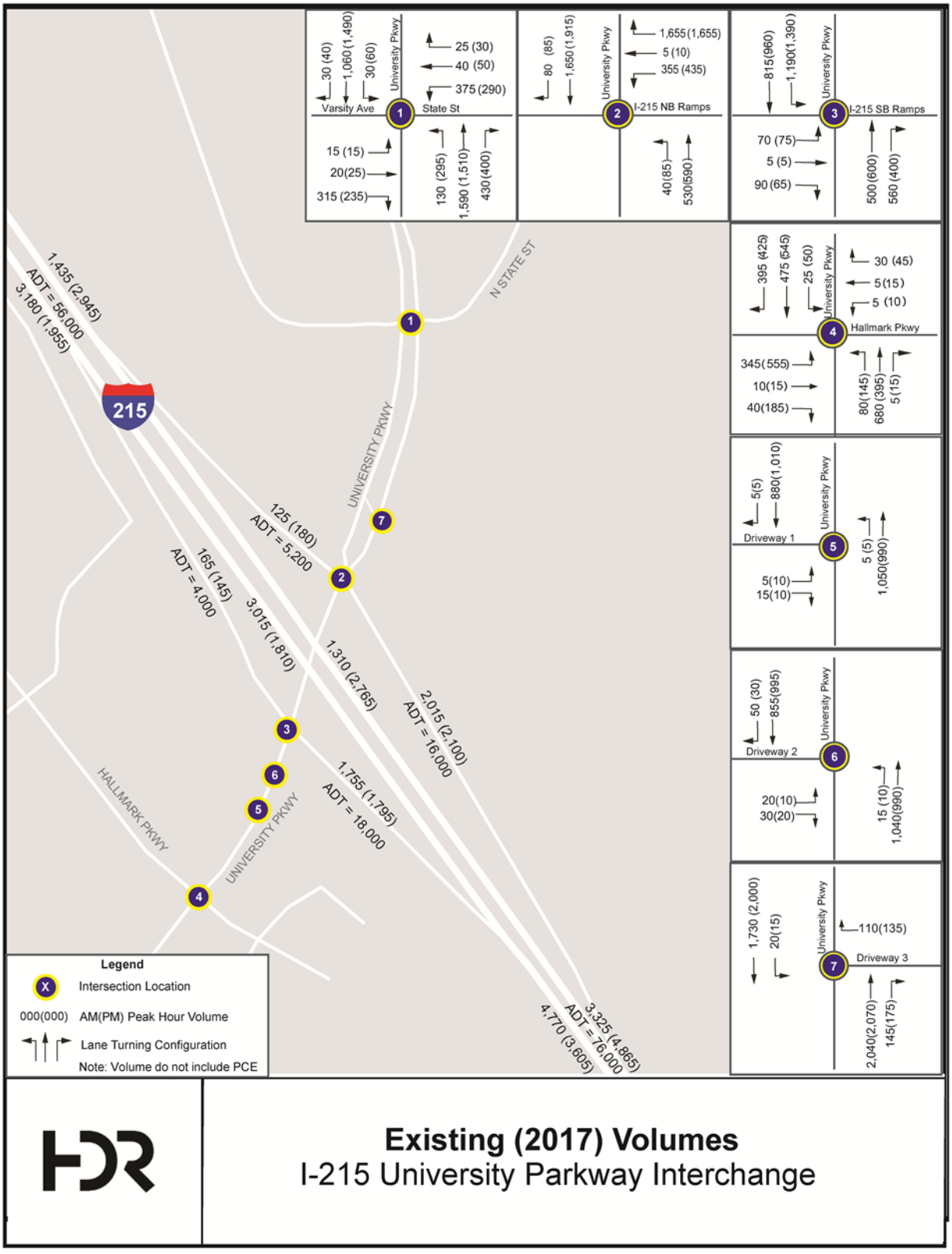

Figure 1-3. Existing Traffic Volumes

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1.4.2 Alternative 1 – No Build

Alternative 1 - No Build would maintain the facility in its current condition. No improvements would be implemented at this time and therefore, no capital cost is associated with this alternative. As traffic demand increases due to the planned growth in the area, specifically at CSUSB, traffic operational characteristics would further deteriorate. The Alternative 1 - No Build would not address or alleviate the forecasted operational and existing safety issues attributed to the severe congestion within the University Parkway Interchange and would not satisfy the purpose and need.

The No-Build Alternative consists of those transportation projects that are already planned for construction by or before 2020. Consequently, the No-Build alternative represents future travel conditions in the project study area without the I-215/University Parkway Interchange project and is the baseline against which the other project alternatives will be assessed to meet NEPA requirements.

Freeway traffic volumes under the Alternative 1 - No Build opening year (2020) and horizon year (2040) conditions are shown in Figure 1-4 and Figure 1-5, respectively.

1.4.3 Alternative 2 – Diverging Diamond Interchange

Alternative 2 - Diverging Diamond Interchange (DDI) would provide operational improvements to traffic flow associated with the I-215/University Parkway interchange. Alternative 2 proposes to replace the existing University Parkway tight diamond interchange configuration with a DDI configuration. The existing undercrossing would remain in place. This alternative would improve both ramp intersections of the current interchange, as well as directional movement through the system. Using the DDI configuration, the interchange would allow more efficient left-turn and right-turn movements at ramp terminals.

A DDI is the proposed design configuration for the I-215/University Parkway Interchange because of its ability to eliminate multiple traffic signal phases, which would reduce delay and improve traffic flow for multiple movements within the constrained area. A DDI would alleviate congestion within the interchange, along University Parkway and both ramp intersections.

Improvements under the proposed Project (Alternative 2) would occur within areas of previously disturbed soils located in the general vicinity of the existing I-215/University Parkway Interchange. No building structures would be disturbed as part of the proposed Project, including the existing University Parkway undercrossing and I-215 bridge structure. ROW requirements would potentially include partial acquisitions and temporary construction easements (TCE). Although no property relocations are anticipated as part of the proposed Project, changes to vehicular access at two areas along University Parkway are anticipated. These access changes are described below in Table 1-1.

As discussed in Table 1-1, below, two driveways currently serve the Scottish Rite property, located at 4400 N Varsity Ave. Primary driveway access for this property exists off of North Varsity Avenue, and secondary driveway access exists off of University Parkway, just north of the I-215 northbound (NB) on-ramp.

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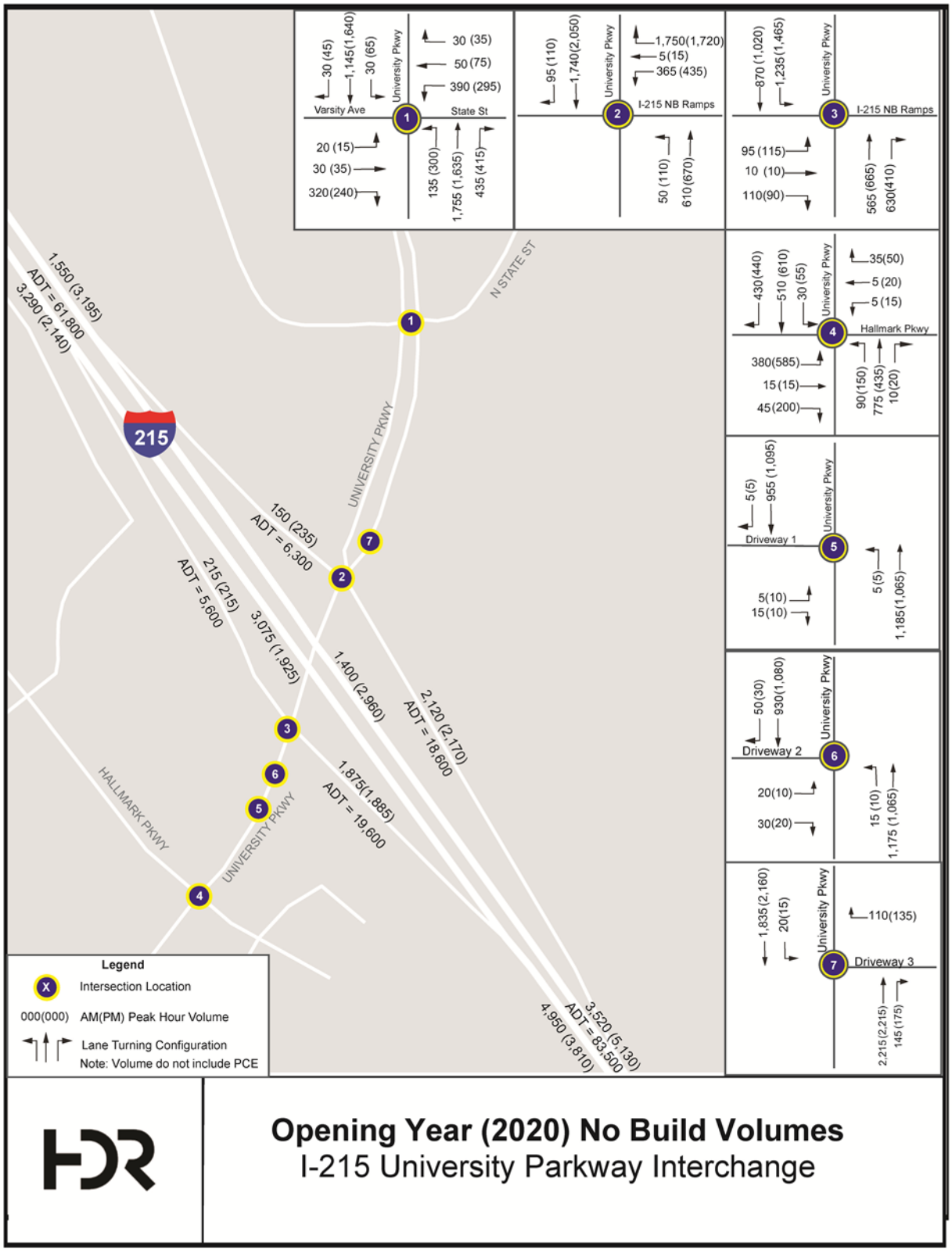

Figure 1-4. 2020 Alternative 1 – No Build Traffic Volumes

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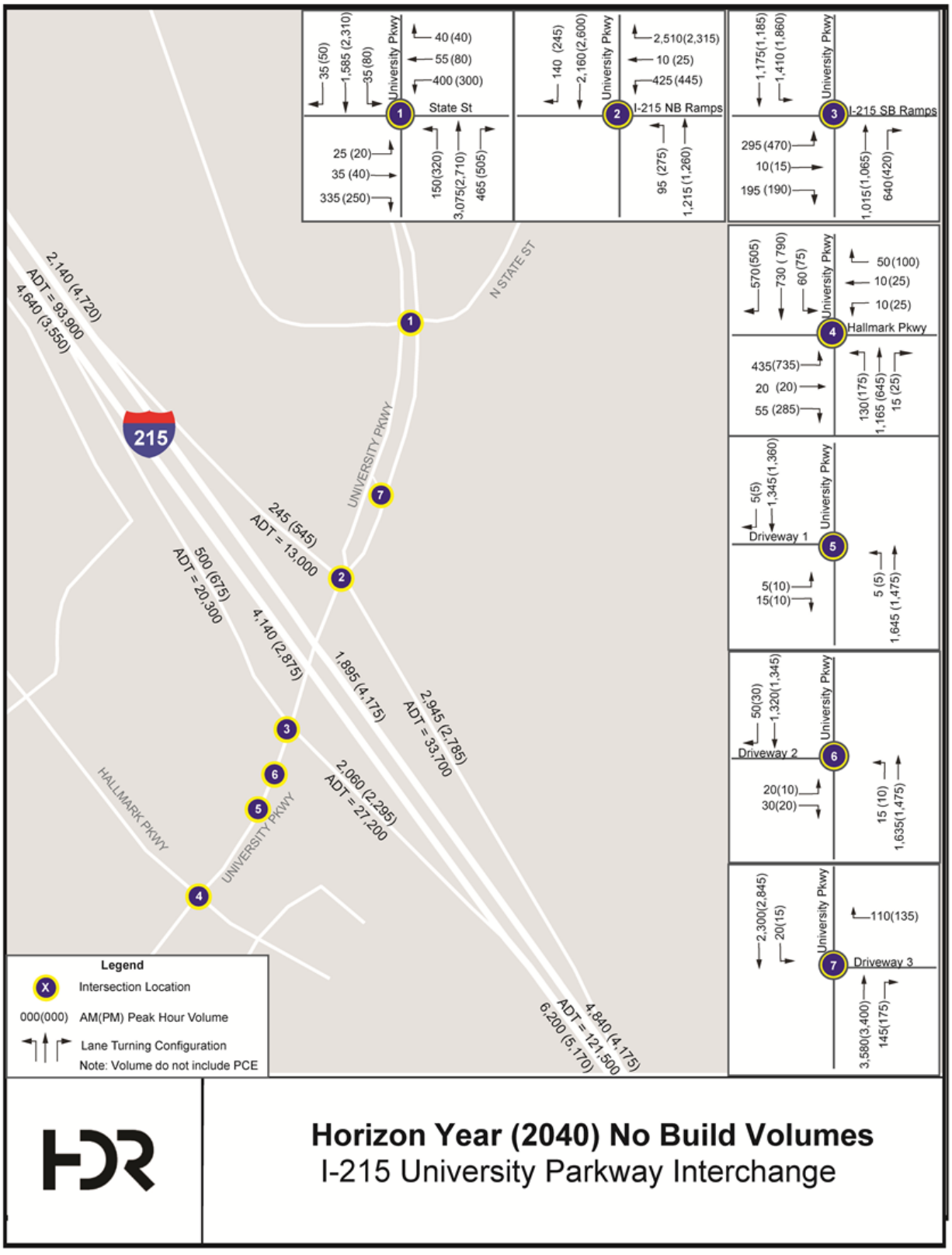

Figure 1-5. 2040 Alternative 1 – No Build Traffic Volumes

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The secondary driveway access for the Scottish Rite property, would be relocated north of its current location along University Parkway. Removal of the existing secondary driveway off of University Parkway would occur after the relocated secondary driveway is complete.

Table 1-1. Changes to Driveway Access on Adjacent Properties

Property	Location	Changes to Access
Scottish Rite Property	4400 N Varsity Avenue	Primary driveway access for the Scottish Rite property exists off of North Varsity Avenue. A secondary driveway for the property is located off of University Parkway. This secondary driveway access will be relocated just north of the existing secondary driveway on University Parkway, as part of the proposed Project.
Retail Plaza	4004-4020 University Parkway	The southern driveway for this retail plaza located off of University Parkway will be modified to improve vehicular access. The northern driveway, which currently serves as the main point of access for the Jack in the Box restaurant within this retail strip plaza off of University Parkway, would be removed after modifications to the southern driveway are complete.

Freeway traffic volumes under the Alternative 2 - Diverging Diamond Interchange opening year (2020) and horizon year (2040) conditions are shown in Figure 1-6 and Figure 1-7, respectively.

1.5 Construction Activities and Schedule

The schedule for all improvements is anticipated to begin in 2020 and end in 2020. As construction is planned to last less than one year, no construction activities are anticipated to last more than five years at any individual site. 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 to meet conformity requirements.

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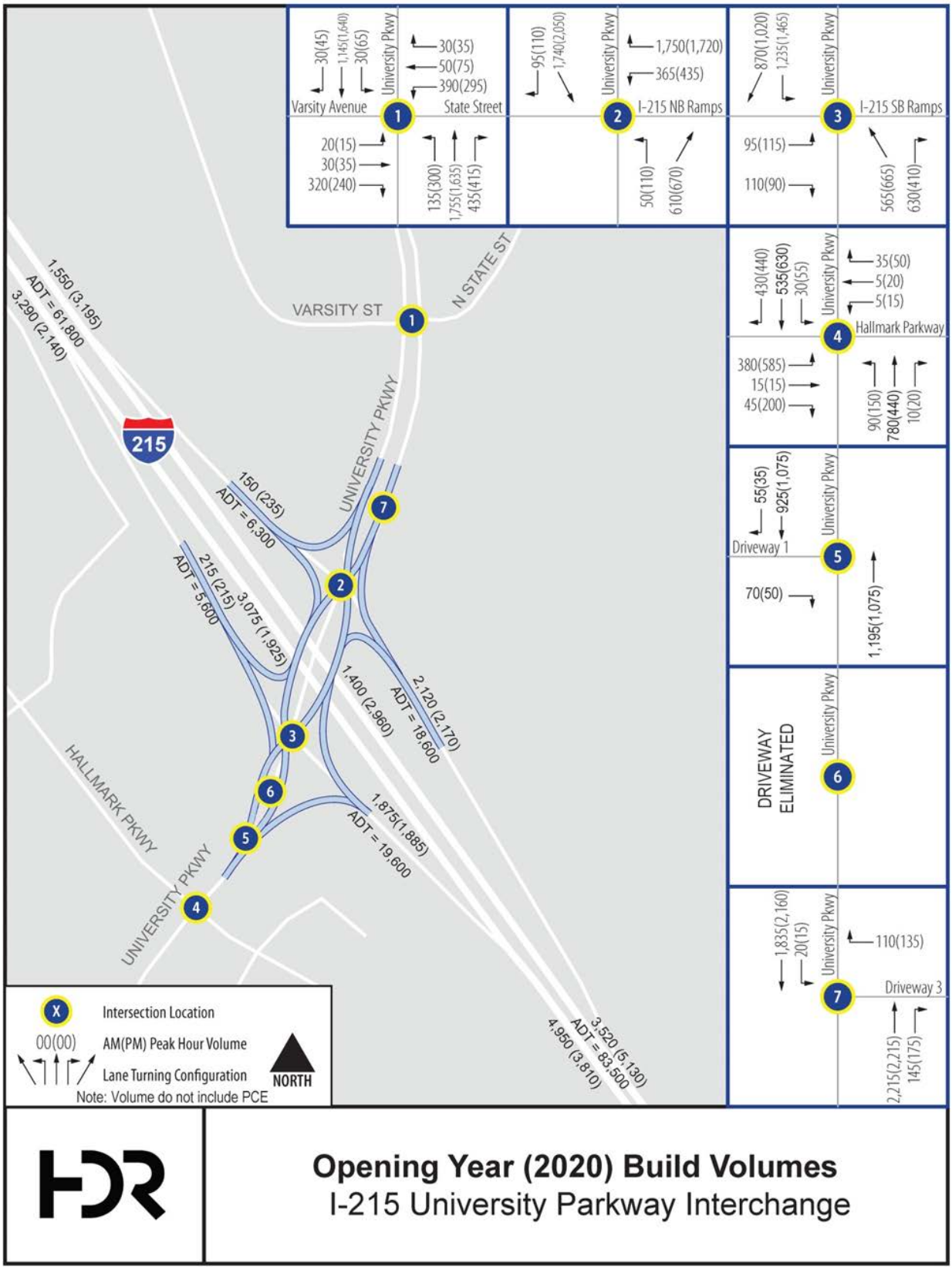

Figure 1-6. 2020 Alternative 2 Traffic Volumes

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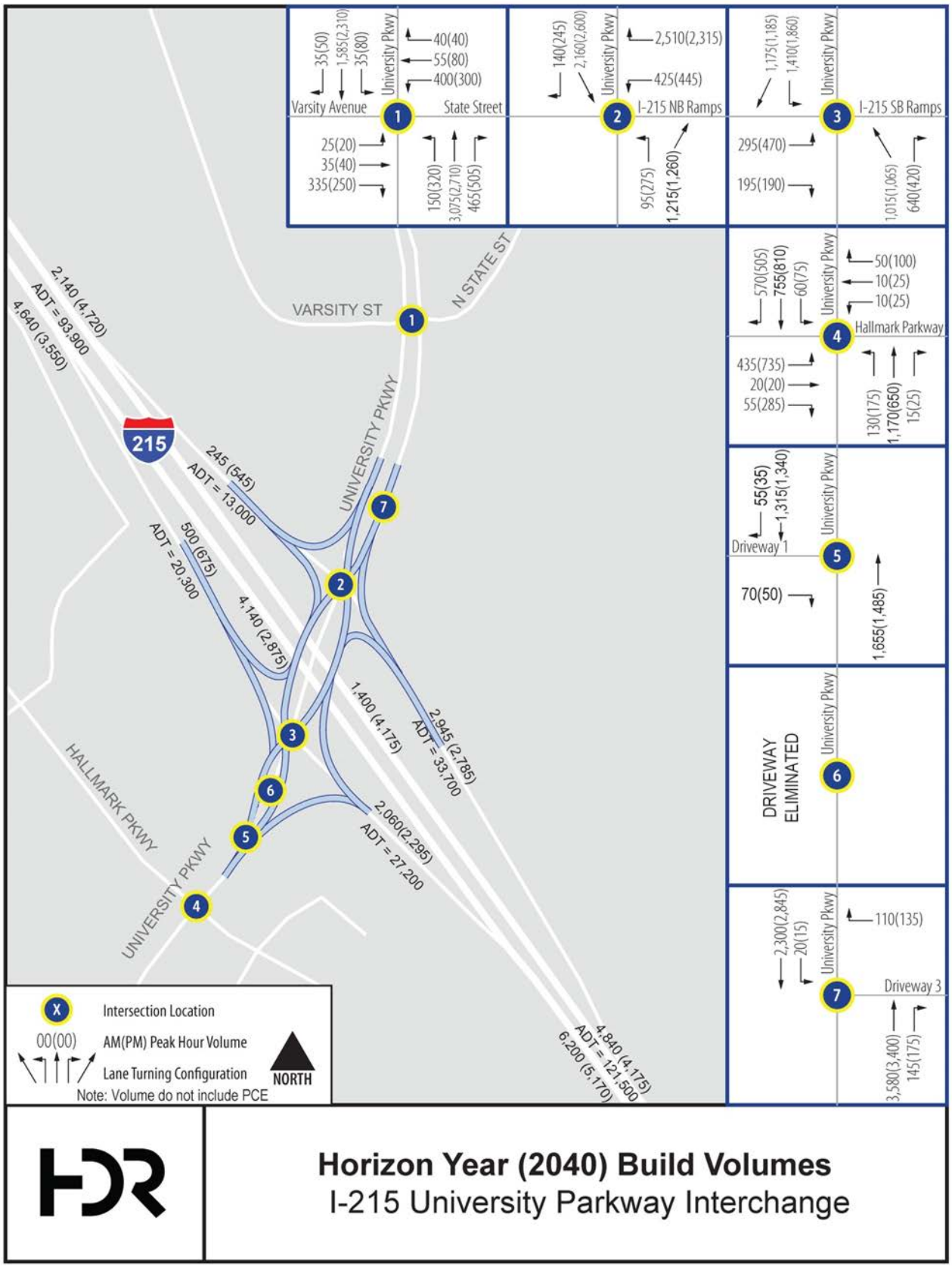

Figure 1-7. 2040 Alternative 2 Traffic Volumes

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2. Regulatory Setting

Many statutes, regulations, plans, and policies have been adopted at the federal, state, and local levels to address air quality issues related to transportation and other sources. The proposed project is subject to air quality regulations at each of these levels. This section introduces the pollutants governed by these regulations and describes the regulation and policies that are relevant to the proposed project.

2.1 Pollutant-Specific Overview

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: CO, Pb, NO_2, O_3, PM ($PM_{2.5}$ and PM_{10}), and SO_2. The U.S. EPA has also identified nine priority mobile source air toxics: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter (https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/). In California, sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Clean Air Act requires the U.S. EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria air contaminants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 2-1 documents the current air quality standards while Table 2-2 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

2.1.2 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. EPA regulate 188 air toxics, also known as hazardous air pollutants. The U.S. EPA has assessed this expansive list in its 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 part of U.S. EPA's Integrated Risk Information System (IRIS) (https://www.epa.gov/iris). In addition, the U.S. EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-hazard

Table 2-1. Table of State and Federal 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)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
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 14	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 ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

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 $\mu g/m^3$ 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 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ 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 SO_2 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 SO_2 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 $\mu g/m^3$ 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.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.

Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are *1,3-butadiene*, *acetaldehyde*, *acrolein*, *benzene*, *diesel particulate matter (diesel PM)*, *ethylbenzene*, *formaldehyde*, *naphthalene*, and *polycyclic organic matter*. While the Federal Highway Administration (FHWA) considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future U.S. EPA rules.

The 2007 U.S. EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using U.S. EPA's MOVES2014a model, even if vehicle activity (vehicle-miles traveled, VMT) increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emission rate for the priority MSATs is projected for the same time period, as shown in Figure 2-1.

2.1.3 Greenhouse Gases

The term greenhouse gas (GHG) is used to describe atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases.

GHGs differ in how much heat each traps in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO_2. For example, the 2007 International Panel on Climate Change *Fourth Assessment Report* calculates the GWP of CH_4 as 25

and the GWP of N_2O as 298, over a 100-year time horizon.[1] Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons ($MTCO_2e$), or million metric tons ($MMTCO_2e$).[2]

As evidence has mounted for the relationship of climate changes to rising GHGs, federal and state governments have established numerous policies and goals targeted to improving energy efficiency and fuel economy, and reducing GHG emissions. Nationally, electricity generation is the largest source of GHG emissions, followed by transportation. In California, however, transportation is the largest contributor to GHGs.

At the federal level, the National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. However, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) issued the first corporate fuel economy (CAFE) standards in 2010, requiring cars and light-duty vehicles to achieve certain fuel economy targets by 2016, with the intention of gradually increasing the targets and the range of vehicles to which they would apply.

California has enacted aggressive GHG reduction targets, starting with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 is California's signature climate change legislation. It set the goal of reducing statewide GHG emissions to 1990 levels by 2020, and required the ARB to develop a Scoping Plan that describes the approach California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring state agencies to factor climate change into all planning and investment decisions.

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered state climate action goals by mandating coordinated transportation and land use planning through preparation of sustainable communities strategies (SCS). The ARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization must include in its regional transportation plan an SCS proposing actions toward achieving the regional emissions reduction targets.[3]

With these and other State Senate and Assembly bills and executive orders, California advances an innovative and proactive approach to dealing with GHG emissions and climate change.

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[1] See Table 2.14 in IPCC Fourth Assessment Report: Climate Change 2007 (AR4): The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf.

[2] See http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools.

[3] https://www.arb.ca.gov/cc/sb375/sb375.htm

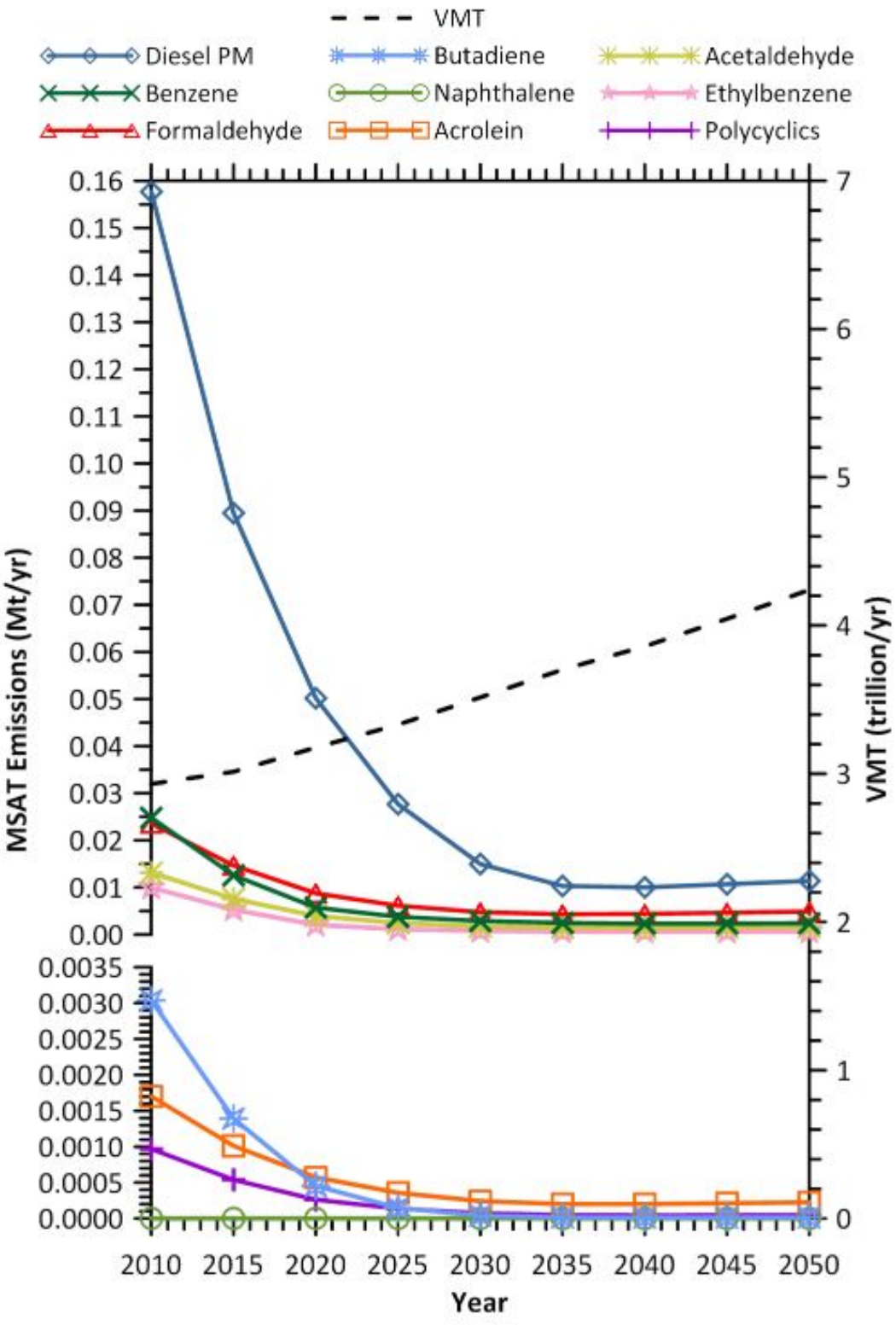

Figure 2-1. Projected National MSAT Trends, 2010-2050
(Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/)

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2.1.4 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 ARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentine 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.

Serpentine 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 counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology has developed a map showing the general location of ultramafic rock in the state (www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/index.aspx).

2.2 Regulations

2.2.1 Federal and California Clean Air Act

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws and related regulations by the U.S. EPA and the (ARB) set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes

also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

2.2.2 Transportation Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming level—and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. The U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and the TIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP and the project has a design concept and scope[4] that has not changed significantly from those in the RTP and TIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and TIP amendments may be needed. Project-level conformity

[4] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

also needs to demonstrate that project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; the project complies with any control measures in the SIP in PM areas. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.3 National Environmental Policy Act (NEPA)

NEPA requires that policies and regulations administered by the federal government are consistent with its environmental protection goals. NEPA also requires that federal agencies use an interdisciplinary approach to planning and decision-making for any actions that could impact the environment. It requires environmental review of federal actions including the creation of Environmental Documents (EDs) that describe the environmental effects of a proposed project and its alternatives (including a section on air quality impacts).

2.2.4 California Environmental Quality Act (CEQA)

CEQA[5] is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA documents address CCAA requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

2.2.5 Local

The U.S. EPA has delegated responsibility to air districts to establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2015) requires compliance with all applicable air quality laws and regulations including local and air district ordinances and rules.

South Coast Air Quality Management District

The 1977 Lewis Air Quality Management Act created the South Coast Air Quality Management District (SCAQMD) to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing

[5] For general information about CEQA, see: http://resources.ca.gov/ceqa/more/faq.html.

stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

Air Quality Management Plan

The CAA requires areas not attaining the NAAQS to develop and implement an emission reduction strategy that will bring the area into attainment in a timely manner. The Air Quality Management Plan (AQMP) is the SCAQMD plan for improving regional air quality. It addresses CAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by the SCAQMD in collaboration with the Southern California Association of Governments (SCAG) and the ARB. The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the SCAB must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

The 2016 Air Quality Management Plan was adopted by the SCAQMD Governing Board on March 3, 2017. It incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. The 2016 AQMP includes the integrated strategies and measures needed to meet the NAAQS.

To ensure air quality goals will be met while maximizing benefits and minimizing adverse impacts to the regional economy, the following policy objectives guided the development of the 2016 AQMP:

- Eliminate reliance on future technology (CAA §182(e)(5)) measures to the maximum extent feasible.
- Calculate and take credit for co-benefits from other planning efforts.
- Develop a strategy with fair-share emission reductions at the federal, state, and local levels.
- Invest in strategies and technologies meeting multiple objectives regarding air quality, climate change, air toxics exposure, energy, and transportation.
- Identify and secure significant funding for incentives to implement early deployment and commercialization of zero and near-zero technologies.
- Enhance the socioeconomic analysis and pursue the most efficient and cost-effective path to achieve multi-pollutant and multi-deadline targets.
- Prioritize enforceable regulatory measures as well as non-regulatory, innovative and "win-win" approaches for emission reductions.

3. Affected Environment

The topography of a region can substantially impact air flow and resulting pollutant concentrations. California is divided into 15 air basins with similar topography and meteorology to better manage air quality throughout the state. Each air basin has a local air district that is responsible for identifying and implementing air quality strategies to comply with ambient air quality standards.

The proposed Project is located in the City of San Bernardino region of San Bernardino County, an area within the South Coast Air Basin (SCAB), which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the SCAB is administered by the SCAQMD, a regional agency created for the Basin. Current and forecasted population for San Bernardino County is approximately 2.19 million in 2018 and 2.58 million in 2040. The largest industries in San Bernardino County are retail trade, healthcare and social assistance, and transportation and warehousing.

3.1 Climate, Meteorology, and Topography

Meteorology (weather) and terrain can influence air quality. 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 and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

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

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s (measured in degrees Fahrenheit [°F]). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The San Bernardino climatological station, maintained by the National Oceanic and Atmospheric Administration, is located near the project site and is representative of meteorological conditions near the project.[1] The annual average maximum temperature recorded at this station is 79.9°F, and the annual average minimum is 48.2°F. January is typically the coldest month in this area of the Basin.

The majority of rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in

[1] Western Regional Climatic Center. 2018. http://www.wrcc.dri.edu (accessed May 2018).

the eastern part of the Basin along the coastal side of the mountains. The climatological station closest to the project limits that monitor precipitation is the same San Bernardino Station. Average rainfall measured at this station varied from a high 3.25 inches in February to 0.47 inch or less between May and September, with an average annual total of 16.12 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

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

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

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

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

Figure 3-1 shows a wind rose illustrating the predominant wind patterns near the Project.

3.2 Existing Air Quality

This section summarizes existing air quality conditions near the area of the proposed Project. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past 5 years, and discusses MSAT and GHG emissions. The closest monitoring

station to the project area is the San Bernardino Station, located at 24302 W 4th Street. The location of the monitoring station is shown in Figure 3-2.

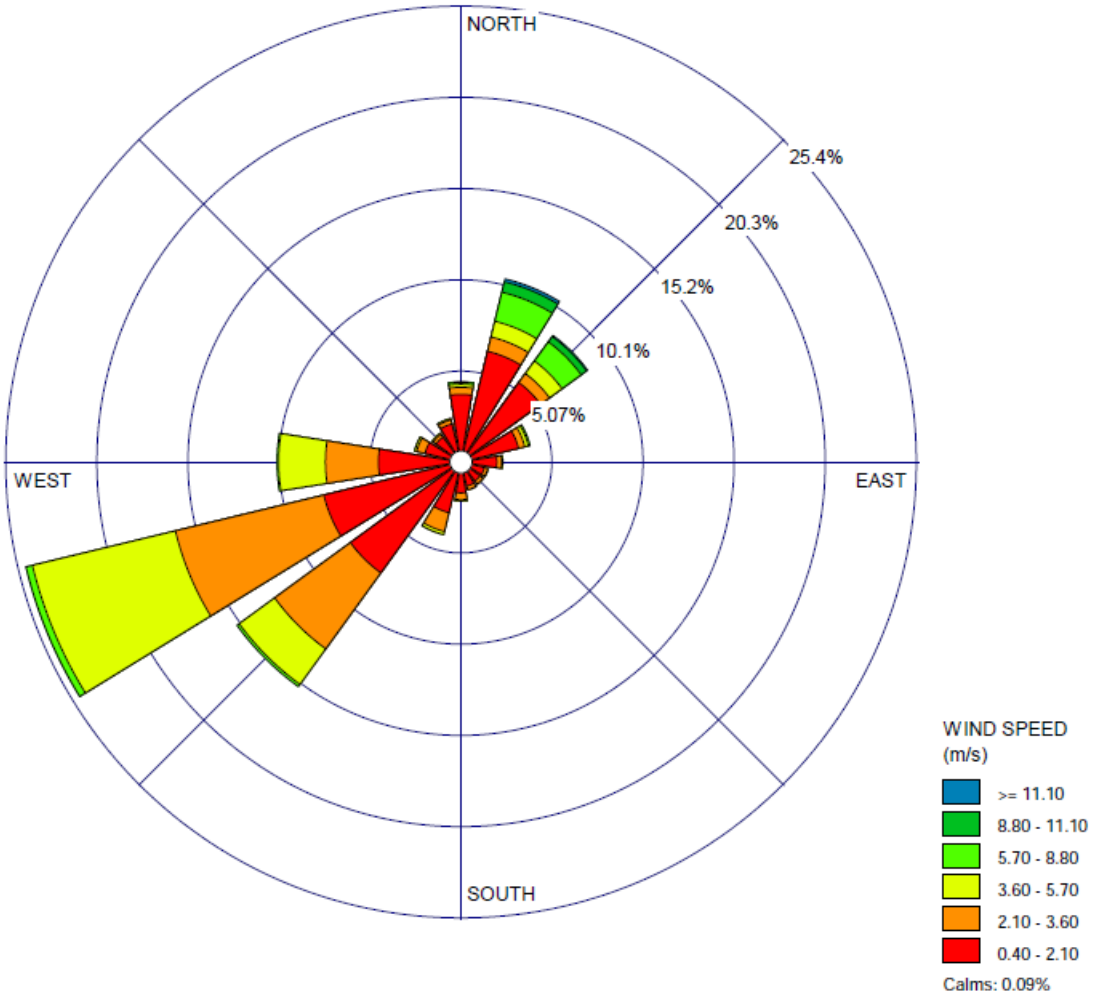

Figure 3-1. Predominant Wind Patterns Near the Project

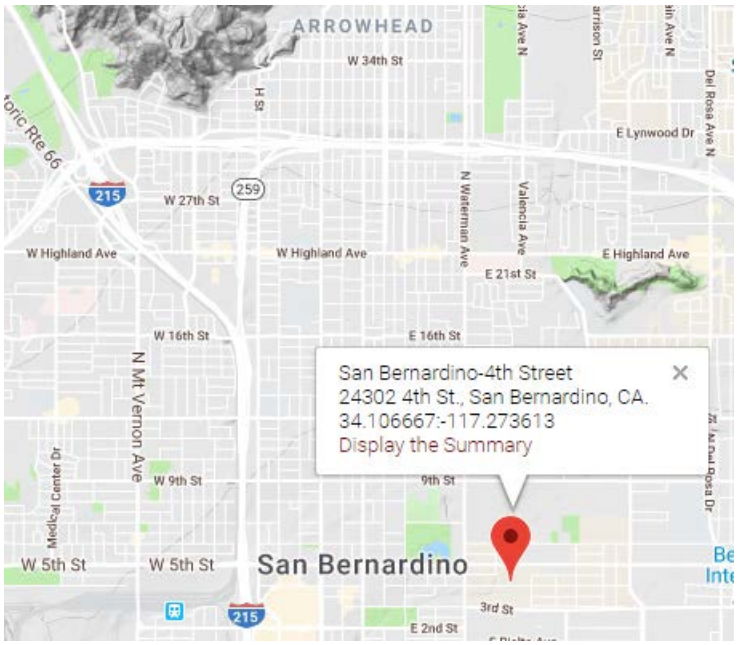

Figure 3-2. Map of Air Quality Monitoring Station Located Near the Project

3.2.1 Criteria Pollutants and Attainment Status

The FCAA requires U.S. EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in Table 2-1. The U.S. EPA has classified the South Coast Air Basin (SCAB) as attainment/maintenance for CO, PM_{10}, and NO_2, and nonattainment for O_3 and $PM_{2.5}$.

The CCAA requires ARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the San Bernardino County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}.

Table 3-1 lists the state and federal attainment status for all regulated pollutants. Table 3-2 lists air quality trends in data collected at the San Bernardino station for the past 5 years. Data from the San Bernardino station is included due to the proximity of the site to the Project limits.

Table 3-1. State and Federal Attainment Status

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment (1-hour and 8-hour)	Extreme Nonattainment (8-hour)
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment/Maintenance
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment/Maintenance
Nitrogen Dioxide (NO_2)	Attainment	Attainment/Maintenance
Sulfur Dioxide (SO_2)	Attainment/Unclassified	Attainment/Unclassified
Lead (Pb)	Attainment	Attainment (Los Angeles County region in Nonattainment)
Visibility-Reducing Particles	Attainment/Unclassified	N/A
Sulfates	Attainment/Unclassified	N/A
Hydrogen Sulfide	Attainment/Unclassified	N/A
Vinyl Chloride	Attainment/Unclassified	N/A

N/A - Not Applicable. There are no NAAQS for these pollutants.

Table 3-2. Air Quality Concentrations for the Past 5 Years Measured at the San Bernardino Station

Pollutant	Standard	2013	2014	2015	2016	2017
Ozone						
Max 1-hr concentration		0.139	0.121	0.134	0.158	0.158
No. days exceeded: State	0.09 ppm	22	38	52	70	81
Max 8-hr concentration		0.112	0.099	0.117	0.118	0.136
No. days exceeded: State	0.070 ppm	51	75	78	106	112
Federal	0.070 ppm	51	75	78	106	112
Carbon Monoxide						
Max 1-hr concentration		3.8	4.1	2.3	2.2	2.5
No. days exceeded: State	20 ppm	0	0	0	0	0
Federal	35 ppm	0	0	0	0	0
Max 8-hr concentration		1.7	2.4	1.8	1.7	2.3
No. days exceeded: State	9.0 ppm	0	0	0	0	0
Federal	9 ppm	0	0	0	0	0
PM_{10}						
Max 24-hr concentration		177.3	157.2	187.0	277.0	158
No. days exceeded: State	50 µg/m^3	2	2	3	4	NA
Federal	150 µg/m^3	1	1	1	1	1
Max annual concentration		32.7	35.8	33.0	36.7	32.6
exceeded: State?	20 µg/m^3	Yes	Yes	Yes	Yes	Yes
$PM_{2.5}$						
Max 24-hr concentration		55.3	32.2	53.5	53.5	38.2
No. days exceeded: Federal	35 µg/m^3	1	0	2	1	1
Max annual concentration		11.4	NA	10.7	11.1	11.4
exceeded: State?	12 µg/m^3	No	NA	No	No	No
Federal?	12.0 µg/m^3	No	NA	No	No	No
Nitrogen Dioxide						
Max 1-hr concentration		72.1	72.6	71.4	60.1	65.8
No. days exceeded: State	180 ppb	0	0	0	0	0
Federal	100 ppb	0	0	0	0	0
Max annual concentration		18	18	15	17	16
exceeded: State?	30 ppb	No	No	No	No	No
Federal?	53 ppb	No	No	No	No	No

Source: ARB. https://www.arb.ca.gov/adam/ and EPA. https://www.epa.gov/outdoor-air-quality-data (accessed August 2018)

3.2.2 Mobile Source Air Toxics

The primary source of MSAT in the project area is traffic on I-215. Ambient MSAT data measured at the Upland-San Bernardino Road Station are available from ARB's website (http://www.arb.ca.gov/adam/toxics/toxics.html).

3.2.3 Greenhouse Gas and Climate Change

CO_2, as part of the carbon cycle, is an important compound for plant and animal life, but also accounted for 84 percent of California's total GHG emissions in 2015. Transportation, primarily on-road travel, is the single largest source of CO_2 emissions in the state.

The proposed project is located in the City of San Bernardino in San Bernardino County and is included in the 2016 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS or Plan). The Plan is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The Plan charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It outlines more than $556.5 billion in transportation system investments through 2040.

The State of California has set targets for the SCAG region to reduce greenhouse gas emissions from passenger vehicles by 8 percent per capita by 2020 and 13 percent by 2035 (compared with a 2005 baseline). Reductions outlined in the RTP/SCS are projected to reach 13.6 percent by 2020 and 27.9 percent by 2040.

3.3 Sensitive Receptors

Sensitive receptors include residential areas, schools, hospitals, other health care facilities, child/day care facilities, parks, and playgrounds. Sensitive land uses within the area of the Project limits include a motel and restaurants.

3.4 Conformity Status

3.4.1 Regional Conformity

This project is exempt from regional (40 CFR 93.127) conformity requirements. Separate listing of the project in the Regional Transportation Plan and Transportation Improvement Program, and their regional conformity analyses, is not necessary. The project will not interfere with timely

implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis. However, the project is in the 2016 RTP, which was found to be conforming by the FHWA/Federal Transit Administration (FTA) on June 1, 2016. The project is also in the 2017 FTIP, which was found to be conforming by the FHWA/FTA on December 16, 2016 (Project ID: SBD59204; Description: I-215 at University Parkway Interchange – reconstruct interchange). The design concept and scope of the proposed project is consistent with the project description in the 2016 RTP, 2017 FTIP, and the "open to traffic" assumptions of the SCAG's regional emissions analysis. Conformity status information is summarized in Table 3-3. The Build Alternative is consistent with the scope of design concept of the FTIP. Therefore, the Build Alternative is in conformance with the SIP. The project will also comply with all SCAQMD requirements. The 2016 RTP and 2017 FTIP listings are included in Appendix A.

Table 3-3. Status of Plans Related to Regional Conformity

MPO	Plan/TIP	Date of adoption by MPO	Date of Approval by FHWA	Last Amendment	Date of Approval by FHWA of Last Amendment
SCAG	Regional Transportation Plan	4/7/16	6/1/16	Amendment 2	8/1/17
SCAG	Transportation Improvement Program (FSTIP approval)	9/14/16	12/16/16	Amendment 19	5/25/18

3.4.2 Project-Level Conformity

The Project is located in a federal nonattainment area for $PM_{2.5}$ and in an attainment/maintenance area for PM_{10} and CO, thus a project-level hot-spot analysis is required under 40 CFR 93.109. The Project complies with all $PM_{2.5}$ and PM_{10} measures in the SIP, and implements measures relied upon in the RTP/TIP regional conformity analysis in a timely matter. The Project does not cause or contribute to any new localized CO, $PM_{2.5}$, and/or PM_{10} violations, or delay timely attainment of any NAAQS or any required interim emission reductions or other milestones during the timeframe of the transportation plan (or regional emissions analysis).

3.4.3 Interagency Consultation

The project-level PM hot-spot analysis was presented to SCAG's Transportation Conformity Working Group (TCWG) for discussion and review on August 28, 2018. The PM hot-spot analysis reflects the project description, limits, and traffic volumes and was listed under the current RTP/FTIP project ID. The project was determined to be not a project of air quality concern (POAQC).

Table 3-4 summarizes the interagency consultation process for the proposed project. Copies of the PM hot-spot analysis and the TCWG determination are included in Appendix D.

Table 3-4. Summary of Interagency Consultation Process

Date	Format	Participants	Discussion Summary	Outcomes
August 28, 2018	PM Form	EPA, FHWA, Caltrans	None	Not a POAQC

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4. Environmental Consequences

This section describes the methods, impact criteria, and results of air quality analyses of the proposed Project. Analyses in this report were 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 use guidelines and procedures provided in applicable air quality analysis protocols, such as the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Garza et al., 1997), Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas (U.S. EPA, 2015), and the FHWA Updated Interim Guidance on Air Toxics Analysis in NEPA Documents (FHWA, 2016).

4.1 Impact Criteria

Project-related emissions will have an adverse environmental impact if they result in pollutant emissions levels that either create or worsen a violation of an ambient air quality standard (identified in Table 2-1) or contribute to an existing air quality violation.

4.2 Short-Term Effects (Construction Emissions)

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

Site preparation and roadway construction will involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO, NO_x, VOCs, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction activities are expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Under the transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions are not required in a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last five years or less at any individual site. They typically fall into two main categories:

- *Fugitive Dust*: A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit "visible emissions" exceeding three minutes in one hour – this applies not only to dust but also to

engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line.

Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions 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 equipment emissions*: Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

The construction emissions were estimated for the Project using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 9.0.0. 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 SCAQMD in its CEQA guidance[6] and is used for that purpose in this analysis. Construction-related emissions for Alternative 2 are presented in Table 4-1. The results of the Sacramento model are included in Appendix B. The emissions presented below are based on the best information available at the time of calculations and assume that the schedule for all improvements is anticipated to begin in 2020 and end in 2020. Default equipment assumptions for the Road Construction Emissions Model were used in developing the emissions estimates. The emissions listed in Table 4-1 represent the peak daily construction emissions that would be generated by Alternative 2. As Project construction is expected to last less than 5 years, construction-related emissions were not considered in the conformity analysis.

Table 4-1. Construction Emissions for Roadways

	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	CO_2e (lbs/day)
Grubbing/Land Clearing	20.88	4.81	11.63	21.68	7,256.15
Grading/Excavation	25.04	8.60	74.06	122.94	20,739.41
Drainage/Utilities/Sub-Grade	23.55	7.29	54.49	84.65	15,693.54
Paving	1.01	0.77	14.73	20.67	7,263.49

[6] SCAQMD. http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook (accessed May 2018).

Table 4-1. Construction Emissions for Roadways

	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	CO_2e (lbs/day)
Maximum daily or average daily	25.04	8.60	74.06	122.94	20,739.41
Project Total (tons)	2.26	0.73	5.84	9.46	1,744.15

Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce air quality impacts resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related emissions, these reductions cannot be quantified at this time.

- The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2015).
    - Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions.
- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.
- Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.
- Environmentally sensitive areas will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.

- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions.
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown PM in the area.

4.2.2 Asbestos

The Project is located in San Bernardino County, which is not among the counties listed as containing serpentine and ultramafic rock. Therefore, the impact from naturally occurring asbestos (NOA) during Project construction would be minimal to none.

Asbestos was used in many building materials prior to 1978 and may have been used up until the early 1980s. ACMs include fireproofing, acoustic ceiling material, transite pipe, roofing materials, thermal insulation, support piers, expansion joint material in bridges, asphalt, concrete, and other building materials. It is of primary concern when it is friable (e.g. material that can be easily crumbled). During demolition, if not properly identified and mitigated, asbestos fibers could become airborne.

The University Parkway Undercrossing Bridge (Bridge #54-514) was built in 1956 and may contain ACM; however, Project improvements would not require demolition or disturbance any existing structures or buildings.

4.2.3 Lead

Regulatory actions restricted the amount of lead in paints and primers manufactured after January 1, 1978, and limited the uses of paints in areas where consumers would have direct access to painted surfaces in non-industrial facilities. Prior to 1978, LBP may have been used in construction or maintenance of building and road structures, including bridges.

The University Parkway Undercrossing Bridge (Bridge #54-514) was built in 1956 and may contain LBP; however, Project improvements would not require demolition or disturbance to any existing bridges or buildings.

Previous undisturbed soil areas or unpaved areas within Caltrans ROW along the shoulders of I-215 have the potential to contain aerially-deposited lead (ADL). ADL soil sampling will be conducted during the Plans, Specifications & Estimate (PS&E) phase in undisturbed soil areas or unpaved areas along the shoulders of I-215 to determine the proper handling and disposal requirements if ADL

concentrations are considered hazardous. Soil determined to contain lead concentrations exceeding stipulated thresholds shall be managed in accordance with Caltrans Standard Specifications, Section 14-11.08 Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead (2015) and under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the Project limits as long as all requirements of the ADL Agreement are met.

4.3 Long-Term Effects (Operational Emissions)

Operational emissions take into account long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and the Build Alternative. As shown in Figure 1-4 through Figure 1-7, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps. Therefore, the proposed Project would have no effect on the regional criteria pollutant, MSAT, or GHG emissions.

4.3.1 CO Analysis

The CO Protocol was developed for project-level conformity (hot-spot) analysis and was approved for use by the U.S. EPA in 1997. It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the protocol was designed to address federal standards, it has been recommended for use by several air pollution control districts in their CEQA analysis guidance documents and should also be valid for California standards because the key criterion (8-hour concentration) is similar: 9 ppm for the federal standard and 9.0 ppm for the state standard.

The methodology required for a CO local analysis is summarized in the Caltrans Transportation Project-Level Carbon Monoxide Protocol (Protocol), Section 3 (Determination of Project Requirements) and Section 4 (Local Analysis). In Section 3, the Protocol provides two conformity requirement decision flowcharts that are designed to assist the project sponsors in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 (Appendix C of this report) of the Protocol applies to new projects and was used in this local analysis conformity decision. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the project. The flowchart begins with Section 3.1.1:

- **3.1.1. Is this project exempt from all emissions analyses?**

  NO.

  Table 1 of the Protocol is Table 2 of Section 93.126 of 40 CFR. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The project type, interchange reconstruction, is not included in Table 1 of the Protocol. Therefore, the Project is not exempt from all emissions analyses.

- **3.1.2. Is the project exempt from regional emissions analyses?**

  YES.

  Table 2 of the Protocol is Table 3 of Section 93.127. The question is attempting to determine whether the Project is listed in Table 2. Projects that are included in Table 2 of the Protocol are exempt from regional conformity. The Project is an interchange reconfiguration project. Therefore, it is exempt from regional emissions analysis.

- **3.1.9. Examine local impacts.**

  Section 3.1.9 of the flowchart directs the project evaluation to Section 4 (Local Analysis) of the Protocol. This concludes Figure 1.

Section 4 contains Figure 3 (Local CO Analysis [Appendix C of this report]). This flowchart is used to determine the type of CO analysis required for the Build Alternative. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the Build Alternative. The flowchart begins at level 1:

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

  NO.

  The Project site is located in an area that has demonstrated attainment with the federal CO standard.

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

  YES.

- **Level 1 (cont.). Has "continued attainment" been verified with the local Air District, if appropriate?**

  YES.

The SCAB was designated as attainment/maintenance by the United States Environmental Protection Agency (EPA) on June 11, 2007. (Proceed to Level 7.)

- **Level 7. Does the project worsen air quality?**

  NO.

  Because none of the following conditions (listed in Section 4.7.1 of the CO Protocol) are met, the Project would not potentially worsen air quality.

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

  The proposed Project would not generate new vehicular traffic trips since it would not construct new homes or businesses. Therefore, it is assumed that the Project would not change the number 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.

  As shown in Figure 1-4 through Figure 1-7, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps. Therefore, this criterion is not met.

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

  As shown in Table 4-2, although there are minor increases in the delay at intersections 1 and 7 in 2020, the proposed Project would maintain or improve the peak hour level of service at the local intersections, as compared to the No-Build Alternative. Therefore, this criterion is not met.

The Project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed Caline4 CO hot-spot analysis is not required.

Table 4-2. Summary of Intersection Levels of Service (LOS)

No.	Intersection (N/S & E/W)		Existing		ALTERNATIVE 1 - No Build				ALTERNATIVE 2 -Build (DDI)			
			2017		2020		2040		2020		2040	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	North Varsity Avenue/North State Street & University Parkway	LOS	**F**	**E**	**F**	**E**	**F**	**F**	**E**	**E**	**F**	**F**
		Delay (Sec)	87.7	60.5	124.8	62.8	265.0	160.0	57.2	63.3	172	131.6
2	I-215 NB Ramp & University Parkway	LOS	**E**	**F**	**F**	**F**	**F**	**F**	A	A	D	D
		Delay (Sec)	76.0	92.7	104.5	120.2	207.5	197.5	8.1	7	49.3	49.1
3	I-215 SB Ramps & University Parkway	LOS	D	**E**	**E**	**F**	**F**	**F**	C	B	B	C
		Delay (Sec)	38.3	58.1	65.9	85.2	211.5	327.8	25.0	18.2	25	28.3
4	Hallmark Parkway & University Parkway	LOS	C	D	C	D	D	D	C	C	C	D
		Delay (Sec)	26.0	39.6	28.2	41.0	51.3	49.9	22.1	29.5	28	39.5
5	Driveway 1 & University Parkway	LOS	B	D	B	C	C	C	B	B	C	C
		Delay (Sec)	13.3	16.4	14.0	17.7	18.0	21.8	13.4	14	17.2	16.4
6	Driveway 2 & University Parkway	LOS	C	D	C	C	C	C	N/A	N/A	N/A	N/A
		Delay (Sec)	15.2	15.6	16.2	16.7	22.4	20.4	N/A	N/A	N/A	N/A
7	Driveway 3 & University Parkway	LOS	C	C	D	D	**F**	**F**	D	D	**F**	**F**
		Delay (Sec)	23.3	23.1	26.7	25.9	156.6	102.4	27.4	27.4	131.3	95.2
8	I-215 NB Off-Ramp & University Parkway	LOS	N/A	N/A	N/A	N/A	N/A	N/A	B	C	**E**	D
		Delay (Sec)	N/A	N/A	N/A	N/A	N/A	N/A	18.5	22.6	73.3	53.1

N/A - not applicable

4.3.2 PM Analysis

In November 2015, the U.S. EPA released an updated version of 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 PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010, and released a revised version in November 2013 to reflect the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November 2015 version reflects MOVES2014 and its subsequent minor revisions such as MOVES2014a, to revise design value calculations to be more consistent with other U.S. EPA programs, and to reflect guidance implementation and experience in the field. Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a 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 a 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 proposed Project is within a nonattainment area for the federal $PM_{2.5}$ standards and within an attainment/maintenance area for the federal PM_{10} standards. Therefore, per 40 CFR, Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in Section 93.123(b)(1) as an air quality concern. The Project does not qualify as a Project of Air Quality Concern (POAQC) because of the following reasons:

i) The proposed Project is not a new or expanded highway project. The proposed Project reconstructs the existing I-215/University Parkway interchange without increasing capacity. As shown in Figure 1-4 through Figure 1-7, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps.

ii) The LOS conditions in the project vicinity with and without the proposed Project are shown in Table 4-2. Although there are minor increases in the delay at intersections 1 and 7 in 2020, the proposed Project would maintain or improve the peak hour level of service at the local intersections, as compared to the No-Build Alternative.

iii) The proposed Project does not include the construction of a new bus or rail terminal.

iv) The proposed Project does not expand an existing bus or rail terminal.

v) The proposed Project is not in or affecting locations, areas, or categories of sites that are identified in the PM2.5 and PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

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

4.3.3 Mobile Source Air Toxics Analysis

FHWA released updated guidance in October 2016 (FHWA, 2016) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA 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.

Projects with no impacts generally include those that a) qualify as a categorical exclusion under 23 CFR 771.117, b) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, and c) are not exempt, but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. The large majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

- 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; 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
- Are 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).

As shown in Figure 1-4 through Figure 1-7, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps. Therefore, the proposed Project would have no effect on the regional MSAT emissions. Consequently, based on the FHWA's 2016 MSAT guidance and the ARB's Air Quality and Land Use Handbook, this Project is considered to have low potential MSAT effects, and a quantitative analysis of MSAT emissions is not required (Federal Highway Administration 2016; California Air Resources Board 2005).

4.3.4 Greenhouse Gas Emissions Analysis

As shown in Figure 1-4 through Figure 1-7, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps. Therefore, the proposed Project would have no effect on the regional GHG emissions.

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5. Minimization Measures

5.1 Short-Term (Construction)

The following minimization measures will be implemented during construction activities.

AQ-1 During clearing, grading, earthmoving, and excavation operations, fugitive dust emissions will be controlled by regular watering or other dust preventive measures using the following procedures, as specified in South Coast Air Quality Management District (SCAQMD) Rule 403. All material excavated or graded will be sufficiently watered to prevent excessive amounts of dust. Watering will occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site will be either sufficiently watered or securely covered to prevent excessive amounts of dust. The areas disturbed by clearing, grading, earthmoving, or excavation operations will be minimized so as to prevent excessive amounts of dust. These control techniques will be indicated in project specifications. Visible dust beyond the property line emanating from the project will be prevented to the maximum extent feasible.

AQ-2 Project grading plans will show the duration of construction. Ozone precursor emissions from construction equipment vehicles will be controlled by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications.

AQ-3 During construction, all trucks that are used to haul excavated or graded material on site will comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ-4 During construction, the contractor will adhere to Caltrans Standard Specifications for Construction (Sections 14.9). Section 14-9-02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

AQ-5 Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions

AQ-6 Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas

AQ-7 Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions

AQ-8 Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114

AQ-9 A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities

AQ-10 Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.

6. Conclusions

Compliance with Caltrans Standard Specifications Sections 10, 18, and 7-1.01F and the SCAQMD Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions.

The proposed Project would not generate new vehicular traffic trips since it would not construct new homes or businesses. In addition, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps. Therefore, the proposed Project would have no effect on the regional criteria pollutant, MSAT, or GHG emissions.

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7. References

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8. Appendices

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Appendix A – RTP and FTIP Project Listings

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2017 Federal Transportation Improvement Program

San Bernardino County
State Highway
Including Amendments 1-18
(in $000`s)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
2011154	San Bernardino	SCAB		4M01003	CAX76	210	30	30.75			S	NON-EXEMPT	0
Description:							PTC	6,225			Agency	HIGHLAND	

SR 210 AT 5TH ST/GREENSPOT RD; ON AND OFF RAMPS WIDENING; PROJECT ADDS 1 LANE TO THE TERMINI (2-3LNS) TO THE N/B ON RAMP, AND BOTH S/B ON/OFF RAMPS. ALL RAMPS REMAIN 1 LN AT THE MAINLINE.

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
CITY FUNDS	1,000		5,225	6,225	1,000	5,225						6,225
2011154 Total	1,000		5,225	6,225	1,000	5,225						6,225

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
SBD31850	San Bernardino	SCAB		SBD31850	CARH3	215	.58	1.66			S	NON-EXEMPT	8
Description:							PTC	101,507			Agency	VARIOUS AGENCIES	

IN GRAND TERRACE @ I-215 BARTON RD I/C RECONSTRUCT OC & RAMPS W/ PARTIAL CLOVERLEAF CONFIG. NW OF I-215 WORK INCL ADD OF NB AUX LN.LOCAL ST WORK TO INCL WIDENING OF BARTON RD, REMOVAL OF LA CROSSE AVE. B/W VIVENDA AVE & BARTON RD, RPLCMT W/ NEW LOCAL RD, IMPRVMTS TO BARTON RD & MICHIGAN WAY/VIVENDA AVE INTERSEC & REALIGNMT OF COMMERCE WY (Toll Credits used to match DEMO: ENG & ROW)

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
DEMO-SAFETEA-LU	2,257	4,224		6,481	6,481							6,481
2016 EARMARK REPURPOSING			1,660	1,660			1,660					1,660
SECTION 112	1,980			1,980	1,980							1,980
SECTION 115	501			501	501							501
STP LOCAL	910	4,467	10,632	16,009	910	4,467	9,796	836				16,009
LOCAL ADVANCE CONSTRUCTION							836	-836				
SBD CO MEASURE I	2,515	5,884	49,077	57,476	8,399		49,077					57,476
STIP Advance Cons		17,400		17,400	17,400							17,400
SBD31850 Total	8,163	31,975	61,369	101,507	35,671	4,467	61,369					101,507

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
20150305	San Bernardino	SCAB		713	NCN46	215	4.1	10.1			S	EXEMPT - 93.126	4
Description:							PTC	14,670			Agency	VARIOUS AGENCIES	

I-215 LANDSCAPING (SEGMENTS 1-3 & 5) IN THE CITY OF SAN BERNARDINO (Toll Credits: PNRS CON)

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
PROJECTS OF NATIONAL AND REGIONAL SIGNIFICANCE			7,000	7,000		7,000						7,000
SBD CO MEASURE I			7,670	7,670	1,070	6,600						7,670
20150305 Total			14,670	14,670	1,070	13,600						14,670

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
SBD59204	San Bernardino	SCAB		SBD59204	NCRH3	215	11.35	11.95			S	NON-EXEMPT	2
Description:							PTC	5,105			Agency	SANBAG	

I-215 AT UNIVERSITY PARKWAY INTERCHANGE - RECONSTRUCT INTERCHANGE (Toll Credits to match STP FY16/17 & FY18/19)

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
SECTION 129 - SURFACE TRANSPORTATION PRIORITIES	735			735		735						735
STP LOCAL	910		3,314	4,224		910		3,314				4,224

TABLE 2 Financially-Constrained RTP/SCS Projects - Continued

System	Lead Agency	RTP ID	Route #	Route Name	From	To	Description	Completion Year	Project Cost ($1,000's)
County: San Bernardino									
STATE HIGHWAY	SAN BERNARDINO ASSOCIATED GOVERNMENTS (SANBAG)	4M01045	215	I-215	I-215	CAMPUS PKWY	I-215 @ CAMPUS PKWY NEW INTERCHANGE	2040	$92,640
STATE HIGHWAY	SAN BERNARDINO ASSOCIATED GOVERNMENTS (SANBAG)	4M0803	215	I-215	SR-60	I-10	I-215 BI-COUNTY IMPROVEMENT PROJECT - ADD 1 MAINLINE LANE IN EACH DIRECTION FROM SR-60 TO I-10	2035	$347,326
STATE HIGHWAY	SAN BERNARDINO, CITY OF	SBD59204	215				I-215 AT UNIVERSITY PARKWAY INTERCHANGE - RECONSTRUCT INTERCHANGE	2022	$4,449
STATE HIGHWAY	SANBAG	200614	215				I-215 BI-COUNTY HOV LANE GAP CLOSURE PROJECT- ADD 1 HOV LANE IN EACH DIRECTION FROM SPRUCE ST. ON RIV 91 TO ORANGE SHOW RD;(ALSO INCLUDES RTP 4M0803 (STIP 2010 $24881 RCTC AND $45089 SANBAG)(M003)	2015	$187,249
STATE HIGHWAY	SANBAG	713-20150305	215				I-215 LANDSCAPING (SEGMENTS 1-3 & 5) IN THE CITY OF SAN BERNARDINO (TOLL CREDITS: PNRS CON)	2020	$14,670
STATE HIGHWAY	VARIOUS AGENCIES	713-713	215				I-215 CORRIDOR NORTH - IN SAN BERNARDINO, ON I-215 FROM RTE 10 TO RTE 210 - ADD 2 HOV & 2 MIXED FLOW LNS (1 IN EA. DIR.) AND OPERATIONAL IMP INCLUDING AUX LANES AND BRAIDED RAMP (M003)	2015	$724,444
STATE HIGHWAY	VARIOUS AGENCIES	SBD31850	215				IN GRAND TERRACE @ I-215 BARTON RD I/C RECONSTRUCT OC & RAMPS W/ PARTIAL CLOVERLEAF CONFIG. NW OF I-215 WORK INCL ADD OF NB AUX LN.LOCAL ST WORK TO INCL WIDENING OF BARTON RD, REMOVAL OF LA CROSSE AVE. B/W VIVENDA AVE & BARTON RD, RPLCMT W/ NEW LOCAL RD, IMPRVMTS TO BARTON RD & MICHIGAN WAY/ VIVENDA AVE INTERSEC & REALIGNMT OF COMMERCE WY (TOLL CREDITS USED TO MATCH DEMO: ROW)	2018	$78,600
STATE HIGHWAY	YUCCA VALLEY	4A01386	247	SR-247 (OLD WOMAN SPRINGS RD)	NORTH YUCCA VALLEY TOWN LIMITS	SR-62	WIDEN SR-247 FROM NORTH YUCCA VALLEY TOWN LIMITS TO SR-62 FROM 2 TO 4 LANES (EA:34430) (PM	2035	$20,599

Appendix B – Construction Emission Calculations

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Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> I-215/University Parkway

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.35	11.63	21.68	20.88	0.88	20.00	4.81	0.65	4.16	0.07	7,003.70	0.59	0.80	7,256.15
Grading/Excavation	10.13	74.06	122.94	25.04	5.04	20.00	8.60	4.44	4.16	0.21	20,343.90	4.70	0.93	20,739.41
Drainage/Utilities/Sub-Grade	7.04	54.49	84.65	23.55	3.55	20.00	7.29	3.13	4.16	0.16	15,362.91	2.75	0.88	15,693.54
Paving	1.40	14.73	20.67	1.01	1.01	0.00	0.77	0.77	0.00	0.07	7,011.03	0.58	0.80	7,263.49
Maximum (pounds/day)	10.13	74.06	122.94	25.04	5.04	20.00	8.60	4.44	4.16	0.21	20,343.90	4.70	0.93	20,739.41
Total (tons/construction project)	0.77	5.84	9.46	2.26	0.39	1.87	0.73	0.34	0.39	0.02	1,706.72	0.34	0.10	1,744.15

Notes:

Project Start Year ->	2020
Project Length (months) ->	10
Total Project Area (acres) ->	30
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	400	400	600	600	280	40
Grading/Excavation	400	400	600	600	1,160	40
Drainage/Utilities/Sub-Grade	400	400	600	600	760	40
Paving	400	400	600	600	360	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> I-215/University Parkway

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.13	0.24	0.23	0.01	0.22	0.05	0.01	0.05	0.00	77.04	0.01	0.01	72.41
Grading/Excavation	0.50	3.67	6.09	1.24	0.25	0.99	0.43	0.22	0.21	0.01	1,007.02	0.23	0.05	931.33
Drainage/Utilities/Sub-Grade	0.23	1.80	2.79	0.78	0.12	0.66	0.24	0.10	0.14	0.01	506.98	0.09	0.03	469.82
Paving	0.02	0.24	0.34	0.02	0.02	0.00	0.01	0.01	0.00	0.00	115.68	0.01	0.01	108.72
Maximum (tons/phase)	0.50	3.67	6.09	1.24	0.25	0.99	0.43	0.22	0.21	0.01	1007.02	0.23	0.05	931.33
Total (tons/construction project)	0.77	5.84	9.46	2.26	0.39	1.87	0.73	0.34	0.39	0.02	1706.72	0.34	0.10	1,582.29

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

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Appendix C – CO Hot-spot Analysis

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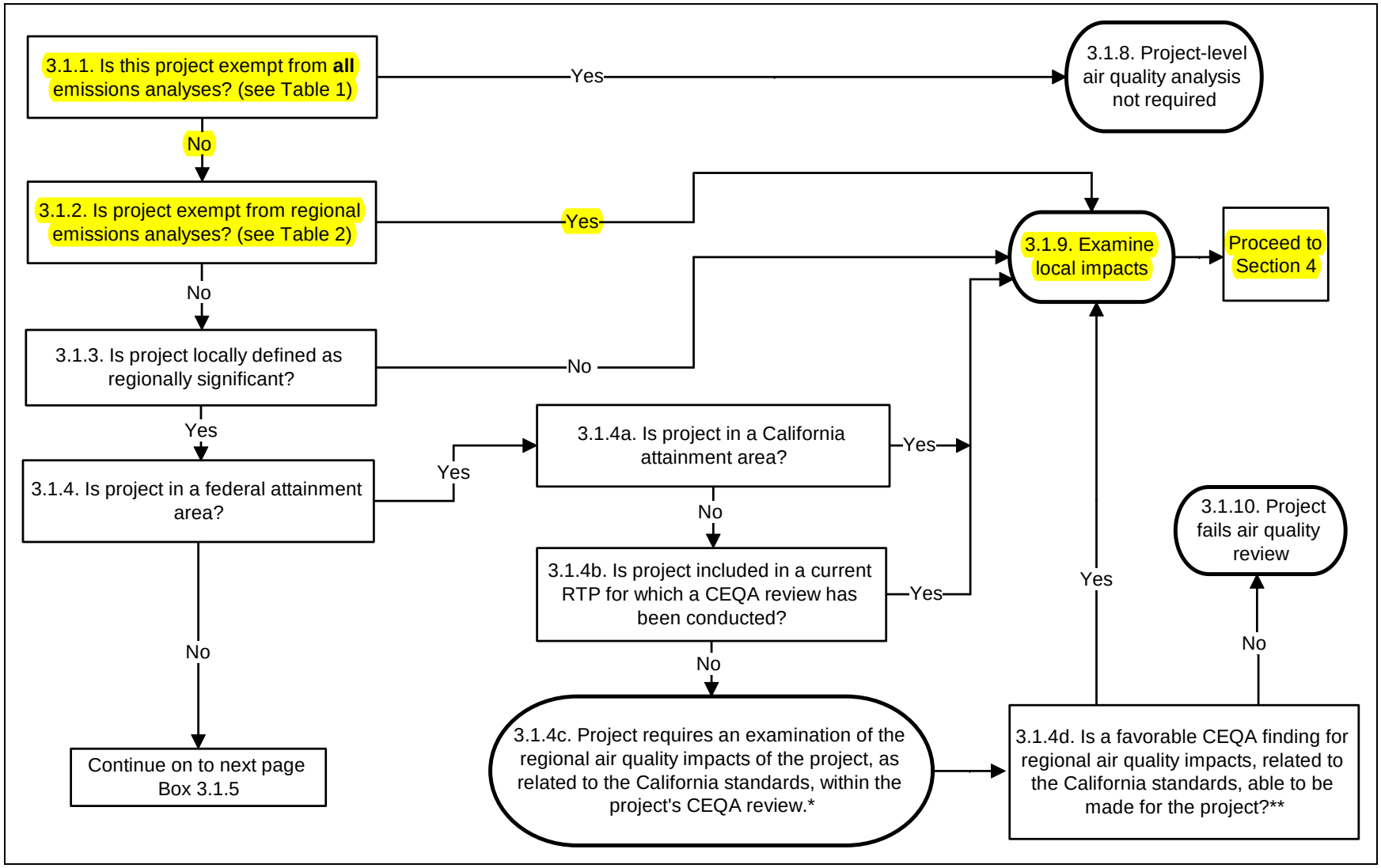

Figure 1. Requirements for New Projects

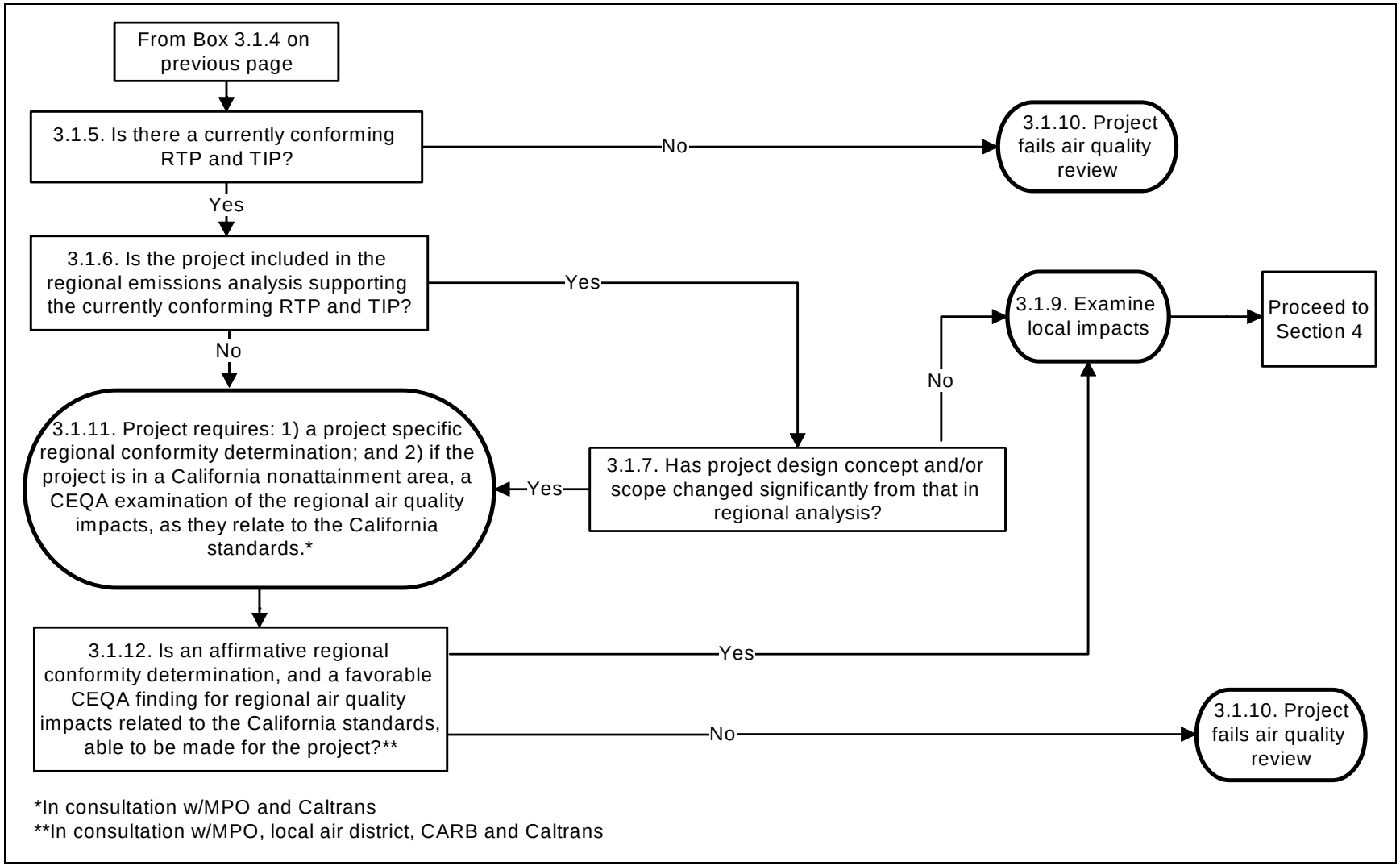

Figure 1 (cont.). Requirements for New Projects

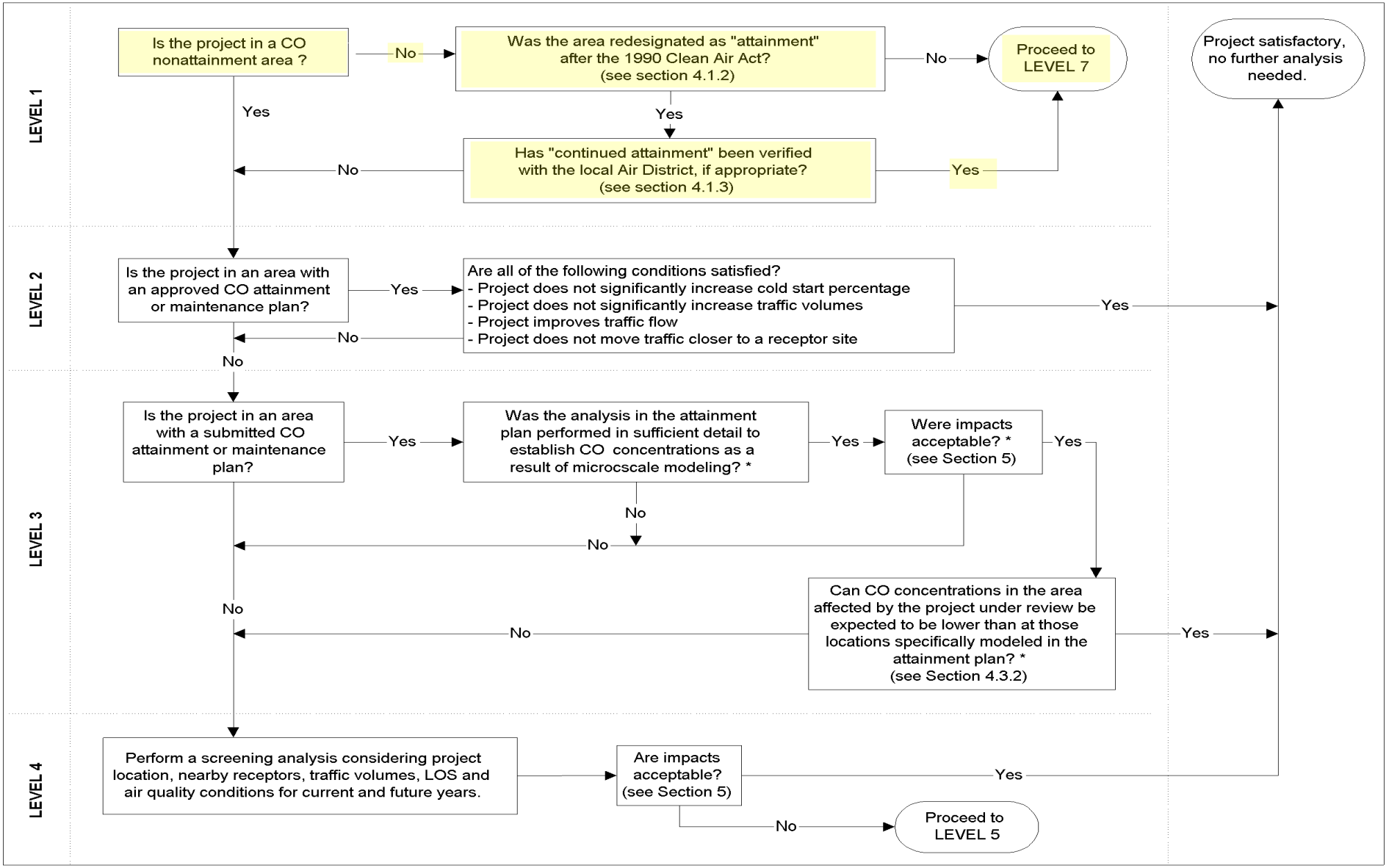

Figure 3. Local CO Analysis

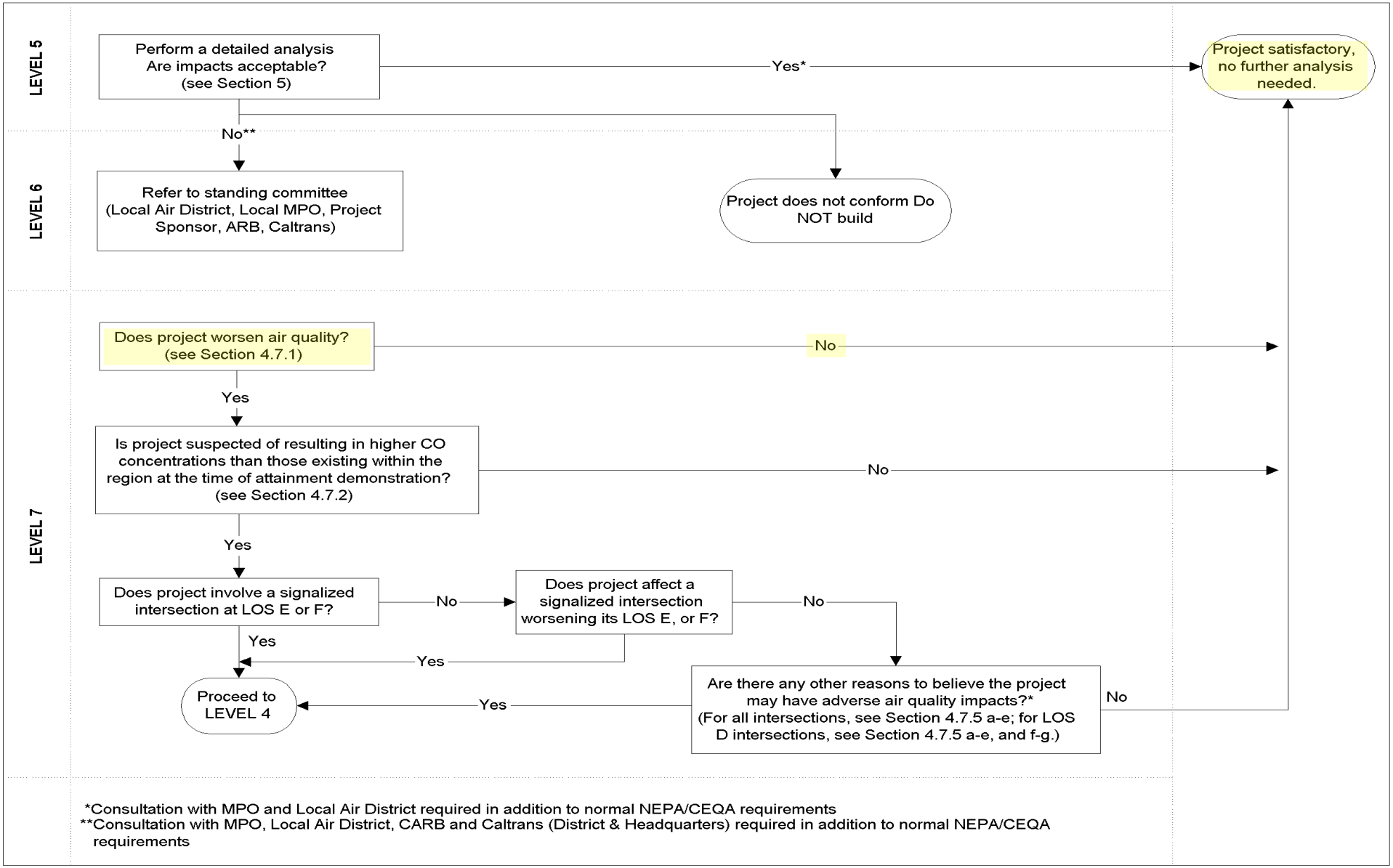

Figure 3 (cont.). Local CO Analysis

Appendix D – PM Hot Spot Analysis and TCWG Determination

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RTIP ID# *(required)* SBD59204

TCWG Consideration Date August 28, 2018

Project Description *(clearly describe project)*
The San Bernardino County Transportation Authority (SBCTA), in cooperation with the California Department of Transportation (Caltrans) and the City of San Bernardino (City), is proposing to improve the Interstate 215 (I-215)/University Parkway Interchange in the City of San Bernardino, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). Caltrans is also the lead agency under the National Environmental Policy Act (NEPA), as assigned by the Federal Highway Administration (FHWA), in accordance with NEPA (42 United States Code [USC] 4321 et seq.) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500 1508).

Alternative 1 – No Build
Alternative 1 - No Build would maintain the facility in its current condition. No improvements would be implemented at this time and therefore, no capital cost is associated with this alternative. As traffic demand increases due to the planned growth in the area, specifically at California State University San Bernardino (CSUSB), traffic operational characteristics would further deteriorate. The Alternative 1 - No Build would not address or alleviate the forecasted operational and existing safety issues attributed to the severe congestion within the University Parkway Interchange and would not satisfy the purpose and need.

Alternative 2 – Diverging Diamond Interchange
Alternative 2 - Diverging Diamond Interchange (DDI) would provide operational improvements to traffic flow associated with the I-215/University Parkway interchange. Alternative 2 proposes to replace the existing University Parkway tight diamond interchange configuration with a DDI configuration. The existing undercrossing would remain in place. This alternative would improve both ramp intersections of the current interchange, as well as directional movement through the system. Using the DDI configuration, the interchange would allow more efficient left-turn and right-turn movements at ramp terminals.

A DDI is the proposed design configuration for the I-215/University Parkway Interchange because of its ability to eliminate multiple traffic signal phases, which would reduce delay and improve traffic flow for multiple movements within the constrained area. A DDI would alleviate congestion within the interchange, along University Parkway and both ramp intersections.

Type of Project *(use Table 1 on instruction sheet)*
Reconfigure Existing Interchange

County	**Narrative Location/Route & Postmiles:** The project is located at the interchange of I-215 and University Parkway between Hallmark Parkway and North Varsity Avenue in the City of San Bernardino. I-215 PM 11.35/11.95 **Caltrans Projects – EA#** 0E4200
San Bernardino	

Lead Agency: Caltrans/SBCTA

Contact Person	**Phone#**	**Fax#**	**Email**
Olufemi Odufalu	909-388-1095		Olufemi_a_odufalu@dot.ca.gov

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5 x** **PM10 x**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*				
x **Categorical Exclusion (NEPA)**	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: December 2018

NEPA Assignment – Project Type *(check appropriate box)*

Exempt	x **Section 326 –Categorical Exemption**	**Section 327 – Non-Categorical Exemption**

Current Programming Dates *(as appropriate)*

	PE/Environmental	ENG	ROW	CON
Start	2017	2018	2019	2020
End	2018	2019	2020	2020

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

Purpose

The purpose of the proposed Project is to plan for the projected regional population growth, CSUSB enrollment increases, and increase traffic demands at the existing I-215/University Parkway interchange for the planning design year of 2040. The Project proposes to reconfigure the interchanges to improve traffic operations. The Project objectives are to:

- Support planned regional growth and proposed local-area projects
- Relieve traffic congestion and related GHG emissions by providing improved signalized intersection operational efficiency through the interchange area
- Improve vehicular, bicycle, pedestrian and transit access through the freeway ramp intersections accommodating all modes of transportation (Complete Street).

Need

Ongoing growth and development in the area has increased commuter traffic at the I-215/University Parkway interchange. The interchange is the primary freeway access for CSUSB, as well as a number of businesses and area residents. This has caused inadequate interchange queuing capacity and existing geometric deficiencies, including the following:

- Southbound I-215 entrance and exit ramps are operating near or over the design capacity during peak period traffic volumes
- Northbound I-215 entrance and exit ramps are operating near or over the design capacity during peak period traffic volumes
- Intersection delays attributable to excessive traffic and deficient traffic signal operations

The accident analysis provided in the Project Study Report (PSR) (dated October 2016) indicates the collision rates at the northbound exit and southbound entrance interchange ramps have higher than state average accident rates. Improvements at these locations would alleviate traffic collisions related to congestion by making the intersection operations more efficient for commuters.

To accommodate the anticipated increase in traffic vehicular volumes and future operational needs within the corridor, the existing interchange would require improved operational efficiency and employ improved vehicular, bicycle, and pedestrian access. The proposed Project would address these local circulation issues.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

The areas within and immediately adjacent to the Project limits are predominately developed and generally consist of commercial/retail land uses.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
I-215

2020 No Build: ADT=83,500, Truck ADT=7,600 (9.1%), LOS D

2020 Build: ADT=83,500, Truck ADT=7,600 (9.1%), LOS D

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
I-215

2040 No Build: ADT=121,500, Truck ADT=11,050 (9.1%), LOS E

2040 Build: ADT=121,500, Truck ADT=11,050 (9.1%), LOS E

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
University Avenue

2020 No Build: ADT=45,250, Truck ADT=3,620 (8.0%), LOS F

2020 Build: ADT=45,250, Truck ADT=3,620 (8.0%), LOS D

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
University Avenue

2040 No Build: ADT=63,950, Truck ADT=5,100 (8.0%), LOS F

2040 Build: ADT=63,950, Truck ADT=5,100 (8.0%), LOS F

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
See attached analysis

Comments/Explanation/Details *(attach additional sheets as necessary)*
See attached analysis

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

The Proposed project is located within a nonattainment area for federal $PM_{2.5}$ standards and within an attainment/maintenance area for the federal PM_{10} standards. Therefore, per 40 CFR Part 93 hot-spot analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in section 93.123(b)(1) as an air quality concern.

According to 40 CFR Part 93.123(b)(1), the following are Projects of Air Quality Concern (POAQC) :

i. New highway projects have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles;
ii. Projects affecting intersections that are at a Level of Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level of Service 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 does not qualify as a Project of Air Quality Concern (POAQC) because of the following reasons:

i) The proposed Project is not a new or expanded highway project. The proposed Project reconstructs the existing I-215/University Parkway interchange without increasing capacity. As shown in Figures 1 through 4, the proposed Project would not increase the traffic volumes along I-215, University Parkway, or any of the highway ramps.

ii) The LOS conditions in the project vicinity with and without the proposed Project are shown in Table A. Although there are minor increases in the delay at intersections 1 and 7 in 2020, the proposed Project would maintain or improve the peak hour level of service at the local intersections, as compared to the No-Build Alternative.

iii) The proposed build alternatives do not include the construction of a new bus or rail terminal.

iv) The proposed build alternatives do not expand an existing bus or rail terminal.

v) The proposed build alternatives are not in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

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

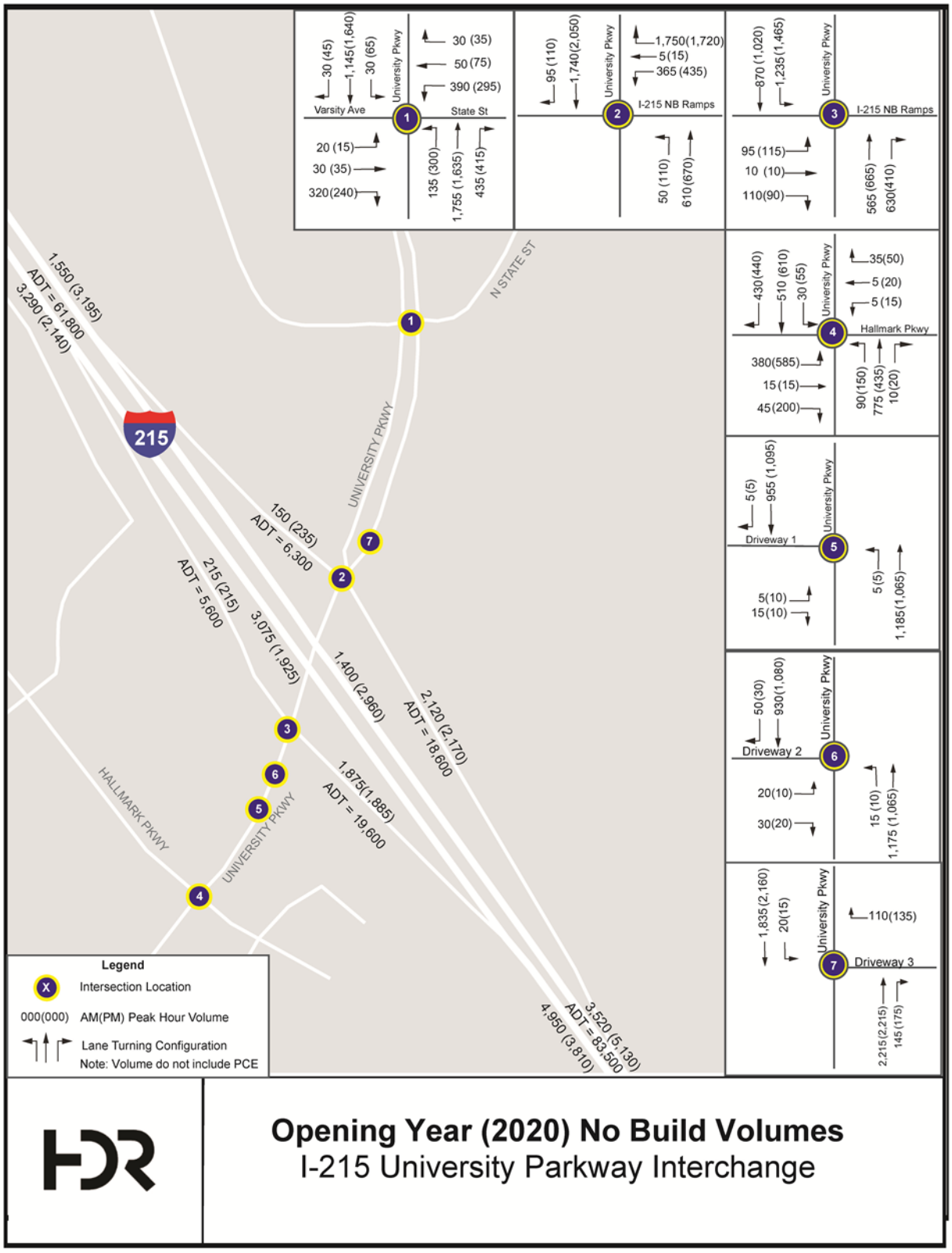

Figure 1. 2020 Alternative 1 – No Build Traffic Volumes

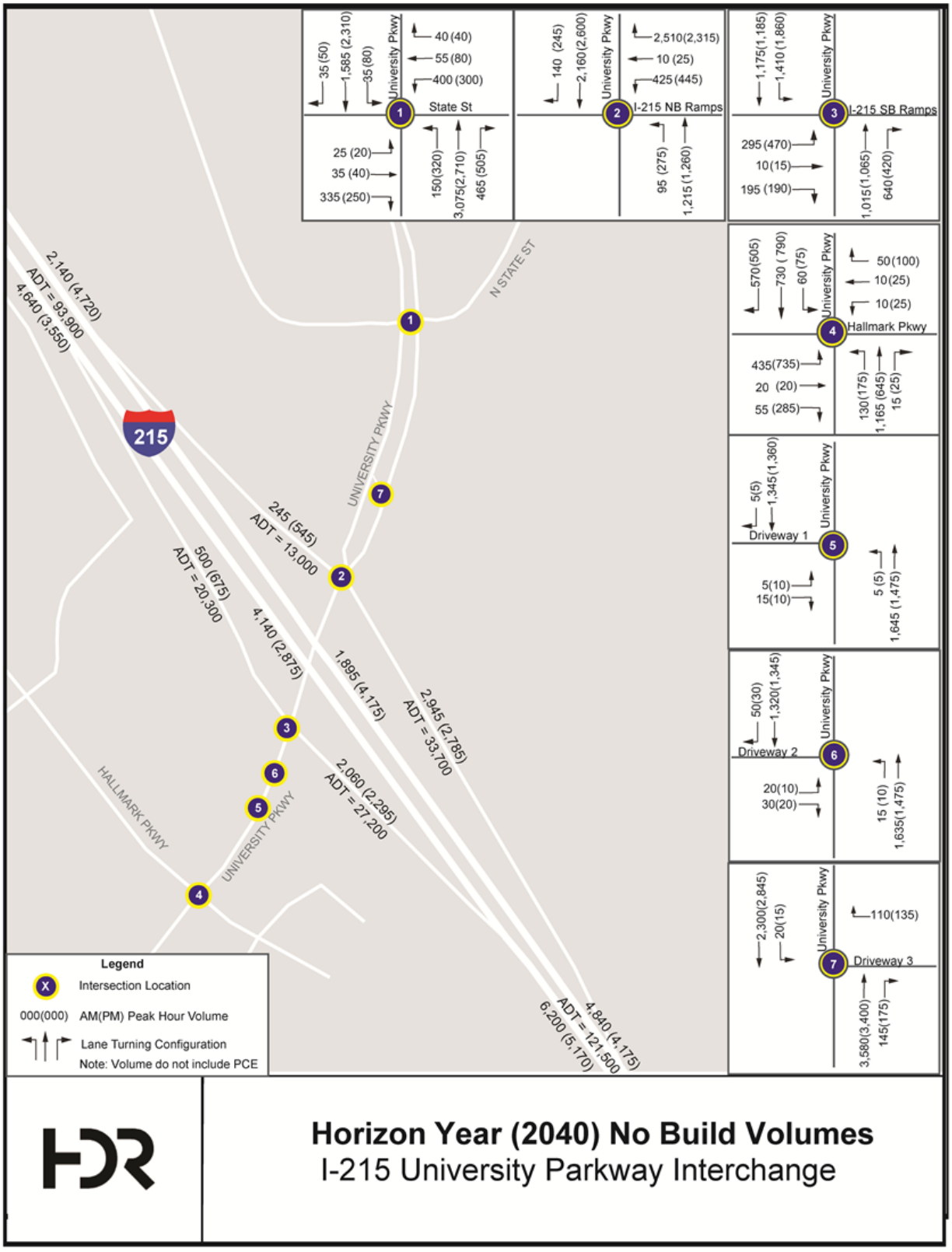

Figure 2. 2040 Alternative 1 – No Build Traffic Volumes

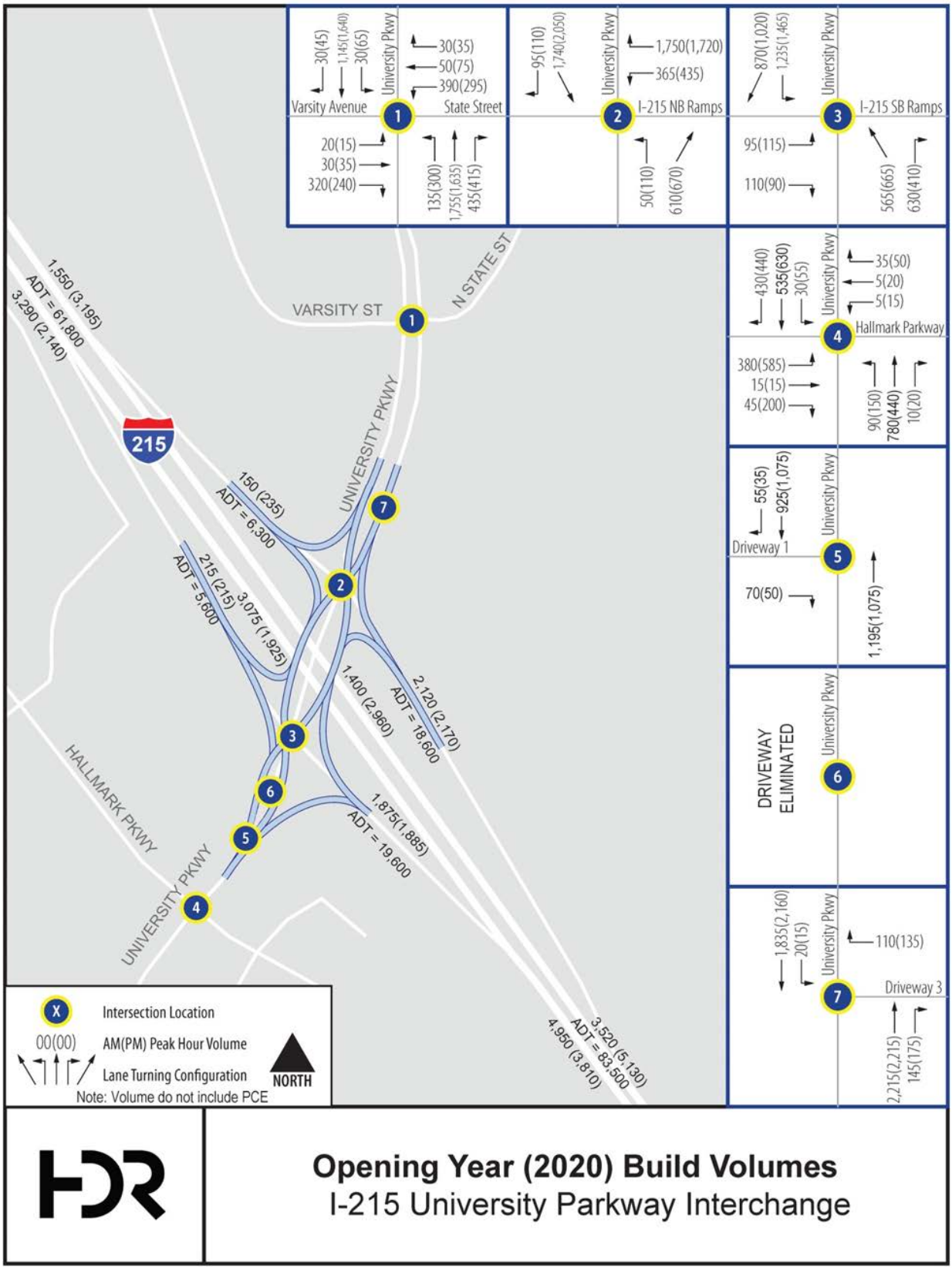

Figure 3. 2020 Alternative 2 Traffic Volumes

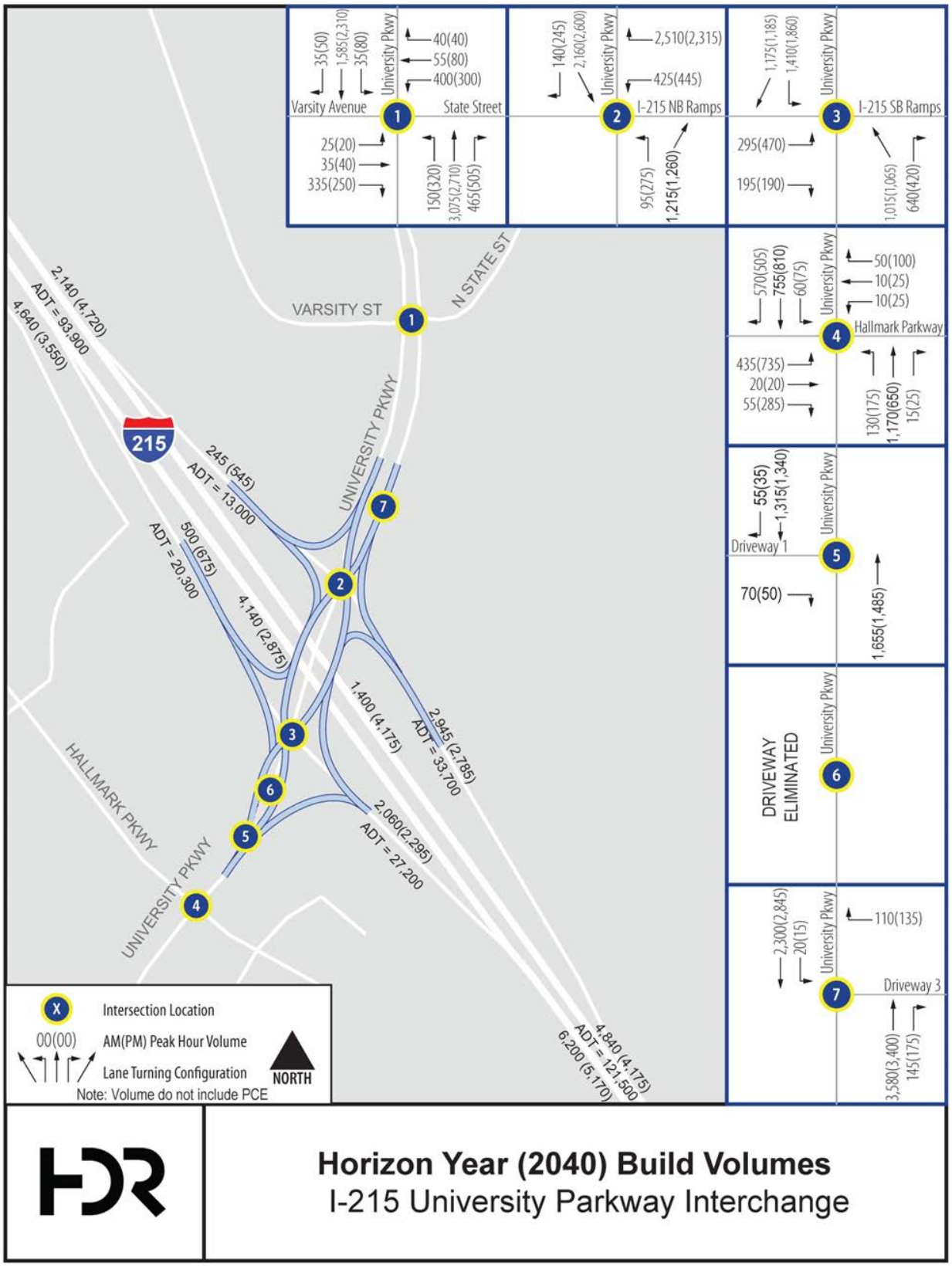

Figure 4. 2040 Alternative 2 Traffic Volumes

Table A. Summary of Intersection Levels of Service (LOS)

No.	Intersection (N/S & E/W)		Existing		ALTERNATIVE 1 - No Build				ALTERNATIVE 2 -Build (DDI)			
			2017		2020		2040		2020		2040	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	North Varsity Avenue/North State Street & University Parkway	LOS	**F**	**E**	**F**	**E**	**F**	**F**	**E**	**E**	**F**	**F**
		Delay (Sec)	87.7	60.5	124.8	62.8	265.0	160.0	57.2	63.3	172	131.6
2	I-215 NB Ramp & University Parkway	LOS	**E**	**F**	**F**	**F**	**F**	**F**	A	A	D	D
		Delay (Sec)	76.0	92.7	104.5	120.2	207.5	197.5	8.1	7	49.3	49.1
3	I-215 SB Ramps & University Parkway	LOS	D	**E**	**E**	**F**	**F**	**F**	C	B	B	C
		Delay (Sec)	38.3	58.1	65.9	85.2	211.5	327.8	25.0	18.2	25	28.3
4	Hallmark Parkway & University Parkway	LOS	C	D	C	D	D	D	C	C	C	D
		Delay (Sec)	26.0	39.6	28.2	41.0	51.3	49.9	22.1	29.5	28	39.5
5	Driveway 1 & University Parkway	LOS	B	D	B	C	C	C	B	B	C	C
		Delay (Sec)	13.3	16.4	14.0	17.7	18.0	21.8	13.4	14	17.2	16.4
6	Driveway 2 & University Parkway	LOS	C	D	C	C	C	C	N/A	N/A	N/A	N/A
		Delay (Sec)	15.2	15.6	16.2	16.7	22.4	20.4	N/A	N/A	N/A	N/A
7	Driveway 3 & University Parkway	LOS	C	C	D	D	**F**	**F**	D	D	**F**	**F**
		Delay (Sec)	23.3	23.1	26.7	25.9	156.6	102.4	27.4	27.4	131.3	95.2
8	I-215 NB Off-Ramp & University Parkway	LOS	N/A	N/A	N/A	N/A	N/A	N/A	B	C	**E**	D
		Delay (Sec)	N/A	N/A	N/A	N/A	N/A	N/A	18.5	22.6	73.3	53.1

N/A - not applicable

August 2018

PM Hot Spot Analysis Project Lists

Review of PM Hot Spot Interagency Review Forms

August, 2018	Determination
ORA131105 August 2018	Not a POAQC - Hot Spot Analysis Not Required (Caltrans, EPA, and FHWA concurrence received via email after the meeting).
SBD59204 August 2018	Not a POAQC - Hot Spot Analysis Not Required (Caltrans, EPA, and FHWA concurrence received via email after the meeting).