Arizona Department of Transportation

Environmental Planning

Air Quality Technical Report

SR303L, SR30 to I-10

Federal Project No. STP-303-A(ASO)S
ADOT Project No. 303 MA 100 H6870 01L

June 11, 2018

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FOR

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Executive Summary

This Air Quality Technical Report supports the State Route (SR) 303 Loop, SR 30 to I-10 Environmental Assessment. The report evaluates the project's potential air quality impacts within the Study Area. This includes an analysis of whether the project would cause or contribute to a new localized exceedance of carbon monoxide (CO) or particulate matter (PM_{10}) ambient air quality standards, or increase the frequency or severity of any existing exceedance; the mobile source air toxic (MSAT) impacts of the project; and the greenhouse gas (GHG) impacts of the project.

According to this analysis, the project is not predicted to cause or exacerbate a violation of the applicable National Ambient Air Quality Standards. It is also predicted to have no measurable effect on MSAT or GHG emissions. Furthermore, since the modeled Build alternative concentrations are below the PM_{10} NAAQS, the project does not interfere with PM_{10} transportation control measures in the Maricopa Association of Governments (MAG) State Implementation Plan (SIP) for PM_{10}.

1.0 Introduction

This Air Quality Technical Report has been prepared in support of the State Route 303 Loop, SR 30 to I-10 project in the City of Goodyear, Maricopa County, Arizona.

The air quality analysis was performed based on traffic data presented in the *SR303L SR30 Traffic Report* (WSP, 2018). The Traffic Report was originally prepared in September 2017. An addendum was published in January 2018 to incorporate the most recent Maricopa Association of Governments (MAG) October 2017 Conformity Model output.

2.0 Project Description

The Arizona Department of Transportation (ADOT), in association with the Federal Highway Administration (FHWA), proposes to extend State Route Loop 303 (SR 303L) south of the Van Buren Street/SR 303L Traffic Interchange (TI) to the future State Route 30 (SR30) (Figure 2-1). The extension would complete the 40-mile SR 303L freeway in the western and northwestern portions of the greater Phoenix metropolitan area, linking the future SR 30 to Interstate 17 and providing connections to I-10 and US Route 60. The ADOT 2013 Lifecycle Certification Regional Transportation Plan Freeway Plan (RTPFP) funds the initial construction of three general-purpose (GP) lanes in each direction, transitioning back to Cotton Lane at Elwood. The ultimate facility as defined in the RTPFP includes four general purpose lanes and one high-occupancy vehicle (HOV) lane on SR303L and four GP lanes plus one HOV lane on future SR30, with grade-separated interchanges.

To meet the needs of the area's growing population and increased traffic demand, the SR303L extension is proposed to increase the roadway capacity and reduce projected traffic congestion in the Cotton Lane corridor, improve the traffic level of service, and facilitate the regional movement of people and goods. The proposed project is included in the Maricopa Association of Governments (MAG) 2040 Regional Transportation Plan (RTP). The initial construction of three GP lanes is scheduled in 2019. This construction would occur within the MAG FY 2018 – 2022 Transportation Improvement Program (TIP).

Within the Study Area, the alignment of future SR303L from I-10 to future SR30 would replace the current Cotton Lane; an arterial street intersecting at grade with Van Buren Street, Canyon Trails Boulevard/ Lilac Street, Yuma Road, Lower Buckeye Road, Broadway Road, Elwood Street, and MC85. The proposed SR303L alignment would replace Cotton Lane from Van Buren Street to Elwood Street. The project Study Area limits are shown in Figure 2-2.

To lessen potential utility conflicts and avoid Section 4(f) resources, a variation on the original concept alignment for SR30 was developed and applied to the build alternatives. Originally identified as Alternatives 2C, 3, and 5 "Variation 1" in the Air Quality analysis, the names for the SR303L alternatives with the SR30 south variation were later simplified to Alternatives 2CS, 3S, and 5S.

Traffic was modeled for three different SR303L freeway study alignments: Alternative 2CS, Alternative 3S, and Alternative 5S. Alternative 5S was found to have the highest impact on the traffic network based on the Traffic Report findings. Alternative 5S was also determined to have the highest impact on air quality because it resulted in the highest daily traffic volumes and worst intersection Level of Service (LOS). The technical analyses presented in the Air Quality Technical Report were based on data from Alternative 5S, and it is assumed that potential impacts from other build alternatives would not exceed any air pollutant emissions or concentrations presented. Figure 2-3 shows details of the Alternative 5S alignment.

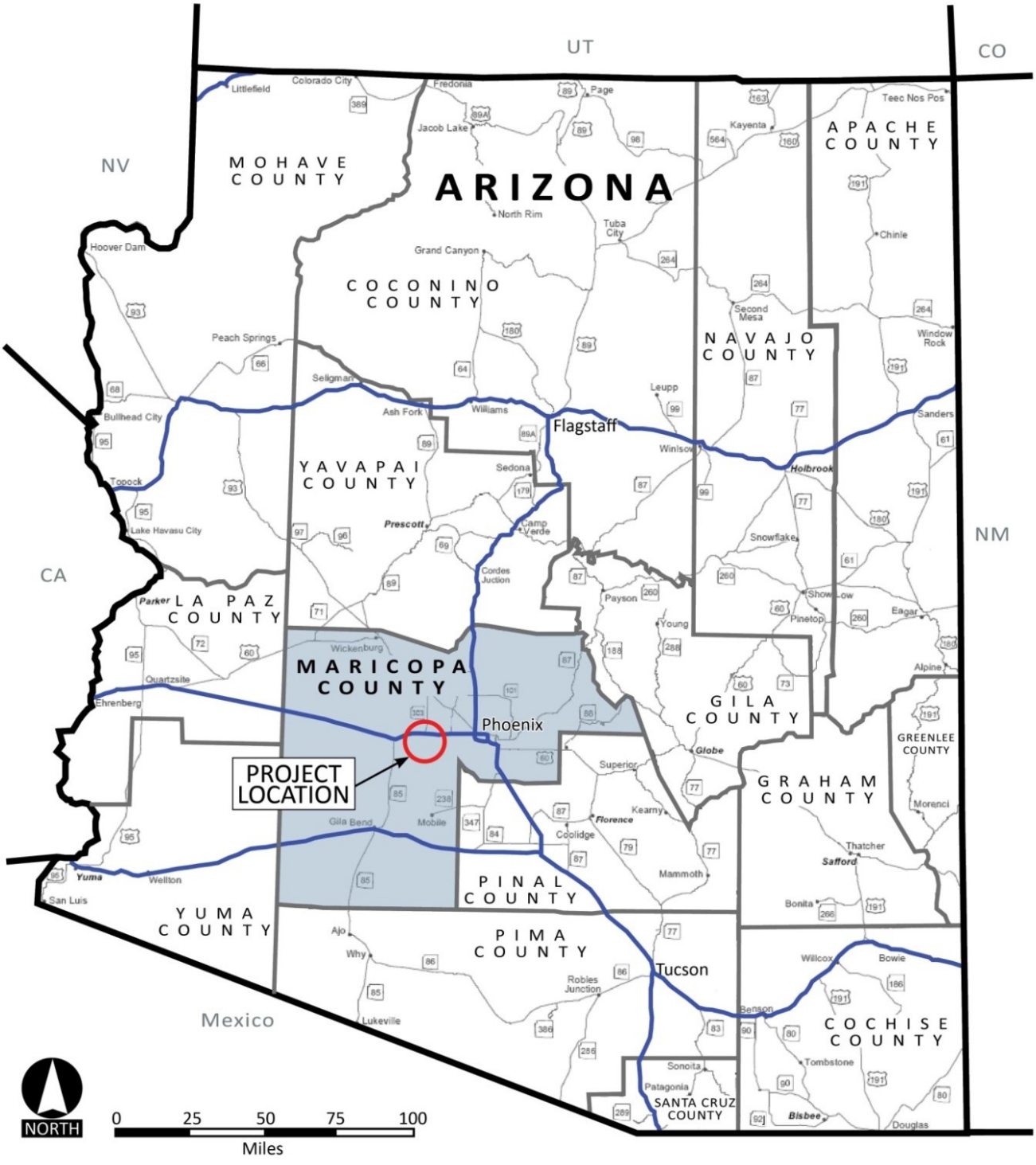


Figure 2-1. Project Location

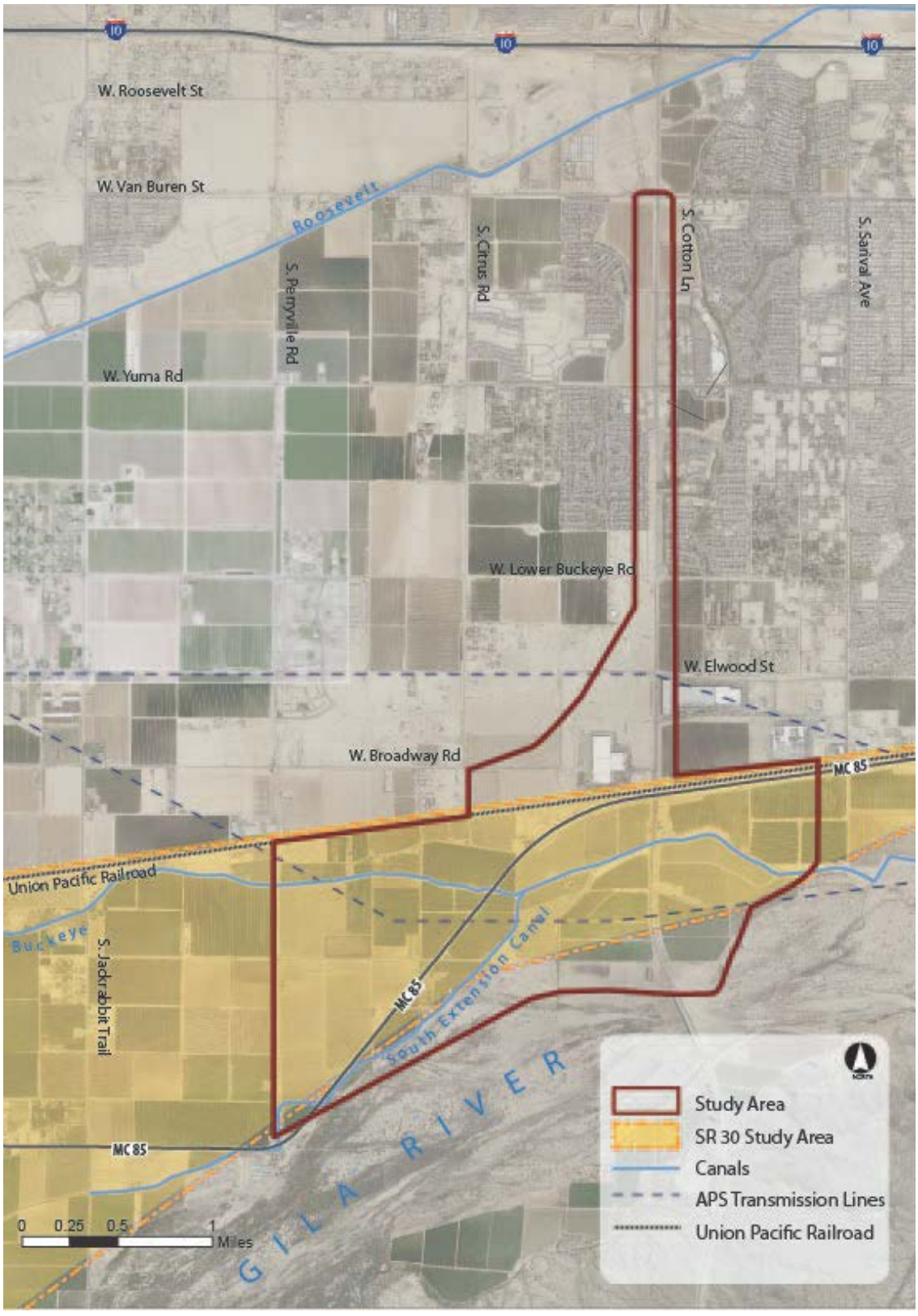


Figure 2-2. Study Area Limits

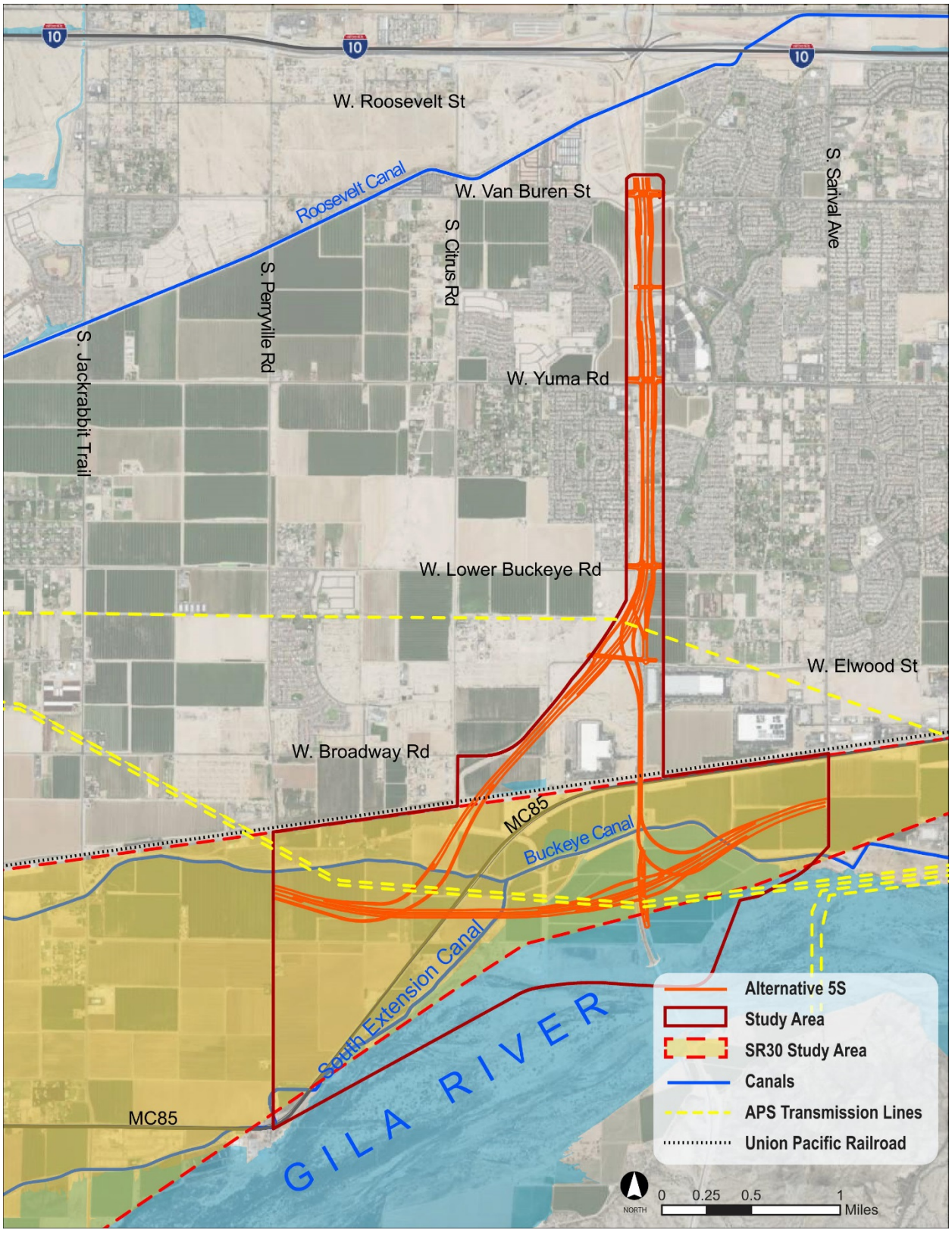


Figure 2-3. Build Alternative 5S Alignment

3.0 Regulations

"Air Pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility; they also are responsible for damaging property, reducing the productivity or vigor of crops and natural vegetation, and/or negatively affecting human and animal health. Air quality is a term used to describe the amount of air pollution the public is exposed to.

Air quality in the United States is regulated by the Federal Clean Air Act (CAA) and is administered by the United States Environmental Protection Agency (EPA).

3.1 Clean Air Act Amendments of 1990

The Clean Air Act Amendments of 1990 (CAAA) direct the EPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. Under the CAAA, a project cannot:

- Cause or contribute to any new violation of any National Ambient Air Quality Standards (NAAQS) in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

3.1.1 National Ambient Air Quality Standards

As required by the CAA, NAAQS have been established for six major air pollutants. These pollutants are: carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide, and lead. These standards are summarized in Table 3-1. "Primary" standards have been established to protect the public health; "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

Brief descriptions of those criteria pollutants relevant to transportation projects (ozone, carbon monoxide, and particulate matter) are provided in the following sections.

Table 3-1. National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide		primary	8-hour	9ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3-month average	0.15 $\mu g/m^3$ (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution	$PM_{2.5}$	primary	Annual	12 $\mu g/m^3$	Annual mean, averaged over 3 years
		secondary	Annual	15 $\mu g/m^3$	Annual mean, averaged over 3 years
		primary and secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 $\mu g/m^3$ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

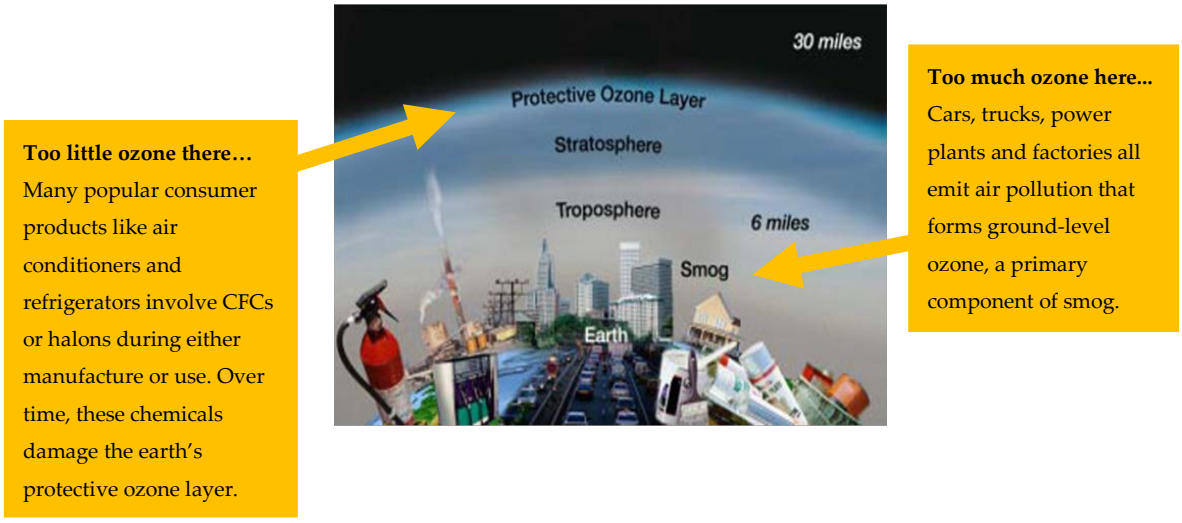
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: 1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and 2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

3.1.1.1 Ozone

Ozone (O_3) is a colorless toxic gas. As shown in Figure 3-1, O_3 is found in both the Earth's upper and lower atmospheric levels. In the upper atmosphere, O_3 is a naturally occurring gas that helps to prevent the sun's harmful ultraviolet rays from reaching the Earth. In the lower layer of the atmosphere, O_3 is human made. Although O_3 is not directly emitted, it forms in the lower atmosphere through a chemical reaction between hydrocarbons (HC), also referred to as Volatile Organic Compounds (VOC), and nitrogen oxides (NOx), which are emitted from industrial sources and from automobiles. HC are compounds comprised primarily of atoms of hydrogen and carbon.

Substantial O_3 formations generally require a stable atmosphere with strong sunlight; thus, high levels of O_3 are generally a concern in the summer. O_3 is the main ingredient of smog. O_3 enters the bloodstream through the respiratory system and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. O_3 also damages vegetation by inhibiting its growth. The effects of changes in VOC and NOx emissions for the proposed project are examined on a regional and statewide level.

Figure 3-1. Ozone in the Atmosphere

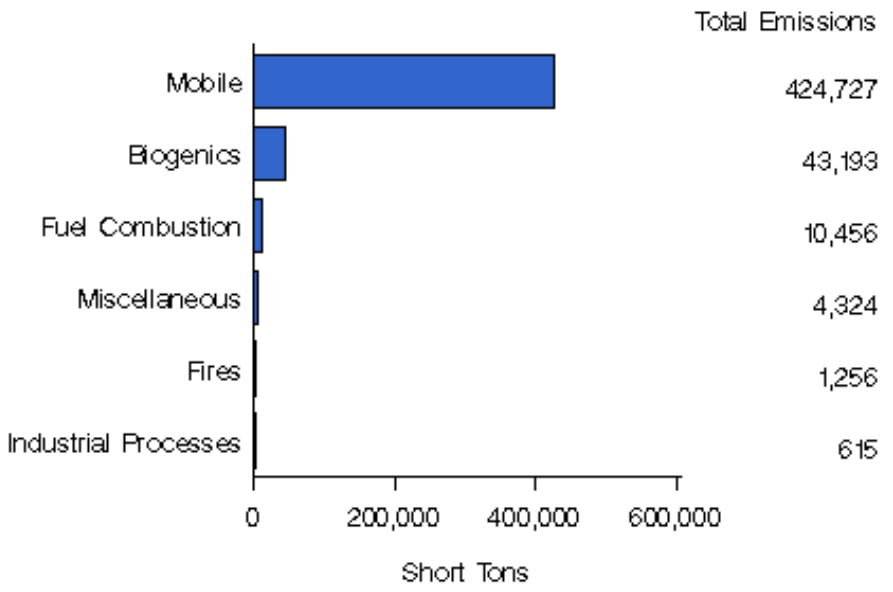


Source: EPA

3.1.1.2 Carbon Monoxide

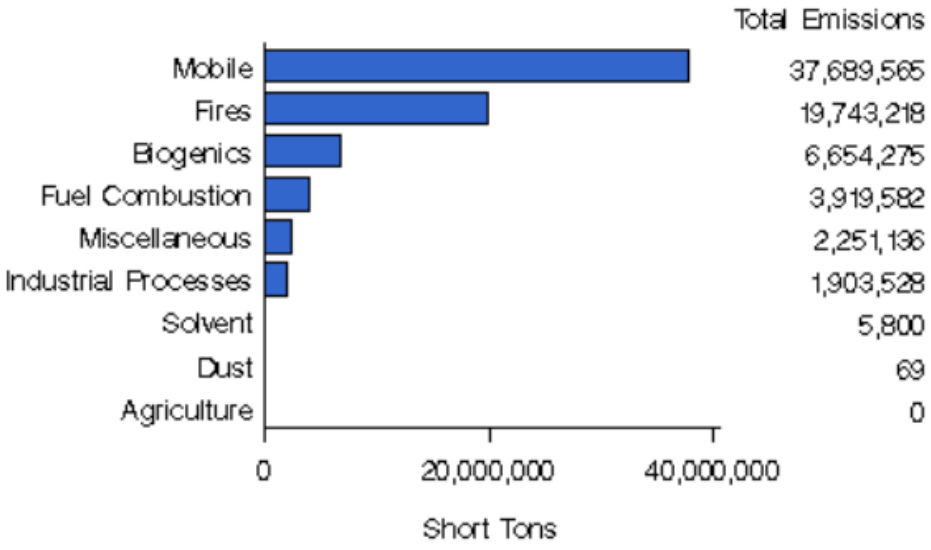
Carbon monoxide (CO) is a colorless gas that interferes with the transfer of oxygen to the brain. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. As shown in Figure 3-2 and Figure 3-3, mobile sources (on-road motor vehicle exhaust) are the primary source of CO in both Maricopa County and in the U.S. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Prolonged exposure to high levels of CO can cause headaches, drowsiness, loss of equilibrium, or heart disease. CO levels are generally highest in the colder months of the year when inversion conditions (where warmer air traps colder air near the ground) are more frequent.

Figure 3-2. Sources of CO in Maricopa County (2014)



Source: EPA, https://www.epa.gov/air-emissions-inventories/air-emissions-sources

Figure 3-3. Sources of CO in the United States (2014)



Source: EPA, https://www.epa.gov/air-emissions-inventories/air-emissions-sources

CO concentrations can vary greatly over relatively short distances. Relatively high concentrations of CO are typically found near congested intersections, along heavily used roadways carrying slow-moving traffic, and in areas where atmospheric dispersion is inhibited by urban "street canyon" conditions. Consequently, CO concentrations must be predicted on a microscale basis.

3.1.1.3 Particulate Matter

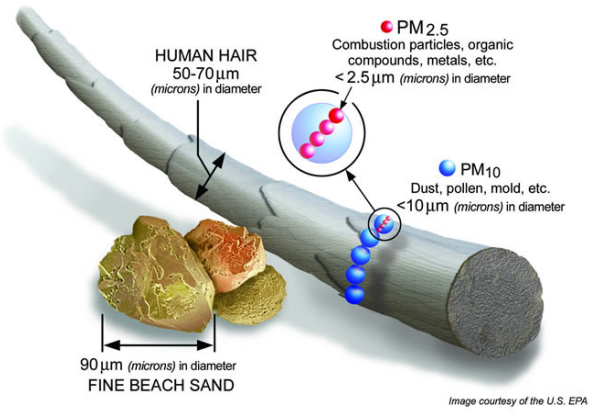
Particulate pollution is composed of solid particles or liquid droplets that are small enough to remain suspended in the air. In general, particulate pollution can include dust, soot, and smoke; these can be irritating but usually are not poisonous. Particulate pollution also can include bits of solid or liquid substances that can be highly toxic. Of particular concern are those particles that are smaller than, or equal to, 10 microns (PM_{10}) or 2.5 microns ($PM_{2.5}$) in size.

PM_{10} refers to particulate matter less than 10 microns in diameter, about one-seventh the thickness of a human hair (Figure 3-4). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals.

Particulate matter also forms when gases emitted from motor vehicles undergo chemical reactions in the atmosphere.

Major sources of PM_{10} include motor vehicles; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Suspended particulates produce haze and reduce visibility.

Figure 3-4. Relative Particulate Matter Size



Source: EPA

Data collected through numerous nationwide studies indicate that most of the PM_{10} comes from the following:

- Fugitive dust
- Wind erosion
- Agricultural and forestry sources

A small portion of particulate matter is the product of fuel combustion processes. In the case of $PM_{2.5}$, the combustion of fossil fuels accounts for a large portion of this pollutant.

The main health effect of airborne particulate matter is on the respiratory system. $PM_{2.5}$ refers to particulates that are 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds. Like PM_{10}, $PM_{2.5}$ can penetrate the human respiratory system's natural defenses and damage the respiratory tract when inhaled. Whereas particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues. The effects of PM_{10} and $PM_{2.5}$ emissions from the project are examined on a localized, or microscale, basis, a regional basis, and a statewide basis.

3.1.2 Transportation Conformity Rule

Under the Clean Air Act Amendments of 1990, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), and Moving Ahead for Progress in the 21st Century Act (MAP-21), proposed transportation projects must be derived from a long-range transportation plan (LRP) or regional transportation plan (RTP) that conforms with the state air quality plans as outlined in the state implementation plan (SIP). The SIP sets forth the state's strategies for achieving air quality standards. EPA's Transportation Conformity Rule requires conformity determinations from proposed transportation plans, programs, and projects before they are approved, accepted, funded, or adopted. Federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment.

The conformity rule also establishes the process by which FHWA, the Federal Transit Administration (FTA), and local metropolitan planning organizations (MPOs) determine conformance of transportation plans and transportation improvement programs (TIPs) and federally funded highway and transit projects. As part of this process, local MPOs are required under regulations promulgated in the CAA of 1990 to undertake conformity determinations on metropolitan transportation plans (MTPs) and TIPs before they are adopted, approved, or accepted. TIPs are a subset of staged, multi-year, inter-modal programs of transportation projects covering metropolitan planning areas that are consistent with MTPs. The TIPs include a list of roadway and transit projects selected as priorities for funding by cities, county road commissions, and transit agencies. Federal projects to be completed in the near term must be included in the regional conformity analysis completed by the MPO; such projects are also usually included in the region's TIP, and therefore conform with the SIP.

3.1.3 Interagency Consultation

Federal transportation projects are required to use interagency consultation in order to determine the need for project-level air quality analyses and, if applicable, to consult on models and methodologies.

ADOT has developed standard questionnaires for project level PM quantitative hot-spot analyses and project-level CO hot-spot analyses. These questionnaires outline the assumptions and sources of data to be used when quantitative analyses are required.

On June 27, 2017, ADOT provided a copy of the PM hot-spot questionnaire and the associated planning assumptions, for a 30-day consultation period, to the following consulting parties: EPA, FHWA, MAG, Arizona Department of Environmental Quality (ADEQ), and the Maricopa County Air Quality Department, as the local air agency in Maricopa County. Several comments were submitted on the document(s), and ADOT provided a response to these comments along with an updated planning assumptions document. In the updated planning documents, ADOT noted that this project would proceed as a project that requires a quantitative PM_{10} hot-spot analysis under 40CFR 93.123(b). Furthermore, ADOT stated that they would conduct the hot-spot modeling in accordance with the traffic modeling data used in the September 22, 2017 traffic study along with other planning assumptions, as noted in Table 2 of the PM hot-spot questionnaire included in Appendix A.

On March 1, 2018, ADOT provided a copy of the CO hot-spot questionnaire and associated planning assumptions to the following consultation parties, for a 10-day consultation period: EPA, FHWA, MAG, ADEQ, and the Maricopa County Air Quality Department, as the local air agency in Maricopa County. There were no comments on the methodology and assumptions, including the two intersections recommended for quantitative analysis. ADOT also provided updated traffic data sources and assumptions that were used for the PM_{10} modeling, in order to be consistent with the latest approved MAG Regional Conformity Model.

Documentation of interagency correspondence, including the completed questionnaires that provide methodologies for the PM_{10} and CO analyses, can be found in Appendix A.

3.2 Mobile Source Air Toxics

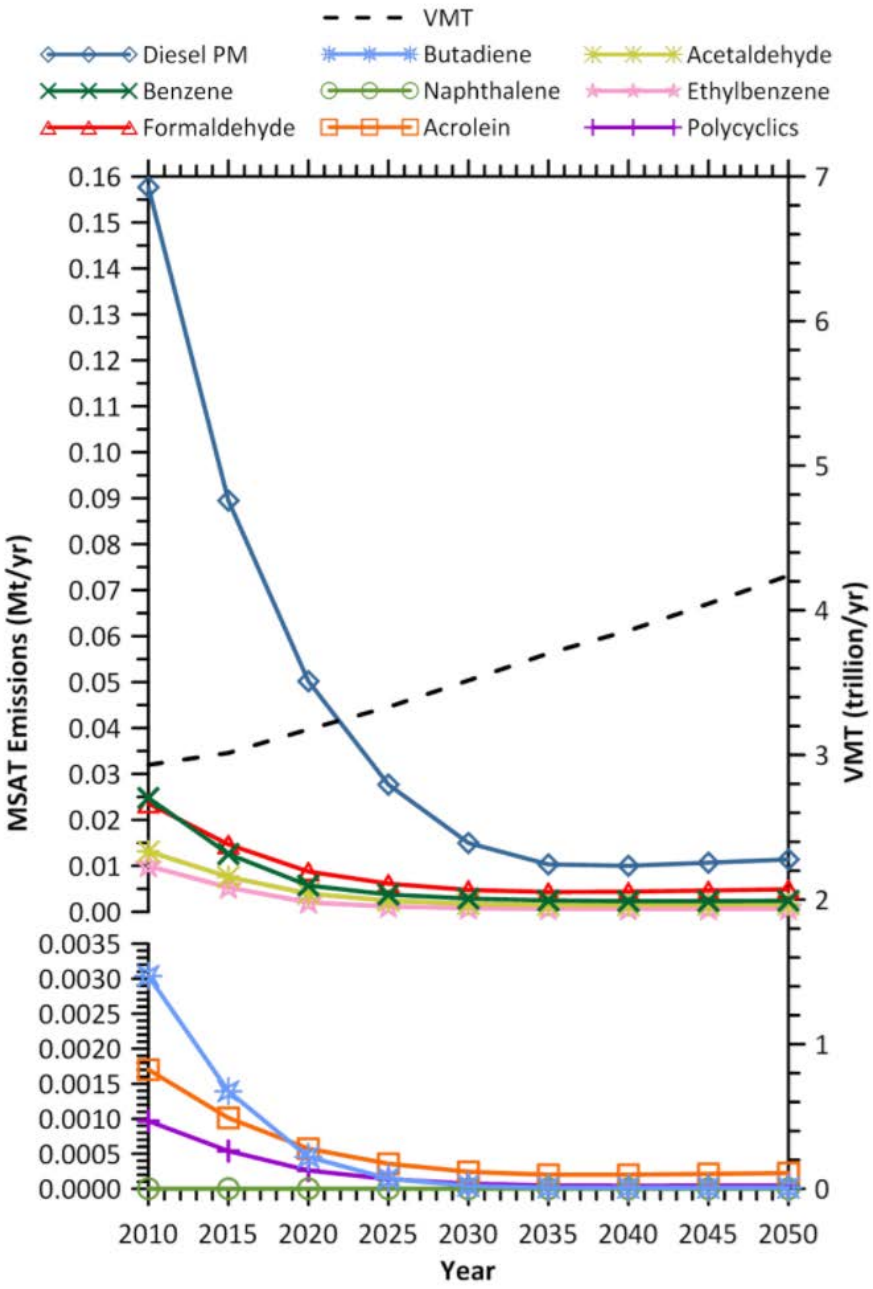
In addition to the criteria pollutants for which there are NAAQS, the EPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants. EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, 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-cancer hazard 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 FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Using EPA's MOVES2014a model, as shown in Figure 3-5, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Figure 3-5. National MSAT Emission Trends 2010 – 2050 For Vehicles Operating on Roadways Using EPA's MOVES2014a Model



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

Source: EPA MOVES2014a model runs conducted by FHWA in September 2016.

3.3 Greenhouse Gases

Climate change is an important national and global concern. While the earth has gone through many natural changes in climate in its history, there is general agreement that the earth's climate is currently changing at an accelerated rate and will continue to do so for the foreseeable future. Anthropogenic (human-caused) greenhouse gas (GHG) emissions contribute to this rapid change. CO_2 makes up the largest component of these GHG emissions. Other prominent transportation greenhouse gases include methane (CH_4) and nitrous oxide (N_2O).

Many GHGs occur naturally. Water vapor is the most abundant GHG and makes up approximately two thirds of the natural greenhouse effect. However, the burning of fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries. GHGs trap heat in the earth's atmosphere. Because atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels.

To date, no national standards have been established regarding GHGs, nor has EPA established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO_2 under the CAA. However, a considerable body of scientific literature exists addressing the sources of GHG emissions and their adverse effects on climate, including reports from the Intergovernmental Panel on Climate Change, the US National Academy of Sciences, and EPA and other federal agencies. GHGs differ from other air pollutants evaluated in federal environmental reviews because their impacts are not localized or regional due to the rapid dispersion into the global atmosphere that is characteristic of these gases. The affected environment for CO_2 and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad-scale actions such as those involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts of a particular transportation project. Furthermore, no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions currently exists.

4.0 Existing Conditions

4.1 Ambient Air Quality Data

4.1.1 Local Meteorology

The project is located in the Phoenix metropolitan area in the south-central portion of the state. Phoenix is located in the Salt River Valley, which is surrounded by low mountain ranges. A large portion of Arizona is classified as semiarid, and long periods of time often occur with little or no precipitation. The average annual precipitation in Phoenix is 7.53 inches. The air is generally dry and clear, with low relative humidity and a high percentage of sunshine. Phoenix has a hot desert climate with long, extremely hot summers and short, mild to warm winters. Temperatures of 90 degrees Fahrenheit are reached an average of 168 days per year, and it is common to see temperatures over 100 degrees Fahrenheit. (WRCC)

4.1.2 Local Monitored Air Quality

In cooperation with EPA and other governmental agencies, The Maricopa County Air Quality Department operates air quality monitoring sites and a mobile air monitoring program to measure criteria pollutants. Table 4-1 presents the last three years of available monitor data gathered at the closest monitoring stations to the project area.

Table 4-1. Ambient Air Quality Monitor Data

Pollutant		Monitor Location	Monitor Value	2014	2015	2016
Carbon Monoxide (CO) [ppm]	1-Hour	16825 N Dysart Surprise, AZ	Maximum	1.2	1.2	0.9
			2nd Maximum	1.0	1.1	0.8
			# of Exceedances	0	0	0
	8-Hour	16825 N Dysart Surprise, AZ	Maximum	0.6	0.7	0.5
			2nd Maximum	0.6	0.7	0.5
			# of Exceedances	0	0	0
Particulate Matter [µg/m^3]	PM_{10}	16825 N Dysart Surprise, AZ	Maximum 24-Hour	163	99	173
			Second Maximum	138	71	126
			# of Exceedances	1	0	1
	$PM_{2.5}$	6000 W Olive Ave Glendale, AZ	24-Hour 98th Percentile	19	19	18
			Mean Annual	7.7	7.0	6.7
Ozone (O_3) [ppm]	8-Hour	16825 N Dysart Surprise, AZ	First Highest	0.075	0.069	0.069
			Second Highest	0.074	0.068	0.067
			Third Highest	0.072	0.067	0.064
			Fourth Highest	0.070	0.067	0.063
			# of Days Standard Exceeded	3	0	0
Nitrogen Dioxide (NO_2) [ppb]		26453 W MC85 Buckeye, AZ	1-Hour Maximum	102	44	34
			1-Hour Second Maximum	76	39	33
			98th Percentile	37	34	29
			Annual Mean	8.65	7.14	6.9
Sulfur Dioxide (SO_2) [ppb]		1645 E Roosevelt St Phoenix, AZ	1-Hour Maximum	11	9.0	8.0
			24-Hour Maximum	3.3	3.4	3.0
			# of Days Standard Exceeded	0	0	0

Sources: EPA AirData, https://www.epa.gov/outdoor-air-quality-data

4.2 Attainment Status

Section 107 of the 1977 CAAA requires that EPA publish a list of all geographic areas in compliance with the NAAQS, plus those not attaining the NAAQS. Areas not in NAAQS compliance are deemed nonattainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as attainment areas until proven otherwise. Maintenance areas are areas that were previously designated as nonattainment for a particular pollutant, but have since demonstrated compliance with the NAAQS for that pollutant. An area's designation is based on data collected by the state monitoring network on a pollutant-by-pollutant basis.

The SR303L project is located in Maricopa County, Arizona. Table 4-2 shows the attainment status for Maricopa County. As shown in the table, EPA has classified portions of Maricopa County as a nonattainment area for PM_{10} and ozone, and a maintenance area for CO. Therefore, a project-level transportation conformity analysis is required for CO and PM_{10}. The regional transportation conformity determination is addressed in the TIP and RTP.

Table 4-2. Project Area Attainment Status

Pollutant	Designation	Current Standard (Year Established)	Area	Regional Transportation Conformity Required?	Project Level Transportation Conformity Required?
Ozone (O_3)	Nonattainment	8-Hr: 70 ppb (2015)	Portions of Maricopa County and Pinal County	Yes	No
Fine Particulate Matter ($PM_{2.5}$) 24-Hr	Attainment	35 µg/m^3 (2012)	Maricopa County	No	No
Fine Particulate Matter ($PM_{2.5}$) Annual	Attainment	12 µg/m^3 (2012)	Maricopa County	No	No
Coarse Particulate Matter (PM_{10}) 24-Hr	Nonattainment	150 µg/m^3 (2012)	Portions of Maricopa County and Pinal County	Yes	Yes
Carbon Monoxide (CO)	Attainment/ Maintenance	1-Hr: 35 ppm 8-Hr: 9 ppm (1971)	Portions of Maricopa County	Yes	Yes
Sulfur Dioxide (SO_2)	Attainment	1-Hr: 75 ppb (2010)	Maricopa County	No	No

Source: EPA, 2018 https://www.epa.gov/green-book

The MPO for the Study Area, MAG, adopted the latest RTP in September 2017, and the latest amendment to the 2018-2022 FY TIP was approved in March 2018. The SR 303L project is included in the RTP as project ID 45422 and in the TIP as project ID 45939. The SR 303L project is included in the regional conformity analysis; therefore, the project's

associated emissions would not have an adverse effect on the ability of the MAG region to attain their applicable air quality goals. As such, no additional regional conformity analyses are required.

5.0 Environmental Consequences

This section describes the methods, impact criteria, and results of air quality analyses of the proposed project. The analyses use guidelines and procedures provided in applicable air quality analysis protocols from EPA and FHWA. All analyses were based on Build Alternative 5S. Alternative 5S was selected as a worst case because it had the highest volumes of the build alternatives. It is expected that other build alternatives would result in emissions and pollutant concentrations lower than the results described in this section.

5.1 Hot-Spot CO Analysis

Microscale CO air quality modeling was performed using EPA guidance and interagency consultation, as described below and in Appendix A.

5.1.1 Methodology

To determine the project's impact on local CO levels, a detailed hotspot analysis was conducted at two signalized intersections within the Study Area: MC 85 and Cotton Lane, and Cotton Lane/SR303L NB frontage road and Elwood Street. These two locations were chosen from a screening evaluation based upon overall level of service and volumes. The locations chosen underwent detailed microscale modeling using emission factors developed through the use of EPA's MOVES2014a emission factor program and dispersion modeling using EPA's CAL3QHC program.

Mobile source models are the basic analytical tools used to estimate CO concentrations expected under given traffic, roadway geometry, and meteorological conditions. The mathematical expressions and formulations that comprise the various models attempt to describe an extremely complex physical phenomenon as closely as possible. The dispersion modeling program used in this project for estimating pollutant concentrations near roadway intersections is the CAL3QHC (Version 2.0) dispersion model developed by EPA and first released in 1992.

CAL3QHC is a Gaussian model recommended in the EPA's Guidelines for Modeling Carbon Monoxide from Roadway Intersections (EPA 1992). Gaussian models assume that the dispersion of pollutants downwind of a pollution source follow a normal distribution from the center of the pollution source.

Different emission rates occur when vehicles are stopped (i.e., idling), accelerating, decelerating, and moving at different average speeds. CAL3QHC simplifies these different emission rates into two components:

- Emissions when vehicles are stopped (i.e., idling) during the red phase of a signalized intersection
- Emissions when vehicles are in motion during the green phase of a signalized intersection

The CAL3QHC (Version 2.0) air quality dispersion model has undergone extensive testing by EPA and has been found to provide reliable estimates of inert (i.e., nonreactive) pollutant concentrations resulting from motor vehicle emissions. A complete description of the model is provided in the User's Guide to CAL3QHC (Version 2.0): A Modeling Methodology for Predicting Pollutant Concentrations near Roadway Intersections (Revised) (EPA 1995b).

The transport and concentration of pollutants emitted from motor vehicles are influenced by three principal meteorological factors: wind direction, wind speed, and the atmosphere's profile. The values for these parameters were chosen to maximize pollutant concentrations at each prediction site. That is, to establish a conservative, reasonable worst-case scenario. The values used for these parameters are:

- **Wind Direction**. Maximum CO concentrations normally are found when the wind is assumed to blow parallel to a roadway adjacent to the receptor location. At complex intersections, it is difficult to predict which wind angle will result in maximum concentrations. Therefore, the approximate wind angle that would result in maximum pollutant concentrations at each receptor location was used in the analysis. All wind angles from 0 to 360 degrees (in 5-degree increments) were considered.

- **Wind Speed**. The CO concentrations are greatest at low wind speeds. A conservative wind speed of one meter per second (2.2 miles per hour) was used to predict CO concentrations during peak traffic periods.

- **Profile of the Atmosphere**. A "mixing" height (the height in the atmosphere to which pollutants rise) of 1,000 meters, and neutral atmospheric stability (stability class D) conditions were used in estimating microscale CO concentrations.

One-hour average ambient CO concentrations were calculated to estimate the effect during peak-hour traffic conditions, and CO concentrations were estimated at a receptor height of 6 feet. The CO levels estimated by the model are the maximum concentrations which could be expected to occur at each air quality receptor site analyzed, given the assumed simultaneous occurrence of a number of worst-case conditions: peak-hour traffic conditions, conservative vehicular operating conditions, low wind speed, low atmospheric temperature, neutral atmospheric conditions, and maximizing wind direction.

MOVES 2014a Emissions Model

EPA's Motor Vehicle Emissions Simulator (MOVES) model version MOVES2014a was used to estimate CO emissions from the roadway segments included in the CO modeling analysis. MOVES2014a is the EPA's state-of-the-art tool for estimating emissions from highway vehicles. The model is based on analyses of millions of emission test results and considerable advances in the Agency's understanding of vehicle emissions. Compared to previous tools, MOVES2014a incorporates the latest

emissions data, more sophisticated calculation algorithms, increased user flexibility, new software design, and substantial new capabilities.

MOVES2014a was used to estimate CO emissions from the roadway segments included in the CO modeling analysis. MOVES input files were provided by the Maricopa Association of Governments (MAG) consistent with their regional emissions analysis. MAG data was used to represent regional fuel specifications, fleet age distribution, and meteorology. Link-by-link traffic data was used to develop project-specific input files for each modeled link with that link's average speed and vehicle mix for each scenario analyzed: 2017, 2040 No Build, and 2040 Build Alternative 5S.

Predicted Levels

Carbon monoxide concentrations for Existing Conditions, the future No Build Alternative, and the future Build Alternative 5S were predicted. Future carbon monoxide concentrations were predicted for the project's design year, which is 2040. At each receptor site, maximum one-hour carbon monoxide concentrations were calculated. The one-hour CO levels were predicted for the AM and PM peak periods. The 8-hour CO levels were predicted by applying a persistence factor of 0.7 to the 1-hour concentrations, as recommended in the EPA guidance (EPA 1992).

Background Levels

Background levels for the study area were obtained from EPA-monitored data. The background level is the component of the total concentration that is not accounted for through the microscale modeling analysis. Background concentrations must be added to modeling results to obtain total pollutant concentrations at receptor locations. The data from the CO monitor located at the Dysart site was approved during the interagency consultation process. Monitor site details, including a figure showing the distance to the monitor, are included in the materials in Appendix A. Based on these data, the one-hour background of 1.2 ppm and the eight-hour background of 0.7 ppm were used for the existing and future year analyses.

Comparison to NAAQS

The results from the analysis for the existing, future No Build, and Build Alternative 5S were compared to the NAAQS, and to one another, to determine the impacts of the proposed project and if the project is in conformance with the guidelines set forth in the New Clean Air Act Amendments of 1990.

5.1.2 Screening Evaluation

An intersection screening analysis based on changes in level of service (LOS) and overall intersection volumes between the No Build and Build Alternative 5S scenarios was performed, as described in EPA guidance (EPA 1992). The intersections evaluated in the *SR303L SR30 Traffic Report* (WSP, 2018) are summarized in Table 5-1.

LOS describes the quality of traffic operating conditions, ranging from A to F, and it is measured as the duration of delay that a driver experiences at a given intersection. LOS A represents free-flow movement of traffic and minimal delays to motorists. LOS F generally indicates severely congested conditions with excessive delays to motorists. Intermediate grades of B, C, D, and E reflect incremental increases in congestion. Sites fail the screening evaluation if (1) LOS, which is the assessment of a road's operating conditions on a scale of A through F, with free-flow being rated LOS A and congested conditions rated as F, decreases below D in one of the build scenarios compared to the no-build scenario, or (2) if the delay and/or volume increase from the no-build scenario to build scenarios along with a LOS below D.

Out of the 26 intersections analyzed, two intersections failed the screening criteria and were chosen for detailed analysis. The intersection at MC 85 and Cotton Lane has the highest total volume and LOS D in the PM peak period under 2040 build conditions. The signal at Cotton Lane/SR303L NB frontage road and Elwood Street does not exist in the no build analysis, and it has LOS D in the AM peak period under 2040 build conditions.

The CO Hot Spot Questionnaire and Consultation form included in Appendix A has additional details about the model setup and options that were used in this analysis. Information on the modeling files are included in Appendix C.

Table 5-1. SR 303 Loop Intersection Screening

#	Intersection	2040 No Build						2040 Build Alternative 5S					
		AM			PM			AM			PM		
		LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume
1	Yuma Rd & SR303L SB Frt Rd							C	33.6	3,215	C	26.2	3,400
2	SR303L NB Frt Rd & Yuma Road							C	22.2	3,378	C	22.2	3,016
3	Yuma Rd & Cotton Lane	D	49.8	4,739	C	32.1	5,094						
4	Lower Buckeye Rd & SR303L SB Frt Rd							B	13.8	1,439	B	11.6	1,581
5	Lower Buckeye Rd & Cotton Lane	C	21.0	3,541	C	30.5	3,628						
6	SR303L NB Frt Rd & Lower Buckeye Rd							B	11.2	1,326	B	13.2	1,241
7	SR303L SB Frt Rd & Elwood St												
8	Cotton Lane/SR3033L NB Frt Rd & Elwood St												
9	MC85 & Cotton Lane	C	27.8	5,691	D	51.8	5,849	C	26.0	5,262	D	47.6	5,511
10	Cotton Lane & SR30 WB Off-Ramp	A	6.2	4,202	C	26.3	5,202	A	6.4	3,725	C	26.5	4,738
11	Cotton Lane & SR30 EB Off-Ramp	C	23.8	5,441	D	39.9	4,751	B	19.8	5,204	C	30.4	4,674
12	Elwood St & Elwood St SB Off-Ramp							B	13.5	2,328	B	13.4	2,891
13	Elwood St & SR303L SB Frt Rd												

#	Intersection	2040 No Build						2040 Build Alternative 5S					
		AM			PM			AM			PM		
		LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume
14	Cotton Lane/SR303L NB Frt Rd & Elwood St							D	38.1	4,016	C	24.3	4,196
15	Elwood St & Cotton Lane	C	23.5	3,782	C	24.3	3,973						
16	SR303L NB Off Rp & Elwood St							B	10.4	2,231	A	9.3	2,487
17	Frontage Rd & Lilac St												
18	Cotton Ln & W Durango St	B	12.4	2,956	B	16.4	3,018						
19	SR303L SB Frt Rd & Lilac St							B	14.8	919	B	14.7	1,141
20	Frontage Rd & Lilac St												
21	Lilac St & Cotton Lane	D	48.5	4,382	D	38.7	4,720						
22	SR303L NB Frt Rd & Lilac St							B	14.2	895	B	14.9	1,262
23	Van Buren East & SB Ramp	B	17.2	1,913	B	15.5	2,043						
24	Van Buren West & NB Ramp	B	13.3	1,720	B	22.4	2,260						
25	SR30 North TI & Cotton Lane												
26	SR30 South TI & Cotton Lane												

Source: WSP, 2018
Shaded cells = intersection does not exist in the Alternative

5.1.3 Analysis

Maximum one-hour CO levels were predicted for the existing year (2017) and design year (2040) at the locations selected for analysis. Maximum one-hour CO concentrations are shown in Table 5-2 and maximum eight-hour CO concentrations are shown in Table 5-3. The CO levels estimated by the model are the maximum concentrations that could be expected to occur at each air quality receptor site analyzed. This assumes simultaneous occurrence of a number of worst-case conditions: peak hour traffic conditions, conservative vehicular operating conditions, low wind speed, low atmospheric temperature, neutral atmospheric conditions, and maximizing wind direction.

Table 5-2. Predicted Worst-Case One-Hour CO Concentrations (ppm)

Intersection	2017		2040			
	Existing		No Build		Build	
	AM	PM	AM	PM	AM	PM
MC85 & Cotton Lane	1.7	1.8	1.3	1.4	1.3	1.3
Cotton Lane/SR303L NB Frt Rd & Elwood St	NA	NA	NA	NA	1.4	1.4

Concentrations = modeled results + 1-hour CO background.
1-hour CO background = 1.2 ppm; 1-hour CO standard = 35 ppm.
NA = Intersection does not exist in this scenario.
Abbreviations: AM = morning; PM = evening; ppm = parts per million.

Table 5-3. Predicted Worst-Case Eight-Hour CO Concentrations (ppm)

Intersection	2017		2040			
	Existing		No Build		Build	
	AM	PM	AM	PM	AM	PM
MC85 & Cotton Lane	1.1	1.1	0.8	0.8	0.8	0.8
Cotton Lane/SR303L NB Frt Rd & Elwood St	NA	NA	NA	NA	0.8	0.8

Concentrations = (modeled results x persistence factor [0.7]) + 8-hour CO background.
8-hour CO background = 0.7 ppm; 8-hour CO standard = 9 ppm.
NA = Intersection does not exist in this scenario.
Abbreviations: AM = morning; PM = evening; ppm = parts per million

Based on the values presented in Table 5-2 and Table 5-3, Build Alternative 5S is not predicted to cause an increase in CO concentrations as compared to the No Build scenario. No violations of the NAAQS are predicted for any of the analysis years.

5.2 Hot-Spot PM_{10} Analysis

The PM_{10} Hot-spot Analysis for Conformity will be released for review and comment at a later date in line with the timing of the final Air Quality Report and Environmental Assessment and all prior to the issuance of the FONSI.

5.3 MSAT Analysis

5.3.1 Methodology

On February 3, 2006, FHWA released Interim Guidance on Air Toxic Analysis in NEPA Documents (FHWA 2006a). This guidance was superseded on October 18, 2016 by FHWA's Updated Interim Guidance Update on Air Toxic Analysis in NEPA Documents (FHWA 2016). The purpose of FHWA's guidance is to advise on when and how to analyze MSATs in the National Environmental Policy Act (NEPA) environmental review process for highways. This guidance is considered interim since MSAT science is still evolving. As the science progresses, FHWA will update the guidance.

A quantitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. FHWA's Interim Guidance groups projects into the following tier categories:

- No analysis for projects without potential for meaningful MSAT effects.
- Qualitative analysis for projects with low potential MSAT effects.
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Based on FHWA's recommended tiering approach, the project falls within the Tier 3 approach (i.e., for projects with a high potential for MSAT effects). In accordance with FHWA's recommendation, EPA's MOVES2014a was used to calculate annual MSAT pollutant burdens for the No Build Alternative and the Build Alternative.

MSAT Study Area

The MSAT Study Area was refined to focus on the portion of the Study Area substantially impacted by the project. FHWA recommends analyzing all segments associated with the project, plus those segments expecting meaningful changes in emissions because of the project (e.g., ± 5 percent or more).

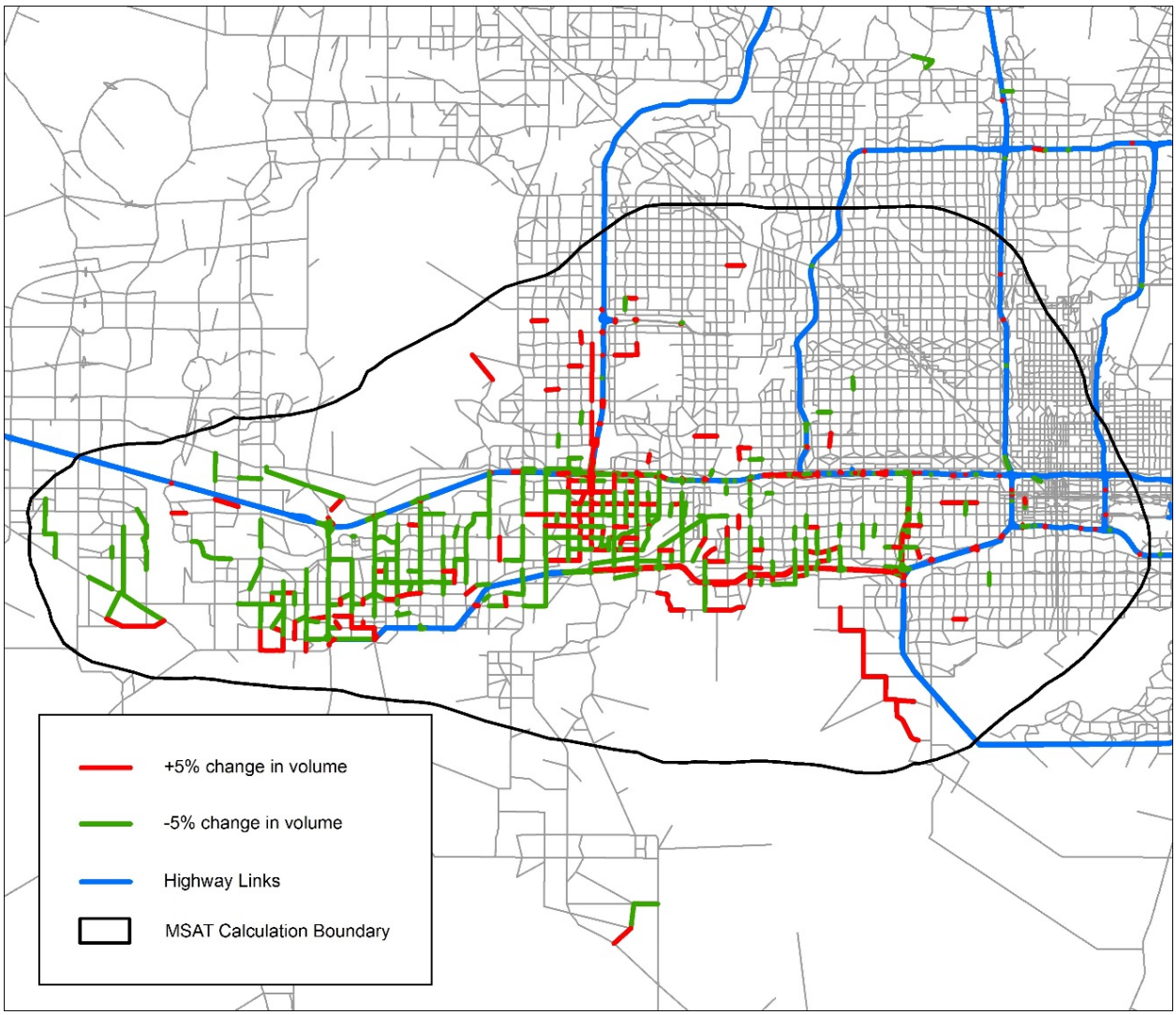
The affected network was defined based on available project-specific information considering changes in such metrics as:

- ± 5 percent or more in annual average daily traffic (AADT) on congested highway links
- Links with 50 or more vehicles AADT
- Project-specific knowledge and consideration of local circumstances

The Study Area was refined by conducting a comparison between the No Build and Build traffic volumes for all links in the regional model. Using the recommendations

described above, along with a level of judgment and local knowledge, a roadway network within a defined boundary as shown in Figure 5-1 was developed. The roadways chosen for inclusion in the analysis were submitted to FHWA and ADOT for approval, as shown in Appendix B.

Figure 5-1. Roadway Network Used to Calculate Total MSAT Emissions



By conducting this Study Area screening analysis, the affected network was sized to include the project itself, nearby roadways that show meaningful changes in traffic, potential diversion routes, and the roadways in between that create a continuous network. The same affected network area was used to compute the emission burdens under all tested scenarios, including Existing Conditions and the No Build Alternative. This allows for a "like-to-like" comparison of the total VMT and resulting pollutant emission burdens.

The project area includes major capacity-adding projects that are planned to be in operation by the analysis year 2040, under both no build and build conditions. Most notably, projects on Interstate 10 and SR 30 will add many new links to the existing roadway network. As such, when directly comparing the pollutant burdens associated with the existing (2018) and analysis year (2040) networks, the additional VMT generated by these new projects and roadway links in 2040 should be considered.

MOVES2014a

EPA's Motor Vehicle Emissions Simulator (MOVES) model version MOVES2014a was used to estimate emissions from the MSAT network. MOVES input files were provided by the Maricopa Association of Governments (MAG), consistent with their regional emissions analysis. MAG data was used to represent regional conditions, and link-by-link traffic data was used to develop project-specific input files to demonstrate the effects of the project for each scenario analyzed: 2017, 2040 no build, and 2040 build. Specific MOVES inputs are described in Table 5-4 and Table 5-5**.**

Table 5-4. MOVES RunSpec Options

MOVES Tab	Model Selections
Scale	County scale Inventory calculation type
Time Span	Hourly time aggregation including all months, days, and hours
Geographic Bounds	Maricopa County
Vehicles/Equipment	All on-road vehicle and fuel type combinations
Road Type	All road types were selected, but not all were used for some scenarios
Pollutants and Processes	All MSAT pollutants and their precursors were selected Processes included running exhaust and crankcase running exhaust
Output	Output was produced by fuel type to differentiate diesel PM from PM produced by other fuel types

Table 5-5. MOVES County Data Manager Inputs

County Data Manager Tab	Data Source
Ramp Fraction	MAG
Source Type Population	MAG
Age Distribution	MAG
Fuel	MAG
Meteorology Data	MAG
Vehicle Type VMT	Created from project daily traffic data
Average Speed Distribution	Created from project daily traffic data
Road Type Distribution	Created from project daily traffic data

MOVES was used to estimate the total emissions from the MSAT network for each scenario. The VMT and emissions of each MSAT pollutant were presented in a table and compared with the existing and no build scenarios. MSAT burdens were calculated for the following MSATs, as required by FHWA:

- 1,3 Butadiene
- Acetaldehyde
- Acrolein
- Benzene
- Diesel PM
- Ethylbenzene
- Formaldehyde
- Naphthalene
- Polycyclic Organic Matter (POM)

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically-defined "study area" will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

5.3.2 Analysis

The results of this analysis for the existing conditions (2018) and design year (2040) are shown in Table 5-6. As previously discussed, the project area includes major capacity-adding projects that are planned to be in operation by the analysis year 2040, under both no build and build conditions. Most notably, projects on Interstate 10 and SR 30 will add many new links to the existing roadway network. As such, when directly comparing the pollutant burdens associated with the existing (2018) and analysis year (2040) networks, the additional VMT generated by these new projects and roadway links in 2040 should be considered.

Table 5-6. 2040 Predicted MSAT Emission Burdens (metric tons/year)

Pollutant*	Existing 2018	2040 No-Build Alternative	2040 Build Alternative 5S	
		Value	Value	% Change from No Build
MSAT Study Area Annual VMT	559,834,769	2,480,727,408	2,502,453,950	0.9%
1,3-Butadiene	0.12	0.017	0.017	0.9%
Acetaldehyde	0.50	1.62	1.63	0.9%
Acrolein	0.08	0.23	0.23	0.9%
Benzene	1.57	1.39	1.40	0.7%
Diesel Particulate Matter	5.45	13.66	13.86	1.5%
Ethylbenzene	0.64	0.51	0.51	0.7%
Formaldehyde	1.25	4.96	5.00	0.9%
Naphthalene	0.14	0.39	0.40	0.9%
Polycyclic Organic Matter	0.06	0.07	0.07	0.9%
Total MSATs	9.82	22.84	23.12	1.2%

As shown in Table 5-6, the majority of MSATs will increase under 2040 alternatives (both No-Build and Build Alternative 5S), as the VMT in the study area will increase drastically from 2018 to 2040 conditions. However, when comparing 2040 Build Alternative MSAT burdens to 2040 No-Build, MSATs would slightly increase, by approximately 0.7% to 1.5%, under Build conditions.

In summary, it is projected that there would be changes in MSAT emissions in the immediate area of the project under the build alternatives, regardless of which one is chosen, relative to the No-Build Alternative, as a result of the VMT changes associated with the project. MSAT levels could be higher in some locations than others, such as adjacent to the SR 303L mainline, but current tools and science are not adequate to quantify them.

As described earlier, the project area includes major capacity-adding projects that are planned to be in operation by the analysis year 2040, under both no build and build conditions. As summarized in Table 5-10, the MAG 2040 Regional Transportation Plan predicts an increase of 59% VMT in the region between 2015 and 2040. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today, as demonstrated in Figure 3-5.

Table 5-7. Regional VMT Forecast

Year	VMT (in millions)	% Change from 2015
2015	103.8	--
2020	114.9	11%
2030	139.6	34%
2040	165.2	59%

Source: MAG 2040 Regional Transportation Plan, Table 7-3

This document has provided a quantitative analysis of MSAT emissions relative to the proposed project and has acknowledged that the alternatives could increase exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. However, available technical tools do not enable prediction of project-specific health impacts of the emission changes associated with the alternatives. Because of these limitations, the following discussion is included in accordance with the President's Council on Environmental Quality (CEQ) regulations (40 CFR, Section 1502.22[b]) regarding incomplete or unavailable information.

5.3.3 Information That Is Unavailable or Incomplete

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

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects"1. Each report contains assessments of non-cancerous and cancerous

[1] EPA, https://www.epa.gov/iris/

effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations2 or in the future as vehicle emissions substantially decrease.

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

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

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI[3]. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk." [4]

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine

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[2] HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects

[3] Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects

[4] EPA IRIS database, Diesel Engine Exhaust, Section II.C. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642.htm#quainhal

whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.5

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

[5] https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf

5.4 Greenhouse Gas Analysis

5.4.1 Methodology

The greenhouse gas (GHG) analysis was conducted using EPA's MOVES2014a model to calculate annual GHG pollutant burdens for the existing scenario, the No Build Alternative, and the Build Alternative.

Based upon consultation with FHWA, it was agreed upon that the greenhouse gas (GHG) analysis would be based on the MSAT network, which includes only those links that meet specific criteria (50 vehicles or more, +/- 5% AADT) as described in the MSAT analysis section of this Report.

EPA's MOVES2014a model was run consistent with the methodology described in the MSAT analysis section of this Report.

5.4.2 Analysis

The results of this analysis for the existing conditions and design year (2040) are shown in Table 5-8. As shown, in the design year of the project (2040), GHG emission burdens would be lower under both No Build and Build conditions, when compared to Existing GHG burdens. Build GHG burdens would be approximately 1.7% higher than No Build burdens in the year 2040.

Table 5-8. Predicted GHG Emission Burdens (metric tons/year)

Pollutant*	Existing 2017	2040 No-Build Alternative	2040 Build Alternative 5S	
		Value	Value	% Change from No Build
MSAT Study Area Annual VMT	559,834,769	2,480,727,408	2,502,453,950	0.9%
CO_2e	267,496	1,367,614	1,390,189	1.7%

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Appendix A

Interagency Consultation Documentation

Project Level CO Hot-Spot Analysis Questionnaire

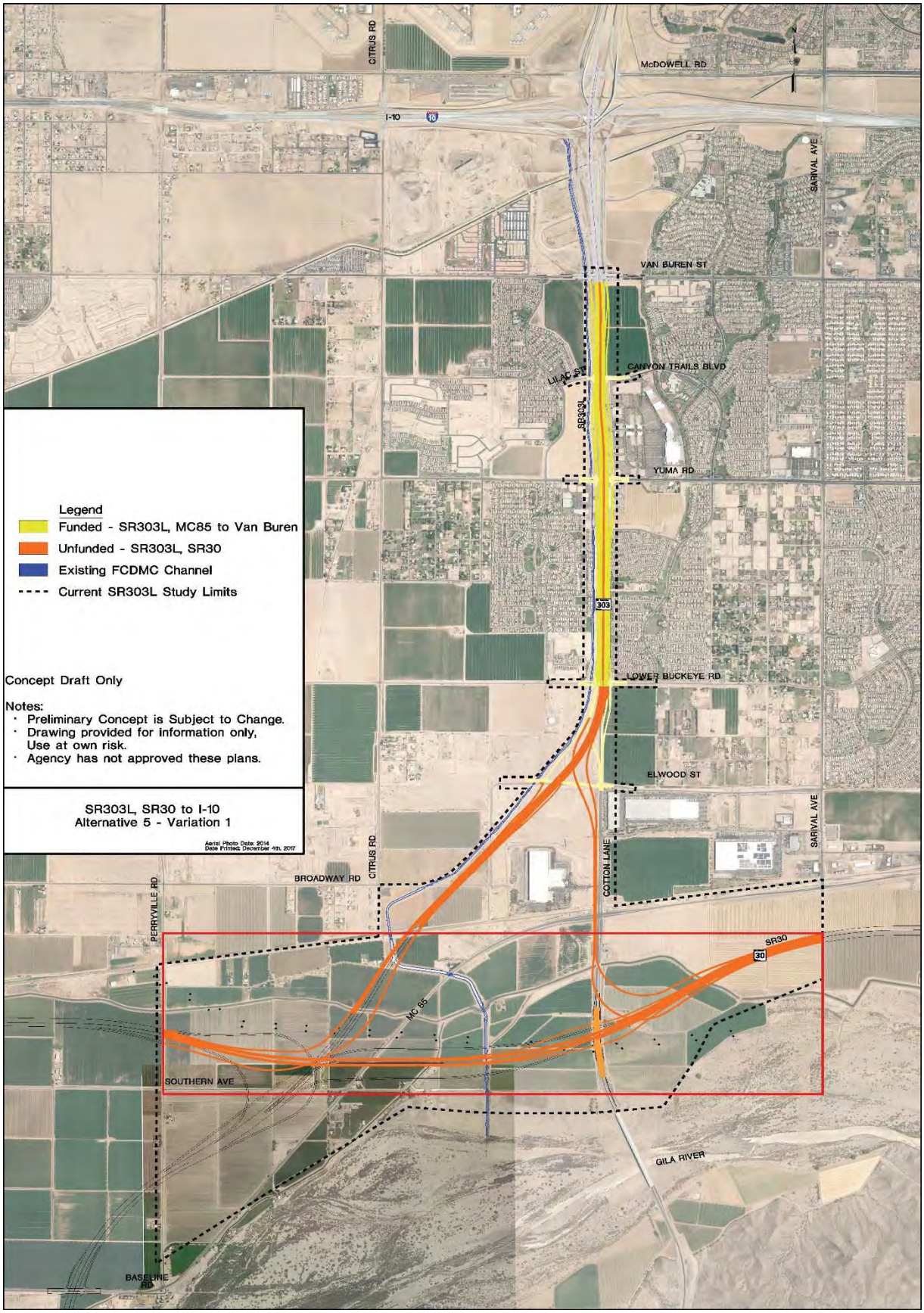
Project Setting and Description

The Arizona Department of Transportation (ADOT), in association with the Federal Highway Administration (FHWA), proposes to extend State Route Loop 303 (SR 303L) south of the Van Buren Street/SR 303L Traffic Interchange (TI) to the future State Route 30 (SR30) (Figure 1-Project Area Map). The extension will complete the 40-mile SR 303L freeway in the western and northwestern portions of the greater Phoenix metropolitan area, linking SR 30 to Interstate 17 and providing connections to I-10 and US Route 60. The northern terminus of this project (between Van Buren and I-10) has already been found to conform, and construction was completed in October 2017. The ADOT 2013 Lifecycle Certification Regional Transportation Plan Freeway Plan (RTPFP) funds the initial construction of three general-purpose (GP) lanes and no high-occupancy vehicle (HOV) lanes in each direction, transitioning back to Cotton Lane at Elwood. The ultimate facility as defined in the RTPFP includes 4+1 (four general purpose lanes and one HOV lane) on SR303L and 4+1 (Four general purpose lanes and one HOV lane) on SR30 with grade separated interchanges.

To meet the needs of the area's growing population and increased traffic demand, the SR303L extension is proposed to increase the roadway capacity and reduce projected traffic congestion in the Cotton Lane corridor, improve the level-of-service (LOS), and facilitate the regional movement of people and goods. The proposed project is included in the Maricopa Association of Governments (MAG) 2040 Regional Transportation Plan (RTP). The initial construction of three GP lanes is scheduled in 2019. This construction would occur within the MAG FY 2018–2022 Transportation Improvement Program (TIP).

The project is within the Phoenix carbon monoxide (CO) maintenance area. The latest conformity determination for the FY 2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan for the area was made by the Federal Highway Administration and Federal Transit Administration on September 27, 2017.

FIGURE 1. PROJECT LOCATION, SR 303L ALTERNATIVE 5



Project Assessment – Part A

The following questionnaire is used to compare the proposed project to a list of project types in 40 CFR 93.123(a) requiring a quantitative analysis of local CO emissions (Hot-spots) in non-attainment or maintenance areas, which include:

i) Projects in or affecting locations, areas, or categories of sites which are identified in the applicable implementation plan as sites of violation or possible violation;
ii) Projects affecting intersections that are at Level-of-Service D, E, or F, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes related to the project;
iii) Any project affecting one or more of the top three intersections in the nonattainment or maintenance area with highest traffic volumes, as identified in the applicable implementation plan; and
iv) Any project affecting one or more of the top three intersections in the nonattainment or maintenance area with the worst level of service, as identified in the applicable implementation plan.

If the project matches one of the listed project types in 40 CFR 93.123(a)(1) above, it is considered a project of local air quality concern and the hot-spot demonstration must be based on quantitative analysis methods in accordance to 40 CFR 93.116(a) and the consultation requirements of 40 CFR 93.105(c)(1)(i).

Projects Affecting CO Sites of Violation or Possible Violation

Does the project affect locations, areas or categories of sites that are identified in the CO applicable plan or implementation plan submissions, as appropriate, as sites of violation or potential violation?

NO. This project does not affect locations, areas or categories of sites that are identified in the MAG 2013 Carbon Monoxide Maintenance Plan for Maricopa County as sites of violation or potential violation.

Projects with Congested Intersections

Is this a project that affects a congested intersection (LOS D or greater) will change LOS to D or greater because of increased traffic volumes related to the project?

YES. In the project area, two intersections are projected to degrade to LOS D in 2040. MC85 & Cotton Lane is projected to be LOS D in the PM peak hour under no-build/build conditions, and Cotton Lane/SR303L NB Frt Rd & Elwood St is projected to be LOS D in the AM/PM peak hours under build condition (Table 1).

Table 1. 2040 LOS and Traffic Volumes

Intersection	2040 No Build WITH SR30						2040 Build Alternative 5					
	AM			PM			AM			PM		
	LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume	LOS	Delay	Volume
Yuma Rd & SR303L SB Frt Rd							C	33.6	3,215	C	26.2	3,400
SR303L NB Frt Rd & Yuma Road							C	22.2	3,378	C	22.2	3,016
Yuma Rd & Cotton Lane	D	49.8	4,739	C	32.1	5,094						
Lower Buckeye Rd & SR303L SB Frt Rd							B	13.8	1,439	B	11.6	1,581
Lower Buckeye Rd & Cotton Lane	C	21.0	3,541	C	30.5	3,628						
SR303L NB Frt Rd & Lower Buckeye Rd							B	11.2	1,326	B	13.2	1,241
SR303L SB Frt Rd & Elwood St												
Cotton Lane/SR3033L NB Frt Rd & Elwood St												
MC85 & Cotton Lane	C	27.8	5,691	D	51.8	5,849	C	26.0	5,262	D	47.6	5,511
Cotton Lane & SR30 WB Off-Rp	A	6.2	4,202	C	26.3	5,202	A	6.4	3,725	C	26.5	4,738
Cotton Lane & SR30 EB Off-Rp	C	23.8	5,441	D	39.9	4,751	B	19.8	5,204	C	30.4	4,674
Elwood St & Elwood St SB OffRamp							B	13.5	2,328	B	13.4	2,891
Elwood St & SR303L SB Frt Rd												
Cotton Lane/SR303L NB Frt Rd & Elwood St							D	38.1	4,016	C	24.3	4,196
Elwood St & Cotton Lane	C	23.5	3,782	C	24.3	3,973						
SR303L NB OffRp & Elwood St							B	10.4	2,231	A	9.3	2,487
Frontage Rd & Lilac St												
Cotton Ln & W Durango St	B	12.4	2,956	B	16.4	3,018						
SR303L SB Frt Rd & Lilac St							B	14.8	919	B	14.7	1,141
Frontage Rd & Lilac St												
Lilac St & Cotton Lane	D	48.5	4,382	D	38.7	4,720						
SR303L NB Frt Rd & Lilac St							B	14.2	895	B	14.9	1,262
Van Buren East & SB Ramp	B	17.2	1,913	B	15.5	2,043						
Van Buren West & NB Ramp	B	13.3	1,720	B	22.4	2,260						
SR30 North TI & Cotton Lane												
SR30 South TI & Cotton Lane												

Projects Affecting Intersections with Highest Traffic Volumes
Does the project affect one or more of the top three intersections in the CO maintenance area with highest traffic volumes identified in the CO applicable implementation plan?

NO. This project does not affect one or more of the top three intersections in the carbon monoxide maintenance area with the highest traffic volumes identified in the MAG 2013 Carbon Monoxide Maintenance Plan for Maricopa County.

Projects Affecting Intersections with the Worst Level of Services
Does the project affect one or more of the top three intersections in the CO maintenance area with the worst level of services identified in the CO applicable implementation plan?

NO. This project does not affect one or more of the top three intersections with the worst LOS in the MAG 2013 Carbon Monoxide Maintenance Plan for Maricopa County.

Project Assessment – Part B

The following questionnaire is used to compare the proposed project to a list of the project types in 40 CFR 93.126 and 40 CFR 93.128 which are exempt from the requirement to determine conformity:

Exempt Projects in the CO maintenance Area
Is this one of the exempt projects listed – Safety, Mass Transit, Air Quality and Others in Table 2 of 40 CFR 93.126 or a traffic signal synchronization project described in 40 CFR 93.128?

NO. This project is not exempt under Table 2 of 40 CFR 93.126 and is not a traffic signal synchronization project as described in 40 CFR 93.128.

POAQC Determination

Decide which type of hot-spot analysis is required for the project by choosing a category below.

☒ If answered "Yes" to any of the questions in the Project Assessment – Part A and "No" to the question in the Project Assessment – Part B,

- A quantitative CO hot-spot analysis is required under 40 CFR 93.123(a)(1).
- The applicable air quality models, data bases, and other requirements specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models) should be completed and circulated through interagency consultation for review and comments for 10 days prior to commencing any modeling activities.
- Check if the project fits the condition of the CO Categorical Hot-Spot Finding.

☐ If answered "No" to all of the questions in the Project Assessment – Part A and "No" to the question in the Project Assessment – Part B,

- A qualitative CO hot-spot analysis is required under 40 CFR 93.123(a)(2).

- The demonstrations required by 40 CFR 93.116 Localized CO, PM10, and PM2.5 violations (hot-spots) may be based on either: (i) Quantitative methods that represent reasonable and common professional practice; or (ii) A qualitative consideration of local factors, if this can provide a clear demonstration that the requirements of 40 CFR 93.116 are met.

☐ **Regardless of the questions in the Project Assessment – Part A, if "Yes" to the question in the Project Assessment – Part B,**

- No CO hot-spot analysis is required.

This project requires a quantitative hot-spot analysis for carbon monoxide at the intersections of Cotton Lane & MC85 and Cotton Lane/SR303L NB Frt Rd & Elwood St because these intersections are projected to operate at LOS D by increased traffic volumes related to the project in 2040. Since an interagency consultation is required for the analysis, the consultation document including the methods, model and assumptions is attached.

In the January 24, 2008, Transportation Conformity Rule Amendments, EPA included a provision at 40 CFR 93.123(a)(3) to allow the U.S. DOT, in consultation with EPA, to make categorical hot-spot findings in CO nonattainment and maintenance areas if appropriate modeling showed that a type of highway or transit project would not cause or contribute to a new or worsened air quality violation of the CO NAAQS or delay timely attainment of the NAAQS or required interim milestone(s), as required under 40 CFR 93.116(a).

Projects Fitting the Condition of the CO Categorical Hot-Spot Finding

Do the project's parameters fall within the acceptable range of modeled parameters (Use the table in the appendix, "Table 1: Project Parameters and Acceptable Ranges for CO Categorical Hot-Spot Finding" or enter the project information into FHWA's web based tool: https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2017/tool.cfm)?

NO. This project's parameters do not fall within the acceptable range of modeling parameters for a CO Categorical Hot-spot Finding in Appendix Table 1 below.

Appendix

Table 1: Project Parameters and Acceptable Ranges for CO Categorical Hot-Spot Finding for Urban Intersection

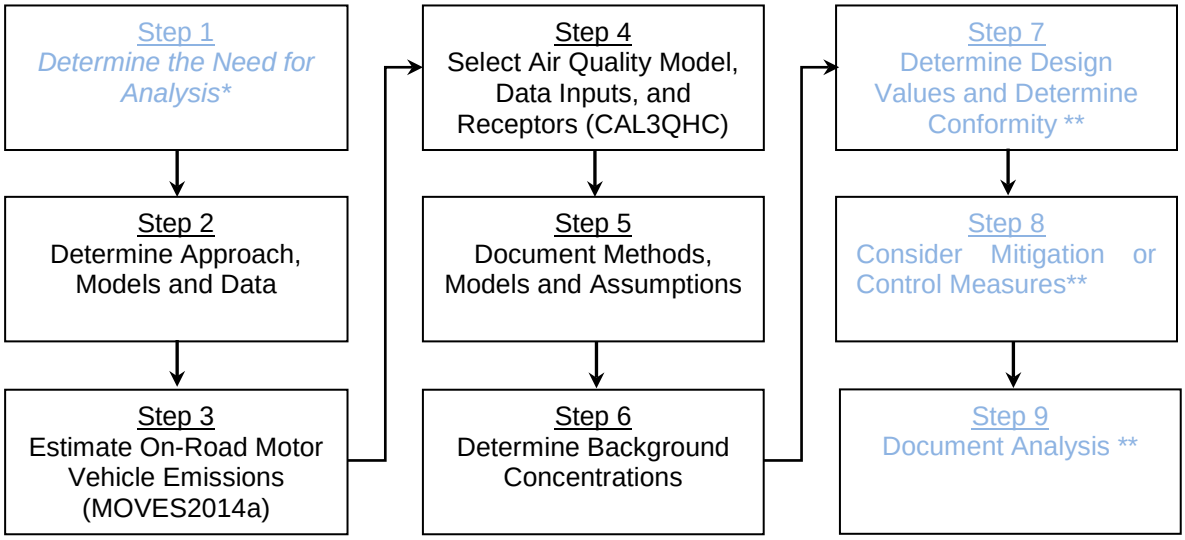
Parameter	**Acceptable Range**
Analysis year	Greater than or equal to 2017
Angle of cross streets for intersection (degrees)	90
Maximum grade for the intersection (%)	Less than or equal to 2
Maximum grade on cross street for the intersection (%)	0
Number of through lanes	Less than or equal to 4
Number of left turn lanes	Less than or equal to 2
Lane width (ft)	12
Median width (ft)	0
Peak hour average approach speed (mph)	Greater than or equal to 25
Peak hour approach volume (vph)	Less than or equal to 2640
Peak hour Level of Service	A through E
Ambient temperature (ºF)	Greater than or equal to -10
Heavy-duty trucks (%)	Greater than or equal to 5
1-hour background CO concentrations (ppm)	Less than or equal to 32.6
8-hour background CO concentrations (ppm)	Less than or equal to 7.3
Persistence factor	Less than or equal to 0.7

Project Level CO Quantitative Hot-Spot Analysis – Consultation Document

The Arizona Department of Transportation (ADOT) developed the following consultation document for the projects of air quality concern that are funded by Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). The Purpose of this document is to describe the methods, models and assumptions used for a CO quantitative Hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116. The modeling assumptions were provided for review and Interagency consultation concluded on March 15, 2018 with no additional modifications to the modeling assumptions (see Attachment 1). t

Completing a Carbon Monoxide (CO) Hot-Spot Analysis

The general steps required to complete a quantitative CO hot-spot analysis are outlined below and described in detail in the EPA Office of Transportation and Air Quality guidance document "Using MOVES2014 in Project-Level Carbon Monoxide Analyses" EPA-420-B-15-028, March 2015, and "Guideline for Modeling Carbon Monoxide from Roadway Intersections" EPA-454/R-92-005, November 1992.



* Described in the previous section (Air Quality Concern Questionnaire).
** These Steps will be described and documented in a final air quality analysis report.

Step 2: Determine the Approach, Models, and Data

a. Describe the project area (area substantially affected by the project, 58 FR 62212) and emission sources.
b. Determine general approach and analysis year(s) – year(s) of peak emissions during the time frame of the transportation plan (69 FR 40056).
c. Determine CO National Ambient Air Quality Standards (NAAQS) to be evaluated.
d. Select emissions and dispersion models and methods to be used.
e. Obtain project-specific data (e.g., fleet mix, peak-hour volumes and average speed).

Step 3: Estimate On-Road Motor Vehicle Emissions with MOVES2014a

a. Generate RunSpec and enter project-specific data into Project Data Manager
b. Estimate on-road motor vehicle emissions.

Step 4: Select Air Quality Model, Data Inputs, and Receptors for CAL3QHC

a. Obtain and input required site data (e.g., meteorological).
b. Input MOVES outputs (emission factors).
c. Determine number and location of receptors, roadway links, and signal timing.
d. Run air quality dispersion model and obtain concentration results.

Step 5: Document Methods, Models and Assumptions

a. Summarize the methods, models and assumptions based on Step 3 & 4 (see the example in Table 1).
b. Submit the summary document to ADOT for review.

Step 6: Determine Background Concentrations

a. Determine background concentrations from nearby and other emission sources excluding the emissions from the project itself.

Step 7: Calculate Design Values and Determine Conformity

a. Add step 5 results to background concentrations to obtain values for the Build scenario.
b. Determine if the design values allow the project to conform.

Step 8: Consider Mitigation or Control Measures

a. Consider measures to reduce emissions and redo the analysis. If mitigation measures are required for project conformity, they must be included in the applicable SIP and be enforceable.
b. Determine if the design values from allow the project to conform after implementing mitigation or control measures.

Step 9: Document Analysis

a. Determine if the project conforms or not based on the results of step 7 or step 8.

To support the conclusion that a project meets conformity under 40 CFR 93.116 and 93.123, at a minimum the documentation will include:

- *Description of proposed project, when it is expected to open, and projected travel activity data.*
- *Analysis year(s) examined and factors considering in determining year(s) of peak emissions.*
- *Emissions modeling data, model used with inputs and results, and how characterization of project links.*
- *Model inputs and results for road dust, construction emissions, and emissions from other source if needed.*
- *Air Quality modeling data, included model used, inputs and results and receptors.*
- *How background concentrations were determined.*
- *Any mitigation and control measures implemented, including public involvement or consultation if needed.*
- *How interagency and public participation requirements were met.*
- *Conclusion that the proposed project meets conformity requirements.*
- *Sources of data for modeling.*

Methods, Models and Assumptions for CO Hot-Spot Analysis

Table 1. Methods, Models and Assumptions		
Estimate On-Road Motor Vehicle Emissions (Step 3)		
MOVES2014a	**Description**	**Data Source**
Scale	*On road, Project, Inventory*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.2
Time Span	*Two unique model runs: For future conditions, 2040, January, weekday, AM peak hour, and PM peak hour.*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.3
Geographic Bounds	*Maricopa County*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.4
Vehicles Equipment	*All Fuels and Source Use Types will be selected*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.5
Road Type	*Urban Restricted and Unrestricted access*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.6
Pollutants and Processes	*CO Running Exhaust, CO Crankcase Running Exhaust*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.7
Output	*Database will be created, Grams, Miles, Distance Traveled, Population will be selected. Emissions process will be selected in the Output Emissions Detail. Emission rates for each process can be appropriately summed to calculate aggregate CO emission rates for each link.*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.3.10
Project Data Manager	*Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG's I/M programs, Fuel, Age Distribution, Meteorology data which are consistent with the regional models. Links will be based on travel speeds and roadway grades specific to project as provided by the traffic study. Link Source Type will be based on the regional fleet mix for each road type and year.Any missing information will use default MOVES2014a data. After running MOVES, the MOVES CO_CAL3QHC_EF post-processing script is run.*	See Table 2 below for details

Select Air Quality Model, Data Inputs, and Receptors (Step 4)		
CAL3QHC	**Description**	**Data Source**
Emissions Sources	*Emissions Rates in grams/mile, as described in MOVES2014a section. The free flow and queue links defined for modeling with MOVES2014a will be used as input into CAL3QHC.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA-454/R-92-005, November 1992. Section 5.2.3 of Appendix W to 40 CFR Part 51, CO screening analyses of intersection projects should use the CAL3QHC dispersion model.
Receptor Locations	*At least 3m from the roadways at a height of 1.8m, nearby occupied lot, vacant lot, sidewalks, and any locations near breathing height (1.8m) to which the general public has continuous access (Figure 1).*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 2.2
Traffic and Geometric Design	*Lane Configuration, Lane Width, Signalization, Turning Movements, Median Width, Traffic Volume, Level of Service, Grade, % of Heavy-Duty Trucks, and Peak Hour Average Approach Speed.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.4
Meteorology	*The following meteorology options will be used as recommended in the CO Guidelines: a worst-case wind speed of 1 m/s, 5-degree wind direction intervals from 0 to 355 degrees, and a mixing height of 1000 m.* *Atmospheric stability class D will be used to represent an urban area.* *Consistent with the PM_{10} modeling, a surface roughness of 108 cm will be used, representing a suburban area.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.1
Persistence Factor	*Local persistence factor based on monitoring data. If it is not available, use a default persistence factor of 0.7.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.2
Determine Background Concentrations (Step 6)		
Background Monitor	*Dysart monitor is an urban monitor and has similar land use to the project and isn't impacted by Exceptional Events. This monitor is close to the project, but there is not a significant pattern that shows a strong upwind direction. Three years of monitoring data (2014--2016) show a maximum 1-hour value of 1.2 ppm and a maximum 8-hour value of 0.7 ppm. 1.2 ppm will be added to the maximum modeled hourly concentration for comparison to the NAAQS. 0.7 ppm will be added to the maximum 8-hour modeled concentration (which is the 1-hour concentration multiplied by a persistence factor of 0.7 as described above.) The same background values will be used for all analysis years.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.3

Table 2. Project Data Manager Inputs		
Input	**Level of Detail/notes**	**Data Source**

Meteorology	*Same for build and no-build scenarios. Data from latest regional CO conformity analysis provided by MAG.*	MPO EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.1
Age Distribution	*Same for build and no-build scenarios. Data from latest regional CO conformity analysis provided by MAG.*	MPO EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.2
Fuel	*Same for build and no-build scenarios. Data from latest regional CO conformity analysis provided by MAG.*	MPO EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.3
I/M Programs	*Same for build and no-build scenarios. Data from latest regional CO conformity analysis provided by MAG.*	MPO EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.4
Retrofit Data	*Not applicable for this project.*	Project specific modeling EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.7
Links	*Two selected intersections, MC85 & Cotton Lane and Cotton Lane/SR303L NB Frt Rd & Elwood St will be divided into links and each link's length (in miles), traffic volume (vehicle per hour), average speed (miles per hour) and road grade (percent) will be specified (Figure 1).*	Project specific modeling EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.6
Link Source Types	*Source type distribution will be represented by the regional fleet for each road type and analysis year, based on data from latest regional CO conformity analysis provided by MAG.*	MPO EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.5
Link Drive Schedules, Operating Mode Distribution	*Average speed and road type will be used in the Links Importer based on project-specific modeling.*	Project specific modeling EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.8, 2.4.9
Off-Network, Hotelling	*Not applicable for this project.*	EPA Using MOVES2014 in Project-Level Carbon Monoxide Analyses, Section 2.4.9

Table 3. Construction Emissions *(Only if Applicable)*		
Construction Emissions	*Construction Emissions will be addressed qualitatively because construction is not expected to last longer than 5 years at any individual site. In the context of CO, this is usually excess CO emissions due to traffic delay and/or detours.*	40CFR93.123(c)(5)"Each site which is affected by construction-related activities shall be considered separately, using established "Guideline" methods." If applicable, include analysis as an Appendix to the Air Quality Report.

Figure 1. Preliminary Link Configuration for CO Hot-Spot Analysis

MC 85 & Cotton Lane Build Alt 5 – Free Flow Links

MC 85 & Cotton Lane Build Alt 5 – Queue Links

Notes:

- Free flow links extend 1000 feet away from center of signalized intersection
- Graphic representation of free flow links includes 10 foot mixing zone
- Blue links to west indicate elevated roadway sections that are intersection proximity, they do not have any associated idling queues.
- Yellow squares are receptors located 10 feet from the edge of any roadway.

Cotton Lane/SR 303 L NB frt Rd & Elwood St Build Alt 5 – Free Flow Links

Cotton Lane/SR 303 L NB frt Rd & Elwood St Build Alt 5 –Queue Links

Notes:

- Free flow links extend 1000 feet away from center of signalized intersection
- Graphic representation of free flow links includes 10 foot mixing zone
- Blue links to west indicate elevated roadway sections that are intersection proximity, they do not have any associated idling queues.
- Yellow squares are receptors located 10 feet from the edge of any roadway.

Attachment 1. Summary of Interagency Consultation on updated modeling assumptions for CO Hot-Spot Analysis

From: Beverly Chenausky
To: "Lindy Bauer"; "Jerry Wamsley"; "Hether Krause"; "Transportationconformity@azdeq.gov"
Cc: "Clifton Meek"; "Karina O"Conner"; "Rebecca Yedlin"; Joonwon Joo; "Dean Giles"; Steven Olmsted; Tricia Brown; Bret Anderson
Subject: RE: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Date: Thursday, March 15, 2018 3:54:57 PM
Attachments: image003.png

There were no additional comments or concerns on the information provided, ADOT will provide future notification when the draft analysis is available for review and comment. Aditional updates on the project including schedule, can be found on the project website azdot.gov/SR30.

Thank You,
Beverly

From: Beverly Chenausky
Sent: Thursday, March 01, 2018 3:37 PM
To: 'Lindy Bauer'; 'Jerry Wamsley'; 'Hether Krause'; 'Transportationconformity@azdeq.gov'
Cc: 'Clifton Meek'; 'Karina O'Conner'; 'Rebecca Yedlin'; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Tricia Brown; Bret Anderson
Subject: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

Provided is an update on the 303 (Estrella): MC 85 to Van Buran Street.

- A public meeting was held December 6, 2017.
- The PM10 modeling assumptions provided in prior tables for MOVES, CAL3QCHR and AP-42 have not changed, however it was requested that the traffic data used (as highlighted below) for this project be updated to reflect the October 2017 Conformity model for the FY2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan. The updated traffic still demonstrated that Alt 5 represents the worst case scenario all the other assumptions will remain the same for the analysis. An *unsealed* version of the January 2018 traffic report addendum is attached, this updated data will replace the September 22nd traffic data included in prior consultation.

Speeds	For mixed urban areas mean AMpeak speed on arterials 32mph, for freeway 59mph, Midday 34/66, PM Peak 31/57, and overnight 34/67mph these are values used in the travel demand model. See Table 2b	EPA Hot Spot Guidance Section 4.2.1 Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report
Project Data Manager	Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG, e.g., I/M programs, Fuel, Age Distribution, Meteorology Data, to be consistent with the regional model. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES2014a data.	EPA Hot Spot Guidance Sections 4.5, 7.5; March 2016 *SR303L, SR30 to I-10 Traffic Report* Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report

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ADOT consulted prior for PM10 modeling without the information on the required CO hotspots assumptions to allow for inclusion of updated traffic information, attached are the planning assumptions for CO with two different intersection locations from what was consulted on for PM10. As the majority of the assumptions are the same as what was provided prior for PM10 it is requested that the consulted parties provide comments or questions on the methods, models and assumptions for the CO hotspot within **10 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Please let me know if you have any additional questions.

Beverly T. Chenausky
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ADOT
Environmental Planning

From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

To Interested Parties:
ADOT is presenting the following local project**, 303 (Estrella): MC 85 to Van Buran Street,** for interagency consultation per 40 CFR 93.105 as a project that is a project of Air Quality Concern, thereby requiring a PM10 hot-spot analysis primarily due to the large number of truck traffic in the project area. Attached is the combined Project Level PM Quantitative Hot-Spot Analysis- *Project of Air Quality Concern Questionnaire* demonstrating the need for analysis and the *Consultation Document for Project of Air Quality Concern.* The Purpose of this document is to describe the methods, models and assumptions used for a quantitative hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116 and to document that the analysis follows the EPA *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.* It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within **30 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Thank you,

Beverly T. Chenausky
Air & Noise Program Manager
MD EM02, Room 41
1611 W. Jackson St.
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ADOT
Environmental Planning

From: Wamsley, Jerry
To: Beverly Chenausky
Cc: OConnor, Karina; LAWRENCE, LAURA
Subject: RE: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Date: Tuesday, March 13, 2018 6:40:06 PM
Attachments: image005.png

Hello Beverly,

Thank you for the opportunity to the review the Arizona Department of Transportation's (ADOT) Project of Air Quality Concern (POAQC) Questionnaire for the update concerning new traffic data and the POAQC for carbon monoxide in the SR 303/MC 85/Van Buran Street project, dated March 1, 2018.

We have no comments on the proposed carbon monoxide hotspot analysis and methodology and new traffic data.

Sincerely,
Jerry Wamsley

From: Beverly Chenausky [mailto:BChenausky@azdot.gov]
Sent: Thursday, March 1, 2018 2:37 PM
To: 'Lindy Bauer' <LBauer@azmag.gov>; Wamsley, Jerry <Wamsley.Jerry@epa.gov>; 'Hether Krause' <hkrause@mail.maricopa.gov>; 'Transportationconformity@azdeq.gov' <Transportationconformity@azdeq.gov>
Cc: meek, clifton <meek.clifton@epa.gov>; OConnor, Karina <OConnor.Karina@epa.gov>; 'Rebecca Yedlin' <Rebecca.Yedlin@dot.gov>; Joonwon Joo <JJoo@azdot.gov>; 'Dean Giles' <DGiles@azmag.gov>; Steven Olmsted <SOlmsted@azdot.gov>; Tricia Brown <TBrown2@azdot.gov>; Bret Anderson <BAnderson@azdot.gov>
Subject: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

Provided is an update on the 303 (Estrella): MC 85 to Van Buran Street.

- A public meeting was held December 6, 2017.
- The PM10 modeling assumptions provided in prior tables for MOVES, CAL3QCHR and AP-42 have not changed, however it was requested that the traffic data used (as highlighted below) for this project be updated to reflect the October 2017 Conformity model for the FY2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan. The updated traffic still demonstrated that Alt 5 represents the worst case scenario all the other assumptions will remain the same for the analysis. An *unsealed* version of the January 2018 traffic report addendum is attached, this updated data will replace the September 22nd traffic data included in prior consultation.

Speeds	For mixed urban areas mean AMpeak speed on arterials 32mph, for freeway 59mph, Midday 34/66, PM Peak 31/57, and overnight 34/67mph these are values used in the travel demand model. **See Table 2b**	EPA Hot Spot Guidance Section 4.2.1 Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report
Project Data Manager	Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG, e.g., I/M programs, Fuel, Age Distribution, Meteorology Data, to be consistent with the regional model. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES2014a data.	EPA Hot Spot Guidance Sections 4.5, 7.5; March 2016 *SR303L, SR30 to I-10 Traffic Report* Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report

September 29, 2017 Page | 11

ADOT consulted prior for PM10 modeling without the information on the required CO hotspots assumptions to allow for inclusion of updated traffic information, attached are the planning assumptions for CO with two different intersection locations from what was consulted on for PM10. As the majority of the assumptions are the same as what was provided prior for PM10 it is requested that the consulted parties provide comments or questions on the methods, models and assumptions for the CO hotspot within **10 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Please let me know if you have any additional questions.

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From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

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Thank you,

Project Level PM Quantitative Hot-Spot Analysis - Project of Air Quality Concern Questionnaire

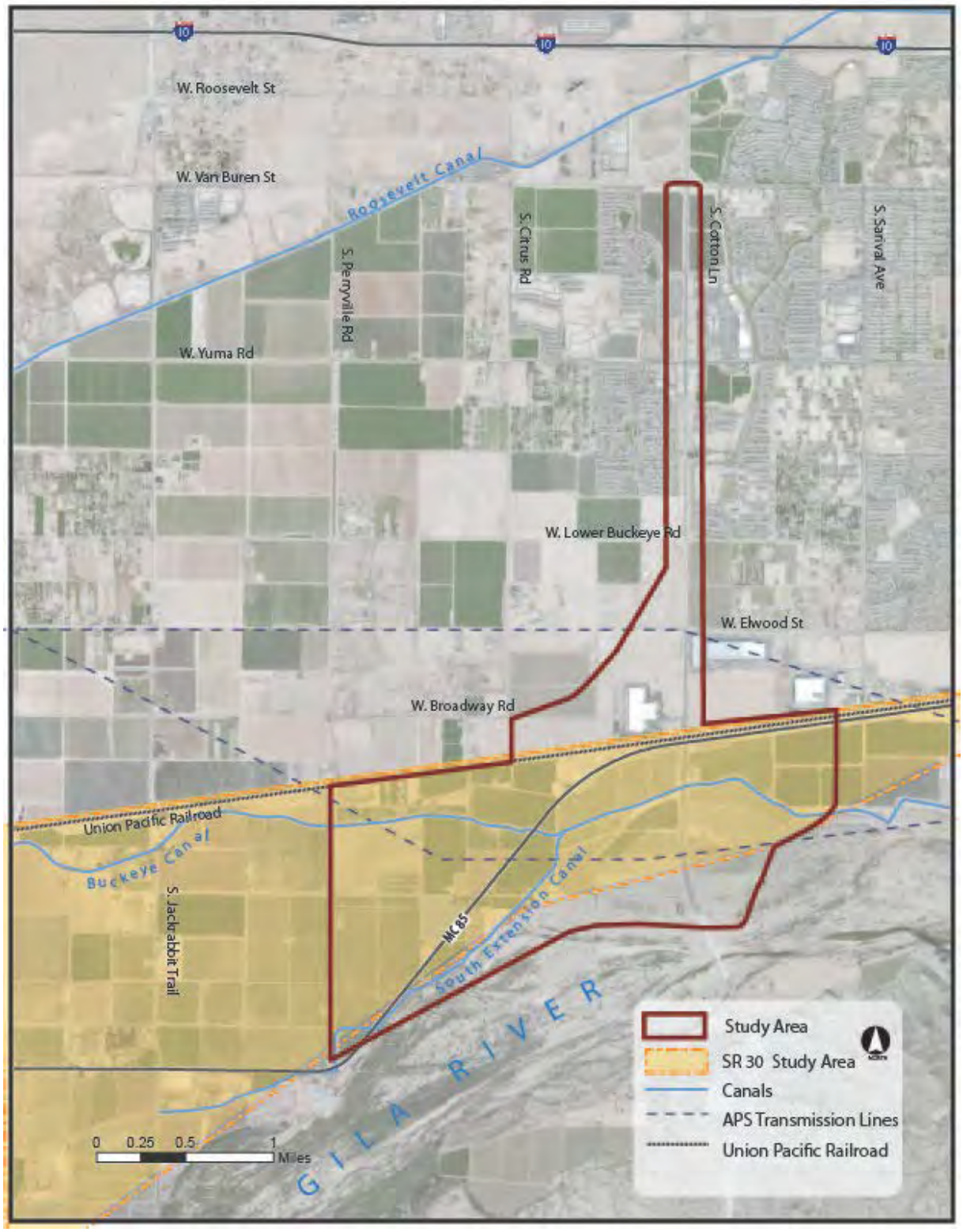
Project Setting and Description

The Arizona Department of Transportation (ADOT), in association with the Federal Highway Administration (FHWA), proposes to extend State Route Loop 303 (SR 303L) south of the Van Buren Street/SR 303L Traffic Interchange (TI) to the future State Route 30 (SR30) (Figure 1-Project Area Map). The extension will complete the 40-mile SR 303L freeway in the western and northwestern portions of the greater Phoenix metropolitan area, linking SR 30 to Interstate 17 and providing connections to I-10 and US Route 60. The northern terminus of this project (between Van Buren and I-10) has already been found to conform, and construction will be completed in August 2017. The ADOT 2013 Lifecycle Certification Regional Transportation Plan Freeway Plan (RTPFP) funds the initial construction of three general-purpose (GP) lanes and no high-occupancy vehicle (HOV) lanes in each direction, transitioning back to Cotton Lane at Elwood. The ultimate facility as defined in the RTPFP includes 4+1 (four general purpose lanes and one HOV lane) on SR303L and 4+1 (Four general purpose lanes and one HOV lane) on SR30 with grade separated interchanges.

To meet the needs of the area's growing population and increased traffic demand, the SR303L extension is proposed to increase the roadway capacity and reduce projected traffic congestion in the Cotton Lane corridor, improve the level of service (LOS), and facilitate the regional movement of people and goods. The proposed project is included in the Maricopa Association of Governments (MAG) 2040 Regional Transportation Plan (RTP). The initial construction of three GP lanes is scheduled for completion in 2019. This construction would occur within the MAG FY 2018-2022 Transportation Improvement Program (TIP). The latest conformity determination for the FY 2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan was made by the Federal Highway Administration and Federal Transit Administration on July 11, 2017.

The proposed project is located in the Maricopa County (Phoenix) Non-Attainment Area for particulates 10-microns in diameter or less (PM_{10}). MAG issued the 2012 Five Percent Plan for the Maricopa County Nonattainment Area, and the Arizona Department of Environmental Quality (ADEQ) submitted it to the US Environmental Protection Agency (EPA) on May 25, 2012. The US EPA approved this State Implementation Plan (SIP) Revision on May 30, 2014.

Figure 1. Project Area Map



Project Assessment

The following questionnaire is used to compare the proposed project to a list of project types in 40 CFR 93.123(b) requiring a quantitative analysis of local particulate emissions (hot-spots) in non-attainment or maintenance areas, which include:

i) New highway projects that 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 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 an increase in 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_{10} or $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

If the project matches one of the listed project types above, it is considered a project of local air quality concern and the hot-spot demonstration must be based on quantitative analysis methods in accordance with 40 CFR 93.116(a) and the consultation requirements of 40 CFR 93.105(c)(1)(i). If the project does not require a PM hot-spot analysis, a qualitative assessment will be developed that demonstrates that the project will not contribute to any new localized violations, increase the frequency of severity of any existing violations, or delay the timely attainment of any National Ambient Air Quality Standards or any required emission reductions or milestones in any nonattainment or maintenance area.

On March 10, 2006, EPA published *$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-Level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards; Final Rule*, which described the types of projects that would be considered a project of air quality concern and that require a hot-spot analysis (71 FR 12468-12511). Specifically on page 12491, EPA provides the following clarification: "Some examples of *projects of air quality concern* that would be covered by § 93.123(b)(1)(i) and (ii) are: A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 annual average daily traffic (AADT) and 8% or more of such AADT is diesel truck traffic;" .." Expansion of an existing highway or other facility that affects a congested intersection (operated at Level-of-Service D, E, or F) that has a significant increase in the number of diesel trucks;" These examples will be used as the baseline for determining if the project is a project of air quality concern.

NOTE: The traffic estimates and POAQC determination in this document are based on MAG's 2035 transportation plan. Traffic estimates from the 2040 plan will be used in the actual hotspot analysis**, refer to Table 2 Methods, Models and Assumptions.**

New Highway Capacity

Is this a new highway project that has a significant number of diesel vehicles? *Example: total traffic volumes ≥125,000 annual average daily traffic (AADT) and truck volumes ≥10,000 diesel trucks per day (8% of total traffic).*

YES – This is a new highway project that has a significant number of diesel vehicles. Traffic analysis shows that the anticipated 2035 Average Daily Traffic (ADT) on SR303L will be 103,640 vehicles per day (vpd) compared to the current traffic volumes of 8,800 vpd on Cotton Lane. The 2035 study area roadway network includes SR30 freeway with direct connectors to SR303L. The 2035 Build medium and heavy truck traffic volume range on various segments of the SR303L from 13,130 to 16,850 vpd. The expected maximum volume of trucks on the facility is 16,850 vpd or 16.3% of the total traffic volumes. Current medium and heavy truck traffic volumes are not available for comparison. The existing traffic volume for 2015 comes from the City of Goodyear Transportation Master Plan, and the data is presented in Table 1.

Table 1 Existing and Future Traffic Volumes

Parameter	2015 Existing Condition*	2025 Build**	2035 No Build**	2035 Build**
ADT Volumes	8,800 vpd	52,650 vpd	46,030 vpd	103,640 vpd
Truck Volume***	n/a	3,060 vpd	7,341 vpd	16,850 vpd
% Diesel trucks	n/a	5.8%	15.9	16.3%

*Source: City of Goodyear Transportation Master Plan Dated 3/17/2015
** MAG Travel Demand Model Runs, October 2015; verified August 8, 2016
***Truck Volumes composition includes Medium (FHWA classes 5-7) and Heavy (FHWA Classes 8-13) Trucks

The data for travel demand forecast (based on population and employment projections in 2035) was provided by MAG. The traffic analysis modeling for the 2025 Build, 2035 Build, and 2035 No Build traffic volumes was generated by the MAG Travel Demand Runs completed in October 2015. The projected traffic volumes for the 2035 Build include the construction of the 2035 phase of the SR30 project. The 2035 No Build traffic volumes assume that neither the 2025 nor 2035 Build phases of the SR303L project are constructed.

The traffic analysis was completed for three different freeway segments. Table 2 presents the comparison of the 2014 ADT, the 2025 and 2035 ADT projections between each alternative. The difference between the three alternatives is minimal. However, the Alternative 5 alignment and ramp configurations carry the highest traffic volumes and therefore would represent the worst case scenario.

Table 2 SR303L ADT Volume Comparisons

Segment Name		2014	2025		2035 Alternative 2C		2035 Alternative 3		2035 Alternative 5	
		ADT	ADT	Total Trucks	ADT	Total Trucks	ADT	Total Trucks	ADT	Total Trucks
SR303L	SR303L North of I-10	51,410	96,110	9,090	127,230	12,070	127,900	12.230	128,870	12,260
	SR303L Under I-10		22,400	1,300	42,460	4,620	44,350	4,920	46,000	4,990
	SR303L I-10 to Van Buren St	14,410	45,000	2,870	85,960	15,580	86,330	16,060	91,970	16,360
	SR303L Van Buren St to Yuma Rd	11420	52,650	3,060	96,790	16,020	97,380	16,500	103,640	16,850
	SR303L under Yuma Rd	-	27,860	1,810	63,010	14,720	63,020	15,280	72,280	15,760
	SR303L Yuma Rd to Elwood St	-	30,910	1,870	67,340	14,900	69,700	15,550	78,790	16,050
	SR303L under Elwood St	-	34,950	1,870	40,020	13,130	44,700	14,000	48,960	15,150
SR303L Ramps	SR303L S to W I-10 E to SR303L N	15,400	24,000	2,540	33,650	3,550	33,690	3,460	33,320	3,520
	SR303L S to E I-10 W to SR303L N	36,010	49,70	5,240	51,020	3,890	49,960	3,760	49,550	3,750
	SR303L N to W I-10 E to SR303L S	-	3.030	200	20,720	9,830	22,110	10,180	22,630	10,230
	SR303L N to E I-10 W to SR303L S		19,570	1,360	22,690	1,120	19,870	940	23,330	1,140
	SR303 S of Van Buren St Ramps	-	7650	190	10,830	440	11,050	470	11,680	490
	SR303L N of Yuma Rd Ramps	-	24,790	1,250	34,690	1,300	34,360	1,230	31,360	1,090
	SR303L S of Yuma Rd Ramps	-	3,060	60	5,230	170	6,680	270	6,510	290
	SR303L N of Elwood St Ramps	-	-	-	27,310	1,780	24,910	1,550	29,830	1,760
	SR303L S of Elwood St Ramps	-	-	-	-	-	-	-	450	20
Frontage Road	SR303L McDowell Rd to Van Buren St Frontage Rd		12,170	400	15,550	450	15,070	430	15,550	460
	SR303L Van Buren St. to Yuma Rd Frontage Rd	-	5,000	90	6,470	110	6,220	110	6,660	110
	SR303L Yuma Rd to Lower Buckeye Rd Frontage Rd	-	5,1--	620	7,850	450	7,830	370	7,340	310
	SR303L Lower Buckeye Rd to Elwood St Frontage Rd	-	5,160	480	5,330	220	1,190	700	6,300	180
SR30	SR30 West to SR303L				29,110	2,970	28,070	3,040	28,830	2,920
	SR303L S to W SR30/SR30 E to SR303LN				10,230	810	6,160	520	10,590	810
	SR303L S to E SR30/SR30 W to SR303LN	-	-	-	29,800	12,300	38,540	13,470	38,810	13,500
Cotton Lane	County Road 85 from 175th Ave. to Cotton Lane	13,030	28,900	2,850	33,370	2,630	33,110	2,460	33,500	2,580
	County Road 85 from Cotton Lane to Sarival Ave.	13,540	24,080	2,040	24,120	1,380	26,030	1,520	24,500	1,400
	Cotton Lane from Elwood St to County Road 85	8,470	34,950	2,020	30,0220	1,800	28,320	1,410	30,140	1,410
	Cotton Lane from County Road 85 to SR30 WB Off-ramp	7,590	28,490	750	38,540	2,220	35,450	1,920	38,360	2,170
	Cotton Lane from Elwood St to County Road 85	-	-	-	51,490	1,760	51,500	1,780	51,480	1,750

Source: MAG Travel Demand Model Runs, October 2015, Maricopa County Department of Transportation (MCDOT) Traffic Counts
*Total Truck Volumes composition includes Medium (FHWA classes 5-7) and Heavy (FHWA Classes 8-13) Trucks
Outside Project Limits

Expanded Highway Capacity

Is this an expanded highway projects that have a significant increase in the number of diesel vehicles? *Example: the build scenario of the expanded highway or expressway causes a significant increase in the number of diesel trucks compared with the no-build scenario.*

NO – This project is not for the expansion of an existing highway.

Projects with Congested Intersections

Is this a project that affects a congested intersection (LOS D or greater) that has a significant number of diesel trucks, OR will change LOS to D or greater because of increase traffic volumes for significant number of diesel trucks related to the project?

NO – This is not a project that affects a congested intersection of LOS D or will change LOS to D or greater which has a significant number of diesel trucks. The intersection operational analysis shows four intersections have a LOS of D in the AM and/or PM and one intersection that has an LOS of E in the PM (Table 3). None of these intersections has a significant number of diesel trucks (Table 4).

Table 3. 2035 SR303L Freeway Signalized Intersections Operations Analysis

Intersection	Alternative 2C		Alternative 3		Alternative 5	
	AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS
SR303L Southbound Ramps &Yuma Rd	D	D	D	D	D	D
SR303L Northbound Ramps &Yuma Rd	D	D	D	D	D	D
SR303L Southbound Frontage Rd & Lower Buckeye Rd	B	B	B	B	B	B
SR303L Northbound Frontage Rd & Lower Buckeye Rd	C	B	C	B	C	B
SR303L Southbound Frontage Rd & Elwood St	B	A	C	C	-	-
SR303L Southbound Ramps & Elwood St	-	-	-	-	B	C
SR303L Northbound Off Ramp & Elwood St	-	-	-	-	A	A
SR303L Northbound Frontage Rd & Elwood St	D	C	C	C	D	D
Cotton Lane & MC85	D	E	D	E	D	E
SR30 Westbound Ramps & Cotton Lane	C	C	C	C	C	C
SR30 Eastbound Ramps & Cotton Lane	D	D	D	D	D	D

-Intersection does not exist for the respective alternative Intersections with LOS D or greater

Table 4. 2035 SR303L Intersection Truck Volumes

Intersection	Truck Volumes Alternative 2C		Truck Volumes Alternative 3		Truck Volumes Alternative 5	
	AM	PM	AM	PM	AM	PM
SR303L Southbound Frontage Rd & Yuma Rd	78	78	78	78	78	78
SR303L Northbound Frontage Rd & Yuma Rd	80	75	80	80	80	80
SR303L Southbound Frontage Rd & Lower Buckeye Rd	53	59	53	53	53	53
SR303L Northbound Frontage Rd & Lower Buckeye Rd	53	47	53	53	53	53
SR303L Southbound Frontage Rd & Elwood St	105	121	180	221	-	-
SR303L Southbound Ramp & Elwood St	-	-	-	-	146	166
SR303L Northbound Off Ramp& Elwood St	-	-	-	-	79	77
SR303LNorthbound Frontage Rd & Elwood St	265	266	195	172	236	223
Cotton Ln & MC 85	354	362	354	362	354	362
SR30 Westbound & Cotton Lane	208	248	208	248	208	248
SR30 Eastbound & Cotton Lane	192	184	192	184	192	184

Data includes Medium plus Heavy Truck volumes approaching the intersection in respective peak hour
Source: MAG Travel Demand Model 2015 Intersections with LOS D or greater

New Bus and Rail Terminals

Does the project involve construction of a new bus or intermodal terminal that accommodates a significant number of diesel vehicles?

NO – These facilities are not included in the project.

Expanded Bus and Rail Terminals

Does the project involve an existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses (or trains) increases by 50% or more, as measured by arrivals?

NO – These facilities are not included in the project.

Projects Affecting PM Sites of Violation or Possible Violation

Does the project affect locations, areas or categories of sites that are identified in the PM_{10} or $PM_{2.5}$ applicable plan or implementation plan submissions, as appropriate, as sites of violation or potential violation?

NO –Two monitoring stations are located in proximity to the project area (Figure 3 of the attached hotspot consultation document). The Buckeye and Dysart monitors, neither monitor were included in the nonattainment plan as a monitor of concern; the Buckeye monitor is just outside of the PM_{10} nonattainment area. The Buckeye monitor site is primarily agricultural in nature, and has had four exceptional events impacted by agricultural lands use for the period 2012 -2014. The Dysart monitoring station has had two violations for the period 2012 to 2014; however, the violations were determined to be the result of exceptional events. The EPA has taken no action on any exceptional events in 2013 or 2014.

POAQC Determination

Traffic analysis shows a significant increase in diesel truck traffic volumes with the construction of the new highway. Therefore, ADOT is recommending that this project is a project of air quality concern that will require a PM_{10} quantitative analysis. Per 40 CFR § 93.105 (c) (1)(i), ADOT is providing the following documentation describing the models and associated methods and assumptions that will be used in the project's hot-spot analysis.

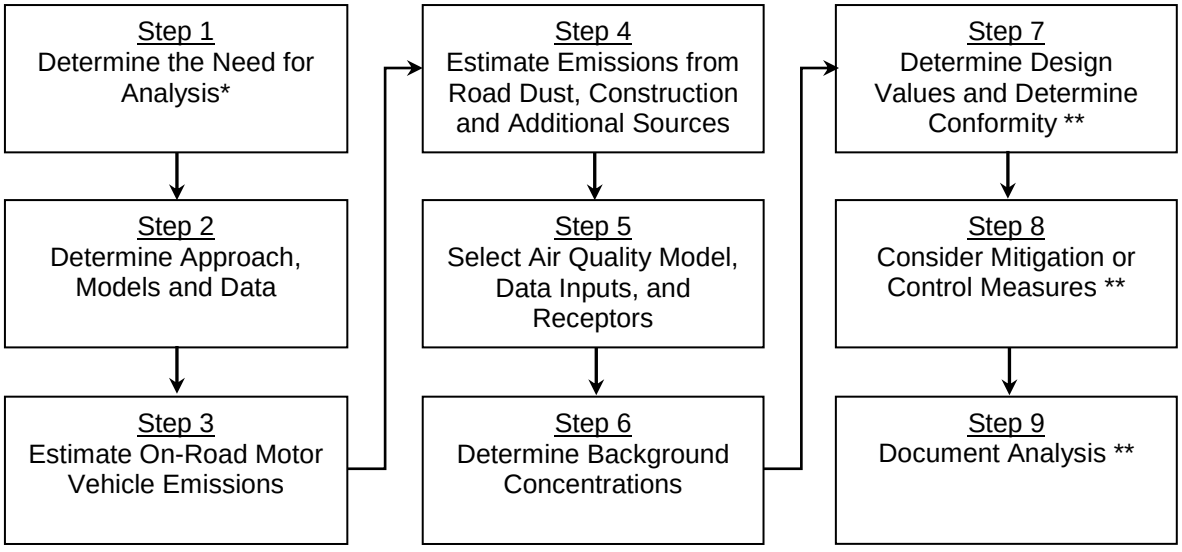
Interagency Consultation Results

On June 27, 2017 ADOT provided a copy of this questionnaire and the associated planning assumptions to the following consultation parties, the Environmental Protection Agency (EPA), FHWA, MAG, ADEQ and the Maricopa County Air Quality Department as the local air agency in Maricopa County, for a 30-day consultation period. There were a few comments on the document(s) and ADOT provided a response to comments and an updated planning assumptions document, noting that this project will proceed as a project that requires a quantitative PM10 hot-spot analysis under 40CFR 93.123(b) and ADOT is conducting the hot-spot modeling in accordance with the traffic modeling data used in the September 22, 2017 traffic study and other planning assumptions noted in Table 2 Methods, Models and Assumptions.

Project Level PM Quantitative Hot-Spot Analysis – Consultation Document for Project of Air Quality Concern

Completing a Particulate Matter (PM) Hot-Spot Analysis

The general steps required to complete a quantitative PM hot-spot analysis are outlined below and described in detail in the EPA Office of Transportation and Air Quality guidance document "Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" EPA-420-B-15-084, November 2015. As described earlier, ADOT has determined the need for a hot-spot analysis as the build scenario in 2035 significantly increases the number of trucks. The Project Level PM Quantitative Hot-Spot Analysis –Project of Air Quality Concern Questionnaire, portion of this document is used to complete Step 1 of the hot-spot analysis process.



* Described in the previous section (Air Quality Concern Questionnaire).
** These Steps will be described and documented in a final air quality analysis report.

Determine Approach, Models and Data (Step 2)

If a project requires a hot-spot analysis, the next step in the EPA guidance is to describe the project area substantially affected by the project, identify the general approach in selecting analysis years, and the emissions models and data sources that will be used for the analysis. **Figure 1 (Air Quality *Suggested* Study Area Limits and Receptor Placement for Air Quality Modeling)** defines the project area affected by the project. ADOT is recommending using the year of 2040 for Alternative 5 to represent peak emissions given that this scenario includes the greatest traffic volume at an intersection as highlighted in Table 1, the greatest number of diesel vehicles, and is likely to generate the most PM_{10} emissions in the project area. ADOT will use project specific traffic data provided by PB for SR303L, SR30 to I-10 Traffic Report, updated with 2040 traffic data provided by MAG based on the latest data available from the MAG 2040 RTP. The emissions models selected include MOVES2014a, CAL3QCHR, and AP-42 as described in detail for Steps 3-6 in Table 2 - Methods, Models and Assumptions. For illustrative purposes, Table 1 shows the traffic volumes at various locations based on the current 2035 plan. ADOT will commence modeling using the traffic data used for the MAG Regional Conformity Analysis on the 2040 RTP and 2018-2022 TIP. Modeling will commence upon conclusion of interagency consultation.

Table 1. 2035 SR303L Intersection Approach Volumes Intersection for Peak Hours

Intersection	Total Volumes Alternative 2C		Total Volumes Alternative 3		Total Volumes Alternative 5	
	AM	PM	AM	PM	AM	PM
Southbound Frontage Rd & Yuma Rd	3560	3820	3560	3560	3560	3560
Northbound Frontage Rd & Yuma Rd	3440	3200	3440	3440	3440	3440
Southbound Frontage Rd & Lower Buckeye Rd	1610	1740	1610	1610	1610	1610
Northbound Frontage Rd & Lower Buckeye Rd	1580	1450	1580	1580	1580	1580
Southbound Frontage Rd/Off-Ramp & Elwood St	1630	1810	3020	3690	2480	2900
Northbound Frontage Rd & Elwood St	4590	4450	3540	3050	4470	4170
Northbound Off Ramp & Elwood St	-	-	-	-	2050	2160
Cotton Ln & MC 85	5860	6060	5860	6060	5860	6060
SR30 Westbound & Cotton Ln	4140	4450	4140	4450	4140	4450
SR30 Eastbound & Cotton Ln	4970	4370	4970	4370	4970	4370

Source: MAG Travel Demand Model 2015

Figure 1 Air Quality *Suggested* Study Area Limits and Receptor Placements for Air Quality Modeling

Estimate On-Road Motor Vehicle Emissions (Step 3)

Estimate On-Road Motor Vehicle Emissions (Step 3)

Table 2 Methods, Models and Assumptions

MOVES2014a	Description	Data Source
Scale	On road, Project Emissions Rate	EPA Hot Spot Guidance Section 4.4.2
Time Span	4 weekday runs for each of the following months January (Quarter 1), April (Quarter 2), July (Quarter 3); October (Quarter 4) for each year. 4 runs for Year 2040 (to represent second phase of the project). Each of these 4 runs will further be split by Morning peak hours, Midday Emissions, Evening Peak and Overnight hours as defined by MAG model. **SEE Table 2a.**	EPA Hot Spot Guidance Sections 2.8, 4.3.2, 4.4.3
Geographic Bounds	Maricopa County	EPA Hot Spot Guidance Section 4.4.4
Vehicles Equipment	All Fuels and Source Use Types will be selected	EPA Hot Spot Guidance Section 4.4.5
Road Type	Urban Restricted and Urban Unrestricted access	EPA Hot Spot Guidance Section 4.4.6
Pollutants and Processes	Primary Exhaust, Tire wear Break wear for PM10 (and PM2.5 as a prerequisite for model), Organic Carbon, Elemental Carbon, Sulfate Particulate.	EPA Hot Spot Guidance Sections 2.5, 4.4.7
Manage Input Data Set	Input database will be created and modified for Project level using required Regional Inputs from latest Regional Conformity Analysis April 2017.	EPA Hot Spot Guidance Section 4.4.8, See Project Data Manager below
Output	Database will be created, Grams, Joules, Miles, Distance Traveled, Population will be selected. Fuel type, Emissions process, Road Type and Source Use Type will be selected in the Output Emissions Detail. The PM10_Grams_Per_Veh_Mile script can be run on the output database.	EPA Hot Spot Guidance Section 4.4.10, 4.6
Speeds	For mixed urban areas mean AMpeak speed on arterials 32mph, for freeway 59mph, Midday 34/66, PM Peak 31/57, and overnight 34/67mph these are values used in the travel demand model. **See Table 2b**	EPA Hot Spot Guidance Section 4.2.1
Project Data Manager	Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG, e.g., I/M programs, Fuel, Age Distribution, Meteorology Data, to be consistent with the regional model. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES2014a data.	EPA Hot Spot Guidance Sections 4.5, 7.5; March 2016 *SR303L, SR30 to I-10 Traffic Report*

Estimate On-Road Motor Vehicle Emissions (Step 3 continues)

Table 2. Methods, Models and Assumptions (continued)

Estimate Emissions from Road Dust, Construction, and Additional Sources (Step 4)

AP-42, Fifth Edition, 2011		**Data Source**
Precipitation	In 2008-2012 MAG used average of 32 days with at least .01 inch of precipitation for Maricopa County.	EPA Hot Spot Guidance Section 6.3 MAG Regional Conformity Analysis for the FY 2018-2022 MAG Transportation Improvement Program and 2040MAG Regional Transportation Plan, page 54.
Average Weight Vehicles	Freeways 3.16 Tons in 2025, 3.19 Tons in 2035, 3.23 Tons in 2040 Arterials 2.32 Tons in 2025, 2.31 Tons in 2035, 2.32 Tons in 2040	EPA Hot Spot Guidance Section 6.3 MAG Regional Conformity Analysis for the FY 2018-2022 MAG Transportation Improvement Program and 2040MAG Regional Transportation Plan, page 54
Silt Loading	Step 4a: Section 13.2.1 Paved Roads from AP 42 will be used, when estimating emissions of re-entrained road dust from paved roads, site-specific silt loading data must be consistent with the data used for the project's county in the regional emissions analysis (40 CFR 93.123(c)(3)). Silt loading – Freeways .02 g/m^2, Arterials >10,000 ADT .067g/m^2, Low traffic roads <10,000 ADT .23g/m^2.	EPA Hot Spot Guidance Section 6.3 MAG Regional Conformity Analysis for the FY 2018-2022 MAG Transportation Improvement Program and 2040MAG Regional Transportation Plan, page 54
Construction Dust	Step 4b: Construction Dust is temporary and will not be included. There are no other sources (e.g., locomotives) that need to be considered. Emission factors for road and construction dust should be added to the emission factors generated for each link by MOVES2014a	EPA Hot Spot Guidance Section 6.4

Select Air Quality Model, Data Inputs, and Receptors (Step 5)

Table 2. Methods, Models and Assumptions (continued)

CAL3QHCR v.13196	Description	Data Source
Emissions Sources	Emissions Rates in grams/mile, all four quarters of analysis years as described in MOVES2014a section. The free flow and queue links defined for modeling with MOVES2014a will be used as input into CAL3QHCR. The link width was defined as the width of the travel lanes plus 3 meters on either side of the roadway to account for the dispersion of the plume generated by the wake of moving vehicles. Source height of 0 m will be used for all the links at grade.	EPA Hot Spot Guidance Section 7.4, Appendix J, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose Dispersion Model and Other Revisions Final Rule (U.S. EPA 2005)
Background concentration	A value of 0 will be used as recommended in guidance.	EPA Hot Spot Guidance Section 7, Appendix J
Queuing algorithm	While modeling arterial/intersection projects, the PM hot-spot guidance recommends not using the queuing algorithm.	EPA Hot Spot Guidance Section 7, Appendix J
Meteorological Data	The meteorological data will be based on the meteorological data utilized in the August 2014 ADOT Air Quality Technical Report, South Mountain Freeway, which was derived from the EPA's Support Center for Regulatory Atmospheric Modeling for the Phoenix Sky Harbor International Airport (surface data) and the Tucson International Airport (upper air data) for the 5-year period from 1987 through 1991. South Mountain meteorological data will be used.	EPA Hot Spot Guidance Section 7.5, Appendix J, South Mountain Hot-spot analysis
Surface Roughness, Dispersion	Based on land cover surface roughness of 108 cm used Single family residential. The urban option will be selected based on the land use classification in the project areas.	CAL3CQHR User Guide
Output	CAL3QHCR produces concentrations for each quarter; all necessary data will be developed for each quarter.	EPA Hot Spot Guidance Appendix J.6.2
Receptors	Receptors are suggested to be placed at a height of 6 feet above the ground. Around the sources, receptors are placed more closely together (e.g., 30 to 90 feet); and farther from a source, they are spaced more widely (e.g., 150 to 300 feet). Receptor locations are placed in the area most impacted by the project. **See Figure 1**	EPA Hot Spot Guidance Section 7.6.2, Appendix K and EPA 1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections (1992 EPA Guideline). Placed in appropriate locations in "the area substantially impacted by the project" (in the "project area") (93.123(c)(1)) 40 CFR Part 58: Appendix D, E

Select Air Quality Model, Data Inputs, and Receptors (Step 5)

Table 2. Methods, Models and Assumptions (continued)

Background Monitor	Dysart monitor is an urban monitor and has similar land use to the project and isn't impacted by Exceptional Events. This monitor is close to the project, but there is not a significant pattern that shows a strong upwind direction. Three years of monitoring data (2014--2016) shows the using the 4th highest readings based on total number of sampling days of 1095 days, the 4th highest monitor value over these three years is 126. To estimate the sixth-highest concentration, for each receptor, the six highest 24-hour concentrations from each quarter and year of meteorological data will be arrayed together and ranked, then added to the 126 monitor value. The Buckeye monitor was evaluated but not selected as it is heavily influenced by agricultural and not representative of the project area.. **See Figures** 2-4	EPA Hot Spot Guidance Section 8.3 Data provided by Maricopa County Air Quality Department

Table 2a MOVES2014a Selections for Time Spans by Scenario

Scenario	Season/Time Period	Modeled Month	Representing Months	Modeled Hours Start - End	Representing Hours
1	Winter AM peak	Jan	Jan, Feb, Mar	07:00-08:00	6 am – 9 am
2	Winter Midday	Jan	Jan, Feb, Mar	12:00-13:00	9 am – 4 pm
3	Winter PM peak	Jan	Jan, Feb, Mar	17:00-18:00	4 pm – 7 pm
4	Winter Overnight	Jan	Jan, Feb, Mar	00:00-1:00	7 pm – 6 am
5	Spring AM peak	Apr	Apr, May, Jun	07:00-08:00	6 am – 9 am
6	Spring Midday	Apr	Apr, May, Jun	12:00-13:00	9 am – 4 pm
7	Spring PM peak	Apr	Apr, May, Jun	17:00-18:00	4 pm – 7 pm
8	Spring Overnight	Apr	Apr, May, Jun	00:00-1:00	7 pm – 6 am
9	Summer AM peak	Jul	Jul, Aug, Sep	07:00-08:00	6 am – 9 am
10	Summer Midday	Jul	Jul, Aug, Sep	12:00-13:00	9 am – 4 pm
11	Summer PM peak	Jul	Jul, Aug, Sep	17:00-18:00	4 pm – 7 pm
12	Summer Overnight	Jul	Jul, Aug, Sep	00:00-1:00	7 pm – 6 am
13	Fall AM peak	Oct	Oct, Nov, Dec	07:00-08:00	6 am – 9 am
14	Fall midday	Oct	Oct, Nov, Dec	12:00-13:00	9 am – 4 pm
15	Fall PM peak	Oct	Oct, Nov, Dec	17:00-18:00	4 pm – 7 pm
16	Fall Overnight	Oct	Oct, Nov, Dec	00:00-1:00	7 pm – 6 am

Table 2b MOVES2014a Link Specific Speeds

Link	Road Type ID	Link Length	Link Avg Speed	Link Description	Notes
1	5	0.0625	0	Queue	Southbound offramp queue
2	5	0.0572	0	Queue	Under bridge queue
3	5	0.0502	0	Queue	Northbound offramp queue
4	5	0.0679	0	Queue	Cross street queue
5	5	10	5	Approach	Frontage Road, Ramps & Cross Street
6	5	10	10	Approach	Frontage Road, Ramps & Cross Street
7	5	10	15	Approach	Frontage Road, Ramps & Cross Street
8	5	10	20	Approach	Frontage Road, Ramps & Cross Street
9	5	10	25	Approach	Frontage Road, Ramps & Cross Street
10	5	10	30	Approach	Frontage Road, Ramps & Cross Street
11	5	10	5	Approach	Frontage Road, Ramps & Cross Street
12	5	10	10	Approach	Frontage Road, Ramps & Cross Street
13	5	10	15	Approach	Frontage Road, Ramps & Cross Street
14	5	10	20	Approach	Frontage Road, Ramps & Cross Street
15	5	10	25	Approach	Frontage Road, Ramps & Cross Street
16	5	10	30	Approach	Frontage Road, Ramps & Cross Street
17	5	10	5	Departure	Frontage Road, Ramps & Cross Street
18	5	10	10	Departure	Frontage Road, Ramps & Cross Street
19	5	10	15	Departure	Frontage Road, Ramps & Cross Street
20	5	10	20	Departure	Frontage Road, Ramps & Cross Street
21	5	10	25	Departure	Frontage Road, Ramps & Cross Street
22	5	10	30	Departure	Frontage Road, Ramps & Cross Street
23	5	10	5	Departure	Frontage Road, Ramps & Cross Street
24	5	10	10	Departure	Frontage Road, Ramps & Cross Street
25	5	10	15	Departure	Frontage Road, Ramps & Cross Street

Link	Road Type ID	Link Length	Link Avg Speed	Link Description	Notes
26	5	10	20	Departure	Frontage Road, Ramps & Cross Street
27	5	10	25	Departure	Frontage Road, Ramps & Cross Street
28	5	10	15	Freeflow	Frontage Road, Ramps & Cross Street
29	5	10	20	Freeflow	Frontage Road, Ramps & Cross Street
30	5	10	25	Freeflow	Frontage Road, Ramps & Cross Street
31	5	10	30	Freeflow	Frontage Road, Ramps & Cross Street
32	5	10	35	Freeflow	Frontage Road, Ramps & Cross Street
33	5	10	40	Freeflow	Frontage Road, Ramps & Cross Street
34	5	10	45	Freeflow	Frontage Road, Ramps & Cross Street
35	5	10	50	Freeflow	Frontage Road, Ramps & Cross Street
36	5	10	55	Freeflow	Frontage Road, Ramps & Cross Street
37	4	10	55	Freeflow	Urban Freeway, Restricted
38	4	10	60	Freeflow	Urban Freeway, Restricted
39	4	10	65	Freeflow	Urban Freeway, Restricted
40	4	10	70	Freeflow	Urban Freeway, Restricted
41	4	10	75	Freeflow	Urban Freeway, Restricted
42	4	10	55	Freeflow	Urban Freeway, Restricted
43	4	10	60	Freeflow	Urban Freeway, Restricted
44	4	10	65	Freeflow	Urban Freeway, Restricted
45	4	10	70	Freeflow	Urban Freeway, Restricted
46	4	10	75	Freeflow	Urban Freeway, Restricted
47	4	10	55	Freeflow	Urban Freeway, Restricted
48	4	10	60	Freeflow	Urban Freeway, Restricted
49	4	10	65	Freeflow	Urban Freeway, Restricted
50	4	10	70	Freeflow	Urban Freeway, Restricted
51	4	10	75	Freeflow	Urban Freeway, Restricted
52	4	10	55	Freeflow	Urban Freeway, Restricted

	Road Type ID	Link Length	Link Avg Speed	Link Description	Notes
53	4	10	60	Freeflow	Urban Freeway, Restricted
54	4	10	65	Freeflow	Urban Freeway, Restricted
55	4	10	70	Freeflow	Urban Freeway, Restricted
56	4	10	75	Freeflow	Urban Freeway, Restricted
57	4	10	55	Freeflow	Urban Freeway, Restricted
58	4	10	60	Freeflow	Urban Freeway, Restricted
59	4	10	65	Freeflow	Urban Freeway, Restricted
60	4	10	70	Freeflow	Urban Freeway, Restricted
61	4	10	75	Freeflow	Urban Freeway, Restricted

Figures

Figure 2. Monitors in Proximity to SR303 and Van Buren Street Intersection

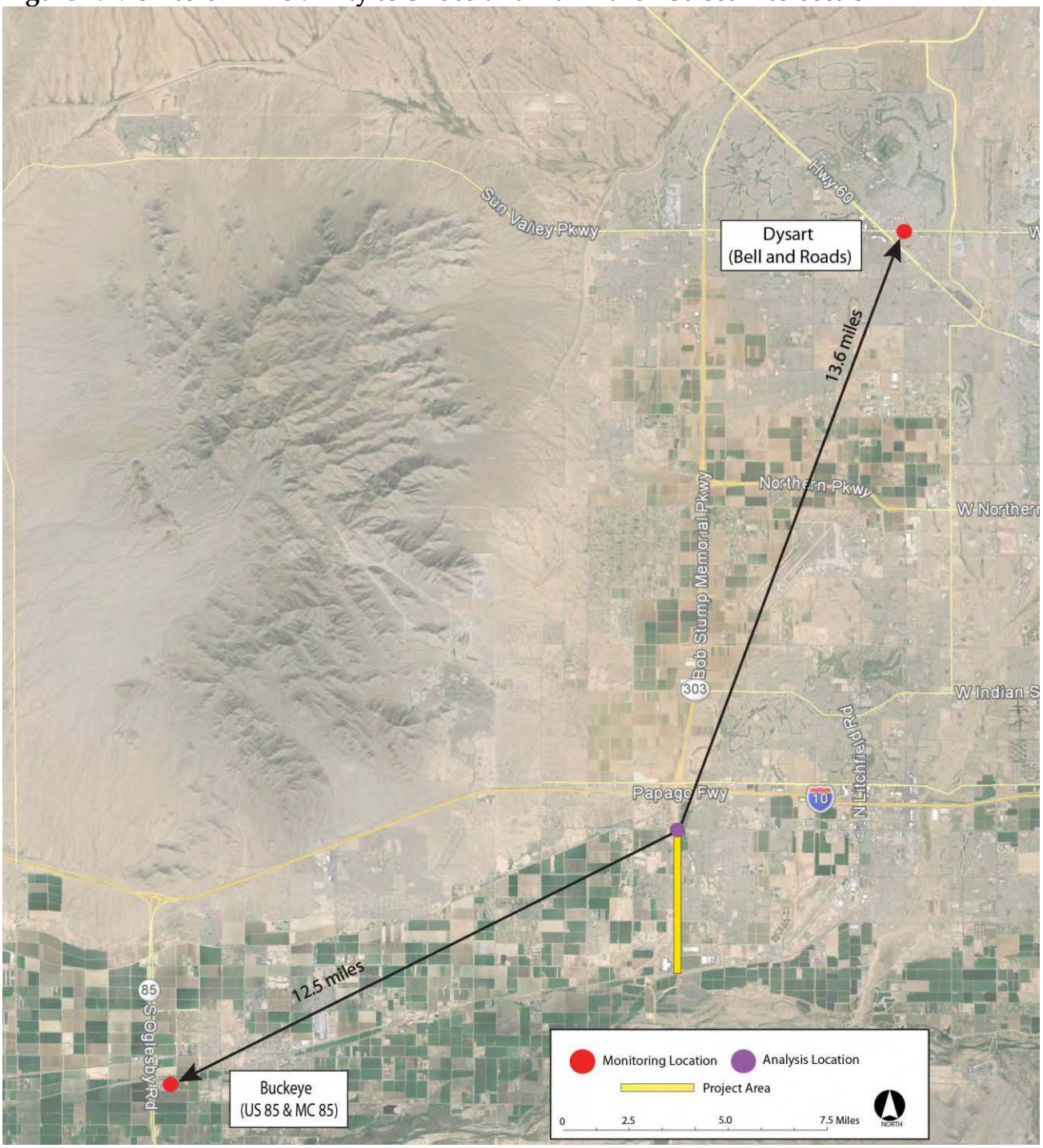
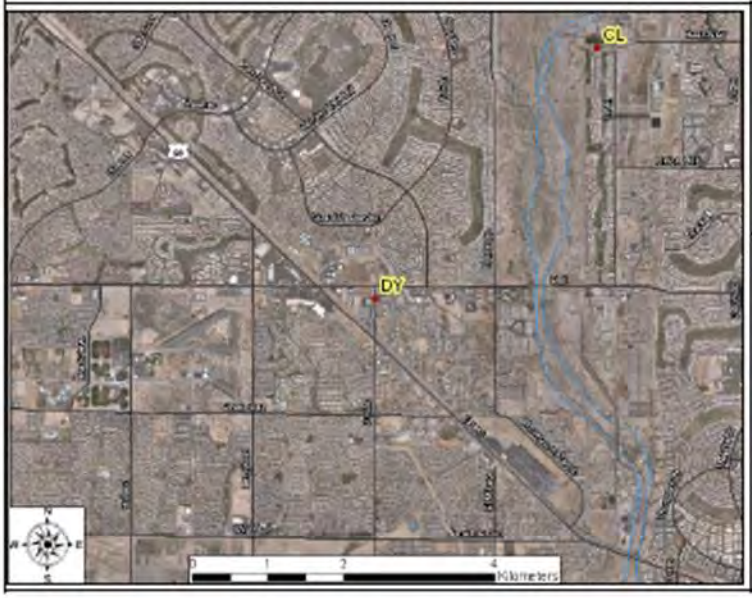


Figure 3. Dysart Monitor Station Information:-Location and Site Description

Dysart (DY) (04-013-4010)



Site Location: Bell Rd. & Dysart Rd., Surprise
Spatial Scale: Neighborhood
Site Type: Population Exposure

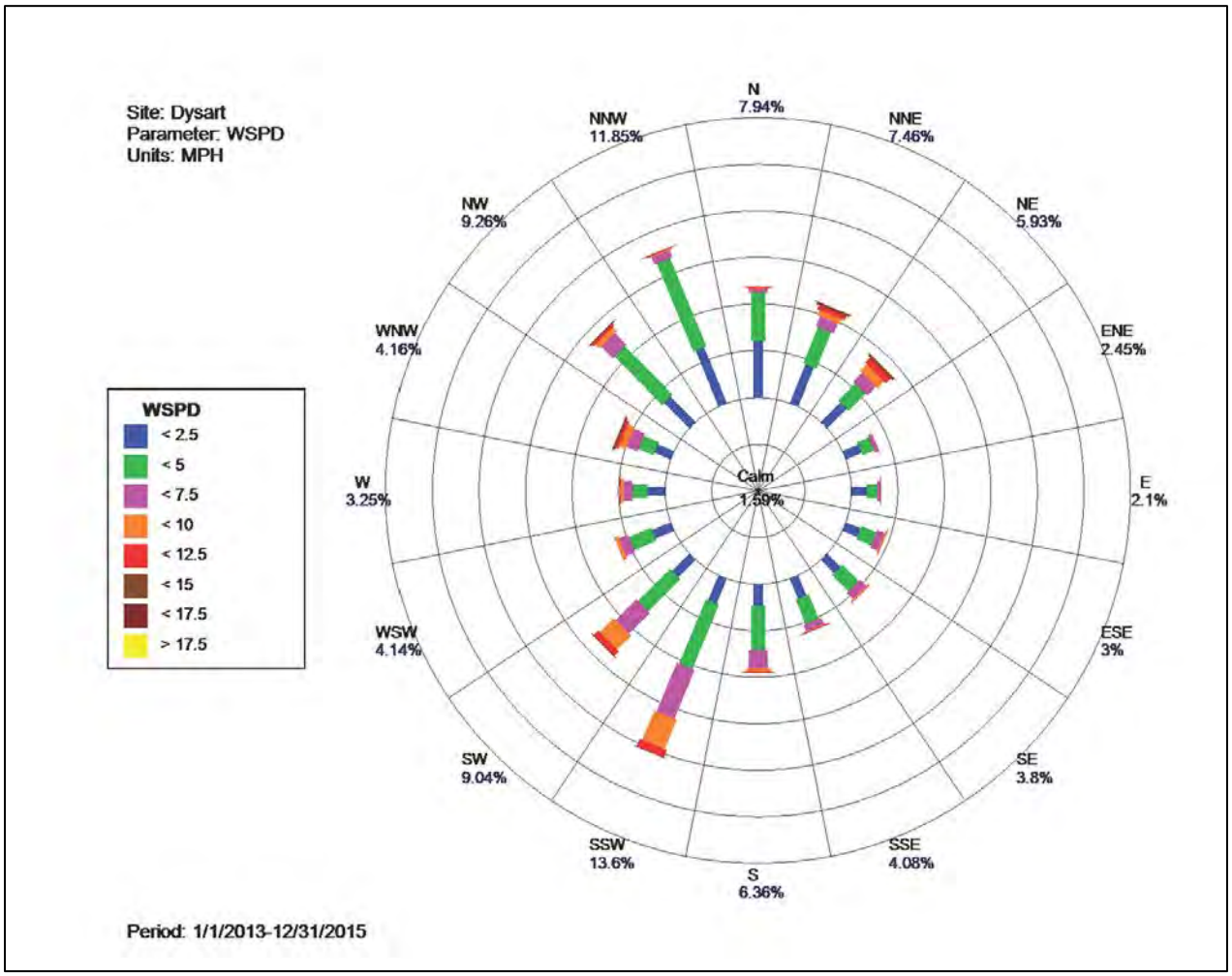
Site Description: The Dysart site was established in July 2003. It is located at the Maricopa County Facility Maintenance Yard at the corner of Bell Rd. and Dysart Rd. The site is in a growing population area in the northwest valley. The land use around the site consists of subdivisions of single family homes, commercial, and industrial. The location is approximately one mile west of the Agua Fria riverbed. This SLAMS location monitors for CO seasonally, O_3, and PM_{10}. Meteorological monitors operating at this site include: ambient temperature, barometric pressure, relative humidity, and wind speed/direction.

		2014	2015	2016
CO	Max. 8-hr CO Avg. (ppm)	0.6	0.7	0.5
	Number of 8-hr CO Exceedances	0	0	0
O_3	Max. 8-hr O_3 Avg. (ppm)	0.075	0.069	0.069
	Number of Daily O_3 Exceedances	0	0	0
	3-year 8-hr Avg. O_3 of 4th Highest Value (ppm)	0.072	0.070	0.066
PM_{10}	Max. 24-hr PM_{10} Avg. ($\mu g/m^3$)	163*‡	99	173*‡
	Number of 24-hr PM_{10} Exceedances	1	0	1
	Annual PM_{10} Avg. ($\mu g/m^3$)	26.7	22.4	28.2

Note: The 2016 O_3 data represent the new O_3 NAAQS of 0.070 ppm; the 2014 and 2015 data represent the old O_3 NAAQS of 0.075 ppm.

* Indicates an exceedance of the standard
‡ Indicates EEs at this site

Figure 3a. Dysart Monitor Station Information:-Wind Rose Data



Number of complete monitoring days at Dysart:

2014	2015	2016	Total
365	364	366	1095

4th Highest 24-hour readings at Dysart after removing approved EE:

	2014	2015	2016
1	163	99	173
2	138	71	**126**
3	90	71	115
4	80	68	113

Figure 4. Buckeye Monitor Station Information:-Location and Site Description

Buckeye (BE) (04-013-4011)

Site Location: US HWY. 85 & MC
HWY. 85, Buckeye
Spatial Scale: Neighborhood & Urban (NO_2)
Site Type: Population Exposure

Site Description: The Buckeye site was established on August 1, 2004. The site is located in the Maricopa County Department of Transportation - Southwest Facility. The immediate area is agriculture and encroaching residential development. This SLAMS location monitors for CO seasonally, NO_2, O_3, and PM_{10}. Meteorological monitors operating at this site include ambient temperature, barometric pressure, relative humidity, and wind speed/direction.

		2014	2015	2016
CO	Max. 8-hr CO Avg. (ppm)	0.6	0.5	0.6
	Number of 8-hr CO Exceedances	0	0	0
NO_2	Annual NO_2 Avg. (ppb)	8.65	7.14	6.90
	NO_2 1-hr Avg. 98th Percentile (ppb)	37.0	34.0	29.0
O_3	Max. 8-hr O_3 Avg. (ppm)	0.068	0.064	0.064
	Number of O_3 Daily Exceedances	0	0	0
	3-year 8-hr Avg. O_3 of 4th Highest Value (ppm)	0.062	0.060	0.059
PM_{10}	Max. 24-hr PM_{10} Avg. ($\mu g/m^3$)	271*‡	124	153
	Number of 24-hr PM_{10} Exceedances	2	0	0
	Annual PM_{10} Avg. ($\mu g/m^3$)	43.4	34.4	40.2

Note: The 2016 O_3 data represent the new O_3 NAAQS of 0.070 ppm; the 2014 and 2015 data represent the old O_3 NAAQS of 0.075 ppm.

* Indicates an exceedance of the standard

‡ Indicates EEs at this site – listed value is the highest official current AQS reading

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Pope, Ronald, Ph.D. December 2015. Wind Rose Monitor Data. Maricopa County Air Quality Department.

Stewart, Ceresa, November 29, 2016 email. RE: Dysart Monitor information. Maricopa County Air Quality Department.

Stewart, Ceresa, June 21, 2017 email. RE: Dysart Monitor information. Maricopa County Air Quality Department

Attachment 1. Summary of Interagency Consultation on updated modeling assumptions for CO Hot-Spot Analysis

From: Beverly Chenausky
To: "Lindy Bauer"; "Jerry Wamsley"; "Hether Krause"; "Transportationconformity@azdeq.gov"
Cc: "Clifton Meek"; "Karina O"Conner"; "Rebecca Yedlin"; Joonwon Joo; "Dean Giles"; Steven Olmsted; Tricia Brown; Bret Anderson
Subject: RE: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Date: Thursday, March 15, 2018 3:54:57 PM
Attachments: image003.png

There were no additional comments or concerns on the information provided, ADOT will provide future notification when the draft analysis is available for review and comment. Aditional updates on the project including schedule, can be found on the project website azdot.gov/SR30.

Thank You,
Beverly

From: Beverly Chenausky
Sent: Thursday, March 01, 2018 3:37 PM
To: 'Lindy Bauer'; 'Jerry Wamsley'; 'Hether Krause'; 'Transportationconformity@azdeq.gov'
Cc: 'Clifton Meek'; 'Karina O'Conner'; 'Rebecca Yedlin'; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Tricia Brown; Bret Anderson
Subject: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

Provided is an update on the 303 (Estrella): MC 85 to Van Buran Street.

- A public meeting was held December 6, 2017.
- The PM10 modeling assumptions provided in prior tables for MOVES, CAL3QCHR and AP-42 have not changed, however it was requested that the traffic data used (as highlighted below) for this project be updated to reflect the October 2017 Conformity model for the FY2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan. The updated traffic still demonstrated that Alt 5 represents the worst case scenario all the other assumptions will remain the same for the analysis. An *unsealed* version of the January 2018 traffic report addendum is attached, this updated data will replace the September 22nd traffic data included in prior consultation.

Speeds	For mixed urban areas mean AMpeak speed on arterials 32mph, for freeway 59mph, Midday 34/66, PM Peak 31/57, and overnight 34/67mph these are values used in the travel demand model. See Table 2b	EPA Hot Spot Guidance Section 4.2.1 Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report
Project Data Manager	Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG, e.g., I/M programs, Fuel, Age Distribution, Meteorology Data, to be consistent with the regional model. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES2014a data.	EPA Hot Spot Guidance Sections 4.5, 7.5; March 2016 *SR303L, SR30 to I-10 Traffic Report* Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report

ADOT consulted prior for PM10 modeling without the information on the required CO hotspots assumptions to allow for inclusion of updated traffic information, attached are the planning assumptions for CO with two different intersection locations from what was consulted on for PM10. As the majority of the assumptions are the same as what was provided prior for PM10 it is requested that the consulted parties provide comments or questions on the methods, models and assumptions for the CO hotspot within **10 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Please let me know if you have any additional questions.

Beverly T. Chenausky
Air & Noise Program Manager
MD EM02, Room 41
1611 W. Jackson St.
Phoenix, AZ 85007
602.712.6269
azdot.gov
ADOT
Environmental Planning

From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

To Interested Parties:
ADOT is presenting the following local project**, 303 (Estrella): MC 85 to Van Buran Street,** for interagency consultation per 40 CFR 93.105 as a project that is a project of Air Quality Concern, thereby requiring a PM10 hot-spot analysis primarily due to the large number of truck traffic in the project area. Attached is the combined Project Level PM Quantitative Hot-Spot Analysis- *Project of Air Quality Concern Questionnaire* demonstrating the need for analysis and the *Consultation Document for Project of Air Quality Concern.* The Purpose of this document is to describe the methods, models and assumptions used for a quantitative hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116 and to document that the analysis follows the EPA *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.* It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within **30 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Thank you,

Beverly T. Chenausky
Air & Noise Program Manager
MD EM02, Room 41
1611 W. Jackson St.
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azdot.gov
ADOT
Environmental Planning

From: Wamsley, Jerry
To: Beverly Chenausky
Cc: OConnor, Karina; LAWRENCE, LAURA
Subject: RE: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Date: Tuesday, March 13, 2018 6:40:06 PM
Attachments: image005.png

Hello Beverly,

Thank you for the opportunity to the review the Arizona Department of Transportation's (ADOT) Project of Air Quality Concern (POAQC) Questionnaire for the update concerning new traffic data and the POAQC for carbon monoxide in the SR 303/MC 85/Van Buran Street project, dated March 1, 2018.

We have no comments on the proposed carbon monoxide hotspot analysis and methodology and new traffic data.

Sincerely,
Jerry Wamsley

From: Beverly Chenausky [mailto:BChenausky@azdot.gov]
Sent: Thursday, March 1, 2018 2:37 PM
To: 'Lindy Bauer' <LBauer@azmag.gov>; Wamsley, Jerry <Wamsley.Jerry@epa.gov>; 'Hether Krause' <hkrause@mail.maricopa.gov>; 'Transportationconformity@azdeq.gov' <Transportationconformity@azdeq.gov>
Cc: meek, clifton <meek.clifton@epa.gov>; OConnor, Karina <OConnor.Karina@epa.gov>; 'Rebecca Yedlin' <Rebecca.Yedlin@dot.gov>; Joonwon Joo <JJoo@azdot.gov>; 'Dean Giles' <DGiles@azmag.gov>; Steven Olmsted <SOlmsted@azdot.gov>; Tricia Brown <TBrown2@azdot.gov>; Bret Anderson <BAnderson@azdot.gov>
Subject: UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

Provided is an update on the 303 (Estrella): MC 85 to Van Buran Street.

- A public meeting was held December 6, 2017.
- The PM10 modeling assumptions provided in prior tables for MOVES, CAL3QCHR and AP-42 have not changed, however it was requested that the traffic data used (as highlighted below) for this project be updated to reflect the October 2017 Conformity model for the FY2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan. The updated traffic still demonstrated that Alt 5 represents the worst case scenario all the other assumptions will remain the same for the analysis. An *unsealed* version of the January 2018 traffic report addendum is attached, this updated data will replace the September 22nd traffic data included in prior consultation.

Speeds	For mixed urban areas mean AMpeak speed on arterials 32mph, for freeway 59mph, Midday 34/66, PM Peak 31/57, and overnight 34/67mph these are values used in the travel demand model. See Table 2b	EPA Hot Spot Guidance Section 4.2.1 Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report
Project Data Manager	Database will be created and MOVES2014a templates will be created to include local project data and information provided by MAG, e.g., I/M programs, Fuel, Age Distribution, Meteorology Data, to be consistent with the regional model. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES2014a data.	EPA Hot Spot Guidance Sections 4.5, 7.5; March 2016 *SR303L, SR30 to I-10 Traffic Report* Project specific model runs were completed end of July 2017. This data was used to input into the traffic analysis completed in August 2017 as noted in September 22, 2017 Traffic Report

September 29, 2017 Page | 11

ADOT consulted prior for PM10 modeling without the information on the required CO hotspots assumptions to allow for inclusion of updated traffic information, attached are the planning assumptions for CO with two different intersection locations from what was consulted on for PM10. As the majority of the assumptions are the same as what was provided prior for PM10 it is requested that the consulted parties provide comments or questions on the methods, models and assumptions for the CO hotspot within **10 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Please let me know if you have any additional questions.

Beverly T. Chenausky
Air & Noise Program Manager
MD EM02, Room 41
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From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

To Interested Parties:
ADOT is presenting the following local project**, 303 (Estrella): MC 85 to Van Buran Street,** for interagency consultation per 40 CFR 93.105 as a project that is a project of Air Quality Concern, thereby requiring a PM10 hot-spot analysis primarily due to the large number of truck traffic in the project area. Attached is the combined Project Level PM Quantitative Hot-Spot Analysis- *Project of Air Quality Concern Questionnaire* demonstrating the need for analysis and the *Consultation Document for Project of Air Quality Concern.* The Purpose of this document is to describe the methods, models and assumptions used for a quantitative hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116 and to document that the analysis follows the EPA *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.* It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within **30 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Thank you,

Frohning, Rebecca A.

From:	Beverly Chenausky <BChenausky@azdot.gov>
Sent:	Thursday, March 01, 2018 2:37 PM
To:	'Lindy Bauer'; 'Jerry Wamsley'; 'Hether Krause'; 'Transportationconformity@azdeq.gov'
Cc:	'Clifton Meek'; 'Karina O'Conner'; 'Rebecca Yedlin'; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Tricia Brown; Bret Anderson
Subject:	UPDATE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Attachments:	SR 303L CO Hotspot Analysis-Questionnaire and Consultation March2018.pdf; 20180122 H687001L SR303L DCR Traffic Report_Addendum1.pdf

Provided is an update on the 303 (Estrella): MC 85 to Van Buran Street.

- A public meeting was held December 6, 2017.
- The PM10 modeling assumptions provided in prior tables for MOVES, CAL3QCHR and AP-42 have not changed, however it was requested that the traffic data used (as highlighted below) for this project be updated to reflect the October 2017 Conformity model for the FY2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan. The updated traffic still demonstrated that Alt 5 represents the worst case scenario all the other assumptions will remain the same for the analysis. An *unsealed* version of the January 2018 traffic report addendum is attached, this updated data will replace the September 22nd traffic data included in prior consultation.

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September 29, 2017

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Please let me know if you have any additional questions.

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From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

To Interested Parties:
ADOT is presenting the following local project, 303 (Estrella): MC 85 to Van Buran Street, for interagency consultation per 40 CFR 93.105 as a project that is a project of Air Quality Concern, thereby requiring a PM10 hot-spot analysis primarily due to the large number of truck traffic in the project area. Attached is the combined Project Level PM Quantitative Hot-Spot Analysis- *Project of Air Quality Concern Questionnaire* demonstrating the need for analysis and the *Consultation Document for Project of Air Quality Concern.* The Purpose of this document is to describe the methods, models and assumptions used for a quantitative hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116 and to document that the analysis follows the EPA *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*. It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within 30 business days, a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Thank you,

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Beverly Chenausky

From: Beverly Chenausky
Sent: Friday, September 29, 2017 8:40 AM
To: 'Lindy Bauer'; 'Jerry Wamsley'; 'Hether Krause'; 'Transportationconformity@azdeq.gov'
Cc: 'Clifton Meek'; 'Karina O'Conner'; 'Dean Giles'; ADOTAirNoise
Subject: RE: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L
Attachments: H6870 Consultation Document_Project Level Hot Spot Planning Assumptions_Conclusion of Consultation.pdf; H6870 POAQC consultation comment form.doc

A few comments were received requesting minor corrections to the document, these corrections were made as noted in the consultation comment form. The revised consultation document is attached for your reference, any remaining issues will be addressed in the draft air quality report that will be provided for public review and comment as part of the Environmental Assessment for the project. The results of interagency consultation have also been summarized in the document.

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From: Beverly Chenausky
Sent: Tuesday, June 27, 2017 1:58 PM
To: Lindy Bauer; Jerry Wamsley; Hether Krause; 'Transportationconformity@azdeq.gov'
Cc: Clifton Meek; Karina O'Conner; Rebecca Yedlin; Joonwon Joo; 'Dean Giles'; Steven Olmsted; Eunice Chan; Tricia Brown
Subject: Interagency Consultation: Determining Project of Air Quality Concern in MAG Region Air Quality Concern 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L

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ADOT is presenting the following local project**, 303 (Estrella): MC 85 to Van Buran Street,** for interagency consultation per 40 CFR 93.105 as a project that is a project of Air Quality Concern, thereby requiring a PM10 hot-spot analysis primarily due to the large number of truck traffic in the project area. Attached is the combined Project Level PM Quantitative Hot-Spot Analysis- *Project of Air Quality Concern Questionnaire* demonstrating the need for analysis and the *Consultation Document for Project of Air Quality Concern.* The Purpose of this document is to describe the methods, models and assumptions used for a quantitative hot-spot analysis as required in 40 CFR 93.105(c)(1)(i), 93.123, 93.116 and to document that the analysis follows the EPA *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*. It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within **30 business days,** a non-response will be interpreted as concurrence with the planning assumptions as describe in the attached document.

Thank you,

Interagency Consultation: Determining Project of Air Quality Concern

Summary of Comments

No.	Rvr No.	Page No.	Agency/ Section Reviewer	Comment	Initial Response	Final Response	Response Clarification
1			ADEQ	Use of the Dysart Monitoring Site for Background Concentrations According to Table 2 of the Consultation Document, ADOT has selected the Dysart monitoring site over the closer Buckeye monitoring site because the Buckeye site is "heavily influenced by agriculture and not representative of the project area." However, the receptor locations south of the project area are in a predominantly agricultural area. If agricultural dust has a significant impact at these southern locations, but not on the northern receptors within the project area itself, then its impact could be represented either (1) by modeling the sources explicitly, or (2) by assigning each receptor its own background concentration on a sliding scale between the Dysart and Buckeye monitors.	D	D	ADOT is modeling the SR 303L mainline. The SR 30/SR 303L TI was selected to represent the worst-case situation for all project area TIs. Population exposure will be along the SR 303 corridors. Buckeye monitor is heavily influenced by dust and exceptional events, and is not representative of background air quality in the project area. Glendale Land Use Plan lists the area as Industrial, Business & Commerce with no agriculture, more consistent with the land use represented by the Dysart monitor.

A Will Add or Correct
B Clarify or Evaluate
C Additional Information Needed
D No Further Action Required

No.	Rvr No.	Sheet No.	Agency/ Section Reviewer	Comment	Initial Response	Final Response	Response Clarification
2			ADEQ	<u>Receptor Grid and Study Area Extents</u> The extents of the base map image in Figure 1 of the Consultation Document (presenting the suggested study area on page 10) differ from the study area that is delineated in Figure 1 of the Questionnaire (page 2). ADEQ was unsure whether or not this base map extent was meant to suggest new study area limits and, if so, why this suggestion differed from the study area in Figure 1 of the Questionnaire. Moreover, since the receptor grids go right up to the southern and western edges of Figure 1 of the Consultation Document, ADEQ was unsure if the suggested receptor grids continued beyond the extent shown.	A	A	Corrected images will be included in the draft air quality report that will be provided for public review with the Environmental Assessment on the ADOT Project website.

No.	Rvr No.	Sheet No.	Agency/ Section Reviewer	Comment	Initial Response	Final Response	Response Clarification
3			MAG	On Page 1, the second paragraph should be updated to include the latest conformity determination on the FY 2018-2022 MAG Transportation Improvement Program and 2040 Regional Transportation Plan: "To meet the needs of the area's growing population and increased traffic demand, the SR303L extension is proposed to increase the roadway capacity and reduce projected traffic congestion in the Cotton Lane corridor, improve the level of service (LOS), and facilitate the regional movement of people and goods. The proposed project is included in the Maricopa Association of Governments (MAG) 2040 Regional Transportation Plan (RTP). The initial construction of three GP lanes is scheduled for completion in 2019. This construction would occur within the MAG FY 2018-2022 Transportation Improvement Program (TIP). The latest conformity determination for the FY 2018-2022 MAG Transportation Improvement Program and 2040 MAG Regional Transportation Plan was made by the Federal Highway Administration and Federal Transit Administration on July 11, 2017."	A	A	Page 1, revised.
4			MAG	Page 4, Table 1: The percent of diesel trucks for the 2035 No Build is incorrect. It should be corrected from <8 percent to 15.9 percent.	A	A	Corrected Table 1, Page 4.
5			MAG	Page 11, Table 2: "Mean AP peak speed" in the Speed item should be corrected to "Mean AM peak speed."	A	A	Corrected Table 2, Page 11.

A Will Add or Correct
B Clarify or Evaluate
C Additional Information Needed
D No Further Action Required

Appendix B

MSAT & CO_{2e} MOVES Modeling Files are Available Upon Request and Can be Found in the Project Folder at:

G:\ITD\ENV\Environmental Planning Group Projects\Projects\303\H6870 01L, SR303L, SR801 MC85 to I-10\Air Quality\Final AQ Modeling Files\MSAT_MOVES

Beverly Chenausky

From: Houk, Jeff (FHWA) <Jeff.Houk@dot.gov>
Sent: Thursday, January 18, 2018 8:38 AM
To: Beverly Chenausky; Yedlin, Rebecca (FHWA)
Subject: RE: 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L MSAT boundary review

Yes, this looks good. I see that you excluded some outlying links that are quite disconnected from the rest of the affected network—this is also reasonable (those are most likely travel modeling artifacts and not links that are actually affected by the project). The only question I have is whether the connection between 303 and 30 is included—I'm not familiar with the roadway network just by looking at it, but it appears that there is a gap there.

You are correct that there is no guidance on addressing GHGs from FHWA, and we are not working on any. As an agency, we comply with state-level requirements in the four states that have them (NY, MA, WA, and CA) but otherwise address GHGs on a case-by-case basis, considering public comments and potential litigation risk. Generating GHG emissions estimates as part of the MSAT analysis you are already doing seems like a reasonable approach, since it involves virtually no additional work.

From: bchenausky azdot.gov
Sent: Wednesday, January 17, 2018 11:49 AM
To: Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>; Houk, Jeff (FHWA) <Jeff.Houk@dot.gov>
Subject: 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L MSAT boundary review

Attached is the recommended boundary for the MSAT analysis for the 303 (Estrella) MC 85 to Van Buran Street NH-303-A(ASO)T H6870 SR 303L project.

Domain for MSAT and GHG Regional Analysis
We compared the link volumes in the study area to determine which links (with daily volume over 50) show a change in volumes of ±5%. You can see them visually in the attached figure. The black line around the areas are the links reasonable to include. Only the red and green segments would be included. Can you review this, and let us know if you agree with our recommended domain, or if you would like to include or exclude any highlighted roadway segment in the project area?

I noticed a webinar discussion tomorrow for the I-II Tier I approach for GHG analysis, however given that there hasn't been an official guidance on how to treat GHG from FHWA yet I would like to get some feedback on approach for the L303 EA as well. The current idea is that we would just add GHG pollutants as part of the MSAT evaluation, is that still an appropriate approach?

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Appendix C

CO CAL3QHC and MOVES Modeling Files are Available Upon Request and Can be Found in the Project Folder at:

G:\ITD\ENV\Environmental Planning Group Projects\Projects\303\H6870 01L, SR303L, SR801 MC85 to I-10\Air Quality\Final AQ Modeling Files\CO_CAL3QHC

G:\ITD\ENV\Environmental Planning Group Projects\Projects\303\H6870 01L, SR303L, SR801 MC85 to I-10\Air Quality\Final AQ Modeling Files\CO_MOVES

Appendix D

PM_{10} CAL3QHCR and MOVES Modeling Files are Available Upon Request and Can be Found in the Project Folder at:

G:\ITD\ENV\Environmental Planning Group Projects\Projects\303\H6870 01L, SR303L, SR801 MC85 to I-10\Air Quality\Final AQ Modeling Files\PM10CAL3QHCR

G:\ITD\ENV\Environmental Planning Group Projects\Projects\303\H6870 01L, SR303L, SR801 MC85 to I-10\Air Quality\Final AQ Modeling Files\PM10_MOVES