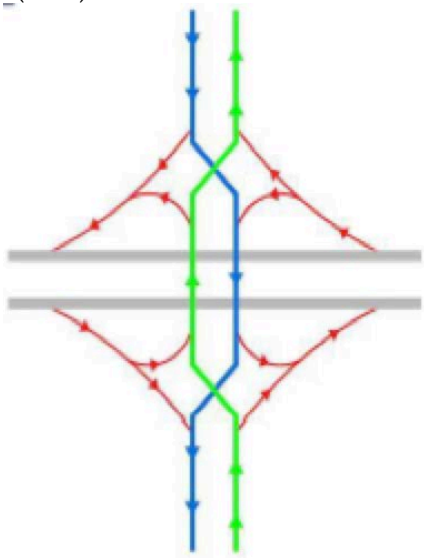
Project Level PM Quantitative Hot-Spot Analysis
Project of Air Quality Concern Questionnaire

Project Setting and Description

The Arizona Department of Transportation (ADOT), in coordination with the Federal Highway Administration (FHWA), is proposing a roadway widening project. The project is located on Interstate 10 (I-10) from milepost (MP) 111.7 near the State Route (SR) 85/I-10 system interchange to MP 122.8 near Perryville Road in the City of Buckeye, City of Goodyear, and Maricopa County, Arizona. The scope of work for this project includes:

- Construct a single general-purpose lane in the median of I-10 in the eastbound (EB) and westbound (WB) travel directions from just west of the SR 85/I-10 system interchange to just east of Verrado Way
- Install asphalt rubber-asphaltic concrete friction course (AR-ACFC) on I-10 mainline roadway from just west of the SR 85/I-10 system interchange to just east of Verrado Way
- Construct a median barrier in I-10 median from just west of the SR 85/I-10 system interchange to just east of Verrado Way
- Remove and reconstruct the existing traffic interchanges (TIs) and bridges to Diverging Diamond Interchanges (DDI) at Watson Road and Miller Road.



Diverging Diamond Interchange Configuration

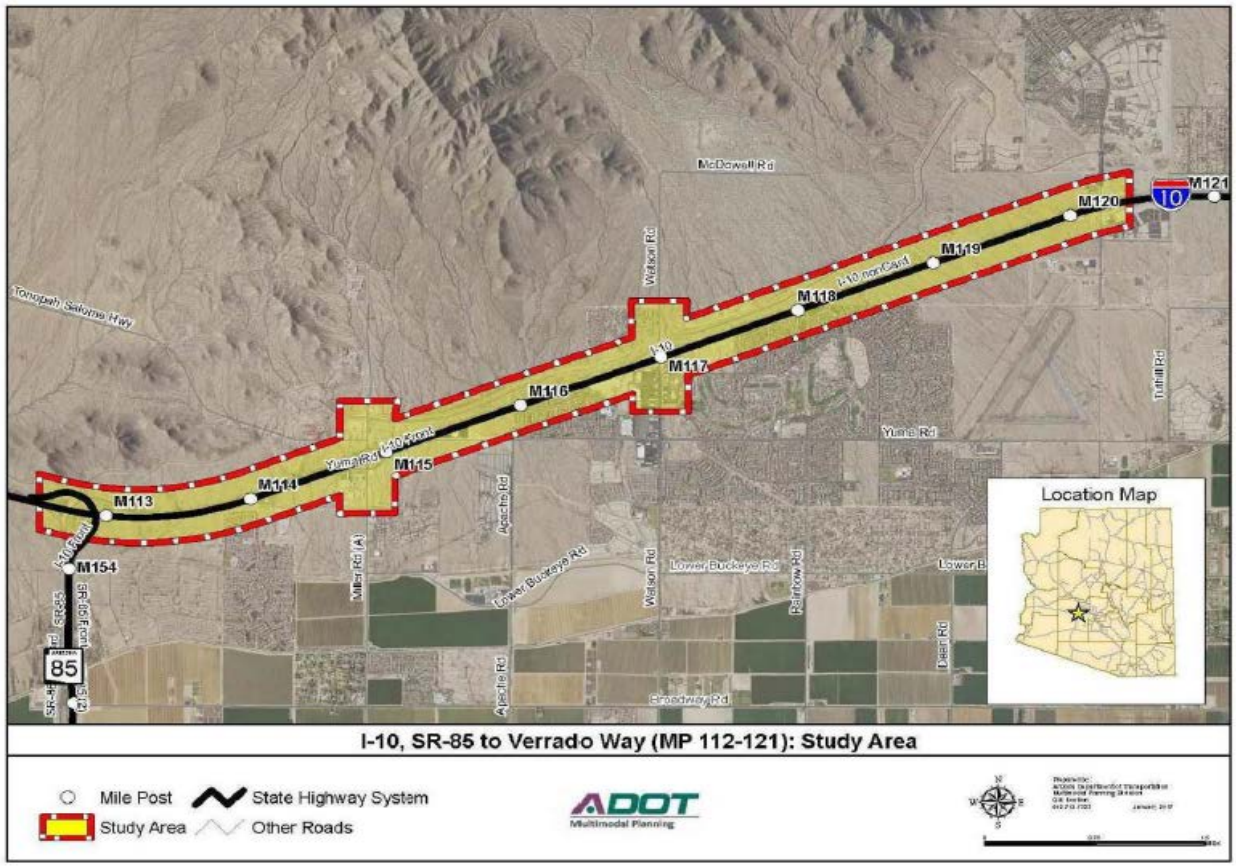
- Reconstruct and widen Watson Road and Miller Road to provide a minimum of two lanes in each direction and turn lanes at each TI
- Remove existing access on Yuma Road
- Construct temporary roadways within the existing I-10 median or along the existing on- and offramp to shift I-10 traffic as needed to accommodate new bridge construction at

each TI
- Remove the above-mentioned temporary roadways prior to the end of construction
- Remove and reconstruct roadside barriers as needed
- Remove and reconstruct median catch basins as needed
- Remove and reconstruct existing storm drains and catch basins along Watson Road and Miller Road as needed to accommodate the new Tis
- Extend existing culverts along I-10, Watson Road and Miller Road as needed to accommodate new Tis
- Construct temporary drainage improvements to accommodate construction phasing
- Construct stormwater quality improvements to control pavement runoff discharging to existing outfalls
- Construct noise barriers along I-10 mainline if needed, per recommendations from the noise analysis
- Construct lighting at ramp gores and underdeck lighting at both Watson Road and Miller Road Tis
- Remove existing signage and provide new signage as needed
- Construct interim roadway improvements at Jackrabbit Trail TI as needed
- Install equipment for Freeway Management System (FMS) along I-10 mainline and along ramps at each TI
- Obliterate roadway striping and restripe roadway
- Relocate utilities as necessary
- Conduct utility potholing and geotechnical investigations
- Obtain right-of-way, easements, and temporary construction easements as needed

This project is listed in the Maricopa Association of Governments (MAG) FY 2018-2022 Transportation Improvement Program (TIP); and is in the State of Arizona's current five-year (2017-2021) State Transportation Improvement Program (STIP). The proposed project is located a Nonattainment Area for particulates 10-microns in diameter or less (PM10), Ozone and Carbon Monoxide in Maricopa County. The project location map is shown in Figure 1.

The following agencies are to be included on interagency consultation and provide input to the POAQC Questionnaire: Environmental Protection Agency (EPA), Arizona Department of Environmental Quality (ADEQ), FHWA, MAG and Maricopa County Air Quality Department (MCAQD).

Figure 1.



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 D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of 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 in 40 CFR 123(b)(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). 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 NAAQS or any required emission reductions or milestones in any nonattainment or maintenance area.

On March 10, 2006, EPA published *PM2.5 and PM10 Hot-Spot Analyses in Project-Level Transportation Conformity Determinations for the New PM2.5 and Existing PM10 National Ambient Air Quality Standards; Final Rule* describing 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.

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).

NO – This is not a new highway project.

Expanded Highway Capacity

Is this an expanded highway project that has 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, truck volumes > 8% of the total traffic.*

No – I-10 is not anticipated to have a significant increase in the number of diesel vehicles. Table 1 summarizes the supplemental data request that was provided by MAG to include truck values for existing, no-build, and build scenarios. The maximum increase in trucks from the No Build to the Build scenario is 74 total trucks as this project is improving traffic flow movements.

Table 1. Traffic Data for I-10 Between SR85- Verado Way (mainline widening)

	I-10 Segment	Existing	2040 No Build	2040 Build	Diff. AADT (2040 Build-No Build)
AADT Volumes (Mainline)	SR 85 – Miller Rd	45,399	46,031	46,342	311
	Miller Rd – Watson Rd	52,272	56,147	56,972	825
	Watson – Verrado Way	72,809	78,739	79,919	1,180
Diesel truck volume	SR 85 – Miller Rd	4,540	16,684	16,716	32
	Miller Rd – Watson Rd	5,227	17,215	17,271	56
	Watson – Verrado Way	7,281	18,309	18,383	74

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 project is not anticipated to create congestion at intersections that has a significant number of diesel trucks. The Miller Road Traffic Intersection shows the 2040 build horizon is expected to operate at a LOS C or better (see Table 2), this is an improvement compared to the LOS F expected without building the project. The Watson Traffic Intersection also shows the 2040 build horizon is expected to operate at a LOS C or better (See Table 3). Because the project improves congestion it does not affect an existing intersection with significant trucks.

Table 2. Miller & I-10 Traffic Interchange (DDI)

ROADWAY	LEVEL OF SERVICE (LOS)					
	EXISTING		2040 No Build		2040 Build	
	AM	PM	AM	PM	AM	PM
Miller Road & EB I-10 Off Ramp/EB I-10 On Ramp	C	C	F	F	A	A
Miller Road & WB I-10 On Ramp/WB I-10 Off Ramp	F	F	F	F	A	A
Miller Road SB & Miller Road NB					B	B
Miller Road NB & Miller Road SB					C	C

Table 3. Watson & I-10 Traffic Interchange (DDI)

ROADWAY	LEVEL OF SERVICE (LOS)					
	EXISTING		2040 No Build		2040 Build	
	AM	PM	AM	PM	AM	PM
Watson Road & EB I-10 Off Ramp/EB I-10 On Ramp	D	C	F	F	A	B
Watson Road & WB I-10 On Ramp/WB I-10 Off Ramp	C	D	C	F	A	B
Watson Road SB & Miller Road NB					B	B
Watson Road NB & Miller Road SB					C	C

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 – This project does not involve new bus or rail terminals; therefore, project types (iii) and (iv) are not addressed in the project assessment.

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 – This project does not involve new bus or rail terminals; therefore, project types (iii) and (iv) are not addressed in the project assessment.

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 – The PM10 State Implementation Plan (SIP) did not identify any specific sites or potential sites of violation. Therefore, no specific sites or potential sites of violation are identified.

POAQC Determination

The I-10 improvements project complies with and will not interfere with the implementation of any control measures included in the ADOT 2017-2021 Statewide Transportation Improvement Program (STIP) or the MAG 2018-2022 Transportation Improvement Program (TIP). The project is not anticipated to create LOS D conditions or worsen such conditions at intersections with a significant number of diesel vehicles, and the project would not significantly increase the number of diesel vehicles in the 2040 design year.

Therefore, ADOT is presenting this project for interagency consultation in accordance with 40 CFR 93.105 as a Project that is NOT of Air Quality Concern and thereby will not require a PM hot-spot analysis.

Interagency Consultation Results

On October 30th, 2018 ADOT provided a copy of this questionnaire, to the following consultation parties, EPA, MAG, Arizona Department of Environmental Quality (ADEQ), and Maricopa County Air Quality Department (MCAQD), as the State and local air agencies in Maricopa County. A few comments for clarification and corrections were received and were made in the document, this includes replacing the truck traffic percentage bottom of page 4 to a total number in the text and adding an existing volumes column in Table 1 to reflect the content described in the text. As there were no objections to the project determination but and on October 24th, 2018 ADOT concluded Interagency Consultation by notifying interested parties that this project will proceed as a project that does not require a quantitative PM10 hot-spot analysis under 40CFR 93.123(b).