

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 Maricopa Association of Governments (MAG) and in coordination with the cities of Phoenix and Glendale, has initiated a design concept study and related environmental studies to evaluate the addition of a new general purpose (GP) lane in both directions along SR 101L between 75th Avenue and Interstate 17 (I-17) in Glendale and Phoenix, Arizona. SR 101L is a regional "loop" freeway, extending from Interstate 10 (I-10) in the southwest Phoenix metropolitan area, north to the Beardsley Road alignment, east to approximately the Pima Road alignment in Scottsdale, then south to State Route 202 (SR 202L) (Santan Freeway) in Chandler. In the project area, SR 101L runs east-west with three or four GP lanes in each direction and an HOV lane. Figure 1 on next page shows the project vicinity map.

The selected Alternative 3 interchange design will improve the flow of southbound 75th Ave to eastbound Loop 101, reduce congestion and improve safety. Features include: Adding a third left turn lane from southbound 75th Ave to eastbound Loop 101. Adding a third lane to the eastbound Loop 101 on-ramp at 75th Avenue. Adding a second lane to the existing eastbound 67th Ave off-ramp. Adding a lane to eastbound Loop 101 between the eastbound 75th Avenue on-ramp and the eastbound 67th Avenue on-ramp to provide additional distance for traffic merging onto Loop 101. Modifying the existing 75th Avenue median islands, traffic signals, signing and pavement markings. Adding signalized ramp meters for traffic entering eastbound Loop 101. Adding freeway and ramp signing and pavement markings. No new right of way is required.



The project is within the Phoenix PM10 nonattainment area. The proposed project is included in the Maricopa Association of Governments (MAG) 2040 Regional Transportation Plan (RTP) Update. In addition, the project is included in the FY 2020-2024 MAG Transportation Improvement Program. The Conformity Analysis for the FY 2020-2024 MAG Transportation Improvement Program and the 2040 Regional Transportation Plan Update as amended, were most recently found to conform to the State Implementation Plan (SIP) by FHWA and FTA most recently on March 22, 2021.





Figure 1. Project Vincinity 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 nonattainment 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;
- 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 PM₁₀ 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 <i>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.

Project type i) is relevant to this project as this is a new highway project that have a significant number of diesel vehicles.



New Highway Capacity

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

NO – This project is not a new highway project.

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, truck volumes > 8% of the total traffic.

NO – This is an expanded highway project, but there is not a significant increase in the number of diesel vehicles. The Maricopa Association of Governments (MAG) travel demand model estimates that the percentage of truck traffic along the corridor will not increase significantly as a result of the project. The AADT and truck percentage for the Build alternative were compared to the No Build alternative on six mainline sections and intersections along the project corridor, as summarized in Table 1. The total increase of trucks due to this project in 2040 range from -171 to 443 on the mainline with an average increase overall of 163 total trucks. At the intersections the total increase of trucks due to this project in 2040 range from -207 to 187, overall this project does not significantly increase trucks.

AADT and Truck Volumes						Difference			
		2020 Existing		2040 No-Build		2040 Build		(Build - No- Build)	
		AADT	Truck	AADT	Truck	AADT	Truck	AADT	Truck
			(%)		(%)		(%)		AADT
Mainline	75th Ave	108,674	7.2%	143,733	11.25%	146,056	11.27%	2,323	291
	67th Ave	120,878	8.1%	161,430	11.04%	169,118	10.80%	7,688	443
	59th Ave	124,944	6.3%	176,516	10.63%	184,325	10.31%	7,809	240
	51st Ave	148,724	6.6%	185,293	10.41%	192,586	10.12%	7,293	201
	35 th Ave	147,384	5.9%	190,396	10.34%	195,810	10.04%	5,414	-28
	27th Ave	75,818	10.3%	109,232	11.92%	111,447	11.53%	2,215	-171
Intersection	75th Ave & EB SR 101	39,184	N/A	38,571	5.21%	37,821	4.79%	-750	-198
	75 th Ave & WB SR 101	44,758	N/A	52,312	5.30%	55,744	5.31%	3,432	187
	67 th Ave & EB SR 101	53,303	N/A	50,617	3.89%	52,872	3.94%	2,255	114
	67 th Ave & WB SR 101	51,021	N/A	60,533	3.92%	61,295	3.83%	762	-25
	59 th Ave & EB SR 101	47,909	N/A	48,481	3.57%	49,290	3.68%	809	83
	59 th Ave & WB SR 101	45,417	N/A	46,350	3.82%	46,995	3.96%	645	90
	51 st Ave & EB SR 101	30,741	N/A	38,743	4.13%	39,872	3.98%	1,129	-13
	51 st Ave & WB SR 101	22,483	N/A	28,463	4.35%	29,024	4.20%	561	-19
	35 th Ave & EB SR 101	34,448	N/A	38,105	3.73%	38,589	3.75%	484	26
	35 th Ave & WB SR 101	32,956	N/A	38,217	3.72%	39,322	3.64%	1,105	10
	31 st Ave & EB SR 101	20,095	N/A	12,731	3.85%	12,126	3.73%	-605	-38
	31 st Ave & WB SR 101	18,684	N/A	13,478	4.01%	12,746	3.29%	-732	-121
	27 th Ave & EB SR 101	35,609	N/A	38,453	5.71%	39,274	5.50%	821	-36
	27 th Ave & WB SR 101	35,366	N/A	34,299	5.89%	33,643	5.39%	-657	-207

Table 1 – I-10 Mainline AADT and Truck AADT in Existing, No Build and Build Conditions

Note: Truck% include heavy truck and medium truck. AADT at intersections include volumes on approach lanes. Source: MAG traffic demand model received from Stanley Consultants on August 26, 2020



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, <u>OR</u> will change LOS to D or greater because of an increase in traffic volumes from a 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, see Table 2. The intersection operation analysis shows 12 intersections have a LOS of D, E, or F, and none of these intersections has a significant increase of diesel truck percentage, as shown in previous Table 1. Overall the LOS isn't impacted by this project.

		2020 Existing		2040 No-Build		2040 Build ^[1]			
		AM	PM	AM	PM	AM	PM		
Lovol	of Service (LOS)	Peak	Peak	Peak	Peak	Peak	Peak		
Level of Service (105)		LOS	LOS	LOS	LOS	LOS	LOS		
		(delay)	(delay)	(delay)	(delay)	(delay)	(delay)		
	75th Ave & EB SR 101	D (47.0)	D (41.9)	E (66.5)	E (79.4)	D (45.7)	E (77.4)		
	75 th Ave & WB SR 101	C (28.6)	C (28.9)	D (52.9)	D (48.4)	C (33.7)	E (58.2)		
nk)	67 th Ave & EB SR 101	F (192.6)	F (82.2)	E (68.6)	F (137.4)	F (414.7)	F (149.7)		
Ë	67 th Ave & WB SR 101	D (37.5)	D (40.9)	D (35.7)	F (203.5)	D (42.9)	F (235.1)		
OS	59 th Ave & EB SR 101	D (51.3)	E (67.5)	D (45.7)	F (199.5)	F (120.8)	F (187.9)		
e C	59 th Ave & WB SR 101	D (45.4)	D (49.5)	D (46.1)	F (144.9)	D (41.0)	F (157.3)		
for	51 st Ave & EB SR 101	D (51.8)	F (80.5)	E (60.4)	F (197.0)	F (88.8)	F (223.8)		
sect	51 st Ave & WB SR 101	B (18.4)	B (16.9)	B (17.5)	B (12.7)	C (24.1)	C (27.9)		
no	35 th Ave & EB SR 101	D (43.0)	D (44.0)	D (40.9)	F (100.1)	D (36.3)	F (190.7)		
II,	35 th Ave & WB SR 101	D (37.7)	D (41.3)	D (41.9)	F (80.9)	D (41.0)	F (89.8)		
'era	31 st Ave & EB SR 101	E (57.7)	D (51.9)	D (39.9)	D (44.1)	D (36.5)	D (35.9)		
0)	31 st Ave & WB SR 101	D (54.8)	D (48.3)	C (31.4)	C (32.4)	C (33.7)	C (31.7)		
	27 th Ave & EB SR 101	C (31.7)	D (40.5)	E (65.3)	F (112.8)	F (530.9)	F (679.4)		
	27 th Ave & WB SR 101	D (42.6)	D (53.1)	E (73.9)	F (179.8)	D (42.8)	F (192.6)		

Table 2 –	Intersections	LOSin	the	project	t area
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Notes:

1. This set of results do not account for any intersection improvements.

Source: LOS data provided by Stanley Consultants. MAG traffic demand model received from Stanley Consultants on August 26, 2020

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 construct any new bus or rail terminals.

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 expand any bus or rail terminals.



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 project location is not listed in MAG's 2012 SIP as a site of violation or potential violation.

POAQC Determination

The Traffic Operations Analysis does not show a significant increase in diesel truck traffic volume due to the Project. Therefore, ADOT is recommending that this project is not a project of air quality concern and does not require a PM10 quantitative analysis.

Interagency Consultation Results

On June 28th, 2021 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 as the local air agencies in Maricopa County. There were no objections to the project determination and on August 3rd, 2021 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).



Interagency Consultation Email

ADOTAirNoise - ADOT <adotairnoise@azdot.gov>

Re: Interagency Consultation F0316: SR 101, 75th 75th Ave to I-17 1 message

Beverly Chenausky <bchenausky@azdot.gov>

Gmail

Tue, Aug 3, 2021 at 11:46 AM

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Co: Morgan Ghods <a href="https://www.co.gov/co.go</p>

As there are no objections or requests for changes to the CO modeling assumptions provided June 28th, 2021, the project will commence with the CO hot-spot modeling for project level conformity August 3, 2021 utilizing the planning assumptions provided. The results of the CO hot-spot analysis will be included in a formal air quality report, additional notification will be provided when the draft analysis is available for review, any requested modeling files will be provided at that time. Additionally, as there are no objections to the project determination presented for PMI0, intergency consultation is complete with the project identified as a project that does not require a quantitative hot-spot analysis as listed under 40 CFR 93.123(b), thank you.

Beverly T. Chenausky Air & Noise Program Manager MD EM02 205 South 17th Avenue Phoenix, AZ 85007 C: 480.390.3417 azdot.gov



On Mon, Jun 28, 2021 at 12:03 PM Beverly Chenausky

bchenausky@azdot.gov> wrote:

ADOT is presenting the following project, SR 101, 75th 75th Ave to I-17, for interagency consultation, per 40 CFR 93.105 as a potential project that is not a project of Air Quality Concern and thereby will not require a PM10 hot-spot analysis. ADOT is requesting responses to the attached F0316_PM10_Consultation_062821.pdf. within 10 business days; a non-response will be interpreted as concurrence that the project is not a project of air quality concern and does not require a hot-spot analysis. If any consulted party believes this project should be treated as a project of air quality concern that requires a Quantitative PM10 hot-spot analysis, please document the appropriate section under 40 CFR 93.123 (b) that applies to the project and describe why the project should be treated as a project of air quality concern.

Additionally, ADOT has determined that the project may require a quantitative hot-spot analysis only for CO, the modeling assumptions are attached in document F0316_CO Hotspot Analysis_Consultation_062821.pdf. 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, additional information on the receptor locations is also included (as zip file). It is requested that the consulted parties provide comments or questions on the methods, models and assumptions within 30 days, a non-response will be interpreted as concurrence with the planning assumptions as described in the attached CO document.

If you have any additional questions or need additional information let me know, please note that my contact information has changed.

Beverly T. Chenausky Air & Noise Program Manager MD EM02 205 South 17th Avenue Phoenix, AZ 85007 C: 480.390.3417 azdot.gov



The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 326 and a Memorandum of Understanding dated January 4, 2021, and executed by FHWA and ADOT.