

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

Project Setting and Description

The City of Phoenix (COP), in association with Arizona Department of Transportation, is planning a roadway improvement project along Happy Valley Road (HVR) between 67th Avenue and 35th Avenue in the city of Phoenix, Maricopa County, Arizona (see enclosed Figures 1).

HVR from 67th Avenue to 35th Avenue is a major arterial roadway that supports commuting traffic to and from Interstate 17 (I-17) and supports local traffic for the residential and commercial development along the corridor. Currently, the existing roadway continuously shifts between two and three travel lanes. Curb, gutter, sidewalk, and medians are intermittent. Bike lane widths are varied and, in some places, non-existent. A Preliminary Engineering Scoping Report was completed in 2020 which identified improvements needed to HVR to meet current design standards, improve ridership, and extend the life of the roadway. The purpose of this project is to improve this section of HVR:

- Roadway widening to accommodate a third travel lane between 62nd and 56th avenues
- Raised center medians
- Painted buffered bike lanes
- New curb, gutter, sidewalk, multiuse trail, and ramps where missing
- Remove and replace curb, gutter, sidewalk, and ramps where necessary to meet current standards
- Pavement preservation treatment, including mill and overlay, and pavement markings
- Upgraded and new bus bays, pads and stops
- Removal or replacement of valley gutters as needed
- Street lighting, fiber cable, and traffic signal upgrades
- Drainage improvements, as needed

The project would occur within existing City of Phoenix right-of-way (ROW), adjacent to Arizona State Trust land and privately-owned parcels. New ROW and temporary construction easements (TCEs) are anticipated for this project, which would be determined during final design. Construction is anticipated to begin in Fall of 2023 and is estimated to be completed in Spring of 2025. Access to residences and businesses will remain open during construction. Temporary lane closures will be required during work; however, at least one lane of traffic will remain open in each direction. Traffic delays should be expected. Night and/or weekend work may also be required.

The project is within the Phoenix PM10, Ozone and CO nonattainment and maintenance area(s). The proposed project is included in the Maricopa Association of Governments (MAG) MOMENTUM 2050 Regional Transportation Plan as approved by MAG Regional Council on December 1, 2021. In addition, the project is included in the FY 2022-2025 Transportation Improvement Program, as amended.



Figure 1. Project Vicinity 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 (Hotspots) 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 *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* \geq 125,000 *annual average daily traffic (AADT) and* <u>truck volumes</u> \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 four mainline sections and five intersections along the project corridor, as summarized in Table 1. The percentage increase in the medium and heavy trucks ranges from a 0.30% to 0.44% on mainline and from 0.11%0.09% to 0.87%0.31% at the intersections, and the total increase in medium and heavy truck ranging from 238 to 365 vehicles on mainline and from 163141 to 588384 vehicles at the intersections.

									D	ifference			
		2018 Existing		2050 No-Build		2050 Build		(Build - No-Build)		ild)			
	Volumos	AADT	Truck	Truck	AADT	Truck	Truck	AADT	Truck	Truck	AADT	Truck	Truck
	volumes		AADT	(%)		AADT	(%)		AADT	(%)		AADT	(%)
Δ	67th Ave to 55th Ave	28,969	1,211	4.18%	38,648	1,592	4.12%	41,406	1,830	4.42%	2,758	238	0.30%
6/11	55th Ave to 51st Ave	16,926	823	4.86%	20,749	1,004	4.84%	24,061	1,268	5.27%	3,312	264	0.43%
peo	51st Ave to 43rd Ave	24,079	1,303	5.41%	27,405	1,368	4.99%	31,822	1,683	5.29%	4,417	316	0.30%
2	43rd Ave to 35th Ave	24,674	1,364	5.53%	25,865	1,348	5.21%	30,319	1,713	5.65%	4,454	365	0.44%
	67 th Ave & HVR	<u>53,1405</u>	<u>2,2002,</u>	<u>4.14%</u>	<u>87,322</u> 8	<u>3,256</u>	<u>3.73%</u>	<u>89,057</u>	<u>3,397</u>	<u>3.81%</u>	<u>1,735</u> 2,	<u>141</u>	<u>0.09%</u>
		1,288	029	3.96%	6,084	2,785	3.24%	88,095	2,948	3.35%	011	163	0.11%
	55 th Ave & HVR	<u>32,708</u> 3	<u>1,375</u> 1,	<u>4.20%</u>	<u>46,243</u> 4	<u>2,085</u>	<u>4.51%</u>	<u>49,391</u>	<u>2,343</u>	<u>4.74%</u>	<u>3,148</u> 2,	<u>258</u>	<u>0.23%</u>
		6,434	816	4.98%	8,512	2,357	4.86%	50,880	2,647	5.20%	368	290	0.34%
	51 st Ave & HVR	<u>30,202</u> 2	<u>1,4211,</u>	<u>4.70%</u>	<u>34,006</u> 3	<u>1,580</u>	<u>4.65%</u>	<u>37,909</u>	<u>1,876</u>	<u>4.95%</u>	<u>3,903</u> 4,	<u>296</u>	<u>0.30%</u>
Ę		4,459	035	4.23%	2,576	1,376	4.22%	36,723	1,606	4.37%	147	230	0.15%
.H	43 rd Ave & HVR	<u>29,8792</u>	<u>1,4911,</u>	<u>4.99%</u>	<u>32,924</u> 3	<u>1,560</u>	<u>4.74%</u>	<u>38,580</u>	<u>1,944</u>	<u>5.04%</u>	<u>5,656</u> 6,	<u>384</u>	<u>0.30%</u>
100		9,879	064	3.56%	1,591	1,356	4.29%	37,648	1,9 44	5.16%	057	588	0.87%
nte	35 th Ave & HVR	<u>36,686</u> 3	<u>1,8021,</u>	<u>4.91%</u>	<u>48,960</u> 4	<u>2,202</u>	<u>4.50%</u>	<u>51,573</u>	<u>2,481</u>	<u>4.81%</u>	<u>2,613</u> 2,	<u>279</u>	<u>0.31%</u>
Ē		5.329	801	5.10%	9.375	2,231	4.52%	<u>51.786</u>	2.513	4.85%	411	282	0.33%

Table 1 - HVR 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 MAG on December 9, 2021

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 five 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.



Table 3 provides refined traffic data generated by the Synchro model. The inconsistencies between the MAG data and Synchro data are attributable to the level of analysis. The MAG traffic demand model (TDM) was used to initially screen the project and help determine if modeling might be necessary. For the traffic memo, a LOS/synchro analysis at the local intersection level was conducted using geometric configurations, signal timings, and turning movement counts. The MAG model is routinely used to understand travel patterns and is capable of providing information related to volume and capacity; however, the intersection LOS produced by the MAG TDM does not reach the level of detail provided by the synchro analysis.

		2018 Existing		2050 No-Build		2050 Build	
		AM	PM	AM	PM	AM	PM
Level of Service (LOS)		Peak	Peak	Peak	Peak	Peak	Peak
		LOS	LOS	LOS	LOS	LOS	LOS
ч	67 th Ave & Happy Valley Rd	F	D	F	F	F	F
ctio 5	55 th Ave & Happy Valley Rd	С	С	D	С	D	D
Dec	51 st Ave & Happy Valley Rd	D	С	D	D	С	С
I	43 rd Ave & Happy Valley Rd	D	С	D	С	С	С
Ir	35 th Ave & Happy Valley Rd	С	С	С	D	D	E

Table 2 – Intersections LOS in the project area

Source: LOS data provided by MAG. MAG traffic demand model received from MAG on December 9, 2021

			2018 Existing		<u>2050 N</u>	No-Build	2050 Build	
Level of Service (LOS)		<u>AM</u> <u>Peak</u>	<u>PM</u> <u>Peak</u>	<u>AM</u> <u>Peak</u>	<u>PM</u> <u>Peak</u>	<u>AM</u> <u>Peak</u>	<u>PM</u> <u>Peak</u>	
		LOS	LOS	LOS	LOS	LOS	LOS	
tio		67 th Ave & Happy Valley Rd	D	<u>D</u>	<u>D</u>	<u>D</u>	E	D
ersec	디	55 th Ave & Happy Valley Rd	<u>B</u>	<u>C</u>	<u>C</u>	<u>D</u>	<u>C</u>	<u>C</u>
Int		35 th Ave & Happy Valley Rd	<u>C</u>	<u>B</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>

Table 3 - Three Congested Intersections LOS in the project area^[1]

Note:

[1]. Synchro model data are used for hot-spot modeling, see the Traffic Analysis Memorandum for detail. Source: Happy Valley Road; 67th Avenue to 35th Avenue, Traffic Analysis Memorandum, April 2022, prepared by Wilson & Company

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 volume 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 May 2nd, 2022 ADOT provided a copy of this questionnaire, to the following consultation parties, City of Phoenix, EPA, FHWA, MAG, Arizona Department of Environmental Quality (ADEQ), Maricopa County Air Quality Department as the local air agencies in Maricopa County. There were suggestions for corrections and comments from FHWA, corrections were made and provided to Interagency consultation on June 3rd, no objections to the project determination and on June 21, 2022 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).



Project Level CO Hot-Spot Analysis Questionnaire

Project Setting and Description

The City of Phoenix (COP), in association with Arizona Department of Transportation, is planning a roadway improvement project along Happy Valley Road (HVR) between 67th Avenue and 35th Avenue in the city of Phoenix, Maricopa County, Arizona (see enclosed Figures 1).

HVR from 67th Avenue to 35th Avenue is a major arterial roadway that supports commuting traffic to and from Interstate 17 (I-17) and supports local traffic for the residential and commercial development along the corridor. Currently, the existing roadway continuously shifts between two and three travel lanes. Curb, gutter, sidewalk, and medians are intermittent. Bike lane widths are varied and, in some places, non-existent. A Preliminary Engineering Scoping Report was completed in 2020 which identified improvements needed to HVR to meet current design standards, improve ridership, and extend the life of the roadway. The purpose of this project is to improve this section of HVR:

- Roadway widening to accommodate a third travel lane between 62nd and 56th avenues
- Raised center medians
- Painted buffered bike lanes
- New curb, gutter, sidewalk, multiuse trail, and ramps where missing
- Remove and replace curb, gutter, sidewalk, and ramps where necessary to meet current standards
- Pavement preservation treatment, including mill and overlay, and pavement markings
- Upgraded and new bus bays, pads and stops
- Removal or replacement of valley gutters as needed
- Street lighting, fiber cable, and traffic signal upgrades
- Drainage improvements, as needed

The project would occur within existing City of Phoenix right-of-way (ROW), adjacent to Arizona State Trust land and privately-owned parcels. New ROW and temporary construction easements (TCEs) are anticipated for this project, which would be determined during final design. Construction is anticipated to begin in Fall of 2023 and is estimated to be completed in Spring of 2025. Access to residences and businesses will remain open during construction. Temporary lane closures will be required during work; however, at least one lane of traffic will remain open in each direction. Traffic delays should be expected. Night and/or weekend work may also be required.

The project is within the Phoenix PM10, Ozone, and CO maintenance area. The proposed project is included in the *Maricopa Association of Governments (MAG) MOMENTUM* 2050 Regional Transportation Plan as approved by MAG Regional Council on December 1, 2021. In addition, the project is included in the *FY* 2022-2025 *Transportation Improvement Program*, as amended.









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 nonattainment 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).

Project type ii) is relevant to this project because this project affects a congested intersection (LOS D or greater) that will change LOS to D or greater because of increased traffic volumes.

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? *Currently, no plan includes such areas

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 – <u>MAG provided the intersection volumes and LOS for intersections in the project area (See Table 1 & 2).</u> Among the 5 intersections, there are 4 intersections in AM peak hour and 3 intersections in PM peak hour would result in LOS D or worse in the 2050 no build scenario. In the 2050 build scenario, there are 3 intersections in AM peak hour and 3 intersections in PM peak hour that would result in LOS D or worse. LOS at two intersections would become worse from 2050 no build scenario to 2050 build scenario.



Table 3 provides refined traffic data generated by the Synchro model. The inconsistencies between the MAG data and Synchro data are attributable to the level of analysis. The MAG traffic demand model (TDM) was used to initially screen the project and help determine if modeling might be necessary. For the traffic memo, a LOS/synchro analysis at the local intersection level was conducted using geometric configurations, signal timings, and turning movement counts. The MAG model is routinely used to understand travel patterns and is capable of providing information related to volume and capacity; however, the intersection LOS produced by the MAG TDM does not reach the level of detail provided by the synchro analysis.

As indicated in Table 3, only the intersection at 67th Avenue and Happy Valley Road would result in congestion (LOS D or greater) in the 2050 build scenario.

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								Difference	
,	ADT and Truch	2018 Existing		2050 No-Build		2050 Build		(Build - No-Build)	
ľ	Volumos	AADT	Truck	AADT	Truck	AADT	Truck	AADT	Truck (%)
	volumes		(%)		(%)		(%)		
y	67th Ave to 55th Ave	28,969	4.18%	38,648	4.12%	41,406	4.42%	2,758	0.30%
wa	55th Ave to 51st Ave	16,926	4.86%	20,749	4.84%	24,061	5.27%	3,312	0.43%
oad	51st Ave to 43rd Ave	24,079	5.41%	27,405	4.99%	31,822	5.29%	4,417	0.30%
Ā	43rd Ave to 35th Ave	24,674	5.53%	25,865	5.21%	30,319	5.65%	4,454	0.44%
	67 th Ave & HVR	<u>53,140</u> 5	<u>4.14%3.</u>	<u>87,322</u> 8	<u>3.73%</u> 3	<u>89,057</u> 8	<u>3.81%</u>	<u>1,735</u> 2,0	<u>0.09%</u> 0.11
		1,288	96%	6,084	.24%	8,095	3.35%	11	%
	55 th Ave & HVR	<u>32,708</u> 3	<u>4.20%</u> 4.	<u>46,243</u> 4	<u>4.51%</u> 4	<u>49,391</u> 5	<u>4.74%</u>	<u>3,148</u> 2,3	<u>0.23%</u> 0.34
		6,434	98%	8,512	.86%	0,880	5.20%	68	%
_	51 st Ave & HVR	<u>30,202</u>	<u>4.70%</u> 4.	<u>34,006</u> 3	<u>4.65%</u> 4	<u>37,909</u> 3	<u>4.95%</u>	<u>3,903</u> 4,1	<u>0.30%</u> 0.15
UO		4,459	23%	2,576	.22%	6,723	4.37%	47	%
scti	43 rd Ave & HVR	<u>29,879</u> 2	<u>4.99%3.</u>	<u>32,924</u> 3	<u>4.74%</u> 4	<u>38,5803</u>	<u>5.04%</u>	<u>5,656</u> 6,0	<u>0.30%</u> 0.87
rse		9,879	56%	1,591	.29%	7,648	5.16%	57	%
nte	35 th Ave & HVR	<u>36,686</u> 3	<u>4.91%5.</u>	<u>48,960</u> 4	<u>4.50%</u> 4	<u>51,573</u> 5	<u>4.81%</u>	<u>2,613</u> 2,4	<u>0.31%</u> 0.33
I		5,329	10%	9,375	.52%	1,786	4.85%	11	%

Table 1 – HVR 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 MAG on December 9, 2021

Table 2 - Intersections LOS in the project area

		2018 Existing AM PM		2050 N	No-Build	2050 Build	
				AM	PM	AM	PM
Level of Service (LOS)		Peak	Peak	Peak	Peak	Peak	Peak
		LOS	LOS	LOS	LOS	LOS	LOS
u	67 th Ave & Happy Valley Rd	F	D	F	F	F	F
ctio S	55 th Ave & Happy Valley Rd	С	С	D	С	D	D
sec OS	51 st Ave & Happy Valley Rd	D	С	D	D	С	С
nter I	43 rd Ave & Happy Valley Rd	D	С	D	С	С	С
Ir	35 th Ave & Happy Valley Rd	С	С	С	D	D	E

Source: LOS data provided by MAG. MAG traffic demand model received from MAG on December 9, 2021



	Table 3 – Top Three Intersections LOS in the project area ^[1]						
		2018 Existing		<u>2050 N</u>	<u>lo-Build</u>	<u>2050 Build</u>	
		<u>AM</u>	<u>PM</u>	<u>AM</u>	<u>PM</u>	<u>AM</u>	<u>PM</u>
Level of Service (LOS)		<u>Peak</u>	<u>Peak</u>	<u>Peak</u>	<u>Peak</u>	<u>Peak</u>	<u>Peak</u>
		LOS	LOS	LOS	LOS	LOS	LOS
<u>Intersection</u> <u>LOS</u>	67 th Ave & Happy Valley Rd	D	D	<u>D</u>	D	E	<u>D</u>
	55 th Ave & Happy Valley Rd	BI	<u>C</u>	<u>C</u>	D	<u>C</u>	<u>C</u>
	35 th Ave & Happy Valley Rd	<u>C</u>	<u>B</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>
Note:							

[1]. Synchro model data are used for hot-spot CO modeling, see attached Traffic Analysis Memorandum for detail. Source: Happy Valley Road; 67th Avenue to 35th Avenue, Traffic Analysis Memorandum, April 2022, prepared by Wilson & Company

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?

*Three Highest Intersections in Current Plans

MAG ¹
16 th St & Camelback Rd
107th Ave & Grand Ave
Priest Dr & Southern Ave

¹MAG 2013 Carbon Monoxide Maintenance Plan for the Maricopa County Area

NO. This project does not affect one or more of the top three intersection 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?

*Three Worst LOS Intersections in Current Plans

MAG ¹	
7th Ave & Van Buren St	
German Rd & Gilbert Rd	
Thomas Rd & 27 th Ave	

¹Same as above

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

Hot-Spot 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

- A <u>quantitative CO hot-spot analysis</u> is required under 40 CFR 93.123(a)(1).
- Check **If** a formal air quality report for conformity is required for this project.
- 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 using "Project Level CO Quantitative Hot-Spot Analysis Consultation Document" circulated through interagency consultation for review and comments for <u>30 days</u> prior to commencing any modeling activities.
- Or

□ Check **If** the project fits the condition of the "**CO Categorical Hot-Spot Finding**". 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). (Note: Any new CO hot-spot analyses for conformity purposes begun on or after January 9, 2023 may no longer rely on the July 2017 CO categorical hotspot finding.)



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 "Table 1: Project Parameters and Acceptable Ranges for CO Categorical Hot-Spot Finding" or enter the project information into FHWA's web based tool:

<u>https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_g</u> <u>uidance/cmcf_2017/tool.cfm</u>)?

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 on next page.

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 (°F)	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



□ If answered "No" to all of the questions in the Project Assessment – Part A

- A <u>qualitative CO analysis</u> 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;

□ Check **If** an Air Quality Report <u>includes CO modeling</u> for NEPA EA/EIS use this report to satisfy option (i)

- 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.

□ Check **If** there is an Air Quality Report that <u>does not include</u> CO modeling for NEPA EA/EIS use this report to satisfy (ii)

□ Check **If** the project is a CE under NEPA that does not require Air Quality Report for NEPA EA/EIS use this Questionnaire to add additional justification to satisfy (ii)

This project requires a quantitative hot-spot analysis for carbon monoxide. The intersections to be modeled were determined using EPA's Guideline for Modeling Carbon Monoxide from Roadway Intersections (EPA, 1992). The intersections with the highest volumes and longest delays were identified for the 2050 build alternative. The top three intersections ranked by volume are as follows:

67th Ave & Happy Valley Road

55th Ave & Happy Valley Road

35th Ave & Happy Valley Road

The top three intersections ranked by LOS and delay are as follows:

67th Ave & Happy Valley Road

55th Ave & Happy Valley Road

35th Ave & Happy Valley Road

All three intersections are found on both groups, thus the intersection modeling analysis will be performed for the following three intersections:

67th Ave & Happy Valley Road

55th-Ave & Happy Valley Road

35th-Ave & Happy Valley Road



Only the 67th Ave & Happy Valley Road intersection is selected for hot-spot analysis because of congestion in the 2050 build scenario. Other intersections would not result in congestion in the 2050 build scenario.

Modeling will be performed for the AM and PM peak hour of no build 2050 and build 2050. Modeling will be performed for the peak hour of the day under the project opening year (2025) condition with the worst case scenario using the 2025 MOVES emission rates (highest CO emission rates) with 2050 traffic data (maximum traffic). It is assumed that if the selected worst-case intersections do not show an exceedance of the NAAQS, none of the intersections will. Refer to the enclosed supplemental traffic study.

Interagency Consultation Results

On May 2nd, 2022 ADOT provided a copy of this questionnaire, to the following consultation parties, City of Phoenix, EPA, FHWA, MAG, Arizona Department of Environmental Quality (ADEQ), Maricopa County Air Quality Department as the local air agencies in Maricopa County. There were suggestions for corrections and comments from FHWA, corrections were made and provided to Interagency consultation on June 3rd, responses to additional comments received on the CO modeling assumptions are included. There were no objections to the revised planning assumptions described for the quantitative analysis methods in accordance to 40 CFR 93.116(a) and the consultation requirements of 40 CFR 93.105(c)(1)(i). On June 21, 2022 ADOT concluded Interagency Consultation by notifying interested parties that this project will commence CO hot-spot conformity modeling required for transportation conformity in accordance to the latest planning assumptions and emissions model in place.



Project Level CO Quantitative Hot-Spot Analysis -

Consultation Document for Project of Air Quality Concern

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 MOVES3 in Project-Level Carbon Monoxide Analyses" EPA-420-B-21-047, December 2021, 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 MOVES3

- 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.



Table 1. Methods, Mode	s and Assumptions for CO
------------------------	--------------------------

MOVES3 and CAL3QHC Requirements							
Estimate On-Road Motor Vehicle Emissions (Step 3)							
MOVES3	Description	Data Source					
Scale	On road, Project, Inventory	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.2					
Time Spans	EPA 1992 Guideline conservatively uses a typical peak-hour traffic activity in one MOVES run to generate emission rates.	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.3.					
Geographic Bounds	Maricopa County	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.4					
Onroad Vehicles	All Fuels and Source Use Types will be selected	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.5					
Road Type	Urban Unrestricted access	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.6					
Pollutants and Processes	CO Running Exhaust, CO Crankcase Running Exhaust	EPA Using MOVES3 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 MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.3.8 & 2.3.9					
Project Data Manager	Database will be created and MOVES3 templates will be created to include local project data and information provided by project team/MPO, e.g., I/M programs, Fuel, Age Distribution, to be consistent with the regional model. The average temperature and humidity in January may be used. Links and Link Source Type will be specific to project as provided by the traffic study, any missing information will use default MOVES3 data. After running MOVES, the MOVES CO_CAL3QHC_EF post-processing script is run.	EPA 1992 Guideline, Section 4.7.1., Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4, 2.1 for Links; the required data necessary to be consistent with regional emissions analysis (40 CFR 93.123(c)(3)).					
Select Air Qualit	y Model, Data Inputs, and Receptors (Step 4)						
CAL3QHC	Description	Data Source					



eny of theefind the		
Emissions	Emissions Rates in grams/mile, as described	1992 Guideline for Modeling Carbon
Sources	in MOVES3 section. The free flow and queue	Monoxide from Roadway Intersections,
	links defined for modeling with MOVES3 will	EPA-454/R-92-005, November 1992.
	be used as input into CAL3QHC.	Section 5.2.3 of Appendix W to 40 CFR
		Part 51, CO screening analyses of
		intersection projects should use the
		CAL3QHC dispersion model.
Emissions	Emissions Rates in grams/mile, as described	1992 Guideline for Modeling Carbon
Sources	in MOVES3 section. The free flow and queue	Monoxide from Roadway Intersections,
	links defined for modeling with MOVES3 will	EPA-454/R-92-005, November 1992.
	be used as input into CAL3QHC.	Section 5.2.3 of Appendix W to 40 CFR
		Part 51, CO screening analyses of
		intersection projects should use the
		CAL3QHC dispersion model.
Traffic and	Lane Configuration, Lane Width,	1992 Guideline for Modeling Carbon
Geometric	Signalization, Turning Movements, Median	Monoxide from Roadway Intersections,
Design	Width, Traffic Volume, Level of Service,	Section 4.7.4
_	Grade, % of Heavy-Duty Trucks, and Peak	
	Hour Average Approach Speed.	
Meteorology	Temperature, Wind Speed, Wind Direction,	1992 Guideline for Modeling Carbon
	Atmospheric Stability Class, Mixing Heights	Monoxide from Roadway Intersections,
	and Surface Roughness.	Section 4.7.1
Persistence	Local persistence factor based on monitoring	1992 Guideline for Modeling Carbon
Factor	data. If it is not available, use a default	Monoxide from Roadway Intersections,
	persistence factor of 0.7.	Section 4.7.2
Determine Backg	ground Concentrations (Step 6)	
Background	The CO monitor located at West Phoenix (WP)	1992 Guideline for Modeling Carbon
Monitor	between 39th Avenue & Earll Drive in Phoenix has	Monoxide from Roadway Intersections.
	similar environment settings as the project	Section 4.7.3
	corridor. Three years of monitoring data (2018	
	2020) show a maximum 8-hour value of 3.3 ppm.	
	4.7 ppm (which is the 8-hour concentration divided	
	<i>by a persistence factor of 0.7) will be added to the</i>	
	maximum modeled hourly concentration for	
	comparison to the NAAQS. 3.3 ppm will be added	
	to the maximum 8-hour modeled concentration.	
	The same background values will be used for all	
	analysis years.	

Table 2. Project Data Manager Inputs						
Input	Level of Detail/notes	Possible Data Source				
Meteorology	Same for build and no-build scenarios. The average temperature and humidity were determined by averaging all hourly temperature values for January 2018,2019, and 2020. The average temperature of 57.55 degrees F and the average relative humidity of 45.64% were uses in all MOVES runs, regardless of analysis year or time of day.	ADEQ, NOAA EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.1, 1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Screening Analyses of Roadway Intersections				



5				
Age Distribution	Same for build and no-build scenarios. Data from latest regional CO conformity analysis provided by MAG.	ADOT, MPO EPA Using MOVES3 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, MOVES defaults EPA Using MOVES3 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, MOVES defaults EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.4		
Retrofit Data	Not applicable for this project.	Project specific modeling EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.7		
Links	Four selected intersections (67th Ave & Happy- Valley Road, 55 th Ave & Happy Valley Road, 35 th Ave & Happy Valley Road) One intersection at 67 th Avenue & Happy Valley Road 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. Other roadway segments within 500 feet of the intersection will be included. (See attachment for graphical representation of model setup)	Project specific modeling, ADOT, MPO EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.6		
Link Source Types	Source type distribution will be determined using a combination of project data and regional fleet information from the latest regional CO conformity analysis provided by MAG.	Project specific modeling, ADOT, MPO EPA Using MOVES3 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, ADOT, MPO EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.8, 2.4.9		
Off-Network, Hoteling	Not applicable for this project.	EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.9		

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



Preliminary Link Configurations and Receptor Placements for CO Hot-Spot Analysis

The following graphics present the preliminary link configurations and receptor placements for the three intersections that will be modeled as part of the CO hot-spot analysis in CAL3QHC. The following applies to all figures:

- Free flow links extend 500 feet away from center of signalized intersection
- Graphic representation of free flow links includes 10-foot mixing zone
- Traffic activity within 500 feet from intersections are included
- Yellow circles are receptors located on or adjacent to the existing R/W (more than 10 feet from the edge of roadway).
- Receptors are spaced at 82 feet (25 meter) intervals outside of the mixing zone.
- Receptor location coordinates will be provided by a separate file



67th Avenue and Happy Valley Road Intersection Receptors and roadway links





55th Avenue and Happy Valley Road Intersection-Receptors and roadway links



Project Name: Happy Valley Road, 67th Avenue to 35th Avenue Federal Project No.: PHX-0(363)D ADOT Project No.: 0000 MA PHX T0239 01C City of Phoenix Project No.: ST85100437



35th Avenue and Happy Valley Road Intersection Receptors and roadway links





Site Description: This site began operating in January 1984. This SLAMS location monitors for CO, NO₂, O₃, PM₁₀, and PM_{2.5}. Meteorological monitoring includes ambient temperature, barometric pressure, and wind speed/direction. The site is located in an area of stable, high-density, residential properties. This is the QA collocation site for PM_{2.5} where one filter-based PM_{2.5} FRM sampler operates alongside a continuous PM_{2.5} FEM analyzer as per 40 CFR Part 58 Appendix A.

Pollutant	Metric	2018	2019	2020
СО	Maximum 8-hr CO Average (ppm)	4.4	2.4	3.0
	Number of 8-hr CO Exceedance Days	0	0	0
NO ₂	Annual NO ₂ Average (ppb)	16.12	14.07	13.36
	NO ₂ 1-hr Average 98 th Percentile (ppb)	52.0	47.0	48.0
O ₃	Maximum 8-hr O ₃ Average (ppm)	0.086†	0.078†	0.091†‡
	Number of O ₃ Exceedance Days	6	3	10
	3-yr 8-hr 4 th Highest O ₃ Average (ppm)	0.074#	0.073#	0.074#
PM ₁₀	Maximum 24-hr PM ₁₀ Average (µg/m ³)	259†‡	58	159†
	Number of 24-hr PM ₁₀ Exceedance Days	4	0	1
	Annual PM ₁₀ Average (µg/m ³)	33.3	23.0	30.8
PM _{2.5}	Maximum 24-hr PM _{2.5} Average (µg/m ³)	199.3†‡	40.4†	149.1†
	Number of 24-hr PM _{2.5} Exceedance Days	3	1	7
	Annual PM _{2.5} Average (µg/m ³)	9.92	8.17	10.47
	PM _{2.5} 98 th Percentile Value	30.6	23.4	33.9

† - Indicates an exceedance of the standard

‡ - Indicates EE submission - listed value is currently the official maximum concentration in AQS

- Indicates a violation of the standard

Source: EPA AQS database - 2018 – 2020 *Quicklook Criteria Report (AMP450)* MCAQD 2018 - 2020 O₃, PM_{2.5}, and PM₁₀ Exceedance Day Reports for Numbers Project Name: Happy Valley Road, 67th Avenue to 35th Avenue Federal Project No.: PHX-0(363)D ADOT Project No.: 0000 MA PHX T0239 01C City of Phoenix Project No.: ST85100437



Refer to the Supplemental Traffic Study for CO modeling -Provided May 2,2022.

Project Name: Happy Valley Road, 67th Avenue to 35th Avenue Federal Project No.: PHX-0(363)D ADOT Project No.: 0000 MA PHX T0239 01C City of Phoenix Project No.: ST85100437



Interagency Consultation Summary



Re: Interagency Consultation: PHX-0(363)D | 000 MA PHX T0239 01C; Happy Valley Road: 67th Avenue to 35th Avenue

1 message

Beverly Chenausky <bchenausky@azdot.gov>

Tue, Jun 21, 2022 at 9:28 AM

To: "Wickersham, Lindsay (she/her)" <wickersham.lindsay@epa.gov> Cc: "rebecca.yedlin@dot.gov" <rebecca.yedlin@dot.gov>, Transportationconformity

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Lindsay -

For project level hot-spot CO modeling FHWA has recommended to use the screening approach identified in both the *Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA-454/R-92-005, November 1992* (Section 4.7.1) and *Using MOVES3 in Project-Level Carbon Monoxide Analyses, December 2021* (Section 2.4.1) referencing the use of an average January temperature and humidity value. I am sure we can work with the Maricopa County Air Quality Department monitoring staff to obtain the windrose information for the selected background monitor, we can add that content into the air quality report.

All - Given no additional comments or suggested changes where received, the project team will commence the CO project level hot-spot analysis, when complete the draft report and modeling files will be provided for additional review and comment. Thank you. Beverly

On Fri, Jun 17, 2022 at 1:53 PM Wickersham, Lindsay (she/her) <wickersham.lindsay@epa.gov> wrote:

Hi Beverly,

Thank you for the opportunity to review the Happy Valley Road Project and PM10 and CO consultation documents. At this time I have no formal comments but do have one question for my own understanding and have a suggestion for an addition to the modeling documents when they are available.

My question was regarding the choice to use average temperature and humidity in January for the CO hotspot analysis (Table 2, P.4, Meterology). I see that in the MAG 2013 CO Maintenance Plan, the CO winter season was described from November- January. Is there a reason why January and not another month was chosen? Does this represent the "worst case" scenario for CO production?

I noticed in the CO hot spot consultation document that there was a picture of the location of the CO receptors on P.7. I appreciate having this visualization and I would like to suggest that a wind rose be added in future versions and in modeling documents so that we can deduce the primary wind direction.

Thank you again for sharing this with me and I hope you have a great weekend.

Best,

Lindsay

BSPH, MSEE | Physical Scientist

U.S. Environmental Protection Agency

Air & Radiation Division | Planning Office

Region 9 | 415-947-4192



From: Beverly Chenausky <<u>bchenausky@azdot.gov</u>> Sent: Friday, June 3, 2022 9:55 AM

To: rebecca.yedlin@dot.gov; Transportationconformity <transportationconformity@azdeq.gov>; Tim Franquist <TFranquist@azmag.gov>; Johanna Kuspert (AQD) <Johanna.Kuspert@maricopa.gov>; Wickersham, Lindsay (she/her) <wickersham.lindsay@epa.gov>

Cc: Greta Halle <greta.halle@phoenix.gov>; Morgan Ghods <mghods@azdot.gov>; Dean Giles <dgiles@azmag.gov>; Hansen, Alan (FHWA) <Alan.Hansen@dot.gov>; Paul O'brien <POBrien@azdot.gov>; Joonwon Joo <jjoo@azdot.gov>; Meek, Clifton <meek.clifton@epa.gov>; OConnor, Karina (she/her) <OConnor.Karina@epa.gov>; Madhav Mundle <MMundle@azdot.gov>

Subject: Re: Interagency Consultation: PHX-0(363)D | 000 MA PHX T0239 01C; Happy Valley Road: 67th Avenue to 35th Avenue

ADOT has not received any additional comments or requests for changes to either the PM10 and/or CO documents. The project team has incorporated the FHWA suggested revisions and are noted in **blue** in the attached pdf documents. These changes include; modifying Table 1 in both documents, adding a Table 3 to show data pulled from the traffic study, including the same data tables for both documents, removing the two receptors maps, and noting these corrections throughout the document, as applicable.

Additionally, to better represent a scenario where emissions are expected to be the worst, a 2025 emission rate will be used in the 2050 model year run. Please review the changes to the planning assumptions included in the document, given the project schedule demands, we are requesting responses on these changes within 10 business days. If there are no objections to this approach, modeling will commence and an air quality report, with the associated modeling data, will be provided when available for further review and comments. There were no changes to the traffic data provided May 2, 2022, as such those traffic assumptions will be used in the hot-spot modeling.

Please let me know if you have additional questions. Thanks, Beverly

On Wed, May 18, 2022 at 6:37 AM Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov> wrote:

I provided your responses to the FHWA Resource Center AQ Specialists and have placed their responses below in green.

If you have any questions, please let me know. Thanks, Rebecca

From: Greta Halle <greta.halle@phoenix.gov> Sent: Friday, May 13, 2022 3:34 PM

To: Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>; bchenausky azdot.gov <bchenausky@azdot.gov> Cc: Morgan Ghods <mghods@azdot.gov>; Dean Giles <dgiles@azmag.gov>; Hansen, Alan (FHWA) <Alan.Hansen@dot.gov>; Paul O'brien <POBrien@azdot.gov>; Stauffer, Panah <Stauffer.Panah@epa.gov>; Transportationconformity <transportationconformity@azdeq.gov>; Joonwon Joo <jjoo@azdot.gov>; Clifton Meek <meek.clifton@epa.gov>; Johanna Kuspert (AQD) <Johanna.Kuspert@maricopa.gov>; Karina O'Conner <oconnor.karina@epa.gov>; Madhav Mundle <MMundle@azdot.gov>; Tim Franquist <TFranquist@azmag.gov> Subject: RE: Interagency Consultation: PHX-0(363)D | 000 MA PHX T0239 01C; Happy Valley Road: 67th Avenue to 35th Avenue

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon, on behalf of the City of Phoenix Street Transportation Department, our responses to FHWA's comments are below in red. Thank you.

Greta Halle

Planner III

Office of the City Engineer

Street Transportation Department | City of Phoenix

200 W. Washington St., 5th floor | Phoenix, AZ 85003

(P) 602.534.6030 | greta.halle@phoenix.gov

Follow us on Twitter @StreetsPHX [twitter.com]

From: Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>

Sent: Monday, May 9, 2022 6:00 AM

To: bchenausky azdot.gov <bchenausky@azdot.gov>

Cc: Greta Halle <greta.halle@phoenix.gov>; Morgan Ghods <mghods@azdot.gov>; Dean Giles <dgiles@azmag.gov>; Hansen, Alan (FHWA) <Alan.Hansen@dot.gov>; Paul O'brien <POBrien@azdot.gov>; Stauffer, Panah <Stauffer.Panah@epa.gov>; Transportationconformity <transportationconformity@azdeq.gov>; Joonwon Joo <jjoo@azdot.gov>; Clifton Meek <meek.clifton@epa.gov>; Johanna Kuspert (AQD) <Johanna.Kuspert@maricopa.gov>; Karina O'Conner <oconnor.karina@epa.gov>; Madhav Mundle </mmundle@azdot.gov>; Tim Franquist <TFranquist@azmag.gov>

Subject: RE: Interagency Consultation: PHX-0(363)D | 000 MA PHX T0239 01C; Happy Valley Road: 67th Avenue to 35th Avenue

FHWA has the following comments:

• The traffic shown in the PM and CO consultation documents are inconsistent with the traffic report included with the CO document. This should be corrected so that the traffic used for interagency consultation and determining whether hot-spot analyses are required is consistent with the traffic data used for other analyses in NEPA. // COP STR response: The inconsistencies are attributable to the level of analysis conducted for the respective document. For the questionnaires, the MAG TDM model was used to initially screen the project and help determine if modeling might be necessary. For the traffic memo, a LOS/synchro analysis at the local intersection level was conducted using geometric configurations, signal timings, and turning movement counts. The MAG model is routinely used to inform travel patterns and capable of providing information related to volume and capacity; however, the intersection LOS produced by the MAG TDM does not reach the level of detail provided by the synchro

analysis. - The tables for the interagency consultation memos/questionnaires should be updated to reflect the more refined traffic forecasts.

- There should be supporting information included on why 2050 was chosen for the year of peak year emissions. Traffic volumes are expected to be highest in 2050, but emission rates are likely highest in the opening year of the project. There should be an analysis that looks at these offsetting factors to determine the year of peak emissions. // COP STR response: 2050 was chosen for the year of peak year emissions based on the following reasons: (a) 2050 is the horizon year as described in the latest Regional Transport Plan (RTP), dated December 1, 2021. (b) 2050 is the year that traffic volumes along the project corridor are expected to be highest and corresponding intersections are expected to be most congested with longest intersection wait time, which would result in highest CO emissions. As specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models), the main assumption is that intersections with less traffic volumes and congestions will have lower ambient air impacts. - An analysis to make the determination which year will have the highest emissions (not traffic or congestion) should be completed. For conformity, the year of peak emissions should be evaluated in CAL3QHC. The only way to determine this year is doing a MOVES analysis that accounts for emissions rates being highest in the opening year (with lower volumes), and lowest in the horizon year (with higher volumes). The emission rates will be higher during the opening year, but the question is whether the growth in VMT and reduction in speeds in the design year (2050) is enough to offset the decrease in emissions due to fleet turnover.
- The project sponsor is proposing to do more modeling than what is required for conformity. (Not necessarily a problem, but wanted to point out it is not required for conformity purposes).
 - For a CO hot-spot analysis for determining conformity, there is no need to model the no-build condition.
 - Only the peak hour is required to be modeled (not both the AM and PM peak hours, but just the one that is THE peak of the day).
 - Based on the traffic report in the appendix, only the Happy Valley Road and 67th intersection requires a hot-spot analysis.

// COP STR response: Duly noted. We will only conduct hotspot analysis during *THE* peak hour of the day for the 2050 Build condition at the Happy Valley Road/67th Avenue intersection. - ok

Please let me know if you have any questions or would like to discuss the comments above. Thanks, Rebecca

From: Beverly Chenausky

bchenausky@azdot.gov>

Sent: Monday, May 2, 2022 9:12 AM

To: Tim Franquist <TFranquist@azmag.gov>; Transportationconformity <transportationconformity@azdeq.gov>; Stauffer, Panah <Stauffer.Panah@epa.gov>; Johanna Kuspert (AQD) <Johanna.Kuspert@maricopa.gov>; Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>

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Subject: Interagency Consultation: PHX-0(363)D | 000 MA PHX T0239 01C; Happy Valley Road: 67th Avenue to 35th Avenue

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ADOT, in coordination with City of Phoenix, is presenting the following project, **Happy Valley Road: 67th Avenue to 35th Avenue**, 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 *PHX T0239_Project Level PM10Consultation_050222.pdf*, 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, within 10 business days.

Additionally, ADOT has determined that the project may require a quantitative hot-spot analysis only for CO, the modeling assumptions are attached in the document *PHX T0239_Project Level CO Consultation Document_05022022.pdf*. This document contains the combined Project Level CO Hot-Spot Analysis Questionnaire demonstrating the need for analysis and the City provided supplemental traffic report for those congested intersections identified. 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. 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.

Please let me know if you have any additional questions or need additional time to review, Project-Level hot-spot conformity will begin at the conclusion of interagency consultation. All other project details, upcoming events, and additional information on how to subscribe to project updates can be found on the project website at:

https://www.phoenix.gov/streets/projects/happyvalley [gcc02.safelinks.protection.outlook.com]

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being carried out by Arizona Department of Transportation (ADOT), pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated April 16, 2019, and executed by the Federal Highway Administration (FHWA) and ADOT.