Re: Interagency Consultation: SR 202L - Val Vista Drive to SR 101L, 202-C(208)T | 202L MA 44 F0124 01C

1 message

Beverly Chenausky <bchenausky@azdot.gov> Fri, Sep 1, 2023 at 11:04 AM
To: Tim Franquist <tfranquist@azmag.gov>, "Johanna.Kuspert@maricopa.gov" <johanna.kuspert@maricopa.gov>, "Perez, Idalia (she/her/hers)" <Perez.Idalia@epa.gov>, Transportationconformity <transportationconformity@azdeq.gov>, "rebecca.yedlin@dot.gov" <rebecca.yedlin@dot.gov>
Cc: Dean Giles <dgiles@azmag.gov>, Joonwon Joo <jjoo@azdot.gov>, David Shu <DShu@aztec.us>, "Halle, Greta (FHWA)" <greta.halle@dot.gov>, "Hansen, Alan (FHWA)" <alan.hansen@dot.gov>, Paul O'brien <POBrien@azdot.gov>, Darin Kelly <dkelly@azdot.gov>, Kirstin Huston <khuston@azdot.gov>, ADOTAirNoise - ADOT <adotairnoise@azdot.gov>, "Tsui, William" <Tsui.William@epa.gov>, "Kay, Rynda (she/her/hers)" <Kay.Rynda@epa.gov>, "Wickersham, Lindsay (she/her/hers)" <wickersham.lindsay@epa.gov>, "Ledezma, Ernesto (he/him/his)" <Ledezma.Ernesto@epa.gov>, "Kimberly Butler (AQD)" <Kimberly.Butler@maricopa.gov>, Amanda Luecker <luecker.amanda@azdeq.gov>, Taejoo Shin <TShin@azmag.gov>

To All:
As this project is getting closer to resolving the atypical event demonstration needed to bring the monitor values below the National Ambient Air Quality Standards (NAAQS), we are providing the modeling files and supporting information that was used as the baseline for the atypical event documentation provide to the EPA. The revised consultation documents with all comments addressed (pending EPA approval of adjusted background monitors) are attached, along with a readme file describing the modeling files that can be found at this link:
https://azdot.my.workfront.com/document/public/view?publicToken=kMuHCfxQkDlYpPp3FqHA5ncPUlE3ENSLPwjLm9n5-Di9wZCJYEJN_rQILuYfu2WEbEyuTXRbb7RU0FlXInCuFQ==&endcap

We have scheduled our first meeting to discuss these modeling files and provide an update on the project for Fri Sep 15, 2023 10:30am – 11:30am (MST).

Microsoft Teams meeting

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Beverly T. Chenausky
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azdot.gov

On Fri, Mar 31, 2023 at 3:55 PM Wickersham, Lindsay (she/her/hers) <wickersham.lindsay@epa.gov> wrote:

> Hi Beverly (and team),
>
> Thank you for the opportunity to review the updated documents associated with the 202 project (F0124). We appreciate the consideration of our previous comments and the additions that were added in response. We still have quite a few comments on the reasoning behind some of the modeling

inputs, and encourage ADOT to consider providing more detail on how inputs are selected. We are looking forward to reviewing the modeling inputs for both the CO and PM hot spot analysis when they become available. We believe these modeling files will lead to better consultation on the modeling inputs and prevent any missteps before the modeling is performed.

Please see attached for EPA's comments on both F0124_PM Consultation_03062023.pdf and F0124_CO Consultation_03062023.pdf transmitted to us on March 6, 2023.

We are aware that there are ongoing conversations regarding the selection of the background monitors and atypical background data for this project. We look forward to hearing more about these decisions and encourage ADOT to document their rationale and reasoning for their selections to help prevent additional requests for more information. As always, we are happy to provide a review and feedback on any draft forms and will be happy to work with ADOT on data modification as needed. We are also happy to have a meeting to discuss our comments in more detail and provide more information to FHWA regarding exceptional event data.

Have a great weekend,

Lindsay

Lindsay Wickersham (she/hers) | 415-947-4192

Physical Scientist | Planning Section (AIR-2-1) | Air and Radiation Division | US EPA - Region 9

From: Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>
Sent: Monday, March 20, 2023 7:02 AM
To: bchenausky azdot.gov <bchenausky@azdot.gov>; Tim Franquist <tfranquist@azmag.gov>; Johanna.Kuspert@maricopa.gov; Transportationconformity <transportationconformity@azdeq.gov>; Wickersham, Lindsay (she/her/hers) <wickersham.lindsay@epa.gov>
Cc: Dean Giles <dgiles@azmag.gov>; Joonwon Joo <jjoo@azdot.gov>; David Shu <DShu@aztec.us>; Halle, Greta (FHWA) <greta.halle@dot.gov>; Paul O'brien <POBrien@azdot.gov>; Darin Kelly <dkelly@azdot.gov>; Kirstin Huston <khuston@azdot.gov>; ADOTAirNoise - ADOT <adotairnoise@azdot.gov>; Hansen, Alan (FHWA) <Alan.Hansen@dot.gov>
Subject: RE: Interagency Consultation: SR 202L - Val Vista Drive to SR 101L, 202-C(208)T | 202L MA 44 F0124 01C

FHWA has the following comments on the 202 project documentation –

PM Questionnaire

- Please include a discussion of describing the selection of the geographic area for the hot-spot analysis. How were the specific interchanges selected and why were other parts of the project excluded?
- On page 5, suggest characterizing the approach as using "LINE sources or VOLUME sources".
- Also, indicate that the initial modeling will be done with all sources and receptors at grade (no Z elevations) for simplicity.
- Please provide more information on the weighting that will be used between the two background monitors, including the data, calculations, and the resulting recommended background concentration.
- Use AERMOD version 22112 (not 21112).

Additional Comments

- In light of EPA's recent comments on excluding exception event data from background monitors, FHWA suggests that an interagency consultation meeting be held specifically to address this issue. FHWA wants to be sure we understand their position and ensure consistency with applicable rules, guidance, and how EE data in past PM hot-spot analyses were handled.
- FHWA also suggests holding additional interagency consultation meetings to discuss exact source layout and receptor locations prior to running the models.
- FHWA would like to review the consultants complete modeling files before they begin their modeling.
- Please be aware that if the initial model runs show violations, we would need to meet again to re-assess the modeling and potentially dial back some of the conservatism.
- In light of the complexities of PM hot-spot modeling, a June 2023 NEPA clearance date is unrealistic for the project.

Thanks, Rebecca

From: Beverly Chenausky <bchenausky@azdot.gov>
Sent: Monday, March 6, 2023 4:42 PM
To: Tim Franquist <tfranquist@azmag.gov>; Johanna Kuspert (AQD) <Johanna.Kuspert@maricopa.gov>; Transportationconformity <transportationconformity@azdeq.gov>; Wickersham, Lindsay (she/her) <wickersham.lindsay@epa.gov>; Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>
Cc: Dean Giles <dgiles@azmag.gov>; Joonwon Joo <jjoo@azdot.gov>; David Shu <DShu@aztec.us>; Halle, Greta (FHWA) <greta.halle@dot.gov>; Paul O'brien <POBrien@azdot.gov>; Darin Kelly <dkelly@azdot.gov>; Kirstin Huston <khuston@azdot.gov>; ADOTAirNoise - ADOT

<adotairnoise@azdot.gov>
Subject: Interagency Consultation: SR 202L - Val Vista Drive to SR 101L, 202-C(208)T | 202L MA 44 F0124 01C

To All:

ADOT is presenting the following project, **SR 202L - Val Vista Drive to SR 101L**, for interagency consultation, per 40 CFR 93.105, as recommended in prior consultation, a quantitative PM10 hot-spot analysis will be done on this project. ADOT has developed a modeling assumptions document for the AERMOD and MOVES3 planning assumptions that are now required for all PM10 hot-spots. ADOT is requesting responses to the attached *F0124_PM Consultation_03062023.pdf.* Additionally, the modeling assumptions are attached in document *F0124_CO Consultation_03062023.pdf.* The Purpose of these document(s) are 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 document(s).

The project team will be made available to answer any questions on this project March 9, 2023 at 10am the Google Meets details are provided for those interested.

Air Quality Monthly Meeting

Thursday, March 9 · 10:00 – 11:00am

Google Meet joining info

Video call link: https://meet.google.com/kbp-jojp-cmk

Or dial: (US) +1 209-850-2317 PIN: 483 772 939#

More phone numbers: https://tel.meet/kbp-jojp-cmk?pin=8376833655633

Due to email size limitations, a ShareFile notification will follow for downloading the associated traffic report other publicly available documents can be found on the project website: Loop 202 (Santan Freeway), Loop 101 to Val Vista Drive | ADOT (azdot.gov). If you have any additional questions or need additional information let me know, thank you.

Beverly T. Chenausky

Assistant Environmental Administrator

Air & Noise, Hazmat and Standards & Training

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5 attachments

README.txt
5K

invite (5).ics
6K

Response to Agency Comments.pdf
981K

F0124_CO Consultation_20230901.pdf
3939K

F0124_PM Consultation_20230901.pdf
8011K

Project Level CO Quantitative Hot-Spot Analysis – Consultation Document

Project Setting and Description

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. 326 and a Memorandum of Understanding dated January 4, 2021, and executed by the Federal Highway Administration (FHWA) and ADOT. ADOT is planning to install general purpose lane (GPL) for the State Route 202 Loop Santan Freeway (SR 202L) between approximately milepost (MP) 51.00 and MP 42.00, within the City of Chandler and the Town of Gilbert, Maricopa County, Arizona.

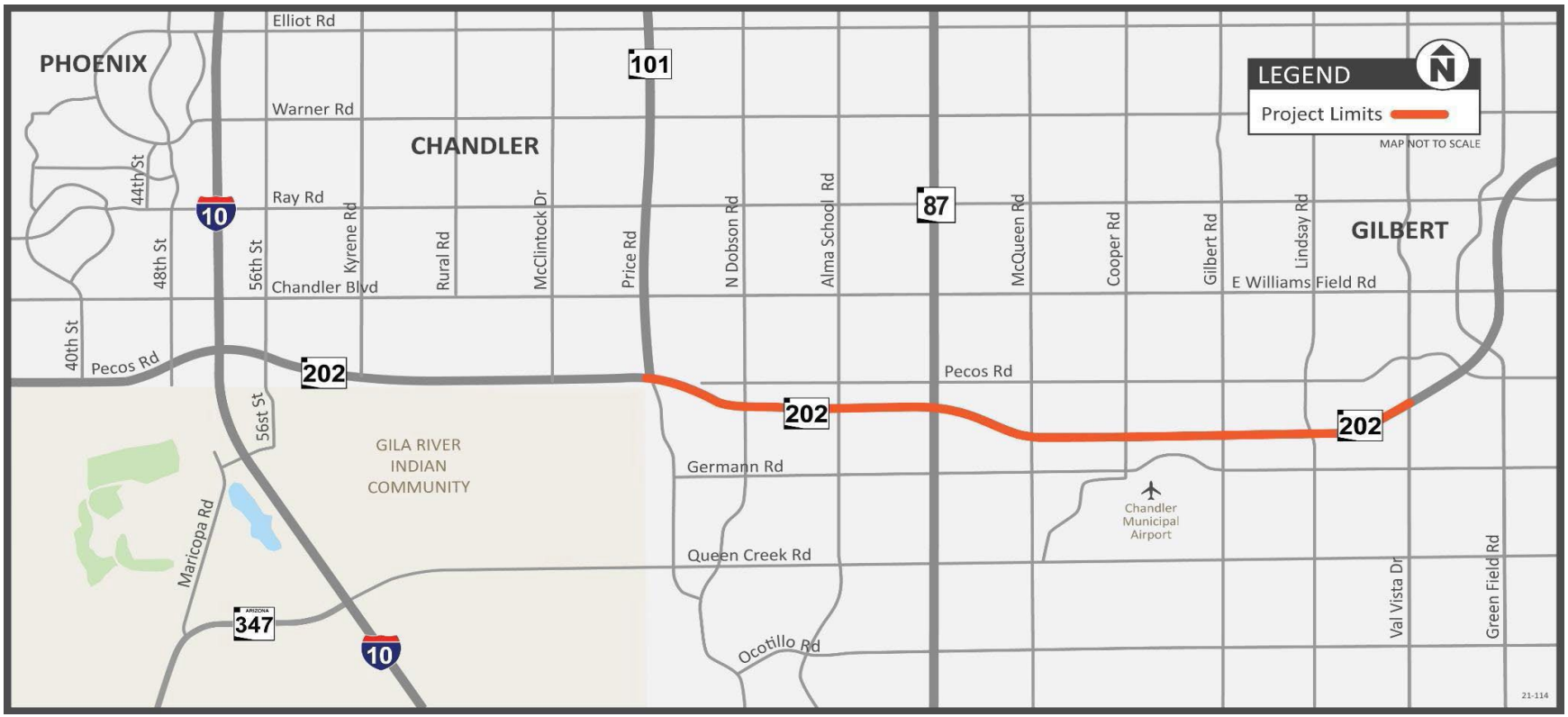
This section of the SR 202L is a six lane divided freeway with a high-occupancy vehicle (HOV) lane in each direction. The freeway is part of the Phoenix Metropolitan Area's Regional Freeway System, with connections to the Interstate 10, serves as the end point of the State Route 101 (SR 101), and will be connected to the South Mountain Freeway currently being constructed. Increased congestion during peak traffic periods and 2040 projections of dramatic traffic increases has created the need for greater capacity along this section of the freeway. The purpose of this project is to increase freeway capacity and decrease existing and future traffic congestion.

The scope of work

- Adding one General Purpose Lane (GPL) to the outside of existing lanes in each direction of SR 202L from Gilbert Road to Val Vista Drive
- Adding two GPL to the outside of existing lanes in each direction of SR 202L between SR 101 and Gilbert Road
- Widening exit ramps to two lanes, and restriping lanes to accommodate additional lanes where feasible
- Widening bridges over the Arizona Avenue, Union Pacific Railroad, Consolidated Canal, and Lindsay Road
- Reconstructing the eastbound on-ramp bridge over Union Pacific Railroad
- Adding noise walls where warranted
- Construct retaining walls that will have the same design patterns as the existing walls in the corridor
- Relocate catch basins, storm drain and storm drain trunk lines and junction structures, and other drainage improvements
- Relocate and/or construct new ramp metering systems where ramps are being widened or realigned and other LED lighting where warranted
- Upgrade sidewalk ramps and signal poles to ADA compliance at TIs, as necessary

The project is located in the Maricopa County (Phoenix) Nonattainment Area for particulates 10-microns in diameter or less (PM10), eight-hour ozone, maintenance area for carbon monoxide. The project is included in the Maricopa Association of Governments 2022-2025 MAG Transportation Improvement Program (TIP) and MOMENTUM 2050 MAG Regional Transportation Plan, and regional conformity analysis (7322) as of February 14, 2023.

Figure 1. Project Vicinity Map



https://azdot.gov/projects/central-district-projects/loop-202-santan-freeway-loop-101-val-vista-drive

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?

> **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 worse) will change LOS to D or worse because of increased traffic volumes related to the project?

> **YES**. Among the 18 intersections, there are 3 intersections in AM peak hour and 9 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 5 intersections in AM peak hour and 10 intersections in PM peak hour that would result in LOS D or worse. While there are improvements in locations, the LOS at 4 intersections would become worse from 2050 no build scenario to 2050 build scenario. ADT volume decrease/increase at intersections range from -5,647 vehicles to 3,790 vehicles. Table 1 is provided to show overall traffic impacts from the regional model, additional project specific traffic study further refined the traffic data as shown in Table 2.

Table 1 – SR202L Mainline ADT and Truck ADT in Existing, No Build and Build Conditions

ADT and Truck Volumes	2018 Existing		2050 No-Build		2050 Build		Difference (Build - No-Build)	
	ADT	Truck (%)	ADT	Truck (%)	ADT	Truck (%)	ADT	Truck ADT
Mainline								
Price Rd to Dobson Rd	158,960	9.5%	213,554	11.8%	242,326	12.3%	28,772	4,736
Dobson Rd to Alma School	182,355	8.9%	242,546	11.0%	279,704	11.4%	37,158	5,330
Alma School Rd to Arizona	171,605	8.6%	229,602	10.7%	271,381	11.2%	41,779	5,740
Arizona Ave to McQueen Rd	161,198	8.0%	217,866	9.8%	241,807	10.6%	23,941	4,151
McQueen Rd to Cooper Rd	155,367	8.3%	217,860	9.6%	259,363	10.2%	41,502	5,463
Cooper Rd to Gilbert Rd	139,935	8.4%	204,147	9.6%	242,460	10.2%	38,313	5,045
Gilbert Rd to Lindsay Rd	120,369	8.3%	193,144	9.9%	230,382	10.4%	37,239	4,749
Lindsay Rd to Val Vista Dr	120,369	8.3%	160,575	9.4%	192,234	9.8%	31,659	3,750
East of Val Vista Dr	100,719	8.1%	138,970	9.0%	166,918	9.6%	27,948	3,482
Intersection								
Price Rd & WB SR 202	51,098	6.3%	64,074	7.2%	65,936	7.4%	1,862	257
Price Rd & EB SR 202	50,896	7.2%	65,559	8.1%	66,415	8.3%	856	186
Dobson Rd & WB SR 202	29,801	3.4%	57,880	3.3%	42,539	3.9%	1,602	158
Dobson Rd & EB SR 202	42,112	2.9%	60,572	3.5%	63,343	3.7%	2,771	263
Alma School Rd & WB SR 202	48,268	3.2%	68,517	3.7%	69,266	3.8%	749	64
Alma School Rd & EB SR 202	51,743	4.0%	70,497	4.4%	72,683	4.4%	2,186	103
Arizona Ave & WB SR 202	53,893	5.4%	68,904	7.2%	70,479	7.2%	1,575	74
Arizona Ave & EB SR 202	51,240	6.5%	67,006	8.2%	68,995	8.3%	1,989	282
McQueen Rd & WB SR 202	40,007	5.7%	54,872	4.9%	53,326	5.4%	-1,545	175
McQueen Rd & EB SR 202	52,306	6.7%	66,727	5.5%	61,080	6.0%	-5,647	25
Cooper Rd & WB SR 202	39,944	4.3%	51,948	3.9%	53,160	4.3%	1,212	233
Cooper Rd & EB SR 202	41,340	4.7%	59,204	4.5%	56,643	4.7%	-2,561	27
Gilbert Rd & WB SR 202	53,642	6.1%	65,088	4.8%	67,528	5.2%	2,441	376
Gilbert Rd & EB SR 202	67,836	5.9%	78,902	5.3%	79,329	5.7%	428	318
Lindsay Rd & WB SR 202	N/A	N/A	72,545	4.8%	74,332	5.4%	1,787	497
Lindsay Rd & EB SR 202	N/A	N/A	87,146	5.8%	90,112	6.5%	2,966	778
Val Vista Dr & WB SR 202	39,027	5.5%	47,583	4.3%	47,162	4.5%	-421	91
Val Vista Dr & EB SR 202	60,130	5.9%	59,699	5.5%	63,490	5.6%	3,790	304

Note: Truck% include heavy truck and medium truck. ADT at intersections include volumes on approach lanes. Source: MAG traffic demand model received from Burgess & Niple on March 28, 2022, revised 2050 No Build model with Lindsay Rd TI included was received from Burgess & Niple on October 31, 2022.

Table 2 – Intersections LOS in the project area

Level of Service (LOS)	2018 Existing		2050 No-Build		2050 Build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)
Intersection LOS (overall, not for each link)						
Price Rd & WB SR 202	C (21.4)	C (21.5)	C (23.6)	D (44.5)	C (28)	D (42.9)
Price Rd & EB SR 202	B (19.1)	C (25.1)	C (24.9)	D (51.9)	C (23.3)	D (48.5)
Dobson Rd & WB SR 202	B (14.1)	A (8.8)	B (13.2)	B (13.6)	B (14.4)	B (13.4)
Dobson Rd & EB SR 202	A (6.8)	A (3.3)	B (10.6)	A (7.9)	B (11.6)	A (9.4)
Alma School Rd & WB SR 202	B (18.1)	B (17.6)	B (17.3)	C (31.4)	C (30.4)	D (41.6)
Alma School Rd & EB SR 202	B (12.6)	C (25.1)	C (25.6)	E (58.1)	D (40.5)	E (62.4)
Arizona Ave & WB SR 202	B (19.1)	B (17.2)	C (27.4)	C (34.3)	B (17.3)	C (25.7)
Arizona Ave & EB SR 202	B (14)	B (17.6)	B (14.9)	C (20.7)	C (22.6)	B (19.9)
McQueen Rd & WB SR 202	B (16.2)	B (15.2)	B (15.7)	B (16.1)	C (21.2)	C (22.2)
McQueen Rd & EB SR 202	B (15.4)	C (26.6)	C (21.0)	C (27.0)	C (24.4)	C (30.6)
Cooper Rd & WB SR 202	B (14.8)	B (16.3)	B (16.1)	B (19.0)	B (19.7)	C (22.2)
Cooper Rd & EB SR 202	B (18)	B (15.5)	C (20.5)	C (23.1)	C (22.6)	C (29.9)
Gilbert Rd & WB SR 202	B (19.9)	B (16.6)	E (59.3)	F (126.3)	E (68)	F (138)
Gilbert Rd & EB SR 202	B (14.8)	B (17.2)	C (28.6)	F (109.7)	D (40)	F (125.9)
Lindsay Rd & WB SR 202	N/A	N/A	C (33.9)	F (100.9)	C (29.7)	F (116.6)
Lindsay Rd & EB SR 202	N/A	N/A	C (22.5)	F (130.8)	C (23.9)	F (119)
Val Vista Dr & WB SR 202	C (28.6)	C (31.1)	D (54.9)	E (79.0)	E (60.9)	F (102.8)
Val Vista Dr & EB SR 202	C (25.3)	C (26.8)	F (88.0)	F (90.6)	E (65.6)	E (72.9)

Source: LOS data provided by Burgess & Niple. MAG traffic demand model received from Burgess & Niple on March 28, 2022, revised 2050 No Build model with Lindsay Rd TI included was received from Burgess & Niple on October 31, 2022.

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

[1]MAG 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 & 27th Ave

[1]Same 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.

Hot-Spot Determination – Part B

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 quantitative CO hot-spot analysis 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)
- 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)

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

(Updated 2/1/23) If the project's parameters fall within the acceptable range of modeled parameters, use FHWA 2023 CO Categorical Hot-Spot Finding Spreadsheet Tool:

https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2023/index.cfm

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

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

- A qualitative CO 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;**

  □ Check **If** an Air Quality Report includes CO modeling 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 does not include 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)

Hot-Spot Determination

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:

- Lindsay Rd & EB SR 202
- Gilbert Rd & EB SR 202
- Lindsay Rd & WB SR 202

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

- Gilbert Rd & WB SR 202
- Gilbert Rd & EB SR 202
- Lindsay Rd & EB SR 202

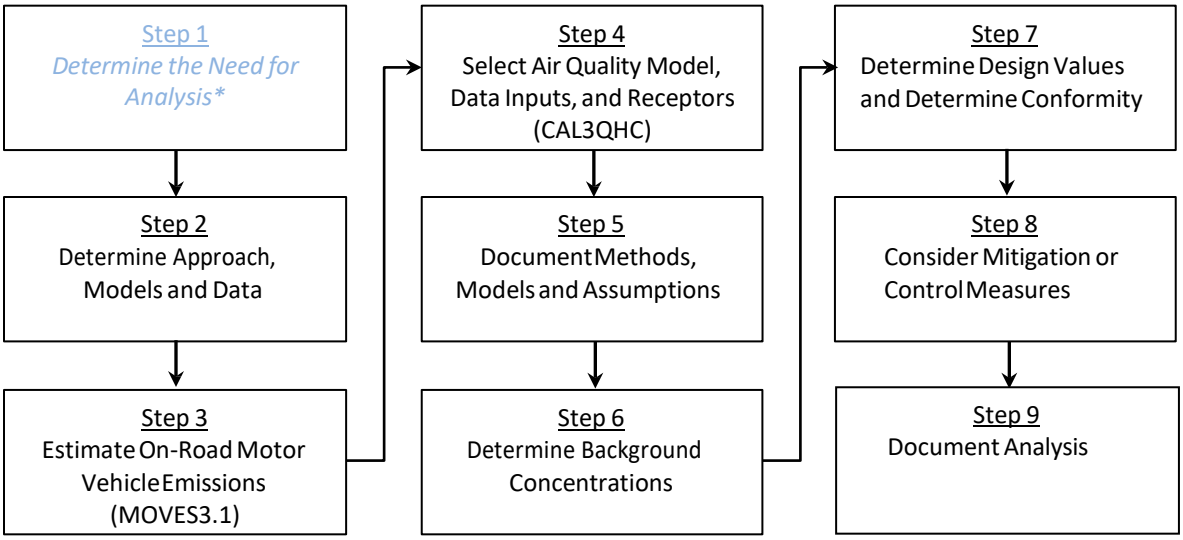
Based on the top intersections ranked by volume and by LOS and delay, the intersection modeling analysis will be performed for the following four intersections' peak hours of the days as highlighted in Table 2:

- Gilbert Rd & EB SR 202, PM Peak
- Gilbert Rd & WB SR 202, PM Peak
- Lindsay Rd & EB SR 202, PM Peak
- Lindsay Rd & WB SR 202, PM Peak

Modeling will be performed under the worst case scenario using the 2026 MOVES emission rates (the highest CO emission rates) with the 2050 traffic data (the maximum traffic volumes). 2026 is selected because it is the opening year. 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.

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 MOVES3.1 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.

Table 3. Methods, Models and Assumptions for CO

MOVES3.1 and CAL3QHC Requirements		
Estimate On-Road Motor Vehicle Emissions (Step 3)		
MOVES3.1	**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 of 2026. *The worst case scenario using the January, weekdays, hours of 17:00- 17:59 in 2026 MOVES emission rates (the highest CO emission rates) with the 2050 traffic data (the maximum traffic volumes) will be selected.* According to EPA Guideline for Modeling Carbon Monoxide from Roadway Intersection July 1993, Section 4.7.1 states that as a simple alternative, the average temperature in January may be used.	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 and Urban Restricted 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 and MOVES3.1 templates will be created to include local project data and information provided by MPO, e.g., MAG's or PAG's I/M programs, Age Distribution data which are consistent with the regional models. The average temperature and humidity in January for metrology data and the default MOVES fuel data will be used. Links and Link Source Type will be specific to project as provided by the traffic analysis, any missing information will use default MOVES3.1 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 2.1, 2.4 for Links; the required data necessary to be consistent with regional emissions analysis (40 CFR 93.123(c)(3)). 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 will be developed using the inputs described in MOVES3.1 section above. The free flow and queue links defined for modeling with MOVES3.1 will be used as input into CAL3QHC. The emissions sources located in the project area are SR202 mainline, ramps, and cross streets. No nearby emission sources other than the roadway links included in the model run would be affected by the project.	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA-454/R-92-005, November 1992. Section 3.2 & 4.2.3.1 of Appendix W to 40 CFR Part 51, CO screening analyses of intersection projects should use the CAL3QHC dispersion model.

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. Figures (page 15 & 16) in this consultation document provide a visual representation of the lane configuration, lane width, and turning movements that will be used to model each intersection. Peak hour traffic volumes, vehicle speeds, and signal timing data were provided by the traffic analysts. These details will be available for review in the CAL3QHC input files provided as part of the Air Quality Report.	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.4
Meteorology	Temperature, Wind Speed, Wind Direction, Atmospheric Stability Class, Mixing Heights and Surface Roughness.	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.1
Persistence Factor	EPA's default persistence factor of 0.7 will be used to be conservative. The 1-hour CO concentration data was not available to estimate the persistence factor.	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.2
Determine Background Concentrations (Step 6)		
Background Monitor	*The CO monitor located at West Chandler (WC) between Frye Road & Ellis Street in Chandler has similar environment settings as the project corridor. Three years of monitoring data (2019--2021) show a maximum 8-hour value of 1.3 ppm. 1.9 ppm (which is the 8-hour concentration divided by a persistence factor of 0.7) will be added to the maximum modeled hourly concentration for comparison to the NAAQS. 1.3 ppm will be added to the maximum 8-hour modeled concentration. The same background values will be used for all analysis years. See pages 17 – 19 for more information.*	1992 Guideline for Modeling Carbon Monoxide from Roadway Intersections, Section 4.7.3

Table 4. 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 will be determined by averaging all hourly temperature values for January 2019, 2020, and 2021. The average temperature of 55.8 degrees F and the average relative humidity of 46.2% will be used 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
Age Distribution	*Same for build and no-build scenarios. Data from latest regional CO conformity analysis (Fall 2022 conformity) provided by MAG. Option 1 of using local age distribution will be used.*	ADOT, MPO EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.2
Fuel	*Same for build and no-build scenarios. MOVES default fuel supply and formulation information will be used.*	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 (Fall 2022 conformity) 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 2.4.5
Links	*Four selected intersections (EB SR202L & Gilbert Road, WB SR202L & Gilbert Road, EB SR202L &Lindsay Road, and WB SR202L & Lindsay 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 1000 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	*Option 2 in the EPA's CO MOVES3 Guidance Section 2.4.7 will be used.*	Project specific modeling, ADOT, MPO EPA Using MOVES3 in Project-Level Carbon Monoxide Analyses, Section 2.4.7
Link Drive Schedules, Operating Mode Distribution	*Average speed and road type (Option 1) will be used in the Links Importer based on posted speed limits. Data to develop project-specific drive schedules and operating mode distributions is not available.*	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 2.4.10

Table 5. 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.

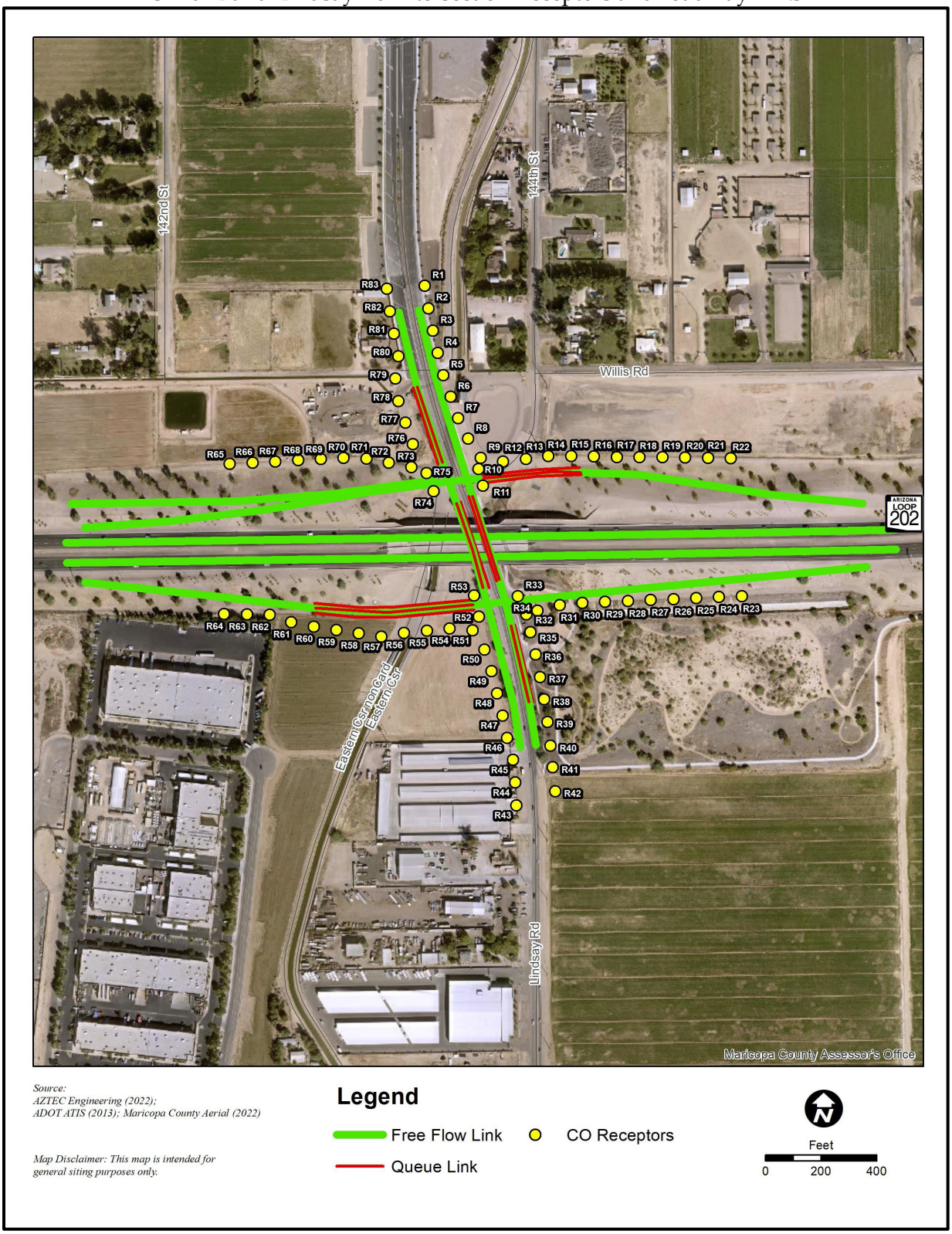
Preliminary Link Configurations and Receptor Placements for CO Hot-Spot Analysis

The following graphics present the preliminary link configurations and receptor placements for the four 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 1000 feet away from center of signalized intersection
- Graphic representation of free flow links includes 10-foot mixing zone
- Traffic activity within 1000 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 at the height of 1.8 meters outside of the mixing zone.
- Receptor location coordinates will be provided by a separate file.

SR202L and Gilbert Road Intersection Receptors and roadway links

SR202L and Lindsay Rd Intersection Receptors and roadway links



Monitor Site and Windrose

West Chandler (WC) (04-013-4004)

Site Location	Frye Rd. & Ellis St., Chandler
Spatial Scale	Neighborhood
Site Type	Population Exposure

Site Description: This site began operating in January 1995, This SLAMS location monitors for CO, O_3, and PM_{10}. Meteorological monitoring includes ambient temperature, barometric pressure, relative humidity, and wind speed/direction.

The site is surrounded by residential, agricultural, and heavy industrial operations, such as semiconductor manufacturing plants and liquid air storage. The PM_{10} monitor's scale of representativeness was first established as middle scale, but it was changed to neighborhood in June 2018 to better reflect land use currently surrounding the site and to match general monitoring requirements found in *40 CFR Part 58 Appendix D, Table D-1.*

Pollutant	Metric	2018	2019	2020
CO	Maximum 8-hr CO Average (ppm)	1.7	1.0	1.3
	Number of 8-hr CO Exceedance Days	0	0	0
O_3	Maximum 8-hr O_3 Average (ppm)	0.075†	0.082†	0.081†‡
	Number of O_3 Exceedance Days	2	6	5
	3-yr 8-hr 4th Highest O_3 Average (ppm)	0.070	0.072#	0.072#
PM_{10}	Maximum 24-hr PM_{10} Average ($\mu g/m^3$)	382†‡	67	263
	Number of 24-hr PM_{10} Exceedance Days	7	0	1
	Annual PM_{10} Average ($\mu g/m^3$)	35.1	24.3	30.7

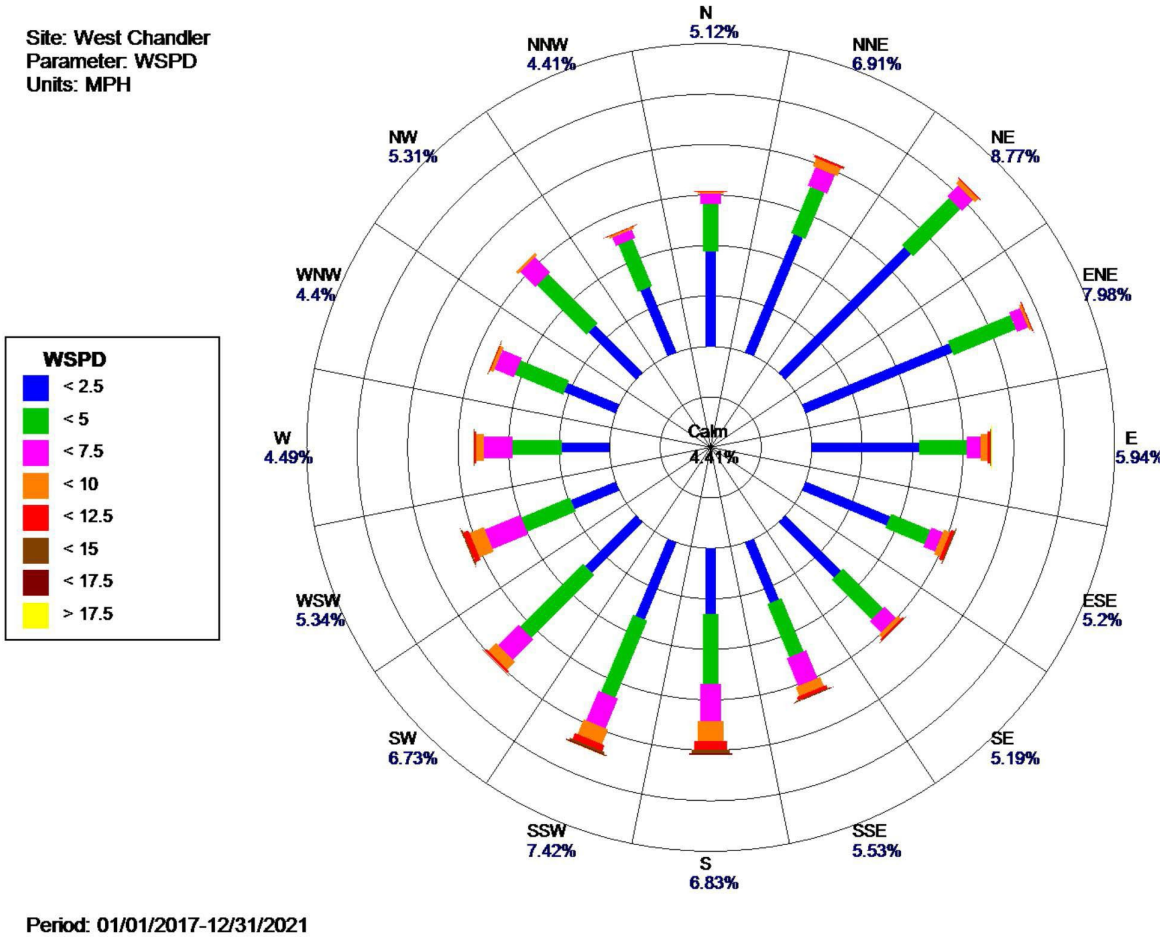
† - Indicates an exceedance of the standard
‡ - Indicates EE submission – listed value is currently the official maximum concentration in AQS
# - Indicates a violation of the standard
Source: EPA AQS database - *2018 – 2020 Quicklook Criteria Report (AMP450)*
MCAQD 2018 - 2020 O_3 and PM_{10} Exceedance Day Reports for Numbers

Table 8. 2021 8-hour CO Average Data Summary

Site	CO 8-hour Average Maximum (ppm)	CO 8-hour Average 2nd Maximum (ppm)
Buckeye	0.6	0.6
Central Phoenix	2.0	2.0
Eastwood	1.0	1.0
Mesa	1.1	1.1
South Phoenix	1.7	1.6
*Thirty-Third	2.3	1.9
West Chandler	1.2	1.1
West Phoenix	3.5	2.6

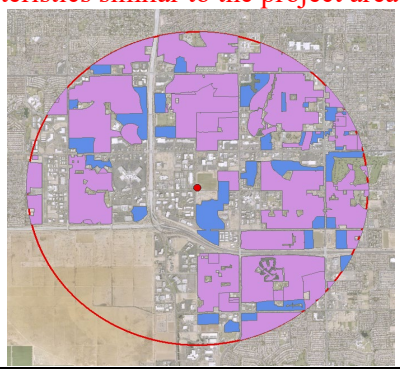
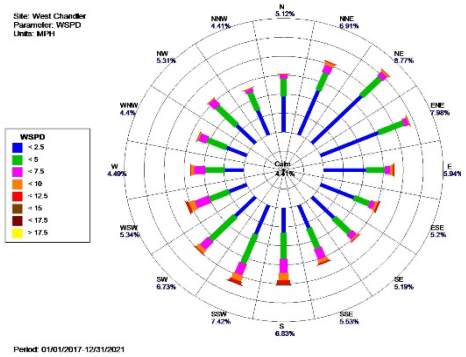
* - Site temporarily monitoring for CO in 2021

Source: EPA AQS database – *2021 Quicklook Criteria Report (AMP450)*



Source: email from Ron Pope (AQD) Thu, Dec 1, 2022

Percentages were added to the land use/terrain row below. Wind rose figures were added in the Wind pattern row below, which include the wind speed in each direction and wind percentages for each wind direction.

	Project Area	West Chandler (WC) AQS ID: 04-013-4004 Address: 275 S Ellis, Chandler 0.5 miles to project
Collection frequency, completeness, and background concentration	N/A	Continuous monitoring overall CO data completeness is 97.9% in 2021. Three years of monitoring data show a maximum 8-hour value of 1.3 ppm. 1.9 ppm (which is the 8-hour concentration divided by a persistence factor of 0.7) will be added to the maximum modeled hourly concentration for comparison to the NAAQS. 1.3 ppm will be added to the maximum 8-hour modeled concentration.
Land use/terrain	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [17%] commercial [6%], office [3%], light industrial [4%]), terrain (relative flat).	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [18%] commercial [6%], office [6%], light industrial [5%]), terrain (relative flat). The West Chandler monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 
Wind patterns	N/A	Does not show significant upwind patterns to the project area. 
Nearby sources:	N/A	No nearby sources other than roadways

Project Level PM Quantitative Hot-Spot Analysis Consultation

Project Setting and Description

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. 326 and a Memorandum of Understanding dated January 4, 2021, and executed by the Federal Highway Administration (FHWA) and ADOT. ADOT is planning to install general purpose lane (GPL) for the State Route 202 Loop Santan Freeway (SR 202L) between approximately milepost (MP) 51.00 and MP 42.00, within the City of Chandler and the Town of Gilbert, Maricopa County, Arizona.

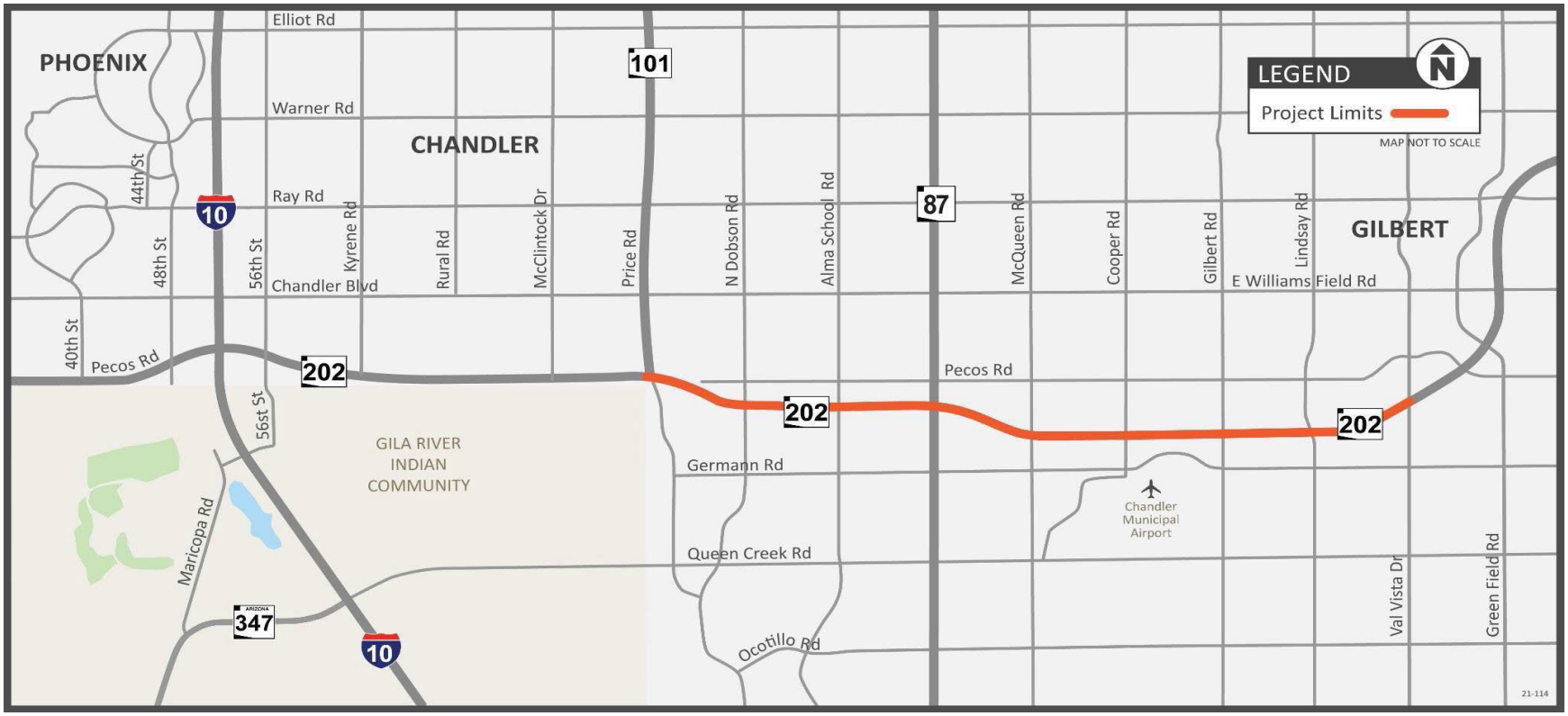
This section of the SR 202L is a six lane divided freeway with a high-occupancy vehicle (HOV) lane in each direction. The freeway is part of the Phoenix Metropolitan Area's Regional Freeway System, with connections to the Interstate 10, serves as the end point of the State Route 101 (SR 101), and will be connected to the South Mountain Freeway currently being constructed. Increased congestion during peak traffic periods and 2040 projections of dramatic traffic increases has created the need for greater capacity along this section of the freeway. The purpose of this project is to increase freeway capacity and decrease existing and future traffic congestion.

The scope of work

- Adding one General Purpose Lane (GPL) to the outside of existing lanes in each direction of SR 202L from Gilbert Road to Val Vista Drive
- Adding two GPL to the outside of existing lanes in each direction of SR 202L between SR 101 and Gilbert Road
- Widening exit ramps to two lanes, and restriping lanes to accommodate additional lanes where feasible
- Widening bridges over the Arizona Avenue, Union Pacific Railroad, Consolidated Canal, and Lindsay Road
- Reconstructing the eastbound on-ramp bridge over Union Pacific Railroad
- Adding noise walls where warranted
- Construct retaining walls that will have the same design patterns as the existing walls in the corridor
- Relocate catch basins, storm drain and storm drain trunk lines and junction structures, and other drainage improvements
- Relocate and/or construct new ramp metering systems where ramps are being widened or realigned and other LED lighting where warranted
- Upgrade sidewalk ramps and signal poles to ADA compliance at TIs, as necessary

The project is located in the Maricopa County (Phoenix) Nonattainment Area for particulates 10-microns in diameter or less (PM10), eight-hour ozone, maintenance area for carbon monoxide. The project is included in the Maricopa Association of Governments 2022-2025 MAG Transportation Improvement Program (TIP) and MOMENTUM 2050 MAG Regional Transportation Plan, and regional conformity analysis (7322) as of February 14, 2023.

Figure 1. Project Vicinity Map



https://azdot.gov/projects/central-district-projects/loop-202-santan-freeway-loop-101-val-vista-drive

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;
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 considered as extreme cases 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 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.*

YES – This highway project has a significant increase in the number of diesel vehicles. The ADT and truck percentage for the Build alternative were compared to the No Build alternative on 9 mainline sections and 18 intersections along the project corridor, as summarized in Table 1. The percentage increase in the medium and heavy trucks ranges from a -0.4% to 0.7% on mainline and from -0.1% to 0.7% at the intersections, and the total increase in medium and heavy truck ranging from 3,482 to 5,740 vehicles on mainline and from 25 to 778 vehicles at the intersections.

Table 1 – SR202L Mainline ADT and Truck ADT in Existing, No Build and Build Conditions

ADT and Truck Volumes	2018 Existing		2050 No-Build		2050 Build		Difference (Build - No- Build)		
	ADT	Truck (%)	ADT	Truck (%)	ADT	Truck (%)	ADT	Truck ADT	Truck (%)
Mainline									
Price Rd to Dobson Rd	158,960	9.5%	213,554	11.8%	242,326	12.3%	28,772	4,736	0.6%
Dobson Rd to Alma School Rd	182,355	8.9%	242,546	11.0%	279,704	11.4%	37,158	5,330	0.4%
Alma School Rd to Arizona Ave	171,605	8.6%	229,602	10.7%	271,381	11.2%	41,779	5,740	0.5%
Arizona Ave to McQueen Rd	161,198	8.0%	217,866	9.8%	241,807	10.6%	23,941	4,151	0.7%
McQueen Rd to Cooper Rd	155,367	8.3%	217,860	9.6%	259,363	10.2%	41,502	5,463	0.6%
Cooper Rd to Gilbert Rd	139,935	8.4%	204,147	9.6%	242,460	10.2%	38,313	5,045	0.6%
Gilbert Rd to Lindsay Rd	120,369	8.3%	193,144	9.9%	230,382	10.4%	37,239	4,749	0.5%
Lindsay Rd to Val Vista Dr	120,369	8.3%	160,575	9.4%	192,234	9.8%	31,659	3,750	0.4%
East of Val Vista Dr	100,719	8.1%	138,970	9.0%	166,918	9.6%	27,948	3,482	0.6%
Intersection									
Price Rd & WB SR 202	51,098	6.3%	64,074	7.2%	65,936	7.4%	1,862	257	0.2%
Price Rd & EB SR 202	50,896	7.2%	65,559	8.1%	66,415	8.3%	856	186	0.2%
Dobson Rd & WB SR 202	29,801	3.4%	57,880	3.3%	42,539	3.9%	1,602	158	0.2%
Dobson Rd & EB SR 202	42,112	2.9%	60,572	3.5%	63,343	3.7%	2,771	263	0.3%
Alma School Rd & WB SR 202	48,268	3.2%	68,517	3.7%	69,266	3.8%	749	64	0.1%
Alma School Rd & EB SR 202	51,743	4.0%	70,497	4.4%	72,683	4.4%	2,186	103	0.0%
Arizona Ave & WB SR 202	53,893	5.4%	68,904	7.2%	70,479	7.2%	1,575	74	-0.1%
Arizona Ave & EB SR 202	51,240	6.5%	67,006	8.2%	68,995	8.3%	1,989	282	0.2%
McQueen Rd & WB SR 202	40,007	5.7%	54,872	4.9%	53,326	5.4%	-1,545	175	0.5%
McQueen Rd & EB SR 202	52,306	6.7%	66,727	5.5%	61,080	6.0%	-5,647	25	0.5%
Cooper Rd & WB SR 202	39,944	4.3%	51,948	3.9%	53,160	4.3%	1,212	233	0.3%
Cooper Rd & EB SR 202	41,340	4.7%	59,204	4.5%	56,643	4.7%	-2,561	27	0.3%
Gilbert Rd & WB SR 202	53,642	6.1%	65,088	4.8%	67,528	5.2%	2,441	376	0.4%
Gilbert Rd & EB SR 202	67,836	5.9%	78,902	5.3%	79,329	5.7%	428	318	0.4%
Lindsay Rd & WB SR 202	N/A	N/A	72,545	4.8%	74,332	5.4%	1,787	497	0.6%
Lindsay Rd & EB SR 202	N/A	N/A	87,146	5.8%	90,112	6.5%	2,966	778	0.7%
Val Vista Dr & WB SR 202	39,027	5.5%	47,583	4.3%	47,162	4.5%	-421	91	0.2%
Val Vista Dr & EB SR 202	60,130	5.9%	59,699	5.5%	63,490	5.6%	3,790	304	0.2%

Note: Truck% include heavy truck and medium truck. ADT at intersections include volumes on approach lanes.
Source: MAG traffic demand model received from Burgess & Niple on March 28, 2022, revised 2050 No Build model with Lindsay Rd TI included was received from Burgess & Niple on October 31, 2022.

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 an increase in traffic volumes from a significant number of diesel trucks related to the project?

YES. This is 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 10 intersections have a LOS of D, E, or F, and the number of trucks ranges between 1659 vehicles and 5857 vehicles at the intersection in 2050 Build, as shown in previous Table 1.

Table 2 – Intersections LOS in the project area

Level of Service (LOS)	2018 Existing		2050 No-Build		2050 Build	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)	LOS (delay)
Intersection LOS (overall, not for each link)						
Price Rd & WB SR 202	C (21.4)	C (21.5)	C (23.6)	D (44.5)	C (28)	D (42.9)
Price Rd & EB SR 202	B (19.1)	C (25.1)	C (24.9)	D (51.9)	C (23.3)	D (48.5)
Dobson Rd & WB SR 202	B (14.1)	A (8.8)	B (13.2)	B (13.6)	B (14.4)	B (13.4)
Dobson Rd & EB SR 202	A (6.8)	A (3.3)	B (10.6)	A (7.9)	B (11.6)	A (9.4)
Alma School Rd & WB SR 202	B (18.1)	B (17.6)	B (17.3)	C (31.4)	C (30.4)	D (41.6)
Alma School Rd & EB SR 202	B (12.6)	C (25.1)	C (25.6)	E (58.1)	D (40.5)	E (62.4)
Arizona Ave & WB SR 202	B (19.1)	B (17.2)	C (27.4)	C (34.3)	B (17.3)	C (25.7)
Arizona Ave & EB SR 202	B (14)	B (17.6)	B (14.9)	C (20.7)	C (22.6)	B (19.9)
McQueen Rd & WB SR 202	B (16.2)	B (15.2)	B (15.7)	B (16.1)	C (21.2)	C (22.2)
McQueen Rd & EB SR 202	B (15.4)	C (26.6)	C (21.0)	C (27.0)	C (24.4)	C (30.6)
Cooper Rd & WB SR 202	B (14.8)	B (16.3)	B (16.1)	B (19.0)	B (19.7)	C (22.2)
Cooper Rd & EB SR 202	B (18)	B (15.5)	C (20.5)	C (23.1)	C (22.6)	C (29.9)
Gilbert Rd & WB SR 202	B (19.9)	B (16.6)	E (59.3)	F (126.3)	E (68)	F (138)
Gilbert Rd & EB SR 202	B (14.8)	B (17.2)	C (28.6)	F (109.7)	D (40)	F (125.9)
Lindsay Rd & WB SR 202	N/A	N/A	C (33.9)	F (100.9)	C (29.7)	F (116.6)
Lindsay Rd & EB SR 202	N/A	N/A	C (22.5)	F (130.8)	C (23.9)	F (119)
Val Vista Dr & WB SR 202	C (28.6)	C (31.1)	D (54.9)	E (79.0)	E (60.9)	F (102.8)
Val Vista Dr & EB SR 202	C (25.3)	C (26.8)	F (88.0)	F (90.6)	E (65.6)	E (72.9)

Notes: Source: LOS data provided by Burgess & Niple. MAG traffic demand model received from Burgess & Niple on March 28, 2022, revised 2050 No Build model with Lindsay Rd TI included was received from Burgess & Niple on October 31, 2022.

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.

Project Determination

This project is an expanded highway project was determined in prior consultation to be treated as a project that has a significant increase in the number of diesel vehicles on mainline and significant number of trucks at intersections. Therefore, ADOT is presenting this project for interagency consultation in accordance with 40 CFR93.105 as a Project that is of Air Quality Concern and thereby will require a PM hot-spot analysis.

The top three intersections ranked by volume are as follows:

- Lindsay Rd & EB SR 202
- Gilbert Rd & EB SR 202
- Lindsay Rd & WB SR 202

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

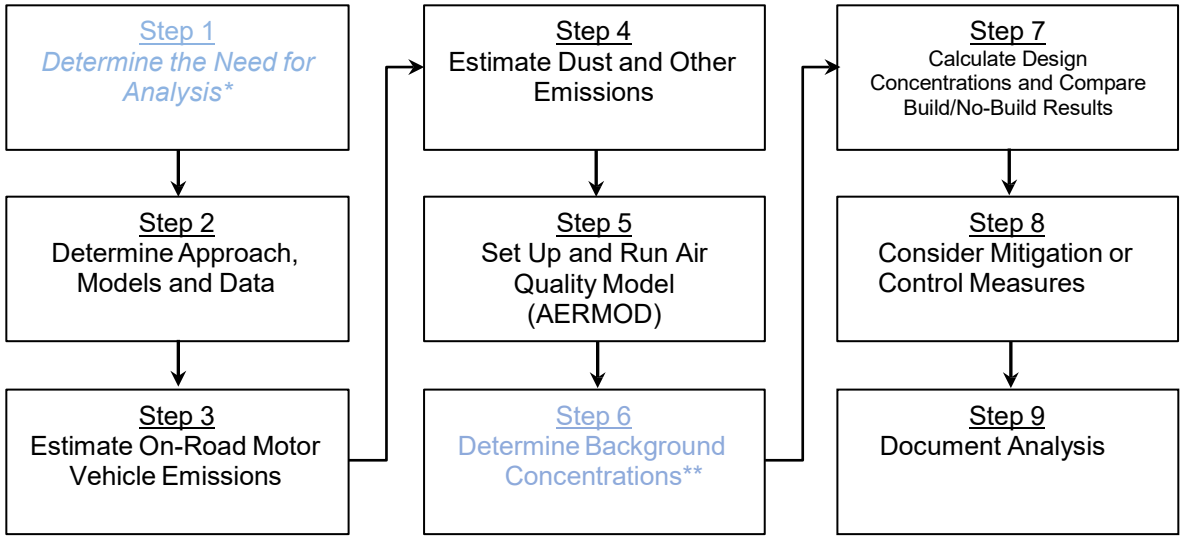
- Gilbert Rd & WB SR 202
- Gilbert Rd & EB SR 202
- Lindsay Rd & EB SR 202

Based on the top intersections ranked by volume and by LOS and delay, the intersection modeling analysis will be performed for the above four intersections. In addition, Alma School Rd & EB SR 202, Alma School Rd & WB SR 202, Arizona Ave & EB SR 202, and Arizona Ave & WB SR 202 intersections will be analyzed because of the largest SR 202 mainline ADT volumes and truck ADT volumes. Other intersections are not selected because of less intersection volumes or better LOS.

Project Level PM Quantitative Hot-Spot Analysis Modeling Assumptions

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.



* Described in the previous section.
** These Steps will be described and documented in Atypical Event Documentation.

Table 3. Proposed Inputs, Parameters and Data Sources

Estimate On-Road Motor Vehicle Emissions (Step 3)		
MOVES3.1	**Input**	**Data Source/Detail**
Scale	*Onroad, Project Scale and Inventory*	*MAG Regional Conformity Data (July, 2022)*
Time Spans	*2050, 16 runs* *PM_{10} emission factors were developed for an analysis year of 2050, which represents the year peak emissions from the project are expected. Vehicle emissions of PM10 are a combination of vehicle exhaust, brakewear, tirewear, and road dust. Road dust is the largest contributor to the overall emissions. Because road dust is highly dependent on vehicle volumes, the analysis year of 2050 was selected as the year of peak emissions because it was the year with the greatest vehicle volumes. This has been reflected in the 2021 MAG Conformity Analysis budget test, which resulted in highest PM10 emissions in 2050 due to largest VMT and the most surrounding PM emissions.*	*4 seasons (Jan, Apr, July & Oct) x 4 weekday time periods (6-9AM, 9AM-4PM, 4-7PM & 7PM-6AM)*
Geographic Bounds	*Maricopa County*	*EPA Hot Spot Guidance Section 4.4.4*

Onroad Vehicles	*All Fuels and Source Use Types*	*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 PM10-Total(for Running Exhaust and Crankcase Running Exhaust), Break Wear Particulate, Tire Wear Particulate*	*EPA Hot Spot Guidance Sections 2.5, 4.4.7*
General Output and Output Emissions Detail	*Output Database TBD*	*EPA Hot Spot Guidance Section 4.4.8, 4.4.9 & 4.6*
Create Input Database	*Input database will be created and modified for Project level using required Regional Inputs from latest Regional Conformity Analysis.*	*MAG Regional Conformity Data (July, 2022)*
Project Data Manager	*Database will be created and MOVES3.1 templates will be created to include local project data and information provided by MAG, e.g., 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 MOVES3.1 data.*	*EPA Hot Spot Guidance Sections 4.5 &Appendix D*
Meteorology	*MAG local specific data*	*MAG Regional Conformity Data (July, 2022)*
Age Distribution	*MAG local specific data*	*MAG Regional Conformity Data (July, 2022)*
Fuel	*MOVES default*	*EPA Hot Spot Guidance Section 4.5.3*
I/M Programs	*MAG local specific data*	*MAG Regional Conformity Data (July, 2022)*
Retrofit Data	*Not used*	
Links	*Please see attached the link maps.*	
Link Source Types	*Option 2 in the EPA's PM Hot- spot Guidance Section 4.5.7 will be used.*	*MAG Regional Conformity Data (July, 2022)*
Link Drive Schedules, Operating Mode Distribution	*Options 1 in the EPA's PM Hot-spot Guidance Section 4.5.8 will be used. Average speeds and road types through the Links Importer will be used.*	
Off-Network, Hoteling	*Not used*	
Estimate Dust and Other Emissions (Step 4)		
AP-42, Fifth Edition, 2011	**Parameter**	**Data Source/Detail**
Average Weight Vehicles	*Freeways 3.83 tons in 2025, 3.87 tons in 2030, 3.97 tons in 2040, and 4.08 tons in 2050. Arterials 2.48 tons in 2025, 2.49 tons in 2030, 2.48 tons in 2040, and 2.48 tons in 2050*	*Conformity Analysis for the FY 2022-2025 MAG TIP and the Momentum 2050 RTP, dated December, 2021.*

Silt Loading	*Section 13.2.1 Paved Roads from AP 42 will be used, consistent with the Regional analysis from MAG. Emission factors for road and construction dust should be added to the emission factors generated for each link by MOVES. Ex. 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, 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)).*
Construction Dust	*Construction Emissions will not be addressed because the construction of this project is not expected to last longer than 5 years. There are no other sources (e.g., locomotives) that need to be considered for most projects.*	EPA Hot Spot Guidance Section 6.5
Precipitation	*In 2008-2012 SIP/Regional Conformity used average of 32 days with at least .01 inch of precipitation County.*	*The MAG 2012 Five Percent Plan for PM-10 (used for the Conformity Analysis for the FY 2022-2025 MAG TIP and the Momentum 2050 RTP, dated December, 2021).*
Set Up and Run Air Quality Model (AERMOD) (Step 5)		
AERMOD v.22112	**Parameter**	**Data Source/Detail**
Model Setup (CO Pathway)		*EPA Hot Spot Guidance Section 7.1, 7.2 & Appendix J, AERMOD User's Guide Section 2.3.2 & 3.2*
TITLEONE	*TBD*	
MODELOPT	*CONC FLAT. Initial modeling will be done with all sources and receptors at grade.*	*Modeling Concentrations and Flat Terrain*
AVERTIME	*24*	*Average across each 24-hour period from the available met data*
URBANOPT	*280,000*	*Population of Chandler AZ https://www.census.gov/quickfacts/fact/table/cha*
FLAGPOLE	*Receptor height in meter, 1.8*	
POLLUTID	*PM10*	
Source Types and Characters (SO Pathway)		
LOCATION	*Srcid Srctyp (LINE)*	
SRCPARAM	*Srcid Lnemis Relhgt Width Szinit*	*LINE Source parameters See EPA Hot Spot Guidance Appendix J.3.1*
URBANSRC	*ALL*	*All urban source*

EMISFACT	*Emission rate=1, Use SEASHR (season by hour-of-day)* *As directed by the PM Hot Spot Guidance, emissions were input in a manner to reflect changes in emission factors and vehicle volumes throughout the day. This was represented in AERMOD by specifying an emission rate of 1 g/s/m² with the variable variable emission rate option to specify the emission rate of 96 emission factors (4 seasons/24 hours per day) for each emission source. Excel files that outline this process are included with MOVES and AERMOD modeling files for agency review.*	*Total 16 MOVES run=4 seasons x 4 time periods to 96 factors (4 seasons/24 hours)* *See PM hot-spot training slides (FHWA, 2022)*
SRCGROUP	*ALL*	
Meteorological Data (ME Pathway)		
SURFFILE	*Phoenix2017-2021.sfc* *ADOT followed up with ADEQ on the AERMET files- the Phoenix Sky Harbor Airport dataset that was also used for F0123 project.*	*ADEQ Phoenix AERMET files*
PROFFILE	*Phoenix2017-2021.pfl* *ADOT followed up with ADEQ on the AERMET files- the Phoenix Sky Harbor Airport dataset that was also used for F0123 project.*	*ADEQ Phoenix AERMET files*
SURFDATA	*23183 2017*	*ADEQ Phoenix AERMET files*
UAIRDATA	*23160 2017*	*ADEQ Phoenix AERMET files*
PROFBASE	*0*	*ADEQ Phoenix AERMET files*
Run Met Pre-Processor	*Not used*	
Urban or Rural Sources	*Specifications for URBANSRC (SO Pathway). The emission sources are SR202 mainlines, ramps, and cross streets. No nearby emission sources other than the roadway links included in the model run would be affected by the project.* *All emission sources used URBANOPT to specify urban dispersion coefficients. The PM Hot-spot Guidance recommends "in urban areas, sources should generally be treated as* *urban." Appendix W recommends multiple procedures to identify an area as urban. Using the Auer land use procedure described in Section 7.2.1.1(b)(i), based on aerial maps, greater than 80% of the land use within a 2-miles buffer around the project area includes industrial, commercial, dense single/multi-family, and multi-family two-story land use types. Therefore, the use of urban dispersion coefficients is appropriate for the project area.*	*EPA Hot Spot Guidance Section 7.5.5 & Appendix J.4,* *AERMOD Implementation Guide, Section 7.2.3 of Appendix W to 40 CFR Part 51*

Receptors (RE Pathway)	*Please see attached receptor maps on pages 17 to 20. Alma School Road TI, Arizona Avenue TI, Gilbert Road TI, and Lindsay Road TI were selected for PM hotspot analysis that were ranked by ADT volumes on mainline and at intersections, and LOS and delay at intersections. The receptor placement is consistent with the guidance. Receptors were placed along and outside the ADOT ROW. Additional receptors were placed at 25 meters for several front rows near the roadway sources per comment* ***(additional 305 receptors for Alma School Rd TI, additional 261 receptors for Arizona Ave TI, additional 272 receptors for Gilbert Rd TI, and additional 312 receptors for Lindsay Rd TI).*** *The highest PM concentration would normally occur at receptors near the roadway sources. The PM concentrations would decrease further away from the roadway sources, and receptor placements further away from the source would not affect the highest PM concentration design value for the intersection and analysis results.*	*EPA Hot Spot Guidance Section 7.6, AERMOD User's Guide Section 2.3.4 & 3.4, Section 7.2.2 of Appendix W to 40 CFR Part 51, See PM hot-spot training slides*
DISCCART	*X Y (Z)*	*Z is optional if FLAGPOLE is already defined in CO Pathway.*
GRIDCART	*Not used*	
Output (OU Pathway)		
RECTABLE	*24 6th*	*Since PM should be one or less exceedance per year, with 5 years of met data, the 6th highest concentration at each receptor*
PLOTFILE	*Not used*	
POSTFILE	*Not used*	
Model Runs		
Determine Background Concentrations (Step 6)		
Source Type	**Description**	**Data Source/Detail**
Nearby Sources	*There are no nearby emission sources that are expected to change as a result of the project. It is assumed that emissions from other nearby sources are already included in the ambient monitoring data.*	

Other Sources (Ambient Monitoring Data)	*Please see the selected monitor's location map and monitoring data with wind rose information. West Chandler monitor (WC) and Higley (HI) monitor were selected and a combination of two monitors will be used, especially given the significant difference in background DVs.* *The background concentration data of these two monitors are representative for the project area because:* 1. *Similar characteristics between the monitor location and project area including density, mix of emission sources, land use, terrain, etc.* 2. *Distance of monitor from the project area. These two monitors are closer to the project and have concentration most similar to the project area.* 3. *Wind patterns between the monitor and the project area. The two monitors do not show significant upwind patterns.* ***Pending approval of ADOT's Atypical Events Report that includes detailed monitor data, calculations, and resulting recommended background concentrations.*** *For the design concentration, the highest sixth-highest value among all receptors should be added to the fourth highest background monitor value (Section 9.3.4 of PM Hot-spot Guidance). The design concentration will then be compared to NAAQS threshold for conformity determination.*	*EPA Hot Spot Guidance Section 8.3, PM hot-spot training slides Module 5 & 6*

Figure 1. PM Links and Receptors Placement for Air Quality Modeling
(Alma School Rd & SR202 TI)

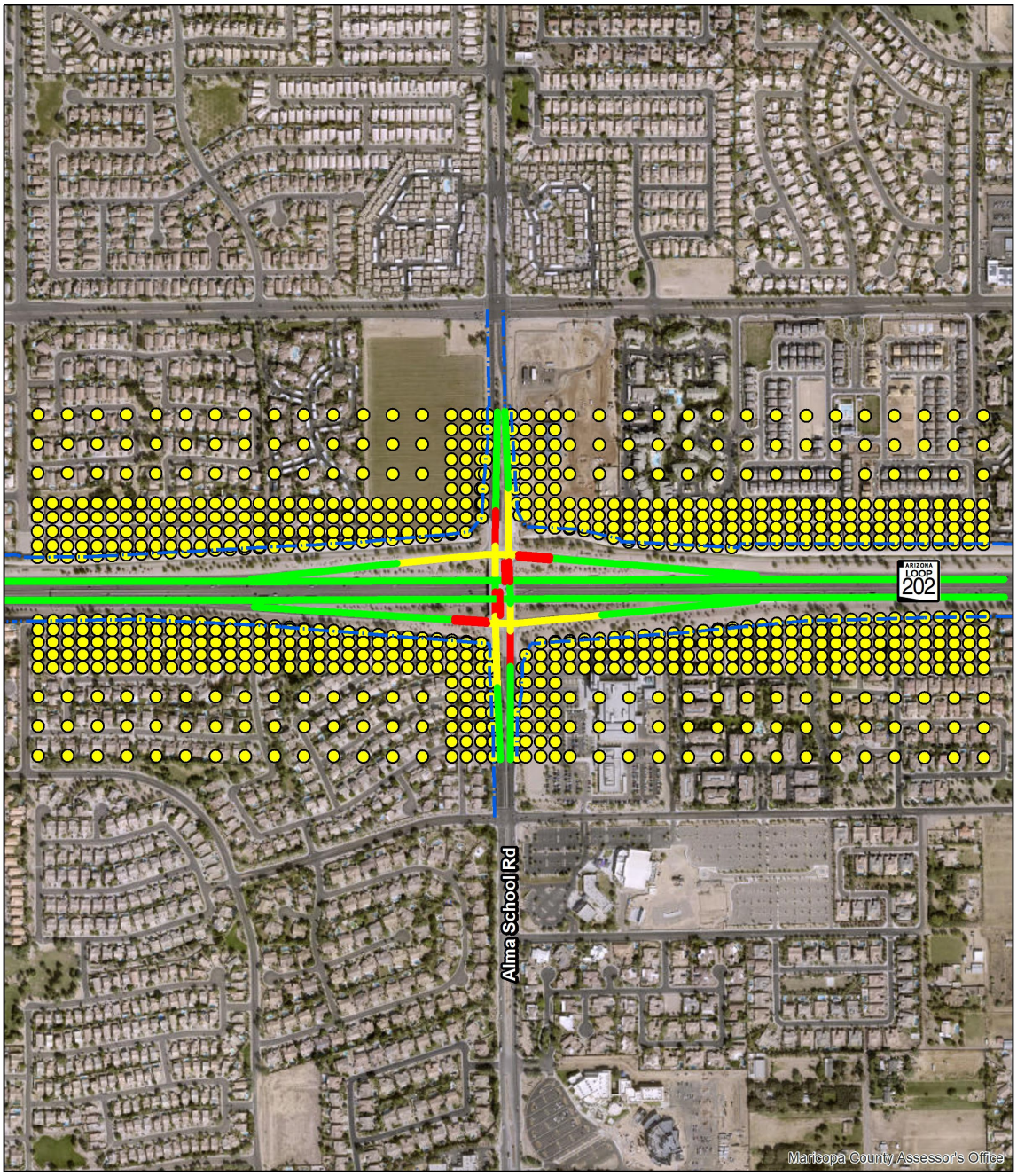


Figure 2. PM Links and Receptors Placement for Air Quality Modeling
(Arizona Avenue & SR202 TI)

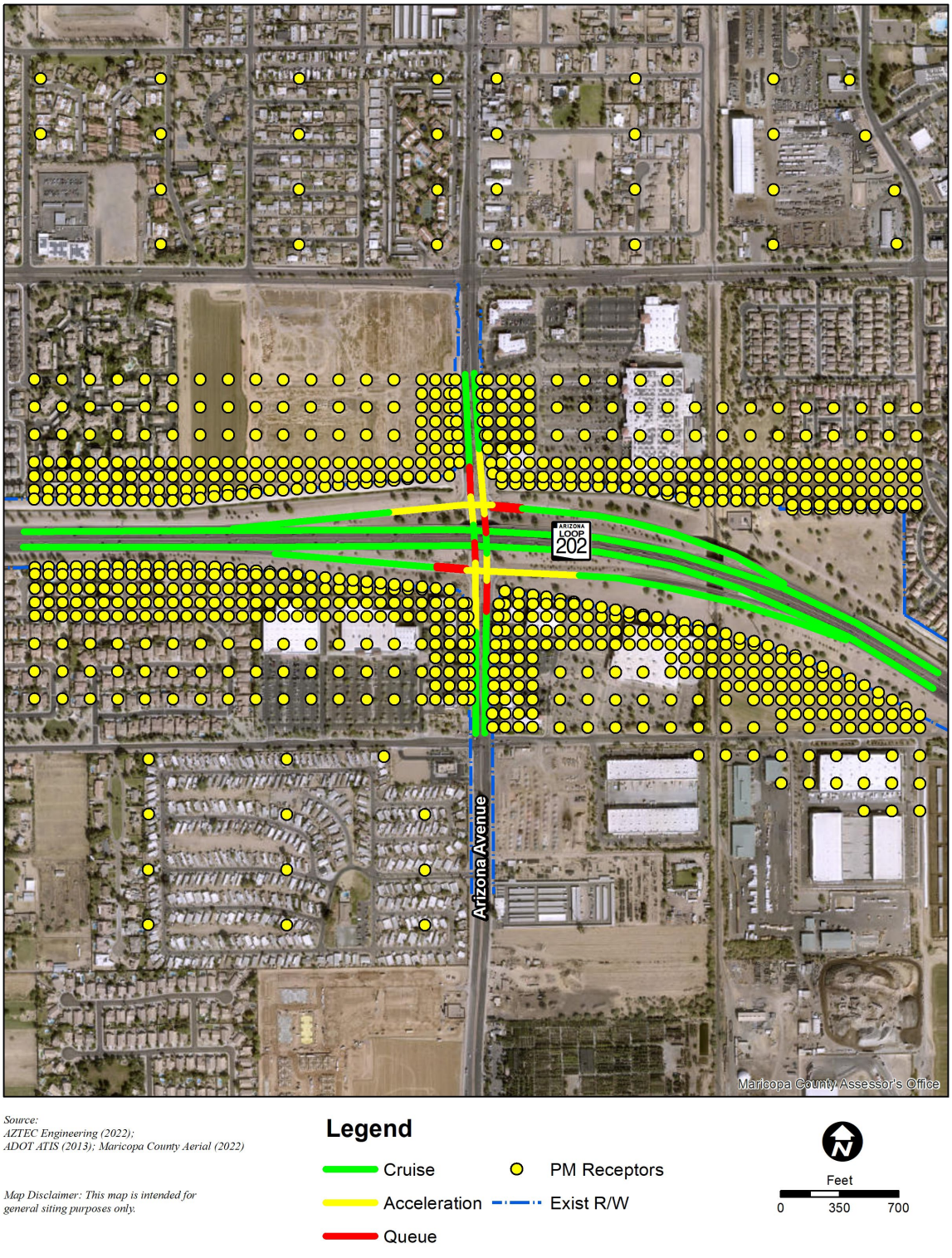


Figure 3. PM Links and Receptors Placement for Air Quality Modeling
(Gilbert Road & SR202 TI)

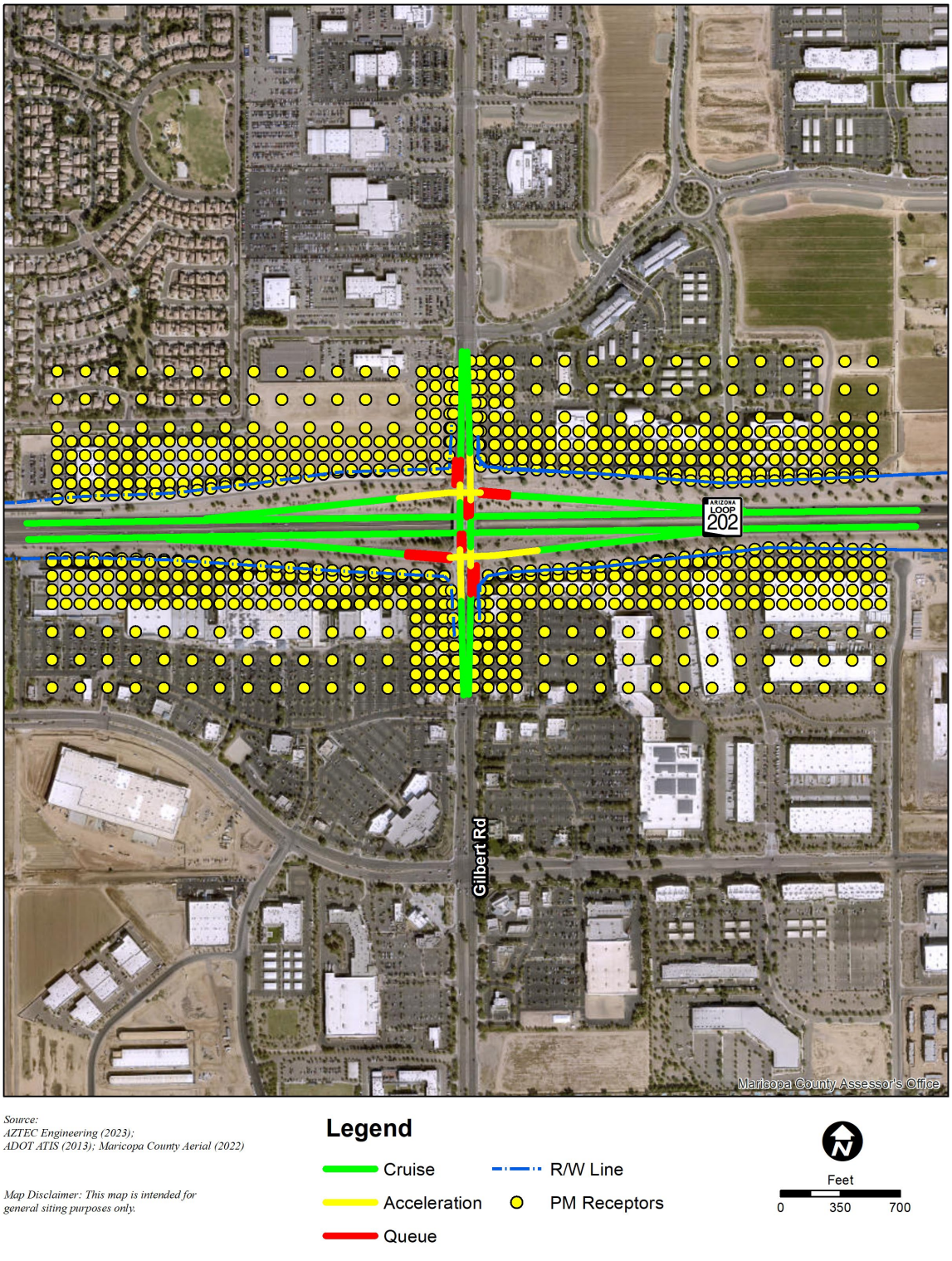


Figure 4. PM Links and Receptors Placement for Air Quality Modeling
(Lindsay Road & SR202 TI)

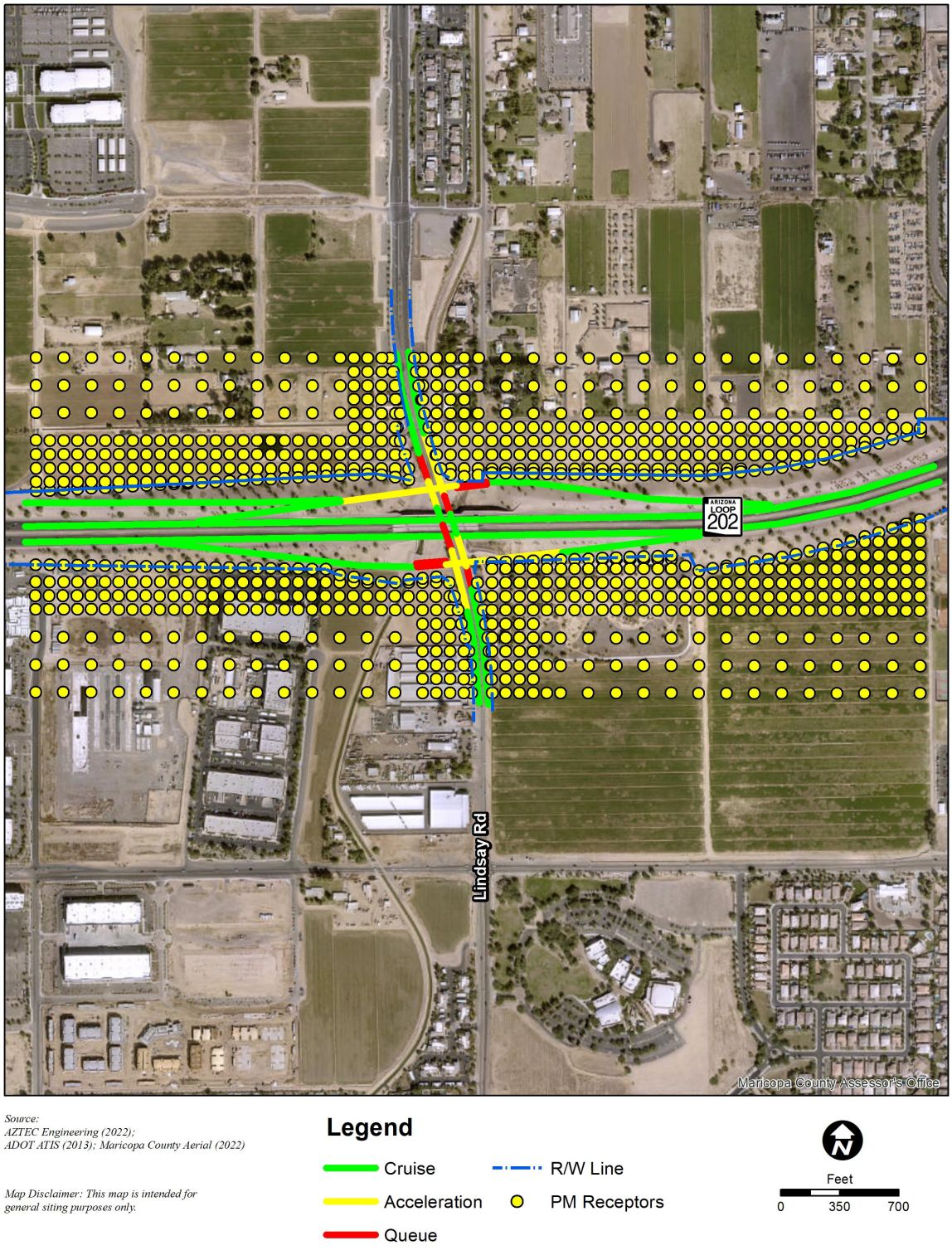
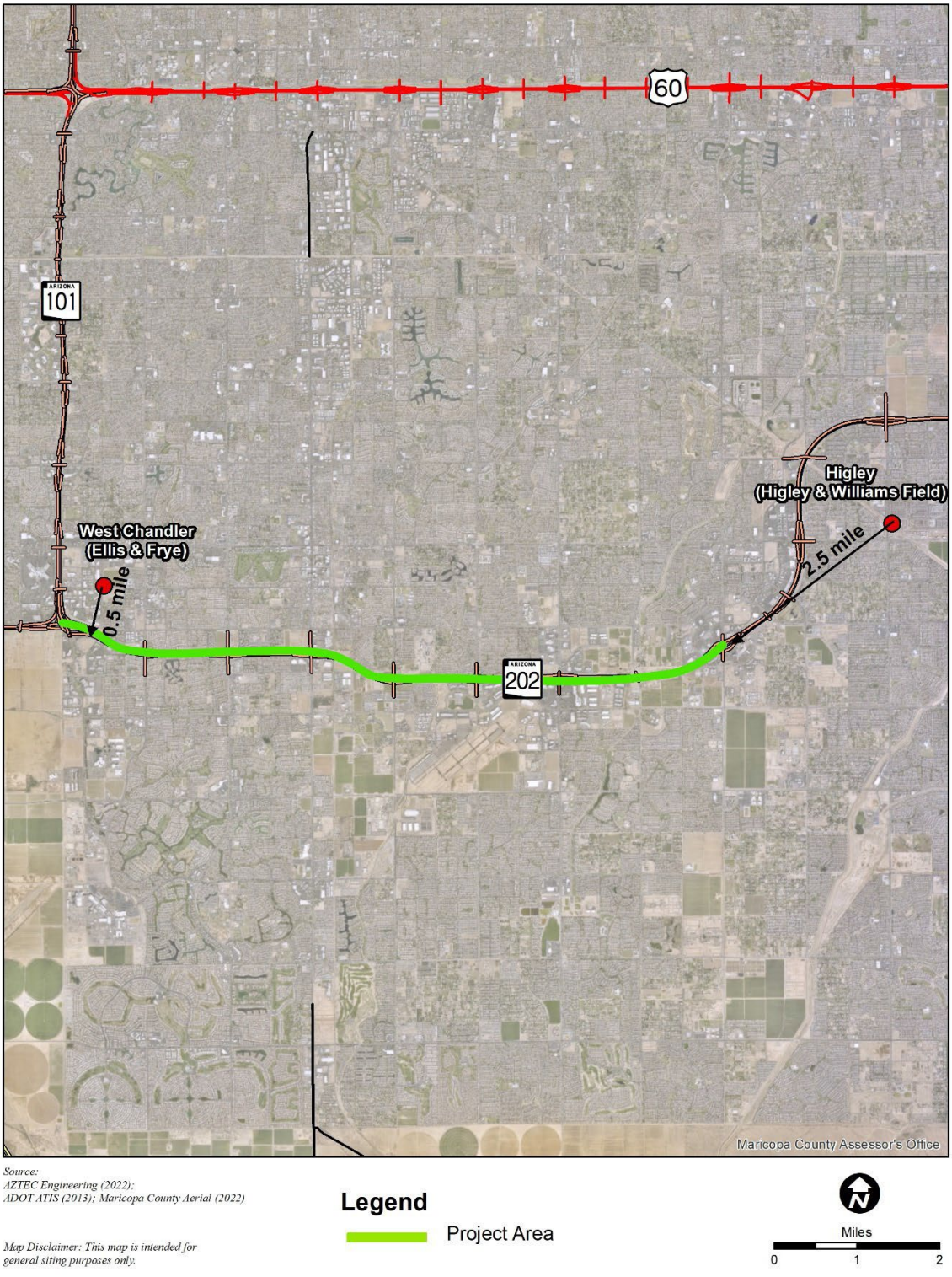


Figure 5. PM Monitoring Sites adjacent to the Project Area



West Chandler (WC) (04-013-4004)

Site Location	Frye Rd. & Ellis St., Chandler
Spatial Scale	Neighborhood
Site Type	Population Exposure

Site Description: This site began operating in January 1995, This SLAMS location monitors for CO, O_3, and PM_{10}. Meteorological monitoring includes ambient temperature, barometric pressure, relative humidity, and wind speed/direction.

The site is surrounded by residential, agricultural, and heavy industrial operations, such as semiconductor manufacturing plants and liquid air storage. The PM_{10} monitor's scale of representativeness was first established as middle scale, but it was changed to neighborhood in June 2019 to better reflect land use currently surrounding the site and to match general monitoring requirements found in *40 CFR Part 58 Appendix D, Table D-1.*

Number of complete monitoring days at West Chandler:

2019	2020	2021	Total
365	362	364	1091

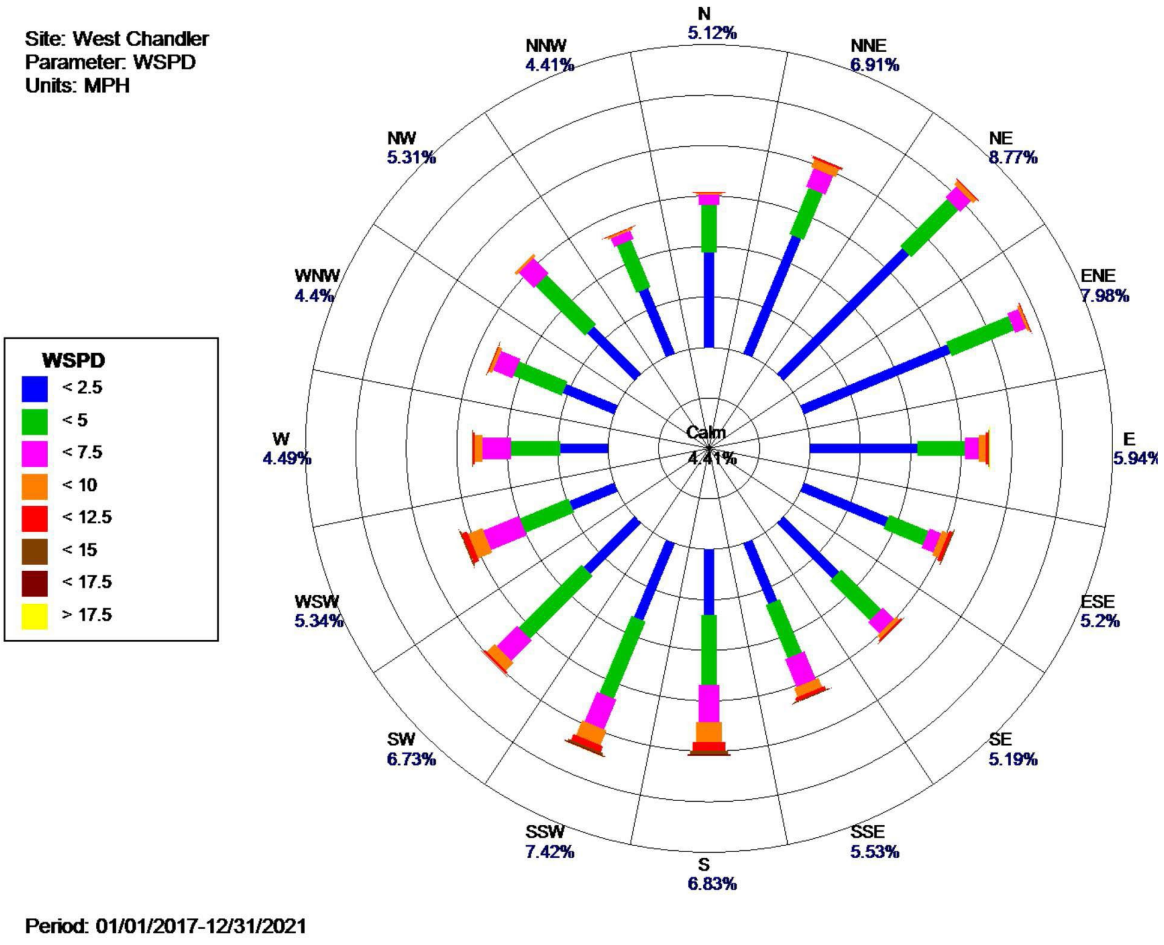
Highest 24-hour readings at West Chandler **Without** removing atypical events:

	2019	2020	2021
1	76	263	181
2	71	89	165
3	67	80	160
4	66	74	153

4th Highest 24-hour readings at West Chandler after removing atypical events. Pending EPA approval.

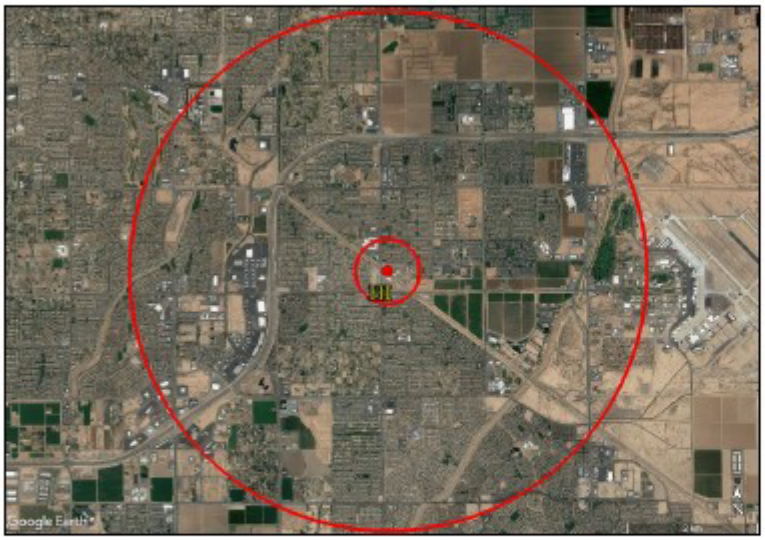
	2019	2020	2021
1	76	263	181
2	71	89	122
3	67	80	**89**
4	66	74	76

Source: https://www.epa.gov/outdoor-air-quality-data/download-daily-data



Source: email from Ron Pope (AQD) Thu, Dec 1, 2022

Higley (HI) (04-013-4006)



Site Location	Higley Rd. & Williams Field Rd., Gilbert
Spatial Scale	Neighborhood
Site Type	Population Exposure

Site Description: Originally, ADEQ began monitoring at this site in 1994 to measure background particulate concentrations near the urban limits of Maricopa County. The MCAQD assumed operating this site in July 2000. This SLAMS location monitors for PM_{10}. Meteorological monitoring includes ambient temperature, barometric pressure, and wind speed/direction.

The site is in a suburban area near homes, strip malls, and schools with limited agricultural operations nearby.

Number of complete monitoring days at Higley:

2019	2020	2021	Total
365	364	357	1086

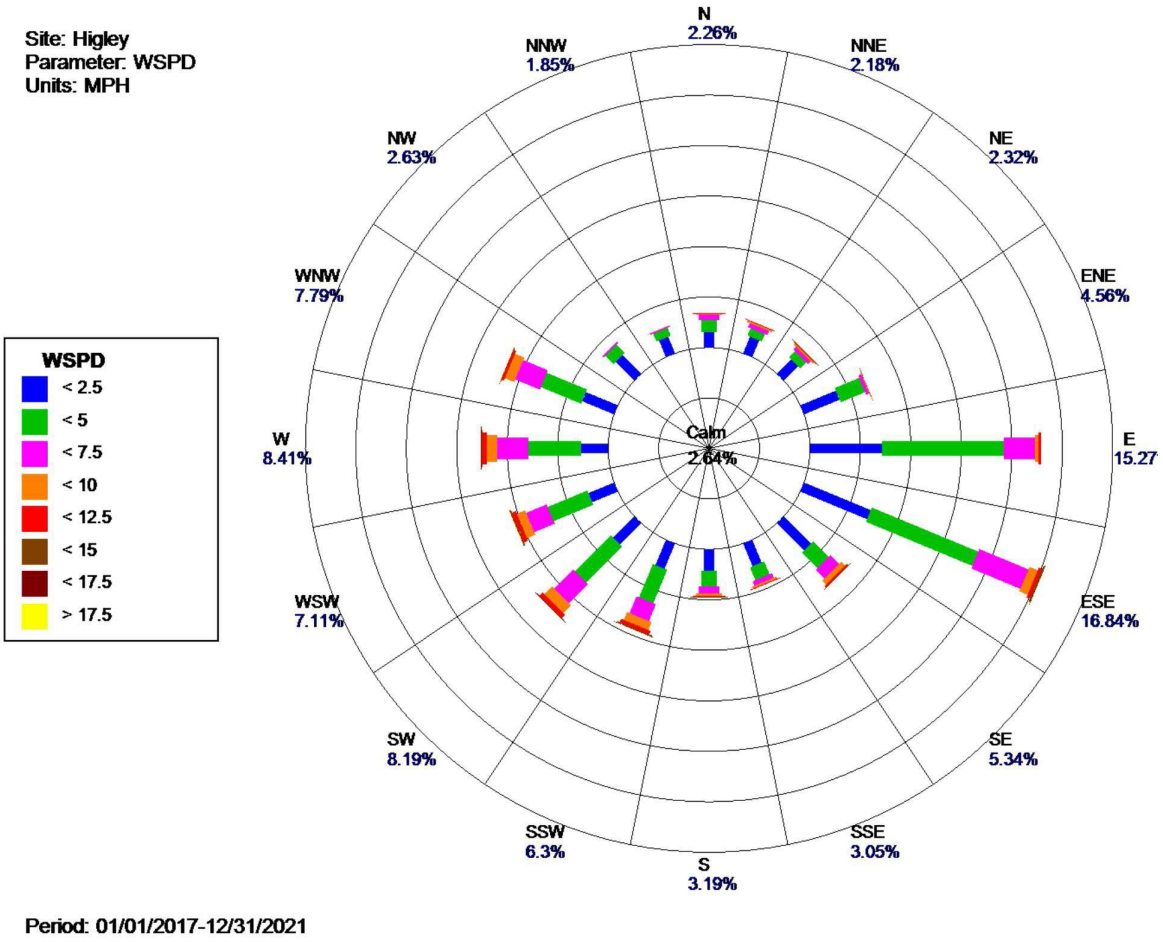
Highest 24-hour readings at Higley **Without** removing atypical events:

	2019	2020	2021
1	114	131	219
2	91	107	207
3	91	106	134
4	89	92	130

4th Highest 24-hour readings at Higley after removing atypical events. Pending EPA approval

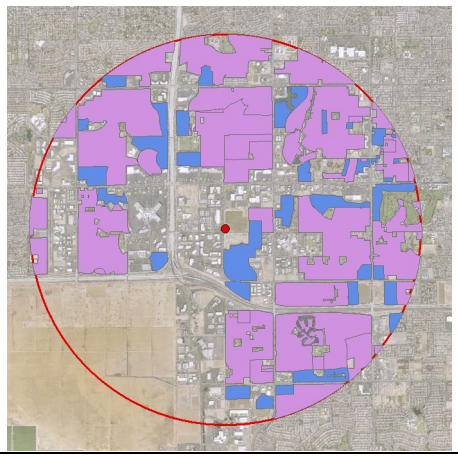
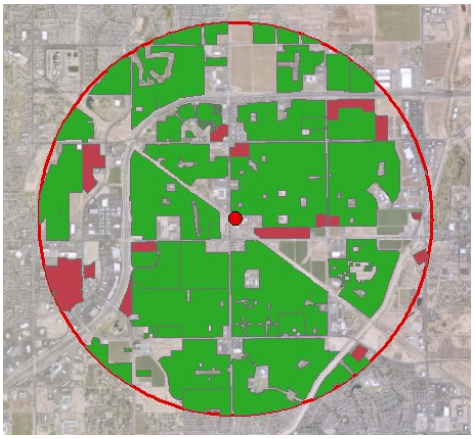
	2019	2020	2021
1	**114**	131	219
2	91	107	116
3	91	106	108
4	89	92	93

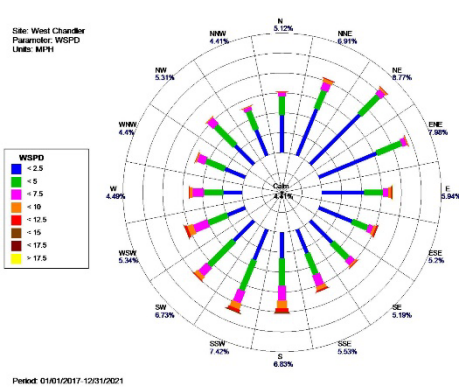
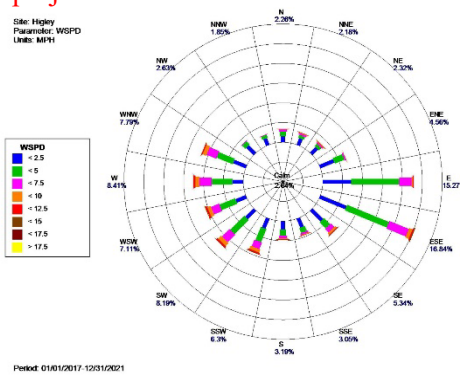
Source: https://www.epa.gov/outdoor-air-quality-data/download-daily-data



Source: email from Ron Pope (AQD) Thu, Dec 1, 2022

Percentages were added to the land use/terrain row below. Wind rose figures were added in the Wind pattern row below, which include the wind speed in each direction and wind percentages for each wind direction.

	Project Area	West Chandler (WC) AQS ID: 04-013-4004 Address: 275 S Ellis, Chandler 0.5 miles to project	Higley (HI) AQS ID: 04-013-4006 Address: 2207 S Higley Rd, Gilbert 2.5 miles to project
Collection frequency, completeness, and background concentration	N/A	Continuous monitoring overall PM data completeness is 96.8% in 2021 Number of complete monitoring days in 2019 to 2021: 1091 4th Highest 24-hour reading after removing atypical events: 89 $\mu g/m^3$.	Continuous monitoring overall PM data completeness is 96.8% in 2021 Number of complete monitoring days in 2019 to 2021: 1086 4th Highest 24-hour reading after removing atypical events: 114 $\mu g/m^3$.
Land use/terrain	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [17%] commercial [6%], office [3%], light industrial [4%]), terrain (relative flat).	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [18%] commercial [6%], office [6%], light industrial [5%]), terrain (relative flat). The West Chandler monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 	Density (developed area), emission sources (near the traffic interchange), land use (residential area [58%] & vacant and open space [12%] commercial [7%], terrain (relative flat). The Higley monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 

Wind patterns	N/A	Does not show significant upwind patterns to the project area 	Does not show significant upwind patterns to the project  area
Nearby sources:	N/A	No nearby sources other than roadways	No nearby sources other than roadways

BACKGROUND CENCENTRATION CALCULATION

Using Interpolating between Two Monitors (See page 106 of 143 at link below)
Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas (EPA-420-B-10-040, December 2010)

The West Chandler PM monitor is 0.5 mile from the project and Higley PM monitor is 2.5 miles from the project. See Figure 5.

Per EPA PM quantitative hot-spot analysis guidance, the weighting of data from West Chandler monitor is:

Weight (West Chandler) = (1/0.5)/(1/0.5+1/2.5) = 0.83
The weighting for Higley monitor is:
Weight (Higley) = (1/2.5)/(1/0.5+1/2.5)=0.17

For WC monitor, three years of monitoring data (2019-2021) using the 4th highest readings is 89 µg/m^3 (after removing atypical events pending for EPA approval of the Atypical Events Report). For HI monitor, three years of monitoring data (2019-2021) using the 4th highest readings is 114 µg/m^3 (after removing atypical events pending for EPA approval).

The predicted background concentration of the project is:
0.83 x 89 + 0.17 x 114 = 93.2 µg/m^3

References

PM Hot-spot guidance, EPA-420-B-21-037, October 2021.

User's Guide for the AMS/EPA Regulatory Model (AERMOD), EPA-454/B-21-001, April 2021.

AERMOD Implementation Guide, EPA-454/B-21-006, July 2021.

User's Guide for the AERMOD Meteorological Preprocessor (AERMET), EPA-454/B-22-006, June

2022. Completing Quantitative PM Hot-spot Analyses: 3-Day Course, FHWA, October 2022.

F0124_ADOT_AQ_20230828 (zipped file)
CO_Hotspot folder
Cal3QHC subfolder
Gilbert_WorstCase1.IN --- Cal3QHC input file for Gilbert Rd TI under worst case scenario for receptors R1 to R40.
Gilbert_WorstCase1.OUT --- Cal3QHC output file for Gilbert Rd TI under worst case scenario for receptors R1 to R40.
Gilbert_WorstCase2.IN --- Cal3QHC input file for Gilbert Rd TI under worst case scenario for receptors R41 to R80.
Gilbert_WorstCase2.OUT --- Cal3QHC output file for Gilbert Rd TI under worst case scenario for receptors R41 to R90.
Lindsay_WorstCase1.IN --- Cal3QHC input file for Lindsay Rd TI under worst case scenario for receptors R1 to R45.
Lindsay_WorstCase1.OUT --- Cal3QHC output file for Lindsay Rd TI under worst case scenario for receptors R1 to R45.
Lindsay_WorstCase2.IN --- Cal3QHC input file for Lindsay Rd TI under worst case scenario for receptors R46 to R83.
Lindsay_WorstCase2.OUT --- Cal3QHC output file for Lindsay Rd TI under worst case scenario for receptors R46 to R83.
MOVES3.1 subfolder
f0124_gilbert_co_2026b_pm_in folder --- MOVES3.1 input database for emission rates for Gilbert Rd TI.
f0124_gilbert_co_2026b_pm_out folder --- MOVES3.1 output database for emission rates for Gilbert Rd TI.
f0124_lindsay_co_2026b_pm_in folder --- MOVES3.1 input database for emission rates for Lindsay Rd TI.
f0124_lindsay_co_2026b_pm_out folder --- MOVES3.1 output database for emission rates for Lindsay Rd TI.
2026_fuel_default --- MOVES3.1 default FuelSupply Data in 2026
2026_fuel_default_avft --- MOVES3.1 default AVFT data in 2026
2026_fuel_default_FuelFormulation --- MOVES3.1 default FuelFormulation data in 2026
2026_fuel_default_FuelUsageFraction --- MOVES3.1 default FuelUsageFraction data in 2026
F0124_Gilbert_CO_2026Build_PM_v2 --- MOVES3.1 specs file for CO hotspot analysis for Gilbert Rd TI.
F0124_Lindsay_CO_2026Build_PM_v2 --- MOVES3.1 specs file for CO hotspot analysis for Lindsay Rd TI.
MOVES3_local_input_data_CO --- MOVES3.1 local input data from MAG Fall 2022 Regional Conformity Analysis to be used for CO hotspot analysis.
SR202_Links&LinkSourceType --- project links data and link source type data to be used in MOVES for CO hotspot analysis.
PM_Hotspot folder
AlmaSchool_PM_20230825 subfolder --- AERMOD View files for PM hotspot disperson model for Alma School Rd TI.
Arizona_PM_20230825 subfolder --- AERMOD View files for PM hotspot disperson model for Arizona Ave TI.
Gilbert_PM_20230825 subfolder --- AERMOD View files for PM hotspot disperson model for Gilbert Rd TI.
Lindsay_PM_20230825 subfolder --- AERMOD View files for PM hotspot disperson model for Lindsay Rd TI.
Model_Reports subfolder --- AERMOD View generated reports for four analyzed TIs.
MOVES subfolder
Fuels subfolder --- 16 MOVES default fuel data files for January, April, July, and October.
Input&Ouput_Datbase --- 128 MOVES input and output database files for four analyzed TIs.
Link_Source_Types --- 3 files to develop link source types (Option 2 per EPA)
Met_Files --- 16 MOVES files for input meteorology data.
Run_Specs --- MOVES run specs files for four analyzed TIs (total 64 files).
agedist --- MOVES local input age distribution file from MAG Fall 2022 Regional Conformity.
imcoverage --- MOVES local I/M programs file from MAG Fall 2022 Regional Conformity.
LinkSourceTypes --- MOVES link source types file developed.
links_AlmaSchool --- MOVES links input data for Alma School Rd TI.
links_Arizona --- MOVES links input data for Arizona Ave TI.
links_Gilbert --- MOVES links input data for Gilbert Rd TI.

links_Lindsay --- MOVES links input data for Lindsay Rd TI.

AlmaSchool_EF_v2 --- MOVES generated emission factors for Alma School Rd TI and developed EMISFACT data to be used for AERMOD View.

Arizona_EF_v2 --- MOVES generated emission factors for Arizona Ave TI and developed EMISFACT data to be used for AERMOD View.

Gilbert_EF_v2 --- MOVES generated emission factors for Gilbert Rd TI and developed EMISFACT data to be used for AERMOD View.

Lindsay_EF_v2 --- MOVES generated emission factors for Lindsay Rd TI and developed EMISFACT data to be used for AERMOD View.

Response to EPA Comments on F0124 CO and PM Consultation Documents (red)

F0124_PM Consultation_03062023.pdf:

We had some comments regarding the overall approach taken with these consultation documents and have indicated some changes that we would like to see in future consultations as well as added to this document:

1) There is little discussion of Step 2: Determine Approach, Models, and Data. Although there is some overlap with subsequent steps, more detail should be provided for the following:
   a) It should be clearly stated what emissions sources are located in the project area, including those which may not be covered by Steps 3 and 4.
   The emission sources are SR202 mainlines, ramps, and cross streets. No nearby emission sources other than the roadway links included in the model run would be affected by the project.

   b) There should be an explanation of the general analysis approach (PM Hot-spot Guidance Section 3.3.3) as well as an explanation of the analysis year chosen (PM Hot-spot Guidance Section 2.8). The choice of analysis year depends on a several factors, such as expected peak emissions and background concentrations, as explained in the Guidance document. Furthermore, it is possible that more than one analysis year is appropriate based on how the project is developed.

   PM10 emission factors were developed for an analysis year of 2050, which represents the year peak emissions from the project are expected. Vehicle emissions of PM10 are a combination of vehicle exhaust, brakewear, tirewear, and road dust. Road dust is the largest contributor to the overall emissions. Because road dust is highly dependent on vehicle volumes, the analysis year of 2050 was selected as the year of peak emissions because it was the year with the greatest vehicle volumes. This has been reflected in the 2021 MAG Conformity Analysis budget test, which resulted in highest PM10 emissions in 2050 due to largest VMT and the most surrounding PM emissions.

   c) As stated on Page 7 of the Consultation document, Step 2 should "determine National Ambient Air Quality Standards (NAAQS) … to be evaluated," but the NAAQS is not mentioned discussed at any point later in the document.
   Will discuss the NAAQS later in the document.

EPA had the following comments regarding Table 1. Methods, Models, and Assumptions:

2) Table 1, Step 3, Time Spans: Since this is an expanded highway project that affects intersections, this project does not include start activity from gasoline vehicles. Therefore, four runs (morning peak, midday, evening peak, and overnight) should be done for the month with the seasonal fuel that results in the highest PM emissions. The vehicle miles traveled (VMT) input should be from the month where VMT is the highest, per Section 4.3.1 and 4.3.2 of the PM Hot-spot Guidance. As also stated in Section 4.3.1 of the Guidance,

"Modelers have the choice to run MOVES more times, e.g., for four different seasons, or for additional time periods of the day, to better represent variation in VMT across seasons and across the day if they choose." Furthermore, as stated above, the choice of 2050 for the analysis year should be justified.

Table 1 shows the template without project specific data, please see Time Spans in Table 2 that shows specific modeling inputs for the project. Per Section 4.3.1 of the Guidance, PM hotspot analysis will use 16 runs with 4 seasons (Jan, Apr, July & Oct) and 4 weekday time periods (6-9AM, 9AM-4PM, 4-7PM & 7PM-6AM) for the 2050 design year.

3) Table 1, Step 4, Precipitation: We are consulting with OTAQ over the use of precipitation data from 2008-2012. While the use of this data is consistent with the PM Hot spot guidance (Section 6.3.3), we are uncertain if this data is still representative of conditions. It may need to be updated for this analysis and in the regional conformity analysis. We will provide an update as soon as we hear back.

   The precipitation data from 2008-2012 is from latest Conformity Analysis for the FY 2022 – 2025 MAG Transportation Improvement Program and the MOMENTUM 2050 Regional Transportation Plan

EPA had the following comments regarding Table 2. Proposed Inputs, Parameters, and Data Sources:

4) Table 2, Step 3, Link Source Types: It is unclear why a ratio of options 1 and 2 is taken. We have reached out to OTAQ to consult on this new method, however these two options correspond to two separate scenarios. . We highly recommend following the hot spot guidance and only selecting one of the options.

   Option 2 in the EPA's PM Hot-spot Guidance Section 4.5.7 will be used.

5) Table 2, Step 5: It would be helpful to define variable names (for example, EMISFACT, SEASHR, and RECTABLE). Also, please explain the reasoning behind why variables are chosen to be the values listed in this table. For example, it is unclear what "Emission rate=1" means, and FLAGPOLE = 1.8 should include a brief explanation.

   Will submit Model output files showing variable names to EPA.
   As directed by the PM Hot Spot Guidance, emissions were input in a manner to reflect changes in emission factors and vehicle volumes throughout the day. This was represented in AERMOD by specifying an emission rate of 1 g/s/m² with the variable variable emission rate option to specify the emission rate of 96 emission factors (4 seasons/24 hours per day) for each emission source. Excel files that outline this process are included with MOVES and AERMOD modeling files for agency review.

   FLAGPOLE height is the receptor height in meter, will include a brief explanation.

6) Table 2, Step 5, URBANOPT: Please provide a source for the population data.

Will provide a source for the population data.

https://www.census.gov/quickfacts/fact/table/chandlercityarizona/PST045222

7) Table 2, Step 5, SURFDATA & UAIRDATA: Please provide a justification for the surface and upper air meteorological stations used in AERMOD focusing on the representativeness of the data for this project location. Also include data completeness information. See Section 7.5.1 of the PM Hot-spot Guidance for additional information.

   ADOT followed up with ADEQ on the AERMET files- the Phoenix Sky Harbor Airport dataset that was also used for F0123 project. Here is the dataset summary from ADEQ:

ADEQ AERMET
Phoenix Sky Harbor A

8) Table 2, Step 5, Urban or Rural Sources: Please include information to support urban option per Appendix W, Section 7.2.1.1(b) and PM Hot-spot Guidance Section 7.5.5.

   All emission sources used URBANOPT to specify urban dispersion coefficients. The PM Hot-spot Guidance recommends "in urban areas, sources should generally be treated as urban." Appendix W recommends multiple procedures to identify an area as urban. Using the Auer land use procedure described in Section 7.2.1.1(b)(i), based on aerial maps, greater than 80% of the land use within a 2-miles buffer around the project area includes industrial, commercial, dense single/multi-family, and multi-family two-story land use types. Therefore, the use of urban dispersion coefficients is appropriate for the project area.

9) Table 2, Step 5, Receptors (RE Pathway): Some receptors appear to be more than 25 meters apart. Please change the receptor spacing to be 25 meters apart if they are further than that. Furthermore, please verbally describe the spacing of the receptors as Figures 2 – 4 show some receptors more densely packed than others.

   The receptor placement is consistent with the guidance. We placed the receptors along and outside ADOT ROW. Additional receptors were placed at 25 meters for several front rows near the roadway sources per comment (additional 305 receptors for Alma School Rd TI, additional 261 receptors for Arizona Ave TI, additional 272 receptors for Gilbert Rd TI, and additional 312 receptors for Lindsay Rd TI). the highest PM concentration would normally occur at receptors near the roadway sources. the PM concentrations would decrease further away from the roadway sources, and receptor placements further away from the source would not affect the highest PM concentration design value for the intersection and analysis results.

10) Table 2, Step 6, Nearby Sources: Please include a discussion of nearby sources and whether they should be explicitly modeled.

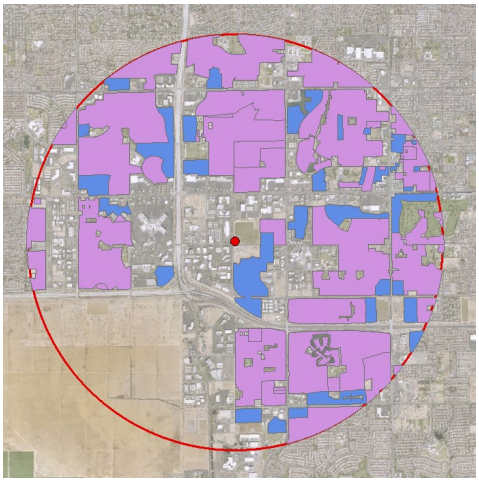
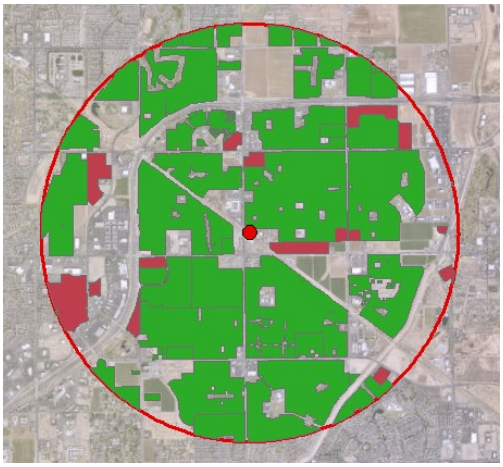
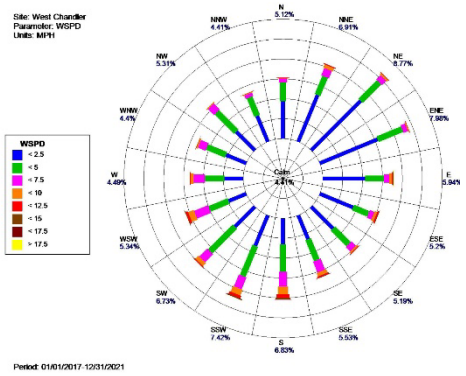
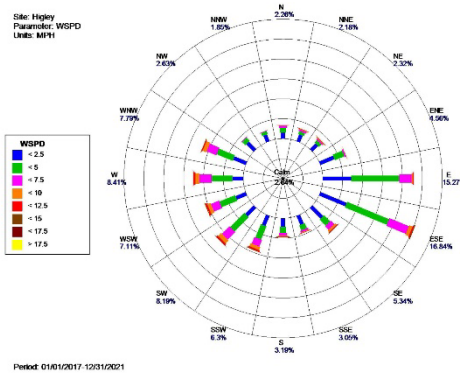
There are no nearby emission sources that are expected to change as a result of the project. It is assumed that emissions from other nearby sources are already included in the ambient monitoring data.

11) Table 2, Step 6, Other Sources (Ambient Monitoring Data): If these two monitors are still going to be used for this project, more information should be provided to justify the choice of these monitors and the choice to interpolate between them. It is stated that there is a significant difference in background DVs between these two monitors. Is this difference caused by a particular emissions source which affects one monitor more heavily than the other? Are these two monitors the closest ones to the project area? Are these monitors frequently upwind of the project area? It would be helpful to look at wind roses at the project area as well if that information is available. Furthermore, it would be helpful to have some text explaining the significance of the wind roses provided for the West Chandler and the Higley monitors as they relate to the representativeness of these monitors. These are some questions which may help determine the choice of a monitor, which should be representative of background concentrations at the project area. See PM Hot-spot Guidance Section 8.3.1 for more details.

a) Given our recent email exchange on 3.29.23 (Re: Exceptional Events and Background Concentrations for PM Hot Spot Analyses) regarding background monitors for F0124, EPA would like to request updated information on which background monitor will be used along and a discussion on why the original monitor choice was changed. Please describe why the new station chosen represents background conditions for the area, along with a discussion of nearby sources and whether any should be explicitly modeled. See Section 8.1 and 8.2 of the PM hot spot guidance for more details.

See Final Atypical Events Report for more details. Percentages were added to the land use/terrain row below. Wind rose figures were added in the Wind pattern row below, which include the wind speed in each direction and wind percentages for each wind direction.

	Project Area	West Chandler (WC) AQS ID: 04-013-4004 Address: 275 S Ellis, Chandler 0.5 miles to project	Higley (HI) AQS ID: 04-013-4006 Address: 2207 S Higley Rd, Gilbert 2.5 miles to project
Collection frequency, completeness, and background concentration	N/A	Continuous monitoring overall PM data completeness is 96.8% in 2021 Number of complete monitoring days in 2019 to 2021: 1091 4th Highest 24-hour reading after removing atypical events: 89 $\mu g/m^3$.	Continuous monitoring overall PM data completeness is 96.8% in 2021 Number of complete monitoring days in 2019 to 2021: 1086 4th Highest 24-hour reading after removing atypical events: 114 $\mu g/m^3$.
Land use/terrain	Density (developed area), emission	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and	Density (developed area), emission sources (near the traffic interchange), land use (residential area [58%] & vacant

	sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [17%] commercial [6%], office [3%], light industrial [4%]), terrain (relative flat).	open space [18%] commercial [6%], office [6%], light industrial [5%]), terrain (relative flat). The West Chandler monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 	and open space [12%] commercial [7%], terrain (relative flat). The Higley monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 
Wind patterns	N/A	Does not show significant upwind patterns to the project area 	Does not show significant upwind patterns to the project area 
Nearby sources:	N/A	No nearby sources other than roadways	No nearby sources other than roadways

12) Table 2, Step 6, Other Sources (Ambient Monitoring Data): This row appears to describe the design concentration, even though that is in Step 7, as described earlier in the document. For the design concentration, the highest sixth-highest value among all receptors should be added to the fourth highest background monitor value (Section 9.3.4 of PM Hot-spot Guidance). This is similar to the explanation provided here, but it should be stated that this is the design concentration, not the background concentration.

Will state to "For the design concentration, the highest sixth-highest value among all receptors should be added to the fourth highest background monitor value (Section 9.3.4 of PM Hot-spot Guidance)." in this row.

a) Table 2, Step 6, Other Sources (Ambient Monitoring Data): As discussed previously. any days excluded from the background monitor design value concentration that have not been concurred upon by EPA as Exceptional Events should include a justification for why the data is appropriate for exclusion under Appendix W and EPA's 2019 Clarification Memo on Data Modification Methods (see Data Modification: Clarification Memo on additional Methods, Determinations and Analyses to Modify Air Quality Beyond Exceptional Events (April 2019), on web page https://www.epa.gov/air-quality-analysis/clarification-memo-additional-methods-determinations-and-analyses-modify-air). Some days may warrant exclusion but should not be those influenced by "typical" local and/or regional anthropogenic emissions. We recognize that this process is actively on-going, and we look forward to continuing conversations about this process with all agencies involved. We also request that this information undergo interagency consultation when it becomes available.

   See Atypical Events Report for details.

13) Thank you for adding additional monitors to EJ communities nearby the project area.

   Thank you.

F0124_CO Consultation_03062023.pdf:

1) On page 3, in the last paragraph, it is stated that there are 9 intersections in the PM peak that would result in LOS D or worse. We believe this was a typo and it should read 10.

   Double checked. It is 9 intersections in the PM peak that would result in LOS D or worse in the 2050 no build scenario, see highlighted intersections below.

Table 2 – Intersections LOS in the project area

Level of Service (LOS)	2018 Existing		2050 No-Build		2050 Build	
	AM Peak LOS (delay)	PM Peak LOS (delay)	AM Peak LOS (delay)	PM Peak LOS (delay)	AM Peak LOS (delay)	PM Peak LOS (delay)
Intersection LOS (overall, not for each link)						
Price Rd & WB SR 202	C (21.4)	C (21.5)	C (23.6)	D (44.5)	C (28)	D (42.9)
Price Rd & EB SR 202	B (19.1)	C (25.1)	C (24.9)	D (51.9)	C (23.3)	D (48.5)
Dobson Rd & WB SR 202	B (14.1)	A (8.8)	B (13.2)	B (13.6)	B (14.4)	B (13.4)
Dobson Rd & EB SR 202	A (6.8)	A (3.3)	B (10.6)	A (7.9)	B (11.6)	A (9.4)
Alma School Rd & WB SR 202	B (18.1)	B (17.6)	B (17.3)	C (31.4)	C (30.4)	D (41.6)
Alma School Rd & EB SR 202	B (12.6)	C (25.1)	C (25.6)	E (58.1)	D (40.5)	E (62.4)
Arizona Ave & WB SR 202	B (19.1)	B (17.2)	C (27.4)	C (34.3)	B (17.3)	C (25.7)
Arizona Ave & EB SR 202	B (14)	B (17.6)	B (14.9)	C (20.7)	C (22.6)	B (19.9)
McQueen Rd & WB SR 202	B (16.2)	B (15.2)	B (15.7)	B (16.1)	C (21.2)	C (22.2)
McQueen Rd & EB SR 202	B (15.4)	C (26.6)	C (21.0)	C (27.0)	C (24.4)	C (30.6)
Cooper Rd & WB SR 202	B (14.8)	B (16.3)	B (16.1)	B (19.0)	B (19.7)	C (22.2)
Cooper Rd & EB SR 202	B (18)	B (15.5)	C (20.5)	C (23.1)	C (22.6)	C (29.9)
Gilbert Rd & WB SR 202	B (19.9)	B (16.6)	E (59.3)	F (126.3)	E (68)	F (138)
Gilbert Rd & EB SR 202	B (14.8)	B (17.2)	C (28.6)	F (109.7)	D (40)	F (125.9)
Lindsay Rd & WB SR 202	N/A	N/A	C (33.9)	F (100.9)	C (29.7)	F (116.6)
Lindsay Rd & EB SR 202	N/A	N/A	C (22.5)	F (130.8)	C (23.9)	F (119)
Val Vista Dr & WB SR 202	C (28.6)	C (31.1)	D (54.9)	E (79.0)	E (60.9)	F (102.8)
Val Vista Dr & EB SR 202	C (25.3)	C (26.8)	F (88.0)	F (90.6)	E (65.6)	E (72.9)

2) We recommend choosing either 2025 or 2026 for the MOVES Emission rates for modeling the worst-case scenario to be more conservative. We do not recommend using 2030, as we do not think this represents the highest emission rates, and thus does not represent the worst-case scenario. If information from the regional conformity analysis is prioritized, we recommend using 2025 instead of 2030.

   Will use 2026 for the MOVES emission rates for modeling the worst-case scenario to be conservative.

3) It should be clearly stated what emissions sources are located in the project area, including those which may not be covered by Step 3.

   Will state that the emissions sources located in the project area are SR202 mainline, ramps, and cross streets. No nearby emission sources other than the roadway links included in the model run would be affected by the project.

4) Table 1, Time Spans: Please explain and provide data justifying the choice of one January MOVES run. This might be appropriate if potential CO NAAQS violations are expected to occur only in the winter, but it is not clear if that is the case based on the information

provided in this document. If there are potential violations under other conditions (for example, higher temperatures), then additional MOVES runs may be necessary.

According to EPA Guideline for Modeling Carbon Monoxide from Roadway Intersection July 1993, Section 4.7.1 states that as a simple alternative, the average temperature in January may be used.

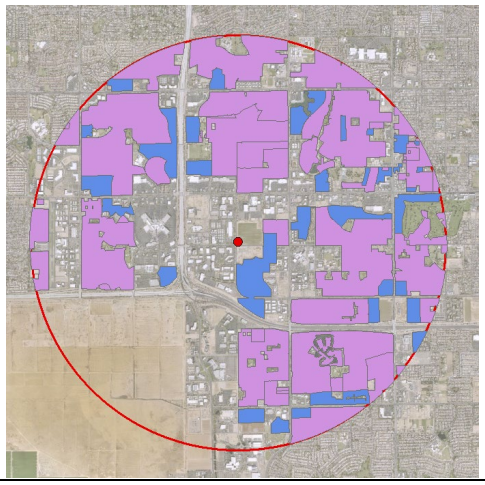
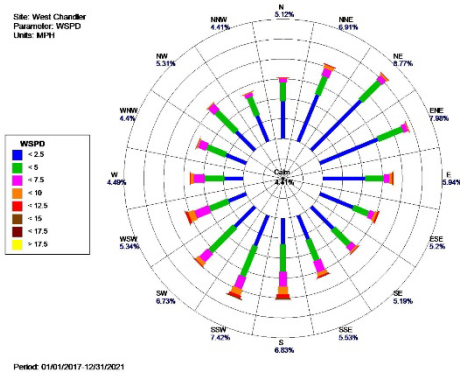
5) Table 1, Traffic and Geometric Design & Meteorology: Please provide details as to how these data will be obtained.

Will state that Figures at the end of this consultation document provide a visual representation of the lane configuration, lane width, and turning movements that will be used to model each intersection. Peak hour traffic volumes, vehicle speeds, and signal timing data were provided by the traffic analysts. These details will be available for review in the CAL3QHC input files provided as part of the Air Quality Report.

6) Table 1, Background Monitor: Please explain in more detail why the CO monitor at Frye Rd and Ellis St in West Chandler is chosen for the background concentration. This monitor should be representative of background concentrations at the project area. Although some data are provided on pages 17 and 18, it would be helpful to explain how these data support the use of this monitor as an appropriate background monitor.

Percentages were added to the land use/terrain row below. Wind rose figures were added in the Wind pattern row below, which include the wind speed in each direction and wind percentages for each wind direction.

	Project Area	West Chandler (WC) AQS ID: 04-013-4004 Address: 275 S Ellis, Chandler 0.5 miles to project
Collection frequency, completeness, and background concentration	N/A	Continuous monitoring overall CO data completeness is 97.9% in 2021 Three years of monitoring data show a maximum 8-hour value of 1.3 ppm. 1.9 ppm (which is the 8-hour concentration divided by a persistence factor of 0.7) will be added to the maximum modeled hourly concentration for comparison to the NAAQS. 1.3 ppm will be added to the maximum 8-hour modeled concentration.
Land use/terrain	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space	Density (developed area), emission sources (near the traffic interchange), land use (residential area [47%] & vacant and open space [18%] commercial [6%], office [6%], light industrial [5%]), terrain

	[17%] commercial [6%], office [3%], light industrial [4%]), terrain (relative flat).	(relative flat). The West Chandler monitor is located in fringe area away from central Phoenix, characteristics similar to the project area. 
Wind patterns	N/A	Does not show significant upwind patterns to the project area 
Nearby sources:	N/A	No nearby sources other than roadways

7) Table 1, Background Monitor: From the Guideline document, the persistence factor is generally used to estimate 8-hour concentrations from 1-hour concentration estimates. If there is 1-hour monitoring data available, that is preferred and should be used instead of the persistence factor. Furthermore, it is unclear if the persistence factor of 0.7 is based on monitoring data. It is the recommended value in the absence of monitoring data, but the persistence factor should be calculated from monitoring data if they are available. There should also be some justification as to why the same background monitored data is used for the future and whether it is appropriate for future background concentration.

In the Persistence Factor row, will state that EPA's default persistence factor of 0.7 will be used to be conservative. The 1-hour CO concentration data was not available to estimate the persistence factor.

8) Table 2, Link Source Types: It is unclear why a ratio of options 1 and 2 is taken. We have reached out to OTAQ to consult on this new method, however these two options correspond to two separate scenarios. We highly recommend following the Hot Spot Guidance and only selecting one of the options.

   Option 2 in the EPA's PM Hot-spot Guidance Section 4.5.7 will be used.

9) Table 2, Link Drive Schedules, Operating Mode Distribution: Please explain why Option 1 of the three options listed in Section 2.4.9 of the Guideline is chosen. As stated in this section, this approach provides the least resolution when analyzing the emission impact of a project. Furthermore, "EPA encourages the development of validated methods for collecting verifiable vehicle Op-Mode distribution data at locations and in traffic conditions representative of different projects covered by this guidance. However, the user should determine the most robust activity dataset that can be reasonably collected while still achieving the goal of determining an accurate assessment of the CO air quality impacts from a given project." There should be more discussion on the choice listed here based on the data available and the type of vehicle activity.

   Average speed and road type (Option 1) will be used in the Links Importer based on posted speed limits. Data to develop project-specific drive schedules and operating mode distributions is not available.

Response to FHWA Comments on F0124 CO and PM Consultation Documents (red)

PM Questionnaire

- Please include a discussion of describing the selection of the geographic area for the hot-spot analysis. How were the specific interchanges selected and why were other parts of the project excluded?

  As stated in the PM questionnaire, this project is an expanded highway project was determined in prior consultation to be treated as a project that has a significant increase in the number of diesel vehicles on mainline and significant number of trucks at intersections. Therefore, ADOT is presenting this project for interagency consultation in accordance with 40 CFR93.105 as a Project that is of Air Quality Concern and thereby will require a PM hot-spot analysis.

  The top three intersections ranked by volume are as follows:
  - Lindsay Rd & EB SR 202
  - Gilbert Rd & EB SR 202
  - Lindsay Rd & WB SR 202

  The top three intersections ranked by LOS and delay are as follows:
  - Gilbert Rd & WB SR 202
  - Gilbert Rd & EB SR 202
  - Lindsay Rd & EB SR 202

  Based on the top intersections ranked by volume and by LOS and delay, the intersection modeling analysis will be performed for the above f o u r intersections. In addition, Alma School Rd & EB SR 202, Alma School Rd & WB SR 202, Arizona Ave & EB SR 202, and Arizona Ave & WB SR 202 intersections will be analyzed because of the largest SR 202 mainline ADT volumes and truck ADT volumes. Other intersections are not selected because of less intersection volumes or better LOS.

- On page 5, suggest characterizing the approach as using “LINE sources or VOLUME sources”.
  Will use “LINE sources or VOLUME sources”.
- Also, indicate that the initial modeling will be done with all sources and receptors at grade (no Z elevations) for simplicity.
  Will indicate that the initial modeling will be done with all sources and receptors at grade (no Z elevations) for simplicity.

- Please provide more information on the weighting that will be used between the two background monitors, including the data, calculations, and the resulting recommended background concentration.
  Please refer to Atypical Events Report for detailed discussion on this topic.
- Use AERMOD version 22112 (not 21112).
  AERMOD View used AERMOD MPI version 22112, see screenshot below.

Additional Comments

- In light of EPA's recent comments on excluding exception event data from background monitors, FHWA suggests that an interagency consultation meeting be held specifically to address this issue. FHWA wants to be sure we understand their position and ensure consistency with applicable rules, guidance, and how EE data in past PM hot-spot analyses were handled.
  ADOT coordinated with EPA and FHWA on this topic.

- FHWA also suggests holding additional interagency consultation meetings to discuss exact source layout and receptor locations prior to running the models.
  ADOT coordinated with EPA and FHWA on this topic.

- FHWA would like to review the consultants complete modeling files before they begin their modeling.
  ADOT/AZTEC have prepared the Atypical Events Report per EPA comment regarding how many atypical event days to be removed from the monitoring data. In order to determine how many atypical event days to be removed from the project and make sure the project passes conformity based on the PM design concentrations, ADOT/AZTEC will need to run the models.
- Please be aware that if the initial model runs show violations, we would need to meet again to re-assess the modeling and potentially dial back some of the conservatism.
  The PM concentration does not likely violate as long as receptors are not placed along cross street sidewalks near the mainline bridge area.
- In light of the complexities of PM hot-spot modeling, a June 2023 NEPA clearance date is unrealistic for the project.

Agree. A tentative updated timeline on this is provided below.

09/01/2023 – ADOT submits modeling files and consultation documentation to all Agencies EPA/MAG/ADEQ/MCAQD/FHWA - (30 day review of modeling)

09/08/2023 – Meeting with EPA/Maricopa County/ADOT/AZTEC to discuss Atypical Memo and modeling information

09/15/2023 – Meeting with (All agencies) on the Modeling files, to discuss Draft air quality report. EPA approves removal of Atypical Days?

10/06/2023 – Meeting with (All agencies) discuss any changes/comments received on draft on Air Quality Report (public review TBD).

10/13/2023 – AZTEC finalizes modeling files and report from all agency/public comments.

10/16/2023 – ADOT submits a conformity request to FHWA.