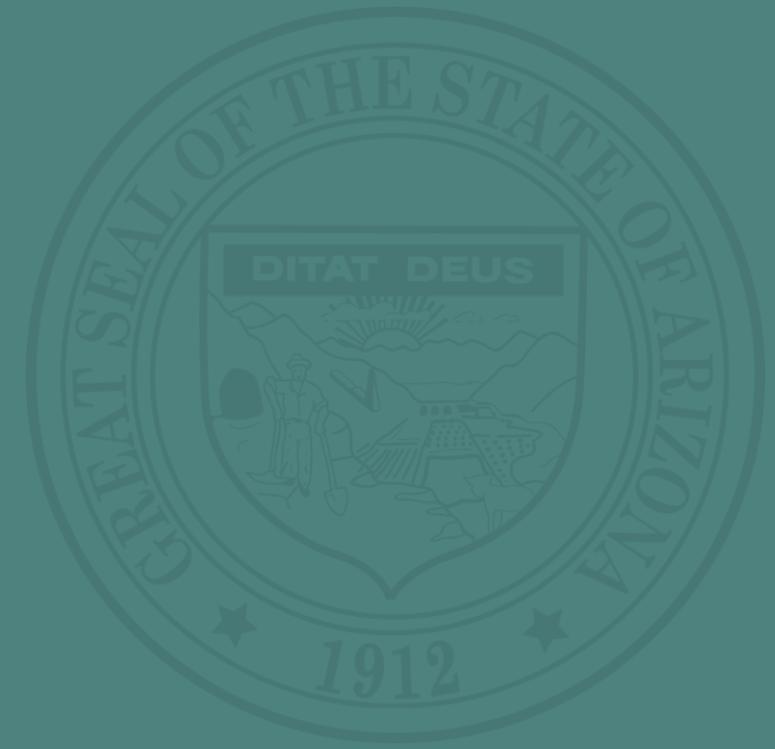


# West Pinal PM10 Nonattainment Area Overview

Agricultural Best Management Practices Committee Meeting 3.29.21

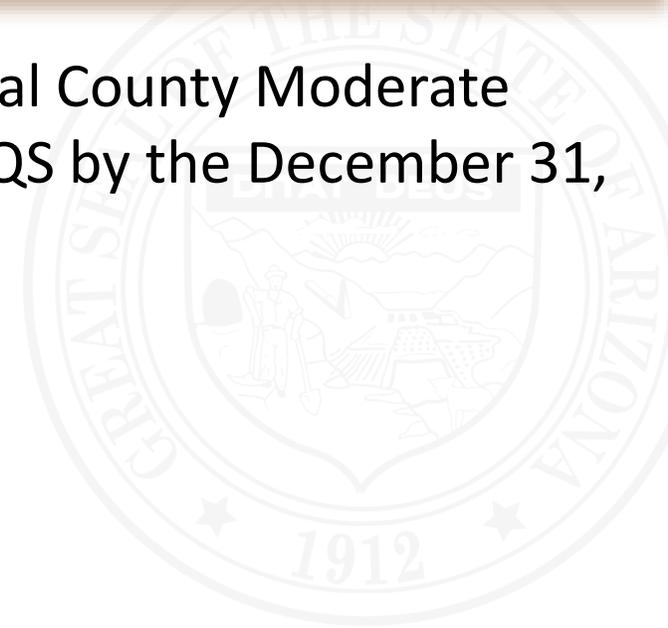
Daniel Czecholinski  
Air Quality Division Director



# Reclassification to Serious PM10 NAA

On June 24, 2020, EPA published a final rule to determine the West Pinal County Moderate PM<sub>10</sub> nonattainment area (NAA) failed to attain the 1987 24-hour NAAQS by the December 31, 2018 deadline.

- Reclassified as a Serious Area effective July 24, 2020
- The Serious Area attainment deadline is December 31, 2022
- The state implementation plan (SIP) will be prepared through a coordinated effort with the Arizona Department of Environmental Quality, Arizona Department of Transportation, Pinal County Air Quality Control District, Sun Corridor Metropolitan Planning Organization, and Maricopa Association of Governments (MAG)



# Limited Approval/Limited Disapproval

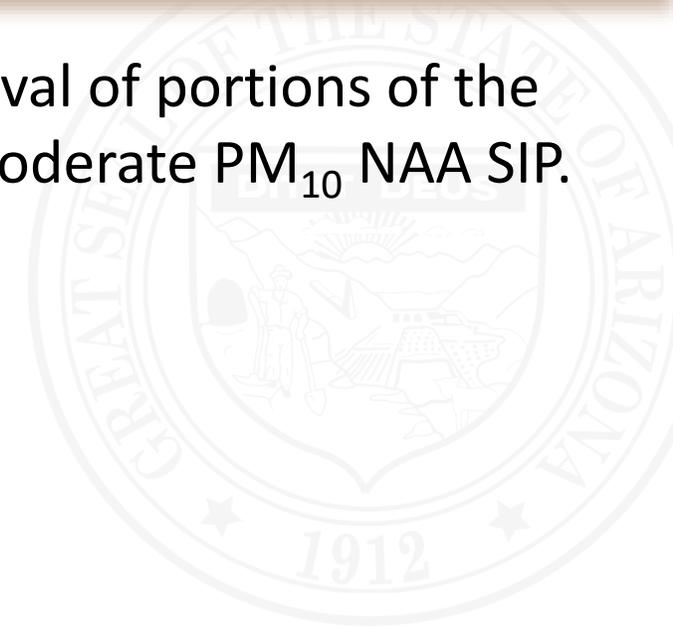
On February 26, 2021, EPA proposed limited approval/limited disapproval of portions of the AgBMP program submitted in 2015 as part of the West Pinal County Moderate PM<sub>10</sub> NAA SIP.

EPA proposed limited approval of

- ARS§49-457 amendments adopted after the 1999 SIP approval
- AgBMP rules for animal operations in West Pinal

The EPA found that the

- amended statute and rules strengthened the SIP and therefore qualified for limited approval
- statute and rules needed further amendment before they could be fully approved
- transportation conformity did not meet requirements and was not approvable



ADEQ intends to cure the Moderate PM<sub>10</sub> NAA SIP deficiencies with the Serious PM<sub>10</sub> NAA SIP

MAG has hired a contractor to conduct PM<sub>10</sub> control measure research

ADEQ will work with MAG to develop a potential list of PM<sub>10</sub> control measures to present to the AG BMP Committee.

The AG BMP Committee will identify PM<sub>10</sub> control measures that ARE and ARE NOT economically and technologically feasible.

ADEQ will provide support to the AG BMP Committee throughout this process and will update the AgBMP rule.

# West Pinal NAA PM10 SIP Draft Schedule

August 2020

## PRELIMINARY DRAFT TENTATIVE SCHEDULE FOR THE 2022 SERIOUS AREA PARTICULATE PLAN FOR PM-10 FOR THE WEST PINAL COUNTY NONATTAINMENT AREA



	2020						2021												2022				
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
<b>2022 SERIOUS AREA PARTICULATE PLAN FOR PM-10 FOR THE WEST PINAL COUNTY NONATTAINMENT AREA</b>																							
Develop a Base Year Emissions Inventory (2017/19)									▲														
Draft Modeling Protocol Document									▲														
Complete BACM and MSM Analyses							▲																
Evaluation of Economic and Technological Feasibility							▲																
Evaluation of PM-10 Emissions Reductions							▲																
Develop Future Year Emissions Inventory (2027)									▲														
Evaluation of Potential Measures in Reducing PM-10									▲														
Suggested List of Measures for Consideration by Implementing Entities									▲														
AQTAC Recommendation									▲														
Management Committee Recommendation									▲														
Regional Council Approval									▲														
Commitments to Implement Measures from Implementing Entities													▲										
Complete Committed Measure Evaluation Process																▲							
Complete Analysis and Prepare the Technical Support Document																▲							
Plan Document Available for Public Review																▲							
Public Hearing																	▲						

# West Pinal NAA PM10 SIP Draft Schedule

August 2020

**PRELIMINARY DRAFT TENTATIVE SCHEDULE FOR THE 2022 SERIOUS AREA PARTICULATE PLAN FOR PM-10 FOR THE WEST PINAL COUNTY NONATTAINMENT AREA**

	2020						2021												2022						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr			
AQTAC Plan Recommendation																	▲								
Management Committee Plan Recommendation																		▲							
Regional Council Adoption																			▲						
Sun Corridor MPO Adoption																				▲					
Submit Plan to ADEQ/EPA																					▲				
EPA Adequacy Finding																									▲



**PRELIMINARY DRAFT TENTATIVE SCHEDULE FOR THE 2022 SERIOUS AREA PARTICULATE PLAN  
FOR PM-10 FOR THE WEST PINAL COUNTY NONATTAINMENT AREA**

	2020						2021												2022				
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
<b>2022 SERIOUS AREA PARTICULATE PLAN FOR PM-10 FOR THE WEST PINAL COUNTY NONATTAINMENT AREA</b>																							
Develop a Base Year Emissions Inventory (2017/19)									▲														
Draft Modeling Protocol Document									▲														
Complete BACM and MSM Analyses							▲																
Evaluation of Economic and Technological Feasibility							▲																
Evaluation of PM-10 Emissions Reductions							▲																
Develop Future Year Emissions Inventory (2027)									▲														
Evaluation of Potential Measures in Reducing PM-10									▲														
Suggested List of Measures for Consideration by Implementing Entities									▲														
AQTAC Recommendation									▲														
Management Committee Recommendation									▲														
Regional Council Approval									▲														
Commitments to Implement Measures from Implementing Entities													▲										
Complete Committed Measure Evaluation Process															▲								
Complete Analysis and Prepare the Technical Support Document																▲							
Plan Document Available for Public Review																▲							
Public Hearing																	▲						

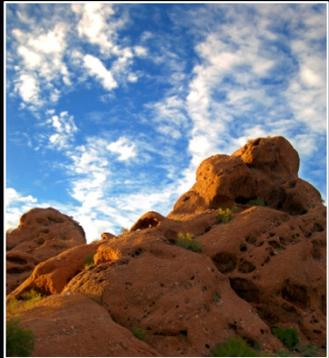


# Update on the 2022 Serious Area Particulate Plan for PM-10 for the West Pinal County Nonattainment Area



**Governor's Agricultural Best Management Practices Committee**  
**March 29, 2021**

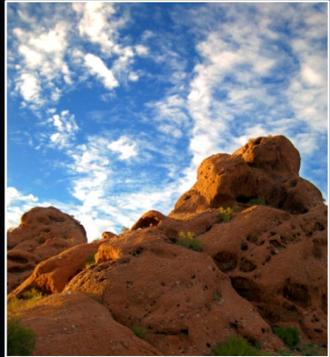
## ENVIRONMENTAL PROGRAMS



# Background

- **On May 31, 2012, the Environmental Protection Agency (EPA) designated the West Pinal PM-10 Nonattainment Area as a Moderate Area, effective July 2, 2012.**
- **The Arizona Department of Environmental Quality prepared the 2015 West Pinal Moderate PM-10 Nonattainment Area SIP and submitted it to EPA on December 21, 2015.**
- **Attainment date was December 31, 2018.**
- **On June 24, 2020, EPA published a final rule to determine that the West Pinal County Nonattainment Area has failed to meet the PM-10 standard by the December 31, 2018 attainment date and is reclassified as a Serious Area. The effective date was July 24, 2020.**
- **Serious Area Plan is due within 18 months of the reclassification date, which is January 24, 2022.**

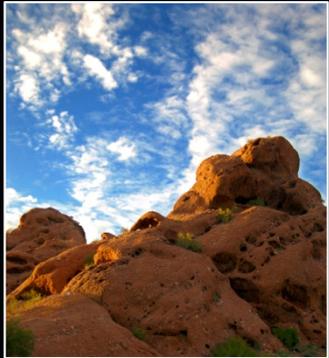
## ENVIRONMENTAL PROGRAMS



# Serious Area Plan Preparation

- **The 2022 Serious Area Particulate Plan for PM-10 for the West Pinal County Nonattainment Area is being prepared through a coordinated effort with the:**
  - **Arizona Department of Environmental Quality.**
  - **Arizona Department of Transportation.**
  - **Pinal County Air Quality Control District.**
  - **Sun Corridor Metropolitan Planning Organization.**
  - **Maricopa Association of Governments.**

## ENVIRONMENTAL PROGRAMS



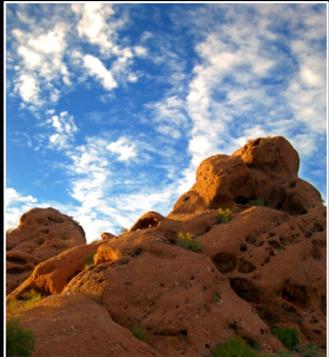
# Design Day Attainment Modeling Requirements

- **The Serious Area PM-10 Plan must include modeling that demonstrates attainment of the PM-10 standard at all PM-10 monitors within the West Pinal County nonattainment area.**
- **Design days are specific PM-10 exceedance days that are representative of the conditions (e.g., meteorology and PM-10 emission sources) that currently cause exceedances to occur within the nonattainment area.**
- **Design day PM-10 concentrations must be reduced to the level of the PM-10 standard through modeling of the PM-10 emission reduction benefits of committed control measures in order to demonstrate attainment of the PM-10 standard.**

# Design Day Attainment Modeling Requirements

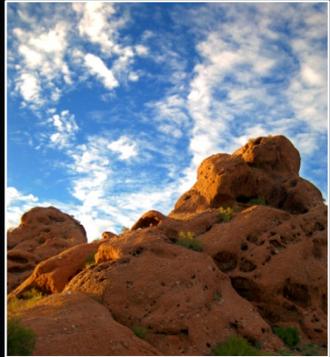
## ENVIRONMENTAL PROGRAMS

- **The West Pinal County PM-10 nonattainment area contains eight PM-10 monitors.**
  - **The PM-10 exceedances at each of these monitors need to be evaluated as potential design day candidates.**
- **PM-10 exceedances during 2016-2018 are evaluated as potential design days as this is the period used to reclassify the nonattainment from a Moderate Area to a Serious Area.**
  - **PM-10 exceedances in 2019 and 2020 have also been evaluated to examine trends and patterns in PM-10 exceedances at each nonattainment area monitor.**
- **PM-10 exceedances in 2017 have been prioritized for selection as design days as 2017 has been selected as the base year for the PM-10 emissions inventory per EPA guidance.**



# Design Day Attainment Modeling Requirements

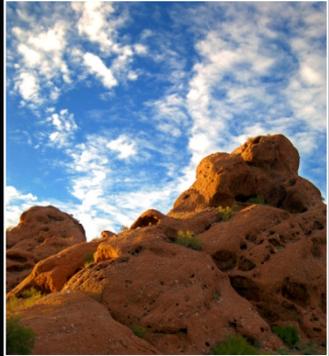
## ENVIRONMENTAL PROGRAMS



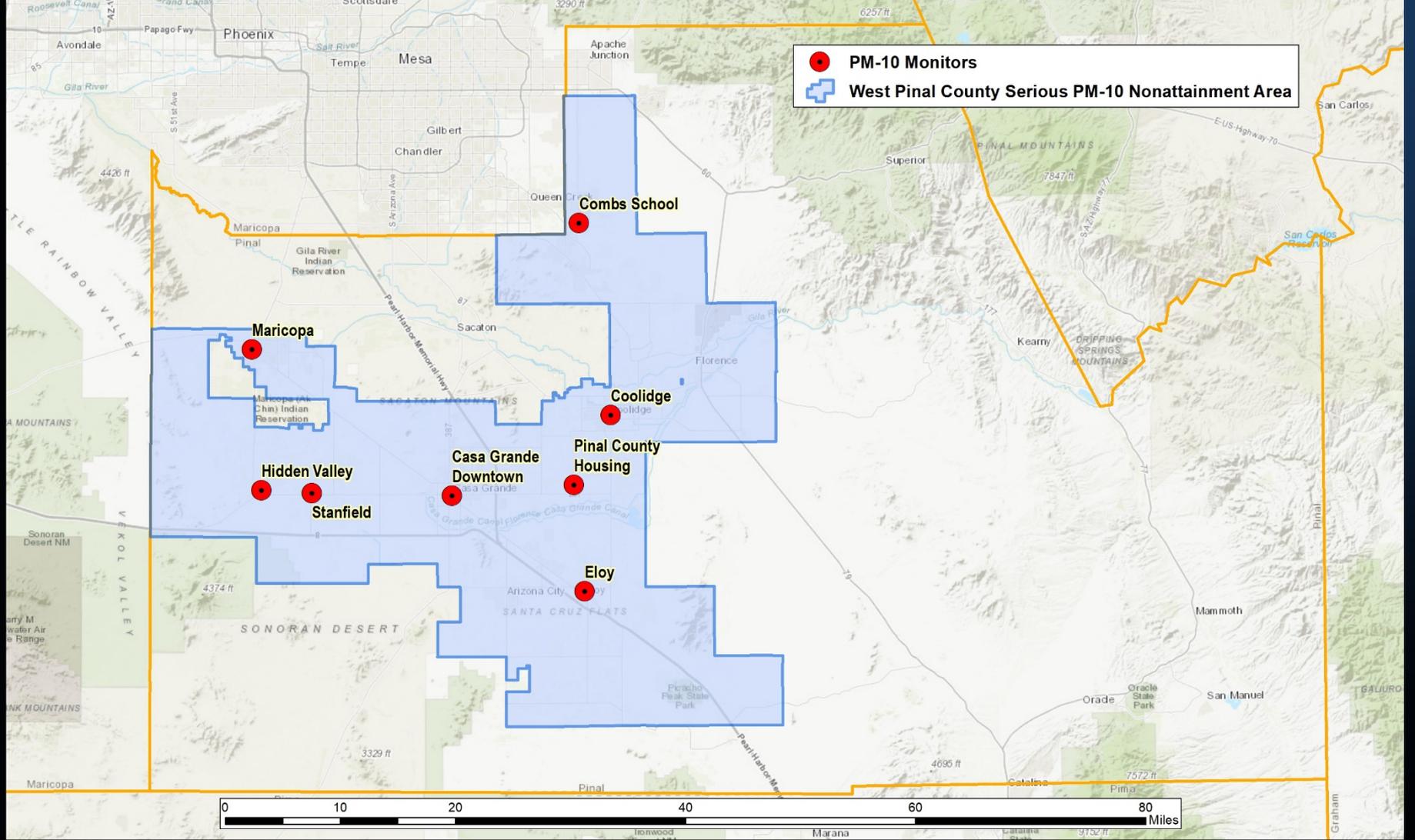
- **PM-10 exceedances within the West Pinal County nonattainment area occur under three main meteorological conditions:**
  - **Low wind - wind speed less than 12 mph (PM-10 emissions from source activities, no windblown dust emissions).**
  - **Elevated wind - wind speed 12 mph or greater, but less than 25 mph (PM-10 emissions caused primarily by windblown dust).**
  - **High wind dust event - wind speed 25 mph or greater (Uncontrollable windblown dust emissions).**
- **PM-10 exceedances under high wind dust event conditions are considered equivalent to an exceptional event and are not recommended as potential design days.**
- **PM-10 exceedances can also occur under a combination of low wind and elevated wind conditions (these exceedances are included in the elevated winds category).**
- **Design days for both low wind and elevated wind conditions are required in order to demonstrate attainment under all possible exceedance conditions per EPA guidance.**

# Design Day Attainment Modeling Requirements

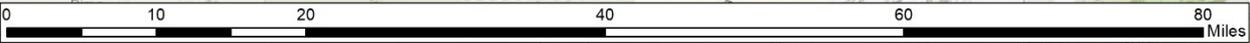
## ENVIRONMENTAL PROGRAMS



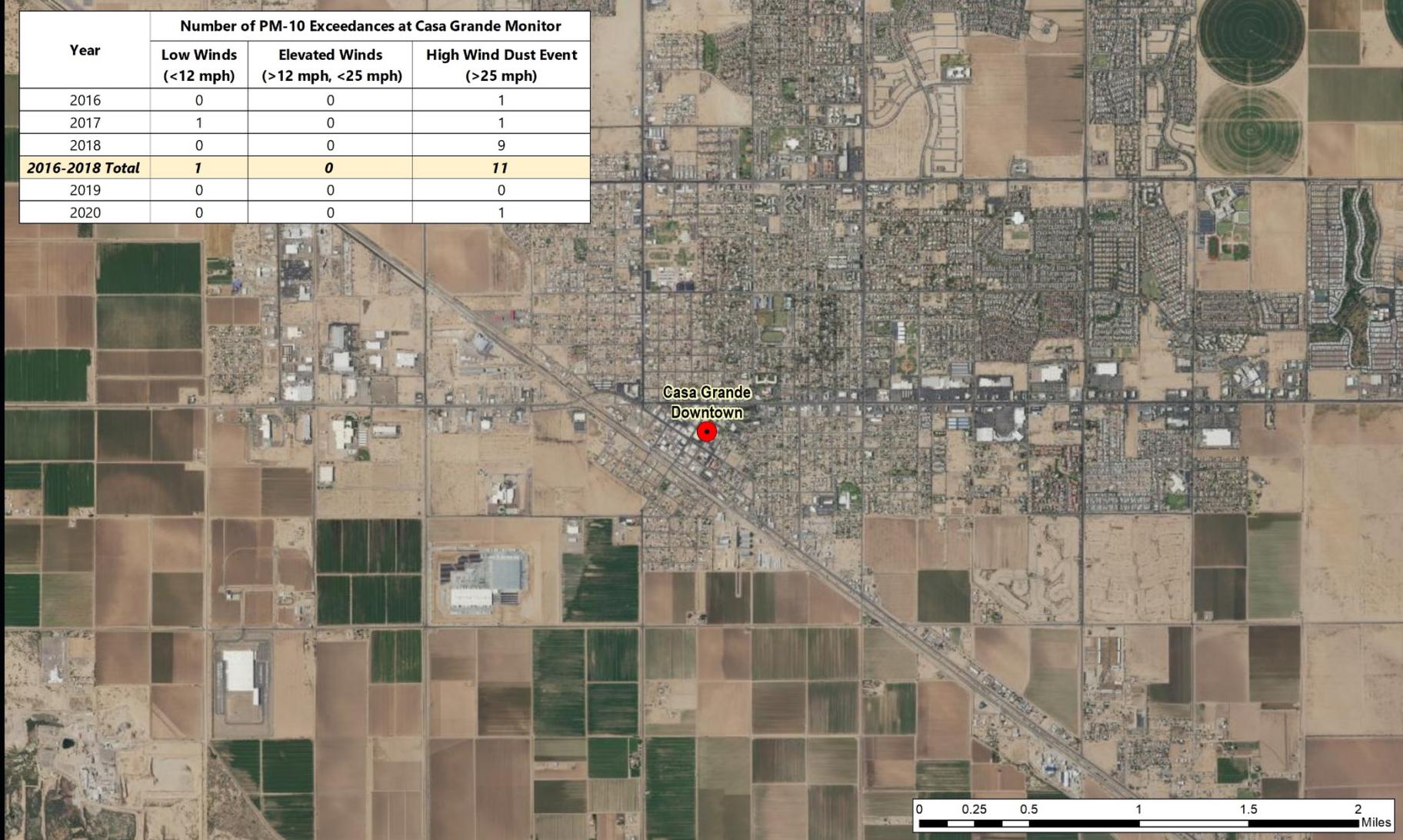
- **Design days will not be selected for PM-10 monitors that are not violating the PM-10 standard.**
- **High wind dust event exceedances will not be considered in determining whether a monitor is violating the PM-10 standard.**
- **In lieu of selecting design days at non-violating monitors, recent EPA Region 9 guidance recommends that an evaluation of non-violating monitors be addressed by describing whether the emissions inventories at each non-violating monitor are expected to increase or decrease and whether that would affect the future attainment status.**
- **EPA PM-10 guidance (1987, 1993) also generally recommends that the design day PM-10 concentration at each monitor is the fourth highest concentration when evaluating three years of monitor data in order to demonstrate that committed controls will be sufficient to limit the number of future exceedances to below the PM-10 standard (i.e., no more than 3 exceedances in a 3-year period).**



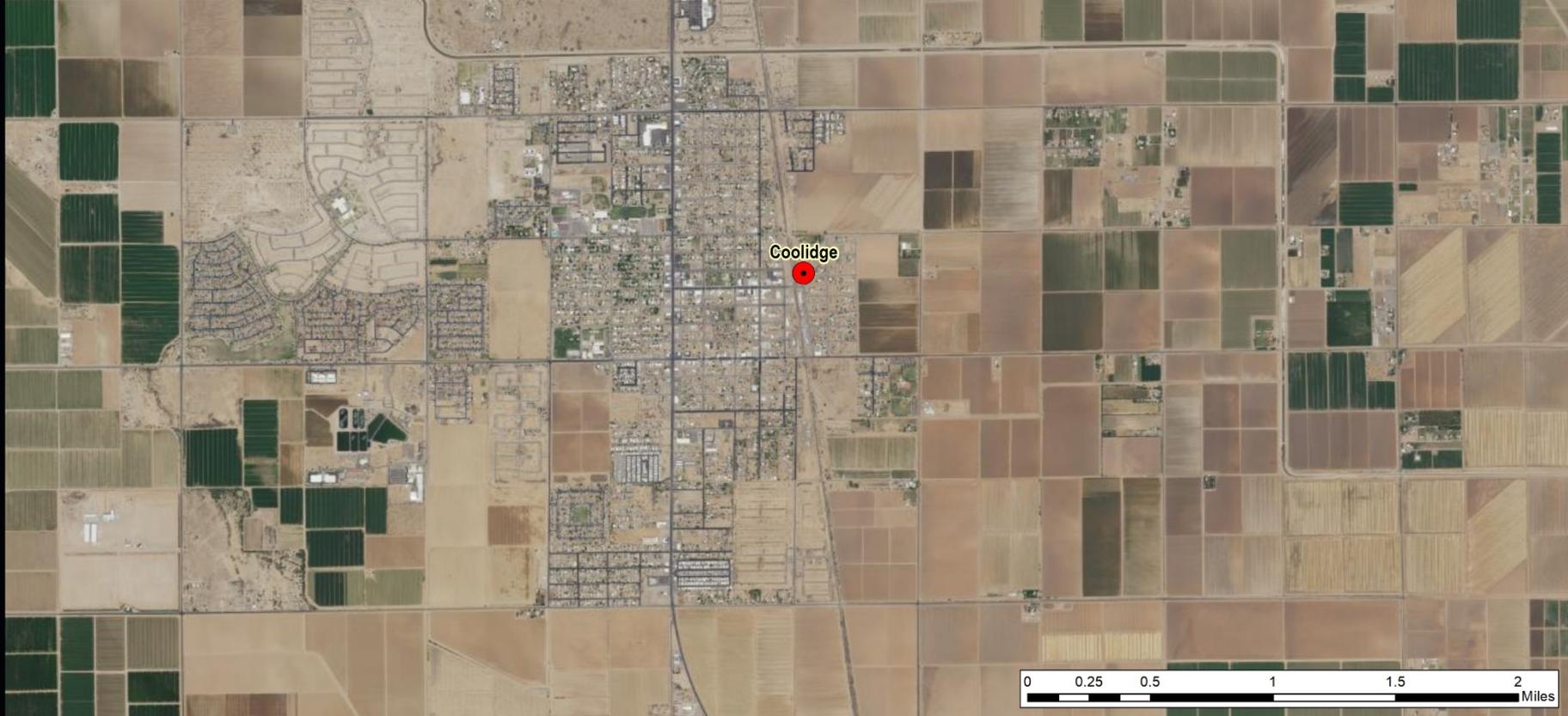
 **PM-10 Monitors**  
 **West Pinal County Serious PM-10 Nonattainment Area**



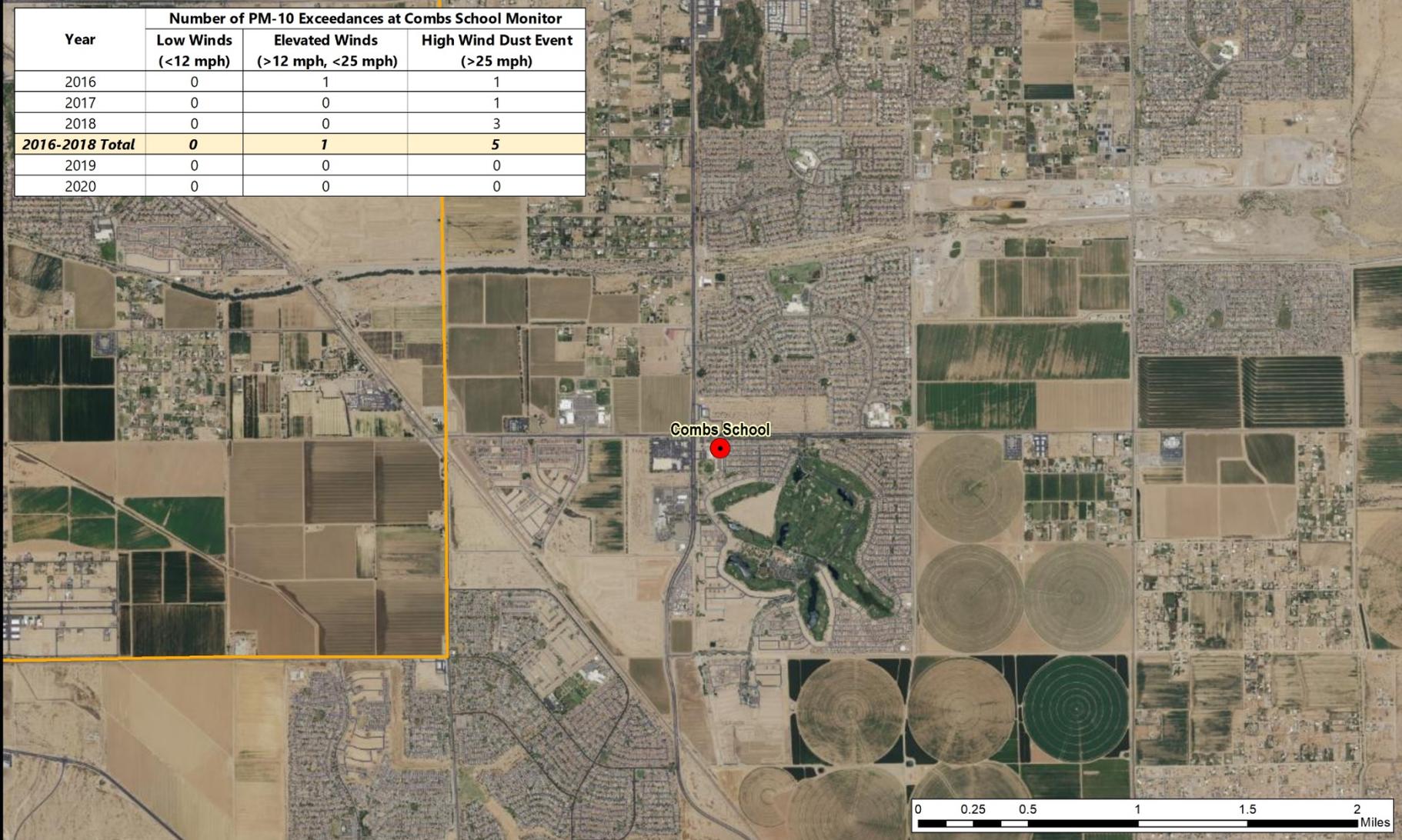
Year	Number of PM-10 Exceedances at Casa Grande Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	0	1
2017	1	0	1
2018	0	0	9
<b>2016-2018 Total</b>	<b>1</b>	<b>0</b>	<b>11</b>
2019	0	0	0
2020	0	0	1



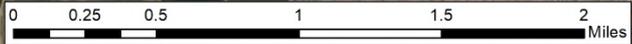
Year	Number of PM-10 Exceedances at Coolidge Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	0	2
2017	0	0	0
2018	0	0	0
<b>2016-2018 Total</b>	<b>0</b>	<b>0</b>	<b>2</b>
2019	0	0	0
2020	0	0	0



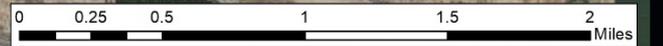
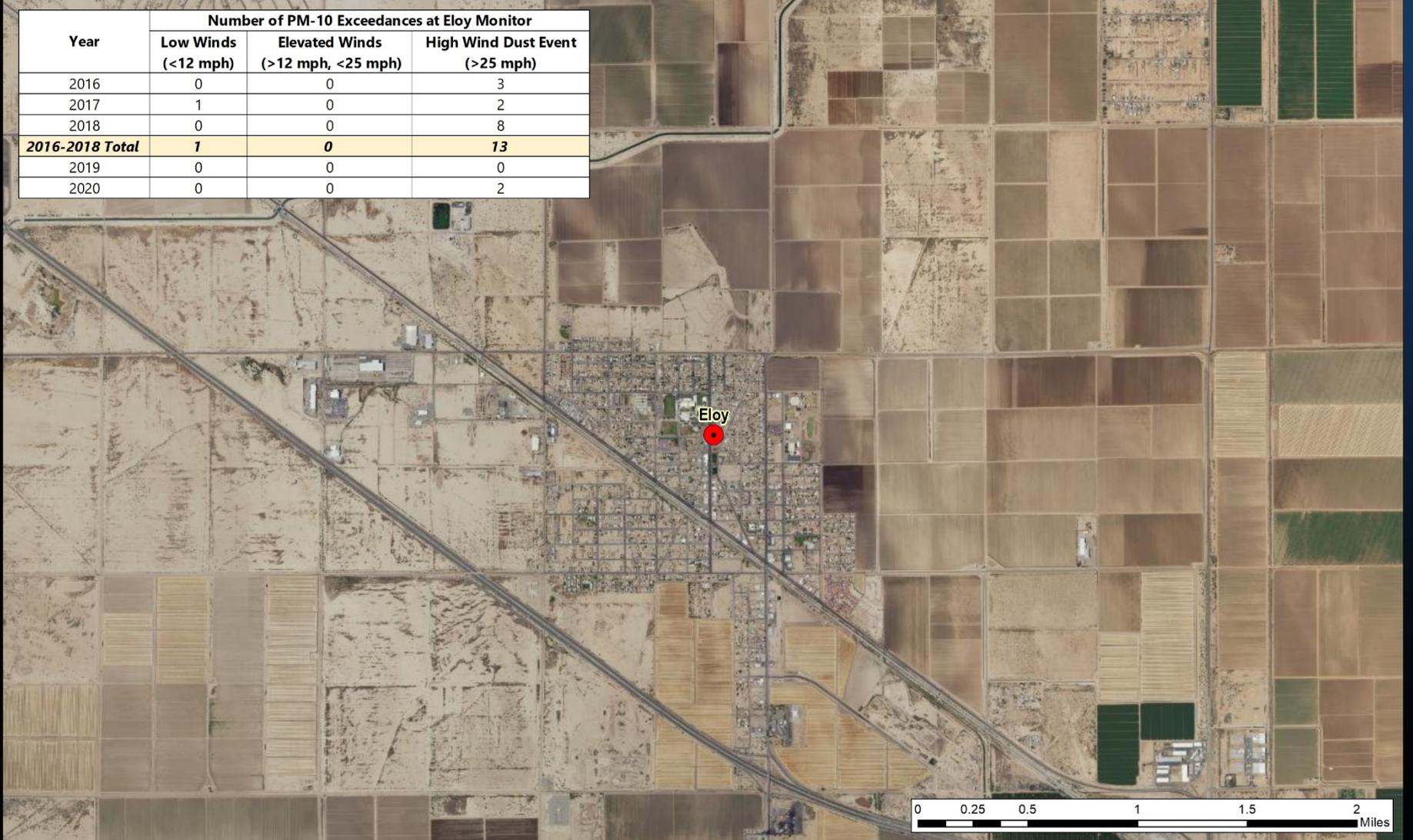
Year	Number of PM-10 Exceedances at Combs School Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	1	1
2017	0	0	1
2018	0	0	3
<b>2016-2018 Total</b>	<b>0</b>	<b>1</b>	<b>5</b>
2019	0	0	0
2020	0	0	0



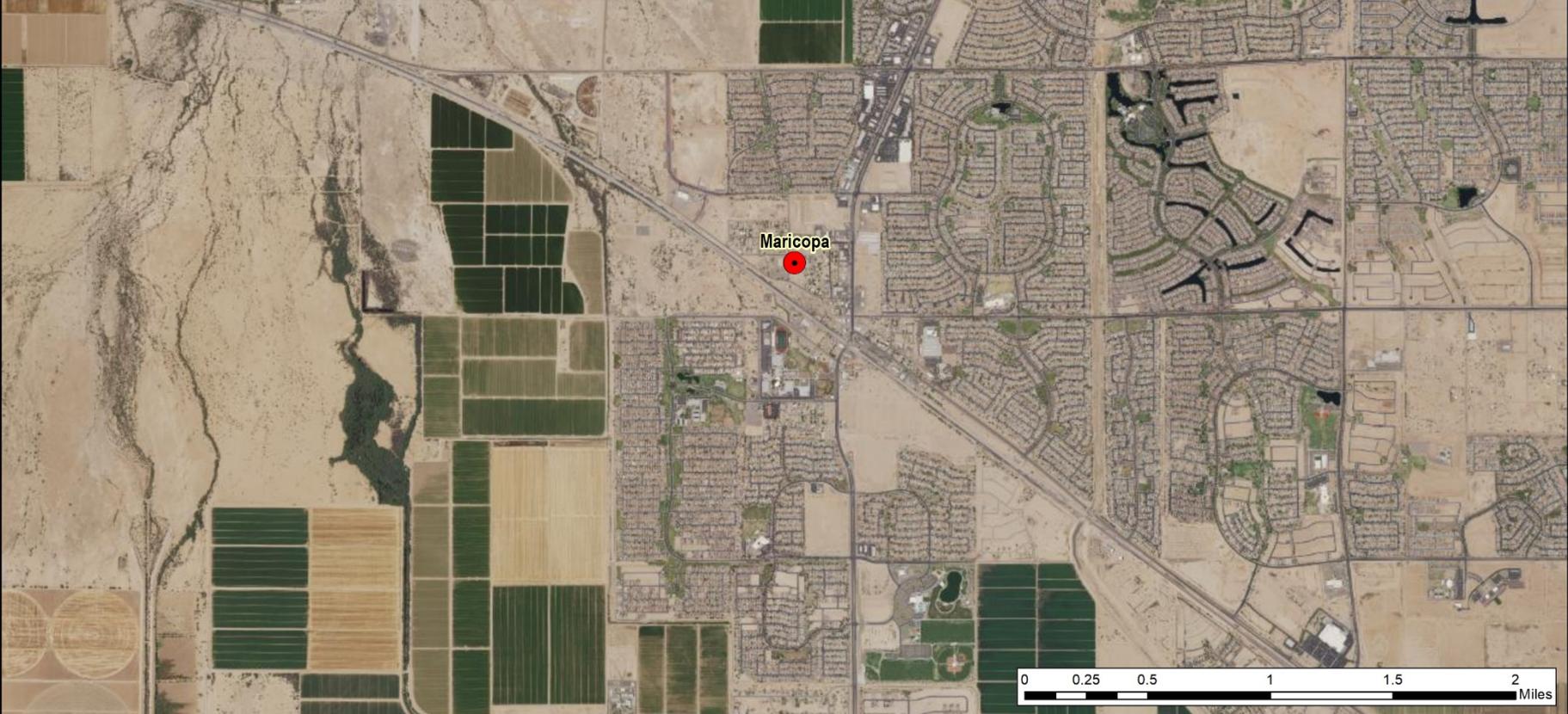
Combs School



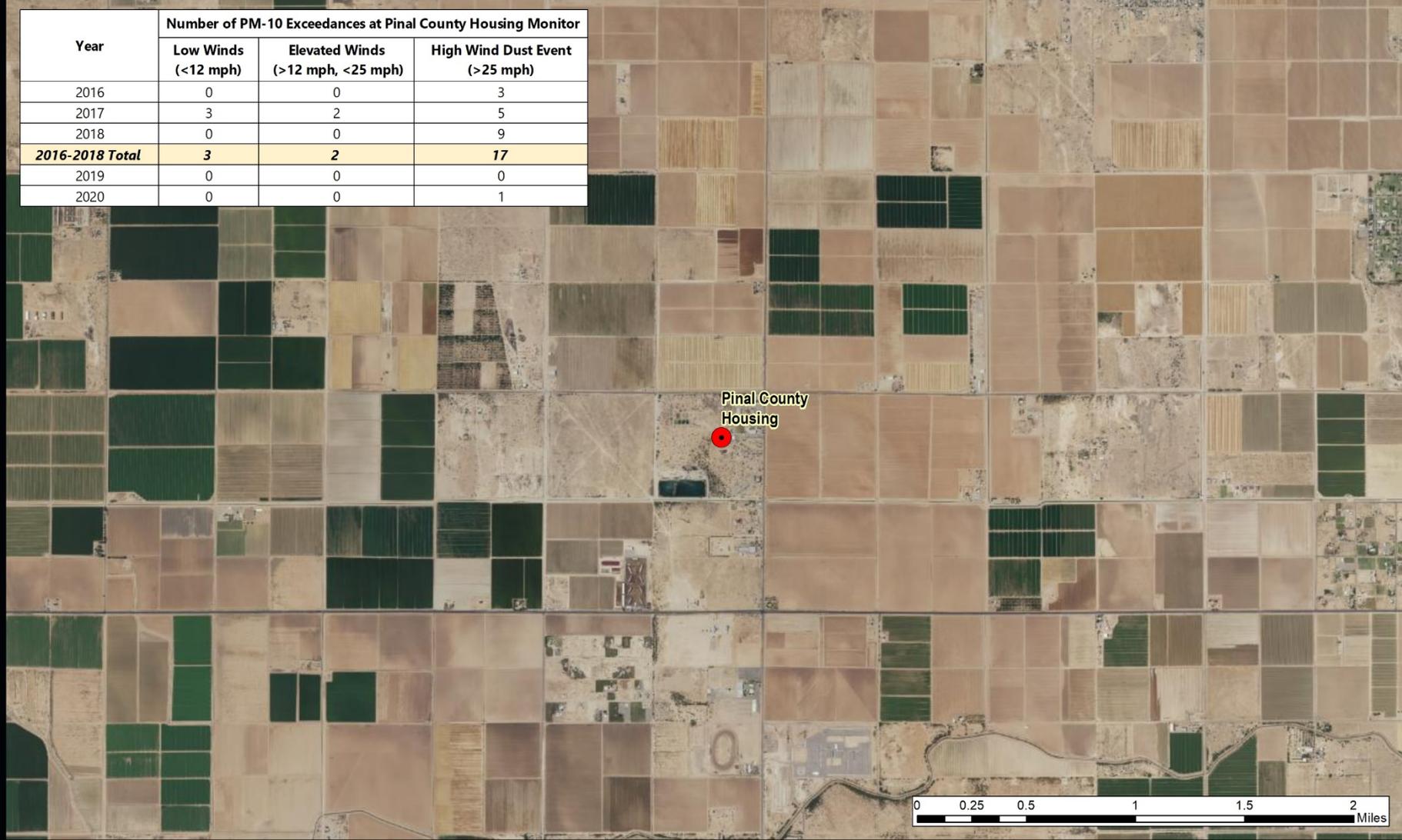
Year	Number of PM-10 Exceedances at Eloy Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	0	3
2017	1	0	2
2018	0	0	8
<b>2016-2018 Total</b>	<b>1</b>	<b>0</b>	<b>13</b>
2019	0	0	0
2020	0	0	2



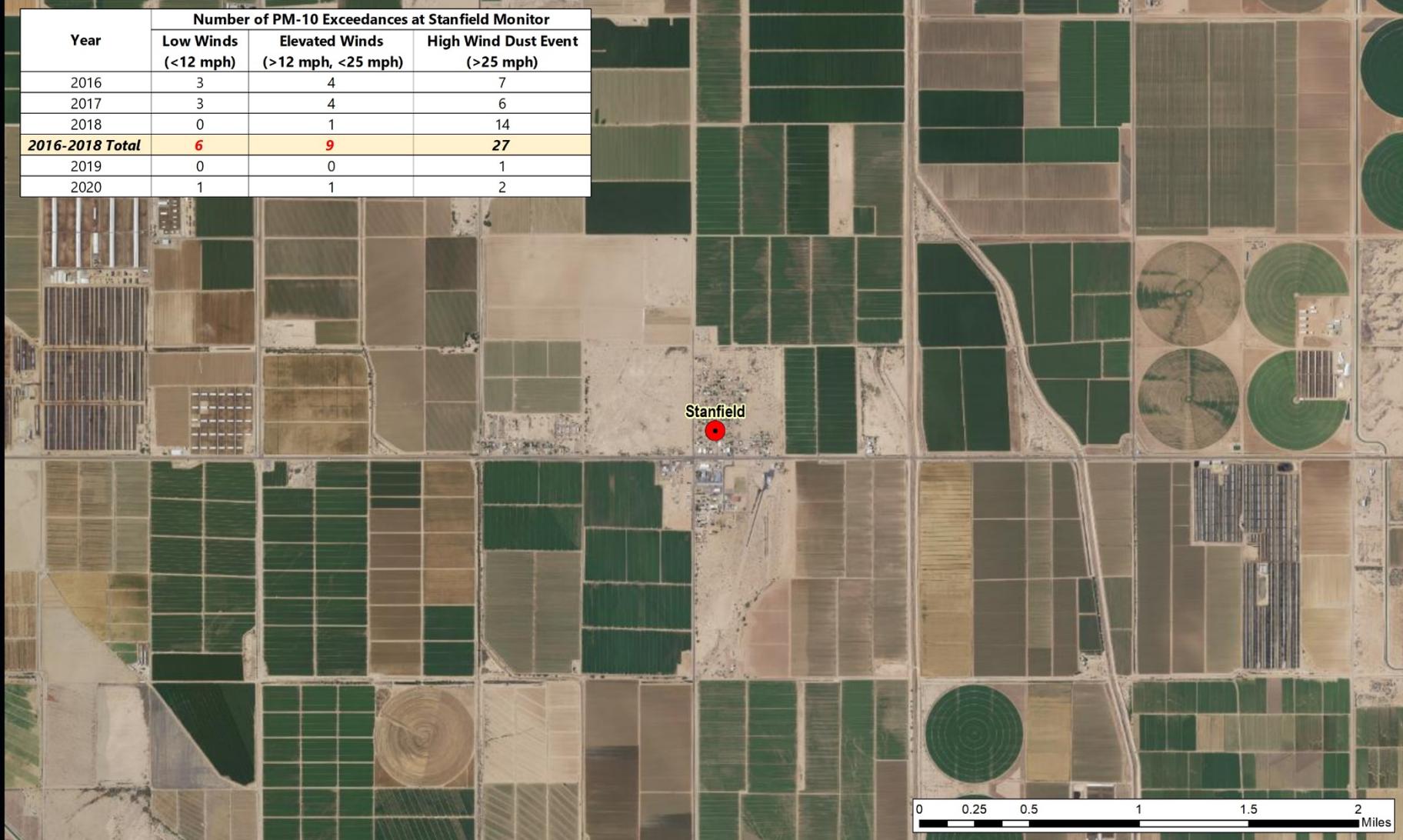
Year	Number of PM-10 Exceedances at Maricopa Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	0	1
2017	0	0	2
2018	0	0	7
<b>2016-2018 Total</b>	<b>0</b>	<b>0</b>	<b>10</b>
2019	0	0	0
2020	0	2	1



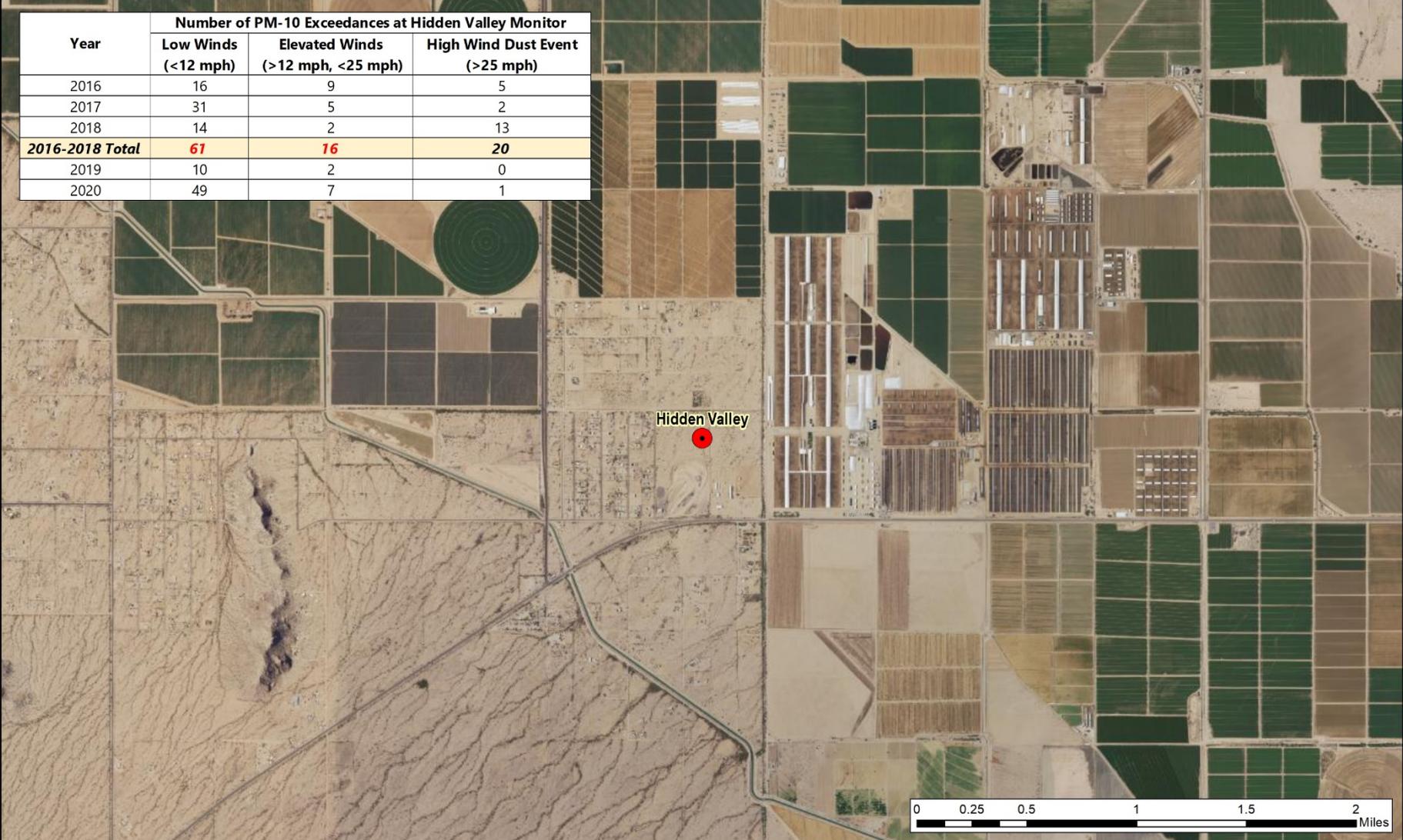
Year	Number of PM-10 Exceedances at Pinal County Housing Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	0	0	3
2017	3	2	5
2018	0	0	9
<b>2016-2018 Total</b>	<b>3</b>	<b>2</b>	<b>17</b>
2019	0	0	0
2020	0	0	1



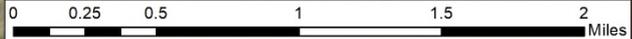
Year	Number of PM-10 Exceedances at Stanfield Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	3	4	7
2017	3	4	6
2018	0	1	14
<b>2016-2018 Total</b>	<b>6</b>	<b>9</b>	<b>27</b>
2019	0	0	1
2020	1	1	2



Year	Number of PM-10 Exceedances at Hidden Valley Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	16	9	5
2017	31	5	2
2018	14	2	13
<b>2016-2018 Total</b>	<b>61</b>	<b>16</b>	<b>20</b>
2019	10	2	0
2020	49	7	1

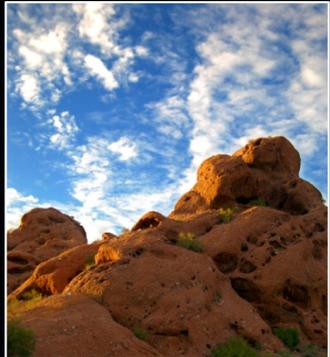


Hidden Valley



# PM-10 Exceedances at West Pinal County Monitors

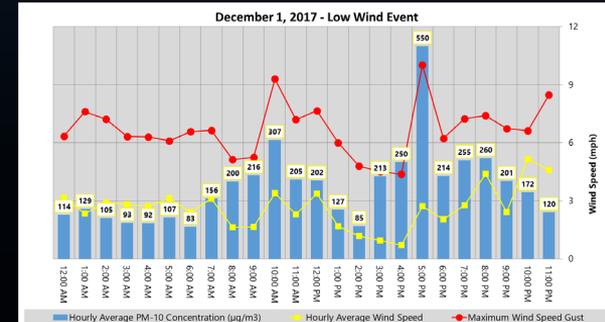
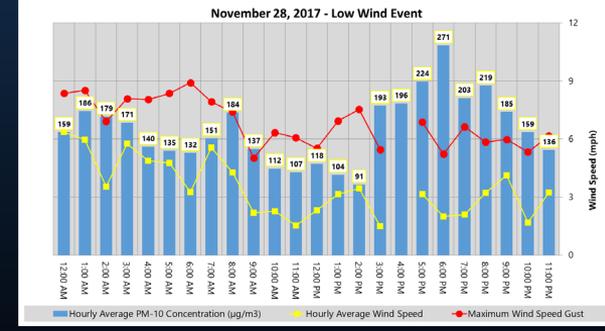
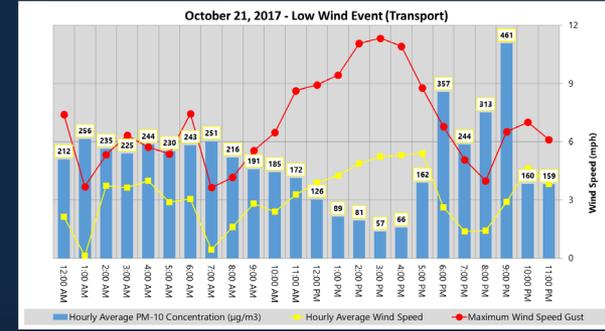
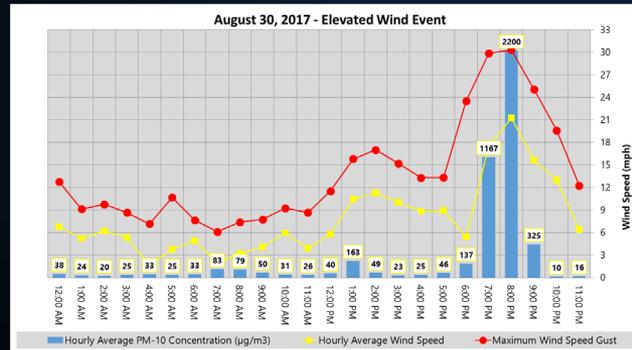
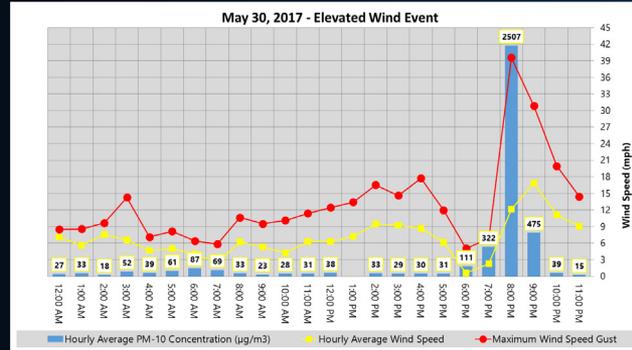
## ENVIRONMENTAL PROGRAMS



- **Based upon 2016-2018 monitoring, five monitors are meeting the PM-10 standard after high wind dust event exceedances are removed: Casa Grande, Combs School, Coolidge, Eloy and Maricopa.**
  - **No design day candidates are recommended for these five monitors.**
- **Three monitors are violating the PM-10 standard after high wind dust event exceedances are removed: Pinal County Housing, Stanfield, and Hidden Valley.**
  - **Design day candidates for these monitors are recommended.**
- **Exceedances in 2019 and 2020 have decreased at Pinal County Housing and Stanfield monitors. These two monitors may be attaining the PM-10 standard based upon 2018-2020 monitoring data.**
- **Exceedances in 2019 and 2020 at the Hidden Valley monitor have continued to occur.**

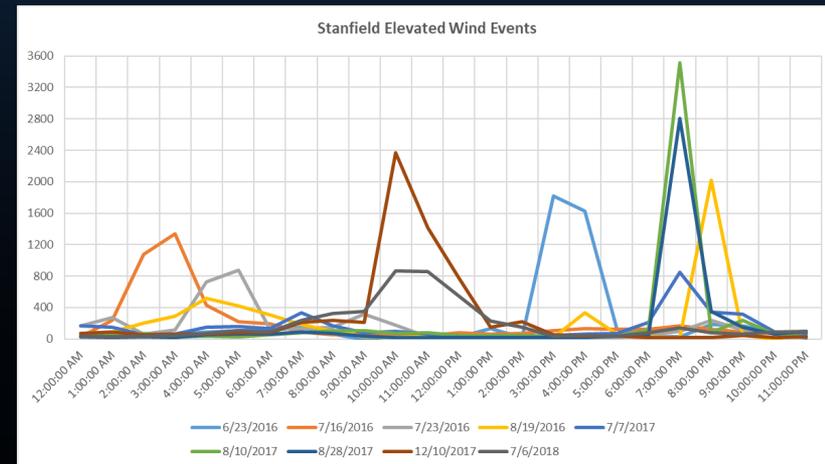
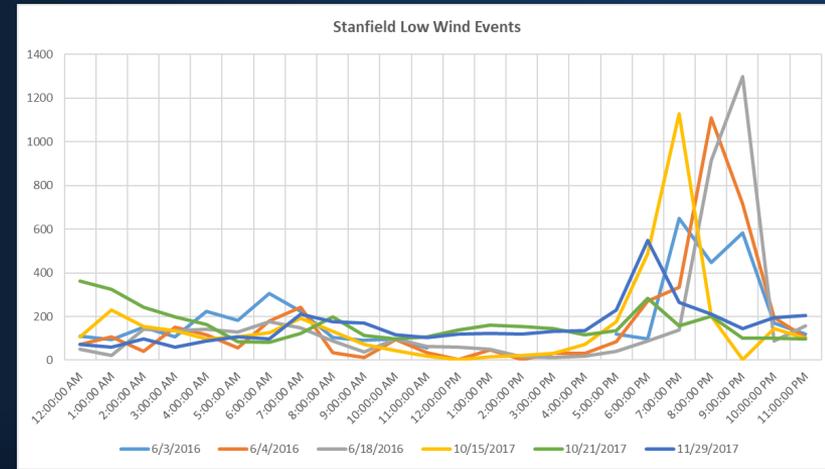
# Draft Design Day Candidates at Pinal County Housing Monitor

- 5 design day candidates from 2016-2018 data:
  - 5/30/17 – 179  $\mu\text{g}/\text{m}^3$
  - 8/10/17 – 194  $\mu\text{g}/\text{m}^3$
  - 10/21/17 – 205  $\mu\text{g}/\text{m}^3$
  - 11/28/17 – 162  $\mu\text{g}/\text{m}^3$
  - 12/1/17 – 185  $\mu\text{g}/\text{m}^3$
- 5/30 and 8/10 appear to be monsoon events, but winds not high enough to officially qualify as high wind dust event.
- 10/21 a unique long-range transport event, other monitors across Arizona exceeded as well.
- 12/1 may be best candidate if design day required for this monitor - higher than 11/28.



# Draft Design Day Candidates at Stanfield Monitor

- 15 design day candidates from 2016-2018 data:
  - 6 low wind events.
  - 9 elevated wind events.
- Low wind days:
  - Relatively similar PM-10 profile, high concentrations in evening hours.
  - 6/3/16 – 207  $\mu\text{g}/\text{m}^3$ ; 6/4/16 – 169  $\mu\text{g}/\text{m}^3$ ;  
6/18/16 – 171  $\mu\text{g}/\text{m}^3$ ; 10/15/17 – 158  $\mu\text{g}/\text{m}^3$ ;  
10/21/17 – 161  $\mu\text{g}/\text{m}^3$ ; 11/29/17 – 158  $\mu\text{g}/\text{m}^3$
- Elevated wind days:
  - Each day relatively unique, no consistent pattern.
  - 6/23/16 – 210  $\mu\text{g}/\text{m}^3$ ; 7/6/16 – 209  $\mu\text{g}/\text{m}^3$ ;  
7/23/16 – 164  $\mu\text{g}/\text{m}^3$ ; 8/19/16 – 209  $\mu\text{g}/\text{m}^3$ ;  
7/7/17 – 158  $\mu\text{g}/\text{m}^3$ ; 8/10/17 – 210  $\mu\text{g}/\text{m}^3$ ;  
8/28/17 – 172  $\mu\text{g}/\text{m}^3$ ; 12/10/17 – 265  $\mu\text{g}/\text{m}^3$ ;  
7/6/18 – 164  $\mu\text{g}/\text{m}^3$
- Still evaluating additional parameters for selection of low wind and elevated wind events. 4<sup>th</sup> high would be 10/21/17 for low wind (161  $\mu\text{g}/\text{m}^3$ ) and 7/6/16 or 8/19/16 (209  $\mu\text{g}/\text{m}^3$ ) for elevated wind.

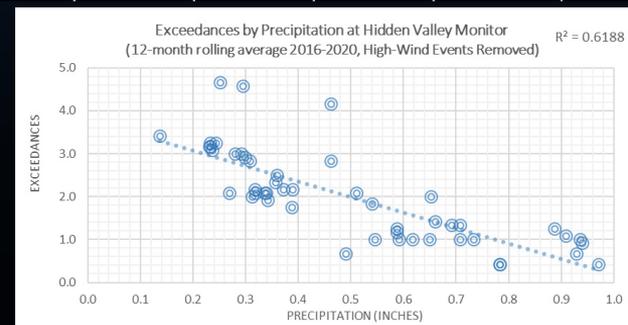


# Draft Design Day Candidates at Hidden Valley Monitor

- 77 design day candidates from 2016-2018 data:
  - 61 low wind events.
  - 16 elevated wind events.
- Two dominant seasons when low wind exceedances occur:
  - Summer: (May – August), most frequent in June.
  - Fall: (September – November), most frequent in October.
- Exceedances linked closely to amount of rainfall received. When rainfall is less, exceedances are more likely.
- 2020 driest year in 2016-2020 period, also the year with the most exceedances.

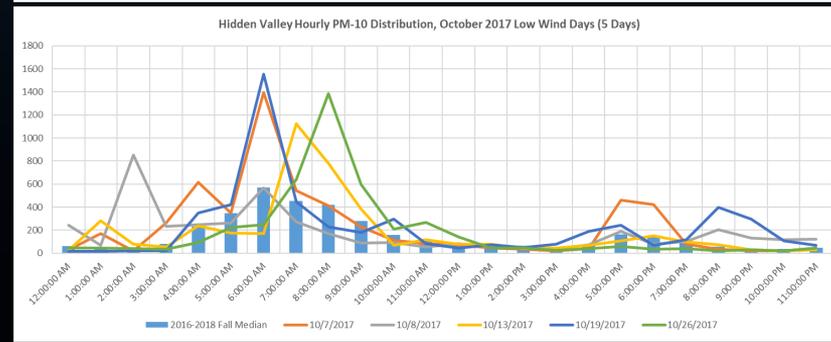
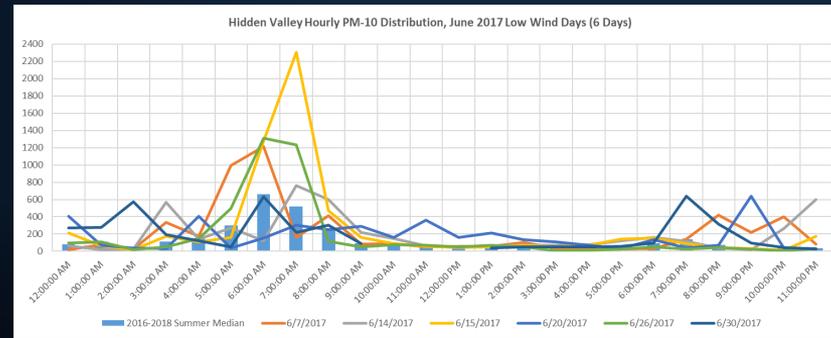
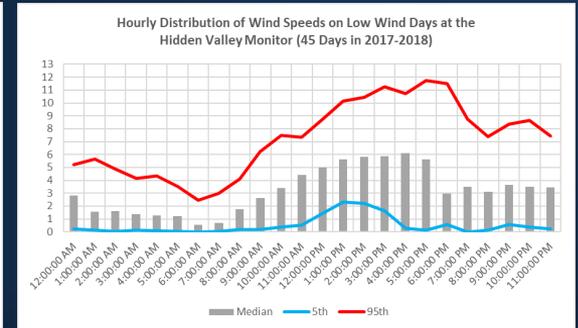
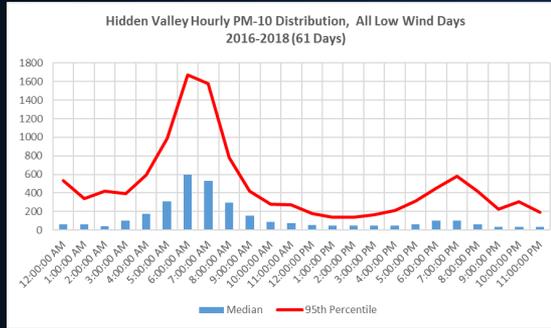
Year	Number of PM-10 Exceedances at Hidden Valley Monitor		
	Low Winds (<12 mph)	Elevated Winds (>12 mph, <25 mph)	High Wind Dust Event (>25 mph)
2016	16	9	5
2017	31	5	2
2018	14	2	13
<b>2016-2018 Total</b>	<b>61</b>	<b>16</b>	<b>20</b>
2019	10	2	0
2020	49	7	1

2016-2020 Hidden Valley Exceedances by Month									
Month	2016 Exceedances	2017 Exceedances	2018 Exceedances	2019 Exceedances	2020 Exceedances	2016-2020 Total Exceedances	2016-2020 Exceedances by Meteorology		
							Low Wind	Elevated Winds	High Wind Dust Events
January	0	0	0	0	0	0	0	0	0
February	0	0	1	0	0	1	1	0	0
March	2	0	2	0	0	4	4	0	0
April	1	2	3	0	0	6	3	0	3
May	1	2	3	1	3	10	7	2	1
<b>June</b>	<b>9</b>	<b>6</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>31</b>	<b>26</b>	<b>4</b>	<b>1</b>
July	5	2	7	0	7	21	8	7	6
August	3	7	6	0	3	19	8	4	7
September	5	5	0	0	9	19	15	2	2
<b>October</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>19</b>	<b>32</b>	<b>30</b>	<b>2</b>	<b>0</b>
November	0	7	0	4	10	21	16	4	1
December	0	1	0	0	1	2	2	0	0
<b>Total</b>	<b>30</b>	<b>38</b>	<b>29</b>	<b>12</b>	<b>57</b>	<b>166</b>	<b>120</b>	<b>25</b>	<b>21</b>



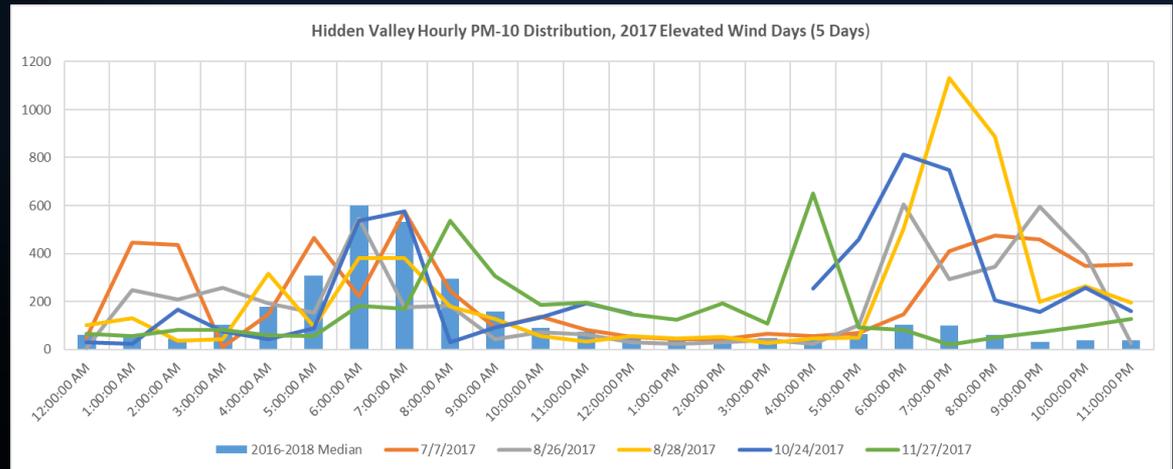
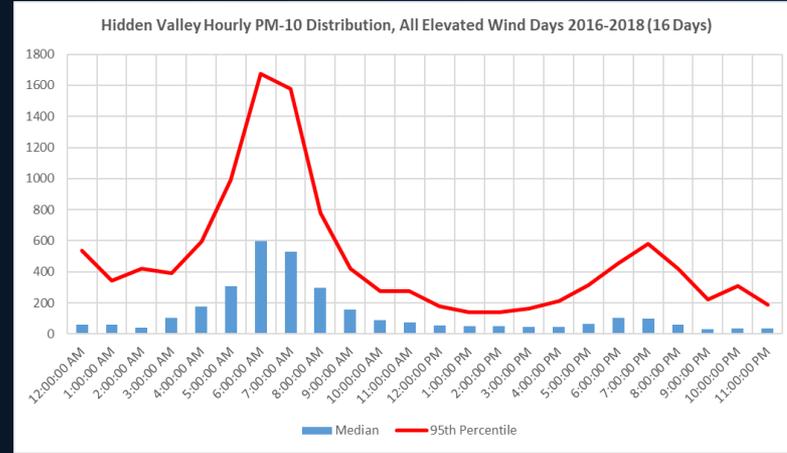
# Draft Design Day Candidates at Hidden Valley Monitor – Low Wind

- Highest PM-10 concentrations occur between the hours of 4-8 am when wind speeds are the lowest.**
- June 7, 2017 and October 7, 2017 selected as draft design day candidates for summer and fall low wind exceedance days.**
  - 6/7/17 – 217  $\mu\text{g}/\text{m}^3$  (9<sup>th</sup> highest out of 61)**
  - 10/7/17 – 229  $\mu\text{g}/\text{m}^3$  (5<sup>th</sup> highest out of 61)**



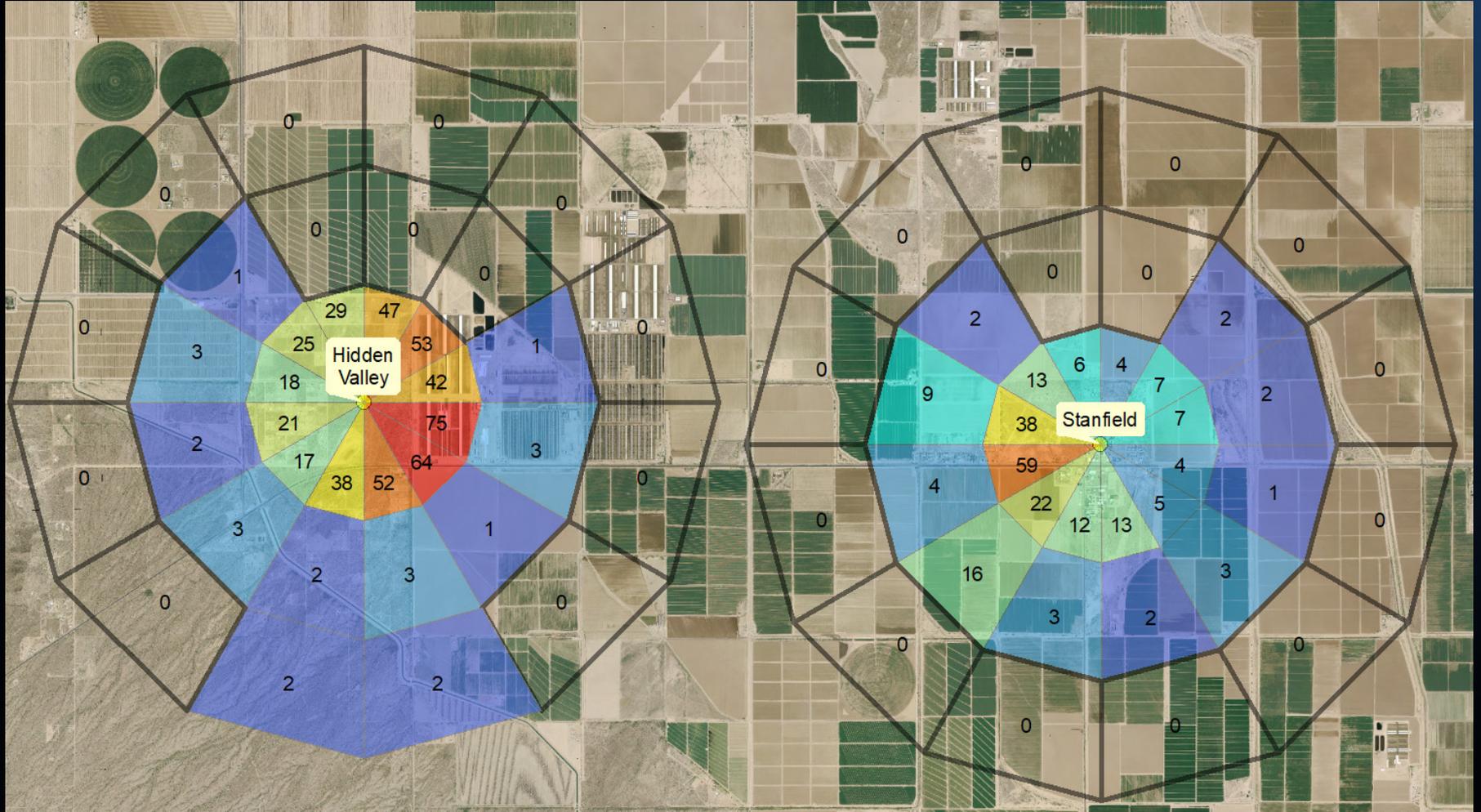
# Draft Design Day Candidates at Hidden Valley Monitor – Elevated Wind

- Each day relatively unique, no consistent pattern.
- 5 days available in 2017.
- Still evaluating additional parameters for selection of elevated wind day at Hidden Valley.
- 4<sup>th</sup> high concentration on elevated wind days is 222  $\mu\text{g}/\text{m}^3$  on 8/28/17.





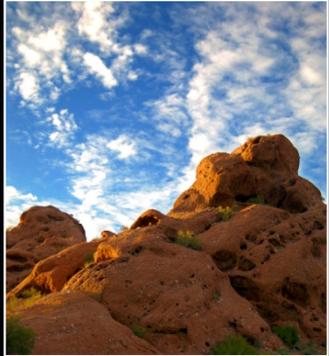
# Counts of 2017 Hourly Average PM-10 Concentrations Above $300\mu\text{g}/\text{m}^3$ by Wind Speed and Direction





# Emissions Inventory Update

## ENVIRONMENTAL PROGRAMS

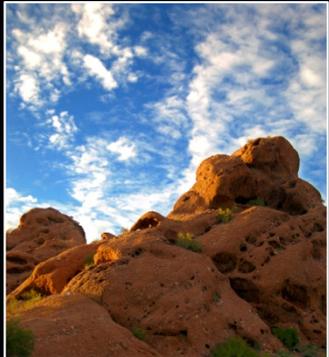


- **EPA recommends selecting a base year between 2016-2018 for the base year emissions inventory for the Serious Area PM-10 Plan. 2017 was selected as the base year.**
- **Work is ongoing to develop a 2017 base year emissions inventory with inputs being developed by the Arizona Department of Environmental Quality, Pinal County Air Quality Control District, and Maricopa Association of Governments.**
- **Based upon the information received to date, a preliminary draft 2017 base year PM-10 emissions inventory for the West Pinal County nonattainment area has been prepared.**

## ENVIRONMENTAL PROGRAMS

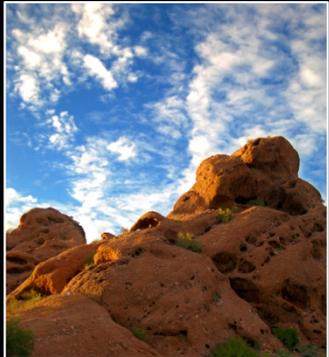
# Emissions Inventory Update

- **The preliminary draft 2017 PM-10 emission estimates in the inventory are subject to change as additional information becomes available.**
- **For example, additional information that will be forthcoming includes:**
  - **A new activity-based transportation model that will affect onroad mobile emissions and paved road emissions.**
  - **Emissions from unpaved alleys are being evaluated for inclusion in the inventory.**
  - **Emissions from test tracks are still being developed.**
  - **Soil disturbance percentages for windblown dust are still being evaluated.**

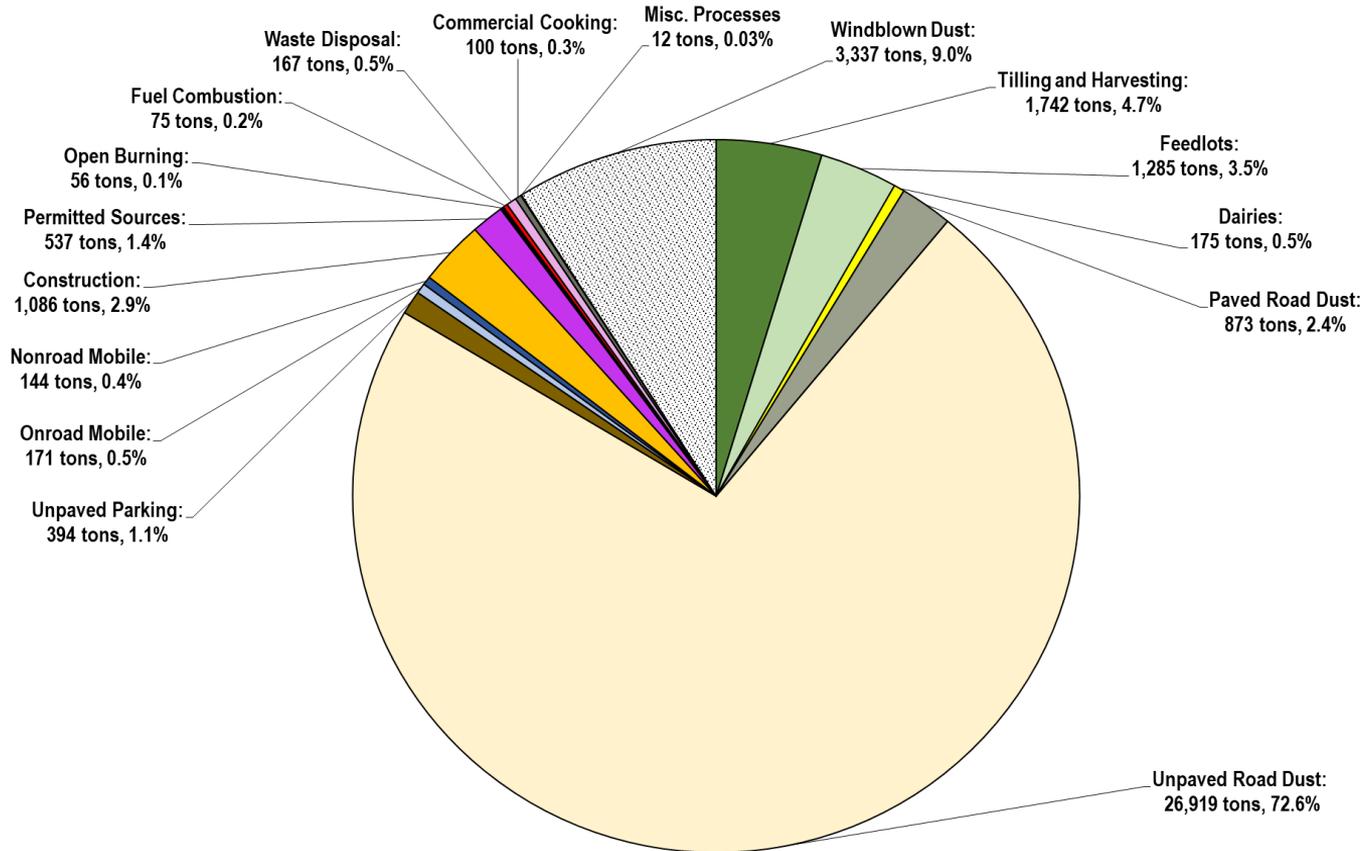


## Emissions Inventory Update

- **The currently available preliminary draft 2017 base year PM-10 emissions inventory is an annual inventory for the entire nonattainment area.**
- **Additional smaller-scale inventories will also be developed for attainment modeling domains around monitors with selected design days.**
  - **Attainment modeling domain inventories will likely be developed for the Pinal County Housing, Stanfield and Hidden Valley monitors.**
  - **Attainment modeling domain inventories will be design day specific and will represent the dominant meteorology occurring on the selected design day.**
  - **Attainment modeling inventories can vary significantly when compared to the inventory for the entire nonattainment area.**



# Preliminary Draft 2017 Base Year PM-10 Emissions Inventory for the West Pinal County PM-10 Nonattainment Area (37,072 tons/year)



*Note: 2017 base year emissions are preliminary draft emissions and are subject to change.*

## Comparison of Draft 2017 Inventory to 2008 Base Year and 2018 Attainment Year Inventories Prepared in the ADEQ 2015 Moderate Area Plan

Source Category	PM-10 Emissions				
	Draft 2017 Base Year (tons/year)	2008 Base year (tons/year)	% Increase or Decrease Comparing 2017 Base Year to 2008 Base Year	2018 Attainment Year (tons/year)	% Increase or Decrease Comparing 2017 Base Year to 2018 Attainment Year
Tilling and Harvesting	1,742	2,853	-38.9%	2,853	-38.9%
Feedlots	1,285	2,614	-50.8%	1,621	-20.7%
Dairies	175	187	-6.4%	184	-4.9%
Paved Road Dust	873	926	-5.8%	1,236	-29.4%
Unpaved Road Dust	26,919	45,128	-40.3%	45,105	-40.3%
Unpaved Parking	394	252	56.4%	252	56.4%
Onroad Mobile	171	255	-32.8%	172	-0.4%
Nonroad Mobile	144	207	-30.4%	189	-23.8%
Construction	1,086	12,955	-91.6%	8,500	-87.2%
Permitted Sources	537	781	-31.3%	781	-31.3%
Wildfires	0	20	-100.0%	22	-100.0%
Open Burning	56	14	297.1%	17	227.0%
Fuel combustion	75	28	166.3%	35	113.0%
Waste Disposal	167	NA	NA	NA	NA
Commercial Cooking	100	NA	NA	NA	NA
Miscellaneous Processes	12	NA	NA	NA	NA
Windblown Dust	3,337	72,849	-95.4%	71,784	-95.4%
<b>TOTAL</b>	<b>37,072</b>	<b>139,069</b>	<b>-73.3%</b>	<b>132,751</b>	<b>-72.1%</b>

**Note: 2017 base year emissions are preliminary draft emissions and are subject to change.**



**MARICOPA  
ASSOCIATION of  
GOVERNMENTS**



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# Serious PM10 Nonattainment Area Requirements as they Apply to Agriculture

Steve Burr

Principal Environmental Specialist

March 29, 2021

- Clean Air Act (CAA) Requirements for PM10  
Nonattainment Areas (NAA)
- West Pinal PM10 NAA History
- Moderate Area Plan Elements
- Serious Area Elements: BACM/MSM

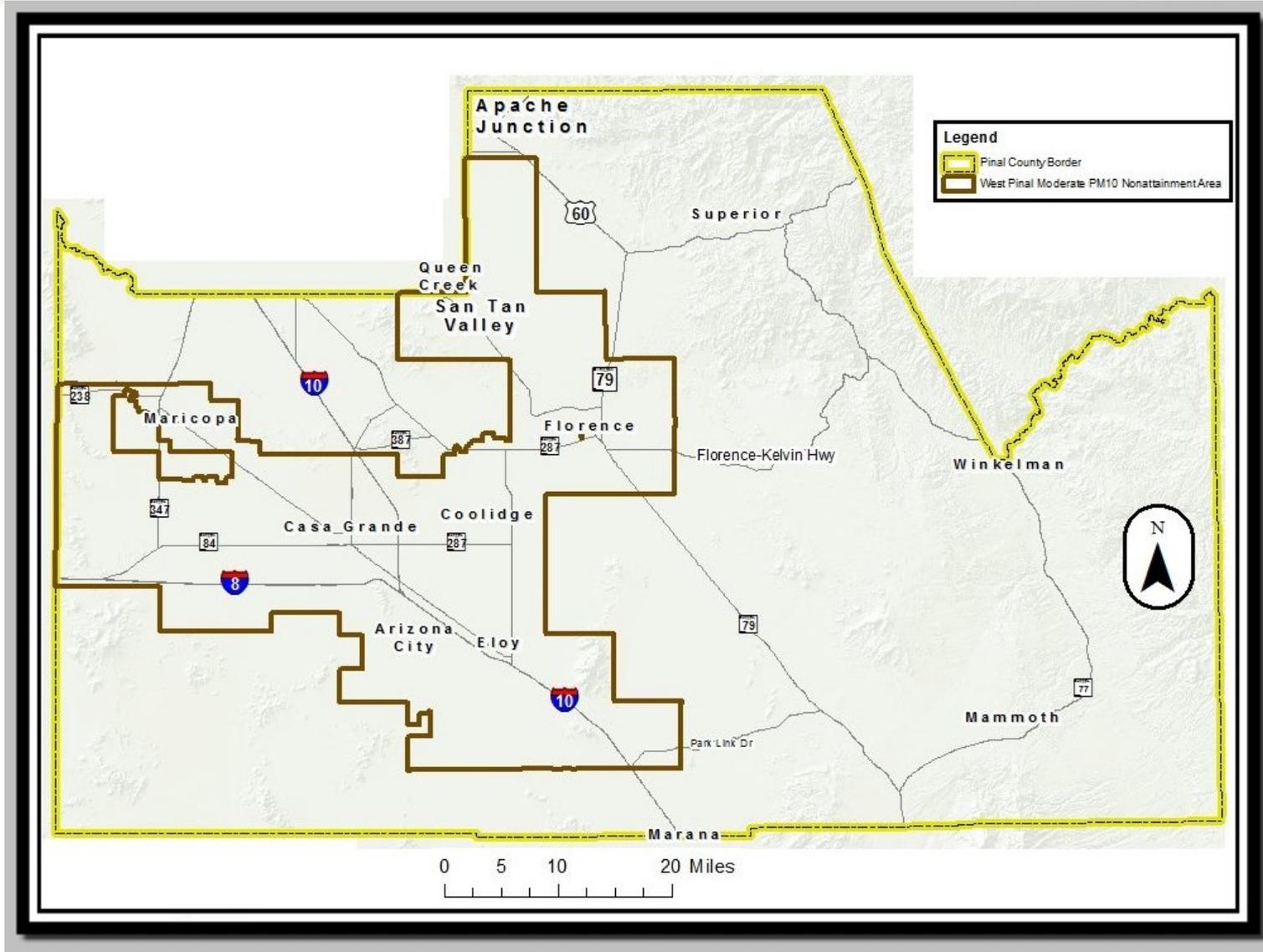
- **Classification Scheme**
  - Lower classification = less time, less stringent
  - Higher classification = more time, more stringent
  - Failure to attain by deadline = “bump up” to next higher classification
- **Moderate Areas [CAA 172(c), 189(a)]**
  - Deadline = end of 6<sup>th</sup> calendar year after designation
  - Emission inventory
  - Demonstration of attainment by deadline
  - Reasonable further progress (RFP)
  - Contingency measures
  - Reasonably Available Control Measures (RACM)

- **Serious Areas [CAA 189(b), 188(e)]**
  - Plan due 18 months after reclassification
  - All elements of moderate area plan
  - **Best Available Control Measures (BACM)**
    - the maximum degree of emission reduction achievable from a source or source category which is determined on a case-by-case basis, considering energy, economic and environmental impacts

- Serious Areas [CAA 189(b), 188(e)]
  - New deadline: end of 10<sup>th</sup> year after designation
  - 5-year extension
    - Attainment by deadline impracticable
    - SIP “includes the most stringent measures [MSM] that are included in the implementation plan of any State or are achieved in practice in any State, and can feasibly be implemented in the area”
      - ❖ Feasible = technologically and economically

- **Consequences**
  - Imposed for:
    - Failure to submit
    - Disapproval
  - Sanctions
    - 2-for-1 offsets (after 18 months)
    - Loss of federal highway funds (after 2 years)
  - Federal Implementation Plan (after 2 years)

# West Pinal PM10 Nonattainment Area



- EPA designated WPC as NAA 7/12/2012
- Based on “widespread, frequent, and in some instances, severe violations of the PM<sub>10</sub> standard”
- Initially classified as ***moderate***
- Attainment deadline = 12/31/2018

- ARS 49-457(O)(6)(c):
  - AgBMP program applies to NAA designated after 7/1/2009
  - Became applicable to WPC NAA
- On 7/2/2015 Committee adopted AgBMP General Permit for WPC
  - R18-2-610: definitions for all crop operations
  - R18-2-610.03: rules for WPC crop operations
  - R18-2-611: definitions for animal operations
  - R18-2-611.03: rules for WPC animal operations

## ■ Moderate Area SIP

- Submitted 12/21/2015 by ADEQ
- Included AgBMP general permit rules
- EPA actions
  - 5/1/2017 approved crop operation rules into SIP, deferred action on animal operation rules and 49-457
  - 1/8/2021 proposed partial approval/disapproval of SIP, except animal operation rules
  - 2/26/2021 proposed limited approval/disapproval of animal operation rules, 49-457
    - ❖ Strengthened SIP
    - ❖ Required amendments for full approval
  - Final action due 7/30/2021
- Withdrawal

- 6/24/2020 failure of attain finding by 2018 deadline
  - Reclassification to serious
  - New deadline of 12/31/2022
- MAG
  - Lead planning agency for WPC NAA since 2016
  - Determined attainment by 2022 is impractical
  - Intends to seek 5-year extension: 12/31/2027
  - Requires MSM
  - Plan due by 1/24/2022

- Emissions inventory
- Attainment demonstration
- RFP
- Contingency Measures
- RACM deficiencies identified in LA/LD
  - Amendments to statute
    - HB 2677 discussed with EPA and stakeholders
    - Signed by Governor
  - Rule amendment: alternative BMPs require EPA approval

- BACM/MSM to be implemented by
  - ADEQ
  - PCAQCD
- MAG Role
  - Contractor analysis and demonstration
  - List of suggested control measures for all significant sources of PM10 in NAA, including ag
- 49-457(H): requires 2 BMPs for each operation
- EPA's Interpretation
  - Has changed over time
  - Indicates amendments to rules are necessary

## ■ 2002 Action on Maricopa County PM10 Serious NAA SIP

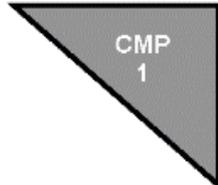
- Reclassified to serious
- SIP
  - Sought extension, included MSM demo
  - Included AgBMP rules
- EPA found AgBMP met BACM/MSM

“The general permit rule allows a farmer to choose from a list of BMP options in each activity category. We believe that this approach represents an acceptable form for the implementation of BACM..... This control format has developed over time because of the need to impose effective but reasonable and feasible controls on a large number of similar but distinct sources.” [TSD]

- 2010 Letter to Dan Thelander, AgBMP Committee Chairman
  - Definitions in R18-2-610 “are broad and there is no mechanism in the rule to ensure specificity.”
    - Equipment modification example

2007	Current
modifying agricultural equipment to prevent or reduce particulate matter generation from cropland.	reducing PM emissions and soil erosion during tillage or ground operations by <b>modifying and maintaining an existing piece of agricultural equipment</b> , installing shielding equipment, modifying land planting and land leveling, matching the equipment to row spacing, <del>or</del> grafting to new varieties <b>or technological improvements.</b>

- 2010 Letter to Dan Thelander, AgBMP Committee Chairman (continued)
  - Contrast with San Joaquin Valley APCD Conservation Management Practices Rule:
    - Have application and submittal process
    - “application forms require sources to select CMPs and to describe the specifics of the practices chosen”



## San Joaquin Valley Air Pollution Control District Supplemental Application Form

### Conservation Management Practices: ALFALFA

Farm Name: \_\_\_\_\_ CMP Plan Years: \_\_\_\_\_ to \_\_\_\_\_  
Maximum Crop Acreage: \_\_\_\_\_  
Fallow Acreage Last Planted in Alfalfa: \_\_\_\_\_

#### Land Preparation/ Cultivation

Select at least one of the following CMPs.

Note: 100% of the maximum crop acreage must be covered by the selected CMPs.

- |  |   |
|--|---|
| <input type="checkbox"/> Chemigation/Fertigation, _____ ac             | <input type="checkbox"/> Night Farming, _____ ac                            |
| <input type="checkbox"/> Combined Operations, _____ ac                 | <input type="checkbox"/> Non-Tillage/Chemical Tillage, _____ ac             |
| <input type="checkbox"/> Conservation Irrigation, _____ ac             | <input type="checkbox"/> Precision Farming (GPS), _____ ac                  |
| <input type="checkbox"/> Equipment Change/Tech. Improvements, _____ ac | <input type="checkbox"/> Other (approved on a case-by-case basis), _____ ac |
| <input type="checkbox"/> Multiple CMPs in Another Category             |   |

Please describe the specifics of the practice(s) chosen above: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Select at least one of the following CMPs.

- 2010 Letter to Dan Thelander, AgBMP Committee Chairman (continued)
  - Most effective BMPs should be required:

“For feedlots and other types of livestock operations, when considering which BMPs to require or include as compliance options, ***BMPs that are most effective at reducing emissions and economically and technologically feasible should be required. BMPs with lower control efficiencies should be allowed as compliance options only if more effective BMPs are not feasible.*** If the Committee decides to include BMPs that are less effective at reducing emissions, the Committee should provide an analysis explaining why it is not possible to require that sources comply with more effective BMPs. Such analysis should review the availability and effectiveness of controls, and ***should ensure that the rule does not allow implementation of relatively ineffective control measures when more effective measures are reasonably available to a class of operations.***”

- 2010 Proposed LA/LD of Maricopa County PM10 NAA 5% Plan
  - Background: failure to attain by extended deadline
  - EPA no longer believed AgBMP program satisfied BACM as a result of SJVAPCD, and Imperial County APCD rules
  - Definitions “overly broad”
  - Examples of BMPs that did not assure BACM level of control in the absence of an application approval process for tillage and harvest, cropland, non-cropland

- 2010 Proposed LA/LD of Maricopa County PM10 NAA 5% Plan (continued)
  - Harvest and Tillage Example

As an example of the breadth of the BMPs, one of the BMPs in AAC R18-2-611 Section E, the tillage and harvest category, is "**equipment modification.**" This term is defined in AAC R18-2-610 Section 18 as "modifying agricultural equipment to prevent or reduce particulate matter generation from cropland." The types of equipment modification are not specified in the rule, **and according to the Handbook, examples of this practice include using shields to redirect the fan exhaust of the equipment or using spray bars that emit a mist to knock down PM-10.** Handbook, p. 10. Because most of the PM-10 generated during active agricultural operations is due to disturbance from parts of agricultural equipment that come into direct contact with the soil, **we expect that using appropriately designed spray bars would be far more effective at reducing PM-10 than redirecting a machine's fan exhaust. However, there is no provision in the general permit rule that requires a source or regulatory agency to evaluate whether the more effective version of this BMP is economically and technologically feasible.** Moreover, while AAC R18-2-611 Section I requires that a farmer record that he has selected the "equipment modification" BMP, **it does not require the farmer to record what type of equipment modification he will be implementing. Hence, neither ADEQ nor the public can verify whether what is being implemented is a best available control measure.**

- 2010 Proposed LA/LD of Maricopa County PM10 NAA 5% Plan (continued)

- Noncropland example

An example from AAC R18-2-611 Section F, the category for noncropland, is the "watering" BMP. AAC R18-2-610 Section 52 defines watering as "applying water to noncropland." The level of control achieved would depend on the amount of water that was applied, the frequency with which it was applied, as well as the size and conditions of the area to which it was applied. However, ***the rule does not specify the frequency or amount of water application or otherwise ensure that watering under this measure is effective.*** Moreover, the definition for "noncropland" in Section 31 of AAC R18-2-611 states that it "includes a private farm road, ditch, ditch bank, equipment yard, storage yard, or well head." It is not clear which of these areas a farmer would need to control upon selecting the "watering" BMP. ***As written, the rule allows regulated sources to implement the "watering" BMP in a manner that may not be as effective as best available controls.*** Furthermore, while AAC R18-2-611 Section I requires that a farmer record that he has selected the "watering" BMP, ***it does not require the farmer to record how he will be implementing this BMP. Hence, neither ADEQ nor the public can verify whether the BMP that is being implemented is in fact a best available control measure.***

- 2010 Proposed LA/LD of Maricopa County PM10 NAA 5% Plan (continued)

- Cropland example

An example from AAC R18-2-611 Section G, the category for cropland, is the "artificial wind barrier" BMP. AAC R18-2-610 Section 4 defines "artificial wind barrier" as "a physical barrier to the wind." ***The control effectiveness of the barrier will depend on what the barrier is constructed of, the size of the barrier, as well as the placement of the barrier.*** In fact, the Handbook suggests that certain materials (e.g., board fences, burlap fences, crate walls, and bales of hay) be used, notes that the distance of 10 times the barrier height is considered the protected area downwind of a barrier, and states that the barrier should be aligned across the prevailing wind direction. Handbook, p. 20. ***However, the general permit rule does not specify any parameters that need to be met for the implementation of the "artificial wind barrier" BMP. Hence a source can construct a barrier that is not a best available control and still be in compliance with the general permit rule.***

- 2010 Proposed LA/LD of Maricopa County PM10 NAA 5% Plan (continued)

“The absence of sufficiently defined requirements makes it difficult for regulated parties to understand and ensure compliance with the requirements, and makes it difficult for ADEQ or others to verify compliance with the general permit rule. ***The general permit rule needs to be revised to ensure that the BMPs are enforceable as required by CAA section 110(a) and are implemented at a BACM level as required by section 189(b)(1)(B).***”

- 2010 LD of Imperial County APCD CMP Program
  - Submission of plan to APCD required

However there is no required process in the rule for sources to provide [specific] information to ICAPCD or for ICAPCD to review the CMPs and/or to require revision of the CMPs that sources have chosen to implement. ... In contrast, SJVUAPCD Rule 4550 section 5 requires sources to prepare and submit a CMP application to the District for approval and section 6 requires the District to evaluate and either approve or disapprove the application in writing.

- **Possible** changes to AgBMP Program based on EPA Interpretation of BACM
  - Impose more specific requirements in BMPs
  - Eliminate BMP options that do not qualify as BACM
  - Require submission to ADEQ of
    - Current AgBMP forms or
    - Application for approval
  - Require form or application to provide specifics on how BMPs will be implemented
  - Require case-by-case ADEQ review to assure BACM-level of control is being implemented