

2021 Annual Monitoring Network Plan

Air Quality Technical Advisory Committee

June 10, 2021

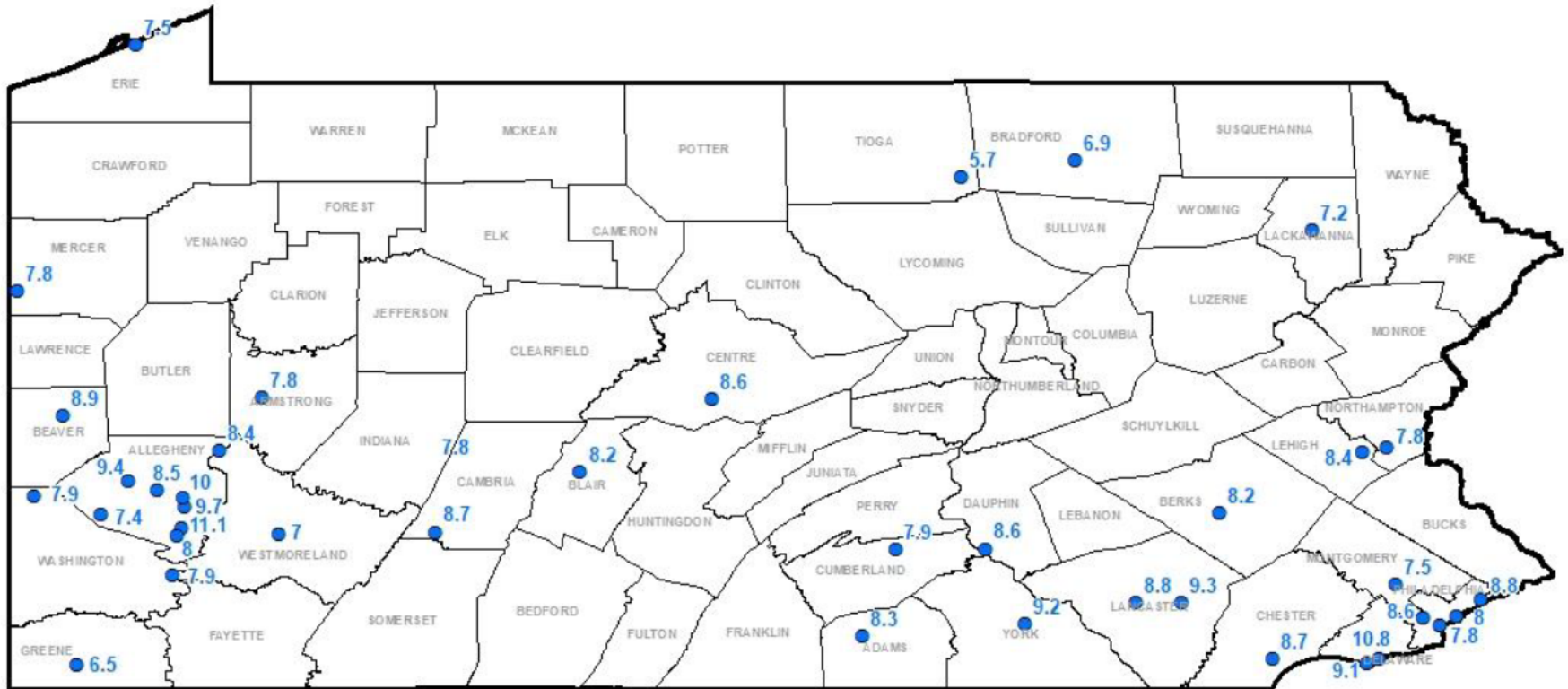
Harrisburg, PA

Agenda

- Review of 2020 Air Quality Design Values
 - Ozone
 - Fine Particulate Matter (PM_{2.5})
 - Sulfur Dioxide (SO₂)
 - Lead (Pb)
- Proposed 2021 Annual Monitoring Network Plan
 - 2020 Changes to Monitoring Network
 - 2021 Proposed Changes to Monitoring Network

Review of 2020 Air Quality Design Values

2020 Annual PM_{2.5} Design Values



Appearing in Red - 2020 Annual PM_{2.5} Design Value above 12.0 ug/m³ (2012 PM_{2.5} Standard)

Appearing in Blue - 2020 Annual PM_{2.5} Design Value at or below 12.0 ug/m³ (2012 PM_{2.5} Standard)

Asterisk (*) Appearing Behind the Design Value Means the Data is Incomplete During 3-Year Period

2020 3-Month Lead Design Values



Appearing in Red - 2020 3-Month Lead Design Value above $0.15 \mu\text{g}/\text{m}^3$ (2008 Lead Standard)

Appearing in Blue - 2020 3-Month Lead Design Value at or below $0.15 \mu\text{g}/\text{m}^3$ (2008 Lead Standard)

Asterick (*) Appearing Behind the Design Value Means the Data is Incomplete During 3-Year Period

Proposed 2021 Annual Monitoring Network Plan

Annual Network Plan Requirements

Title 40 Part 58 of the Code of Federal Regulations (Specifically Section 58.10) requires:

the State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations. The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.

These plans are due to the EPA Regional Administrator no later than July 1 of the calendar year.

Annual Network Plan Requirements

Pursuant to Section 58.10(a) and (b), network plans must include the following for existing and proposed monitoring sites:

- A statement of purpose for each monitor
- Evidence that siting and operation of each monitor meets the requirements of 40 CFR Part 58, Appendices A, C, D, and E where applicable
- The Air Quality System (AQS) site identification number
- The location, including street address and geographical coordinates
- The sampling and analysis method(s) for each measured parameter
- The operating schedules for each monitor
- Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal
- The monitoring objective and spatial scale of representativeness for each monitor
- The identification of any sites that are suitable and sites that are not suitable for comparison against the annual $PM_{2.5}$ NAAQS, as described in 40 CFR § 58.30
- The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA), or other area represented by the monitor

2020 Changes to Air Monitoring Network

- In 2020, DEP changed the following within its ambient air monitoring network:
 - Lead: Established a new special purpose monitoring site at Palmerton High School in Palmerton, PA
 - PM_{2.5}: Installed a new PM_{2.5} sampler at DEP's Strongstown monitoring site
 - Relocated Sites:
 - Relocated Lebanon monitoring site and added PM_{2.5} speciation monitoring at new site
 - Relocated Presque Isle air toxics monitoring site

2021 Proposed Changes to Air Monitoring Network

- In 2021, DEP is proposing to change the following within its ambient air monitoring network:
 - Relocate A Site:
 - Vanport – to a location downwind of ethane cracker, in order to monitor ozone and PM_{2.5}
 - Establish New Sites:
 - Franklin County – New site to monitor ozone and PM_{2.5}
 - Adams County – New site to monitor ozone and PM_{2.5}
 - Add a New Monitor:
 - Arendtsville - Install a new metals (PM₁₀) sampler

▶ Beaver County – New Air Monitoring Station

- DEP received public comment in its 2020 AMNP regarding the need for additional monitoring downwind of the new ethane cracker in Beaver County.
- The focus of the public comment was with respect to ozone, PM_{2.5} and hazardous air pollutants.
- DEP analyzed its current monitoring network and determined the only monitor downwind of the new ethane cracker within the river valley was its Vanport location, a lead-only site. DEP's Beaver Valley site is located at the Beaver Valley mall and measures volatile organic compounds (VOCs).
- As a result, DEP is planning on moving its Vanport site to a new location further downwind of the ethane cracker to monitor not only lead but ozone and PM_{2.5}.

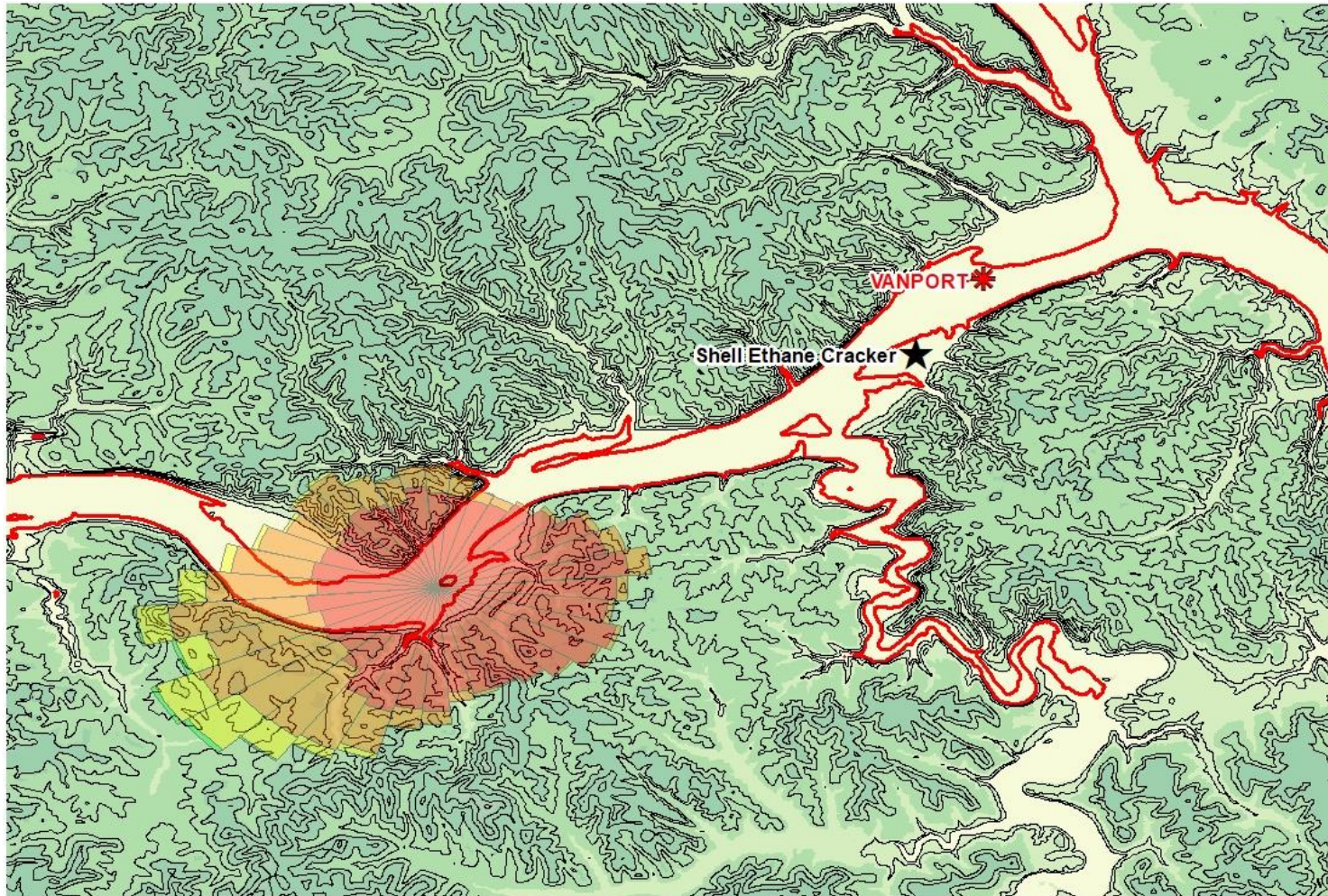
Beaver County – Current Ozone Monitoring Network



- ★ Shell Ethane Cracker Facility
- ✱ PADEP Ozone Monitoring Sites
- ✱ Vanport Site
- ✱ Beaver Valley Site



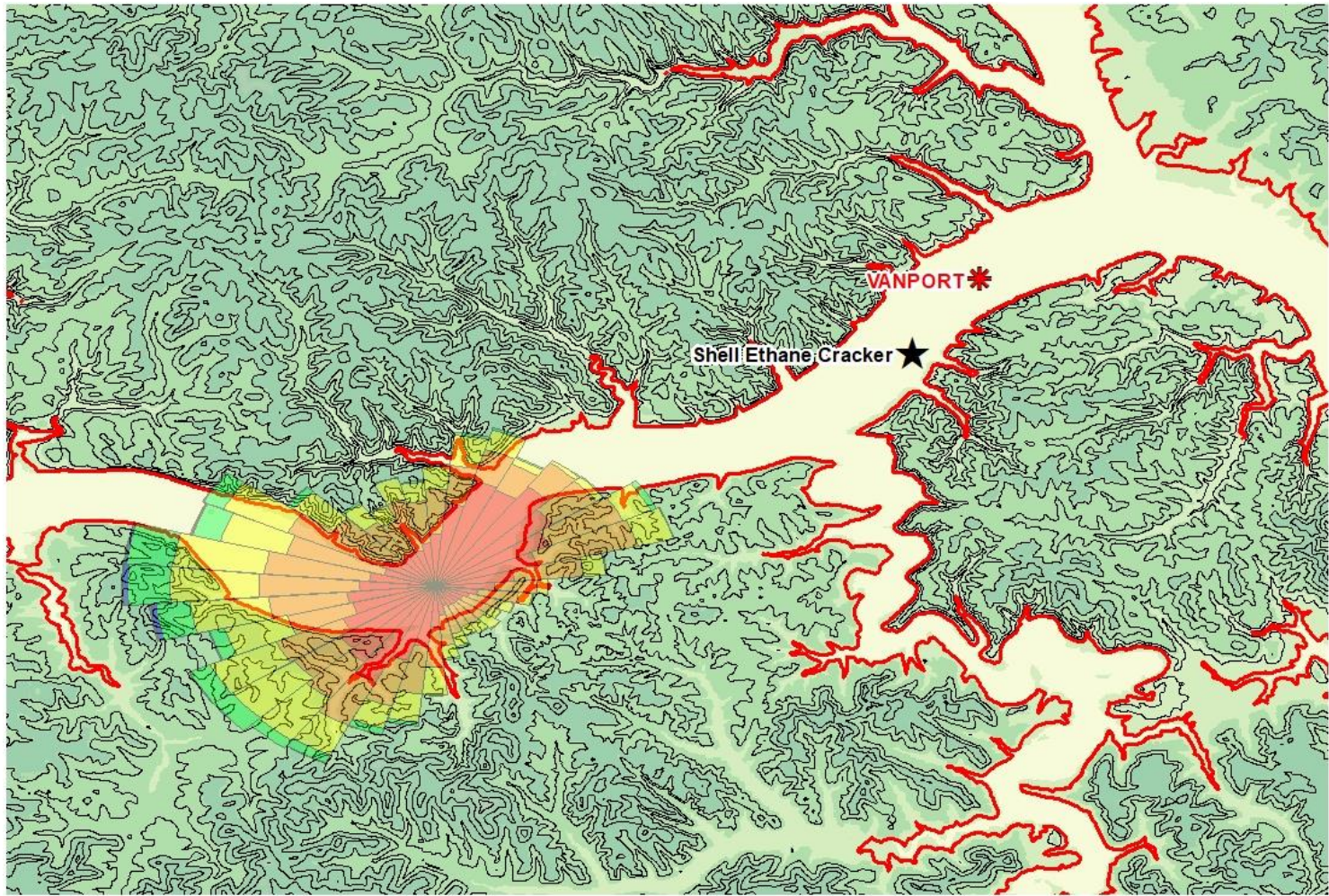
▶ Beaver County – Wind / Topography Data (10.7-meter)



- ★ Shell Ethane Cracker Facility
- ★ Current Vanport Lead Monitoring Site
- Elevation at Met Monitoring Equipment Height (10.7 meters)
- Elevation (in 20-meter intervals) above Met Monitoring Equipment Height

10.7-Meter Wind Rose (m/s) 0.5 - 2.1 2.1 - 3.6 3.6 - 5.7 5.7 - 8.8 8.8 - 11.1 ≥ 11.1

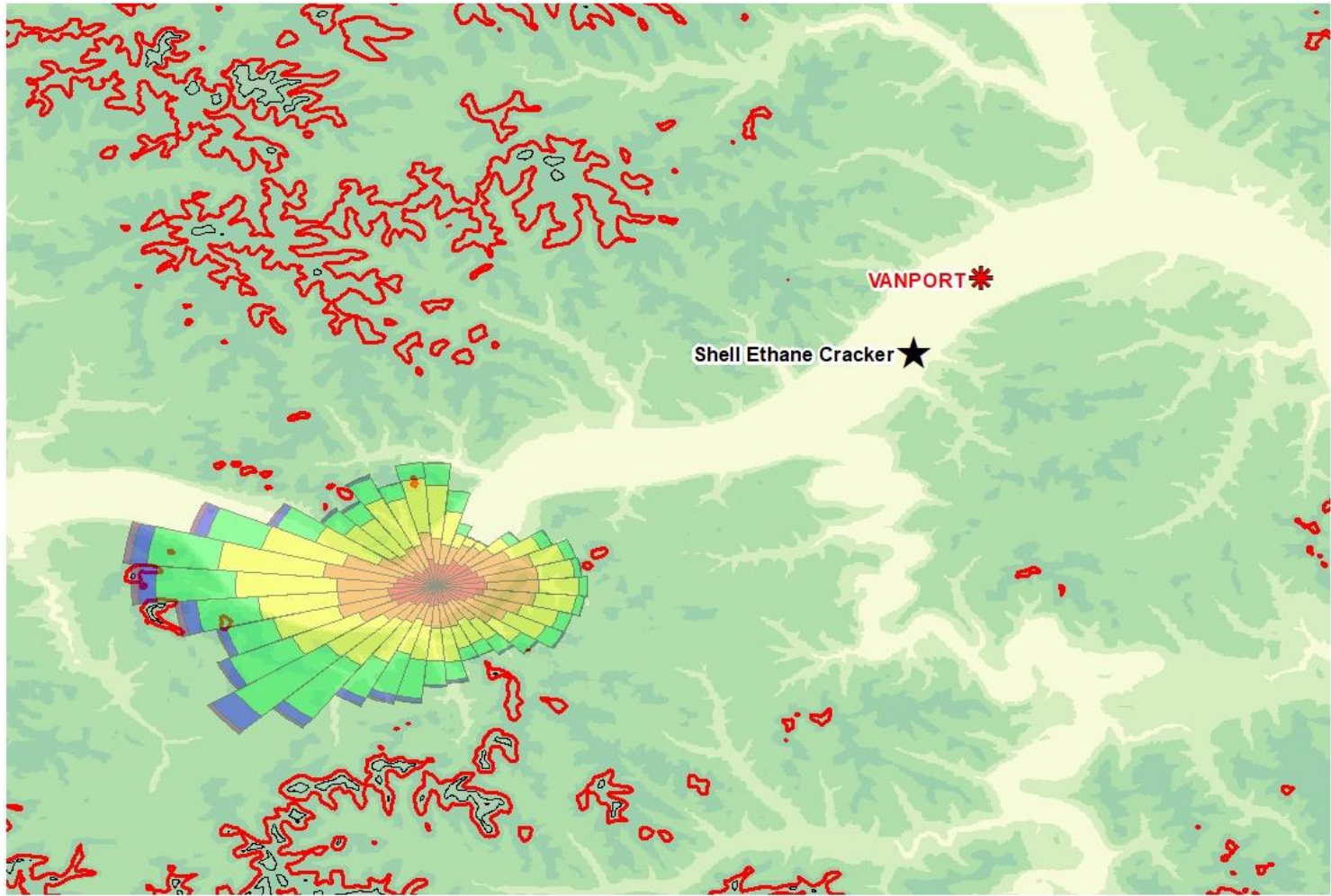
▶ Beaver County – Wind / Topography Data (45.7-meter)



- ★ Shell Ethane Cracker Facility
- ★ Current Vanport Lead Monitoring Site
- Elevation at Met Monitoring Equipment Height (45.7 meters)
- Elevation (in 20-meter intervals) above Met Monitoring Equipment Height

45.7-Meter Wind Rose (m/s) 0.5 - 2.1 2.1 - 3.6 3.6 - 5.7 5.7 - 8.8 8.8 - 11.1 ≥ 11.1

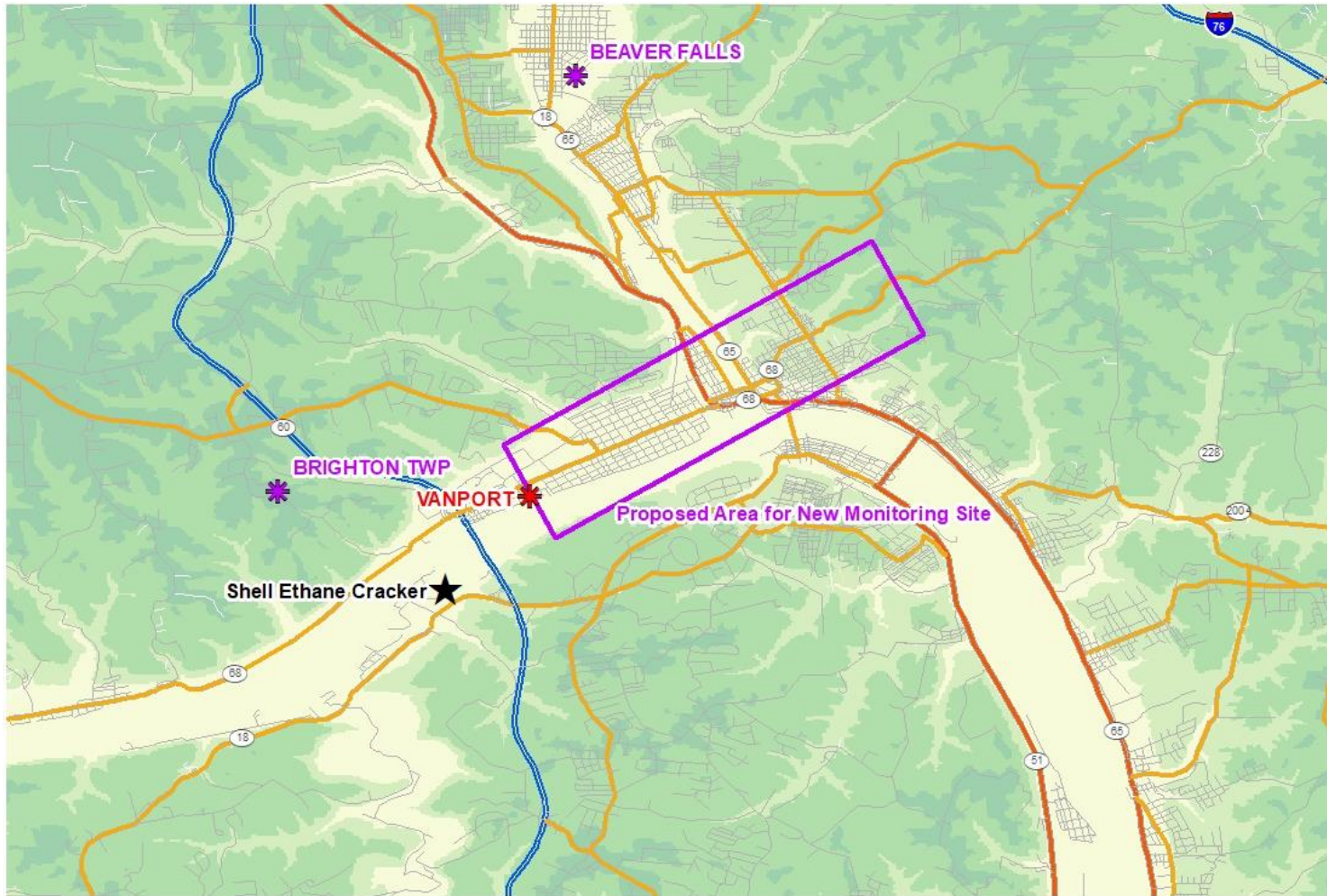
▶ Beaver County – Wind / Topography Data (152.4-meter)



- ★ Shell Ethane Cracker Facility
- * Current Vanport Lead Monitoring Site
- Elevation at Met Monitoring Equipment Height (152.4 meters)
- Elevation (in 20-meter intervals) above Met Monitoring Equipment Height

152.4-Meter Wind Rose (m/s) 0.5 - 2.1 2.1 - 3.6 3.6 - 5.7 5.7 - 8.8 8.8 - 11.1 ≥ 11.1

Beaver County – Proposed New Monitoring Site



-  Current Vanport Lead Monitoring Sites
-  PADEP Ozone Monitoring Sites
-  Shell Ethane Cracker Facility

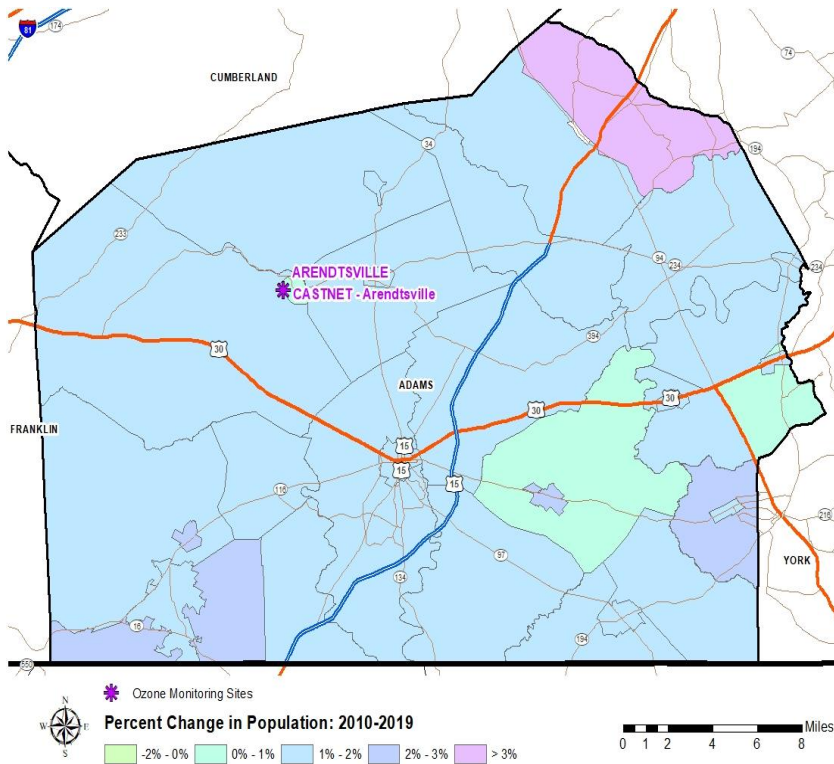


▶ Adams County – New Air Monitoring Station

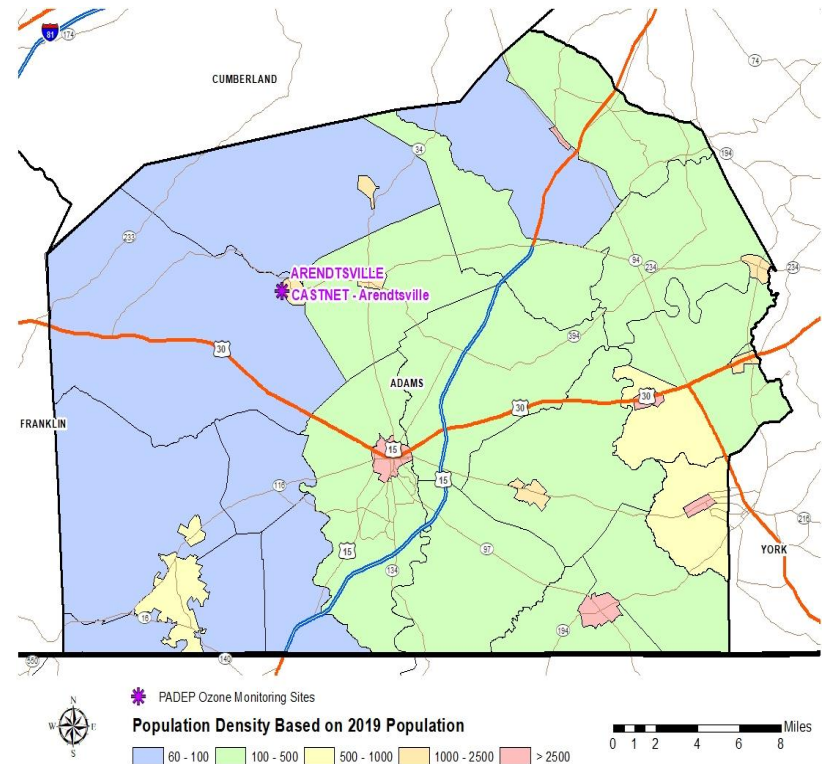
- The 2010 US Census data classified Gettysburg, PA as a separate Metropolitan Statistical Area.
- According to 40 CFR Part 58, Appendix D, DEP is required to have at least one ozone monitor within the MSA.
- Since the determination of a new ozone monitor is based on US Census data, DEP wanted to site a new monitor indicative of an area downwind of population centers / major roadways.

Adams County – Population Data

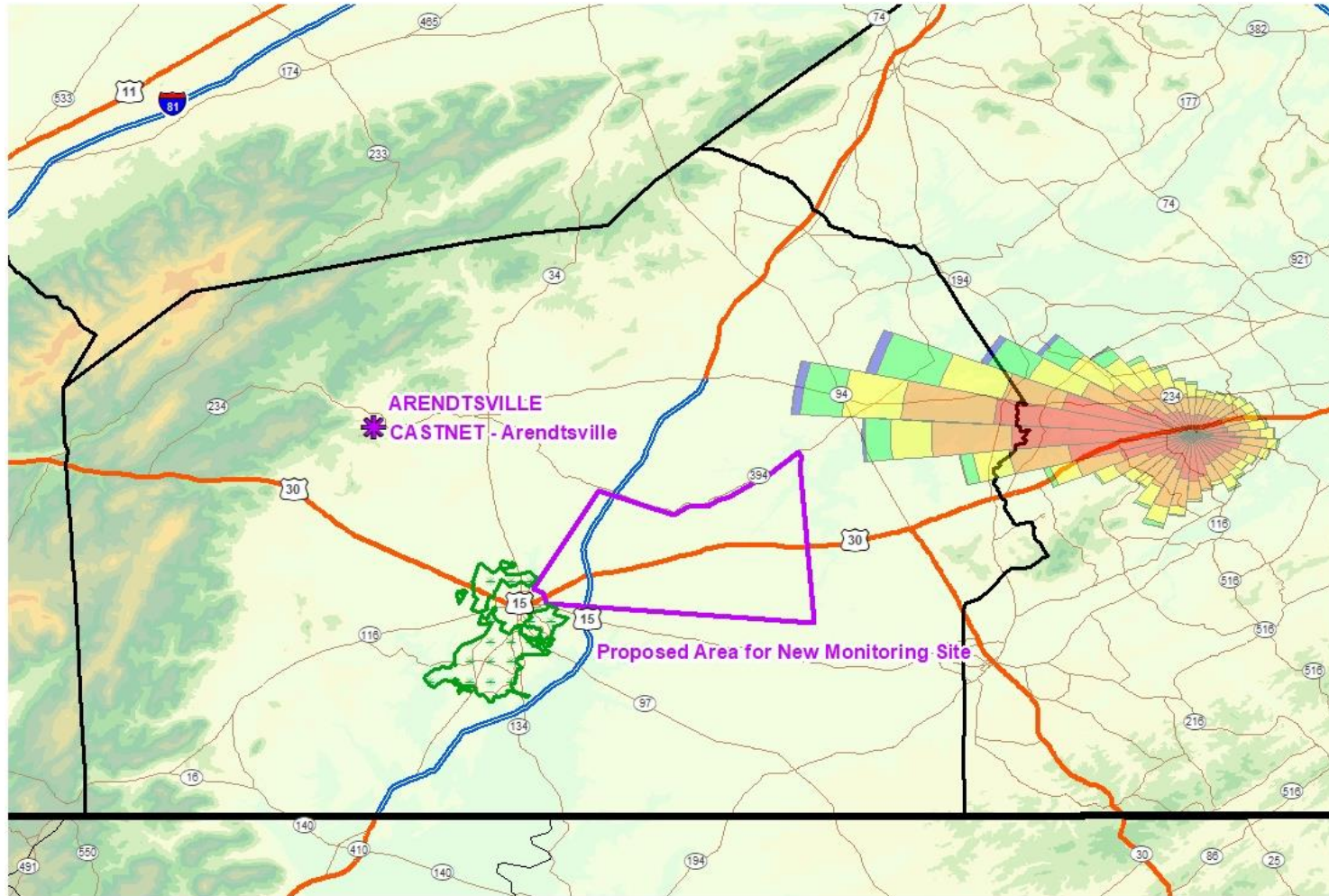
2010-19 Population Change





2019 Population Density



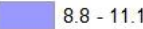


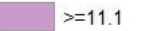


Adams County – Proposed New Monitoring Site



-  PADEP Ozone Monitoring Sites
-  Gettysburg Nat'l Military Park

KTHV 2006-2010 Wind Rose (m/s)

	0.5 - 2.1		3.6 - 5.7		8.8 - 11.1
	2.1 - 3.6		5.7 - 8.8		≥11.1

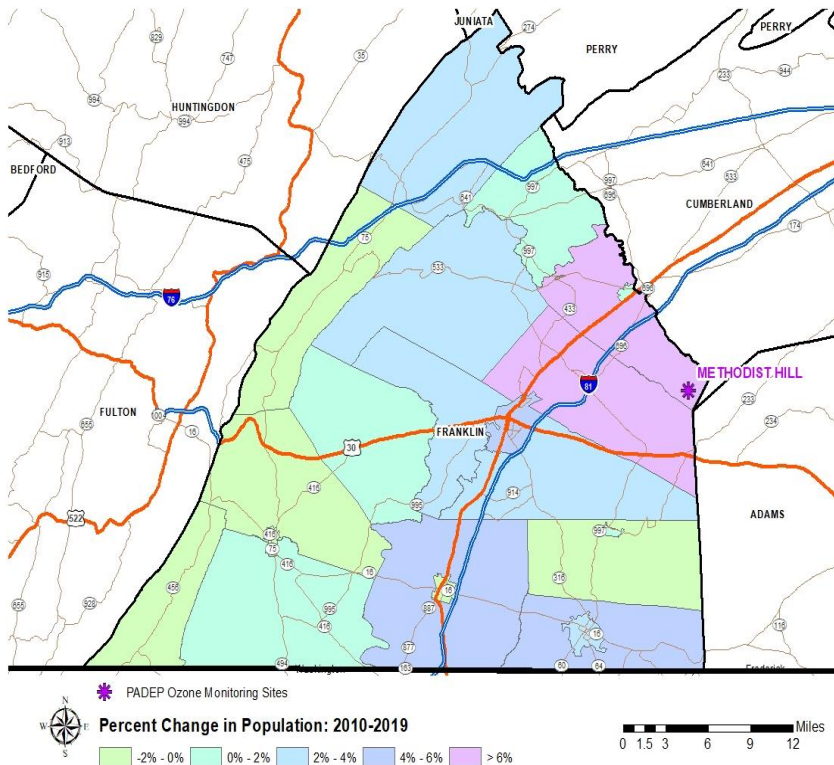


Franklin County – New Air Monitoring Station

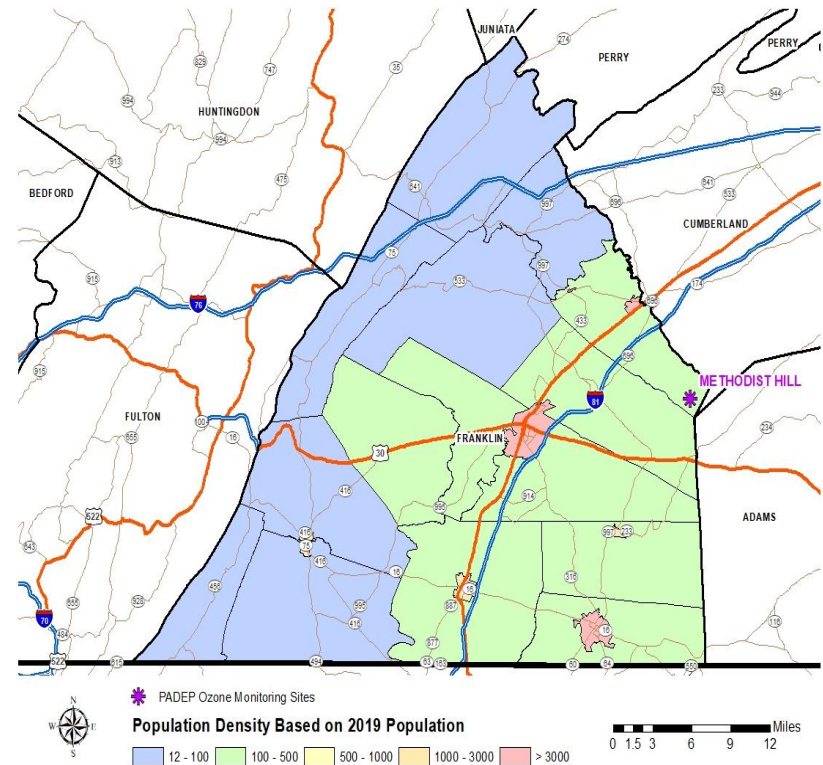
- The 2010 US Census data classified Chambersburg-Waynesboro, PA as a separate Metropolitan Statistical Area.
- According to 40 CFR Part 58, Appendix D, DEP is required to have at least one ozone monitor within the MSA.
- Since the determination of a new ozone monitor is based on US Census data, DEP wanted to site a new monitor indicative of an area downwind of population centers / major roadways.

Franklin County – Population Data

2010-19 Population Change



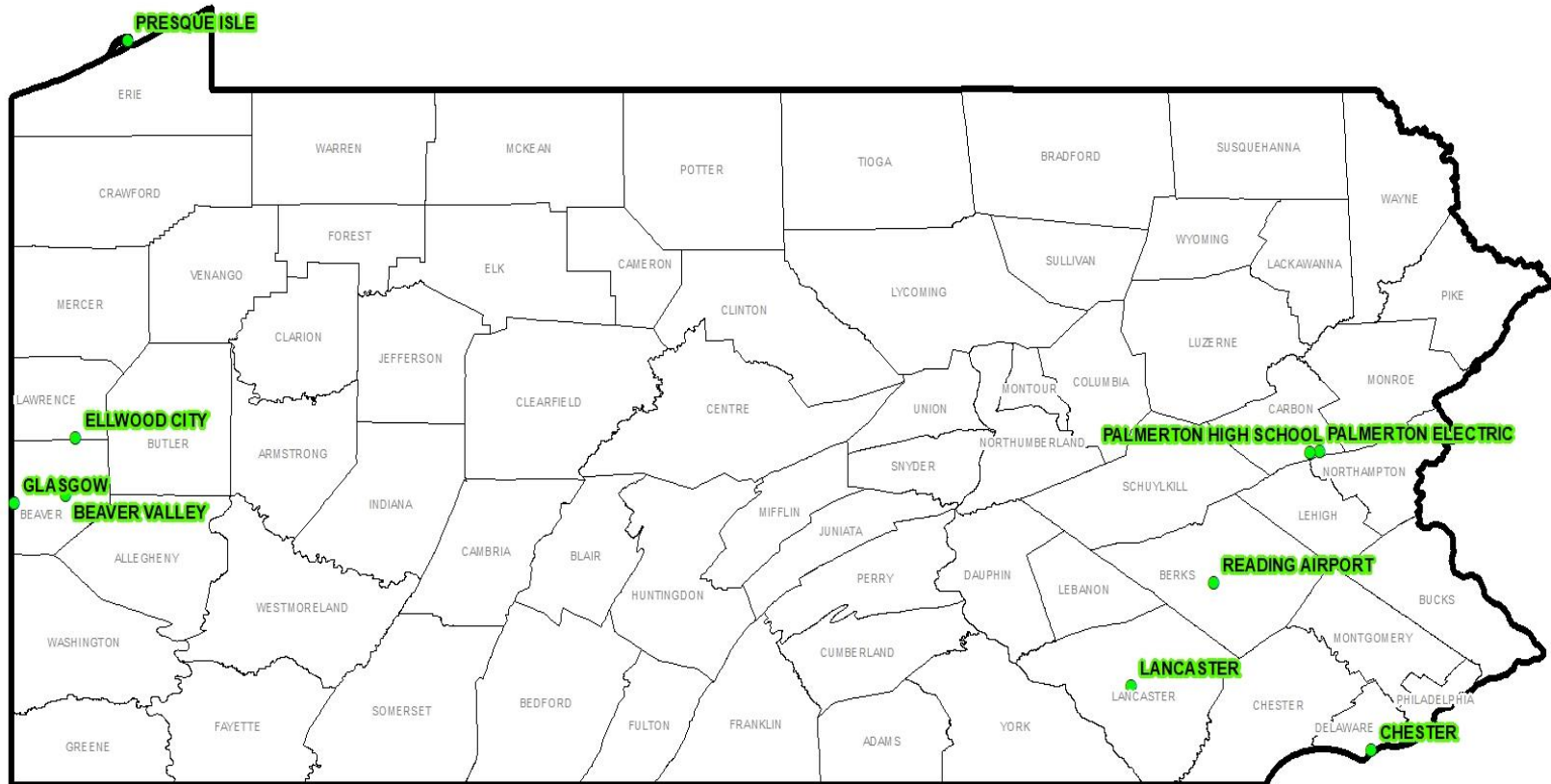
2019 Population Density



▶ Arendtsville – Add a Metals (PM₁₀) Sampler

- Over the past few years, DEP has established the Arendtsville site as a background location for all pollutants due to its respective rural location east of the Appalachian Mountains.
- Over the past few years, there has been an increasing interest in air toxics monitoring across the Commonwealth.
- As a result, DEP is proposing to place a new metals (PM₁₀) sampler at its Arendtsville monitoring site.

Current Metals (PM₁₀) Air Monitoring Sites



Final Thoughts

- DEP's 2021 Annual Monitoring Network Plan (AMNP) is currently open for public comment until <ADD DATE ONCE IT HAS BEEN PUBLISHED IN PA BULLETIN>
- DEP will consider and respond to public comments and then submit the final AMNP to EPA Region 3 for their approval.
- Final approved AMNP and comment and response document will be published to DEP's Bureau of Air Quality website.



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Air Quality

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