

The New AirNow Reporting Area Management Tool

Inter-tribal Environmental Council's (ITEC) Conference

Tulsa, Oklahoma

August 13th, 2025

Overview of Presentation

- **What is an AirNow Reporting Area?**
 - ✓ Definition
 - ✓ Usage across AirNow for air quality reporting
- **Issues with existing Reporting Areas in AirNow AQI reporting**
 - ✓ Examples of why this tool is needed
- **Go over the new AirNow-Tech reporting area management tool and features!**
 - ✓ Purpose and access
 - ❖ Each agency can now determine what AQI data to return to the user based on their searched location
 - ✓ Live Demo of the Tool

Reminder: dmc@airnowtech.org for help in account access and questions about the tool



Reporting Area Definition

- **Regions** (such as a city, county, or general area) **defined by SLTs** that are used for reporting observations and/or forecasts in AirNow
- **MOST AirNow products report observations at the reporting area-level** (e.g. AirNow.gov Dial, State/Trend pages, AirNow App, EnviroFlash)
 - ✓ Currently, **the highest AQI reading** (not an average) of all assigned monitoring sites is what is reported to a user when viewing current conditions in these products
- **Reporting areas are currently defined by a latitude/longitude coordinate** and often out-of-date or imperfect ZIP code assignments

Existing Reporting Areas Examples

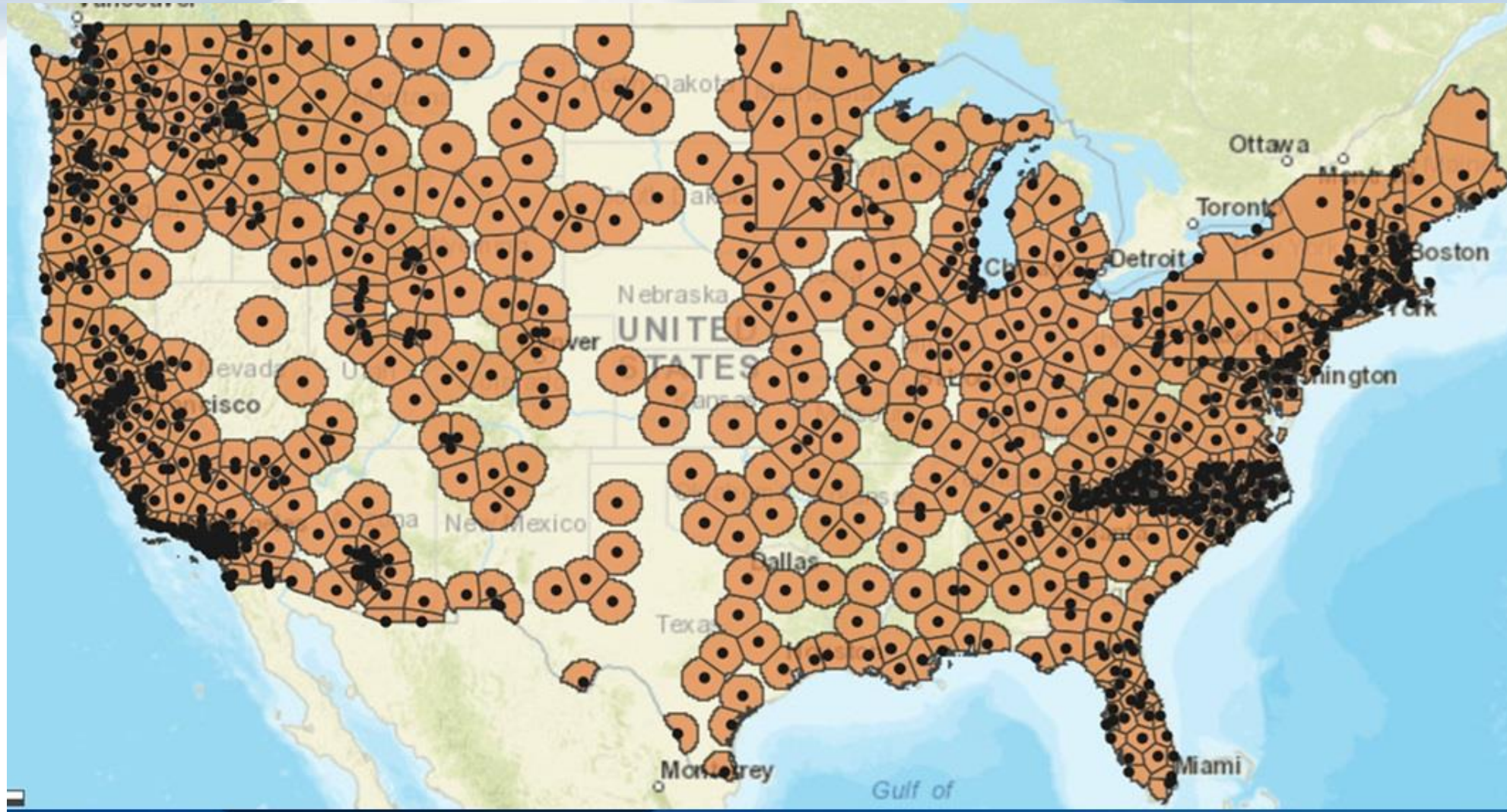


**AirNow
Dial
Examples
For Tribal
Reporting Areas**

***Hope to Add More with
the Tool!***

Existing Reporting Areas in AirNow

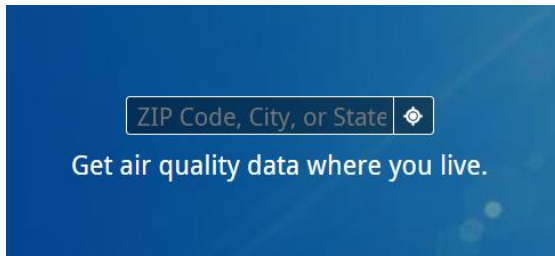
**Current
Representation
of Reporting
Areas in AirNow
(using centroids)**



Existing Issues/Limitations in AirNow

Typically, the AirNow dial search will return reporting area information for the closest reporting area **coordinate** within 50 miles of the searched location

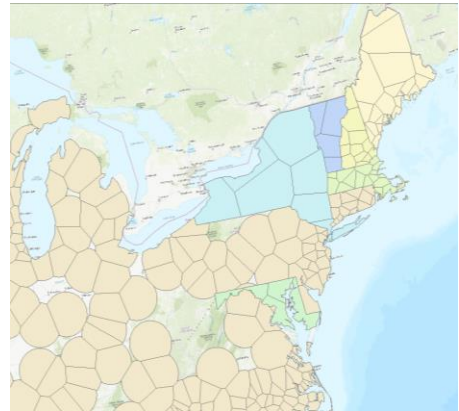
When a city or zip code is searched on the AirNow.gov homepage (currently):



- The coordinates (lat/long) of the searched location is stored
- The searched coordinates are compared against all reporting area coordinates
 - ✓ The closest reporting area coordinate within 50 miles to the searched location is chosen, and data from that reporting area is reported to the user
- Exceptions:
 - ✓ NY, MA, MD, ME, NH, and VT requested their state boundaries be “locked”
 - ❖ a search within the state will only return reporting areas from within the state
 - ❖ a search from outside the state will never return reporting areas from within the state
 - ❖ 50 mile lookup limit lifted.
 - ✓ Maine has several different reporting area points that link to the same reporting area
 - ❖ special JSON file to override the lookup process for Maine only

Existing Issues/Limitations in AirNow

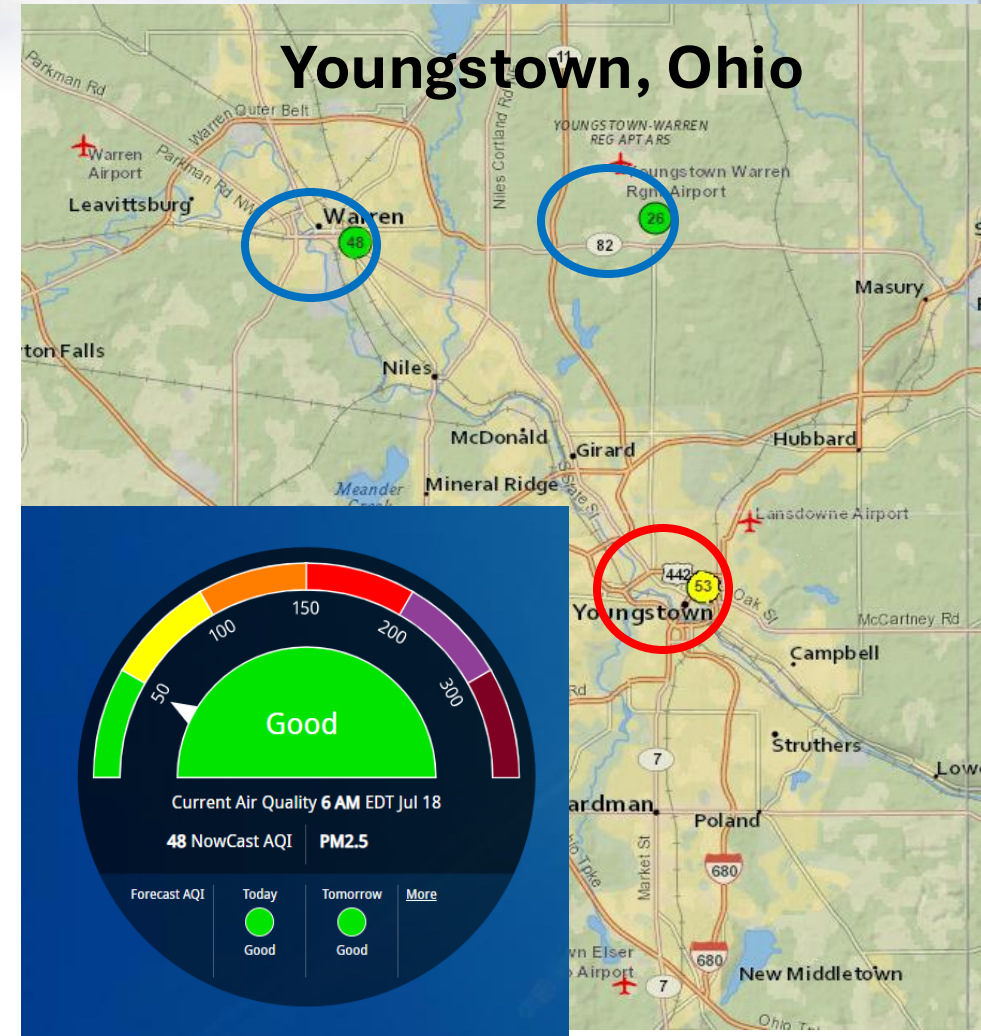
- **SLT geographic definitions and the AirNow definition for specific reporting areas are often inconsistent**
 - ✓ This can lead to users searching a location and getting unexpected data results since AirNow is/was currently limited in how to best represent spatial air quality coverage areas for our partner agencies
 - ❖ Searching a location in one state returns data from another state because it is the closest reporting area to that location. (e.g. Orange, Texas returns Lake Charles Louisiana reporting area information)
- **The use of the maximum reading from assigned monitoring sites to a reporting area for certain current/historical observation queries can lead to several issues**
 - ✓ **The data returned to the user may not be the closest observation to their location**
 - ❖ *Can be an issue in large reporting areas (e.g. Chicago) where air quality can really vary*
 - ✓ **Manual upkeep of verification sites** means that if agencies do not know to assign a monitor to a reporting area, vital information is not given to end-users
 - ❖ *Unassigned air quality monitors in areas when they could be used to help report the AQI for a community*
 - ✓ Users can get confused if **results do not include certain AQI pollutants**
 - ❖ *Ozone is the only pollutant in a reporting area impacted by smoke*



Existing Issues/Limitations in AirNow

Unassigned monitoring sites:

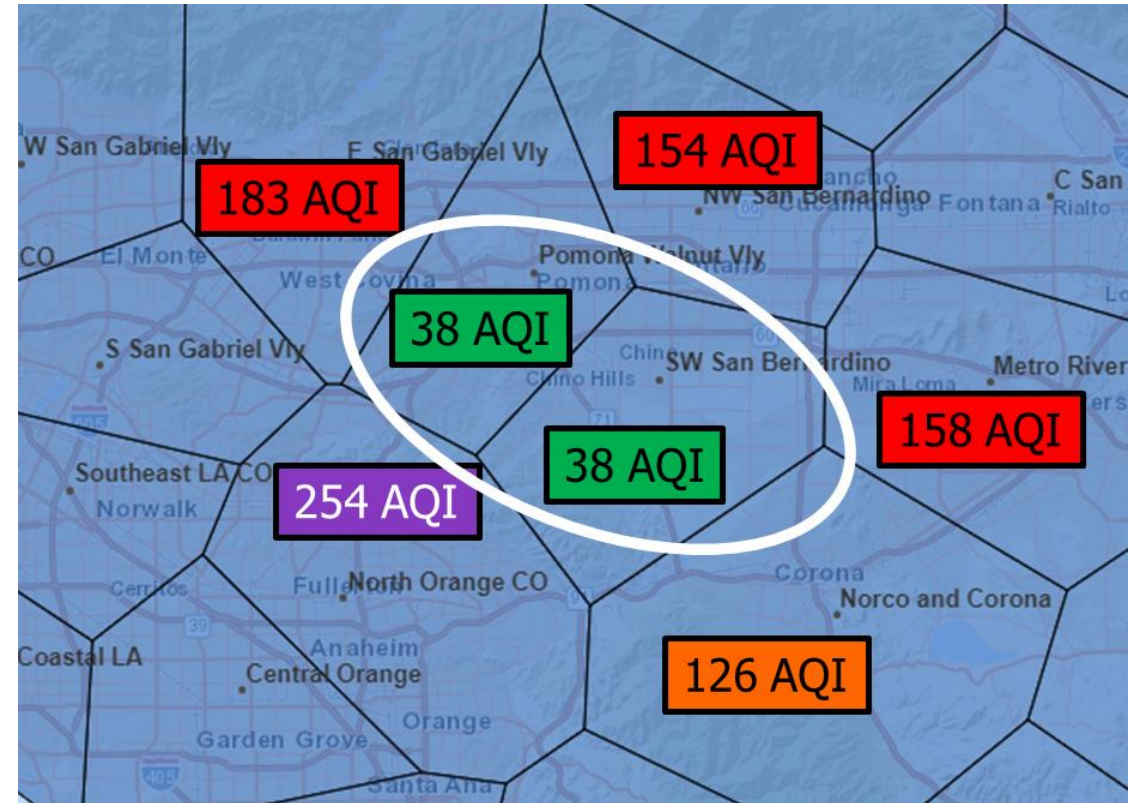
- Youngstown reporting area in AirNow has two verification sites (circled in blue)
- A monitoring site *in* the actual Youngstown city limits is relatively new (circled in red)
 - ✓ It has not yet been assigned to the Youngstown reporting area
 - ✓ Assignment is a manual step that has not been done
 - ✓ **This site** is reporting the highest current AQI in the area at the time
- **The result for the public:**
 - ✓ 48 Good AQI on the dial - **not 53 Moderate AQI** as it should be for Youngstown at this time



Existing Issues/Limitations in AirNow

Reporting areas w/o PM_{2.5} data: SW San Bernardino & Pomona Walnut Valley

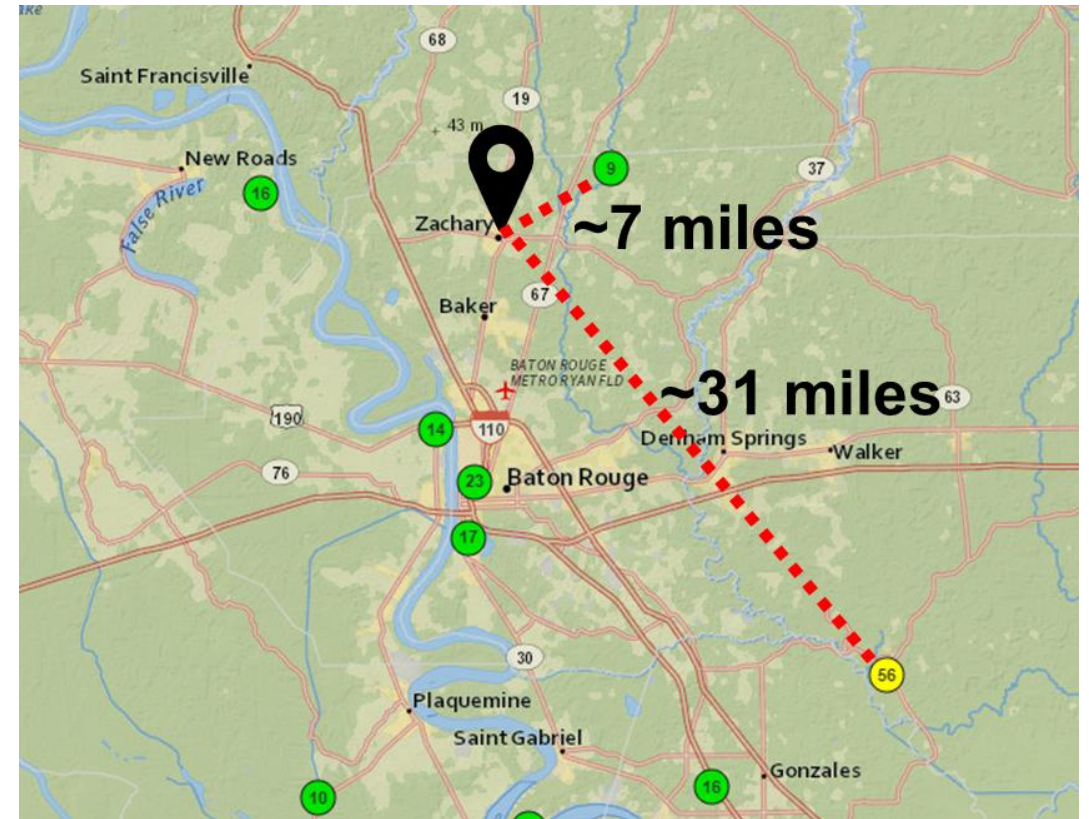
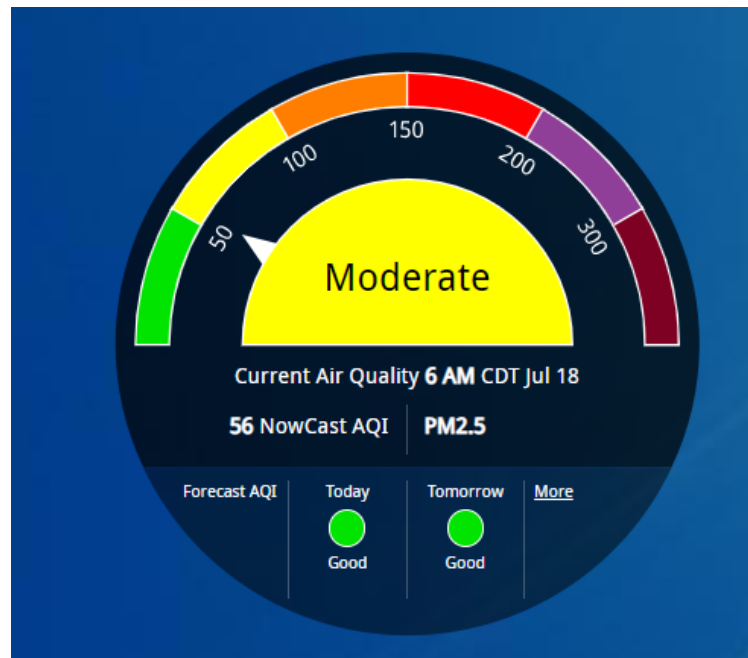
- The reporting areas circled here **ONLY** have 1 ozone monitor assigned as a verification site.
 - ✓ **No** PM_{2.5} or PM₁₀ data are reported on the AirNow dial page
- July 4th, fireworks in the LA basin raised PM_{2.5} levels to Unhealthy levels.
- These two reporting areas in California show the Good ozone readings on the main dial page while PM_{2.5} is likely in the Unhealthy range.
 - ✓ leads to end-user confusion or mistrust since no PM_{2.5} monitor assigned to these reporting areas



Existing Issues/Limitations in AirNow

Readings returned often aren't the closest to the user's location...

A user living in Zachary, LA sees the following dial for the Baton Rouge reporting area, when Green AQI is reported very close to their actual location



All monitoring sites displayed in image are assigned to the Baton Rouge reporting area

NEW Reporting Area Management Tool

The screenshot shows the web interface of the Reporting Area Management Tool at airnowtech.org/reportingareatools/. The browser's address bar and tabs are visible at the top. The main content area features a map of Oklahoma with a blue boundary outlining a reporting area that includes parts of Washington, Craig, Rogers, Tulsa, Wagoner, Muskogee, and McIntosh counties. A dark grey area labeled 'Springdale (Springdale-Fayetteville-Bentonville)' is also shown. A blue box with a question mark icon and the title 'What is this Tool?' is overlaid on the left side of the map. It contains the following text: 'The Reporting Area Management Tool allows you to create and edit settings and boundaries for your agency's forecast/reporting regions in AirNow. Region settings and boundaries are used across AirNow products.' Below this, it says 'To get started, select an existing reporting area on the map' followed by 'OR' and a button labeled 'Create a new Reporting Area'. A link for 'User Guide' is at the bottom of the box. On the right side of the map, a 'Map Legend' box is open, showing three categories: 'Agency Coverage Area' (blue outline), 'Reporting Area not Associated with my Agency' (dark grey fill), and 'U.S. Counties' (light tan fill). Below the legend is a circular icon with 'O3', 'PM2.5', and 'PM10' and a key for 'Publicly Reported' (black square) and 'Not Publicly Reported' (white square). Navigation buttons 'Back' and 'Next' are at the bottom center of the map area.

What is this Tool?

The Reporting Area Management Tool allows you to create and edit settings and boundaries for your agency's forecast/reporting regions in AirNow. Region settings and boundaries are used across AirNow products.

To get started, select an existing reporting area on the map

OR

Create a new Reporting Area

[User Guide](#)

Map Legend

- Agency Coverage Area
- Reporting Area not Associated with my Agency
- U.S. Counties

O3 PM2.5 PM10

- Publicly Reported
- Not Publicly Reported

← Back Next →

Initial View for
Cherokee
Nation



NEW Reporting Area Management Tool

- **The new Reporting Area Management Tool allows for more accurate spatial definitions using a variety of input options**
 - ✓ ZIP codes
 - ✓ Counties
 - ✓ Tribal borders
 - ✓ CBSAs
 - ✓ NWS Forecast Zones
 - ✓ Custom shapefiles (upload)
- **Reporting Area settings and boundaries that are visible in the tool will be used across AirNow products**
 - ✓ These shape definitions will be used when a user searches a location to determine reporting area
 - ✓ Has flexibility in how the end-user receives AQI information for each agency reporting area

NEW Reporting Area Management Tool

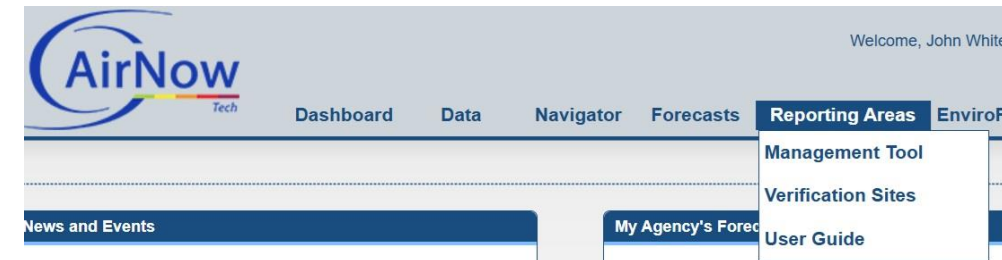
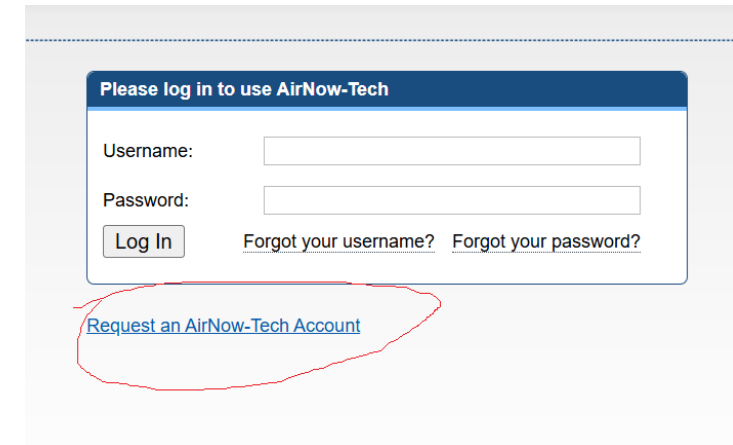
NOTE: This tool is a part of **AirNow-Tech** (Airnowtech.org)

Prerequisite: To access the Management Tool, you will need an **AirNow-Tech account** with the associated user roles of Data Editor, (Agency) Administrator, or Forecaster.

- dmc@airnowtech.org if you need help/questions

Once logged in to AirNow-Tech, navigate to the “**Reporting Areas**” tab and select “**Management Tool**” from the drop-down menu.

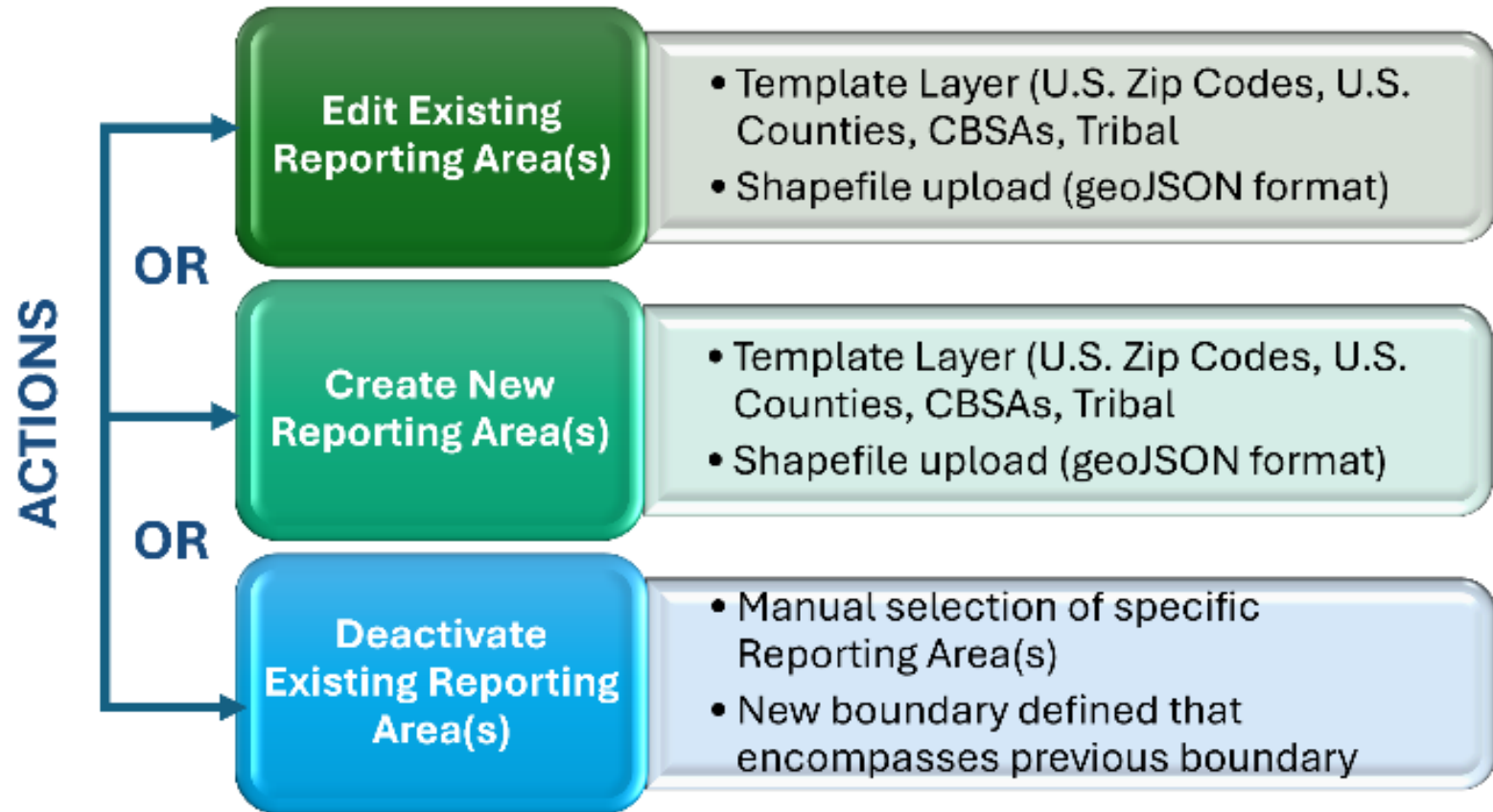
- The map will open in a new tab.
- The map will be centered on your Coverage Area (jurisdiction)



Agencies: Use the Tool to Take Action!

The three major actions available in the Management Tool are: **EDIT**, **DEACTIVATE**, and **CREATE**.

Only reporting areas associated with your agency (**blue**) can be edited.



Agencies Control How AQI Is Reported

Location-specific searches coming later this year on airnow.gov (NEW LOGIC)

- Example: User searches a town name, zip code, etc. **The user desires data for their specific location.**
- Features that will be impacted by new change:
 - ✓ AirNow.gov and app homepage search
 - ✓ AirNowAPI queries by zip code or lat/long
- **Default behavior would return the closest pollutant data to the user's searched location. Each pollutant is considered individually when finding the closest reading.**
- Agencies have control over the exact current conditions reporting methodology, dependent on the reporting area the user falls within.
 - ✓ This includes the ability to continue using max readings from assigned monitoring sites.
 - ✓ Outside of a reporting area boundary, default behavior (closest reading) will be used.

Flexibility in How AQI Is Reported on airnow.gov

Agencies can control how their data is reported to the public on airnow.gov

- **By Closest Site**
 - ✓ Limit to My agency sites only or use any nearby site
 - ✓ Limit to reporting area, agency jurisdiction, or by distance
 - ❖ 10, 25, or 50 miles
- **Maximum from all assigned sites**
 - ✓ Traditional way

Reporting Area Details

Layer Used for Shape Definition
Default

Current Conditions Behavior

Lookup Method

Closest Reading by Pollutant

Closest Reading by Pollutant ✓

Highest Reading from Assigned Sites

Limit Lookup Boundary

Select a lookup boundary limit

☐ Apply these current conditions settings to all of my agency's reporting areas

✓ Save X Cancel

Reporting Area Details

Layer Used for Shape Definition
Default

Current Conditions Behavior

Lookup Method

Closest Reading by Pollutant

Limit Considered Monitors

Select a monitor limit

Limit Lookup Boundary

All

My Agency Only

☐ Apply these current conditions settings to all of my agency's reporting areas

✓ Save X Cancel

Reporting Area Details

Lookup Method

Closest Reading by Pollutant

Limit Considered Monitors

Select a monitor limit

Limit Lookup Boundary

By Distance

Limit Lookup Distance

Select a boundary distance

10 Miles

25 Miles

50 Miles

☐ Apply these current conditions settings to all of my agency's reporting areas

✓ Save X Cancel

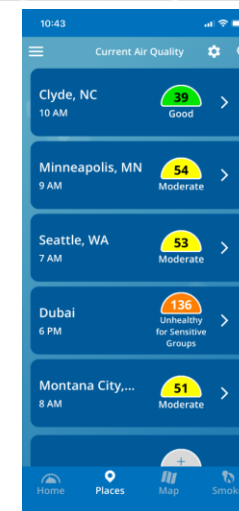
Traditional AQI Reporting - Still Needed

Traditional reporting area searches will still be used on airnow.gov

- **Example: User wants to view current or historical data by the whole reporting area.**
- AirNow features impacted:
 - ✓ AirNow.gov state pages and Trends
 - ✓ AirNow Mobile App
 - ✓ EnviroFlash alerts
- **Would return the maximum reading from assigned monitoring sites**
- Monitoring sites will be automatically assigned based on reporting area polygons unless the agency opts out and chooses to manually assign sites.
 - ✓ Intended to reduce manual upkeep of new/relocated monitors

The screenshot shows the AirNow website for Maryland. It features a dropdown menu to select a state, a 'Go to Interactive Map' button, and tabs for 'Current Air Quality' and 'Historical Air Quality'. Below these are four reporting areas: Hagerstown Region, Lower Eastern Shore, Maryland Piedmont, and Metro Baltimore. Each area displays its current AQI, the pollutant (OZONE or PM2.5), and the forecast for the next two days.

Reporting Area	Current AQI	Today's Forecast Tuesday October 8	Tomorrow's Forecast Wednesday October 9
Hagerstown Region 10:00 AM EDT	16 OZONE Good	22 PM2.5 Good	28 PM2.5 Good
Lower Eastern Shore 10:00 AM EDT	30 OZONE Good	22 PM2.5 Good	28 PM2.5 Good
Maryland Piedmont 10:00 AM EDT	25 OZONE Good	22 PM2.5 Good	33 PM2.5 Good
Metro Baltimore 10:00 AM EDT	25 OZONE Good	28 PM2.5 Good	39 PM2.5 Good



AirNow Reporting Area Management Tool

DEMO – AirNow-Tech

End of Presentation

Questions?

AirNow Data Management Center: dmc@airnowtech.org