

## About Air Quality Forecast and Dispersion Outlook Report:

The Air Quality Forecast and Dispersion outlook is a report that shows various factors that can contribute to Air Quality in Allegheny County. This includes a weather forecast, an Air Quality Index (AQI) forecast, the Atmospheric Dispersion Index (ADI), and the daily Surface Temperature Inversion report.

### Where does the Data come from?

The data used to create this report is compiled from the PA Department of Environmental Protection, NOAA's weather, and fire weather forecast, and morning radiosonde launch.

[PA DEP Forecast](#)

[Fire Weather Forecast](#)

[Atmospheric Soundings](#)

[36-hour Inversion Forecast](#)

### Guide to the Air Quality Index (AQI)

AQI is based on concentrations of PM2.5 or Ozone, whichever is forecasted higher for the day. On February 7, 2024 the National Ambient Air Quality Standard (NAAQs) for the annual PM2.5 standard was lowered from **12.0 µg** to **9.0 µg** meaning that the Air Quality Index (AQI) breakpoints for fine particle pollution has changed – see below for the updates.

AQI for PM2.5	Previous AQI Category Breakpoints	Updated AQI Category Breakpoints	What changed?
Good (0-50)	0.0 to 12.0	0.0 to 9.0	EPA updated the breakpoint between Good and Moderate to reflect the updated annual standard of 9 micrograms per cubic meter.
Moderate (51-100)	12.1 to 35.4	9.1 to 35.4	
Unhealthy for Sensitive Groups (101-150)	35.5 to 55.4	35.5 to 55.4	No change, because EPA retained the 24-hour fine PM standard of 35 micrograms per cubic meter.
Unhealthy (151-200)	55.5 to 150.4	55.5 to 125.4	EPA updated the breakpoints at the upper end of the unhealthy, very unhealthy, and hazardous categories based on scientific evidence about particle pollution and health. The Agency also collapsed two sets of breakpoints for the Hazardous category into one.
Very Unhealthy (201-300)	150.5 to 250.4	125.5 to 225.4	
Hazardous (301+)	250.5 to 350.4 and 350.5 to 500	255.5+	

### Guide to the Atmospheric Dispersion Index

This index is generally used to aid in fire weather forecasting and is derived from the mixing height and stability of the atmosphere. It is included in this report to indicate periods of stagnation – or times when transportation of pollution may be limited. Values ranging from 1- 40 may indicate periods of stagnation, especially if there are persistent low windspeeds.

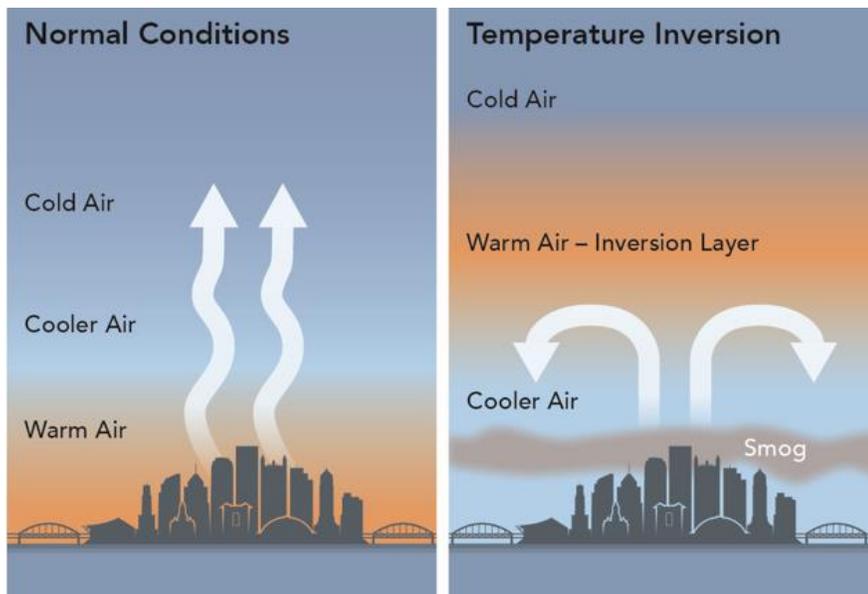
Dispersion Index	ADI Characterization	Interpretation
1-6	Very Poor	Very frequent at night

7-12	Poor	Stagnant during the day or above average at night
13-20	Generally Poor	Stagnation if persistent
21-40	Fair	Stagnation may be indicated if accompanied by persistent low windspeeds
41-60	Generally Good	Climatological afternoon values in most inland forested areas fall in this range
61-100	Good	Typical-case burning weather
>100	Very Good	May indirectly indicate hazardous conditions in regards to fire weather

### Surface Temperature Inversion Report

A surface inversion is when the temperature of the air near the surface of the ground is cooler than the air above it. This weather pattern stops the mixing of air near the ground and can impact local air quality by trapping pollution.

Please see the Surface Inversion Analysis for 2023 for the previous year to see patterns and trends in the surface temperature inversion.



Temperature Range (°C)	Inversion Characterization
0.0-0.9	Slight
1.0-2.9	Weak
3.0-4.9	Moderate
≥ 5	Strong