Ozone National Ambient Air Quality Standard Health Exceedances on June 4, 2025

Exceedance Locations and Levels

On Wednesday, June 4, 2025, there were five (5) exceedances in New Jersey of the National Ambient Air Quality Standard (NAAQS) for ozone (daily maximum 8-hour average of 70 ppb). See Table 1.

Table 1. New Jersey Ozone Concentrations on 6/4/2025

Site		8-Hr Maximum Average (ppb)
1	Ancora	61
2	Bayonne	52
3	Brigantine	49
4	Chester	75
5	Clarksboro	61
6	Colliers Mills	63
7	Columbia	72
8	Flemington	77
9	Leonia	63
10	Millville	59
11	Monmouth University	52
12	Ramapo	69
13	Rider University	75
14	Rutgers University	68
15	South Camden	52
16	Washington Crossing*	76

*The Washington Crossing station is operated and maintained by EPA as part of the nationwide Clean Air Status and Trends Network (CASTNET).

From the out-of-state stations within New Jersey's ozone nonattainment areas, there was three (3) exceedances of the ozone NAAQS at Danbury, CT; Rockland City, NY; and NEW(Philadelphia), PA. See Table 2.

Table 2. Ozone Concentrations at Out-of-State Monitoring Stations in New Jersey's Ozone Nonattainment Areas on 6/4/2025

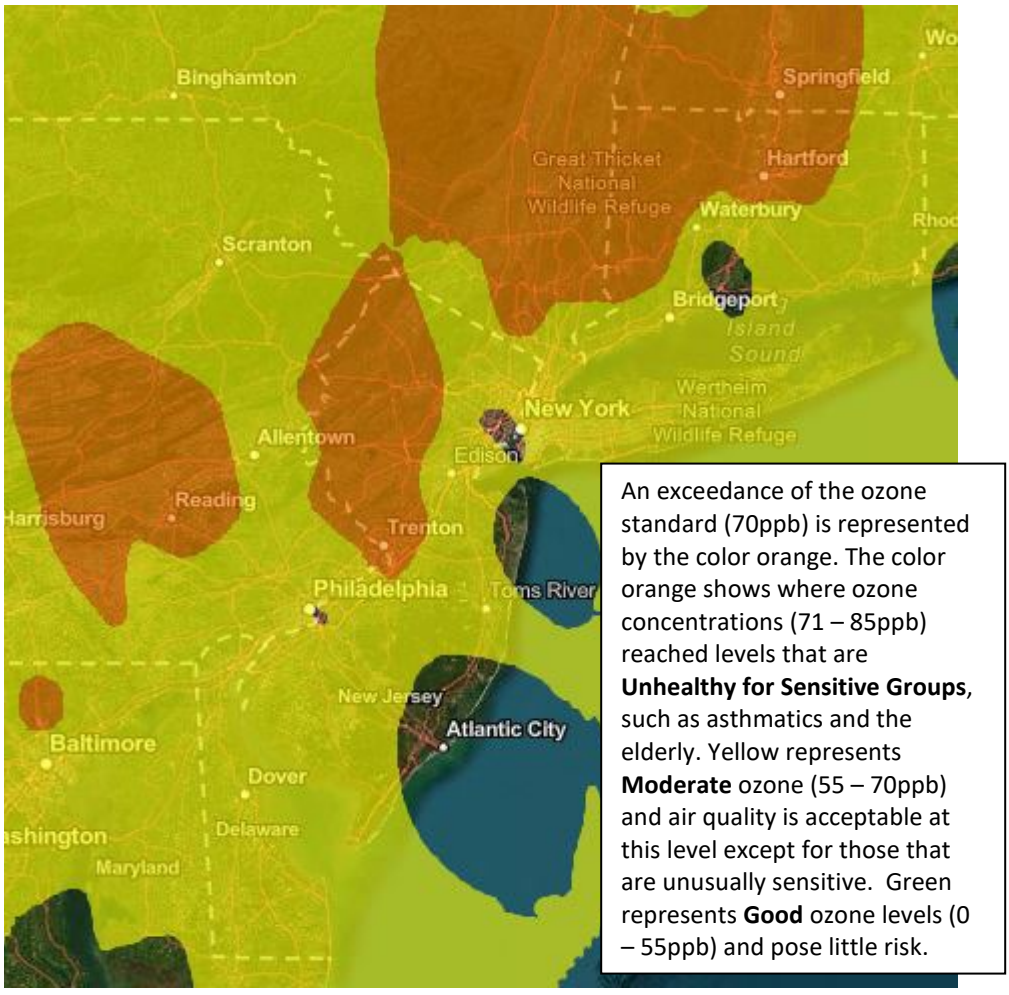
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	81
CT	Greenwich	60
CT	Madison-Beach Road	62
CT	Middletown-CVH-Shed	69
CT	New Haven	52
CT	Stratford	63
CT	Westport	64
DE	BCSP (New Castle Co.)	65
DE	BELLFNT2 (New Castle Co.)	56
DE	KILLENS (Kent Co.)	61
DE	LEWES (Sussex Co.)	56
DE	LUMS 2 (New Castle Co.)	61
DE	MLK (New Castle Co.)	56
DE	SEAFORD (Sussex Co.)	58
MD	Fair Hill	60
NY	Babylon	55
NY	Bronx - IS52	59
NY	CCNY	58
NY	Flax Pond	59
NY	Fresh Kills	56
NY	Holtsville	58
NY	Pfizer Lab	61
NY	Queens	55
NY	Riverhead	57
NY	Rockland Cty	74
NY	White Plains	69
PA	BRIS (Bucks Co.)	70
PA	CHES (Delaware Co.)	60
PA	NEWG (Chester Co.)	64
PA	NORR (Montgomery Co.)	70
PA	LAB (Philadelphia Co.)	67
PA	NEA (Philadelphia Co.)	63
PA	NEW (Philadelphia Co.)	71
	TOTAL EXCEEDANCES	3

The number of days in 2025 on which exceedances of the ozone NAAQS were recorded for all the states within New Jersey's ozone nonattainment areas is summarized in Table 3.

Table 3. Number of Days Ozone NAAQS was Exceeded in NJ's Nonattainment Areas in 2025.

STATE	# of Days NAAQS was Exceeded January 1 – April, 2025 NAAQS = 70 ppb
Connecticut	3
Delaware	0
Maryland	0
New Jersey	1
New York	1
Pennsylvania	2

Figure 1. Ozone Air Quality Index for June 4, 2025



Source: www.airnow.gov

For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: https://www.nj.gov/dep/airmon/glossary.html

Weather

On Wednesday June 4th, multiple USG exceedances were observed across the nonattainment area. The high pressure system off the coast dominated the weather pattern, driving southwesterly winds, sunny skies, and warm temperatures reaching the upper-80s into the region. Hazy conditions were observed due to the presence of lingering Canadian wildfire smoke, which may have helped enhance surface ozone levels. As a result, this created favorable conditions for ozone formation and allowed ozone concentrations to reach the Unhealthy for Sensitive Groups (USG) category throughout central and northern New Jersey, as well as in parts of Pennsylvania, New York, and Connecticut.

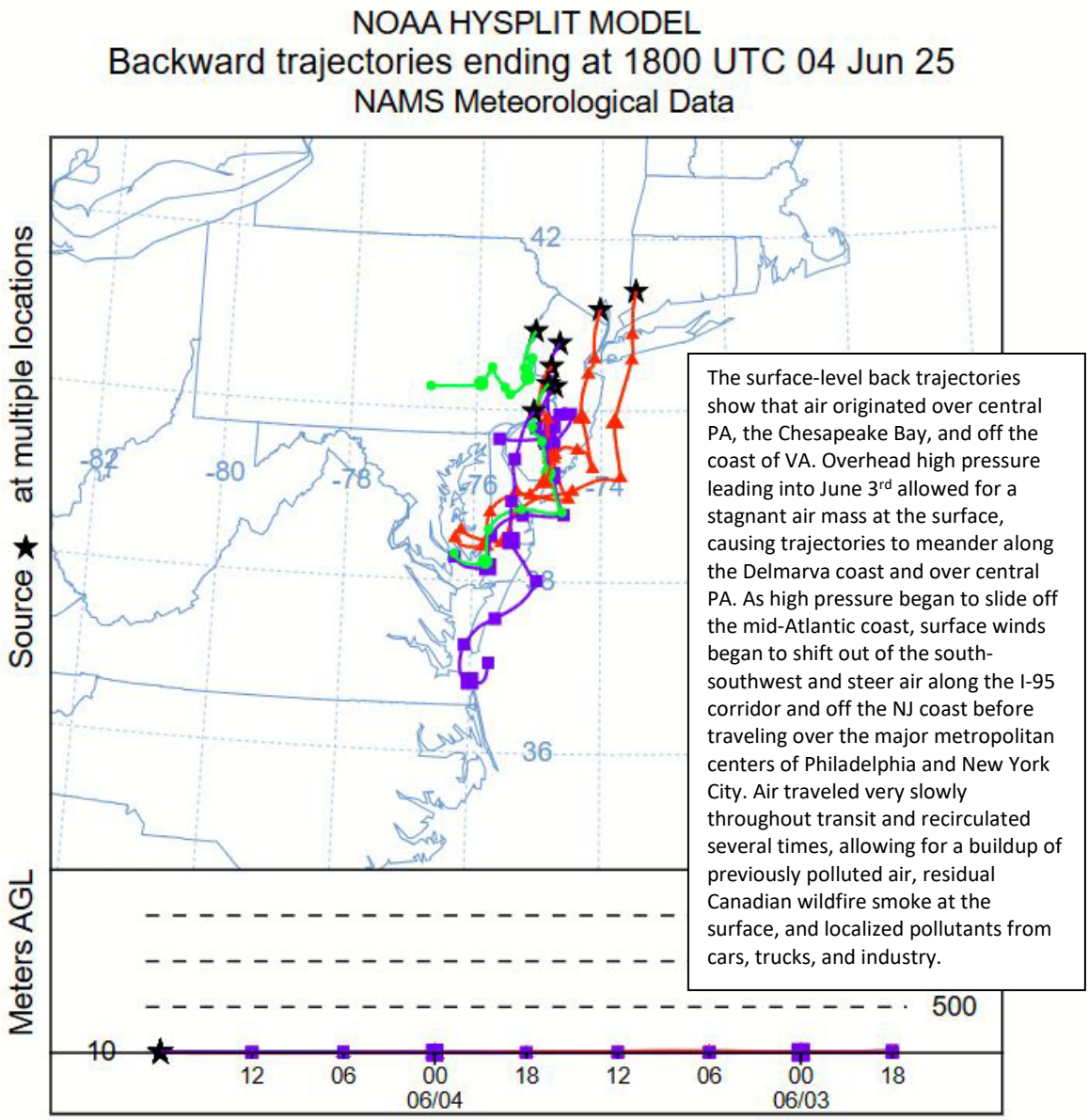
Where Did the Air Pollution that Caused Ozone Come From?

Figures 2, 3, and 4 show the back trajectories of different wind heights for the monitored exceedance(s) on this day. The figures illustrate where the air came from during the 48 hours preceding the 8-hour ozone standard exceedances. A transport analysis is provided with each figure shown below along with a map of the National Air Quality Index for the previous day (Figure 5). The monitoring station(s) that were chosen to model back trajectories are listed in Table 4.

Table 4. Monitoring Stations with an 8-hr Ozone Exceedance that were selected to Run 48-hr Back Trajectories

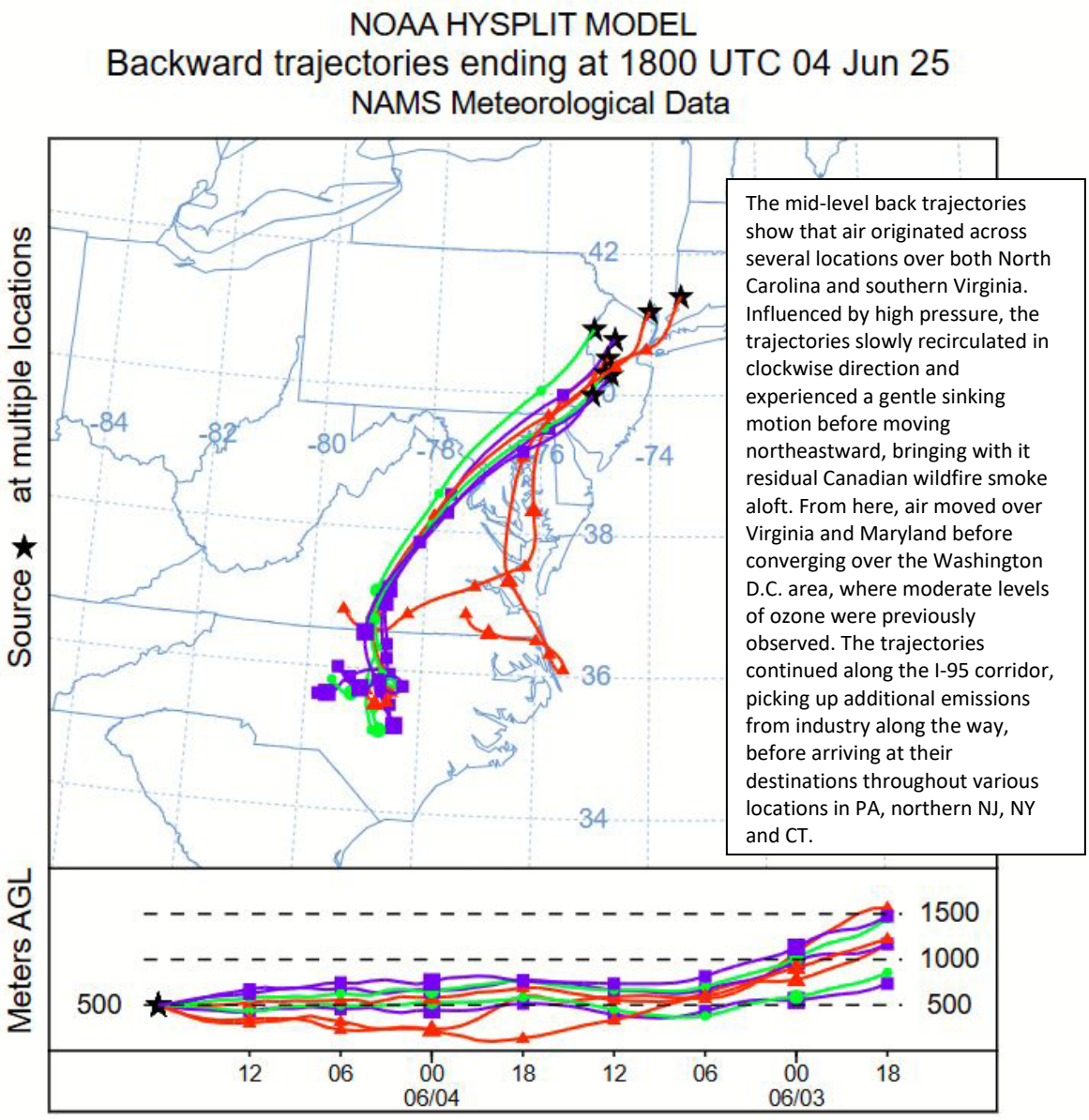
STATE	STATION	Daily Maximum 8-Hr Average (ppb)
CT	Danbury	81
NJ	Chester	75
NJ	Columbia	72
NJ	Flemington	77
NJ	Rider University	75
NJ	Washington Crossing	76
NY	Rockland Cty	74
PA	NEW (Philadelphia Co.)	71

Figure 2. 48-hour Back Trajectories for June 4, 2025 at 10 meters



The surface-level back trajectories show that air originated over central PA, the Chesapeake Bay, and off the coast of VA. Overhead high pressure leading into June 3rd allowed for a stagnant air mass at the surface, causing trajectories to meander along the Delmarva coast and over central PA. As high pressure began to slide off the mid-Atlantic coast, surface winds began to shift out of the south-southwest and steer air along the I-95 corridor and off the NJ coast before traveling over the major metropolitan centers of Philadelphia and New York City. Air traveled very slowly throughout transit and recirculated several times, allowing for a buildup of previously polluted air, residual Canadian wildfire smoke at the surface, and localized pollutants from cars, trucks, and industry.

Figure 3. 48-hour Back Trajectories for June 4, 2025 at 500 meters



The mid-level back trajectories show that air originated across several locations over both North Carolina and southern Virginia. Influenced by high pressure, the trajectories slowly recirculated in clockwise direction and experienced a gentle sinking motion before moving northeastward, bringing with it residual Canadian wildfire smoke aloft. From here, air moved over Virginia and Maryland before converging over the Washington D.C. area, where moderate levels of ozone were previously observed. The trajectories continued along the I-95 corridor, picking up additional emissions from industry along the way, before arriving at their destinations throughout various locations in PA, northern NJ, NY and CT.

Figure 4. 48-hour Back Trajectories for June 4, 2025 at 1500 meters

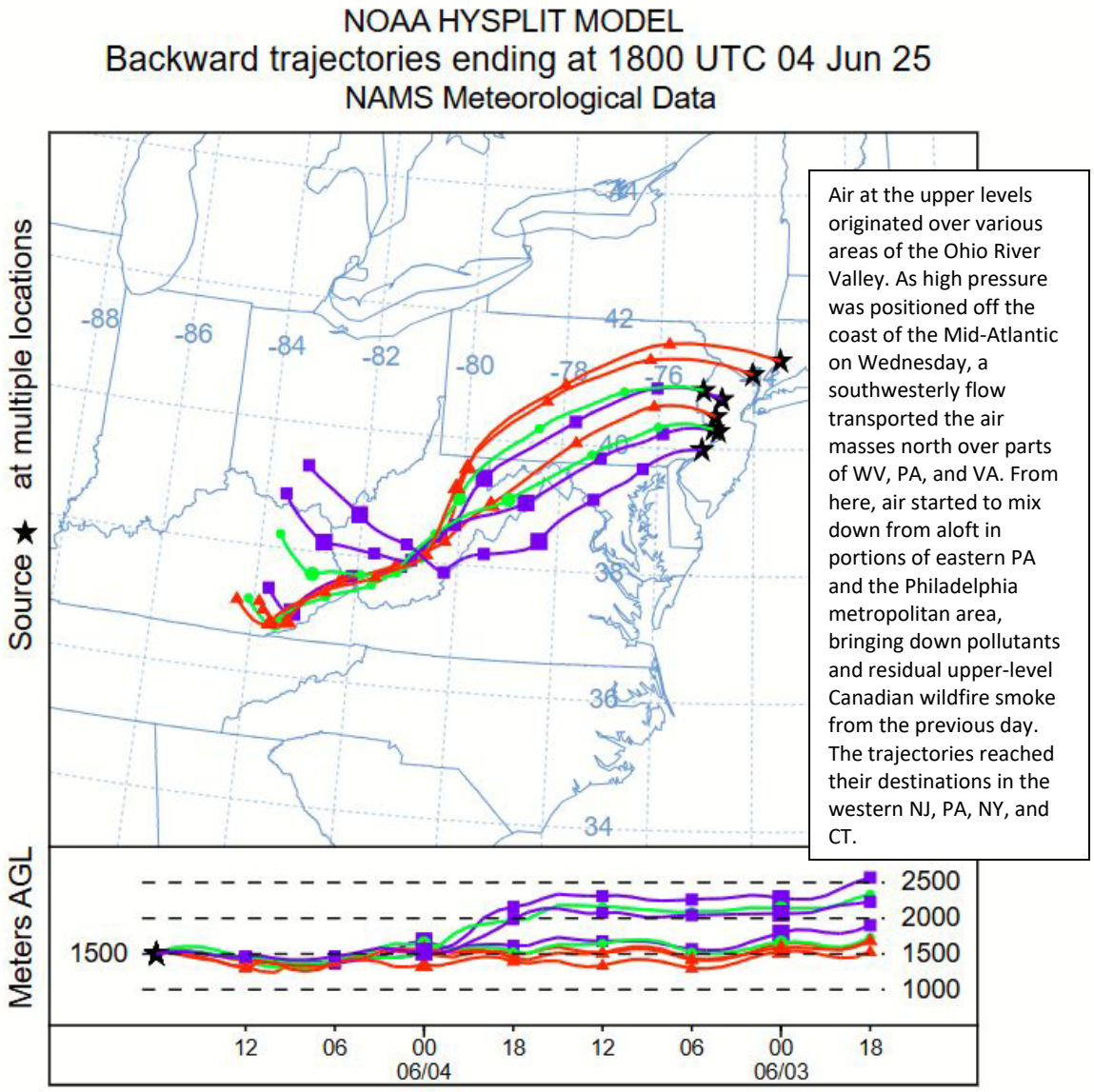
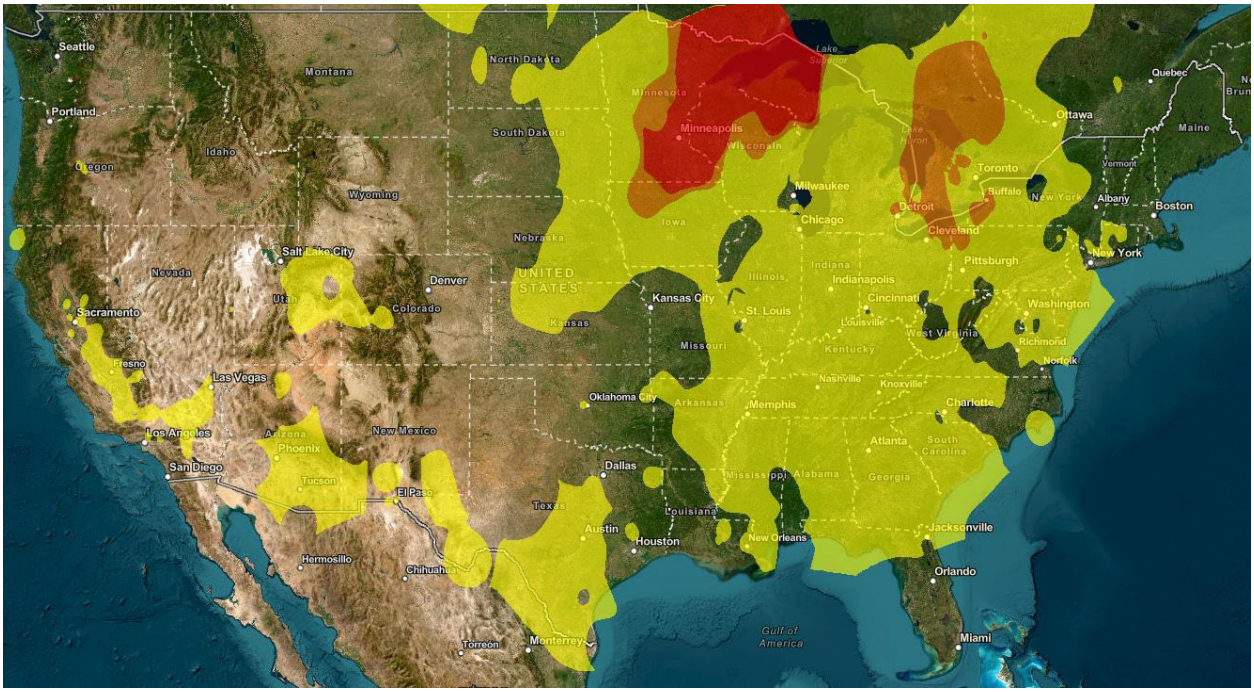


Figure 5. Air Quality Index for the United States on June 3, 2025



Source: www.airnow.gov

How is Ozone Created?

Ground-level ozone is an air pollutant known to cause several health effects and negatively impact air quality and the environment in New Jersey. Ozone is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Ozone can irritate any person's lungs, but the effect may be more pronounced for those with existing lung-related deficiencies, and therefore, one should take extra precautions on bad ozone days.

Find Out About Air Quality Every Day

Learn more about your local ozone air quality forecast by visiting the "What's Your Air Quality Today?" page at https://dep.nj.gov/airplanning/aqi-today/.