NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Ms. Judith A. Enck
Regional Administrator
United States Environmental Protection Agency - Region 2
290 Broadway, 26th Floor
New York, NY 10007-1866

SEP 22 2016

Dear Ms. Enck:

EPA revised the National Ambient Air Quality Standards (NAAQS) for ozone on October 1, 2015 by strengthening the primary and secondary 8-hour standards to 0.070 parts per million (ppm) from the 0.075 ppm level set in 2008. DEC commends EPA on strengthening these standards to better protect public health and welfare.

I am hereby submitting the designation recommendations for the 2015 ozone NAAQS for New York State on behalf of Governor Andrew M. Cuomo. These recommendations are meant to inform EPA's final designations, to be made by October 1, 2017, pursuant to Clean Air Act section 107(d).

Based on a review of certified monitoring data for the 2013 to 2015 period, DEC is recommending that the New York City metropolitan area – consisting of the Counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester – be designated nonattainment for the 2015 ozone NAAQS. Monitoring data establish that the remainder of the state is attaining the NAAQS.

Enclosed is a detailed analysis of the five factors that EPA intends to evaluate in making its final designations and nonattainment area boundary decisions. This analysis was aided by EPA's February 25, 2016 designations guidance and Ozone Designations Mapping Tool.

A 30-day public comment period was provided for New York's designation recommendations, with no comments received. Should you have any questions regarding these recommendations, please contact Mr. Steven E. Flint, PE, Director of DEC's Division of Air Resources, at (518) 402-8452.

Sincerely,

J. Jared Snyder
Deputy Commissioner
Office of Air Resources, Climate Change and Energy

Enclosure

c: R. Ruvo, EPA
K. Mangels, EPA

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

New York State Designation Recommendations
for the 2015 Ozone National Ambient Air Quality Standards

On October 1, 2015, EPA promulgated revised primary and secondary ozone national ambient air quality standards (NAAQS) (80 FR 65292, October 26, 2015). Section 107(d) of the Clean Air Act (CAA) governs the process for initial area designations after the EPA establishes a new or revised NAAQS. EPA issued designations guidance, in the form of a memorandum entitled "Area Designations for the 2015 Ozone National Ambient Air Quality Standards," on February 25, 2016. This guidance provides information on the schedule and process for initially designating areas for the 2015 ozone NAAQS, and also identifies five important factors that EPA intends to evaluate in making final nonattainment area boundary decisions for these standards.

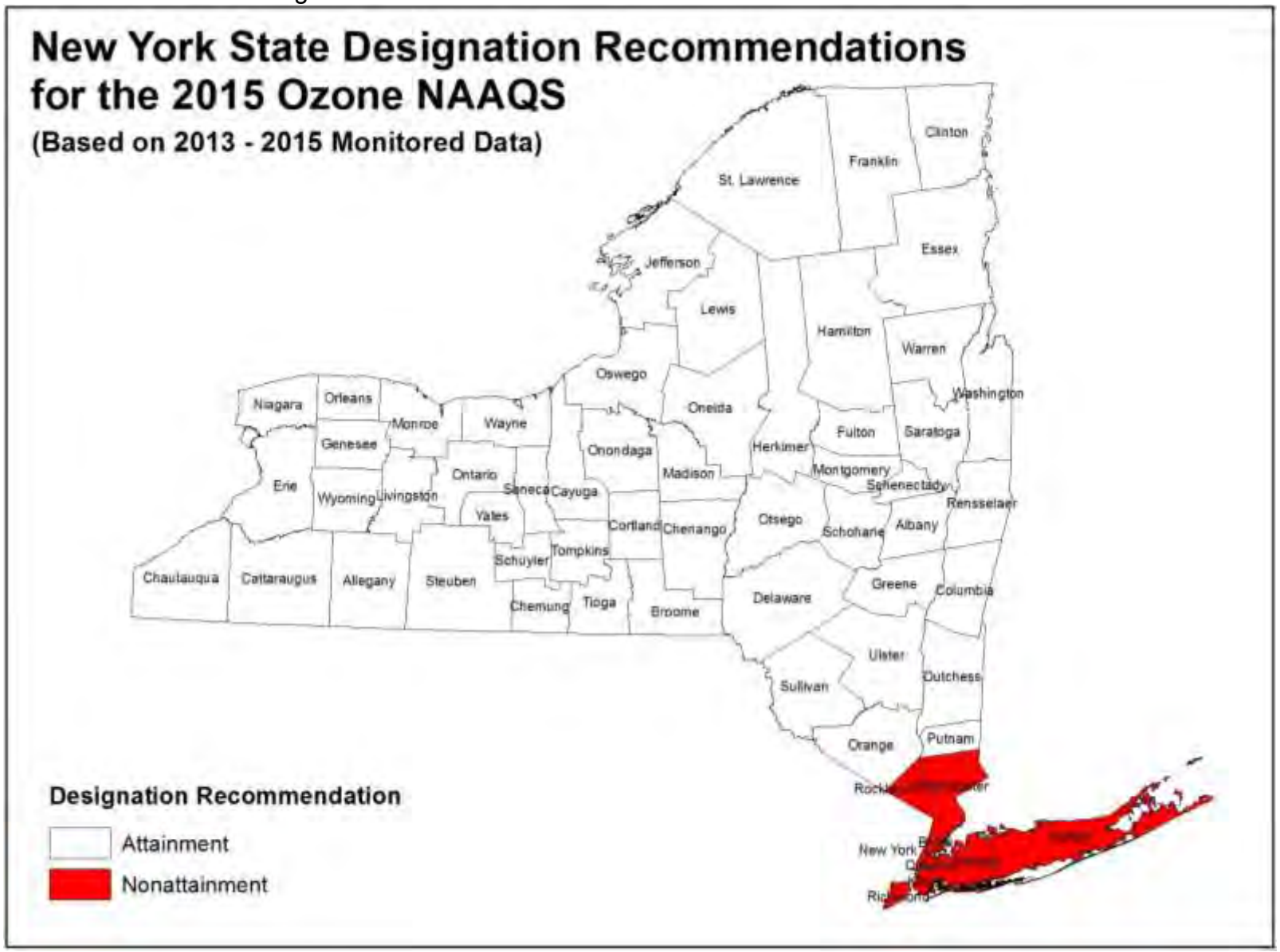
DEC used this guidance in the development of its designation recommendations, focusing on information relevant to air quality data, emissions and emissions-related data, meteorology, geography/topography, and jurisdictional boundaries. DEC has also taken into account the historical treatment of nonattainment area boundaries in New York.

DEC is recommending a downstate nonattainment area consisting of the Counties of Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, and Westchester (otherwise known as the New York metropolitan area, or NYMA). These are the same nine counties that were designated as the NYMA nonattainment area for the 1997 and 2008 ozone NAAQS. As with those standards, the remaining counties in the New York State portion of the New York-Newark, NY-NJ-CT-PA Combined Statistical Area (CSA) – Dutchess, Orange, Putnam, and Ulster Counties – are considered to be in the distinct Mid-Hudson area and not contributing to the downstate area's nonattainment in a significant way. Those four Mid-Hudson counties currently comply with the 2015 ozone NAAQS.

Monitored ozone concentrations in all other areas of the state comply with the 2015 ozone NAAQS. DEC is therefore recommending a designation of attainment for the remainder of the state.

These designation recommendations are reflected in the map on the following page. The recommendations are based upon certified 2013-2015 monitoring data. It is understood that EPA will base its final designations on 2014-2016 monitoring data, with the opportunity for New York to provide supplemental information prior to EPA's final action, though DEC does not expect any appreciable changes.

Figure 1. New York State Designation Recommendations



Factor 1: Air Quality Data

The primary factor and starting point for evaluations, air quality data, is represented by design values that are calculated from the most recently completed three consecutive calendar years (i.e. 2013 through 2015) of quality-assured, certified air quality data in EPA's Air Quality System (AQS). The air quality design value for a site is the 3-year average annual fourth-highest daily maximum 8-hour average ozone concentration. The air quality design value for the area is the highest design value among all sites in the area.

The 2015 design values are provided in Table 1, and demonstrate that violations of the 0.070 part per million (ppm) standard occurred only in the NYMA, with the highest design value of 0.074 ppm at the Susan Wagner (Richmond County) monitoring site. The highest design value for the entire tri-state metropolitan area is located in Connecticut, where the Westport (Fairfield County) monitor had a 2015 design value of 0.084 ppm.

Analysis of the remaining four factors is used to define the nonattainment area boundary for the CSA. Specifically, the analysis provides evidence for excluding Dutchess, Orange, Putnam, and Ulster Counties from the nonattainment area. Monitors operating in Dutchess, Orange, and Putnam Counties had a maximum 2015 design value of only 0.067 ppm.

Table 1. Monitored Ozone Values throughout New York State (ppm), 2013–2015

Monitoring Station	County	2013 4th Max	2014 4th Max	2015 4th Max	2015 Design Value
New York - N. New Jersey - Long Island, NY-NJ-CT					
Babylon	Suffolk	0.072	0.066	0.078	**0.072**
Holtsville	Suffolk	0.074	0.062	0.063	**0.066**
Riverhead	Suffolk	0.078	0.064	0.076	**0.072**
CCNY	New York	0.062	0.065	0.071	**0.066**
Pfizer Lab	Bronx	0.068	0.070	0.072	**0.070**
IS52	Bronx	0.071	0.071	0.063	**0.068**
Queens College 2	Queens	0.071	0.063	0.073	**0.069**
Susan Wagner	Richmond	0.071	0.072	0.079	**0.074**
White Plains	Westchester	0.072	0.074	0.073	**0.073**
Rockland County	Rockland	0.069	0.068	0.077	**0.071**
Poughkeepsie, NY					
Valley Central	Orange	0.057	0.062	0.072	**0.063**
Millbrook	Dutchess	0.065	0.068	0.067	**0.066**
Mt. Ninham	Putnam	0.067	0.066	0.069	**0.067**
Albany-Schenectady-Troy, NY					
Loudonville	Albany	0.064	0.061	0.063	**0.062**
Stillwater	Saratoga	0.062	0.061	0.061	**0.061**
Essex County (Whiteface Mtn.), NY					
Whiteface Summit	Essex	0.061	0.059	0.060	**0.060**
Whiteface Base	Essex	0.063	0.060	0.067	**0.063**
Piseco Lake*	Hamilton	0.063	0.058	0.062	**0.061**
Jefferson County, NY					
Perch River	Jefferson	0.066	0.059	0.065	**0.063**
Nick's Lake*	Herkimer	0.061	0.057	0.061	**0.059**
Syracuse, NY					
East Syracuse	Onondaga	0.065	0.063	0.063	**0.063**
Fulton	Oswego	0.063	0.058	0.063	**0.061**
Rochester, NY					
Rochester 2	Monroe	0.064	0.058	0.065	**0.062**
Williamson	Wayne	0.066	0.064	0.061	**0.063**
Pinnacle SP*	Steuben	0.061	0.058	0.059	**0.059**
Buffalo-Niagara Falls, NY					
Amherst	Erie	0.071	0.063	0.071	**0.068**
Middleport	Niagara	0.065	0.061	0.067	**0.064**
Jamestown, NY					
Dunkirk	Chautauqua	0.066	0.066	0.071	**0.067**

* Monitor located outside Metropolitan Statistical Area

Factor 2: Emissions and Emissions-Related Data

NOx and VOC Emissions

EPA's guidance recommends reviewing the most recent version of the National Emissions Inventory (NEI) and examining the magnitude of county-level emissions and the geographic locations of sources of oxides of nitrogen (NOx) and volatile organic compounds (VOCs).

NOx and VOC emissions data from the 2011 NEI were reviewed, with the results summarized in Figure 2. Together, the four Mid-Hudson counties constituted only 9.5 percent of NOx and 12.1 percent of VOC emissions within the larger CSA. Regional emissions are dominated by the nine NYMA counties that DEC is recommending be included in the nonattainment area. Factoring in the size of the county further illustrates the disparity, as seen in the emissions density graph of Figure 3.

Additionally, data from EPA's Clean Air Markets Division reveal that, of the major NOx sources that reported to the Air Markets Program in 2015, only 3.3 percent of ozone-season NOx emissions within the CSA come from the four Mid-Hudson counties.

Figure 2. 2011 NOx and VOC Emissions by County

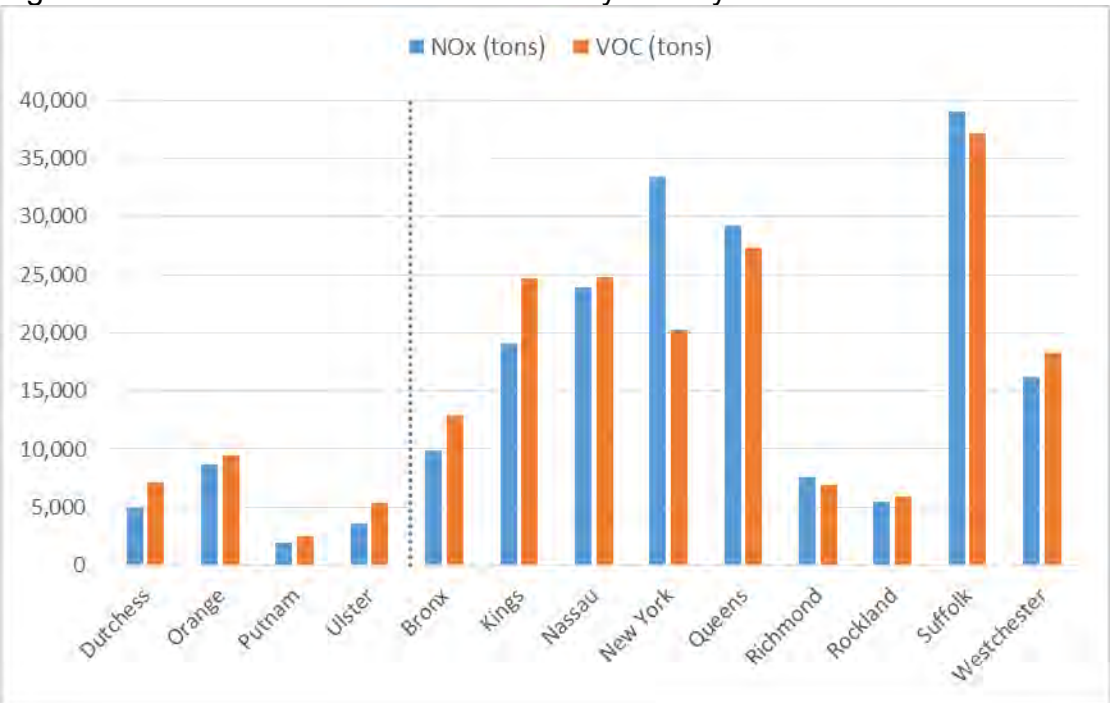
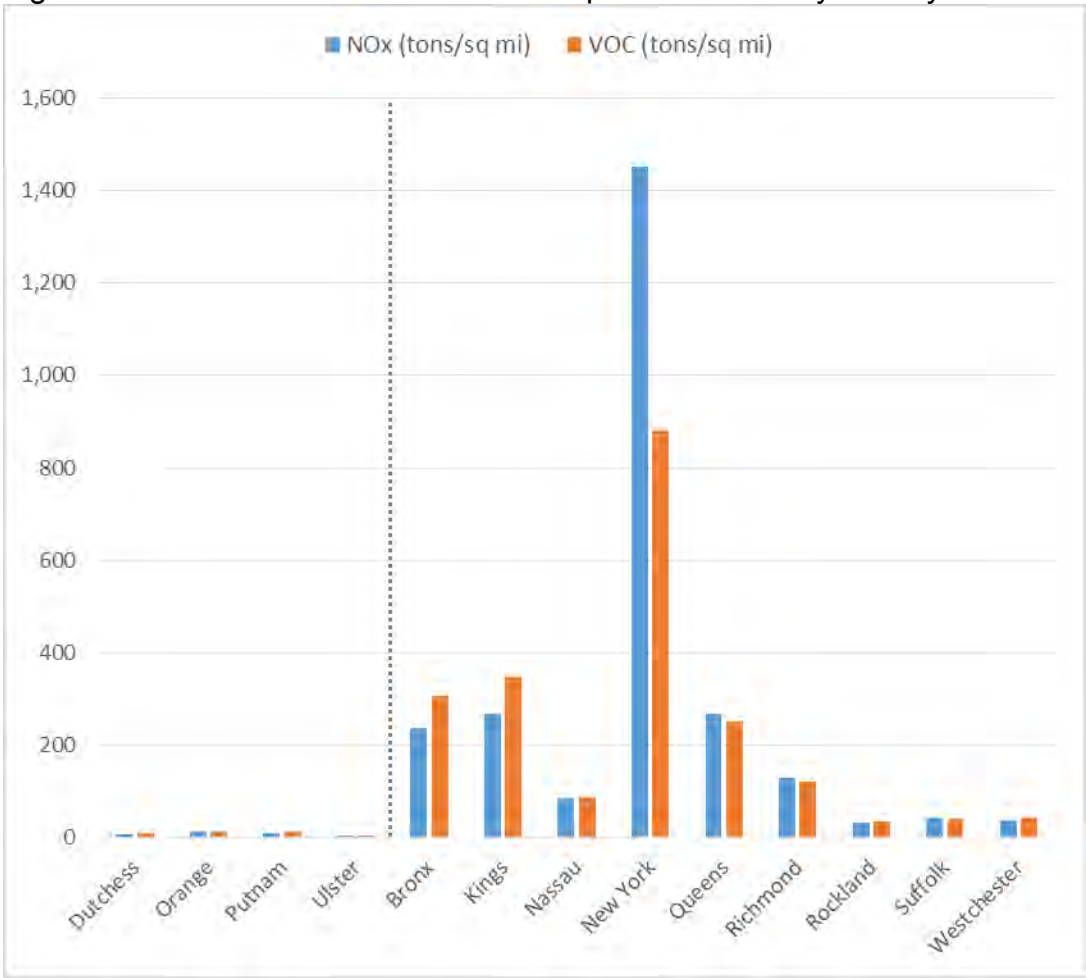


Figure 3. 2011 NOx and VOC Emissions per Land Area by County



Population and Degree of Urbanization

Multiple measures of population and the degree of urbanization support the recommended nonattainment area. Table 2 presents population data from the U.S. Census Bureau, and shows that the 2010 and estimated 2014 populations are significantly higher in most of the downstate counties. Moreover, those counties' populations have all grown since the 2010 census; three out of the four Mid-Hudson counties, meanwhile, have witnessed a population loss.

In terms of the degree of urbanization, Dutchess, Orange, Putnam, and Ulster Counties account for a mere seven percent of the region's overall population. The population density column in Table 2 shows a stark contrast between the counties.

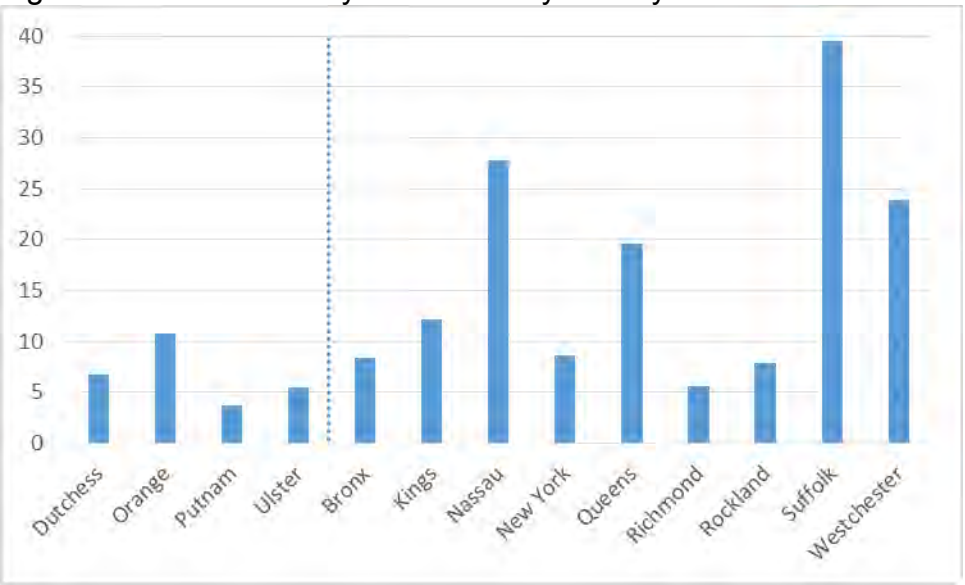
Table 2. Population Statistics

County	2010 Census Pop	2014 Pop Estimate	2010-2014 Change	2010 Density (pop/mi^2)
Dutchess	297,488	296,579	-0.31%	374
Orange	372,813	376,099	0.88%	459
Putnam	99,710	99,487	-0.22%	433
Ulster	182,493	180,445	-1.12%	162
Bronx	1,385,108	1,438,159	3.83%	32,903
Kings	2,504,700	2,621,793	4.67%	35,369
Nassau	1,339,532	1,358,627	1.43%	4,705
New York	1,585,873	1,636,268	3.18%	69,468
Queens	2,230,722	2,321,580	4.07%	20,554
Richmond	468,730	473,279	0.97%	8,030
Rockland	311,687	323,866	3.91%	1,796
Suffolk	1,493,350	1,502,968	0.64%	1,637
Westchester	949,113	972,634	2.48%	2,205

Traffic Data

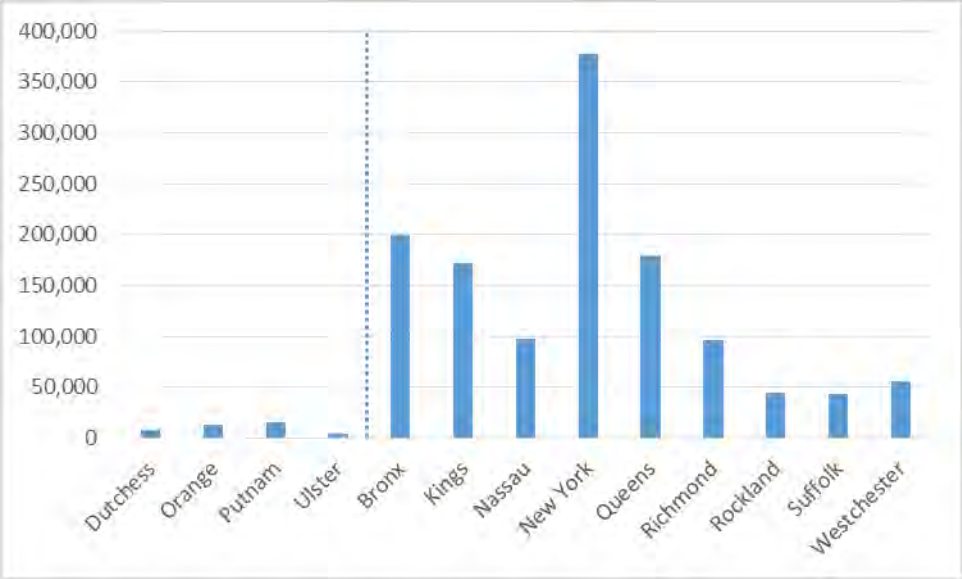
The traffic data within the NYMA and Mid-Hudson counties reflect a disparity between the two areas in terms of vehicle miles traveled (VMT). Based on year 2014 VMT data, there was an average daily total of approximately 180.4 million VMT in the CSA. Of that amount, about 153.7 million – over 85 percent of the total – occurred within the NYMA counties. The remaining 26.7 million, or 15 percent of the total, occurred within the Mid-Hudson area. Figure 4 provides the VMT breakdown by county.

Figure 4. Millions of Daily 2014 VMT by County



There is also a significant difference in the density of the daily VMT between the NYMA and Mid-Hudson areas. Figure 5 shows the 2014 daily VMT per square mile for each county in the two areas; in 2014 the NYMA averaged 73,000 VMT/mile^2 per day, while the Mid-Hudson area averaged around 9,000 VMT/mile^2 per day.

Figure 5. Daily 2014 VMT per Square Mile by County



Factor 3: Meteorology

EPA has provided data from the HYSPLIT modeling system through their GIS-based Ozone Designations Mapping Tool. HYSPLIT visualizes the back-trajectories traveled by air parcels that impact a violating monitor. Three trajectories are generated for each exceedance event; these are coded red, blue, and green for 100 km, 500 km, and 1000 km elevations, respectively. Higher-elevation trajectories generally represent air that has been transported from relatively long distances.

These trajectories alone do not conclusively indicate direct contributions to elevated ozone. They do, however, provide a useful reference for meteorological patterns that generally occur on exceedance days and can therefore supplement the other factors considered in this analysis.

Provided below as Figures 6 through 11 are the HYSPLIT results for the highest-recording monitor in each of Connecticut's three counties in the NYMA. These monitors were selected for the analysis because they are downwind of the New York City area and receive a fair amount of transported ozone pollution; based on EPA projection modeling released in July 2015, New York State sources in 2017 are expected to contribute 16.2 ppm to the Westport monitor, 13.7 ppm to the Middletown monitor, and 17.0 ppm to the Madison Beach monitor.

While ozone-laden air on exceedance days periodically passed through the four Mid-Hudson counties, they were often the higher elevation (long-range) trajectories. The vast majority of trajectories of all elevations came from further south-west, indicating origins in New York City and locations further down the I-95 corridor as well as from other states to the south and west.

Figure 6. Local HYSPLIT Results for Westport, Fairfield Co., CT (AQS ID 09-001-9003)

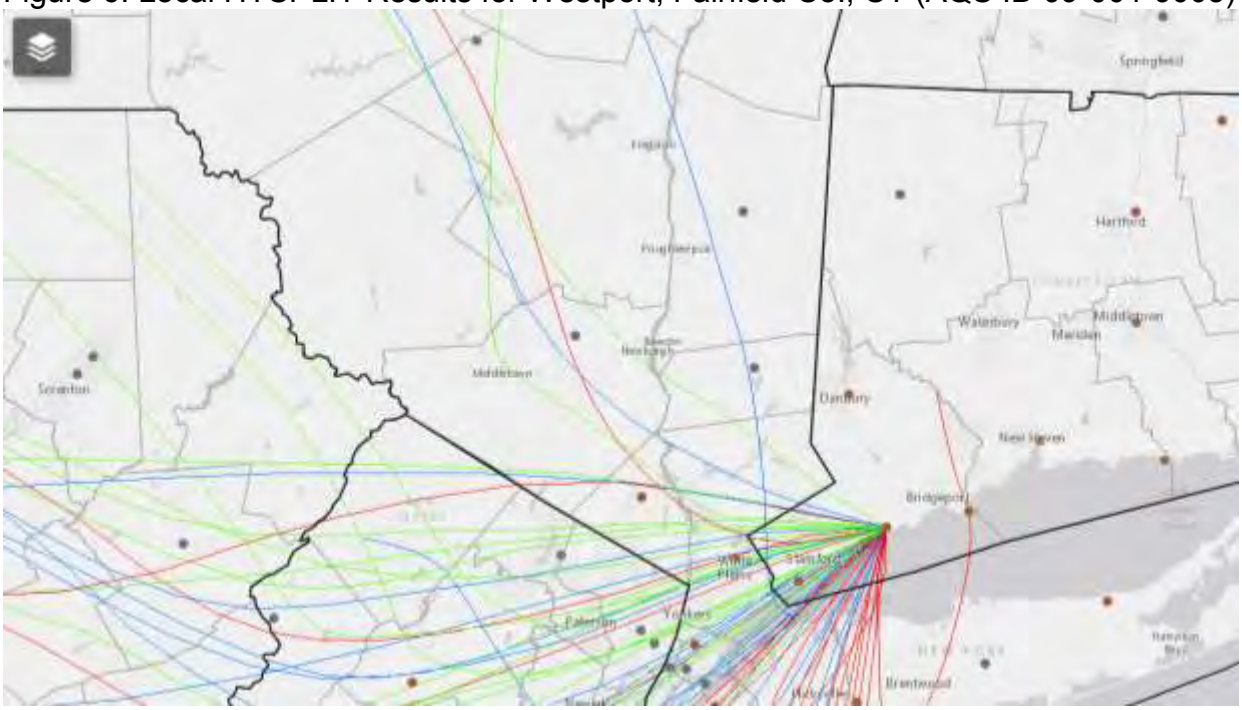


Figure 7. Regional HYSPLIT Results for Westport, Fairfield Co., CT (AQS ID 09-001-9003)

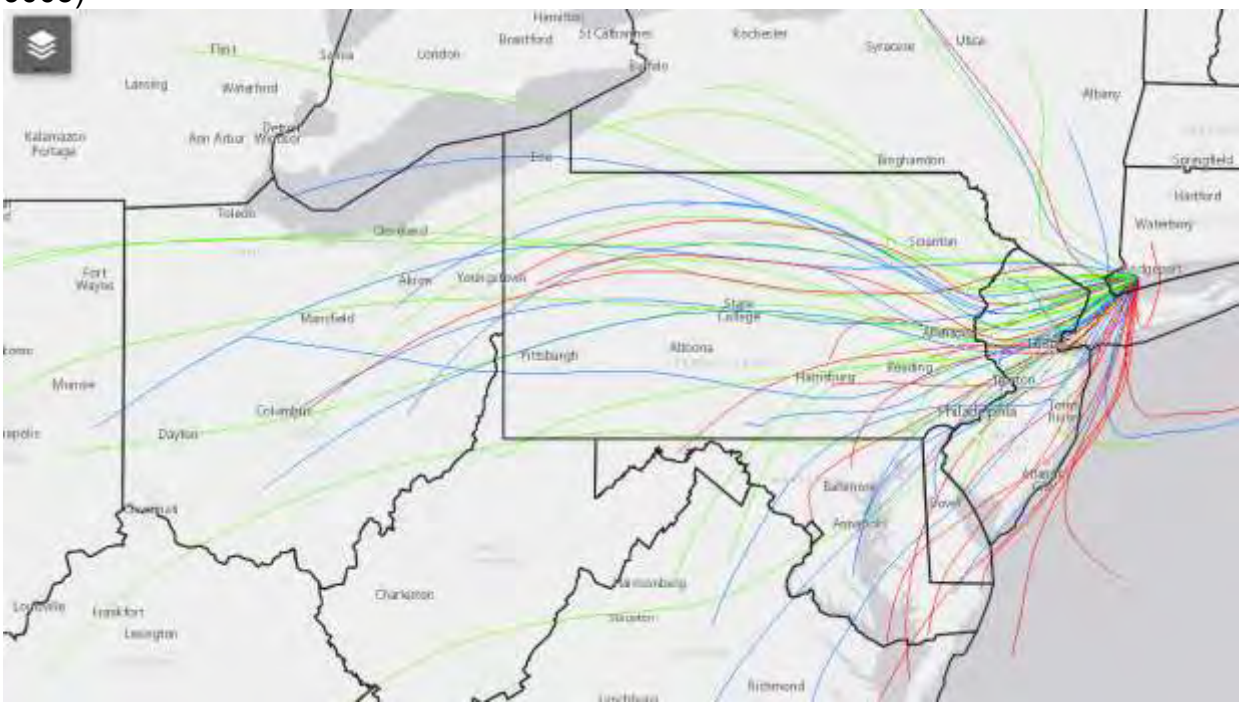


Figure 8. Local HYSPLIT Results for Middletown, Middlesex Co., CT (AQS ID 09-007-0007)

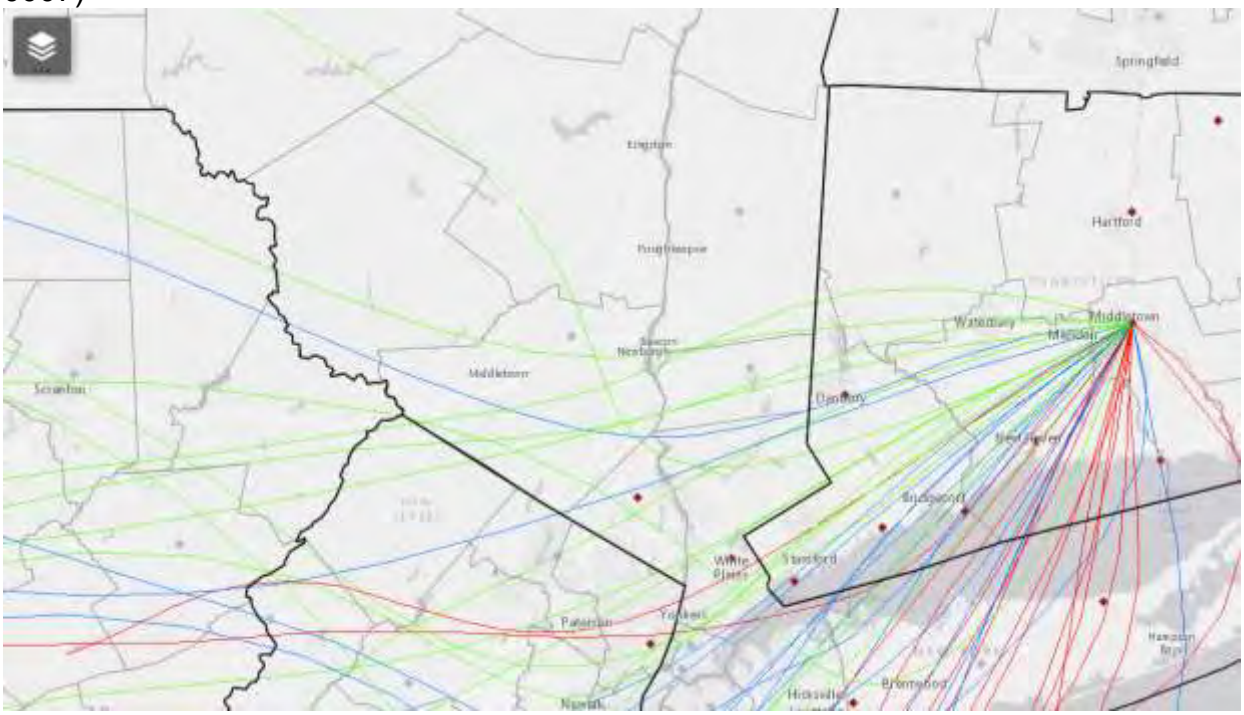


Figure 9. Regional HYSPLIT Results for Middletown, Middlesex Co., CT (AQS ID 09-007-0007)

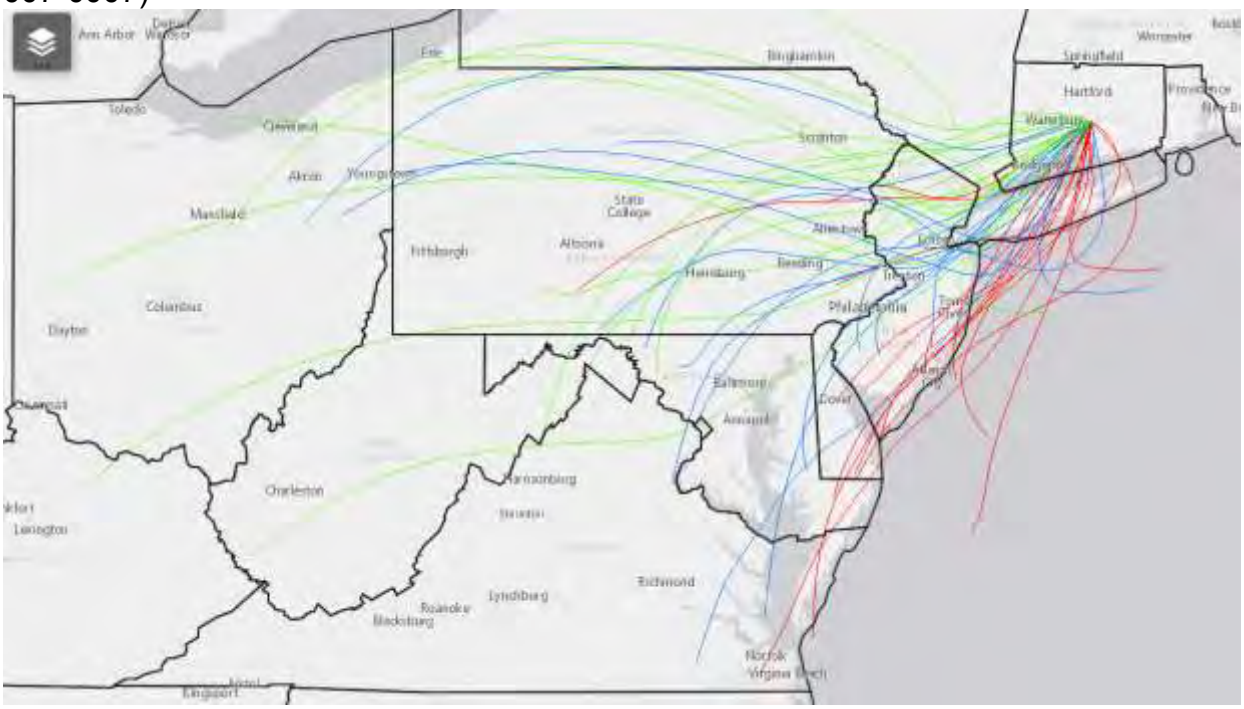


Figure 10. Local HYSPLIT Results for Madison Beach, New Haven Co., CT (AQS ID 09-009-9002):

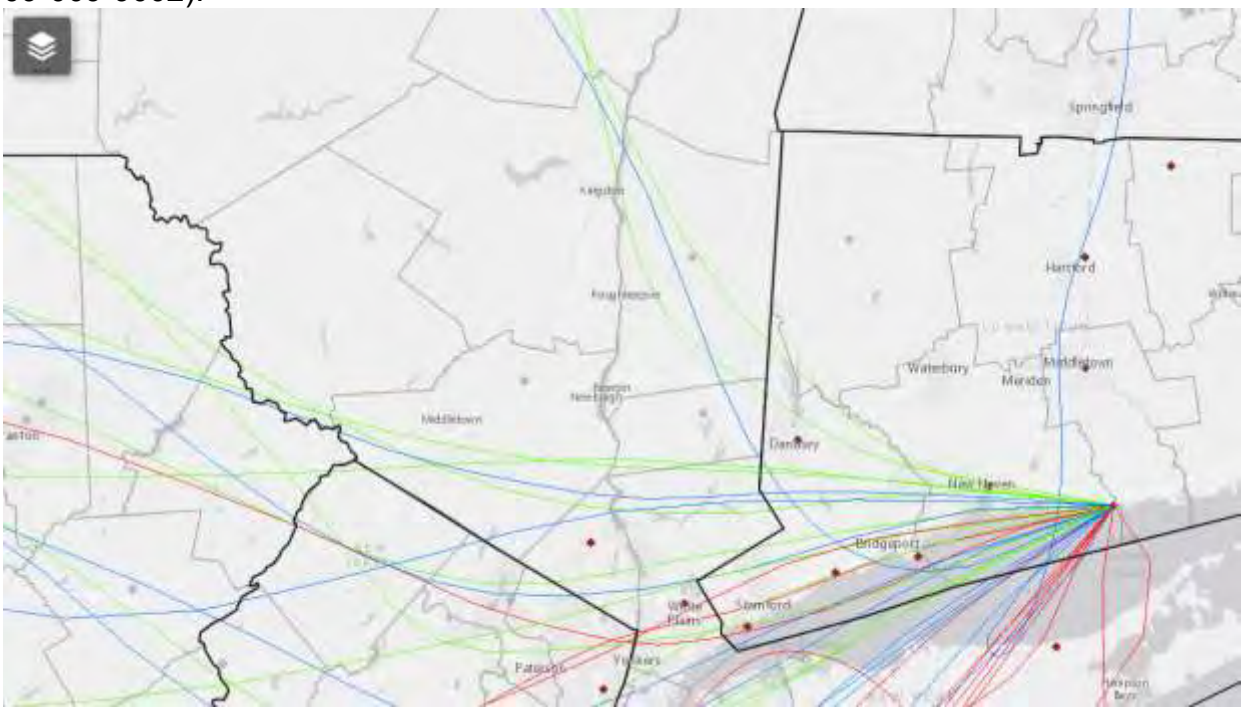


Figure 11. Regional HYSPLIT Results for Madison Beach, New Haven Co., CT (AQS ID 09-009-9002)

The HYSPLIT modeling for the White Plains and Rockland County monitors, which are the monitors within New York State nearest the Mid-Hudson area, are presented in Figures 12 and 13. The vast majority of trajectories of all elevations came from further southwest, indicating origins in New York City and locations further down the I-95 corridor as well as from other states to the south and west. This suggests that weather patterns are generally not favorable for contributions from the Mid-Hudson counties to NYMA's nonattainment.

Figure 12. HYSPLIT Results for White Plains, Westchester Co., NY (AQS ID 36-119-2004):

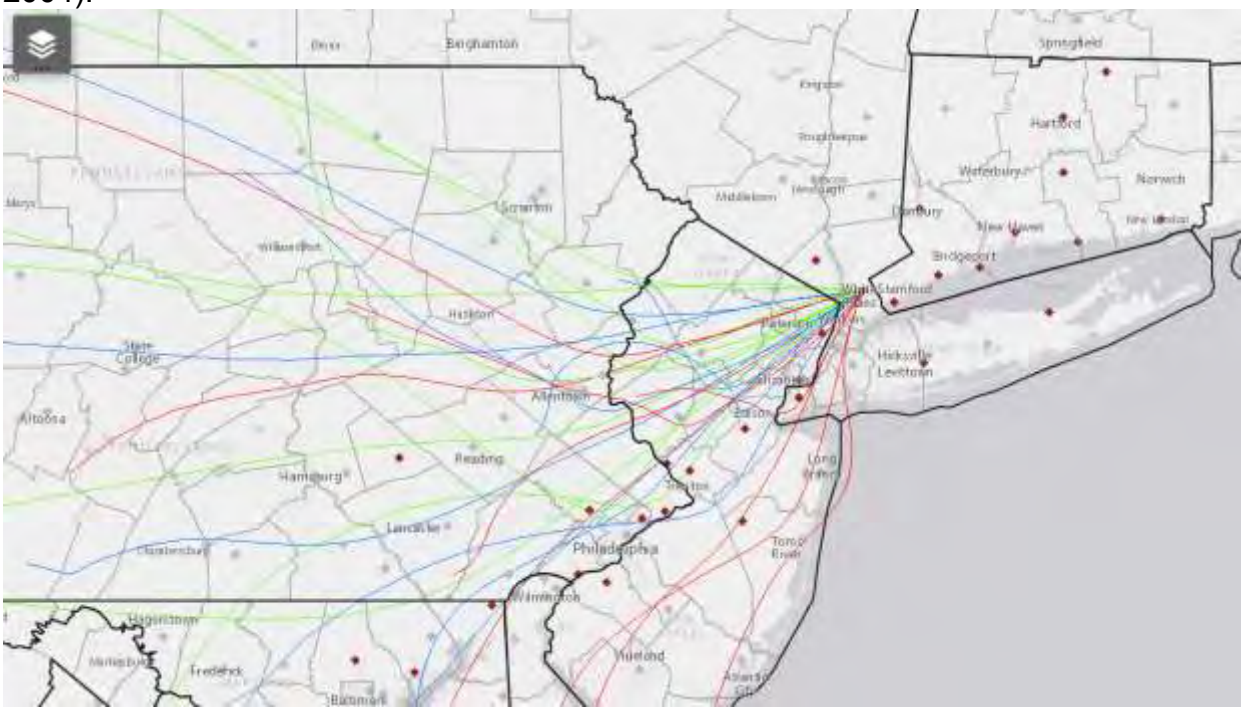
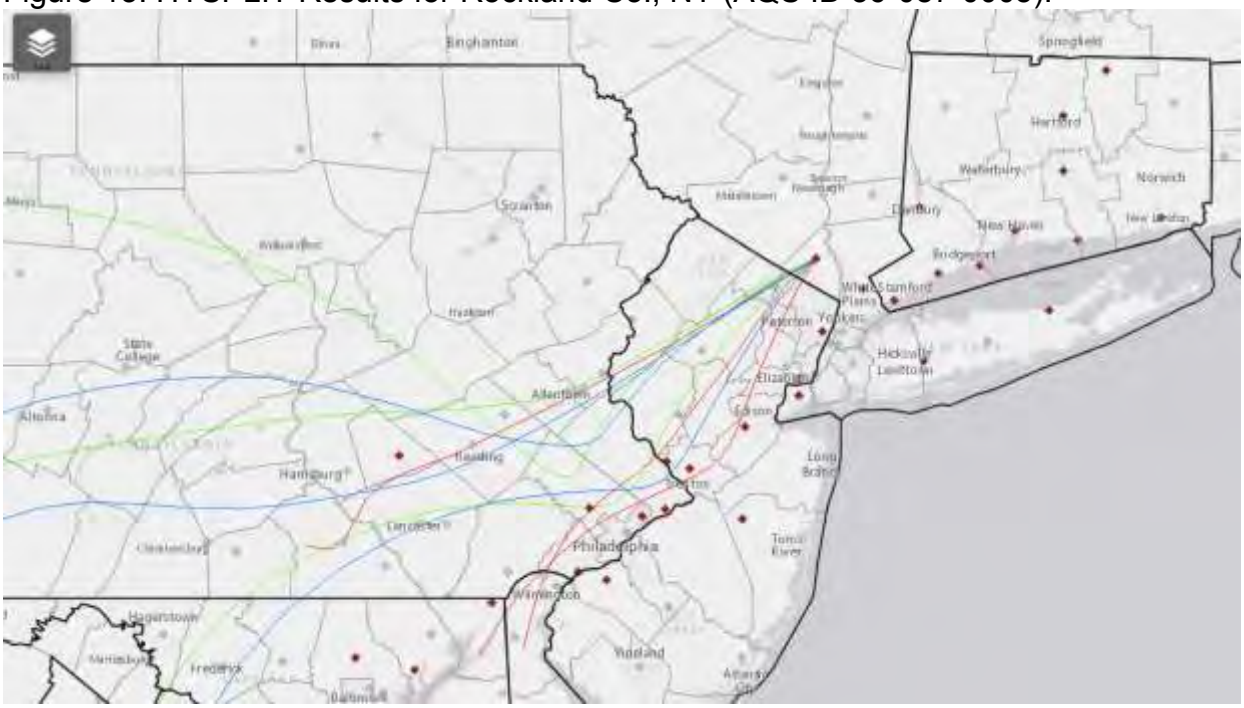


Figure 13. HYSPLIT Results for Rockland Co., NY (AQS ID 36-087-0005):



Factor 4: Geography/Topography

The downstate area has a natural barrier, the Hudson Highlands, which inhibits transport between the NYMA and the Mid-Hudson counties. Its southern edge runs roughly along the Orange/Rockland and Putnam/Westchester County lines. Although it is a relatively small mountain range, it is situated such that it serves as a boundary between the coastal plain climate regime and the inland climate regime.

The Highlands tend to inhibit low-level air flow from the coastal plain into the Mid-Hudson area. Local sea breeze circulations, which are common during the ozone season, occasionally extend as far inland as the Highlands, but rarely cross the Highlands into the Mid-Hudson area.

This geographic distinction supports the DEC conclusion that Dutchess, Orange, Rockland and Putnam counties should be excluded from the NYMA nonattainment area.

Factor 5: Jurisdictional Boundaries

EPA's guidance states that "…for analyzing whether nearby areas contribute to a violating area, the EPA intends to consider information relevant to designations associated with the counties in the Combined Statistical Area (CSA) or, where appropriate, the Core Based Statistical Area (CBSA) in which the violating monitor(s) are located." This analysis therefore considered the thirteen counties within the New York State portion of the New York-Newark, NY-NJ-CT-PA CSA as a starting point for

the nonattainment area boundary before excluding Dutchess, Orange, Putnam, and Ulster Counties.

EPA's guidance also notes "that it is appropriate to use already-established air planning boundaries where possible, to assure continued effective planning and implementation." Historically, the nine-county NYMA proposed in this analysis has been designated as the downstate nonattainment area. For the 1997 ozone NAAQS, Dutchess, Orange, and Putnam Counties formed the separate Poughkeepsie nonattainment area, and Ulster County was designated attainment. For the 2008 ozone NAAQS, all four counties were designated attainment. Consequently, DEC's nonattainment boundary recommendation for the 2015 NAAQS remains consistent with already-established air planning boundaries.