ELIOT SPITZER
GOVERNOR

ALEXANDER B. GRANNIS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

Mr. Alan J Steinberg
Regional Administrator
United States Environmental Protection Agency
290 Broadway, 26th Floor
New York, New York 10007-1866

Dear Regional Administrator Steinberg:

Pursuant to the United States Environmental Protection Agency (EPA) memorandum dated April 1, 2003, from Assistant Administrator Jeffrey R. Holmstead to EPA Regional Administrators entitled, "Designations for the Fine Particle National Ambient Air Quality Standards," I am submitting New York State's designation recommendations on behalf of Governor Spitzer. We commend EPA for moving forward with appropriate actions for implementing the 24-Hour Fine Particle National Ambient Air Quality Standards (PM2.5 NAAQS) as a means to protect human health and the environment.

Review of statewide monitoring data shows only certain monitors in the New York Metropolitan Area (NYMA) to be in exceedance of the 24-hour PM2.5 NAAQS. All other monitors in the state show attainment for the 2004-2006 period. Nonetheless, the Department of Environmental Conservation has carefully reviewed all nine factors that EPA requests be considered in determining the attainment status of all of the Consolidated Metropolitan Statistical Areas (CMSA) in New York, noting that EPA anticipates relying on the current metropolitan area definitions (published by the Office of Management and Budget on June 30, 1999) in establishing presumptive nonattainment area boundaries. Upon completion of this technical review (enclosed), DEC has concluded that the most effective boundary for a New York City nonattainment area for the 24-hour PM-2.5 standard includes 10 of the counties within the New York Metropolitan CMSA. These ten counties are Bronx, Kings, Nassau, New York, Orange, Queens, Richmond, Rockland, Suffolk and Westchester.

Additionally, although air quality data collected in the Buffalo/Niagara Falls MSA indicated attainment of the area for the first time in 2004-2006, there is no clear downward trend in the concentrations of PM2.5. Wide variations both upward and downward without a definitive cause make it inappropriate to recommend either an attainment or nonattainment classification for this area. As such, our recommendation is that the attainment status of this area, which is comprised of Erie and Niagara Counties, be defined as "unclassifiable."

The remainder of the state, given the substantial compliance with the 24-hour standard and the very low likelihood of an effect of emissions or growth on other areas, is recommended to be classified as attainment.

We believe that each of these recommendations is consistent with Section 107(d) of the Clean Air Act.

Should you have any questions regarding these recommendations, please do not hesitate to contact me at (518) 402-8540 or David J. Shaw, Director of DEC's Division of Air Resources at (518) 402-8452.

Sincerely,

Alexander B. Grannis

Enclosure

bcc: Honorable Michael Bloomberg
Mr. Joel A. Giambra, Erie County Executive
Mr. Gregory Lewis, Niagara County Manager
Mr. Edward A. Diana, Orange County Executive
Mr. C. Scott Vanderhoef, Rockland County Executive
Mr. Thomas R. Suozzi, Nassau County Executive
Mr. Steve Levy, Suffolk County Executive
Mr. Andrew J. Spano, Westchester County Executive

ANALYSIS IN SUPPORT OF NEW YORK STATE'S RECOMMENDATIONS FOR THE 24-HOUR FINE PARTICLE (PM2.5) NONATTAINMENT AREA

Summary

On September 21, 2006, the United States Environmental Protection Agency (EPA) published a revision in the 24-hour fine particle National Ambient Air Quality Standard (NAAQS) that lowered the standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$. Areas meet the 24-hour standard if the 98th percentile of the measured 24-hour PM2.5 concentrations in a year, averaged over three years, are less than or equal to 35 $\mu g/m^3$. The 98th percentile 24-hour values are referred to as the design values or DVs.

The existing annual PM2.5 NAAQS of 15 $\mu g/m^3$ was retained. As such, a recommendation of attainment status for the annual standard is not required, and the previous nonattainment areas established in 2004 for the annual standard remain in effect. The Department is preparing a State Implementation Plan (SIP) for the area designated by EPA as not meeting the annual PM2.5 NAAQS for an April 5, 2008 submission.

EPA has also revoked the annual PM10 standard because available evidence generally does not suggest a link between long-term exposure to current levels of coarse particles and health problems. However, the existing daily PM10 standard of 150 $\mu g/m^3$ was retained to protect against the inhalation of coarse particulates on an acute (24-hour) basis.

Air quality data collected from the years 2004-2006 indicates that there are two areas of the state that either do not attain the standard or attain the standard by a sufficient margin to lend certainty to a determination that the areas are in attainment with the 35 $\mu g/m^3$ PM2.5 standard. These areas include the New York City metropolitan area and the Buffalo/Niagara Falls area.

Section 107(d)(1)(A) of the Clean Air Act (CAA) requires that any area that does not meet, or that contributes to areas not meeting, the ambient air quality standard be designated nonattainment. The U.S. Environmental Protection Agency (EPA) April 1, 2003 guidance document entitled, "Designations for the Fine Particle National Ambient Air Quality Standards," identifies considerations to be applied when evaluating the attainment status of a given area. This guidance prescribes nine specific factors to be assessed when recommended nonattainment areas deviate from the presumptive boundaries of the metropolitan statistical areas in which nonattainment occurs. New York State has completed such an assessment and, based on that analysis, is recommending the creation of the New York City Metropolitan PM2.5 Nonattainment Area as a result of exceedances of the 24-hour standard at several monitors in this area as well as other factors. The ten counties in New York State that would be encompassed in this nonattainment area include Bronx, Kings, New York, Orange,

Queens, Richmond, Rockland, Nassau, Suffolk and Westchester Counties. This recommendation excludes Dutchess and Putnam Counties, and so deviates from the presumptive boundaries of the New York Consolidated Metropolitan Statistical Area (CMSA).

For the Buffalo/Niagara Falls Metropolitan Statistical Area (MSA), which includes the counties of Erie and Niagara, the design values met the 24-hour standard only in 2004-2006, and only by a small margin. Compounding this, the annual values upon which the three-year averages are based fluctuate significantly. For this area, there is no clear downward trend for PM2.5 concentrations. Given the influence of the weather on a seasonal and annual basis, an absence of a clear decreasing trend in PM2.5 concentrations, and the lack of other factors that would lead the Department to conclude otherwise, New York State is recommending an “unclassifiable” designation for these counties, which comprises the entire MSA. As prescribed under Section 107(d)(1)(A)(iii), this classification is appropriate for areas either meeting the standard or having insufficient data to determine air quality, and not contributing to nearby nonattainment.

It should be noted that the conclusions reached in this recommendation are based on monitored data from the 2004-2006 time period and before. When these recommendations are reviewed by EPA in 2008, data for the three-year 2005-2007 period will be available. EPA’s approval will consider monitored data from this later period as well as the 2004-2006 periods and those from prior intervals.

Recommended classifications and design values for these areas are summarized in Table 1 below.

Criteria for Assessment of Boundaries for Nonattainment Areas

Aside from the design values resulting from monitoring data in a given area, the classification of an area is influenced by a number of other considerations. These factors are important not only because of their influence on the counties and other jurisdictions within the area being evaluated, but also because of their potential impact on other locations to which the area under consideration might cause or contribute to an exceedance. EPA's April 1, 2003 guidance outlined the criteria that states are expected to consider when making their nonattainment boundary recommendations. These factors are based on Section 107(d)(1)(A) of the CAA, where the definition of a nonattainment area includes any area that does not meet, or that contributes to nearby areas not meeting, the NAAQS.

For areas whose attainment areas are under consideration EPA's guidance recommends that the boundaries of MSA’s, as discussed in the June 30, 1999 OMB memorandum, serve as the presumptive boundaries for nonattainment areas. The presumptive use of the MSA is based on evidence that violations of an NAAQS generally include a significant urban-scale contribution as well as significant regional

contributions, and is therefore especially useful in complex metropolitan areas, such as the New York City metropolitan area.

In those cases where it is thought that changes to a presumptive boundary encompassed by an MSA are appropriate, as is the case here for one of the two areas specifically discussed in this assessment, EPA's guidance requires all states to address the following factors or criteria:

* Air Quality
* Meteorological Influences (Weather and Transport Patterns)
* Population Density and Degree of Urbanization including Commercial Development
* Traffic and Commuting Patterns
* Expected Growth
* Emissions
* Geography and Topography
* Jurisdictional Boundaries
* Level of Current Emission Controls (Emission Control Potential)

Of the above factors, New York State believes the monitored PM2.5 air quality and associated meteorological conditions that create elevated PM2.5 episodes are among the most significant. The PM2.5 design values for all PM2.5 monitors in New York are shown in Table 2 and are discussed specifically for each area. Their locations appear in Figures 1 and 2. The other factors are also discussed in detail in the following sections for each of the areas that were evaluated.

It should be noted that the nine-factor analysis is appropriate where changes to a presumptive boundary encompassed by an MSA are contemplated. For the New York portion of the New York CMSA, the presumptive area would include 12 New York counties. However, two of the 12 counties are not proposed for inclusion in the nonattainment area for reasons detailed in the submittal. Thus, a nine-factor analysis has been conducted in accordance with EPA guidance.

The second area, the Erie and Niagara County MSA, is proposed in this submittal to be designated as “unclassifiable.” Erie and Niagara counties are the only two counties included in this MSA. However, a nine-factor analysis has been conducted to strengthen the “unclassifiable” recommendation.

Table 1: Classification and Design Value Recommendations

New York State Proposed Attainment, Nonattainment & Unclassifiable Areas for the 24-hour PM2.5 Standard (35 µg/m^3)					
Area Name	Classification	Design Value (µg/m^3)	Data Set	Monitoring Location	AIRS Monitor ID
New York City Metropolitan Area Nonattainment Area (Bronx, Kings, New York, Orange, Queens, Richmond, Rockland, Nassau, Suffolk & Westchester Counties)	Nonattainment	41	2004-2006	PS 59 (Manhattan)	360610056
Buffalo/Niagara Falls Area (Erie & Niagara Counties)	Unclassifiable	34	2004-2006	Buffalo CAM	360290005
Rest of State	Attainment	--	--	--	--

Table 2 - PM2.5 24-Hour 98th Percentile and Design Values (DV): Standard = 35 µg/m³

PM2.5 24 Hour 98%th Percentile and Design Values (µg/m³)										
Site	AIRS ID	County	98th %ile 2002	98th %ile 2003	98th %ile 2004	98th %ile 2005	98th %ile 2006	2002-2004 DV	2003-2005 DV	2004-2006 DV
Hempstead	360590008	Nassau	32.04	39.29	30.83	35.08	33.00	34	35	33
Babylon MAM	361030002	Suffolk	35.96	38.83	30.92	34.33	31.90	35	35	32
J.H.S.45 (Manhattan)	360610079	New York	36.29	46.17	38.00	36.58	37.60	40	40	37
J.H.S.45 duplicate (new)	360610079dup	New York					37.80	n/a	n/a	
P.S.59 (Manhattan)	360610056	New York	38.46	36.58	41.13	40.08	40.70	39	39	41
P.S.59 duplicate	360610056dup	New York	38.08	36.79	40.96	39.46	closed	39	39	40
P.S.19 (Manhattan)	360610128	New York	38.08	48.46	38.92	38.25	38.20	42	42	38
Morrisania II (Bronx)	360050080	Bronx	35.15	44.83	38.21	37.67	39.70	39	40	39
NY Botanical Garden (Bronx)	360050083	Bronx	33.42	38.21	31.30	36.57	34.80	34	35	34
I.S.52 (Bronx)	360050110	Bronx	40.63	37.67	28.79	36.75	38.10	36	34	35
I.S.52 duplicate	360050110dup	Bronx	37.08	46.00	38.25	38.04	closed	40	41	
J.H.S. 126 (Brooklyn)	360470122	Kings	35.67	40.75	36.93	36.27	37.70	38	38	37
Queens College 2 (PS219)	360810124	Queens	38.63	39.00	33.42	34.29	33.60	37	36	34
Susan Wagner (Staten Isl)	360850067	Richmond	28.17	32.26	33.50	33.25	32.00	31	33	33
Port Richmond PO (S.I.)	360850055	Richmond	39.96	46.38	31.33	33.38	36.20	39	37	34
Canal St. P.O.	360610062	New York	38.54	46.21	39.08	39.50	35.90	41	42	38
Newburgh F.D.	360710002	Orange	31.58	31.29	27.42	29.63	27.50	30	29	28
Mamaroneck (Larchmont)	361191002	Westchester	32.96	36.79	33.54	32.85	34.40	34	34	34
Albany (County DOH)	360010005	Albany	41.50	33.96	32.42	35.92	30.90	36	34	33
Albany duplicate	360010005dup	Albany	14.25	34.50	31.92	36.42	30.20	27	34	33
Whiteface Base	360310003	Essex	31.34	20.38	23.22	26.58	18.80	25	23	23
Potsdam Airport	360893001	St. Lawrence	42.66	20.00	20.79	26.83	19.00	28	23	22
East Syracuse	360671015	Onondaga	38.75	22.71	24.63	34.79	19.20	29	27	26
Pinnacle State Park	361010003	Steuben	36.54	26.17	29.29	29.25	25.60	31	28	28
Rochester Downtown	360556001	Monroe	31.86	28.37	28.92	closed		30	n/a	n/a
	360551007	Monroe					25.60	n/a	n/a	n/a
Westfield CAM	360130011	Chautauqua	37.79	26.33	26.63	34.08	24.30	30	29	28
Buffalo CAM	360290005	Erie	43.09	38.67	32.75	39.75	28.40	38	37	34
Lackawanna	360291007	Erie	38.08	37.21	31.46	37.08	28.20	36	35	32
Niagara Falls CAM	360632008	Niagara	33.54	29.63	30.08	43.29	27.30	31	34	34

Note: July 7, 2002 Quebec fire data not included

This sheet is based on DEC data - it may differ from EPA data because EPA includes flagged data

PS59 had only five samples in 3rd quarter of 2003 - 11 is minimum unless EPA says there are compelling reasons to use it

Figure 1 - Locations of PM2.5 Monitors in Table 2 (Excluding New York City)

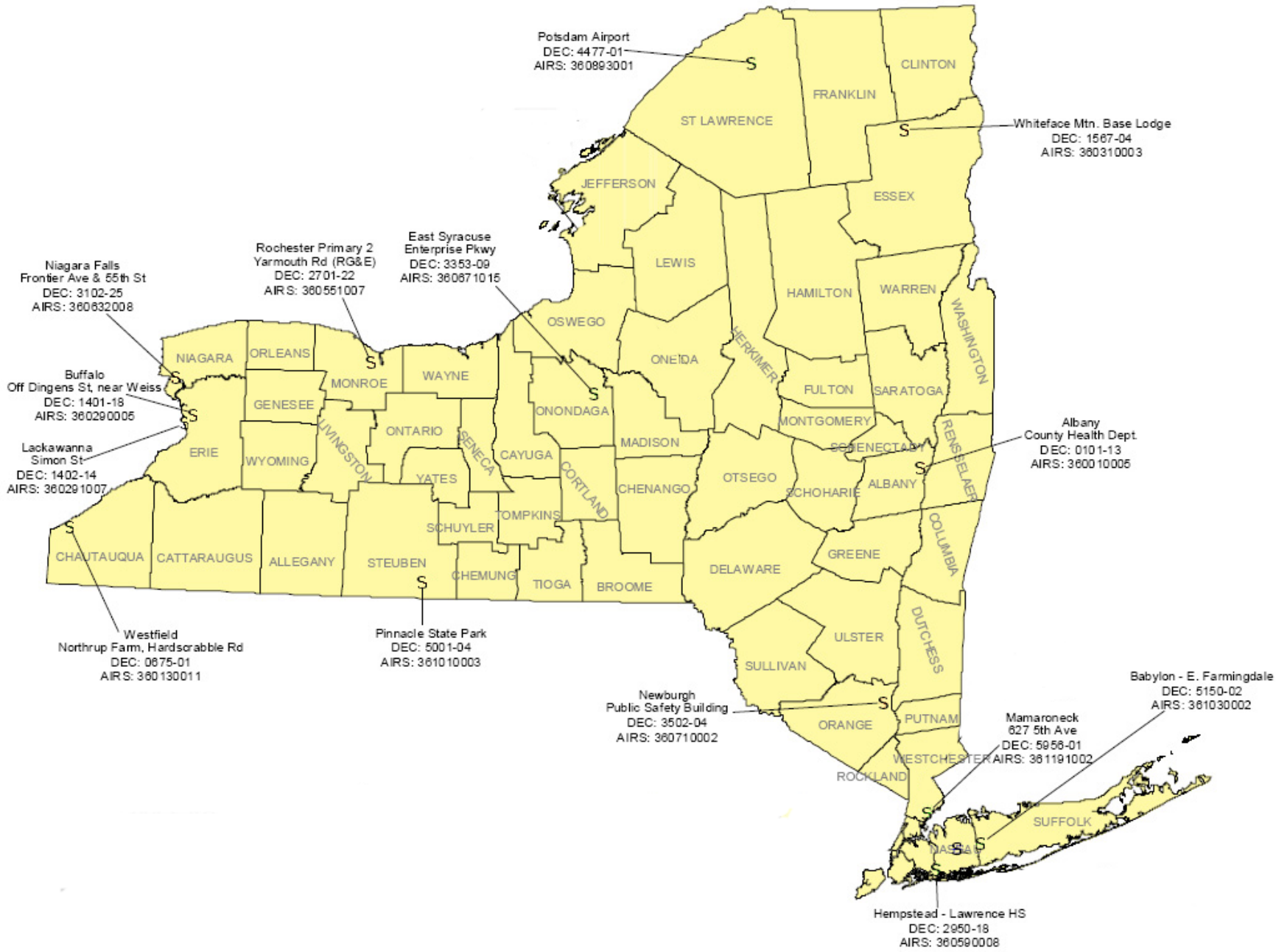
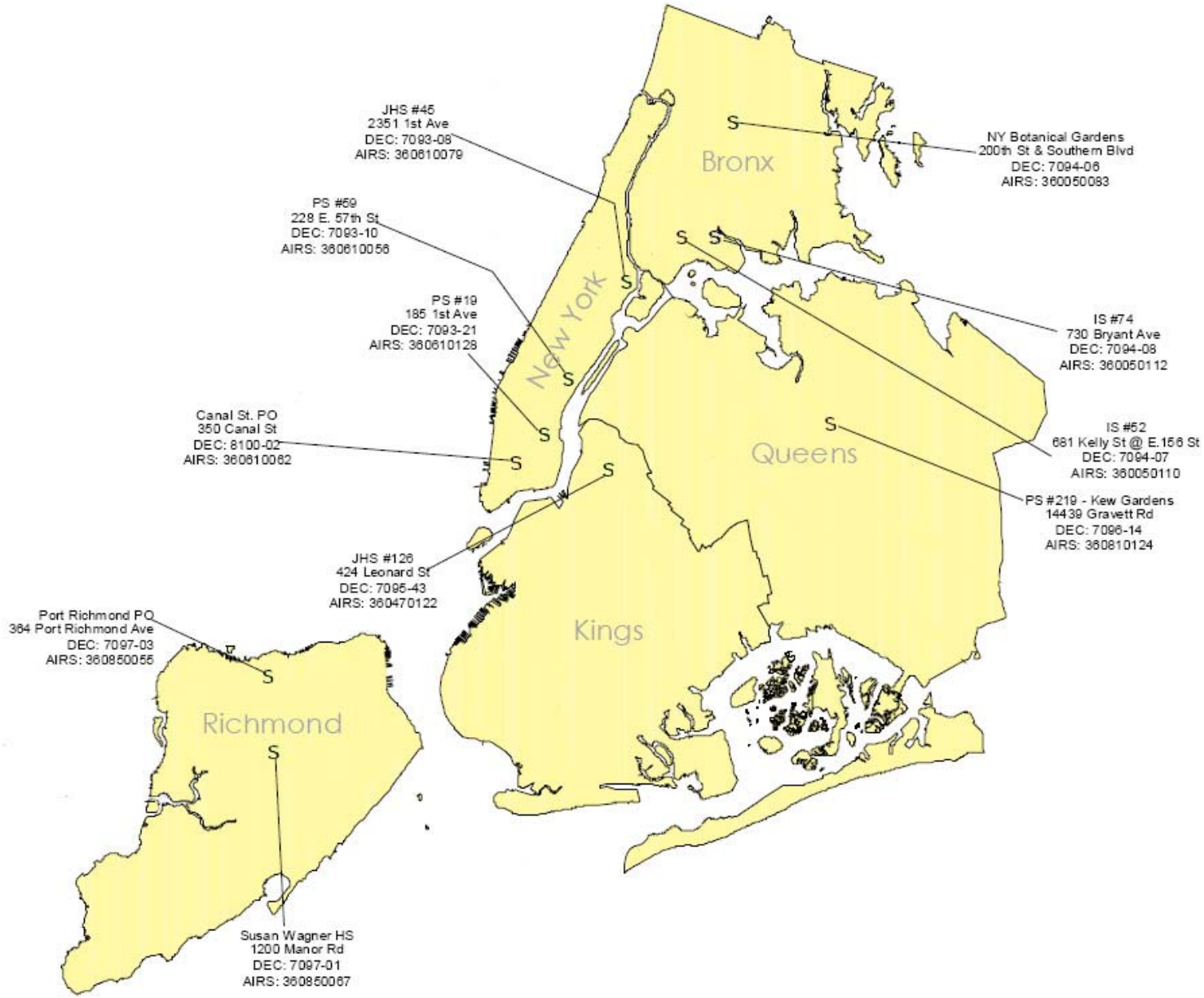


Figure 2 - Locations of New York City PM2.5 Monitors in Table 2



I. New York City Metropolitan Area 24-hour PM2.5 Nonattainment Area Boundary Determination

In establishing the nonattainment area boundaries for the New York metropolitan area and the other counties in the New York CMSA, the five counties of New York City and the counties surrounding New York City were evaluated in light of the nine factors mentioned above to determine the attainment status of this area as well as the potential influence of this area on the counties of Connecticut and New Jersey. The counties under consideration were those that comprise the New York Consolidated Metropolitan Statistical Area. This CMSA consists of the five New York City counties, as well as Dutchess, Orange, Putnam, Nassau, Rockland, Suffolk, and Westchester counties.

1. Air Quality

An area with a monitor that records a violation of the PM2.5 NAAQS must be designated nonattainment. The NYSDEC monitoring network for PM2.5 began operations in 1999 and based on the most recent three years of monitoring data from the 2004-2006 as well as data for previous years (see Table 2), a number of exceedances occurred in monitors in New York County, Bronx County and Kings County. In accordance with Section 107(d)(1)(A) of the CAA, these exceedances are sufficient to classify these counties as nonattainment.

Monitors in the other counties of the New York CSMA are in compliance with the 24-hour PM2.5 NAAQS for this period. Of these counties, the monitoring data for those locations north of the New York City area indicate a decrease in the levels of ambient PM2.5. This is illustrated in the case of the Newburgh monitor in Orange County where the monitored values are consistently below the 35 ug/m3 standard by a sufficient margin (5 to 7 ug/m3 for 2002-2004, 2003-5005 and 2005-2006) to suggest that the northernmost counties in the CMSA are in attainment with the 24-hour NAAQS for PM2.5.

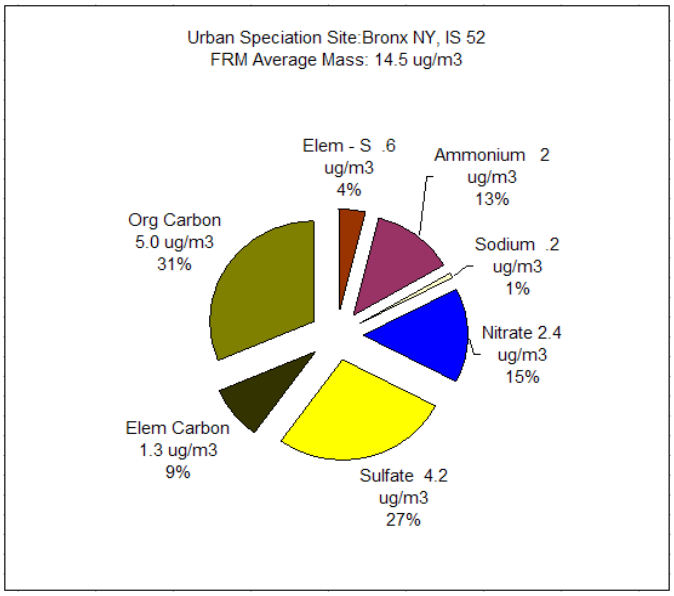
In addition to measurement of PM2.5 mass concentration, the collection and analysis of chemical species of PM2.5 and meteorological analysis can help in the evaluation of emission source contribution to PM2.5 exceedances. When evaluating emissions and their impact on ambient PM2.5 concentrations, it is important to recognize that the location and type of emissions have a significant influence on their impacts. The major chemical components of PM2.5 are sulfate, nitrate, ammonium, organic carbon, elemental carbon, and crustal-related compounds (soil or dust). The proportions of these compounds vary by location and are influenced by local source contribution and regional transport attributed to meteorological conditions.

Figure 3[1] shows the average contribution to PM2.5 compounds at the New York Botanical Garden (NYBG) monitoring site located in the Bronx. The Bronx site represents an urban location, which is typical of the proposed PM2.5 boundary for New York City. Comparison of the sulfate fraction and mass shows that sulfate is much higher for the high PM2.5 days. In general, sulfate and organic carbon are strong

[1]Taken from the Department's February 13, 2004 "Analysis in Support of New York State's Boundary Recommendation for the New York City Fine Particulate (PM2.5) Nonattainment Area"

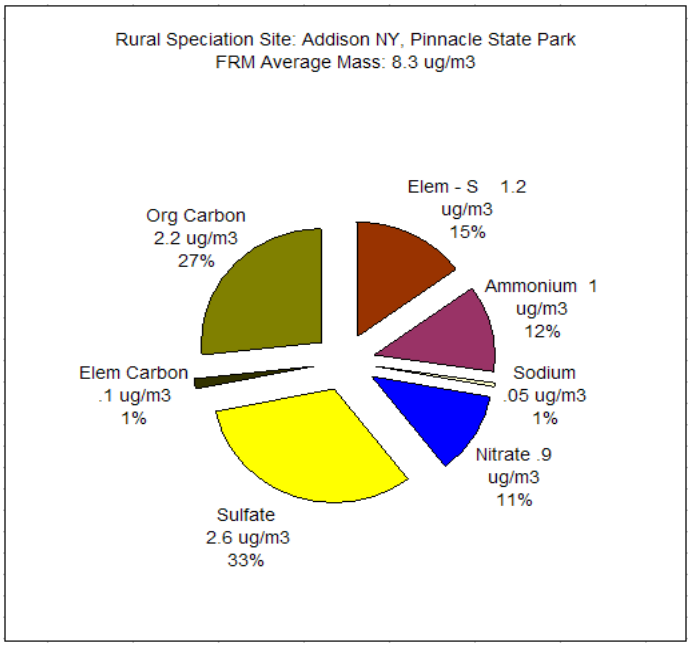
regional contributors to both rural and urban PM2.5 concentrations monitored in New York State.

Figure 3 - New York Botanical Garden (Bronx) Speciation Data



Additionally, Figure 4[2] shows the average concentration of several species in the Pinnacle State Park rural site located in Western New York State. As would be expected, nitrate concentrations are higher at the urban location than at the rural location, indicating that the urban sources of nitrate precursors (ammonia and nitric acid) are presented at higher concentrations. Elemental carbon concentrations are also much less at the Pinnacle site due to the much smaller number of local combustion processes, including mobile sources.

Figure 4 - Pinnacle State Park Speciation Data



[2]Ibid

2. Meteorological Influence

To assess the influence of weather patterns on observed PM2.5 mass concentration in New York City, the meteorological conditions associated with the days on which the highest 5% of PM2.5 readings occurred were examined for the 2004-2006 period of interest. These dates occurred in both summer (July and August) and during the colder weather (November and February). In each case, the winds were light and variable during times when there was no indication of long range transport through "corridors." Most periods of any steady wind were off the ocean. High concentrations under light wind conditions are often seen, especially at times of frontal passage, which was occurring at the periods evaluated.

The high concentrations associated with light and variable winds are indicative of the influence of local sources, especially in the core counties of the New York metropolitan area. The influence of local sources would tend to decrease further up the Hudson Valley with the drop in the density of sources and population, and the decrease in mobile source emissions. The highest concentrations occurred at several monitors in New York City on the same days, indicating that the high PM2.5 concentrations were area-wide, rather than being associated with a given source near any one monitor. Without sustained air movement from the direction of areas outside of the New York metropolitan area, significant particulate matter (PM) would not have been transported in from surrounding counties in New York or other states, and the contribution to impacts from the surrounding areas on the days that measured values were highest would have been minimal. This is the same conclusion reached in the prior analyses of high concentrations submitted in the February 2004 attainment recommendations for PM2.5.

3. Population Density and Degree of Urbanization Including Commercial Development

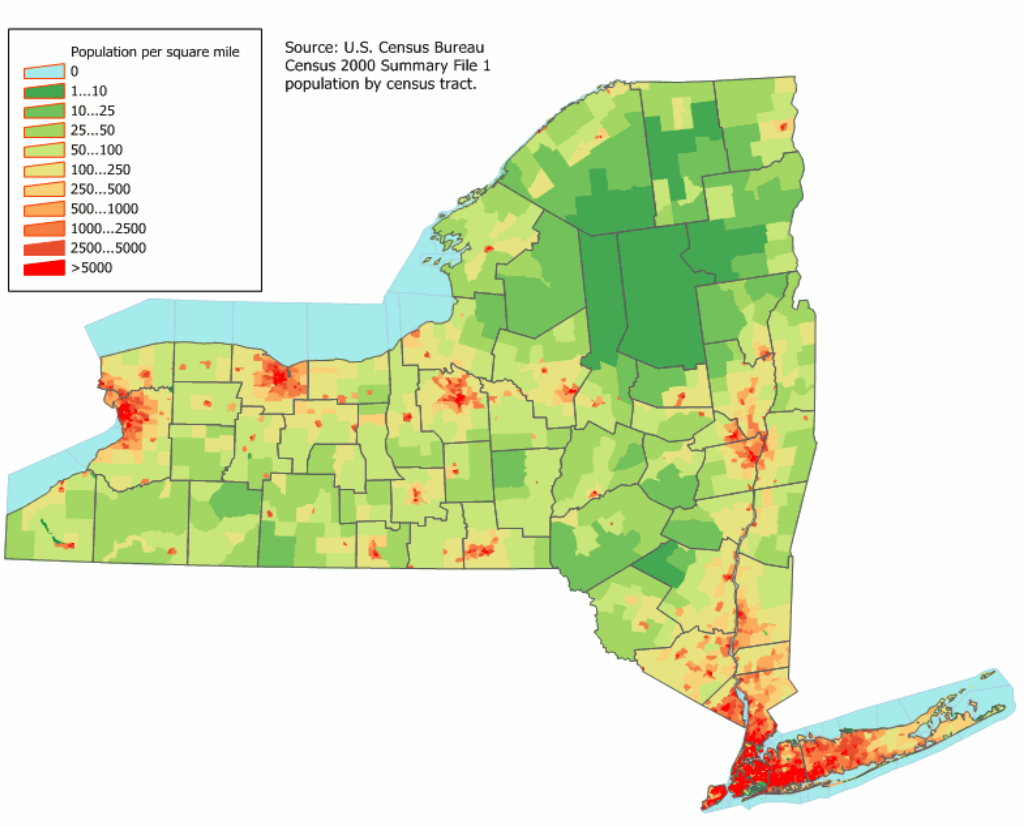
To address the population density and degree of urbanization criterion, various demographics and economic indicators were examined for New York City, Long Island, and the Mid-Hudson Valley counties comprising the New York CMSA. Figure 5 depicts the population density of the entire state. As can be seen from the figure, the population of the New York CMSA is quite dense in the five counties making up New York City and in the portions of the contiguous counties close to the City, and in the western portion of Suffolk County. As the distance north of the New York Metropolitan area increases, the density is considerably lower, especially in Dutchess, Orange, and Putnam Counties where the character is more rural.

The labor force for the Hudson Valley, New York City and Long Island areas are expected to increase for at least the period 2004-2014. Data from the New York State Department of Labor[3] indicates that employment will increase between 6% and 10% over this period, suggesting that commercial growth can be expected to increase as well. This range of numbers is slightly less in comparison to the national average increase of 10.9% for approximately the same period[4]

[3]http://www.labor.state.ny.us/workforceindustrydata/apps.asp?reg=nyc&app=projections

[4]ftp://ftp.bls.gov/pub/special.requests/ep/labor.force/clfa0414.txt

Figure 5 - New York Population Density



4. Traffic and Commuting Pattern

Traffic and commuting patterns within the New York CMSA are complex and diverse, and reflect the differences in population and employment between New York City and the surrounding counties. As discussed above, the population of New York City itself as well as the other counties, and the workforce, will continue to increase.

As would be expected, given New York City's extensive transit infrastructure, the greatest percent of commutes by New York City residents are done by public transportation. For the rest of the New York CMSA, the majority of the journey to work is done by driving, utilizing the extensive highway system already in place to commute within the area. However, a significant number of commuters from other counties take advantage of the public transportation (rail and bus) options to reach the urban centers.

The breakdown of commuting options according to the United State Census Bureau for the New York CMSA[5] as a whole is summarized in Table 3 below. It demonstrates that public transportation is the most commonly used commuting mode in the region, with commuters who drive alone as the second largest group. Still, with 1,253,745 commuters driving alone, the potential for mobile source emissions from cars, trucks and vans is quite high.

[5]http://www.census.gov/acs/www/Products/Profiles/Single/2003/ACS/Tabular/385/38500US560256003.htm

Table 3 - Commuting Modes for the New York CMSA

Commuting Mode	Number of Commuters	Percent
Car, truck, or van -- drove alone	1,253,745	32.0
Car, truck, or van -- car pooled	276,070	7.0
Public Transportation	1,912,519	48.7
Walked	309,611	7.9
Other means	40,824	1.0
Work at home	131,842	3.4
Total Commuters	3,924,611	100
Mean travel time to work	37.3 minutes	--

An examination of the Vehicle Miles Traveled (VMT) for the New York CMSA counties was also done. As can be seen in Table 4 below, high VMT's occurred in 2005 for the counties through which commuter traffic would most frequently occur, and where residential and commercial traffic were high in the more densely populated counties. The outlying Dutchess, Putnam and Rockland county VMT's, however, were significantly lower than the Long Island counties and several of the core New York metropolitan counties. The lower VMT figure for Richmond County reflects the more residential character of the area as well as a degree of isolation from the central metropolitan counties of New York City.

Table 4 - New York CMSA 2005 Vehicle Miles Traveled[6]

2005 Vehicle Miles Traveled (VMT)	
County	**VMT (Millions)**
Bronx	4721
Dutchess	3180
Kings	4900
Nassau	11920
New York	4378
Orange	4696
Putnam	3085
Queens	7839
Richmond	2002
Rockland	2731
Suffolk	19815
Westchester	9166

[6]http://www.epa.gov/ttn/naaqs/pm/docs/2005_vmt_county_level.xls

5. Expected Growth

The NYMTC's regional population projections were examined to determine expected growth within the New York CMSA. Growth in the labor force and employment is discussed in I.3. above.

Table 5 below presents the expected population changes in the area proposed to be nonattainment for the period 2000-2015. With the exception of Nassau County, population increases are expected. In several cases, the increases are anticipated to be relatively large, such as the 21% increase in Richmond County over the 15-year period. Others, such as Rockland and Westchester Counties, are small relative to the 10.9% national average.

Table 5 - Population by County for 2000 through 2015[7]

Projected Population by County, 2000 to 2015							
County	2000	2005	2010	2015	Change 2000-2015		
					Number	Total Percent Change (2000-2015)	Percent Change per Year
Bronx	1,332,650	1,380,366	1,425,170	1,469,206	136,556	10.25	0.68
Kings	2,465,326	2,502,793	2,531,424	2,554,579	89,253	3.62	0.24
Nassau	1,334,544	1,326,167	1,312,166	1,300,125	-34,419	-2.58	-0.17
New York	1,537,195	1,566,485	1,587,098	1,600,353	63,158	4.11	0.27
Orange	341,367	355,711	370,521	386,015	44,648	13.08	0.87
Queens	2,229,379	2,340,043	2,452,109	2,567,898	338,519	15.18	1.01
Richmond	443,728	475,040	505,844	537,493	93,765	21.13	1.41
Rockland	286,753	290,580	291,706	291,618	4,865	1.70	0.11
Suffolk	1,419,369	1,442,694	1,456,195	1,466,808	47,439	3.34	0.22
Westchester	923,459	927,263	926,798	925,714	2,255	0.24	0.02

6. Emission Inventory

Fine particulate consists of both primary and secondary particles. Primary particles are generally coarse particles that are directly emitted into the atmosphere from motor vehicles, power generation facilities, industrial facilities, and residential wood and forest product burning sources. Secondary particles are formed from precursor gases reacting in the atmosphere from the combination of various pollutants: oxides of sulfur (SOx), oxides of nitrogen (NOx), volatile organic compounds (VOCs), and ammonia (NH3). These pollutants are emitted from many of the same emission sources as precursors of ozone.

Table 6a below presents the 2005 emissions for VOC, CO, NOx, SOx and total PM for the counties in the New York CMSA. Table 6b shows the percent contribution for each county by pollutant.

[7] http://www.aging.state.ny.us/explore/project2015/projections/index.htm

Table 6a - 2005 Emissions of Particulate Matter and its Precursors for the New York CMSA Counties[8]

County	VOC	NOx	SOx	NH3	PM2.5	OC	EC	PMFINE (Crustal)
Bronx	24227	14362	3787	620	1106	300	235	484
Dutchess	15005	7955	4683	938	1711	589	194	879
Kings	53275	27886	8478	717	2230	581	472	966
Nassau	44885	31877	6347	1471	2149	675	416	907
New York	43628	36742	13380	907	3522	1140	724	1328
Orange	17309	18631	33148	1841	2637	653	281	1523
Putnam	7831	5367	1127	475	636	221	85	317
Queens	45443	40922	18791	1212	2976	724	706	1200
Rockland	13140	12777	12855	544	1296	194	133	821
Suffolk	71255	54932	47555	2713	4408	1098	738	2140
Westchester	34544	24755	4858	1113	1751	548	399	713
Richmond	13004	9466	2623	266	790	152	155	441
Area Totals	383546	285672	157632	12817	25212	6875	4538	11719

Table 6b - 2005 Emission Percent Contributions of Particulate Matter and its Precursors for the New York CMSA Counties

County	VOC	NOx	SOx	NH3	PM2.5	OC	EC	PMFINE (Crustal)
Bronx	6.32	5.03	2.40	4.84	4.39	4.36	5.18	4.13
Dutchess	3.91	2.78	2.97	7.32	6.79	8.57	4.28	7.50
Kings	13.89	9.76	5.38	5.59	8.84	8.45	10.40	8.24
Nassau	11.70	11.16	4.03	11.48	8.52	9.82	9.17	7.74
New York	11.37	12.86	8.49	7.08	13.97	16.58	15.95	11.33
Orange	4.51	6.52	21.03	14.36	10.46	9.50	6.19	13.00
Putnam	2.04	1.88	0.71	3.71	2.52	3.21	1.87	2.71
Queens	11.85	14.32	11.92	9.46	11.80	10.53	15.56	10.24
Rockland	3.43	4.47	8.16	4.24	5.14	2.82	2.93	7.01
Suffolk	18.58	19.23	30.17	21.17	17.48	15.97	16.26	18.26
Westchester	9.01	8.67	3.08	8.68	6.95	7.97	8.79	6.08
Richmond	3.39	3.31	1.66	2.08	3.13	2.21	3.42	3.76
Area Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[8] http://www.epa.gov/ttn/naaqs/pm/docs/2005_ei_new_york.xls. It should be noted that these emissions were produced by EPA, and may change when the Department's final 2005 inventory is prepared. However, the Department does not expect that the conclusions reached in this analysis will be affected.

The types of emission sources of particulate matter in the New York CMSA vary widely. Combustion processes are the main source of PM, but precursor emissions also contribute significantly. Sources include fossil fuel combustion in heating as well as mobile sources such as trucks, cars and buses. A number of large electric utility plants presently operate not only in New York City itself, but also in the Mid-Hudson and Long Island counties. There are also many industrial and commercial operations, as well as gasoline transfer and use, from which VOC emissions originate. All of these contribute to the exceedances monitored for the 2004-2006 period either through direct emission of particulate matter or its precursors.

Of particular note in the above tables are the low emissions from Dutchess and Putnam Counties in comparison to the other areas. These emissions result in a minor contribution of these two counties to the overall ambient level of particulate matter.

The Department is currently assessing its stationary, point, mobile and area source PM2.5 emission inventory preparation plans since the inventory will be a necessary component of its PM2.5 State Implantation Plan submission in April of 2008. Projections are not presently available for all of these pollutants. In general, emissions of particulate matter and its precursors can be expected to decrease as a result of programs such as the Clean Air Interstate Rule that affect large emitters in both New York State and downwind states. Improvements in mobile emissions are also expected as older, higher emitting cars and trucks age-out and are replaced by newer vehicles with lower emissions, and as a result of the cleaner fuel requirements for diesel. Emission reduction efforts for particulate matter associated with the April 2008 PM2.5 SIP as well as the Regional Haze SIP will also decrease the concentrations of fine particulate in the ambient air.

7. Geography/Topography

Geography and topography are considerations when physical features, such as high mountains and narrow valleys contribute to nonattainment. The most significant features of the CMSA are the Hudson River Valley that enters the area from the north, and the presence of the Atlantic Ocean. The effect of the river valley tends to be more local in nature and does not affect the region as a whole. The presence of the ocean affects weather and climate overall. However, this affects all of the states and other areas along the east coast and does not exacerbate the transport for the New York area alone. Finally, there are no counties that are severely disproportionate in their dimensions (north-south vs. east-west, for example) that would magnify or otherwise affect the other factors that influence air quality.

8. Jurisdictional Boundaries

The five counties, or boroughs, of New York City represent a distinct jurisdictional boundary compared to the other areas in the New York portion of the CMSA. New York City has historically been active in developing emission control strategies for most of these areas and transit options to address excessive pollutant levels because of its high degree of urbanization. Most recently, New York City has proposed their PlaNYC strategy that will address environmental improvements in a number of media, including air quality. Included in PlaNYC are retrofits to school buses, ferries, garbage trucks, taxis, and construction vehicles, along with stationary source emission reductions from energy efficiency and clean residential fuel measures.

Additionally, jurisdictional boundaries are further delineated within the New York Metropolitan Transportation Council (NYMTC), the Metropolitan Planning Organization for Rockland, Westchester, Nassau and Suffolk counties and New York City. The NYMTC serves as the central planning body for three Transportation Coordinated Councils (TCCs); the New York City TCC, the Nassau Suffolk TCC and the Mid-Hudson TCC. These three TCCs are independent of each other, each developing Transportation Improvement Programs (TIPS) based on respective transportation needs.

It should be noted that the counties that are proposed for inclusion in the New York Metropolitan PM2.5 Nonattainment Area are the same as those included in the present nonattainment area for the annual PM2.5 NAAQS by EPA. The latter nonattainment area was established by EPA and encompasses a larger area than that recommended by the Department. The Department disagreed with EPA's delineation of the nonattainment area for the annual standard and chose to litigate the issue. The results of this litigation may change these boundaries. However, it is not expected that this would affect the Department's recommendations for the 24-hour standard, given the more local impacts associated with the 24-hour standard, the 24-hour averaging basis for the NAAQS that is the subject of this submittal, the larger number of monitors exceeding the 24-hour standard in the New York City counties, and the values close to the 24-hour standard in the counties surrounding New York City.

9. Level of Current Emission Controls

The level of emission control in New York City has been very restrictive since it is a 1-hour severe ozone nonattainment area, as well a nonattainment area for 8-hour ozone and PM10. The Department has submitted several state implementation plans over the years to address emissions that occur in these areas which have resulted in reductions in many source sectors. To ensure future maintenance, and as required by the CAA saving provisions, previously measures used to reach attainment are still applicable and provide ancillary PM2.5 benefits. Some of the local and area-wide measures have included stationary source VOC and NOx Reasonably Available Control Technology (RACT) measures, excessive truck and bus idling limitations, the taxi enhanced inspection and maintenance (I/M) program, and the enhanced I/M requirement for automobiles in the ozone nonattainment area.

Areas outside of the New York City boundaries are additionally subject to state and federal control requirements. Nassau, Suffolk, Westchester, and Rockland counties, as well as the lower portion of Orange County, were classified as severe 1-hour ozone nonattainment areas. The result of this were lower thresholds for the application of VOC and NOx RACT in these areas as well as the imposition of additional New Source Review requirements. Dutchess and Putnam counties, and the upper portion of Orange County, were not included in the serious nonattainment area but, rather, were classified as moderate nonattainment.

<u>Conclusions for the New York City Metropolitan PM2.5 Nonattainment Area:</u>

After considering the nine factors required by EPA guidance, the Department recommends that ten counties in the New York State portion of the New York CMSA be classified as nonattainment. This area is shown in Figure 6 below, and includes Bronx, Kings, New York, Orange, Queens, Richmond, Rockland, Nassau, Suffolk &

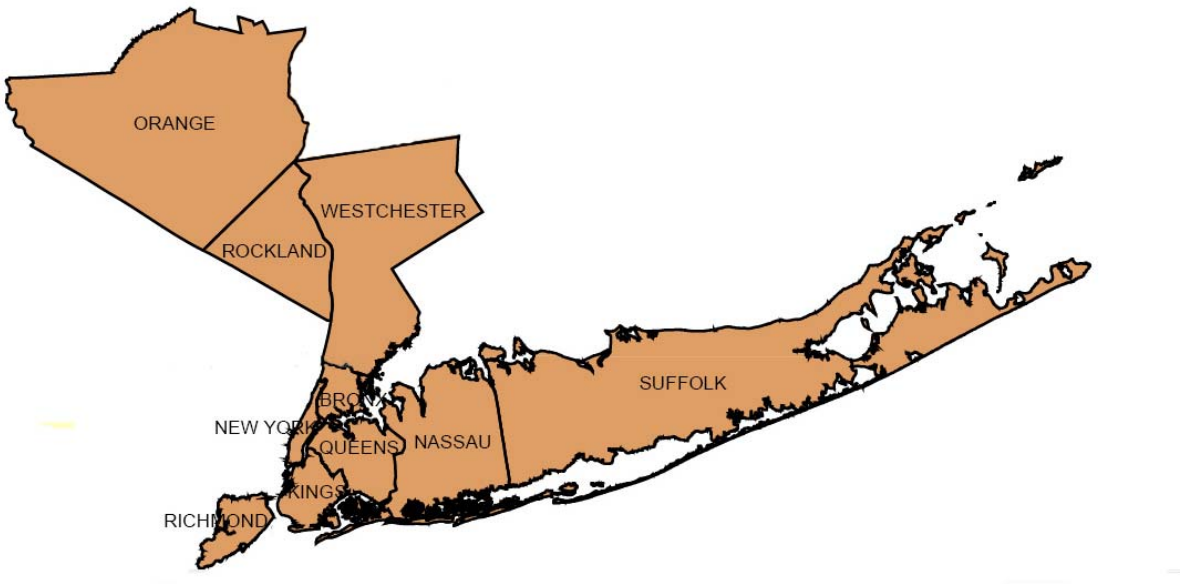
Westchester Counties. This is appropriate when the exceedances in several New York City counties are considered, as well as the existence of emissions that occur on a regional basis as a result of urbanization, transportation and the steady growth projected to occur in these counties. Although the monitored values in Orange County are relatively low, it is included due to the large sources that are located here including the Danskammer, Lovett and Roseton generating stations.

Dutchess and Putnam Counties, the other areas encompassed by the New York CMSA, are not recommended for inclusion in the New York Metropolitan nonattainment area due to:

- Their smaller contribution to emissions as seen in the 2005 inventory in Tables 6a and 6b above,
- Indications that monitored levels of PM2.5 decrease significantly further up the Hudson Valley at levels well below the standard,
- Lower population density,
- Smaller degree of traffic volume and congestion as indicated by the lower VMT's in Table 4 above,
- A lesser influence on the air quality of the metropolitan area as a whole, given the indications that the impact of local sources have a strong influence on the days of greatest concentration, and
- The more rural nature aspect of these counties.

Along with other efforts that are already under way to control particulate matter and its precursors, the Department intends to develop a state implementation plan for the 1997 annual PM2.5 standard and, three years after the establishment of the nonattainment area, for the 2006 standard that will reduce the emissions of PM2.5 and its precursors, and bring the area into compliance with the NAAQS according the requirements of the Act.

Figure 6 - New York City Metropolitan PM2.5 Nonattainment Area



II. Buffalo/Niagara Falls Metropolitan Area Classification and Boundary Determination

In establishing the nonattainment area boundaries for the Buffalo and Niagara Falls metropolitan statistical area, the environmental characteristics of Erie and Niagara counties were evaluated in light of EPA's nine factors to determine the attainment status of this area as well as the potential influence of this area on other jurisdictions. Together, these two counties comprise the Buffalo/Niagara Falls Metropolitan Statistical Area (MSA). This area is shown in Figure 7 below.

Figure 7 - The Buffalo/Niagara Falls MSA Nonattainment Area

1. Air Quality

An area with a monitor that records a violation of the PM2.5 NAAQS must be designated nonattainment. As can be seen in Table 2 above, the design values for the Buffalo/Niagara Falls area met the 24-hour standard only in 2004-2006, and only by a small margin. Data for the 2002-2004 and 2003-2005 periods exceeded the 24-hour standard at the Buffalo and Lackawanna monitors. The data for 2004-2006 may be an anomaly based on the 2006 data which was one of the three years averaged together to obtain the 2004-2006 average. The 24-hour values for the Buffalo, Niagara Falls and Lackawanna monitors for 2006 are 25-35% less than the values for 2005. The 2005 values are, in turn, significantly higher than the 2004 values. Given the wide variation in the figures from year to year and the lack of a clear trend in the data either upward or down, no definitive conclusion can be reached on the attainment status of these areas when viewed in light of the monitoring data. This is a strong factor that clearly justifies the Department's recommendation that the area be designated as unclassifiable, which is appropriate for areas either meeting the standard or having insufficient data to determine air quality, and not contributing to nearby nonattainment.

2. Meteorological Influences

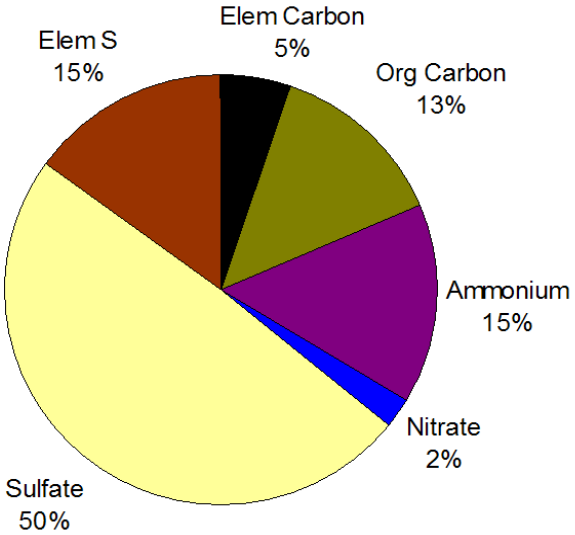
To assess the influence of weather patterns on observed PM2.5 mass concentration in the Buffalo/Niagara Falls area, the meteorological conditions

associated with the days on which the highest 5% of PM2.5 readings occurred were examined for the 2004-2006 period of interest. These events occurred throughout the year, though they were more prevalent in the May through October period.

The result of this assessment indicates that on most days in which high PM2.5 levels were measured, wind flows originated from the WSW, SW and S of the Buffalo and Niagara Falls areas. Although there is always a local contribution, the stable conditions and steady winds from these directions are strongly suggestive that the contributions to the particulate concentrations were from the directions of Pittsburgh and Erie, Pennsylvania, and the Cleveland, Ohio areas. Additionally, on several of the days in which the highest 24-hour PM2.5 values were recorded in the Buffalo/Niagara Falls area, high values were also recorded at the Westfield monitor in Chautauqua County at which the concentrations being measured are indicative of the quality of the air entering New York State. Thus, the conclusion to be reached is that, on high PM2.5 days, there is a significant impact due to transport from upwind states.

In addition to conducting an assessment of the meteorology for the days of highest PM2.5, speciation data for the days on which the highest PM2.5 concentrations occurred (where the dates concurred) were also assessed to determine if there was an indication of whether local or transported pollution would have been a primary source. As can be seen by Figure 8, approximately half of the mass of the PM2.5 collected was composed of sulfates on a typical day of high PM2.5. Sulfates are formed after sulfur oxides are emitted and react in the atmosphere during transport to form sulfates. Time is required for this transformation. The large fraction of sulfate is strongly suggestive that the PM2.5 measured in those days was transported into the area from the direction of Ohio and Pennsylvania, as well as other of the southern and Midwest states, and that combustion sources such as the large power plants located outside on New York were the sources of the sulfate. This further supports the conclusion that PM2.5 is transported from outside of New York State. Before the PM2.5 concentrations in the Buffalo/Niagara Falls area can be reduced, emission reductions to the west, southwest and south must be achieved.

Figure 8: Typical Speciation for a High PM2.5 Day (9-13-2005) Buffalo CAM



3. Population Density and Degree of Urbanization including Commercial Development

To address the population density and degree of urbanization factors, various demographics and economic indicators were examined for the Buffalo/Niagara Falls area. Figure 4, which depicts the population density of the entire state, indicates that the Buffalo/Niagara Falls area is one of the more densely populated regions of the state. Likewise, data from the New York State Department of Labor[9] indicates that employment will increase as well in the Western New York area, averaging 5% for the 2004 to 2014 period, suggesting that commercial development will continue to increase as well, though more modestly than in the New York CMSA.

4. Traffic and Commuting Patterns

The Buffalo/Niagara Falls area is primarily urban in nature, though it is not as heavily populated or industrialized as the New York City area as a whole. A number of major transportation corridors are located in the area, including the New York State Thruway which passes through the area. Additionally, the Buffalo/Niagara Falls area is one of the main thoroughfares for traffic between the United States and Canada via four bridges. Travel also takes place on many other local highways and intermediate roads.

The breakdown of commuting options according to the United State Census Bureau[10] for the Buffalo/Niagara Falls area is summarized below in Table 7. Compared to the New York metropolitan area, a far smaller fraction of commuters use public transportation, with the overwhelming majority of commuting taking place in single-occupant vehicles.

Table 7 - Commuting Methods for the Buffalo/Niagara Falls MSA

Commuting Mode	Number of Commuters	Percent
Car, truck, or van -- drove alone	418,526	82.0
Car, truck, or van -- car pooled	45,682	9.0
Public Transportation	18,751	3.7
Walked	13,618	2.7
Other means	1,948	0.4
Work at home	11,025	2.2
Total Commuters	509,550	100
Mean travel time to work	19.4 minutes	--

[9]http://www.labor.state.ny.us/workforceindustrydata/apps.asp?reg=wny&app=projections

[10]http://www.census.gov/acs/www/Products/Profiles/Single/2003/ACS/Tabular/380/38000US12803.htm

According to the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC), the annual vehicle mile traveled has been increasing, contributing to the potential for increased motor vehicle emissions, though this will likely be somewhat offset by fewer emissions from individual vehicles as older vehicles are removed from service and are replaced by newer ones. Rail transportation is not as prevalent as it is in the New York Metropolitan area, with less commuting taking place by rail and other mass transit. Other contributions from mobile sources include buses and marine vessels operating in ports at the east end of Lake Erie.

An examination of the Vehicle Miles Traveled (VMT) for the Buffalo/Niagara Falls MSA counties for 2005 was also done. As can be seen in Table 8 below, the VMT in Erie County is significantly higher than that in Niagara County, likely reflecting the high traffic rate in the I-90 corridor, the "drive alone" commuter traffic indicated in Table 7 above, and the routine commercial traffic in the Buffalo urban area. Erie County's VMT is comparable to that in several of the core New York metropolitan area counties (see Table 4 above).

Table 8 - Buffalo/Niagara Falls MSA 2005 Vehicle Miles Traveled[11]

2005 Vehicle Miles Traveled (VMT)	
County	**VMT (Millions)**
Erie	9248
Niagara	1695

5. Expected Growth

The population of the Buffalo and Niagara Falls area has experienced a downturn in recent years. Population projections out to 2015 indicate that the population will continue to decrease. This trend is opposite to the expected trend for employment and commercial growth discussed in Section II.3 above. The cause of the population shift is likely the movement of populations from central city locations to suburbs where the perception is that better educational resources for children, better housing and a desire to be near employment that is available in outside of the cities.[12]

Table 9 - Population Projections for the Buffalo/Niagara Falls MSA[13]

Projected Population by County, 2000 to 2015						
County	**2000**	**2005**	**2010**	**2015**	**Change 2000-2015**	
					Number	**Percent**
Erie	950,265	929,506	906,480	883,909	-66,356	-6.98
Niagara	219,846	217,316	213,695	209,519	-10,327	-4.70

[11] http://www.epa.gov/ttn/naaqs/pm/docs/2005_vmt_county_level.xls

[12] http://www.ci.buffalo.ny.us/files/1_2_1/Mayor/COB_Comprehensive_Plan/section_2459139390.html

[13] http://www.aging.state.ny.us/explore/project2015/projections/index.htm

6. Emissions

Fine particulate consists of both primary and secondary particles. Primary particles are generally directly emitted into the atmosphere from motor vehicles, power generation facilities, industrial facilities, residential wood and forest product burning sources. Secondary particles are formed from precursor gases reacting in the atmosphere from the combination of various pollutants: oxides of sulfur (SOx), oxides of nitrogen (NOx), volatile organic compounds (VOCs), and ammonia (NH3). These pollutants are emitted from many of the same emission sources as precursors of ozone.

Emission sources of particulate matter in the Buffalo/Niagara Falls area vary. Combustion processes are the main source of primary and secondary PM. Sources include fossil fuel combustion in heating as well as mobile sources such as trucks, cars and buses. A number of large electric utility plants presently operate in the Buffalo/Niagara Falls areas, including the Somerset, Dunkirk and Huntley power generation facilities as well as several cogeneration plants. VOC emissions from industrial and commercial operations, and gasoline use, also contribute. Industrial operations include the 3M, Dupont Yerkes, Goodyear, General Motors and Tonawanda Coke facilities. Emissions from mobile sources, both on-road and non-road, contribute significantly as well, as do gasoline fueling and transfer operations.

Table 10a below presents the 2005 emissions for VOC, CO, NOx, SOx and total PM for the counties in the New York CMSA. Table 10b shows the percent contribution for each county by pollutant.

Table 10a - 2005 Emissions of Particulate Matter and its Precursors for the Buffalo/Niagara Falls MSA Counties[14]

County	VOC	NOx	SOx	NH3	PM2_5	OC	EC	PMFINE (Crustal)
Erie	47172	33057	30867	3161	5107	1071	557	3113
Niagara	15133	11361	6991	954	2068	392	138	1419
Area Totals	62305	44418	37858	4115	7175	1463	695	4532

Table 10b - 2002 Emission Percent contributions of Particulate Matter and its Precursors for the Buffalo/Niagara Falls MSA Counties

County	VOC	NOx	SOx	NH3	PM2_5	OC	EC	PMFINE (Crustal)
Erie	75.71	74.42	81.53	76.82	71.18	73.21	80.14	68.69
Niagara	24.29	25.58	18.47	23.18	28.82	26.79	19.86	31.31
Area Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[14] http://www.epa.gov/ttn/naaqs/pm/docs/2005_ei_new_york.xls. It should be noted that these emissions were produced by EPA, and may change when the Department's final 2005 inventory is prepared. However, the Department does not expect that the conclusions reached in this analysis will be affected.

The Department is currently assessing its stationary, point, mobile and area source PM2.5 emission inventory preparation plans since the inventory will be a necessary component of its PM2.5 State Implementation Plan submission in April of 2008. Projections are not presently available for all of these pollutants. In general, emissions of particulate matter and its precursors can be expected to decrease as a result of programs such as the Clean Air Interstate Rule (CAIR) and Acid Deposition Reduction Program (ADRP) that affect large emitters in both New York State and downwind states. Improvements in mobile emissions are also expected due to New York's Low Emission Vehicle (LEV), and Inspection and Maintenance (I/M) programs. Other efforts, such as the 8-hour ozone and Haze SIPs, will reduce the emission of particulates and precursors.

7. Geography and Topography

The Buffalo and Niagara Falls areas are in a location in the state where topography plays no role. Without the presence of any significant terrain, topography is unlikely to be a factor in the attainment status.

From a geographic perspective, the most significant physical features influencing air quality are Lakes Erie and Ontario, which affect the weather, climate, humidity and precipitation. Additionally, the close proximity of Canada and the Ohio Valley affects the air quality, given the emission of PM2.5 precursors from power plants in these regions as well as those south of Buffalo/Niagara Falls. These emissions are likely the primary source of PM2.5 on many days in the Buffalo/Niagara Falls area, especially on the days with high PM2.5 levels as discussed under Section II.2. above. Emission reductions in these other states and in Canada would be needed to maximally reduce the PM2.5 levels in the ambient air.

Finally, neither of the counties are severely disproportionate in their dimensions (north-south vs. east-west, for example) in a manner that would magnify or otherwise affect the other factors that influence air quality and transport.

8. Jurisdictional Boundaries

There are no jurisdictional boundary issues affecting attainment status. The two counties involved are equally affected by both the state and federal air quality programs presently in effect, and are subject to the same requirements as surrounding New York State counties. They are also both a part of the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC), which has served as the interagency group for transportation planning in Erie and Niagara Counties since 1975, and has addressed the needs of these counties related to mobile sources and transportation, and the associated emissions.

9. Level of Current Emission Controls

The Buffalo/Niagara Falls area has been regulated under both the state and federal air quality programs for over 30 years. Throughout this time, controls have been required on a wide variety of sources under New York's Reasonably Available Control Technology (RACT) and Prevention of Significant Deterioration (PSD) programs as well

as requirements applying to a wide variety of other sources. Both the New York State air permitting program and the federal Title V program have provided a vehicle to require emission reductions to take place in the Buffalo/Niagara Falls area as well as across the state. Past requirements will continue to apply so that no "backsliding" on controls already in place will occur.

The Buffalo/Niagara Falls area is presently a nonattainment area for 8-hour ozone. A SIP is under development that will result in the control of several of the pollutants that are precursors of PM2.5. Additionally, a regional haze SIP must be submitted to EPA that will require the reduction of precursors from several major facilities in the state through the application of Best Available Retrofit Technology requirements and general measures intended to reduce haze, including reduced fuel sulfur limits. Finally, a PM2.5 SIP for the annual PM2.5 standard promulgated in 1997 is due to EPA in April of 2008 which will propose controls for several sources of PM2.5 and its precursors.

Conclusions for the Buffalo/Niagara Falls MSA:

After considering the nine factors required by EPA guidance, the Department recommends that the entire two county Buffalo/Niagara Falls MSA be designated as an "unclassifiable" area for the 24-hour PM2.5 standard. This recommendation is based on the insufficient margin between the monitored values and the 24-hour PM2.5 standard to support a definitive conclusion that the attainment that was monitored in the 2004-2006 period will persist. The annual 24-hour values are also inconsistent, exhibiting no downward trend in the data. This is likely due, at least in part, to weather differences from year to year, and the variation in PM2.5 transported into the areas from out-of-state. Additionally, the result of the application of the nine factors required by EPA taken together does not weight this recommendation toward a clear conclusion that the area should be either attainment or nonattainment.

Figure 9 - Proposed 24-Hour PM2.5
Nonattainment and Unclassifiable Areas