JEANNE SHAHEEN
GOVERNOR

STATE OF NEW HAMPSHIRE

OFFICE OF THE GOVERNOR

July 24, 2000

Ms. Mindy S. Lubber
Regional Administrator
U.S. Environmental Protection Agency, Region I
One Congress Street, Suite 1100
Boston, MA 02114-2023

Re: Designation of Nonattainment Areas Under the 8-Hour Ozone Standard

Dear Ms. Lubber:

As required by the Clean Air Act ("CAA" or "Act") and the Transportation Equity Act for the 21st Century ("TEA-21"), I hearby submit boundaries for areas of New Hampshire which either do not currently attain the 8-hour National Ambient Air Quality Standard ("NAAQS") for ground level ozone or may contribute to ozone levels in those areas.

In 1998, the U.S. Environmental Protection Agency ("EPA") proposed that Consolidated Metropolitan Statistical Areas ("CMSAs") based on the 1990 census be used presumptively to establish 8-hour ozone nonattainment area boundaries. However, CMSAs are defined by socio-economic patterns proximate to urban centers, rather than by factors which determine air quality. In addition, the CMSA approach is contrary to the science that underlies EPA's own progressive NOx SIP Call, which found that large regions of the eastern United States contribute significantly to downwind ozone nonattainment for distances well beyond CMSA boundaries. Historically, the CMSA approach has had limited success in achieving attainment of the 1-hour ozone NAAQS in the eastern United States because regional pollutants like ozone easily traverse CMSA boundaries, but legal responsibility for reducing emissions typically does not. As a result of these shortcomings, the State of New Hampshire believes that using CMSAs is a poor way to define 8-hour ozone nonattainment areas.

A Federal Advisory Committee Act ("FACA") process sponsored by EPA in the mid-1990's to consider ozone, fine particulate matter, and regional haze studied ozone transport exhaustively and concluded that a new, scientifically-based approach to designating nonattainment areas was warranted. Specifically, this Committee recommended that areas which violate ozone standards ("areas of violation" or "AOVs") should be associated with areas upwind whose emissions caused or influenced those violations ("areas of influence" or "AOIs"). The State of New Hampshire believes that scientifically-based regulatory approaches, such as this "AOI/AOV" approach, are more

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likely to be successful in achieving attainment. Therefore, within the limits of its jurisdiction, New Hampshire has used this approach – coupled with scientific factors that affect the state's air quality – in determining the boundaries of the New Hampshire 8-hour nonattainment areas that I submit today.

It is important to note that these boundaries were developed in consultation with EPA Region I after New Hampshire's preliminary, AOV boundaries were submitted to EPA on August 18, 1999. As a result of this consultation, New Hampshire expanded its proposed nonattainment area significantly, to what the State believes is the maximum extent supported by the science. The resulting designation is consistent with EPA's guidance for pursuing alternatives to its presumptive CMSA approach, as well as with CAA Section 107(d)(1). These provisions require states to consider population, population density, projected growth, existing air quality, and prevailing meteorology. In making its area designation, New Hampshire also considered a more important ozone determinant – geographic emission density – to ensure the inclusion of areas with significant emissions (i.e., the New Hampshire portion of the AOI associated with the State's ozone violations). A map of the New Hampshire nonattainment area boundaries for the 8-hour ozone NAAQS is shown in Figure 1. Greater detail regarding New Hampshire's boundary determinations is provided in the accompanying Technical Attachment.

It is also important to note that I submit this area designation subject to New Hampshire's nonattainment area being joined with an adjacent nonattainment area to be defined by the State of Maine, resulting in a single New Hampshire-Maine nonattainment area that extends from the New Hampshire-Massachusetts state border to Portland, Maine. Should this approach prove unacceptable to EPA, New Hampshire reserves the right to modify its nonattainment area boundaries. The State may also wish to modify its area boundaries should an acceptable broad regional approach to nonattainment designations be developed through an organization such as the Ozone Transport Commission ("OTC").

Finally, this submittal also presupposes EPA's recognition of the actual dynamics of ozone formation in the coastal areas of the Gulf of Maine. In particular, while a joint New Hampshire-Maine nonattainment area makes sense in terms of covering the New Hampshire-Maine portion of the AOI associated with coastal ozone violations in northern New England, this area is not sufficiently culpable to render it capable of eliminating these violations. Photochemical modeling demonstrates that New Hampshire – which has the greater ozone-forming nitrogen oxide ("NOx") emissions of the two states – is not even primarily responsible for high ozone levels within its borders or in the State of Maine. In fact, modeling shows that New Hampshire emissions are responsible for just 1% to 3% of the ozone concentrations occurring within New Hampshire and Maine during periods of violation. The remaining 97% to 99% comes from sources upwind of New Hampshire.

Thus, in order to achieve attainment in areas that are subject to overwhelming ozone transport, EPA must maintain its regulatory focus on NOx emissions and ozone originating in large, upwind urban areas with high geographic emission densities. In the case of the New Hampshire-Maine nonattainment area, the primary source of ozone is the Boston urban area, but the same principle applies to several other downwind ozone nonattainment areas throughout the eastern United States.

In addition, longer-range transport affects all of New England and contributes to elevated ozone levels and widespread violations of the 8-hour ozone standard throughout the Northeast. Aggressive federal implementation of broad regional NOx emission reduction strategies and similarly aggressive national measures appears to be necessary before many affected areas will reach attainment of applicable ozone standards.

Thank you for your consideration of these recommendations. If you have any questions regarding this determination, please contact Robert Varney, Commissioner of the Department of Environmental Services at (603) 271-3449.

Sincerely,

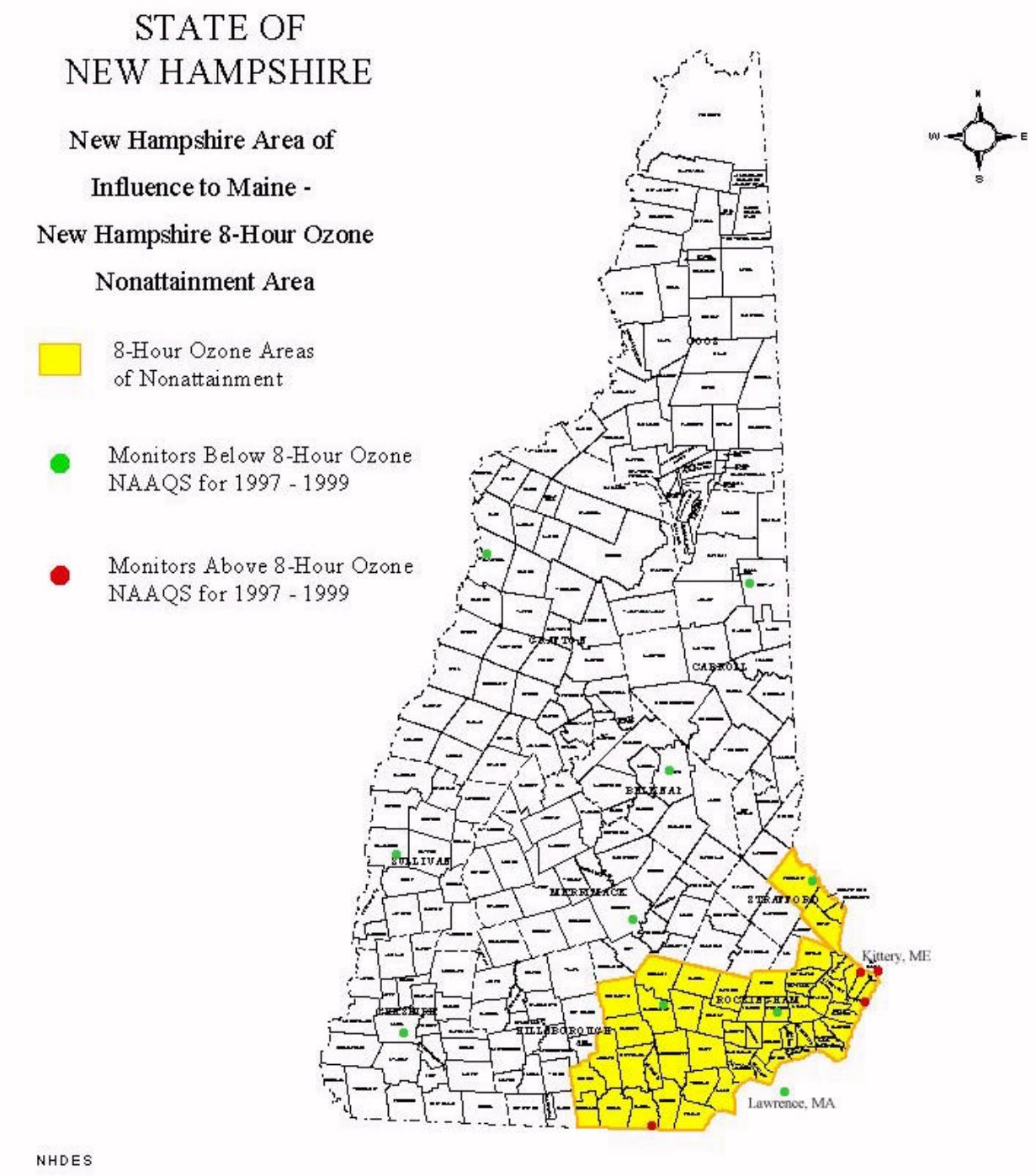
Jeanne Shaheen

Jeanne Shaheen
Governor

Attachments

cc: Robert Varney, DES
Kenneth Colburn, DES
Jason Grumet, NESCAUM
Bruce Carhart, OTC

FIGURE 1. Proposed Areas of Nonattainment for 8-Hour Ozone NAAQS in New Hampshire



TECHNICAL ATTACHMENT

Rationale for New Hampshire's 8-Hour Ozone Nonattainment Area Boundaries

Rationale for New Hampshire's 8-Hour Ozone Nonattainment Area Boundaries

The recommendations contained in this letter are fully compliant with Section 107(d)(1)(A) of the Clean Air Act ("CAA") which defines a nonattainment area as any area that (1) does not meet the ozone National Ambient Air Quality Standard ("NAAQS"); or (2) contributes to ambient ozone violations in a nearby area.

While New Hampshire is proposing boundaries within this letter, the state reserves the right to opt into a larger regional nonattainment area currently being studied by the Ozone Transport Commission ("OTC"). If appropriately designed, such an approach could foster multistate cooperation in demonstrating attainment activities through the Northeastern Regional Technical Center. Emission control strategies would be rigorously developed and targeted for those areas that are most capable of making the most efficient reduction of ozone, leading to attainment of the ozone NAAQS. New Hampshire believes that "efficient reduction" is most accurately measured on a cost-per-ozone-ppb basis rather than a cost-per-precursor-ton basis.

As suggested by the CAA, the U.S. Environmental Protection Agency's ("EPA") "presumptive norm" for determining 8-hour ozone nonattainment area boundaries is based on the 1990 census-based Consolidated Metropolitan Statistical Areas ("CMSAs"). After carefully examining air pollution transport, EPA's Federal Advisory Committee on ozone, fine particulate matter, and regional haze ("FACA") concluded that areas violating ozone standards should be associated with the upwind areas which influence these violations. Regrettably, this scientific cornerstone is ignored under the CMSA approach. The CMSA approach (grounded as it is in census data rather than scientific data) does not adequately capture meteorology, geographic emission densities, and other technical considerations that determine air quality. As a result, it should not be used for defining nonattainment areas. The CMSA approach is also contrary to EPA's own progressive NOx SIP Call, which concludes that large areas of the Eastern U.S. significantly contribute to ozone nonattainment across great distances, i.e., well beyond CMSA boundaries. The CMSA approach was also used as the presumptive norm for the 1-hour ozone nonattainment area boundaries and, to-date has had minimal success achieving attainment. Since the passage of the CAA Amendments of 1990, the science of photochemical modeling and airshed analysis has progressed significantly; EPA should fully employ this progress in making 8-hour ozone nonattainment designations.

Areas of 8-Hour Ozone Violation

New Hampshire's analyses for the identification of areas within the state that are in violation of the 8-hour ozone standard were summarized in the State's August 18, 1999 letter of preliminary designations to EPA. After examining the attainment status with updated monitoring data at the close of the 1999 ozone season, the Portsmouth monitor now

violates the standard (Table 1). When New Hampshire drafted its August 18, 1999 submittal, this was considered a likely possibility so Portsmouth was already included in the State's defined area of violation (Figure A1).

TABLE 1. 1997-1999 8-Hour Ozone Design Values by Monitor, in parts-per-billion (ppb)

Location	Monitor ID	1997 4th Max	1998 4th Max	1999 4th Max	1997-99 Design Value
Nashua	330111010	**94**	84	**89**	**89***
Portsmouth	330150009	**89**	84	**89**	**87***
Rye	330150012	**102**	**85**	84	**90***
Brentwood	330150013	N/A	67	79	N/A
Claremont	330190003	75	67	77	73
Concord	330130007	75	74	74	74
Conway	330031002	65	68	68	67
Haverhill	330090008	64	76	72	70
Keene	330050007	75	73	79	75
Laconia	330012003	67	64	75	68
Manchester	330110016	82	63	50#	76#
Rochester	330173002	80	79	84	81

**** - Design value exceeds the level of the 8-hour ozone NAAQS (85 ppb).***

 # - 1999 monitoring data capture for Manchester was below EPA accepted levels. The design value was therefore calculated according to EPA guidelines.

Areas of Influence

In accordance with EPA's March 28, 2000 boundary designation guidance, New Hampshire is proposing boundaries for areas within the state that have any potential to influence downwind violations of the 8-hour ozone NAAQS (Figure A2). To start with, all New Hampshire towns within the 1990 census-based Boston/Worcester/Lawrence CMSA, and the Town of Bow, were considered for inclusion within the State's defined boundaries. Consistent with EPA's guidance and the CAA Section 107(d)(1), New Hampshire examined population, population density, projected growth, air quality, and prevailing meteorology. Perhaps even more importantly, New Hampshire also investigated geographic emission densities to ensure inclusion of areas with significant emissions. Towns were excluded only if there was an absence of scientific merit for including them within the State's nonattainment boundaries. The towns that were removed are located along the rural periphery of the CMSA. Table 2 summarizes the reasoning behind the exclusion of each town (usually low emissions and population). Bow, which is outside the CMSA, was also excluded, because the power plant in that town is already maximally controlled through selective catalytic reduction on both of its boilers. Overall, the New Hampshire proposal covers about 75% of the area of the New Hampshire portion of the Boston-Lawrence-Worcester CMSA ("NH-CMSA"), accounts for about 92% of its population, and most

importantly, 93% of its NOx emissions (Figure A3). Virtually all of the fastest growing towns from the NH-CMSA are included in the New Hampshire proposal.

It is assumed that New Hampshire's area of influence will connect to a Maine defined area extending along the coast to Portland, creating a single New Hampshire-Maine area. Monitoring and photochemical modeling have documented that the Boston urban area's emissions must be targeted to achieve attainment in New Hampshire. It would be unacceptable to the State to have its emissions linked to the Fairhaven and Truro ozone monitors located along the Southeastern coast of Massachusetts were the frequent ozone violations are caused by transport from New York City and beyond, not by New Hampshire. Further controlling emissions in New Hampshire would do nothing to reduce ozone at these monitors. Massachusetts has expressed its preference to keep these monitors within the one single nonattainment area that includes Boston and the rest of Eastern Massachusetts. Unless the Boston urban area can be separated from the Southeastern Massachusetts monitors, New Hampshire believes that the southern boundary for the New Hampshire-Maine area should be established at the Massachusetts / New Hampshire state boundary.

As requested in EPA's guidance, attainment/nonattainment information, consistent with how designations are identified in Part 81 of the Code of Federal Regulations are provided in Table 3. This information along with digitized longitude and latitude coordinates for mapping purposes, and electronic versions of this letter and associated maps will be provided.

FIGURE A1. Areas of Violation of the 8-Hour Ozone NAAQS in New Hampshire

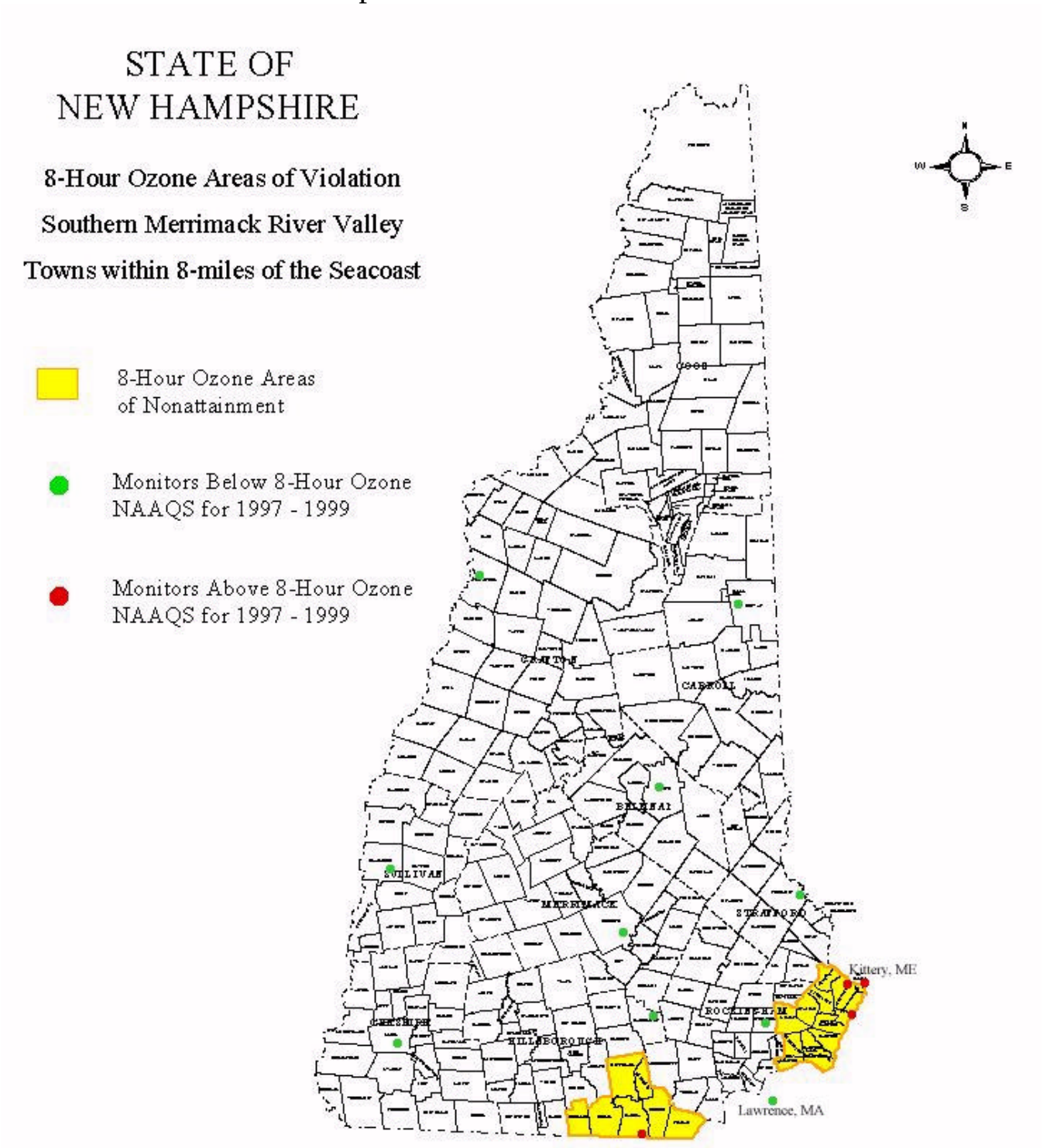


FIGURE A2. Proposed Areas of Nonattainment for 8-Hour Ozone NAAQS in New Hampshire

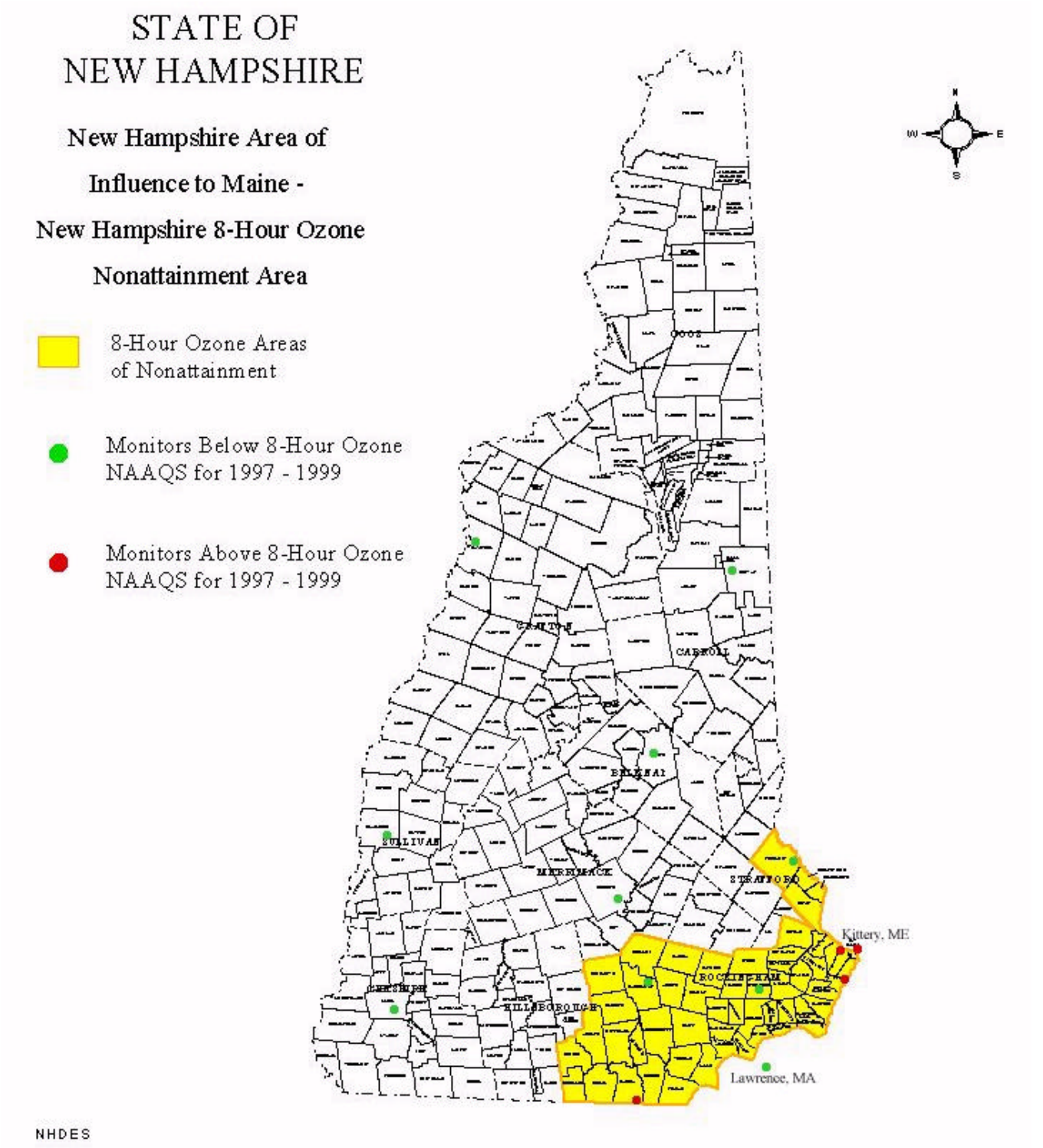
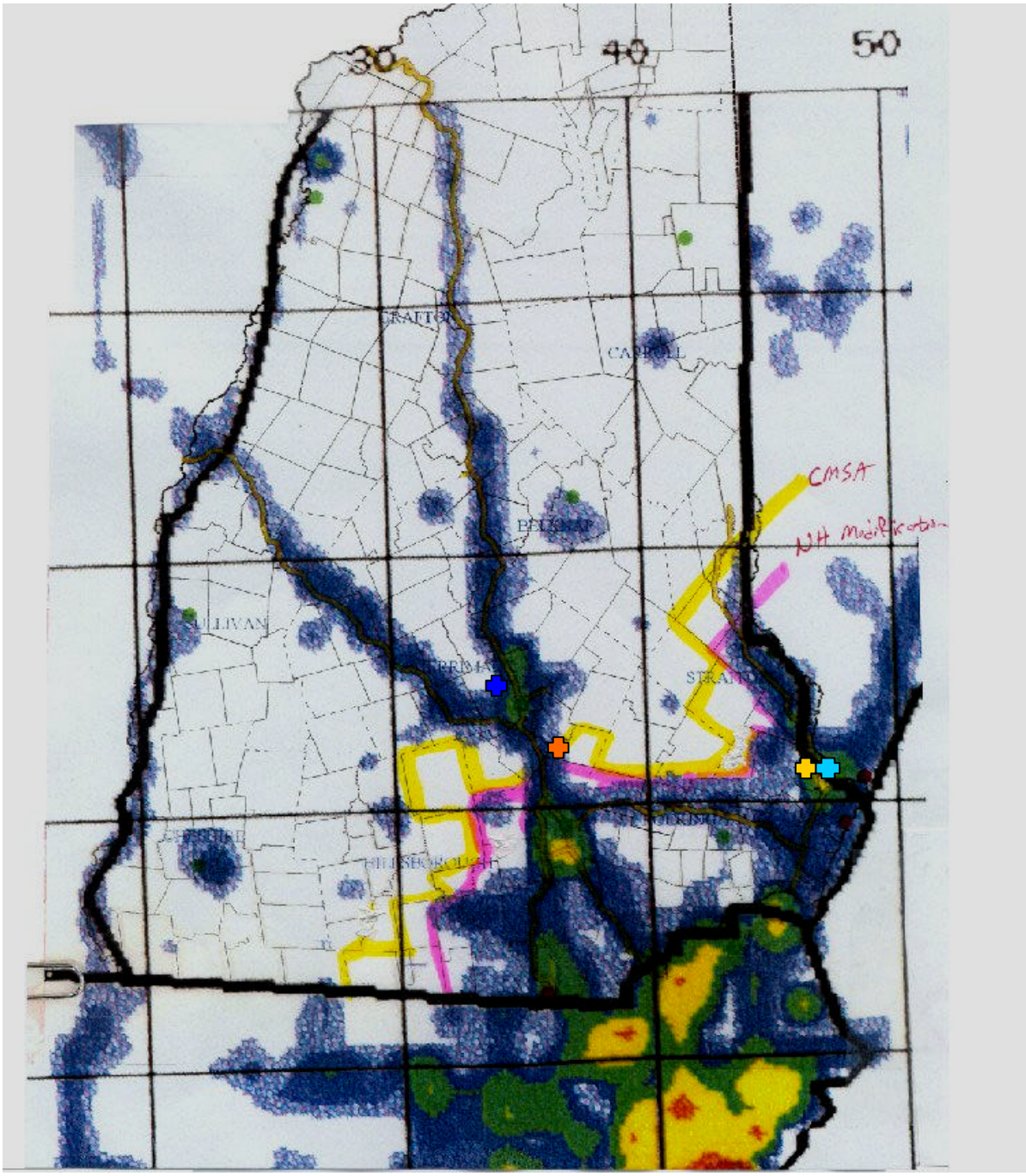


TABLE 2. Towns in the New Hampshire Portion of the CMSA that are Not Included in the Recommended New Hampshire Area of Influence

County **Town**	**1990 Census Pop.**	**1998 Census Est. Pop.**	**Growth Rate (%/yr)**	**1998 Pop. Density (#/sqmi)**	**NOx Emissions* (Percent of NH-CMSA)**	**Notes**
State Totals	**1,109,252**	**1,185,048**	**0.76**	**131.8**	--	--
Hillsborough County Totals	*335,838*	*363,031*	*0.90*	*413.9*	--	--
Greenville	2,231	2,344	0.57	340.8	0.4%	Low population, growth, and emissions.
Mason	1,212	1,374	1.49	57.3	0.5%	Low population and emissions.
Mt. Vernon	1,812	2,009	1.21	119.4	0.5%	Low population and emissions.
New Ipswich	4,014	4,807	2.20	146.8	0.4%	Remote and low emissions.
Weare	6,193	7,139	1.70	120.8	1.3%	Remote and low emissions.
Wilton	3,122	3,288	0.59	128.4	0.6%	Low population, growth, and emissions.
Merrimack County Totals	*120,240*	*127,381*	*0.66*	*136.4*	--	--
Allenstown	4,649	4,833	0.44	236.2	1.4%	Low growth and emissions.
Bow	5,500	6,606	2.23	234.5	Not part of NH-CMSA	Remote, commuting patterns primarily to the north, power plant maximally controlled.
Strafford County Totals	*104,233*	*108,650*	*0.47*	*295.9*	--	--
Barrington	6,164	7,039	1.58	150.8	0.6%	Remote and low emissions.
Farmington	5,739	5,920	0.36	162.2	1.0%	Remote, low growth and emissions.
Lee	3,729	4,158	1.28	208.1	0.2%	Low population and emissions.
Madbury	1,404	1,531	1.00	132.6	0.2%	Low population and emissions.
Milton	3,691	4,066	1.13	123.0	1.1%	Low population and emissions.

* - NOx emission estimates are based on the New England 1-hour ozone photochemical modeling domain 1999 emission inventory.

FIGURE A3. New Hampshire-NOx Emission Density



Relative geographic emission density estimates are based on New England Domain 1-hour ozone photochemical modeling inventories.

TABLE 3. Proposed Designations of Areas of 8-Hour Ozone NAAQS Nonattainment in New Hampshire

NEW HAMPSHIRE – OZONE (8-HOUR STANDARD)

Designated Area	Designation	Classification
	Type	Type
New Hampshire – Maine Area:	Nonattainment	
Hillsborough County:		
Includes only the following towns:	Nonattainment	
Amherst		
Bedford		
Brookline		
Goffstown		
Hollis		
Hudson		
Litchfield		
Manchester		
Merrimack		
Milford		
Nashua		
Pelham		
Peterborough		
Merrimack County:		
Includes only the following towns:	Nonattainment	
Hooksett		
Rockingham County:		
Includes only the following towns:	Nonattainment	
Atkinson		
Auburn		
Brentwood		
Candia		
Chester		
Danville		
Derry		
East Kingston		
Epping		
Exeter		
Fremont		
Greenland		

TABLE 3. Proposed Designations of Areas of 8-Hour Ozone NAAQS Nonattainment in New Hampshire (Continued)

NEW HAMPSHIRE – OZONE (8-HOUR STANDARD)

Designated Area	Designation	Classification
	Type	Type
Hampstead		
Hampton		
Hampton Falls		
Kensington		
Kingston		
Londonderry		
New Castle		
Newfields		
Newington		
Newmarket		
Newton		
North Hampton		
Plaistow		
Portsmouth		
Raymond		
Rye		
Salem		
Sandown		
Seabrook		
South Hampton		
Stratham		
Windham		
Strafford County:		
Includes only the following towns:	Nonattainment	
Dover		
Durham		
Rochester		
Rollinsford		
Sommersworth		
Rest of State	Attainment	