Virginia City Hybrid Energy Center
Response to Data Request
Vivian Thomson, Vice Chair, Virginia Air Pollution Control Board

Question (Page No. 3):

Ozone and PM impacts

Under the Clean Air Act and Virginia's PSD regulations, this facility may not contribute to non-attainment of pollutants in any air quality control region. EPA's maps show that, based on 2004-06 data, areas in Tennessee and North Carolina close to Wise County have monitored ozone levels that would put them in nonattainment for the new primary and secondary ozone standards (http://www.epa.gov/air/ozonepollution/pdfs/2008_03_monitors_violating_2008.pdf).

What ozone levels have been reached recently in the six Class I areas within 300 km of the facility, especially during the hot summer of 2007?

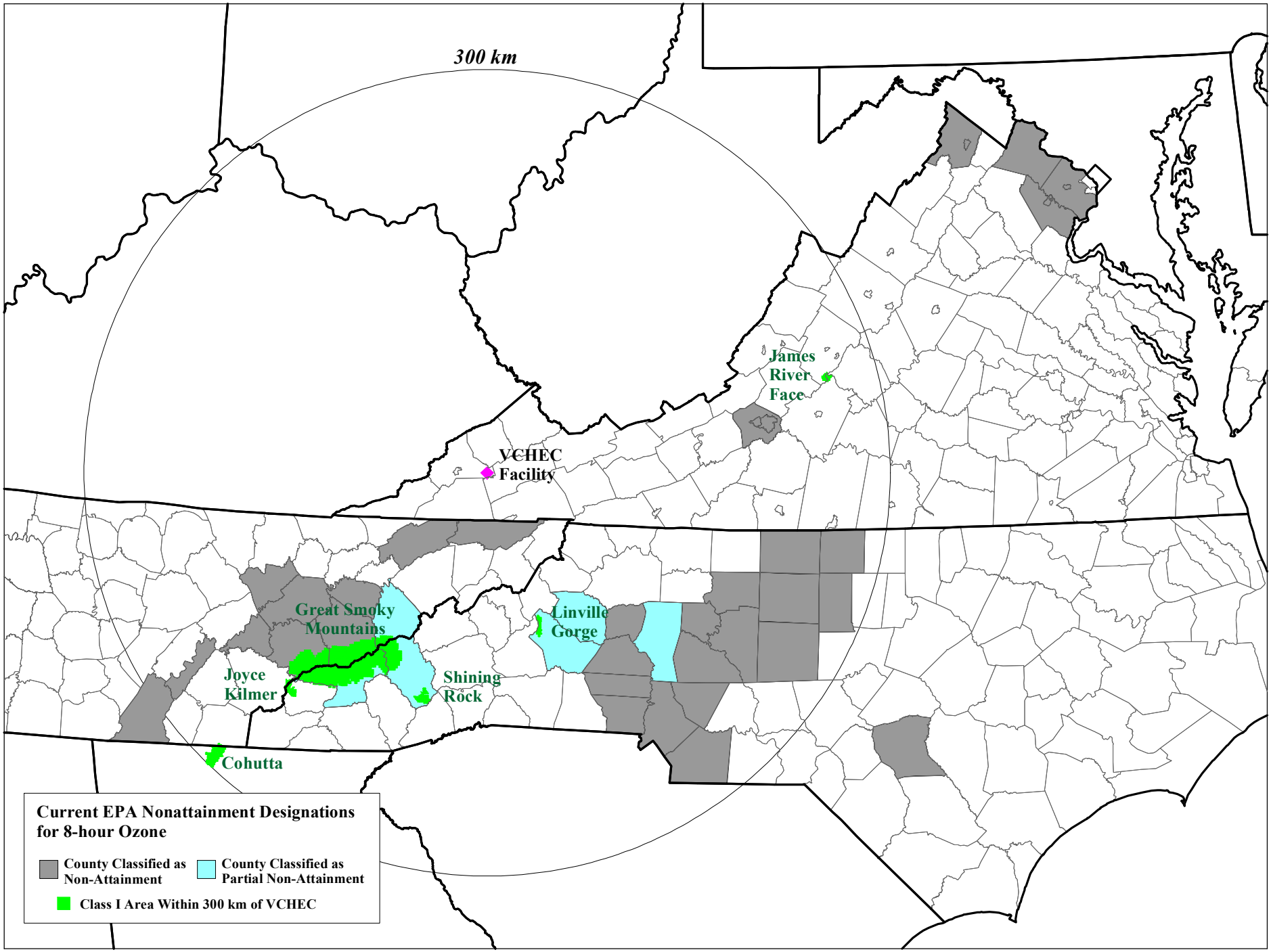
What is the likely ozone attainment status of these six Class I areas, based on 2005-07 ozone season data and using the new ozone standards? Please provide a map showing the likely ozone attainment/nonattainment status of all counties in Virginia, Tennessee, and North Carolina, based on 2005-07 ozone data and using the new ozone NAAQS. Please provide a map showing the PM2.5 nonattainment status of all counties in Virginia, eastern Tennessee, and North Carolina. tons/year of VOC.

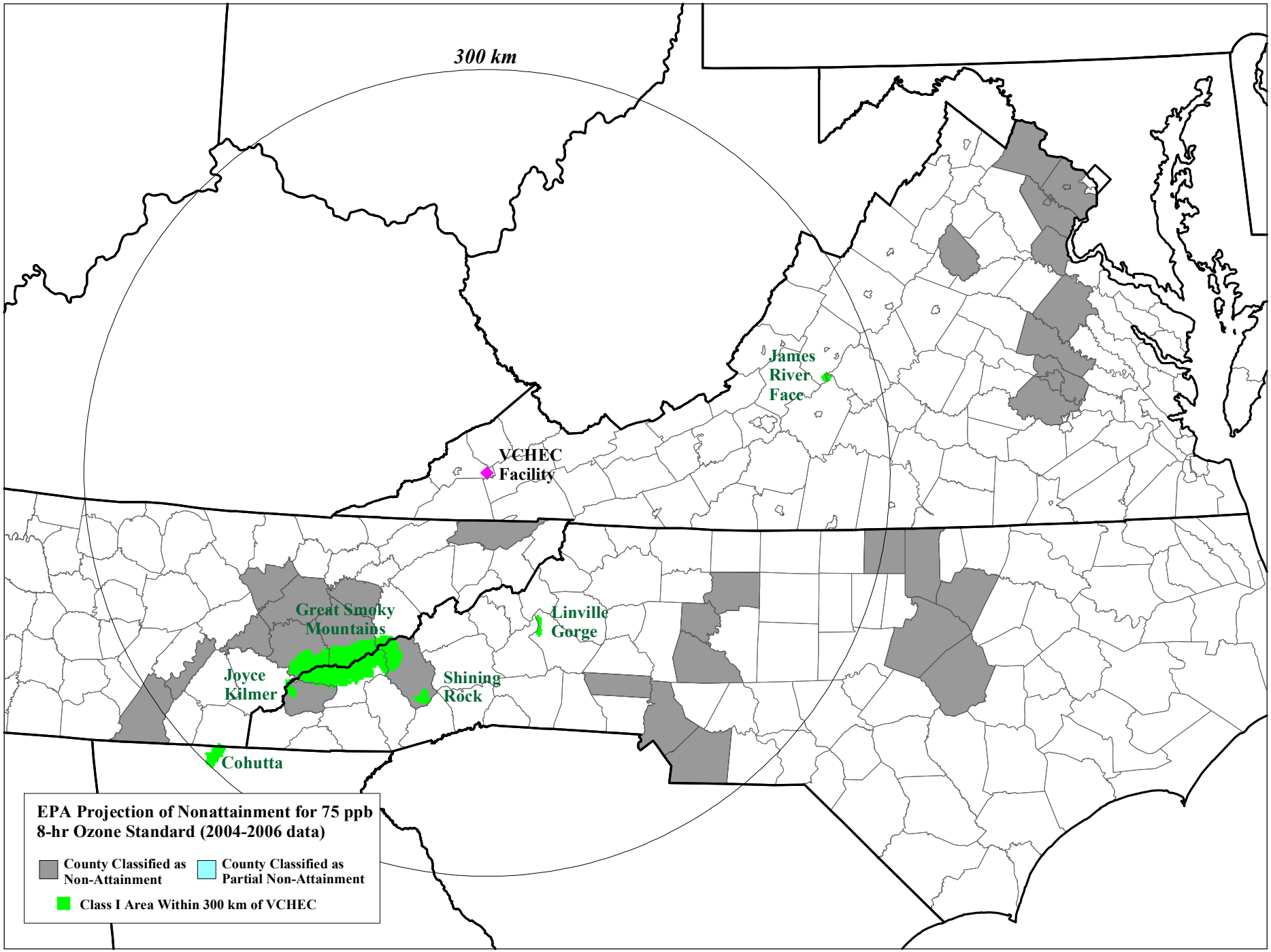
Response:

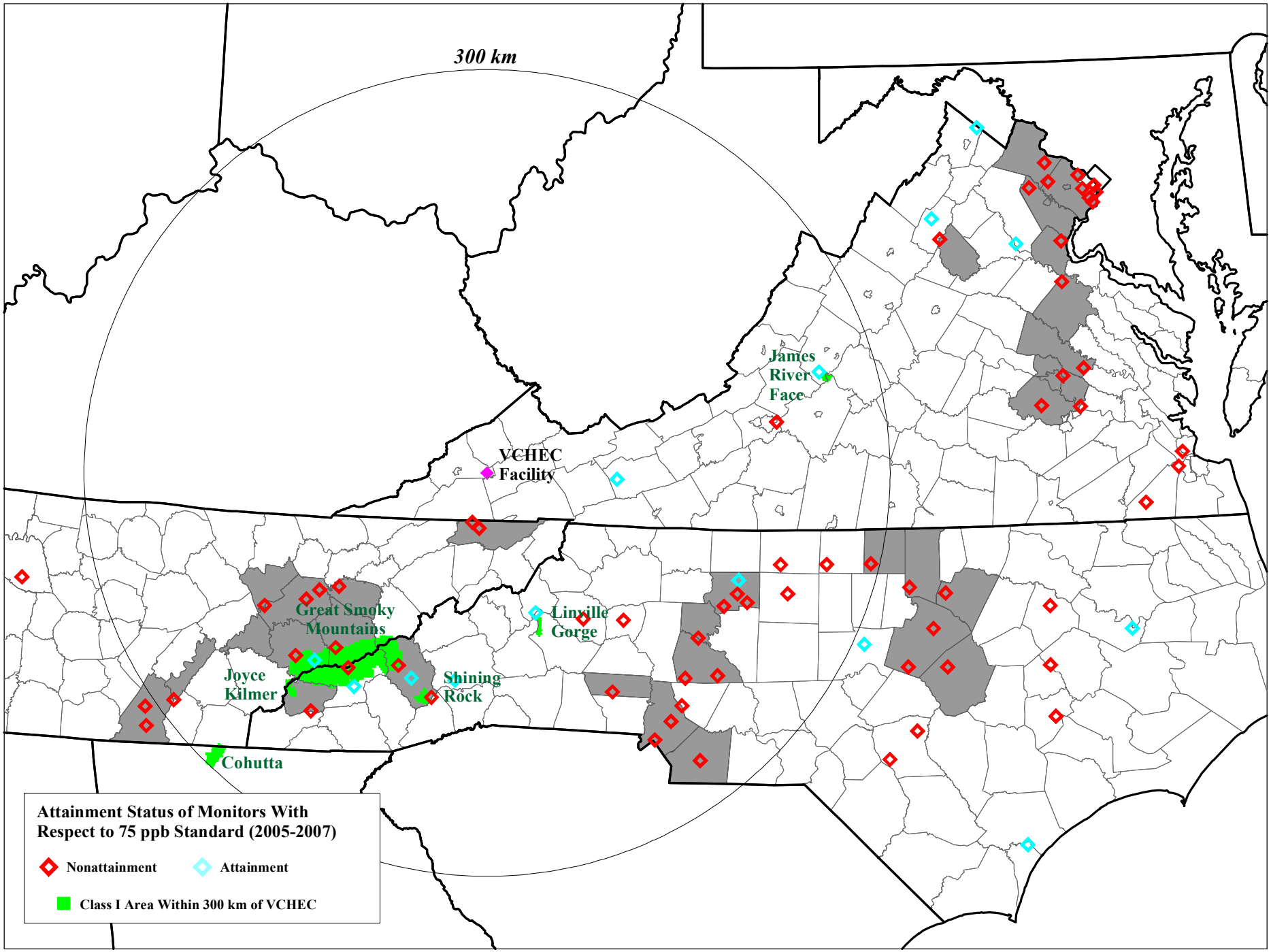
There are currently no ozone monitors within the boundaries of these six Class I areas, with the exception of the Great Smoky Mountains. The table below shows ozone trends for 2005-2007 for the ozone monitor(s) closest to each of the areas. Although both increases and decreases occurred in the summer of 2007 compared to 2005 and 2006, on average ozone concentrations decreased from both 2005 and 2006.

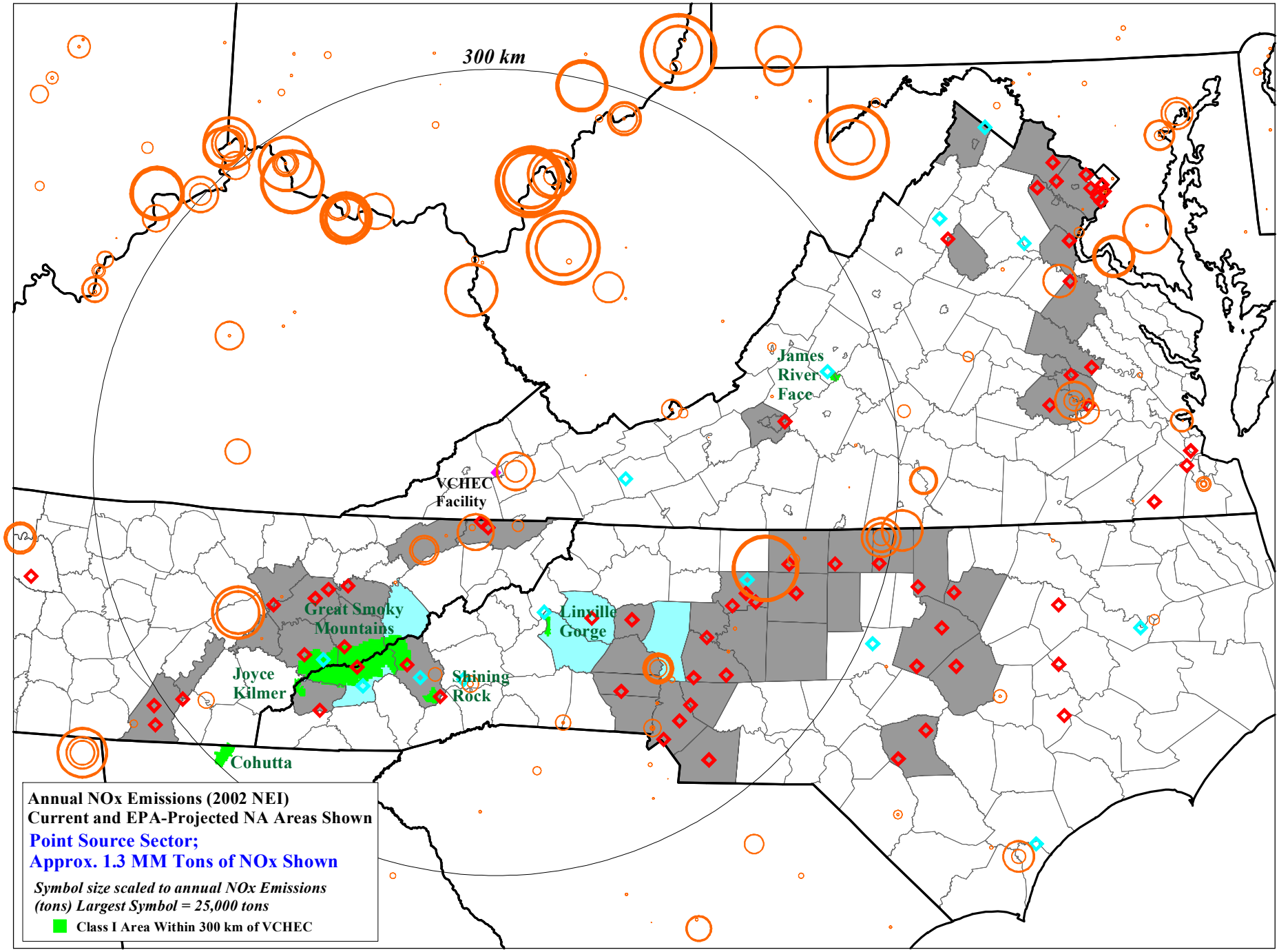
Class I Area	Ozone Monitor		Approx. Distance	Fourth Highest 8-hr Ozone concentration (ppb)			Percent Change	
	State	County	(km)	2005	2006	2007	2005 to 2007	2006 to 2007
Cohutta	GA	Murray	6	79	80	75	-5.1%	-6.3%
Joyce Kilmer	NC	Graham	16	79	79	76	-3.8%	-3.8%
	TN	Blount	24	70	66	71	1.4%	7.6%
	TN	Blount	22	86	86	85	-1.2%	-1.2%
Great Smoky Mountains	NC	Haywood	within	78	84	73	-6.4%	-13.1%
	NC	Jackson	3	78	69	81	3.8%	17.4%
	NC	Swain	<2	66	70	63	-4.5%	-10.0%
	TN	Blount	within	70	66	71	1.4%	7.6%
	TN	Blount	<2	86	86	85	-1.2%	-1.2%
	TN	Sevier	within	84	78	86	2.4%	10.3%
	TN	Sevier	within	82	79	80	-2.4%	1.3%
Shining Rock	NC	Buncombe	20	74	79	71	-4.1%	-10.1%
	NC	Haywood	<2	79	82	79	0.0%	-3.7%
	NC	Haywood	14	72	74	69	-4.2%	-6.8%
Linville Gorge	NC	Avery	4	69	74	67	-2.9%	-9.5%
	NC	Caldwell	32	76	75	76	0.0%	1.3%
James River Face	VA	Rockbridge	3	69	74	68	-1.4%	-8.1%
Overall Average				76.3	76.5	75.1	-1.6%	-1.9%

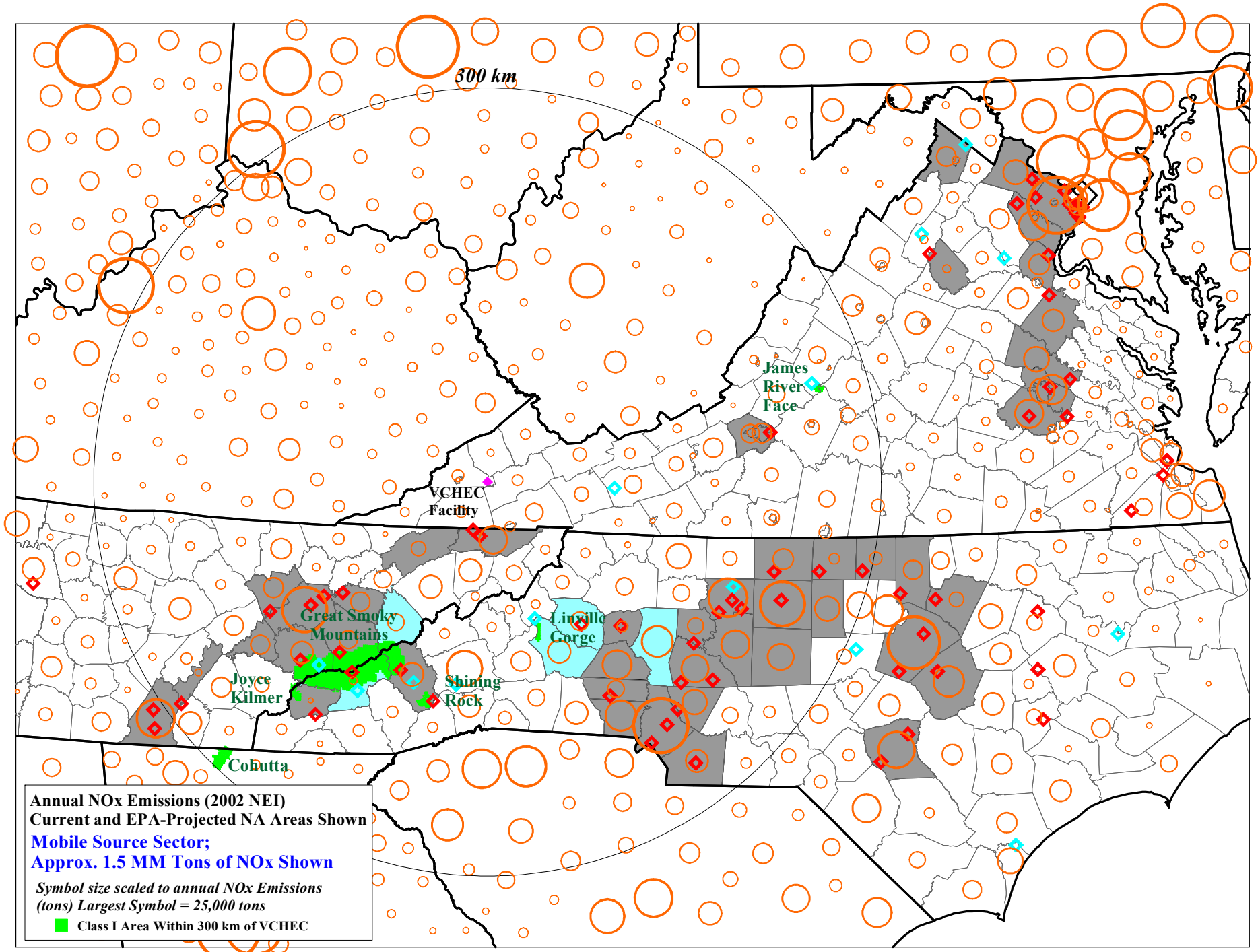
Ozone attainment status is generally determined on a county-wide or air basin-wide basis; specific Class I areas are not classified as attainment or non-attainment. However, examination of the most recent ozone data (2005-2007), compared to the 75 ppb ozone standard, reveals that within the region, the attainment status of counties located closest to the six class I areas will not change from the current designation (as illustrated in the attached plots). Furthermore, from a regional perspective, NOx emissions from existing point sources (industrial and EGUs) and (especially) mobile sources are dominant and essentially "drown out" the projected increase from the VCHEC facility – this is illustrated in the attached plots showing the spatial distribution of 2002 NOx emissions from the point and mobile source sectors. Ozone and $PM_{2.5}$ maps attached.


300 km
James River Face
VCHEC Facility
Great Smoky Mountains
Linville Gorge
Joyce Kilmer
Shining Rock
Cohutta
Current EPA Nonattainment Designations for 8-hour Ozone
County Classified as Non-Attainment
County Classified as Partial Non-Attainment
Class I Area Within 300 km of VCHEC


300 km
James River Face
VCHEC Facility
Great Smoky Mountains
Linville Gorge
Joyce Kilmer
Shining Rock
Cohutta
EPA Projection of Nonattainment for 75 ppb 8-hr Ozone Standard (2004-2006 data)
County Classified as Non-Attainment
County Classified as Partial Non-Attainment
Class I Area Within 300 km of VCHEC


300 km
James River Face
VCHEC Facility
Great Smoky Mountains
Linville Gorge
Joyce Kilmer
Shining Rock
Cohutta
Attainment Status of Monitors With Respect to 75 ppb Standard (2005-2007)
Nonattainment
Attainment
Class I Area Within 300 km of VCHEC


300 km
James River Face
VCHEC Facility
Great Smoky Mountains
Linville Gorge
Joyce Kilmer
Shining Rock
Cohutta
Annual NOx Emissions (2002 NEI)
Current and EPA-Projected NA Areas Shown
Point Source Sector;
Approx. 1.3 MM Tons of NOx Shown
Symbol size scaled to annual NOx Emissions (tons) Largest Symbol = 25,000 tons
Class I Area Within 300 km of VCHEC


300 km
James River Face
VCHEC Facility
Great Smoky Mountains
Linville Gorge
Joyce Kilmer
Shining Rock
Cohutta
Annual NOx Emissions (2002 NEI)
Current and EPA-Projected NA Areas Shown
Mobile Source Sector;
Approx. 1.5 MM Tons of NOx Shown
Symbol size scaled to annual NOx Emissions (tons) Largest Symbol = 25,000 tons
Class I Area Within 300 km of VCHEC