

US EPA ARCHIVE DOCUMENT



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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March 11, 2009

Mr. William T. Wisniewski
Acting Regional Administrator
EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Wisniewski:

Pursuant to Section 107 (d) (1) (A) of the Clean Air Act and on behalf of the Governor of the Commonwealth of Virginia, I hereby submit the initial recommendations and comments on the designations of areas in Virginia under the 2008 8-hour Ozone National Ambient Air Quality Standard (NAAQS). Furthermore, this letter is in direct response to a December 18, 2008, letter from Donald Welsh to me that identified the requirement to submit these recommendations and the process to be followed.

Let me first state that great progress has been made in improving ozone air quality in Virginia and nationwide over the decade. This progress is due to coordinated efforts at the federal, state, and local levels to reduce ozone precursor pollutants and the transport of ozone from one area to another. This progress has allowed us to bring most of Virginia into attainment for the previous 1997 ozone standard.

However, the new ozone standard poses a significant challenge to us all that will require an even higher level of cooperation. We believe that new or revised regional and national control programs must be a key component to the overall attainment strategy for this standard if states and individual nonattainment areas are to achieve timely compliance. Therefore, I urge the EPA to move forward quickly to evaluate and implement new or updated strategies that can assist the states in this regard.

One specific recommendation I have for the implementation of the new standard is to urge EPA to continue the Early Action Compact (EAC)

program. Virginia's firsthand experience with this program found it to be an efficient and flexible mechanism to address ozone in areas slightly above the standard. Such a program would be very helpful during this time of particular economic hardship in many areas of the Country, and would allow citizens in these areas to experience the health benefits of cleaner air more quickly.

The specific area recommendations of the Commonwealth are provided with this letter. A summary of these recommendations is also provided below for each recommended nonattainment area. In addition, the enclosures to this letter provide more detail and supporting documentation. Please note that these recommendations are based on the most recent ozone air quality data for Virginia. These data have been submitted to the EPA and cover the years 2006 through 2008.

Northern Virginia Nonattainment Area

The Commonwealth's recommendation for this area, which is part of the greater Washington, DC/MD/VA Metropolitan Statistical Area (MSA), is that the nonattainment area in Virginia be the same as the previous 8-hour nonattainment area. Please note that some of the Virginia jurisdictions of the Washington D.C. MSA are included in a separate Fredericksburg area as described below. These two nonattainment areas cover the vast majority of contributing factors identified by EPA in delineating nonattainment areas such as population, emissions, traffic, and growth. The Commonwealth further recommends that the greater Washington, DC/MD/VA area remain a separate nonattainment area under the new standard. This area already has well established and effective air quality and transportation planning organizations.

Fredericksburg Nonattainment Area

The Commonwealth's recommendation for this area is that the nonattainment area be the same as the previous independent nonattainment area under the 1997 ozone standard, with the addition of that portion of Caroline County containing a currently violating ozone monitor. We believe that this partial county addition is justified based on the rural nature and purpose of the monitor's location as well as Caroline County's limited contribution to ozone formation. This recommendation again covers the majority of nonattainment factors mentioned in EPA guidance. Again, this area already has established and effective air quality and transportation planning organizations.

Richmond Nonattainment Area

The Commonwealth's recommendation is that the nonattainment area be the same as the previous 8-hour nonattainment area. As a special note, the

MSA boundary for this area appears to be overly large and not appropriate as a presumptive boundary for air quality purposes.

Hampton Roads Nonattainment Area

The Commonwealth's recommendation for this area is that the nonattainment area be the same as the previous 8-hour nonattainment area. This recommendation again covers the vast majority of this MSA and associated nonattainment factors.

Remaining Areas in Virginia

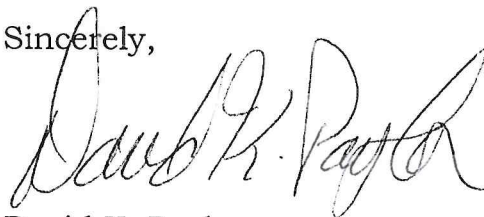
As I mentioned previously, air quality in all of Virginia has greatly improved. In fact, all other monitors in the Commonwealth are in compliance with the new ozone standard. Therefore, it is recommended that all the remaining areas in Virginia be designated attainment for this standard.

As always, the Commonwealth reserves the right to provide additional and/or updated information to inform the designation process as it proceeds. This information could include, but is not limited to, updated ozone monitoring data as it becomes available.

In summary, the Commonwealth of Virginia requests that the EPA carefully consider and adopt the area recommendations provided by this letter. We believe that the recommendations made are both reasonable and appropriate given the supporting documentation provided. These area designations along with effective programs at the regional and national levels such as a revived EAC program will provide the tools needed for us to further improve air quality in Virginia.

Thank you again for this opportunity to provide input on this important issue for Virginia. Please contact me if you have any questions concerning these recommendations.

Sincerely,



David K. Paylor

Enclosures

cc: L. Preston Bryant Jr., Secretary of Natural Resources
Judith M. Katz, EPA Region III Air Protection Division Director
Michael G. Dowd, DEQ Air Quality Division Director

ENCLOSURE I

2006-2008 Fourth Highest Daily Maximum Ozone 8-hour Averages

Monitoring Sites	AIRS ID	2006	2007	2008	3-year average (NAAQS = 75 ppb)
Wythe Co.	511970002	69	72	71	70
Rockbridge Co.	511630003	68	65	67	66
Page Co.	511390004	73	69	68	70
Fauquier Co.	510610002	76	69	68	71
Caroline Co.	510330001	85	78	80	81
Rockingham Co.	511650003	NA	69	69	NA
Albemarle Co.	510030001	NA	NA	73	NA
Roanoke EAC Area:					
Roanoke Co.	511611004	76	76	71	74
Frederick County EAC Area:					
Frederick Co.	510690010	74	72	73	73
Richmond Area:					
Chesterfield Co.	510410004	77	77	80	78
Henrico Co.	510870014	86	85	86	85
Hanover Co.	510850003	82	79	80	80
Charles City Co.	510360002	81	84	84	83
Hampton Roads Area:					
Hampton	516500004	76	76	79	77
Suffolk - TCC	518000004	77	76	77	76
Suffolk - Holland	518000005	71	78	78	75
Fredericksburg Area:					
Stafford Co.	511790001	91	85	69	81
Northern Virginia Area:					
Loudoun Co.	511071005	84	86	79	83
Prince William Co.	511530009	86	76	74	78
<i>Arlington Co.</i>	510130020	85	88	84	85
Alexandria	515100009	84	84	75	81
<i>Fairfax Co. - Lee Park</i>	510590030	87	85	85	85
Fairfax Co. - McLean	510595001	88	83	80	83
<i>Fairfax Co. - Mt. Vernon</i>	510590018	88	88	85	87
Fairfax Co. - Chantilly	510590005	81	78	78	79
<i>Fairfax Co. - Annandale</i>	510591005	85	84	82	83
Shenandoah National Park - Madison Co. (Site operated by the National Park Service)	511130003	76	73	78	75

> 84 parts per billion (ppb)

76-84 ppb

< 76 ppb



Enclosure II

The Commonwealth of Virginia



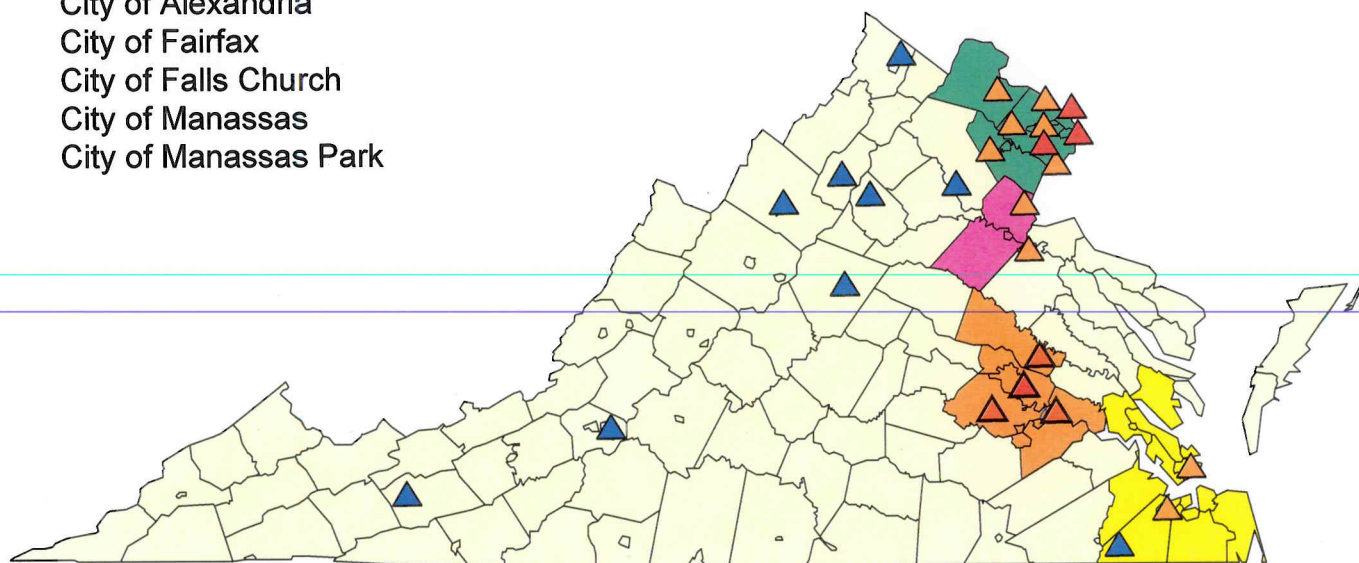
Northern VA Nonattainment Area

Arlington County
Fairfax County
Loudoun County
Prince William County
City of Alexandria
City of Fairfax
City of Falls Church
City of Manassas
City of Manassas Park



Fredericksburg Nonattainment Area

Caroline County (partial)
Spotsylvania County
Stafford County
City of Fredericksburg



Richmond Nonattainment Area

Charles City County
Chesterfield County
Hanover County
Henrico County
Prince George County
City of Colonial Heights
City of Hopewell
City of Petersburg
City of Richmond



Hampton Roads Nonattainment Area

Gloucester County
Isle of Wight County
James City County
York County
City of Chesapeake
City of Hampton
City of Newport News
City of Norfolk
City of Poquoson
City of Portsmouth
City of Suffolk
City of Virginia Beach
City of Williamsburg

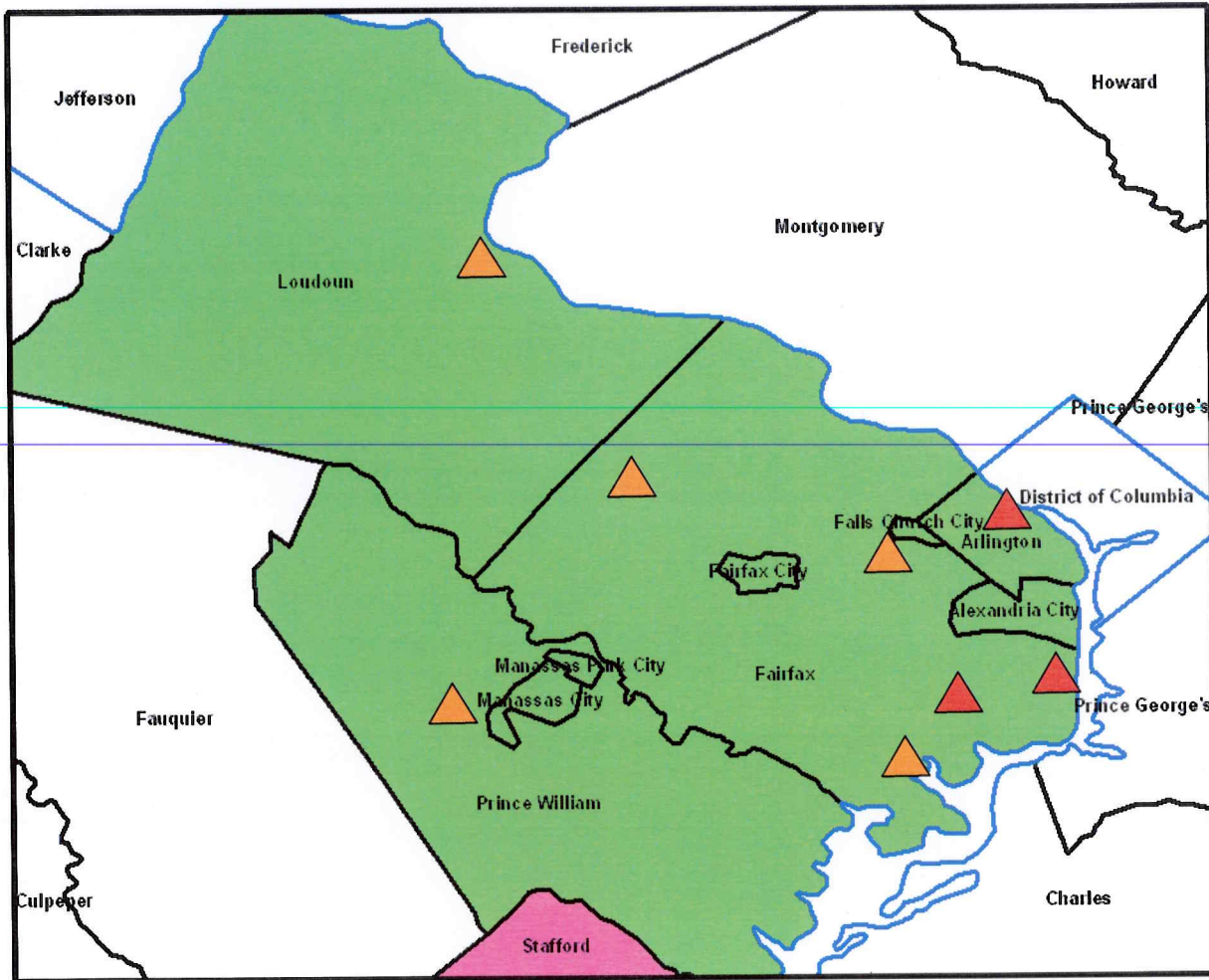
Monitor Station Design Values

▲ > 84 Parts per billion (ppb)




▲ 76-84 ppb

▲ < 76 ppb

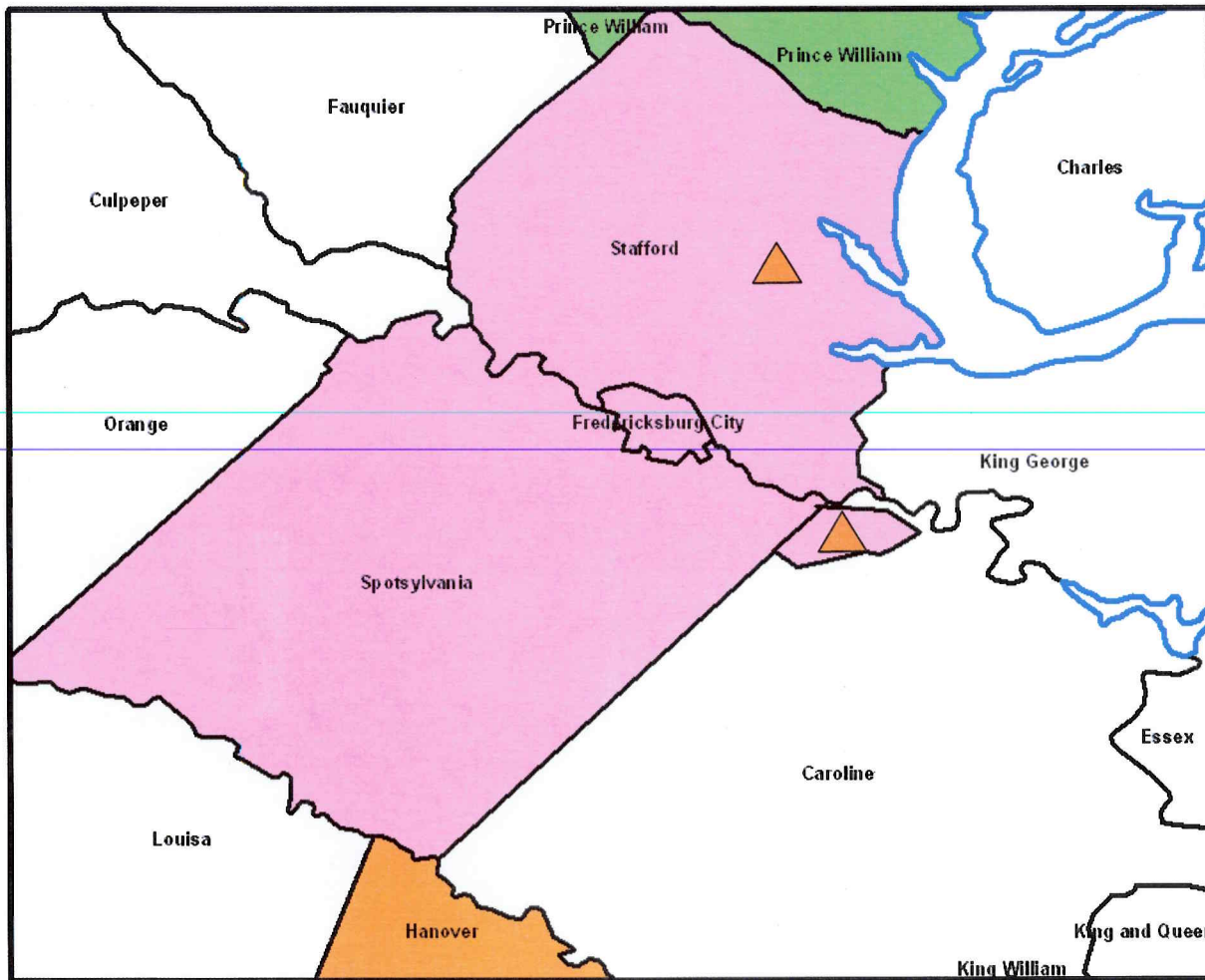
Northern Virginia






Monitor Station Design Values

-  > 84 Parts per billion (ppb)
-  76-84 ppb
-  < 76 ppb

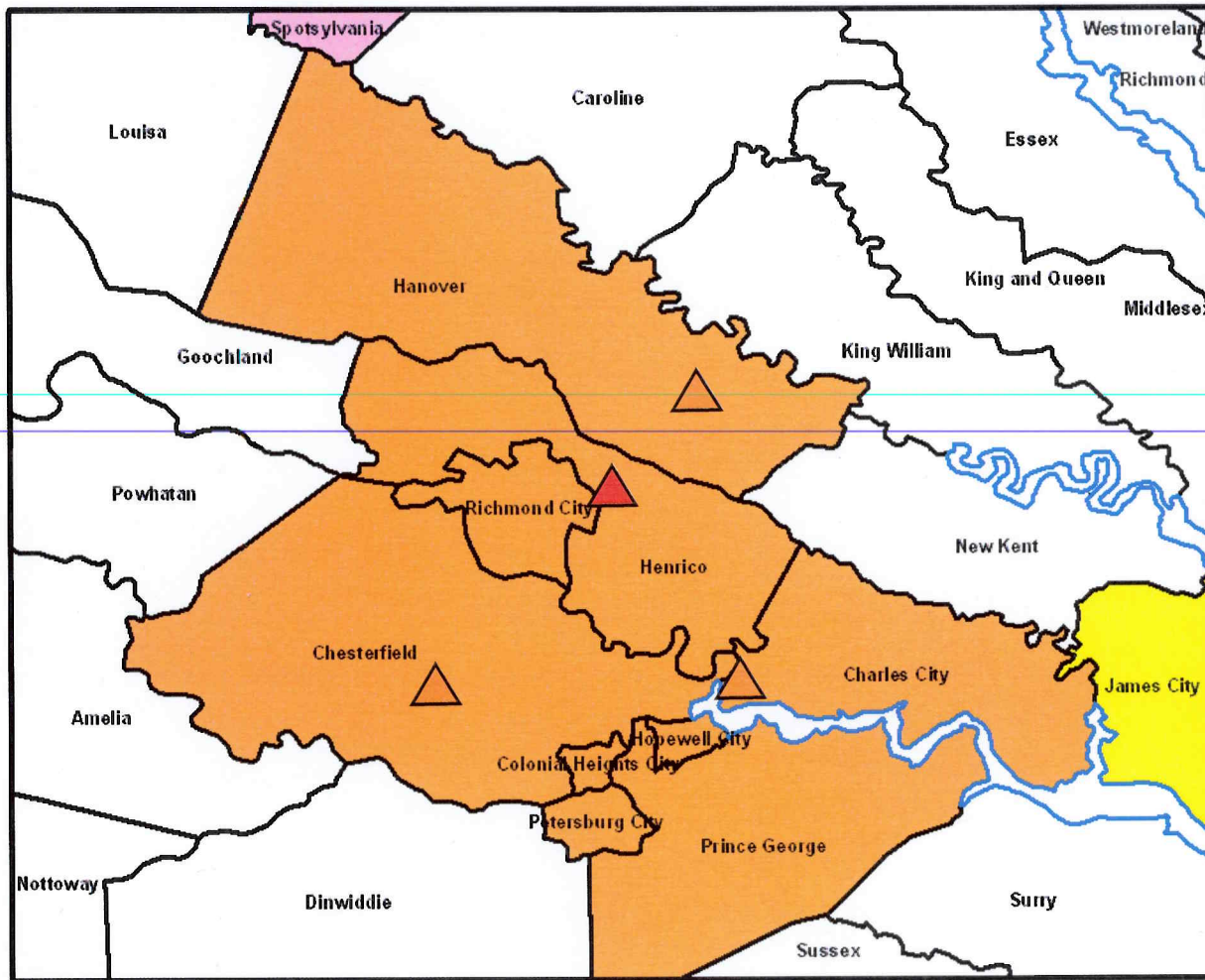
Fredericksburg



Monitor Station Design Values

-  > 84 Parts per billion (ppb)
-  76-84 ppb
-  < 76 ppb

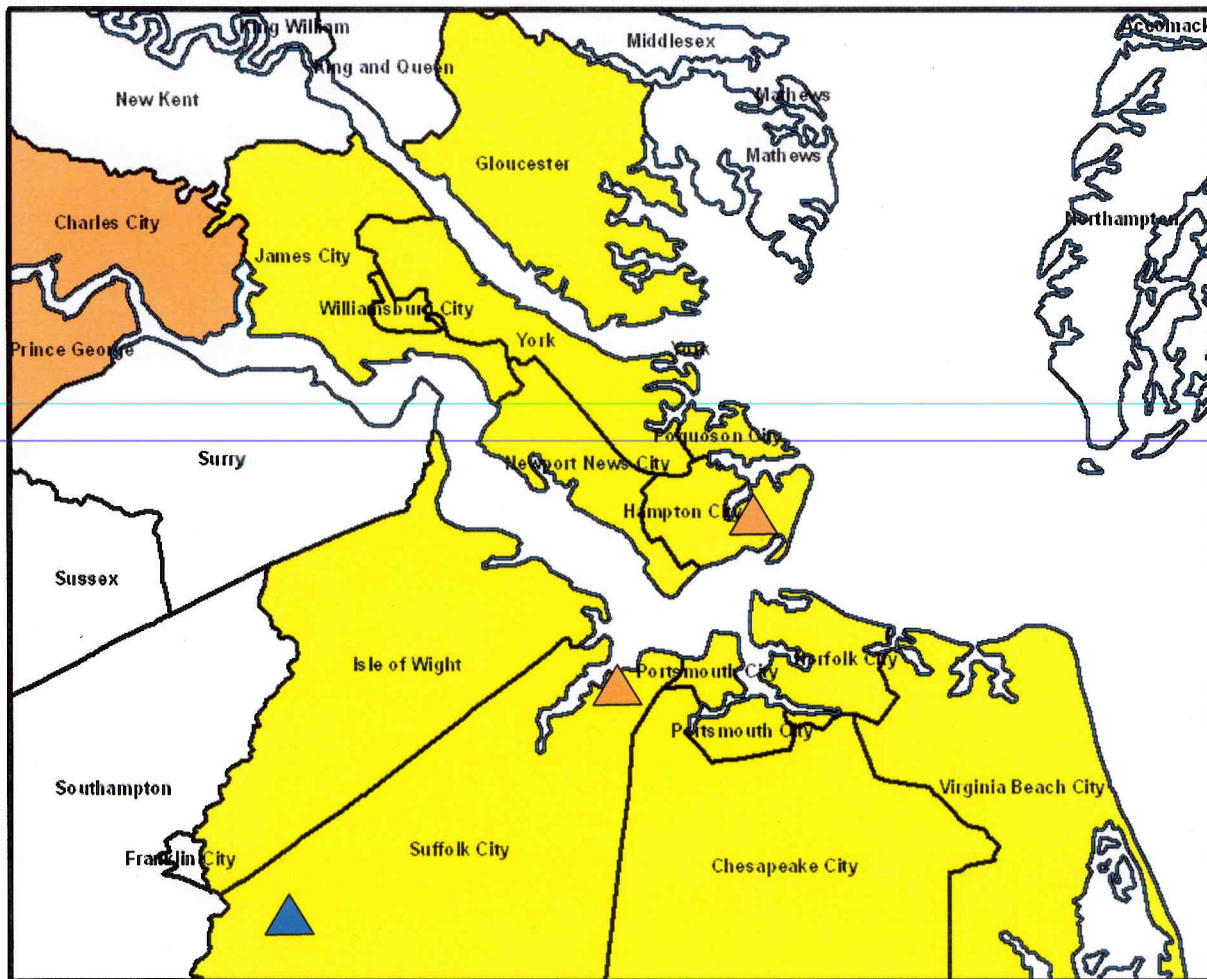
Richmond



Monitor Station Design Values

- ▲ > 84 Parts per billion (ppb)
- ▲ 76-84 ppb
- ▲ < 76 ppb

Hampton Roads



Monitor Station Design Values

- ▲ > 84 Parts per billion (ppb)
- ▲ 76-84 ppb
- ▲ < 76 ppb

Enclosure III

48. In §81.347, the table entitled “Virginia-Ozone” is revised to read as follows:

§ 81.347 Virginia

* * * * *

Virginia-Ozone (8-Hour Standard)

Designated Area	Designation	Classification
	Type	Type
Norfolk-Virginia-Beach Newport News (Hampton Roads) Area		
Chesapeake.....	Nonattainment	
Hampton.....	Nonattainment	
James City County.....	Nonattainment	
Newport News.....	Nonattainment	
Norfolk.....	Nonattainment	
Poquoson.....	Nonattainment	
Portsmouth.....	Nonattainment	
Suffolk.....	Nonattainment	
Virginia Beach.....	Nonattainment	
Williamsburg.....	Nonattainment	
York County.....	Nonattainment	
Richmond Area		
Charles City County.....	Nonattainment	
Chesterfield County.....	Nonattainment	
Colonial Heights.....	Nonattainment	
Hanover County.....	Nonattainment	
Henrico County.....	Nonattainment	
Hopewell.....	Nonattainment	
Richmond.....	Nonattainment	
Washington Area		
Alexandria.....	Nonattainment	
Arlington County.....	Nonattainment	
Fairfax.....	Nonattainment	
Fairfax County.....	Nonattainment	
Falls Church.....	Nonattainment	
Loudoun County.....	Nonattainment	
Manassas.....	Nonattainment	

Manassas Park.....	Nonattainment	
Prince William County.....	Nonattainment	
.		
Fredericksburg Area		
Fredericksburg.....	Nonattainment	
Spotsylvania County.....	Nonattainment	
Stafford County.....	Nonattainment	
Caroline County (part).....	Nonattainment	
Beginning at the intersection of State Route 2 and the Spotsylvania/Caroline County line. Proceeding southeast along State Route 2 to the intersection with Route 610. Proceeding northeast on Route 610 to the intersection with Burma Road. Proceeding northeast on Burma Road to the intersection with State Route 17. Proceeding north on State Route 17 to the intersection with the Caroline/Spotsylvania County line.		
Accomack County	Unclassifiable/Attainment	
Albemarle County	Unclassifiable/Attainment	
Alleghany County	Unclassifiable/Attainment	
Amelia County	Unclassifiable/Attainment	
Amherst County	Unclassifiable/Attainment	
Appomattox County	Unclassifiable/Attainment	
Augusta County	Unclassifiable/Attainment	
Bath County	Unclassifiable/Attainment	
Bedford	Unclassifiable/Attainment	
Bedford County	Unclassifiable/Attainment	
Bland County	Unclassifiable/Attainment	
Botetourt County	Unclassifiable/Attainment	
Bristol	Unclassifiable/Attainment	
Brunswick County	Unclassifiable/Attainment	
Buchanan County	Unclassifiable/Attainment	
Buckingham County	Unclassifiable/Attainment	
Buena Vista	Unclassifiable/Attainment	
Campbell County	Unclassifiable/Attainment	
Caroline County (part)	Unclassifiable/Attainment	
Remainder of county		
Carroll County	Unclassifiable/Attainment	
Charles City County	Unclassifiable/Attainment	
Charlotte County	Unclassifiable/Attainment	
Charlottesville	Unclassifiable/Attainment	

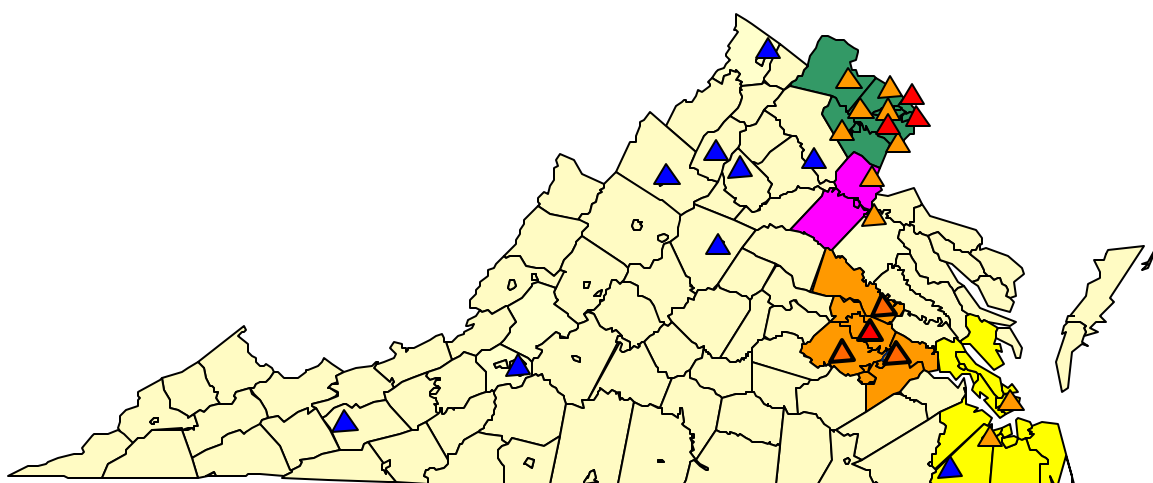
Clarke County	Unclassifiable/Attainment	
Clifton Forge	Unclassifiable/Attainment	
Covington	Unclassifiable/Attainment	
Craig County	Unclassifiable/Attainment	
Culpeper County	Unclassifiable/Attainment	
Cumberland County	Unclassifiable/Attainment	
Danville	Unclassifiable/Attainment	
Dickenson County	Unclassifiable/Attainment	
Dinwiddie County	Unclassifiable/Attainment	
Emporia	Unclassifiable/Attainment	
Essex County	Unclassifiable/Attainment	
Fauquier County	Unclassifiable/Attainment	
Floyd County	Unclassifiable/Attainment	
Fluvanna County	Unclassifiable/Attainment	
Franklin	Unclassifiable/Attainment	
Franklin County	Unclassifiable/Attainment	
Frederick County	Unclassifiable/Attainment	
Galax	Unclassifiable/Attainment	
Giles County	Unclassifiable/Attainment	
Gloucester County	Unclassifiable/Attainment	
Goochland County	Unclassifiable/Attainment	
Grayson County	Unclassifiable/Attainment	
Greene County	Unclassifiable/Attainment	
Greensville County	Unclassifiable/Attainment	
Halifax County	Unclassifiable/Attainment	
Harrisonburg	Unclassifiable/Attainment	
Henry County	Unclassifiable/Attainment	
Highland County	Unclassifiable/Attainment	
Isle Of Wight County	Unclassifiable/Attainment	
King And Queen County	Unclassifiable/Attainment	
King George County	Unclassifiable/Attainment	
King William County	Unclassifiable/Attainment	
Lancaster County	Unclassifiable/Attainment	
Lee County	Unclassifiable/Attainment	
Lexington	Unclassifiable/Attainment	
Louisa County	Unclassifiable/Attainment	
Lunenburg County	Unclassifiable/Attainment	
Lynchburg	Unclassifiable/Attainment	
Madison County	Unclassifiable/Attainment	
Martinsville	Unclassifiable/Attainment	
Mathews County	Unclassifiable/Attainment	
Mecklenburg County	Unclassifiable/Attainment	
Middlesex County	Unclassifiable/Attainment	
Montgomery County	Unclassifiable/Attainment	
Nelson County	Unclassifiable/Attainment	
New Kent County	Unclassifiable/Attainment	
Northampton County	Unclassifiable/Attainment	

Northumberland County	Unclassifiable/Attainment	
Norton	Unclassifiable/Attainment	
Nottoway County	Unclassifiable/Attainment	
Orange County	Unclassifiable/Attainment	
Page County	Unclassifiable/Attainment	
Patrick County	Unclassifiable/Attainment	
Petersburg	Unclassifiable/Attainment	
Pittsylvania County	Unclassifiable/Attainment	
Powhatan County	Unclassifiable/Attainment	
Prince Edward County	Unclassifiable/Attainment	
Prince George County	Unclassifiable/Attainment	
Pulaski County	Unclassifiable/Attainment	
Radford	Unclassifiable/Attainment	
Rappahannock County	Unclassifiable/Attainment	
Richmond County	Unclassifiable/Attainment	
Roanoke	Unclassifiable/Attainment	
Roanoke County	Unclassifiable/Attainment	
Rockbridge County	Unclassifiable/Attainment	
Rockingham County	Unclassifiable/Attainment	
Russell County	Unclassifiable/Attainment	
Salem	Unclassifiable/Attainment	
Scott County	Unclassifiable/Attainment	
Shenandoah County	Unclassifiable/Attainment	
Smyth County	Unclassifiable/Attainment	
South Boston	Unclassifiable/Attainment	
Southampton County	Unclassifiable/Attainment	
Staunton	Unclassifiable/Attainment	
Surry County	Unclassifiable/Attainment	
Sussex County	Unclassifiable/Attainment	
Tazewell County	Unclassifiable/Attainment	
Warren County	Unclassifiable/Attainment	
Washington County	Unclassifiable/Attainment	
Waynesboro	Unclassifiable/Attainment	
Westmoreland County	Unclassifiable/Attainment	
Winchester	Unclassifiable/Attainment	
Wise County	Unclassifiable/Attainment	
Wythe County	Unclassifiable/Attainment	

ENCLOSURE IV

COMMONWEALTH OF VIRGINIA AREA DESIGNATION RECOMMENDATIONS UNDER THE 2008 OZONE STANDARD

TECHNICAL SUPPORT DOCUMENT



BACKGROUND

On March 12, 2008, the U.S. Environmental Protection Agency tightened the National Ambient Air Quality Standard (NAAQS) for ground level ozone from 0.08 parts per million to 0.075 parts per million (ppm). This action was taken by EPA in light of new and compelling scientific evidence that a lower standard was needed to protect human health and welfare.

One of the first actions required when a new air quality standard is established is to designate areas in regard to compliance with the standard. Those areas not complying with the standard are designated as "nonattainment" areas, while areas in compliance are designated "attainment". Areas where insufficient data is available to make a determination are designated as "unclassifiable".

On December 4, 2008, the Principal Deputy Assistant Administrator, Robert J. Meyers, issued guidance to EPA and the states on the process and factors to consider when designating areas under the new ozone standard. In general, this guidance recommended the use of census bureau areas such as Core Based Statistical Areas (CBSA) or Combined Statistical Areas (CSA) as the starting point for nonattainment area designations when a violating ozone air quality monitor is present. However, EPA also allows states the flexibility to make area specific designations based on nine ozone related factors that are listed below:

- Ozone air quality data.
- Emissions data (location of sources and contribution to ozone).
- Population density and degree of urbanization.
- Traffic and commuting patterns.
- Growth rates and patterns.
- Meteorology (weather/transport patterns).
- Geography/topography.
- Jurisdictional boundaries.
- Level of control of emission sources.

The approach taken by Virginia to making individual jurisdiction determinations was furthermore based on the following hierarchy of criteria:

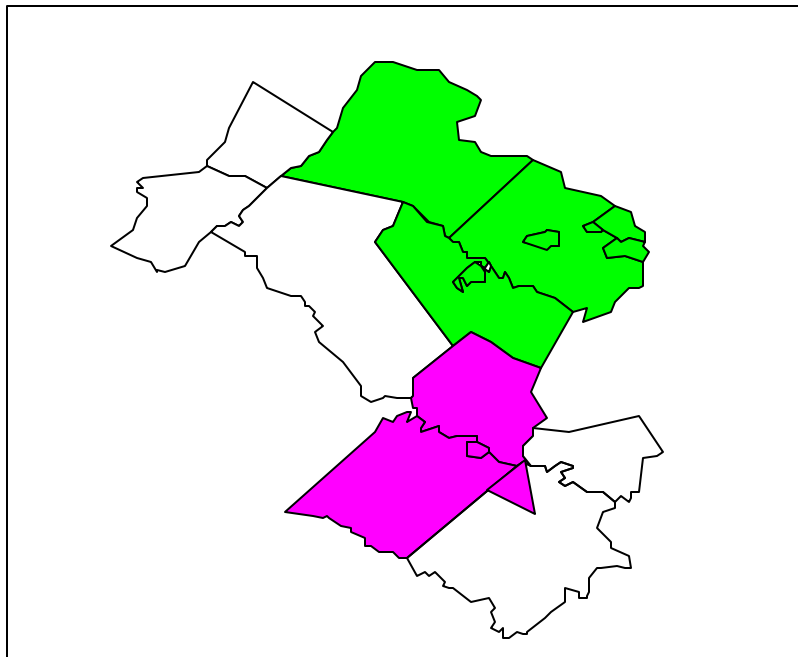
- Does the jurisdiction have a violating ozone monitor?
- Is the jurisdiction part of a current ozone nonattainment or maintenance area?
- Would exclusion of the jurisdiction create an illogical result, such as an attainment area within a larger nonattainment area?
- Does the jurisdiction significantly contribute to ozone formation in a nearby recommended nonattainment area?

In the case of areas that required a determination of significant contribution, if the area did not meet any of the other criteria, a clear and compelling case was required based on available data for the nine EPA factors to make a nonattainment recommendation.

The remainder of this document describes the analysis performed by the Virginia Department of Environmental Quality (DEQ) to support the designation recommendations that are being submitted to the EPA as part of the ozone standard implementation process. This analysis considers the major factors listed above as they pertain to each area in Virginia containing one or more monitors that are violating the new standard.

Once submitted, EPA will consider these recommendations and either accept or modify these recommendations. EPA will notify the Commonwealth of any modifications made to the state recommendations no later than November 12, 2009 and will provide a 30-day public comment period. The Commonwealth will then have an opportunity to submit additional information prior to EPA's final issuance of designations by March 12, 2010.

Greater Washington DC/MD/VA Metropolitan Statistical Area



The Commonwealth of Virginia recommends that the areas of standard violation in Northern Virginia continue to be divided into two separate nonattainment areas. The precedent for these areas was previously set during the designation process for the 1997 ozone standard. In addition, the Commonwealth is recommending the addition of part of Caroline County that contains a monitor that also violates the ozone standard. The jurisdictions that make up these nonattainment areas are as follows:

Northern VA Nonattainment Area

Arlington County
 Fairfax County
 Loudoun County
 Prince William County
 City of Alexandria
 City of Fairfax
 City of Falls Church
 City of Manassas
 City of Manassas Park

Fredericksburg Nonattainment Area

Caroline County (part)
 Spotsylvania County
 Stafford County
 City of Fredericksburg

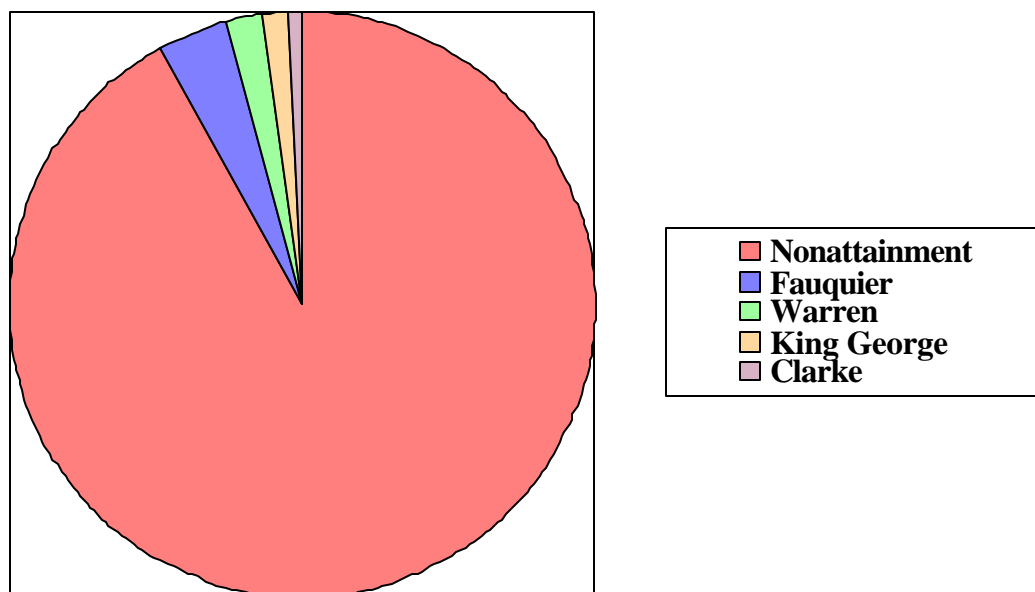
Again, the Northern Virginia area will be part of the greater Washington, D.C. Nonattainment Area made up of the District of Columbia and jurisdictions from both Maryland and Virginia.

As shown by the figures below, the Commonwealth believes that these nonattainment recommendations for the Virginia portion of the greater Washington, D.C. Metropolitan Statistical Area are reasonable and appropriate in that the recommended jurisdictions account for 92% of the ozone precursor pollutants, population, expected growth, and vehicle miles of travel for the area.

Ranking of Selected Ozone Criteria for the Virginia Jurisdictions in the Virginia portion of the DC/MD/VA MSA

County / city	Area Emissions	Area Population	Population Growth for Area	Vehicle Miles	Combined Average	Emission Density	Population Density
						ton/sq mile	No /sq mile
	Percent						
Recommended Nonattainment Jurisdictions							
FAIRFAX COUNTY	38.4	43.5	13.3	38.4	33.4	0.466	2,617
PRINCEWILLIAM COUNTY	15.2	16.7	24.5	15.2	17.9	0.212	1,157
LOUDOUN COUNTY	10.1	10.4	29.7	10.1	15.1	0.095	485
STAFFORD COUNTY	4.9	4.8	9.2	4.9	5.9	0.088	434
SPOTSYLVANIA COUNTY	6.6	4.7	9.4	6.6	6.8	0.081	284
ARLINGTON COUNTY	6.8	8.1	2.7	6.8	6.1	1.283	7,561
ALEXANDRIA CITY	5.6	5.6	2.7	5.6	4.9	1.816	8,906
FREDERICKSBURG CITY	3.1	0.9	0.7	3.1	1.9	1.428	2,015
Recommended Attainment Jurisdictions							
FAUQUIER COUNTY	4.5	2.6	4.0	4.5	3.9	0.034	97
WARREN COUNTY	2.2	1.4	1.7	2.2	1.9	0.051	161
KING GEORGE COUNTY	1.4	0.8	1.6	1.4	1.3	0.039	111
CLARKE COUNTY	1.1	0.6	0.7	1.1	0.9	0.031	79
	100.0	100.0	100.0	100.0		0.152	755

Contribution of Recommended Areas to Selected Ozone Criteria



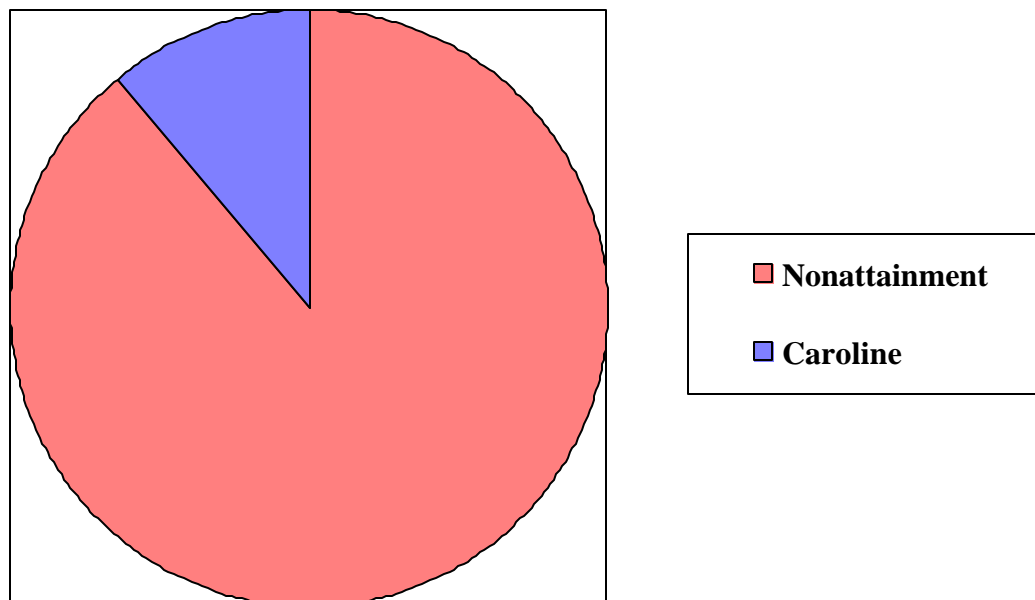
For the individual jurisdictions recommended for attainment status, the rationale used was that all these jurisdictions do not significantly contribute to the overall levels of the major ozone related criteria of emissions, population, growth, and vehicle traffic. Also in the specific case of Fauquier County, there is a ozone monitor located in this County that has a current design value of 0.071 parts per million and is in compliance with the new standard.

With regard to the Fredericksburg nonattainment area, a separate analysis was performed for the current ozone maintenance area and Caroline County. As can be seen by the figures below, the proposed nonattainment area again accounts for the majority of ozone related criteria.

Ranking of Selected Ozone Criteria for the Fredericksburg Area

Fredericksburg Area Statistics							
County / city	Area Emissions	Area Population	Population Growth for Area	Vehicle Miles traveled	Combined Average	Emission Density	Population Density
						ton/perday/sq mile	No /sq mile
	Percent						
Recommended Nonattainment Jurisdictions							
STAFFORD COUNTY	27.9	42.4	43.7	28.5	38.0	0.088	434
SPOTSYLVANIA COUNTY	38.1	41.2	44.7	38.4	41.3	0.081	284
FREDERICKSBURG CITY	17.7	7.7	3.2	20.1	9.5	1.428	2,015
Recommended Attainment Jurisdictions							
CAROLINE COUNTY	16.4	8.8	8.3	13.0	11.2	0.026	46
	100.0	100.0	100.0	100.0		0.066	213

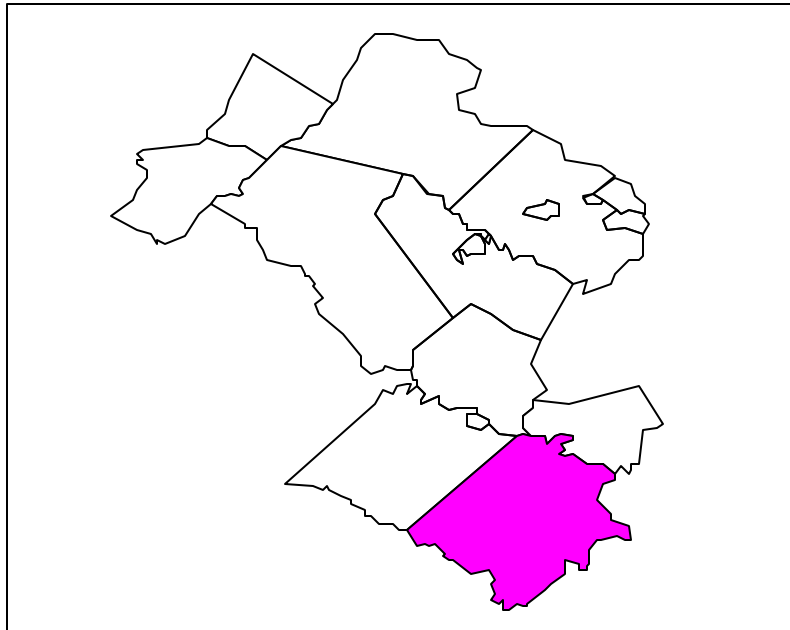
Contribution of Recommended Areas to Selected Ozone Criteria



In addition to the analysis provided above, and at the specific request of Caroline County, the Commonwealth recommends that only a part of Caroline County be designated nonattainment based on the following profile. In summary, this is a very rural area with no official designated urbanized areas within its boundaries. The vast majority of emissions in the County are the result of traffic passing through the area on both Interstate 95 and Route 301, which is a commercial traffic route to and from the Maryland eastern shore. Furthermore, the location of the monitor in

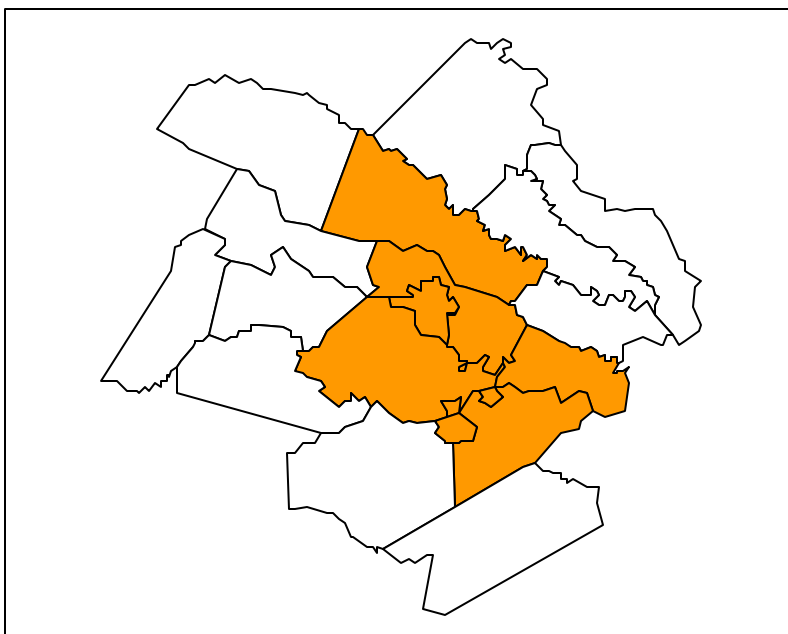
the northern tip of the County was specifically selected for its rural nature as an upwind assessment monitor for the Washington, D.C. area. In addition, about a third of the County is within the Fort A.P. Hill Military Reservation and is not available for private development. Additional details are provided below:

Caroline County



<i>Analysis of Ozone Related Criteria</i>	
Emissions (2005)	2,241 tons/year VOC and 2,849 tons/year NO _x (16.4% of ozone precursor emissions in the Fredericksburg area)
Emissions Density	0.026 tpy per square mile
Population (2005)	24,300 - 46 per square mile (8.3% of the total population in the Fredericksburg area)
Population Growth	Population expected to grow to 36,058 by 2020 which represents only 8.3% of the total population growth expected in the Fredericksburg area
Air Quality	Noncompliance - Design Value (2006 to 2008): 0.081 ppm
Commuting Patterns	The County workforce commutes almost equally to the Fredericksburg and Richmond areas.
Annual VMT (2005)	678 million Vehicle Miles of Travel (13% of total VMT in the area). Mostly through traffic on Interstate 95 and Routes 301 and 17.
Major Sources	There is only one major source in the County, a natural gas fired electric generating station. However, this is a new facility that is highly controlled and subject to the CAIR utility control program. Total County point source emission of both VOC and NO _x are less than 100 tons/year.
Meteorology	Prevailing ground level winds are from the Southwest in the summer.
Geography	County is located to the East and Southwest of the proposed nonattainment area.
Boundaries	County is part of the Richmond MSA but part of the Fredericksburg Regional Planning Commission.
Level of Controls	Currently subject to attainment permit and control requirements. Emissions should be significantly reduced by regional and national controls.

Richmond Metropolitan Statistical Area



The Commonwealth's recommendation for the Richmond MSA is that the nonattainment area be the same as the previous 8-hour nonattainment area and current maintenance area. This recommendation is based on the fact that the recommended nonattainment area accounts for the majority (~80%) of ozone precursor pollutants, population, expected growth, and vehicle miles of travel for the area. The counties and cities involved are provided below:



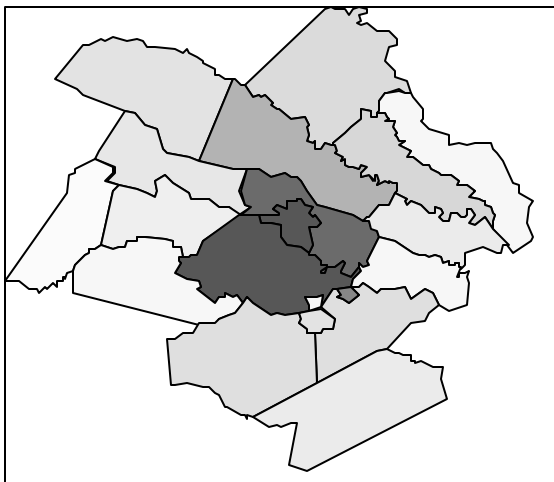
Richmond Nonattainment Area

Charles City County
Chesterfield County
Hanover County
Henrico County
Prince George County
City of Colonial Heights
City of Hopewell
City of Petersburg
City of Richmond

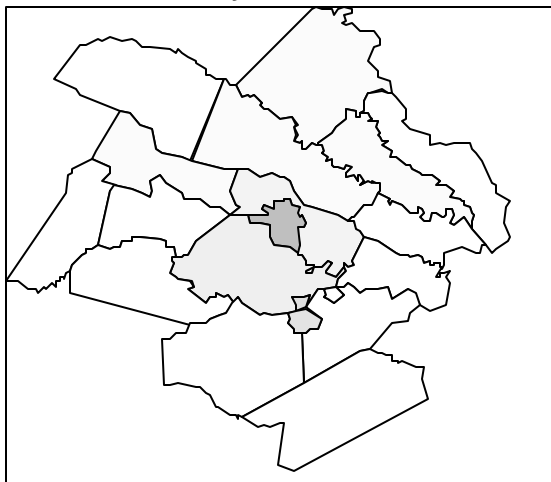
In general, the Richmond MSA covers a very large area of Virginia and includes a number of jurisdictions that are rural in nature and have no designated urbanized areas within their boundaries (similar to Caroline County as described in the Fredericksburg section). As such, the use of the EPA presumptive MSA boundary for the nonattainment area is not appropriate in this case. To illustrate this point, a series of relative density maps have been developed and are on the next page. As can be seen from these maps, the concentration of most of the ozone related factors and activities of ozone precursor emissions, population, growth, and vehicle travel are concentrated within the recommended nonattainment area boundary.

In evaluating the remaining Richmond MSA jurisdictions, nothing distinguishes any of these jurisdictions as being significant contributors to the ozone formation in the area. Therefore, the Commonwealth recommends that all the remaining jurisdictions be designated as attainment areas.

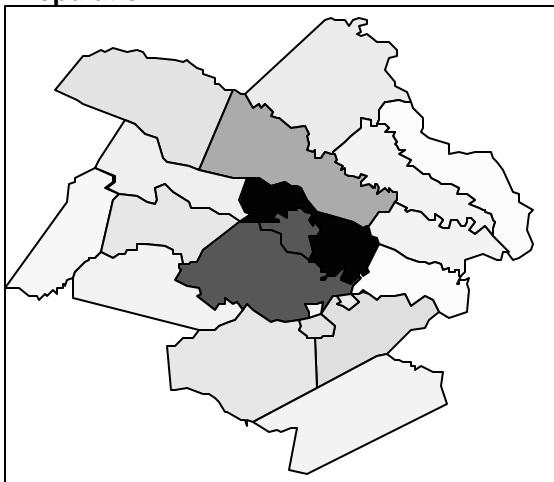
Mass Emissions



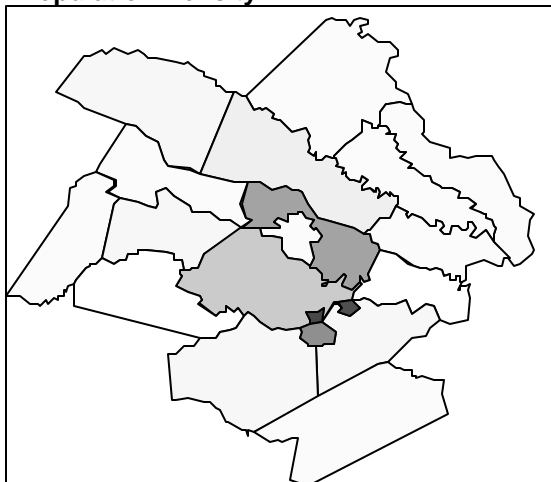
Emissions Density



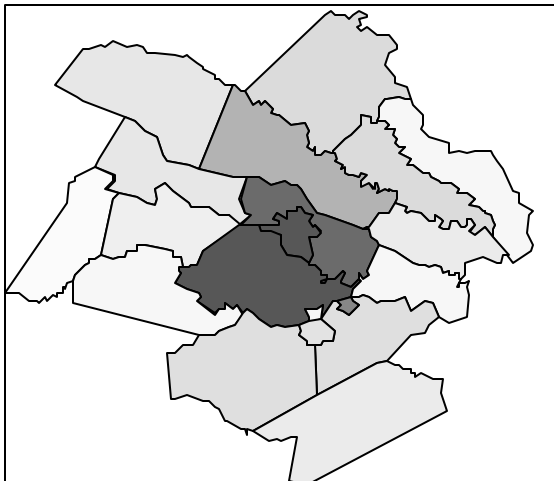
Population



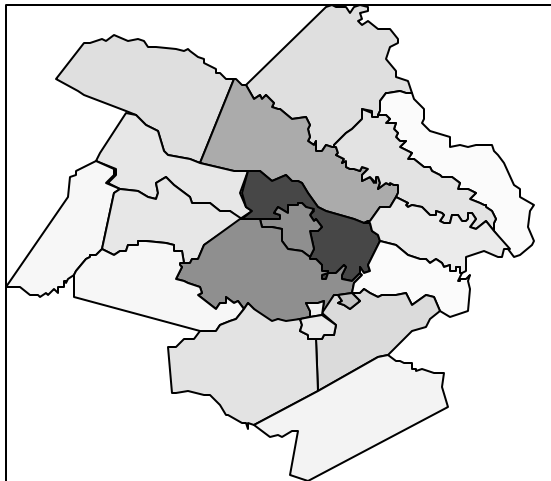
Population Density



Vehicle Miles of Travel



Growth

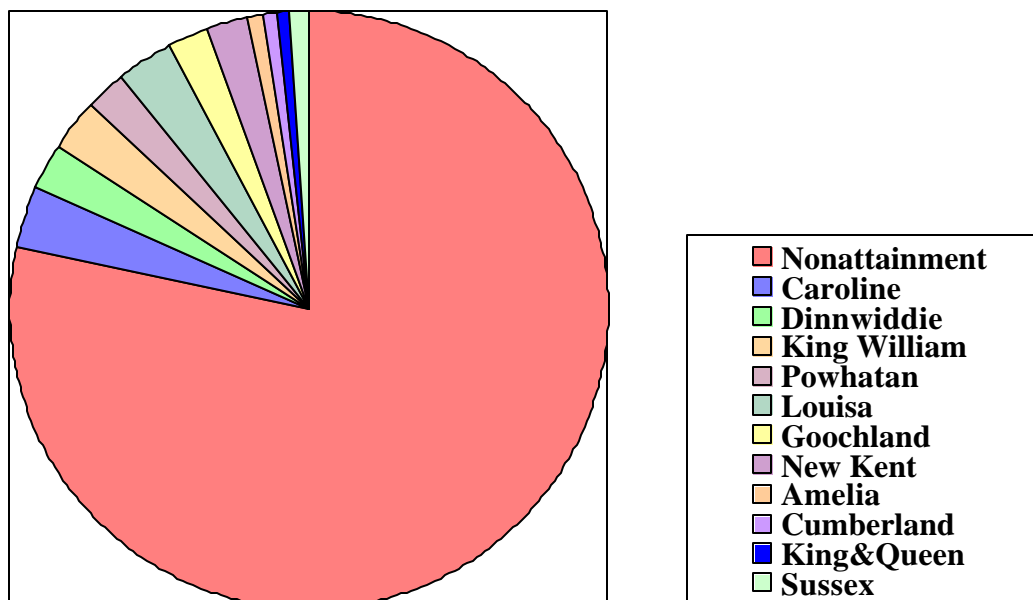


Ranking of Selected Ozone Criteria for Jurisdictions in the Richmond MSA

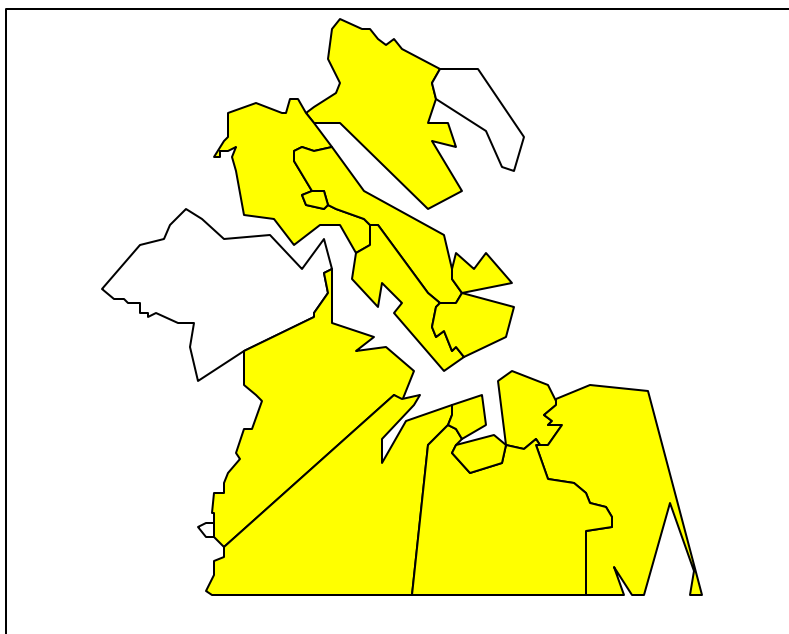
Richmond MSA Statistics

County / city	Area Emissions	Area Population	Population Growth for Area	Vehicle Miles traveled	Combined Average	Emission Density	Population Density
						ton/perday/sq mile	No /sq mile
	Percent						
Recommended Nonattainment Jurisdictions							
CHESTERFIELD COUNTY	23.6	24.5	33.5	23.6	26.3	0.233	673
HENRICO COUNTY	13.8	24.3	22.3	13.8	18.6	0.244	1,190
HANOVER COUNTY	7.0	8.1	11.4	7.0	8.4	0.062	201
RICHMOND CITY	15.5	16.6	-1.5	15.5	11.5	1.089	3,218
HOPEWELL CITY	11.0	1.9	0.3	11.0	6.1	4.524	2,197
COLONIAL HEIGHTS CITY	1.0	1.5	0.7	1.0	1.1	0.558	2,313
PRINCE GEORGE COUNTY	2.9	3.2	6.2	2.9	3.8	0.046	139
PETERSBURG CITY	2.5	2.7	-0.1	2.5	1.9	0.464	1,368
CHARLES CITY COUNTY	0.8	0.6	0.5	0.8	0.6	0.018	37
Recommended Attainment Jurisdictions							
DINWIDDIE COUNTY	2.8	2.2	2.7	2.8	2.6	0.023	51
POWHATAN COUNTY	1.4	2.2	4.5	1.4	2.4	0.023	99
GOOCHLAND COUNTY	2.2	1.7	3.1	2.2	2.3	0.032	68
NEW KENT COUNTY	2.0	1.3	3.2	2.0	2.1	0.039	75
CAROLINE COUNTY	3.3	2.1	4.5	3.3	3.3	0.026	46
AMELIA COUNTY	0.9	1.0	1.2	0.9	1.0	0.011	34
CUMBERLAND COUNTY	0.5	0.8	0.5	0.5	0.6	0.008	32
KING AND QUEEN COUNTY	0.8	0.6	0.2	0.8	0.6	0.010	22
KING WILLIAM COUNTY	3.6	1.2	1.8	3.6	2.6	0.055	52
LOUISA COUNTY	2.4	2.5	5.1	2.4	3.1	0.020	58
SUSSEX COUNTY	1.9	1.0	-0.2	1.9	1.2	0.017	24
	100.0	100.0	100.0	100.0		0.074	204

Contribution of Recommended Areas to Selected Ozone Criteria



Hampton Roads Metropolitan Statistical Area



The Commonwealth's recommendation for the Hampton Roads MSA is that the nonattainment area be the same as the previous 8-hour nonattainment area and current maintenance area. This recommendation is based on the fact that the recommended nonattainment area accounts for 98% of ozone precursor pollutants, population, expected growth, and vehicle miles of travel for the area.

Hampton Roads Nonattainment Area

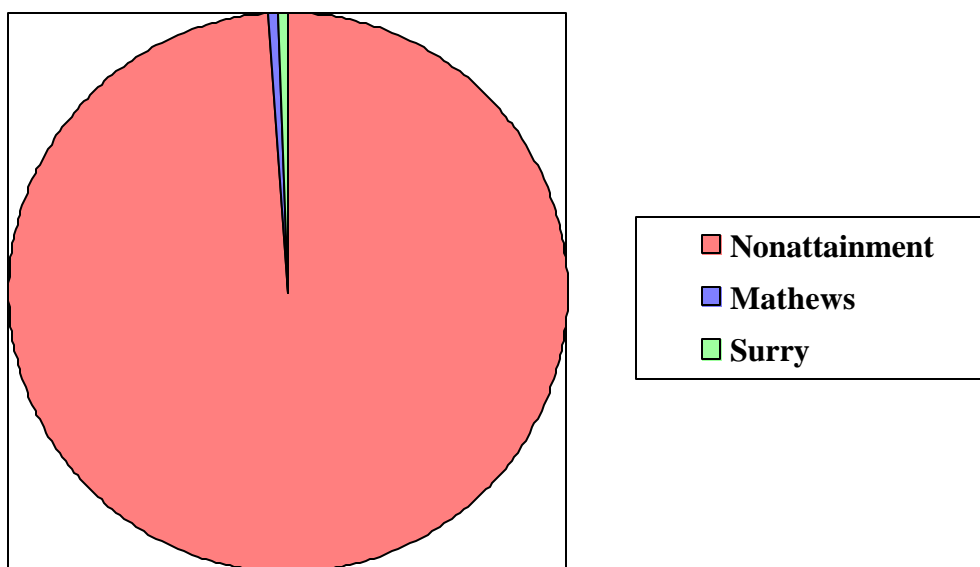
Gloucester County
Isle of Wight County
James City County
York County
City of Chesapeake
City of Hampton
City of Newport News
City of Norfolk
City of Poquoson
City of Portsmouth
City of Suffolk
City of Virginia Beach
City of Williamsburg

The remaining two counties in the MSA are very rural and remote jurisdictions that, through the analysis of ozone contribution factors, do not significantly contribute to the recommended nonattainment area. It should also be noted that Currituck County in North Carolina is also part of this MSA. The Commonwealth is making no recommendation for this jurisdiction as part of this process. However, we understand that the State of North Carolina will recommend that this County not be included in the Hampton Roads nonattainment area and the Commonwealth supports this recommendation.

Ranking of Selected Ozone Criteria for the Jurisdictions in the Hampton Roads MSA

Hampton Roads MSA							
County / city	Area Emissions	Area Population	Population Growth for Area	Vehicle Miles traveled	Combined Average	Emission Density	Population Density
	Percent					ton/perday/sq mile	No /sq mile
Recommended Nonattainment Jurisdictions							
VIRGINIA BEACH CITY	13.5	27.0	16.9	13.5	17.7	0.239	1,754
CHESAPEAKE CITY	14.2	13.2	28.1	14.2	17.4	0.183	626
YORK COUNTY	9.7	3.8	7.3	9.7	7.6	0.403	588
NEWPORT NEWS CITY	12.1	11.3	0.3	12.1	8.9	0.777	2,668
NORFOLK CITY	19.2	14.6	1.0	19.2	13.5	1.573	4,383
SUFFOLK CITY	4.7	4.8	21.9	4.7	9.0	0.052	193
HAMPTON CITY	6.8	9.0	-0.3	6.8	5.6	0.580	2,810
JAMES CITY COUNTY	4.2	3.5	12.9	4.2	6.2	0.130	396
PORTSMOUTH CITY	5.4	6.1	0.7	5.4	4.4	0.712	2,979
ISLE OF WIGHT COUNTY	5.5	2.0	5.7	5.5	4.7	0.076	102
GLOUCESTER COUNTY	2.3	2.2	4.7	2.3	2.9	0.047	165
WILLIAMSBURG CITY	0.5	0.8	0.2	0.5	0.5	0.266	1,569
POQUOSON CITY	0.4	0.7	0.3	0.4	0.5	0.116	767
Recommended Attainment Jurisdictions							
MATHEWS COUNTY	0.8	0.6	-0.1	0.8	0.5	0.043	110
SURRY COUNTY	0.7	0.4	0.4	0.7	0.6	0.011	25
	100.0	100.0	100.0	100.0		0.186	683

Contribution of Recommended Areas to Selected Ozone Criteria



Appendix – Data Table for Virginia Nonattainment Designation Ozone Factors Analysis

County / city	Land Area	Population				Growth Rate	Annual Emissions		Total	Area Emissions	Area Population	Population Growth for Area	Combined Average	Emission Density	Population Density	Vehicle miles Traveled	Vehicle miles Traveled
						VOC	NOX	ton/perday/sq mile						No /sq mile	Million miles	Percent	
	Sq Miles	2005	2010	2020	2030	Percent	tons/year			Percent							
FAIRFAX COUNTY**	403.34	1,055,600	1,072,727	1,136,854	1,203,186	0.52	36,160	32,489	68,649	38.4	43.5	13.3	31.8	0.466	2,617	12,802	44.1
PRINCE WILLIAM COUNTY***	350.20	405,100	453,646	574,060	675,841	2.07	13,497	13,560	27,057	15.2	16.7	24.5	18.8	0.212	1,157	3,708	12.8
LOUDOUN COUNTY	519.85	252,300	324,189	468,979	580,629	3.39	9,676	8,370	18,046	10.1	10.4	29.7	16.7	0.095	485	2,775	9.5
STAFFORD COUNTY	270.35	117,300	135,806	176,710	218,772	2.52	4,256	4,405	8,661	4.9	4.8	9.2	6.3	0.088	434	1,487	5.1
SPOTSYLVANIA COUNTY	400.86	114,000	134,163	175,402	217,797	2.62	6,037	5,780	11,817	6.6	4.7	9.4	6.9	0.081	284	2,005	6.9
ARLINGTON COUNTY	25.87	195,600	200,856	212,816	225,163	0.56	5,576	6,543	12,119	6.8	8.1	2.7	5.8	1.283	7,561	1,963	6.8
ALEXANDRIA CITY	15.18	135,200	141,115	153,174	165,572	0.81	3,973	6,088	10,061	5.6	5.6	2.7	4.6	1.816	8,906	1,210	4.2
FAUQUIER COUNTY	649.70	62,900	72,685	89,318	107,168	2.15	4,012	4,101	8,113	4.5	2.6	4.0	3.7	0.034	97	1,143	3.9
WARREN COUNTY	213.70	34,300	38,791	45,722	53,092	1.76	2,467	1,489	3,956	2.2	1.4	1.7	1.8	0.051	161	385	1.3
FREDERICKSBURG CITY	10.52	21,200	22,239	25,116	28,518	1.19	2,695	2,790	5,485	3.1	0.9	0.7	1.5	1.428	2,015	1,049	3.6
KING GEORGE COUNTY	180.00	20,000	23,613	30,126	37,365	2.53	1,120	1,458	2,578	1.4	0.8	1.6	1.3	0.039	111	277	1.0
CLARKE COUNTY	176.62	13,900	15,542	18,320	21,230	1.71	1,073	943	2,016	1.1	0.6	0.7	0.8	0.031	79	254	0.9
	3,216	2,427,400	2,635,372	3,106,597	3,534,333	1.51	90,542	88,016	178,558	100.0	100.0	100.0		0.152	755	29,058	100
CHESTERFIELD COUNTY	425.75	286,500	318,810	372,532	430,266	1.64	14,384	21,868	36,252	23.6	24.5	33.5	27.2	0.233	673	3,250	22.3
HENRICO COUNTY	238.06	283,300	301,658	339,703	379,041	1.17	11,141	10,101	21,242	13.8	24.3	22.3	20.1	0.244	1,190	3,038	20.8
HANOVER COUNTY	472.68	95,100	105,762	124,097	143,959	1.67	5,731	5,002	10,733	7.0	8.1	11.4	8.8	0.062	201	1,260	8.6
RICHMOND CITY	60.07	193,300	190,039	187,066	187,066	-0.13	12,639	11,238	23,877	15.5	16.6	-1.5	10.2	1.089	3,218	2,281	15.6
HOPEWELL CITY	10.24	22,500	22,767	23,298	23,993	0.26	3,511	13,399	16,910	11.0	1.9	0.3	4.4	4.524	2,197	140	1.0
POWHATAN COUNTY	261.28	25,800	29,966	37,135	45,216	2.27	1,361	810	2,171	1.4	2.2	4.5	2.7	0.023	99	237	1.6
GOOCHLAND COUNTY	284.43	19,300	22,078	27,091	32,641	2.12	1,564	1,810	3,374	2.2	1.7	3.1	2.3	0.032	68	435	3.0
PRINCE GEORGE COUNTY	265.62	36,900	43,258	53,061	63,420	2.19	2,237	2,207	4,444	2.9	3.2	6.2	4.1	0.046	139	505	3.5
DINWIDDIE COUNTY	503.67	25,800	28,874	33,075	37,563	1.51	1,957	2,314	4,271	2.8	2.2	2.7	2.6	0.023	51	447	3.1
NEW KENT COUNTY	209.55	15,700	18,681	23,671	29,496	2.55	1,474	1,540	3,014	2.0	1.3	3.2	2.2	0.039	75	435	3.0
PETERSBURG CITY	22.88	31,300	31,594	30,734	30,730	-0.07	2,148	1,729	3,877	2.5	2.7	-0.1	1.7	0.464	1,368	383	2.6
COLONIAL HEIGHTS CITY	7.48	17,300	18,035	19,204	20,454	0.67	874	650	1,524	1.0	1.5	0.7	1.1	0.558	2,313	234	1.6
CHARLES CITY COUNTY	182.76	6,800	7,431	7,932	8,749	1.01	715	483	1,198	0.8	0.6	0.5	0.6	0.018	37	54	0.4
CAROLINE COUNTY	532.52	24,300	29,201	36,058	43,662	2.37	2,241	2,849	5,090	3.3	2.1	4.5	3.3	0.026	46	678	4.6
AMELIA COUNTY	356.80	12,100	13,255	15,123	17,104	1.39	853	591	1,444	0.9	1.0	1.2	1.0	0.011	34	163	1.1
CUMBERLAND COUNTY	298.45	9,500	9,847	10,690	11,793	0.87	548	289	837	0.5	0.8	0.5	0.6	0.008	32	73	0.5
KING AND QUEEN COUNTY	316.26	6,900	6,891	7,187	7,564	0.37	737	423	1,160	0.8	0.6	0.2	0.5	0.010	22	109	0.7

County / city	Land Area	Population				Growth Rate	Annual Emissions		Total	Area Emissions	Area Population	Population Growth for Area	Combined Average	Emission Density	Population Density	Vehicle miles Traveled	Vehicle miles Traveled
						VOC	NOX	ton/perday/sq mile						No /sq mile	Million miles	Percent	
	Sq Miles	2005	2010	2020	2030	Percent	tons/year			Percent							
KING WILLIAM COUNTY	275.43	14,400	16,187	19,119	22,227	1.75	2,236	3,309	5,545	3.6	1.2	1.8	2.2	0.055	52	124	0.8
LOUISA COUNTY	497.14	28,700	33,923	41,889	50,739	2.31	1,941	1,698	3,639	2.4	2.5	5.1	3.3	0.020	58	416	2.9
SUSSEX COUNTY	490.73	12,000	11,543	11,119	11,113	-0.31	1,374	1,599	2,973	1.9	1.0	-0.2	0.9	0.017	24	316	2.2
	5711.80	1167500.00	1259800.00	1419784.00	1596796.00	1.26	69666.00	83909.00	153575.00	100.0	100.0	100.0		0.074	204	14,579	100
VIRGINIA BEACH CITY	248.29	435,600	447,836	470,288	493,095	0.50	13,043	8,636	21,679	13.5	27.0	16.9	19.1	0.239	1,754	2,851	20.5
CHESAPEAKE CITY	340.72	213,400	236,683	272,381	308,736	1.49	9,093	13,720	22,813	14.2	13.2	28.1	18.5	0.183	626	2,047	14.7
YORK COUNTY	105.65	62,100	66,569	76,376	86,823	1.35	4,619	10,916	15,535	9.7	3.8	7.3	6.9	0.403	588	637	4.6
NEWPORT NEWS CITY	68.29	182,200	181,601	182,415	183,372	0.03	7,379	11,993	19,372	12.1	11.3	0.3	7.9	0.777	2,668	1,611	11.6
NORFOLK CITY	53.73	235,500	236,338	237,448	238,927	0.06	9,133	21,712	30,845	19.2	14.6	1.0	11.6	1.573	4,383	2,046	14.7
SUFFOLK CITY	400.02	77,100	93,830	122,482	151,427	2.74	4,186	3,354	7,540	4.7	4.8	21.9	10.4	0.052	193	1,087	7.8
HAMPTON CITY	51.78	145,500	144,803	144,655	144,650	-0.02	6,206	4,747	10,953	6.8	9.0	-0.3	5.2	0.580	2,810	1,424	10.2
JAMES CITY COUNTY	142.92	56,600	65,890	82,781	100,294	2.31	4,082	2,676	6,758	4.2	3.5	12.9	6.9	0.130	396	535	3.8
PORTSMOUTH CITY	33.16	98,800	99,919	100,429	101,071	0.09	3,385	5,236	8,621	5.4	6.1	0.7	4.0	0.712	2,979	624	4.5
ISLE OF WIGHT COUNTY	315.87	32,200	37,067	44,083	51,629	1.91	3,639	5,151	8,790	5.5	2.0	5.7	4.4	0.076	102	379	2.7
GLOUCESTER COUNTY	216.61	35,700	40,474	46,013	51,824	1.50	2,418	1,335	3,753	2.3	2.2	4.7	3.1	0.047	165	340	2.4
WILLIAMSBURG CITY	8.54	13,400	13,707	13,866	14,159	0.22	459	369	828	0.5	0.8	0.2	0.5	0.266	1,569	95	0.7
MATHEWS COUNTY	85.68	9,400	9,097	9,077	9,068	-0.14	914	422	1,336	0.8	0.6	-0.1	0.4	0.043	110	140	1.0
POQUOSON CITY	15.52	11,900	11,921	12,281	12,782	0.29	506	150	656	0.4	0.7	0.3	0.5	0.116	767	47	0.3
SURRY COUNTY	279.09	6,900	7,210	7,585	8,156	0.67	727	403	1,130	0.7	0.4	0.4	0.5	0.011	25	60	0.4
	2,366	1,616,300	1,692,945	1,822,160	1,956,013	0.77	69,789	90,820	160,609	100.0	100.0	100.0		0.186	683	13,922	100
STAFFORD COUNTY	270.35	117,300	135,806	176,710	218,772	2.52	4,256	4,405	8,661	27.9	42.4	43.7	38.0	0.088	434	1,487	28.5
SPOTSYLVANIA COUNTY	400.86	114,000	134,163	175,402	217,797	2.62	6,037	5,780	11,817	38.1	41.2	44.7	41.3	0.081	284	2,005	38.4
CAROLINE COUNTY	532.52	24,300	29,201	36,058	43,662	2.37	2,241	2,849	5,090	16.4	8.8	8.3	11.2	0.026	46	678	13.0
FREDERICKSBURG CITY	10.52	21,200	22,239	25,116	28,518	1.19	2,695	2,790	5,485	17.7	7.7	3.2	9.5	1.428	2,015	1,049	20.1
	1214.25	276800.00	321409.00	413286.00	508749.00	2.46	15229.00	15824.00	31053.00	100.0	100.0	100.0		0.070	228	5,218	100

Main Data Sources:

- 1)
- EPA Designation Technical Information Plan @ http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html#F-1
- 2)
- Weldon Cooper Center Population Data @ <http://www.coopercenter.org/demographics/POPULATION%20ESTIMATES/>
- 3)
- Virginia Employment Commission Projection Data @ <http://www.vawc.virginia.gov/gsipub/index.asp?docid=359>