



---

west virginia department of environmental protection

---

Executive Office  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: (304) 926-0440  
Fax: (304) 926-0446

Joe Manchin III, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.wvdep.org](http://www.wvdep.org)

October 16, 2008

Mr. Donald S. Welsh  
Regional Administrator  
U.S. EPA Region III (3RA00)  
1650 Arch Street  
Philadelphia, PA 19103-2029

RE: West Virginia Area Designations Under  
the October 2006 24-hr. PM<sub>2.5</sub> Standard-  
Response to EPA Modifications

Dear Administrator Welsh:

On behalf of the State of West Virginia, I am herein responding to EPA's proposed modifications to our preliminary designations for areas under the October 2006 federal 24-hour PM<sub>2.5</sub> standard (35 ug/m<sup>3</sup>). This action is taken in accordance with your August 18, 2008 letter to Governor Joe Manchin III. As we reiterated in our last communication on this matter, we are still engaged in litigation concerning the 1997 PM<sub>2.5</sub> annual standard area designations which EPA finalized in April 2005. We fundamentally disagree with EPA's inclusion of the partial county of Mason (Graham Tax District) in the Huntington nonattainment area and the inclusion of the partial county of Pleasants (Grant Tax District) in the Parkersburg nonattainment area. Not only should EPA remove these two partial counties from the proposed 24 hour designations but also from the areas specified under the April 2005 annual standard nonattainment designations. Indeed, we believe that EPA will be compelled to take action on the latter when the litigation is completed and the court renders its decision.

Notwithstanding our disagreement with EPA's conclusions and our concerns about the misapplication of the "nine-factor analysis," the DEP has reviewed EPA's technical evaluation and has developed a weight of evidence rebuttal that reaches a conclusion very different from EPA's for both partial counties. Frankly, we are convinced that EPA's analysis is merely a misguided fabrication to justify inclusion of nearby power plants in these two nonattainment areas. This is counterproductive from an air quality standpoint and very likely to cause unnecessary economic harm. We strongly believe that an appropriate technical analysis shows that both Mason and Pleasants counties, including the Graham and Grant tax districts, should be

Letter to Donald S. Welch  
October 16, 2008  
Page 2

completely excluded from any PM<sub>2.5</sub> nonattainment area. Please see our rationale contained in the attachment. We urge EPA to reconsider its prior modification and remove these partial counties from the nonattainment designation.

Finally, EPA should be consistent in designating interstate nonattainment areas. Many throughout the nation criticized several of the 2005 PM<sub>2.5</sub> annual standard designations for apparent inconsistencies. This consideration is especially important when addressing a multi-state, multi-region area such as the Huntington-Ashland area which comprises three states and three EPA regions. It is our understanding that some have petitioned EPA to exclude certain counties from the potential Huntington-Ashland nonattainment area, predominately based on monitored good air quality within those counties. However, other factors may be more relevant in determining whether such areas contribute significantly to downwind nonattainment. We urge EPA to carefully consider the full array of data and the policy implications of the final designations to ensure that equitable and consistent decisions are made, across multi-region areas and across the nation.

If you have any questions regarding this submittal or require additional information, please contact John A. Benedict, Director of the Division of Air Quality at (304) 926-0462.

Sincerely,



Randy C. Huffman  
Cabinet Secretary

RCH/wfd

cc: Judith M. Katz (3AP00)  
John A. Benedict

Attachment



---

west virginia department of environmental protection

---

**West Virginia  
24-hour PM<sub>2.5</sub>  
Technical Analysis  
for  
Huntington and Parkersburg**

October 16, 2008

---

Promoting a healthy environment.

## **I. Huntington-Ashland Area**

### **1. Factor 1: Emissions Data**

EPA's data is consistent with the National Emission Inventory (NEI). However, DEP notes that pollutants from various separate portions of the area may not necessarily impact a violating monitor.

### **2. Factor 2: Air Quality Data**

EPA's data is consistent with the Air Quality System (AQS). However, there is no air monitoring data that indicates a violation of the 24-hour PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS) in Mason County.

### **3. Factor 3: Population Density and Degree of Urbanization (Including Commercial Development)**

West Virginia is a rural state with an area of 24,077.73 square miles, a total population (in 2000) of 1,808,344, and an average population density of 75.1 people per square mile. Cabell County has 281.59 square miles, a population of 96,784 and a population density of 343.7 people per square mile. Wayne County has 505.79 square miles, a population of 42,903 and a population density of 84.3 people per square mile. Mason County has 431.85 square miles, a population of 25,957, and a population density of 60.1 people per square mile. (Data Source: U.S. Department of Commerce, Census Bureau, Table 15 of West Virginia: 2000, Summary Population and Housing Characteristics, Issued October 2002).

In contrast, Ohio has an area of 40,948.38 square miles, a total population of 11,353,140, and an average population density of 277.3 people per square mile (Data Source: U.S. Department of Commerce, Census Bureau, Table 15 of Ohio: 2000, Summary Population and Housing Characteristics, Issued July 2002). The population density of Ohio is 3.7 times higher than that of West Virginia.

Kentucky has an area of 39,728.18 square miles, a total population of 4,041,769, and an average population density of 101.7 people per square mile (Data Source: U.S. Department of Commerce, Census Bureau, Table 15 of Kentucky: 2000, Summary Population and Housing Characteristics, Issued September 2002). The population density of Kentucky is 1.4 times higher than that of West Virginia.

According to the US Census the population of Mason County in 2000 was 25,957, and was estimated to be 25,763 in 2005, a 0.7% decrease. In 2000, the Graham tax district in Mason County had a population of 2,774, and is estimated to have had a population of 2,772 in 2005 assuming a 0.7% decrease.

According to EPA's own data the population density of Mason County is 58 people per square mile and it ranks eighth out of ten for the counties considered for inclusion in the

nonattainment area. The population of Mason County is 25,763 and it ranks ninth out of ten.

County, State	*2005 Population	Population Rank	*2005 Population Density (people/sq. mile)	Population Density Rank
Cabell, WV	93,988	1	327	1
Gallia, OH	31,241	7	68	7
Lawrence, OH	62,946	3	134	3
Scioto, OH	76,506	2	124	4
Mason, WV	25,763	9	58	8
Adams, OH	28,454	8	49	9
Boyd, KY	49,359	4	305	2
Wayne, WV	41,959	5	82	6
Lawrence, KY	16,162	10	39	10
Greenup, KY	37,206	6	105	5

\*Data Source: EPA Technical Analysis for the Huntington-Ashland Area

EPA has provided statistical data from the US Census Bureau, but has not provided any rationale or conclusions as to how the population density and degree of urbanization in the Graham Tax District, or Mason County as a whole, play any role in their decision to designate the Graham Tax District as nonattainment. Hence, evaluation of this factor supports the exclusion of Mason County from the nonattainment area.

#### 4. Factor 4: Traffic and Commuting Patterns

EPA’s analysis appears to include VMT and commuters from the entire Mason County rather than apportioning the results to the Graham Tax District, which significantly overstates the relative contribution. Even so, EPA’s assertion that Mason has the most commuters into the MSA among Adams, OH; Galia, OH and Mason, WV has little practical relevance given that Adams is not adjacent to the MSA and is separated from it by another county. EPA’s own data shows that only 12% of Mason commuters commute to any violating county. Further, only 7% commute into and within the statistical area. These numbers are small and when the actual contribution to emissions is considered (Factor 5) become practically insignificant (see below). Compare Mason’s MSA commuting percentage (7%) to nearby counties: Cabell (88%), Lincoln (19%), Wayne (90%), Boyd (93%), Lawrence KY (19%) and Lawrence OH (92%). Clearly, Mason is less by factors that range from less than ½ down to less than 1/13<sup>th</sup>. Therefore, the traffic

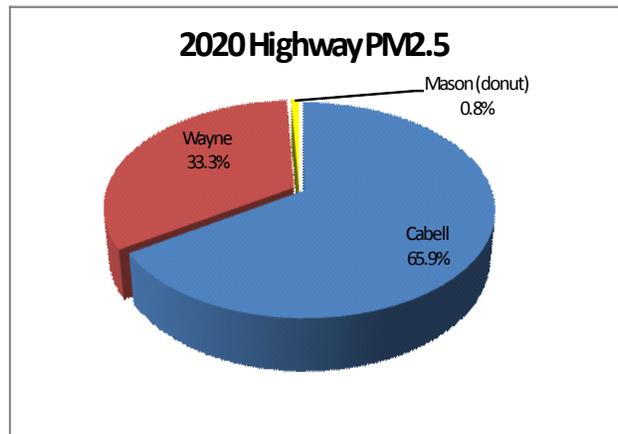
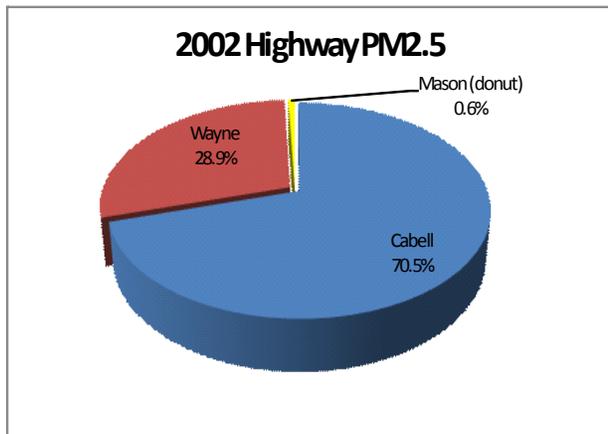
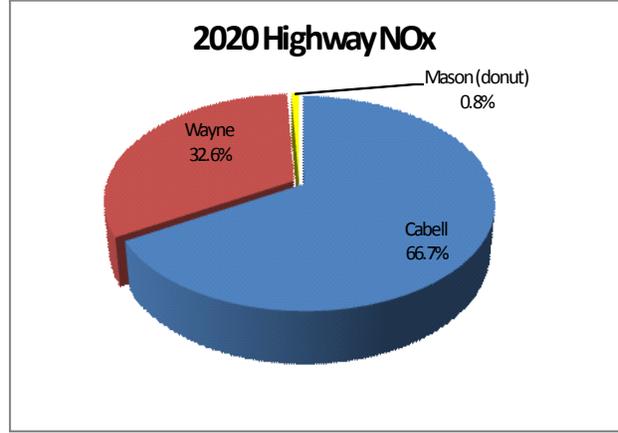
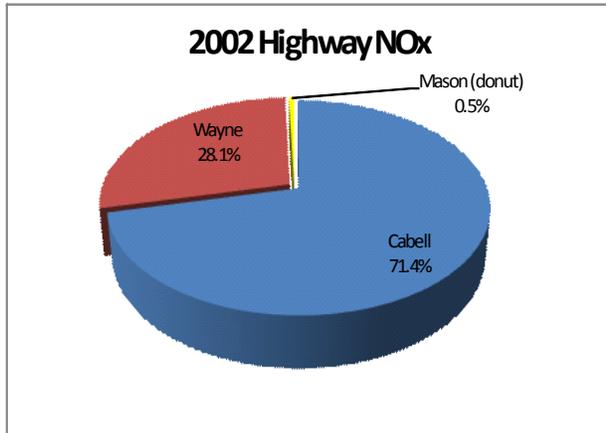
and commuting data do not support the inclusion of any portion of Mason County in the nonattainment area.

**5. Factor 5: Growth Rates and Patterns**

EPA’s own data shows that Mason County has the second lowest population of the nine top listed counties (25,763 out of 290,444 total) which is less than 10% (8.9%). EPA overlooks the very small VMT and vehicle emissions contributions to the whole. For example, the 2005 VMT is 249 (Mason) out of 4,421 (top 9 areas) which is only 5.6%. Moreover, the VMT growth is based upon historical data rather than the travel demand forecasts used in transportation planning. The latter accounts for expected growth, employment shifts and household changes as well as planned highway network improvements. The KYOVA Interstate Planning Commission is responsible for preparing the long range transportation plan for the area and has developed an emissions analysis used for transportation conformity determinations. A summary of base year (2002) and forecast year (2020) VMT is shown in the table below. The data include VMT, NO<sub>x</sub>, PM<sub>2.5</sub> and changes to the base values from 2002 to 2020. Several points warrant emphasis.

The calculated VMT contribution of the portion of Mason actually within the nonattainment area is much less than EPA displays. **That part contributes less than 1% to 2002 VMT and 2020 VMT for Cabell, Mason and Wayne combined. Equally important, if not more so, even though Mason exhibits a high growth rate, NO<sub>x</sub> and PM contributions for highway vehicles is calculated to be less than 1% of the three county total for the base year and 2020.** The extremely low contribution to highway emissions and growth supports exclusion from the nonattainment area.

<b>KYOVA VMT: Huntington VMT Projections</b> <i>(Source: EPA-Approved KYOVA Conformity Analysis, February 2006)</i> Emissions in Tons/Day									
County	2002 VMT	2002 NOx	2002 PM	2020 VMT	% Change	2020 NOx	% Change	2020 PM	% Change
Cabell	2,648,020	8.21	0.149	2,963,207	11.90%	1.720	-79.05%	0.054	-63.57%
Wayne	1,090,149	3.23	0.061	1,499,094	37.51%	0.840	-73.99%	0.027	-55.08%
Mason (donut)	23,996	0.06	0.001	35,467	47.80%	0.020	-66.67%	0.001	-51.69%
Total	3,762,165	11.50	0.211	4,497,768	19.55%	2.580	-77.56%	0.082	-61.90%
Mason (%)	0.6%	0.5%	0.6%	0.8%		0.8%		0.8%	



## 6. Factor 6: Meteorology (Weather/Transport Patterns)

A backward trajectory analysis was conducted to assess the Mason County (partial) impact on the Cabell County Ambient Monitor. Backward trajectories were computed using NOAA’s HYSPLIT Model<sup>1</sup> for days in 2005, 2006, and 2007 that exceeded 30  $\mu\text{g}/\text{m}^3$ . Days included in the trajectory analysis are shown in Table 1. For each day a backward trajectory was computed starting at 100, 250 and 500 meters above ground level (AGL). The duration of the 250 and 500 meter trajectories was 36 hours while the duration of the 100 meter trajectory was 24 hours. The meteorological data set used for the analysis was EDAS40.

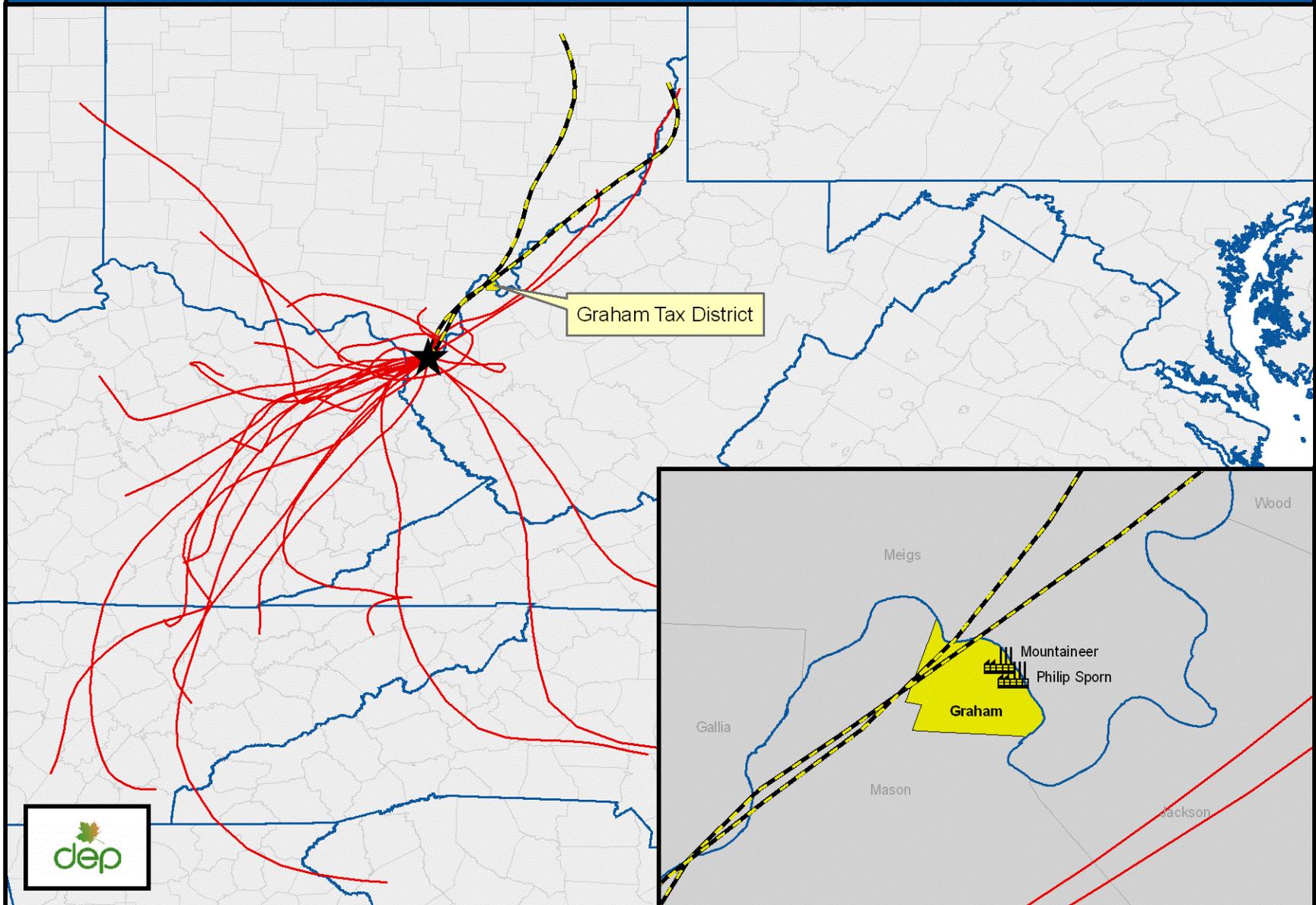
Figures 1, 2, and 3 present the backward trajectories influencing the Cabell County Monitor for 100, 250 and 500 meter starting heights, respectively. Each figure shows

<sup>1</sup>Draxler, R.R. and Rolph, G.D., 2003. HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) Model access via NOAA ARL READY Website (<http://www.arl.noaa.gov/ready/hysplit4.html>). NOAA Air Resources Laboratory, Silver Spring, MD.

that the prevailing influence contributing to high PM<sub>2.5</sub> days is from the southwest and west, not from the northeast where Mason County (partial) is located. For the 100 meter and 250 meter trajectory starting heights, only 2 of 26 trajectories on high PM<sub>2.5</sub> days pass through the Graham Tax District (Mason County partial). For the 500 meter trajectory starting height, only 3 of 26 trajectories pass through the Graham Tax District (Mason County partial). The results support that emissions from Mason County do not contribute to the Huntington-Ashland nonattainment area and should not be included in the nonattainment designation.

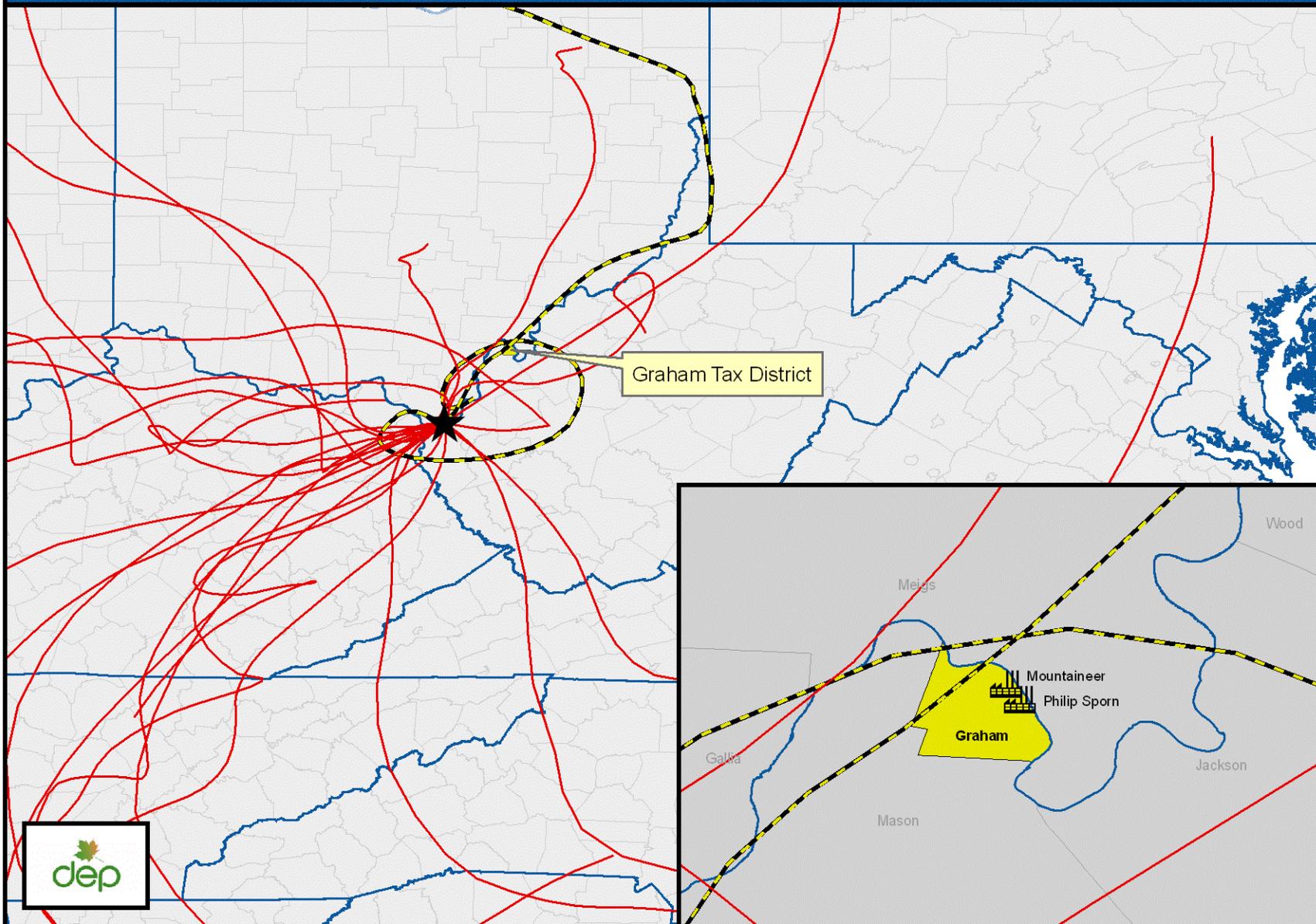
EPA evaluated Meteorology (Weather/Transport Patterns) as Factor 6 in EPA Technical Analyses for the Huntington-Ashland Area. For this factor, EPA considered data from National Weather Service Instruments in the area. EPA also developed a pollution trajectory plot to understand the prevailing wind direction and wind speed on the days with highest fine particle concentrations. EPA concludes from the Cabell County pollution trajectory plot that “It shows that the two high PM<sub>2.5</sub> days (days with monitored PM<sub>2.5</sub> values greater than 30 µg/m<sup>3</sup>) in Cabell County in 2004-2006 occurred when the wind came at low speeds from the southwest or the southeast.” Also, EPA states “Days showing winds from the southwest, northeast, west, and north are less than or equal to 30 µg/m<sup>3</sup>.” From EPA’s own analysis, one would conclude that the Mason County (partial), located northeast of Cabell County, has no significant influence on the Huntington-Ashland nonattainment area and should not be included in the nonattainment designation.

Figure 1. Cabell Co. Monitor Back Trajectories @ 100m for days > 30 ug/m3 - 2005/2006/2007



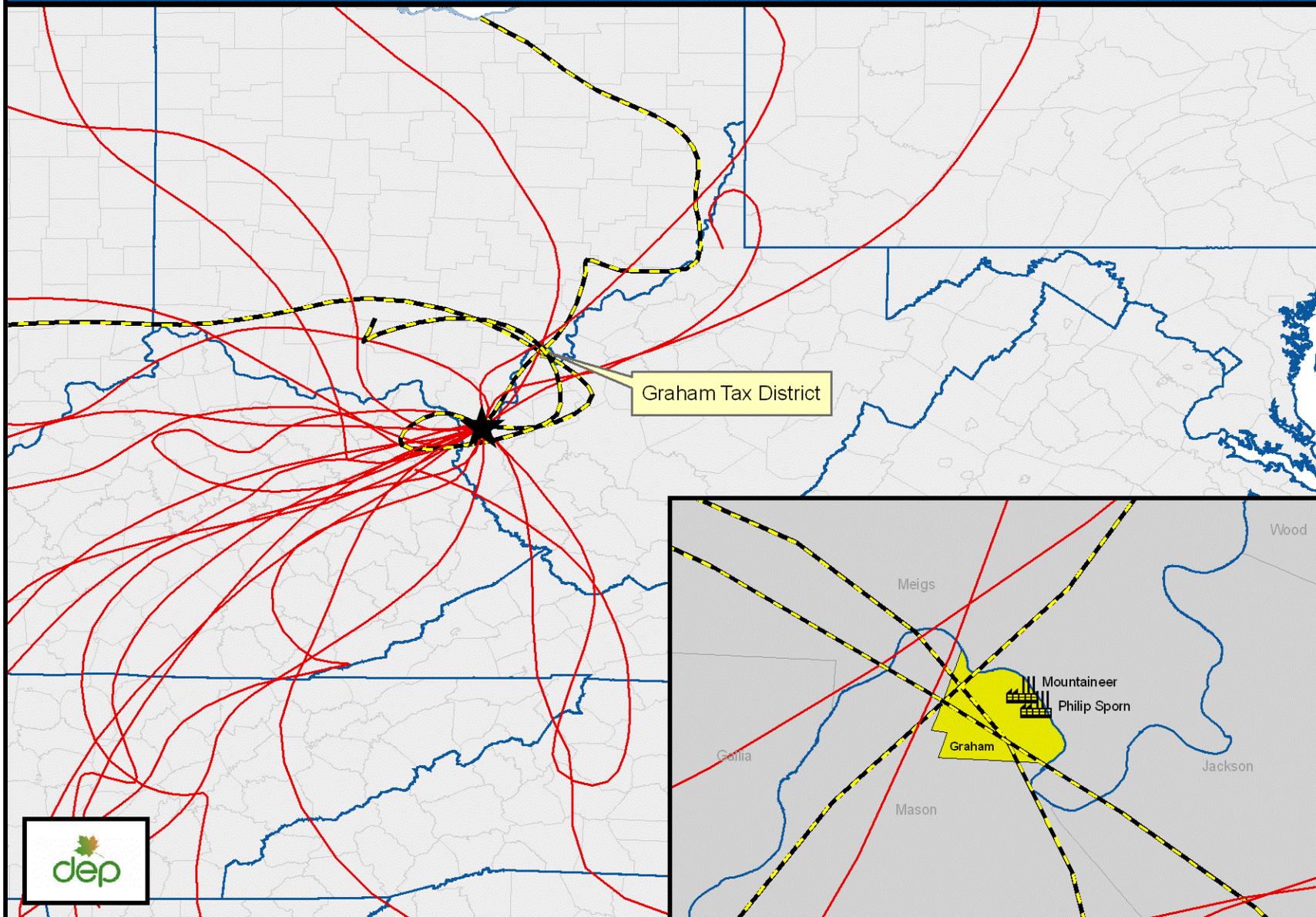
Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 100m AGL Duration: 24 hrs Met Data: EDAS40

Figure 2. Cabell Co. Monitor Back Trajectories @ 250m for days > 30 ug/m3 - 2005/2006/2007



Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 250m AGL Duration: 36 hrs Met Data: EDAS40

Figure 3. Cabell Co. Monitor Back Trajectories @ 500m for days > 30 ug/m3 - 2005/2006/2007



Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 500m AGL Duration: 36 hrs Met Data: EDAS40

<b>Table 1. Days included in Huntington-Ashland trajectory analysis</b>					
<b>Date</b>	<b>Cabell County PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>	<b>Date</b>	<b>Cabell County PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>	<b>Date</b>	<b>Cabell County PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>
9/13/2005	43.1	9/25/2005	32.7	9/6/2007	39.4
9/10/2005	41.6	9/1/2005	31.9	7/29/2007	37.0
9/22/2005	40.5	6/21/2005	31.7	5/24/2007	36.3
8/11/2005	40.2	7/3/2005	30.5	8/1/2007	34.3
8/2/2005	39.7	7/19/2006	45.1	6/17/2007	33.7
7/30/2005	38.7	7/31/2006	32.1	8/4/2007	33.2
8/17/2005	36.4	7/10/2006	30.1	3/10/2007	31.6
8/5/2005	34.0	5/30/2007	43.2	7/8/2007	31.1
4/19/2005	33.9	6/2/2007	42.6		

EPA Regions 4 and 5 also conducted Technical Analyses for the Huntington-Ashland 24-hour PM<sub>2.5</sub> Nonattainment Area, each referencing the same pollution rose as in the Region 3 analysis. Region 4 concludes that further evaluation is needed to make a conclusion and Region 5 states that “this pollution rose does not clearly indicate any particular wind direction from which concentrations are most likely to arise.” DEP’s detailed evaluation of trajectories demonstrates that winds impacting the Cabell County monitor do not traverse the Graham Tax District (Mason County partial) and that it should not be included in the nonattainment designation.

**7. Factor 7: Geography/Topography(Mountain Ranges or Other Air Basin Boundaries)**

EPA states that this factor did not play a significant role in the decision-making process for the Huntington-Ashland area and thus has failed to provide justification on the inclusion of the Mason County (partial) area to the Huntington-Ashland nonattainment area based on this factor. More importantly, no geographical or topographical features exist in the air shed to enhance the transport of pollutants from the Mason County (partial) area to Cabell County.

## **8. Factor 8: Jurisdictional Boundaries (e.g., Existing PM<sub>2.5</sub> and Ozone Areas)**

EPA's limited analysis of this factor correctly identifies relevant state and county jurisdictions. But that analysis fails to provide any justification whatsoever for adding part of Mason County to the nonattainment area. Rather, the text notes that the ozone nonattainment area includes Cabell and Wayne County (WV) and Boyd County (KY). It is puzzling that EPA ostensibly performed a similar 9-factor analysis for both ozone and PM<sub>2.5</sub> and reached different conclusions, even though NO<sub>x</sub> is a common precursor. It is also troubling that, prior to the 2005 annual PM<sub>2.5</sub> designations, EPA had generally based nonattainment boundaries on county and Metropolitan Statistical Area boundaries rather than arbitrarily adding "islands" such as the portion of Mason County. EPA provides no support for how such an isolated tax district bears any relevant jurisdictional relationship to the remainder of the nonattainment area. Moreover, its inclusion within the nonattainment area presents an additional and unnecessary burden on KYOVA because it must be addressed under transportation conformity requirements even though no air quality benefits result.

## **9. Factor 9: Level of Control of Emissions Sources**

The portion of Mason County, the Graham Tax District, proposed to be included in the Huntington nonattainment area encompasses the Mountaineer and Philip Sporn power plants, both owned by American Electric Power (AEP).

Mountaineer has one 1,300 MW unit which is equipped with an ESP for particulate control, an SCR for NO<sub>x</sub> control and a wet limestone scrubber for SO<sub>2</sub> control. These controls are federally enforceable through regulations, permits and a federal Consent Decree (AEP Consent Decree). Philip Sporn has five units, Units 1-4 are rated at 150 MW each and Unit 5 is rated at 450 MW. All five units are equipped with an ESP for particulate control, and low NO<sub>x</sub> burners for NO<sub>x</sub> control. These controls are federally enforceable through regulations and permits. In addition, AEP has been issued a no permit needed letter (dated September 25, 2008) for the installation of SNCR on two of the five units at Philip Sporn (Units 3 and 4). AEP has indicated that the installation of SNCR on these units is to comply with the provisions of the AEP Consent Decree which requires that "A total of at least 600 MW from the following list of units: Sporn Units 1-4, Clinch River Units 1-3, Tanners Creek Units 1-3, and/or Kammer Units 1-3" be retired, retrofit, or re-powered. The expected NO<sub>x</sub> reduction is 25% in addition to the 60% already achieved by the LNBs.

Historical data shows that between 2002 and 2007 the SO<sub>2</sub> and NO<sub>x</sub> emission rates decreased at Mountaineer and Philip Sporn while heat input increased. The Mountaineer SO<sub>2</sub> emission rate decreased by 95.3%, and the NO<sub>x</sub> emission rate decreased by 17.6%. The Philip Sporn SO<sub>2</sub> emission rate decreased by 18.2%, and the NO<sub>x</sub> emission rate decreased by 24.4%.

In addition, DEP has conducted a RACT analysis (which was included in the Parkersburg Annual PM<sub>2.5</sub> SIP revision submitted to EPA on September 9, 2008) to determine the

appropriate level of controls for EGUs. It was determined that SCR and wet scrubbers are not economically feasible for units the size of those at Philip Sporn.

DEP believes that these units are equipped with controls that meet the definition of RACT and there is no air quality benefit to be gained by designating the Graham Tax District as nonattainment.

Furthermore, EPA in the final PM<sub>2.5</sub> Implementation Rule stated that for SO<sub>2</sub> and NO<sub>x</sub> “EPA believes that states could justify considering not only all emissions in the nonattainment area but also emissions within a distance that may be up to 200 kilometers from the nonattainment area” [72 FR 20636, 25APR2007]. Since EPA has provided states the flexibility to consider emissions from sources within 200 kilometers of the nonattainment area, it is not necessary for EPA to include the partial counties within the nonattainment areas.

<b>Mason County EGU Emissions</b>						
<b>Year</b>	<b>Months Reported</b>	<b>SO<sub>2</sub> (tons)</b>	<b>SO<sub>2</sub> Rate (lb/mmBtu)</b>	<b>NO<sub>x</sub> (tons)</b>	<b>NO<sub>x</sub> Rate (lb/mmBtu)</b>	<b>Heat Input (mmBtu)</b>
<b>Mountaineer Power Station, ORIS Code: 6264</b>						
2002	12	43,223.7	1.028	12,911.1	0.307	84,095,133
2003	12	48,035.7	1.040	16,733.5	0.362	92,378,031
2004	12	37,823.3	1.000	12,776.3	0.338	75,682,741
2005	12	42,981.9	0.926	12,746.4	0.275	92,852,958
2006	12	31,051.9	0.972	7,661.5	0.240	63,881,965
2007	12	2,301.9	0.048	12,147.4	0.253	95,972,918
<b>Philip Sporn Power Station, ORIS Code: 3938</b>						
<b>Year</b>	<b>Months Reported</b>	<b>SO<sub>2</sub> (tons)</b>	<b>SO<sub>2</sub> (lb/mmBtu)</b>	<b>NO<sub>x</sub> (tons)</b>	<b>NO<sub>x</sub> (lb/mmBtu)</b>	<b>Heat Input (mmBtu)</b>
2002	12	40,246.1	1.635	13,184.6	0.536	49,240,608
2003	12	49,890.7	1.709	14,284.6	0.489	58,402,135
2004	12	42,473.8	1.568	10,510.9	0.388	54,185,844
2005	12	39,374.8	1.594	8,960.7	0.363	49,406,162
2006	12	39,741.0	1.613	9,239.6	0.375	49,263,839
2007	12	40,529.7	1.352	12,154.0	0.405	59,974,019

<b>Controls on EGUs in Mason County</b>									
<b>Plant</b>	<b>Unit</b>	<b>Size (MW)</b>	<b>Controls</b>					<b>Control Efficiency</b>	
			<b>PM</b>	<b>SO<sub>2</sub></b>	<b>YR</b>	<b>NO<sub>x</sub></b>	<b>YR</b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>
Mountaineer	1	1300	ESP	wet scrubber	2007	SCR	2003	95%	95%
Sporn	1	150	ESP	–	–	LNB	1997	–	60%
	2	150	ESP	–	–	LNB	1997	–	60%
	3*	150	ESP	–	–	LNB	1999	–	60%
	4*	150	ESP	–	–	LNB	1998	–	60%
	5	450	ESP	–	–	LNB	1999	–	60%

\*Units 3 and 4 are currently being equipped with SNCR, which will be operational beginning in 2009.

## II. Parkersburg-Marietta Area

### 1. **Factor 1: Emissions Data**

EPA's data is consistent with the NEI. However, DEP notes that pollutants from various separate portions of the area may not necessarily impact a violating monitor.

### 2. **Factor 2: Air Quality Data**

EPA's data is consistent with AQS. However, there is no air monitoring data that indicates a violation of the NAAQS in Pleasants County.

### 3. **Factor 3: Population Density and Degree of Urbanization (Including Commercial Development)**

According to the US Census the population of Pleasants County in 2000 was 7,514, and estimated to be 7,329 in 2005, a 2.5% decrease. In 2000, District A (which *appears* to equate to the Grant Tax District) in Pleasants County had a population of 1,940, and is estimated to have a population of 1,892 in 2005 assuming a 2.5% decrease.

According to EPA's own data the population density of Pleasants County is 54 people per square mile and it ranks third out of three for the counties considered for inclusion in the nonattainment area. The population of Pleasants County is 7,329 and it ranks third out of three.

County, State	*2005 Population	Population Rank	*2005 Population Density (people/sq. mile)	Population Density Rank
Washington, OH	62,155	2	98	2
Wood, WV	86,881	1	231	1
Pleasants, WV	7,329	3	54	3

\*Data Source: EPA Technical Analysis for the Parkersburg-Marietta Area

EPA accurately concludes: "Therefore these counties [Pleasants and Wirt] with lower populations are low ranking candidates for a nonattainment designation based upon this factor." The DEP concurs, noting that the three top-ranked counties have a collective 2005 population of 156,365, with Pleasants contributing only 7,329 (4.7%). Moreover, Pleasants population density is only about half that of Washington OH and less than one-fourth that of Wood. The data would have been even more compelling if EPA had apportioned the results to the Grant Tax District in question rather than including the entire Pleasants County. Hence, evaluation of this factor supports the exclusion of Pleasants County from the nonattainment area.

**4. Factor 4: Traffic and Commuting Patterns**

Again, EPA correctly notes that: “Therefore, Pleasants and Wirt Counties are lower ranking candidates for a nonattainment designation based upon this factor.” This conclusion is supported by Pleasants County’s insignificant contribution to the top three counties’ 2005 VMT ( $67/1,729 = 3.9\%$ ) and the number commuting in the MSA ( $2,460/64,430 = 3.8\%$ ). Indeed, data generated by the Wood-Washington-Wirt Interstate Planning Commission (WWW) to meet PM<sub>2.5</sub> transportation conformity requirements show that the Grant Tax District (Pleasants) in question contributes even less than EPA accounts for, i.e. 2.4% in 2002 and falling to an estimated 2.2% in 2025. Therefore, it should be clear from the below that Grant Tax District (donut) emissions should not only be insignificant in 2002 but also will be even lower in 2025.

Wood County VMT Projections			
<i>(Source: EPA-Approved WWW Conformity Analysis, January 2006)</i>			
County	2002 VMT	2025 VMT	% Change
Wood County	2,391,692	3,247,437	35.78%
Pleasants (donut)	59,907	73,941	23.43%
Total	2,451,599	3,321,378	35.48%
Pleasants (donut) (%)	2.4%	2.2%	

**5. Factor 5: Growth Rates and Patterns**

EPA’s analysis reaches no definitive conclusion here. It notes that population is actually decreasing in the top three counties of the MSA and references a high VMT growth rate in Pleasants. EPA’s results are based on historic HPMS traffic counts from 1996-2005 and do not anticipate the expected changes in the area from the completion of Corridor D. Those changes are included in the WWW projections above which are based upon travel demand modeling. WWW has extensively researched the area local historical trends and growth patterns to develop the Long Range Traffic Plan and support transportation conformity evaluations. While the analysis was performed for the annual standard, there is no reason to expect that the general conclusion would not also apply to the 24-hour standard as well. Highway emissions of NOx and PM decrease in the future despite VMT increases. There exists no reason to expect highway motor vehicle emissions growth that would lead to a PM<sub>2.5</sub> NAAQS violation. WWW has estimated emissions out, at least, to the calendar year 2025 confirming this. The transportation air quality conformity analysis for the WWW area took into account all the regional capacity projects, which are scheduled for implementation through the transportation plan horizon year and the four year TIP. The PM conformity tests were performed for calendar years 2002, 2009, 2015 and 2025, for both the winter and summer representative months [January for winter and July for summer]. For each of those years, vehicle miles traveled (VMT) and Speed were

developed by the Federal Functional Class codes within Wood County and Washington County [for both January and July], which are derived from the regional traffic model assignments that are made for each of those years. Pursuant to the Transportation Conformity interim tests, NO<sub>x</sub> and direct PM were evaluated.

The WWW study area covers the Parkersburg-Marietta Metropolitan area and includes two entire counties: Wood County in West Virginia and Washington County in Ohio. Parkersburg [WV] along with Marietta and Belpre [OH] are the major urban areas. The metropolitan area has a population of 151,000, out of which 87,000 are in the urbanized area according to 2000 census. The study area includes the urban areas of Parkersburg, Marietta and Belpre in addition to all of Wood County, West Virginia and Washington County, Ohio. The townships of Belpre, Dunham, Fearing, Marietta, Muskingum, Newport and Warren are included in the study, as part of Washington County. The transportation plan, on the other hand, is a comprehensive examination of the future transportation needs for Wood County [WV] and portions of Washington County [OH]. The study area is 571.6 square miles, with Wood County representing 376.9 square miles, and the seven Ohio townships representing 194.7 square miles.

WWW models future highway network activity using the QRS-2 Version 6.0 software package developed by AJH Associates. Advanced General Network Editor [GNE] version 7.0 was used to edit the base year model network. The WWW QRS-2 traffic model is a 24-hour traffic analysis model with three internal trip purposes: home-based work, home-based non-work, and non-home based; internal to external trips; through trips; and truck trips developed based on roadway functional classes. The model base year is 2000, and the model future year for the Long Range Multimodal Transportation Plan [LRTP] is 2025. In this model, both QRS-2 default parameters [national averages] and the location-specific parameters derived from the 2002 WWW household survey were used. The Wood-Washington-Wirt [WWW] Travel Demand Model Technical Report outlined the tasks and activities in the base year model calibration and validation process.

The results of the Mobile6.2 analysis yields mobile emission rates that can be used along with the VMT by functional class of roadway to derive estimates of total mobile source emissions for NO<sub>x</sub> and PM<sub>2.5</sub>. The conformity results are represented in Table 2.5-3. The conformity rule required the region's LRTP to conform to the SIP before FHWA approves the funding of future projects. The conformity evaluation is determined by the processes outlined in the conformity rule. The WWW PM<sub>2.5</sub> nonattainment area has demonstrated conformity with the PM<sub>2.5</sub> transportation conformity rule using the base year interim emissions test.

Table Conformity Results						
Year	NO <sub>x</sub> (tpd)	NO <sub>x</sub> , Annual (tons)	% Change from base	PM <sub>2.5</sub> (tpd)	PM <sub>2.5</sub> , Annual (tons)	% Change from base
2002	6.54	2,388.50	na	0.13	46.26	na
2009	4.23	1,543.31	-35.4%	0.08	30.64	-33.8%
2015	2.44	890.96	-62.7%	0.06	21.48	-53.6%
2025	1.37	499.97	-79.1%	0.05	18.01	-61.1%

The forecasts clearly show that, despite any anticipated growth in the area, significant decreases in highway emissions are expected for all analysis years, for both NO<sub>x</sub>, and direct PM. The interim conformity tests do not require evaluation of SO<sub>2</sub>. However, federal heavy duty diesel engine standards and low sulfur fuel requirements are also expected to yield substantial emission decreases commensurate with those shown above. Therefore, the DEP reiterates its conclusion that potential growth and highway emissions of PM<sub>2.5</sub>, NO<sub>x</sub>, and SO<sub>2</sub> are insignificant contributors to the nonattainment problem for the Parkersburg area.

## 6. Factor 6: Meteorology (Weather/Transport Patterns)

A backward trajectory analysis was conducted to assess the Pleasants County (partial) impact on the Wood County Ambient Monitor. Backward trajectories were computed using NOAA's HYSPLIT Model for days in 2005, 2006, and 2007 that exceeded 30 µg/m<sup>3</sup>. Days included in the trajectory analysis are shown in Table 2. For each day a backward trajectory was computed starting at 100, 250 and 500 meters above ground level (AGL). The duration of the 250 and 500 meter trajectories was 36 hours while the duration of the 100 meter trajectory was 24 hours. The meteorological data set used for the analysis was EDAS40.

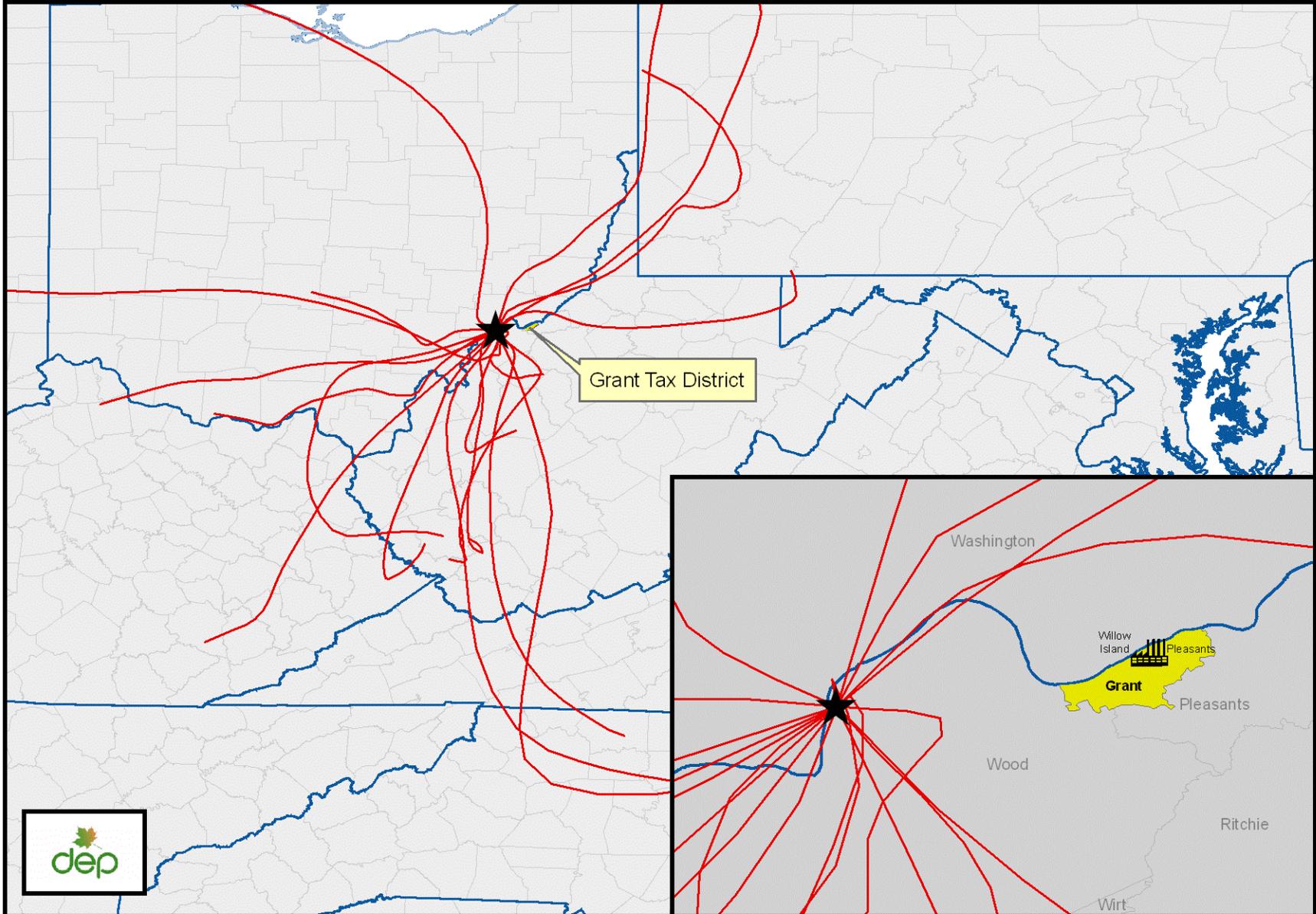
Figures 4, 5, and 6 present the backward trajectories influencing the Wood County Monitor for 100, 250 and 500 meter starting heights, respectively. Each figure shows that the prevailing influence contributing to high PM<sub>2.5</sub> days is from the south, southwest and west, not from the east-northeast where Pleasants County (partial) is located. For the 100, 250 and 500 meter trajectory starting heights, none of the 19 trajectories on high PM<sub>2.5</sub> days pass through the Grant Tax District (Pleasants County partial). The results support that emissions from Pleasants County (partial) do not contribute to the Parkersburg-Marietta nonattainment area and should not be included in the nonattainment designation.

EPA evaluated Meteorology (Weather/Transport Patterns) as Factor 6 in EPA Technical Analyses for the Parkersburg-Marietta Area. Although EPA purports to have considered data from National Weather Service Instruments in the area, no direct supporting

information based on weather patterns is provided to show why Pleasants County (partial) should be included in the Parkersburg-Marietta nonattainment area. In addition, EPA states that a pollution trajectory plot for data related to the violating monitor in Wood County is not available at this time. As such, EPA has inadequate justification based on weather patterns to conclude that Pleasants County (partial) should be included in the nonattainment designation for the Parkersburg-Marietta area. Based on WV's detailed trajectory analysis and EPA's Technical Analysis, winds contributing to the Wood County Monitor do not traverse the Pleasants County (partial) area and it should not be included in the nonattainment designation.

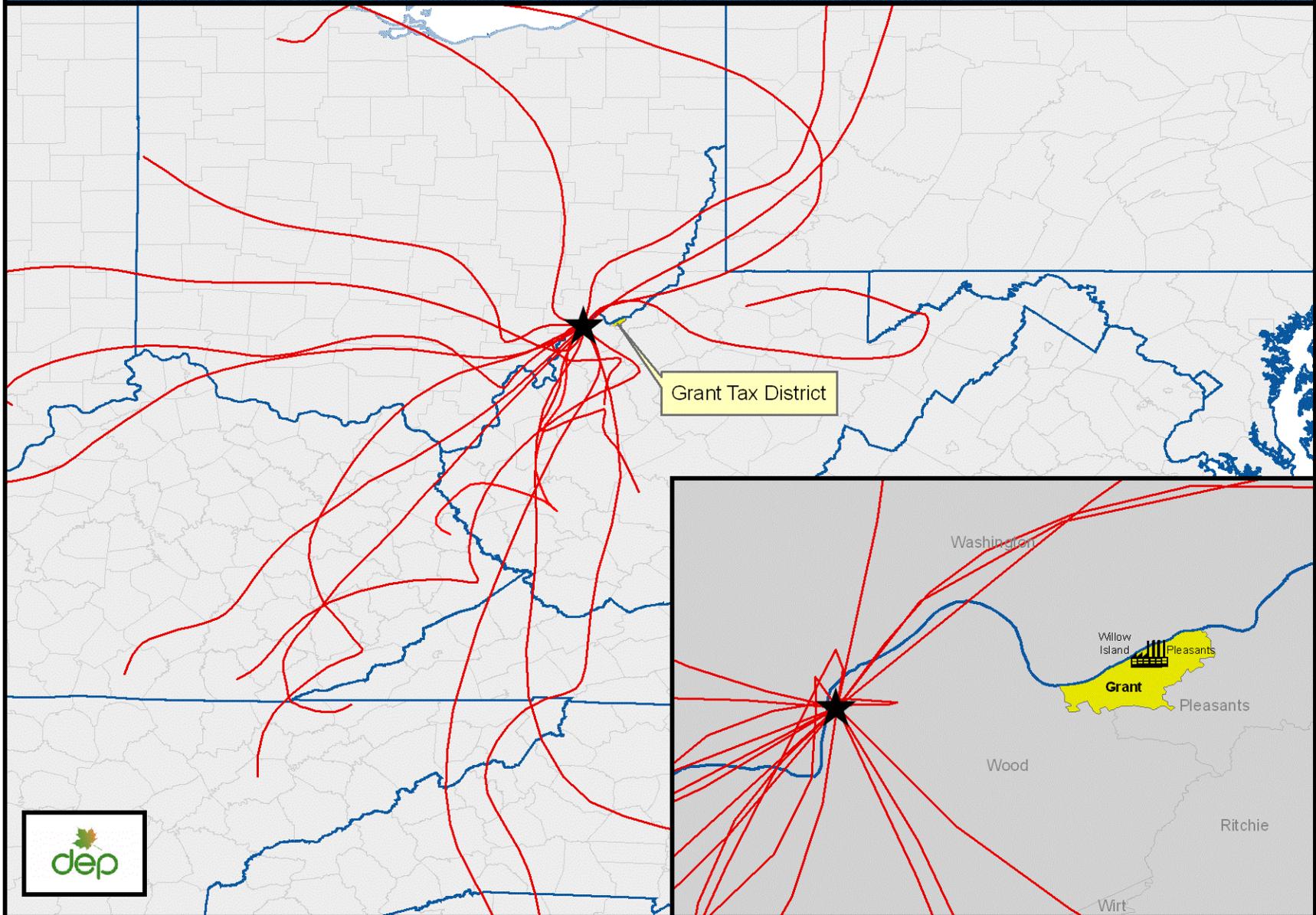
<b>Table 2. Days included in Parkersburg-Marietta trajectory analysis</b>			
<b>Date</b>	<b>Wood County PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>	<b>Date</b>	<b>Wood County PM<sub>2.5</sub> (µg/m<sup>3</sup>)</b>
6/27/2005	43.6	7/10/2006	42.1
6/24/2005	39.3	7/19/2006	39.2
6/30/2005	36.2	7/30/2006	35.1
8/2/2005	34.3	5/30/2007	41.0
8/11/2005	34.0	7/29/2007	39.3
9/13/2005	32.5	8/4/2007	38.8
9/10/2005	31.9	6/2/2007	36.9
9/25/2005	31.5	9/6/2007	33.4
8/17/2005	30.7	5/24/2007	33.2
6/21/2005	30.5		

Figure 4. Wood Co. Monitor Back Trajectories @ 100m for days > 30 ug/m3 - 2005/2006/2007



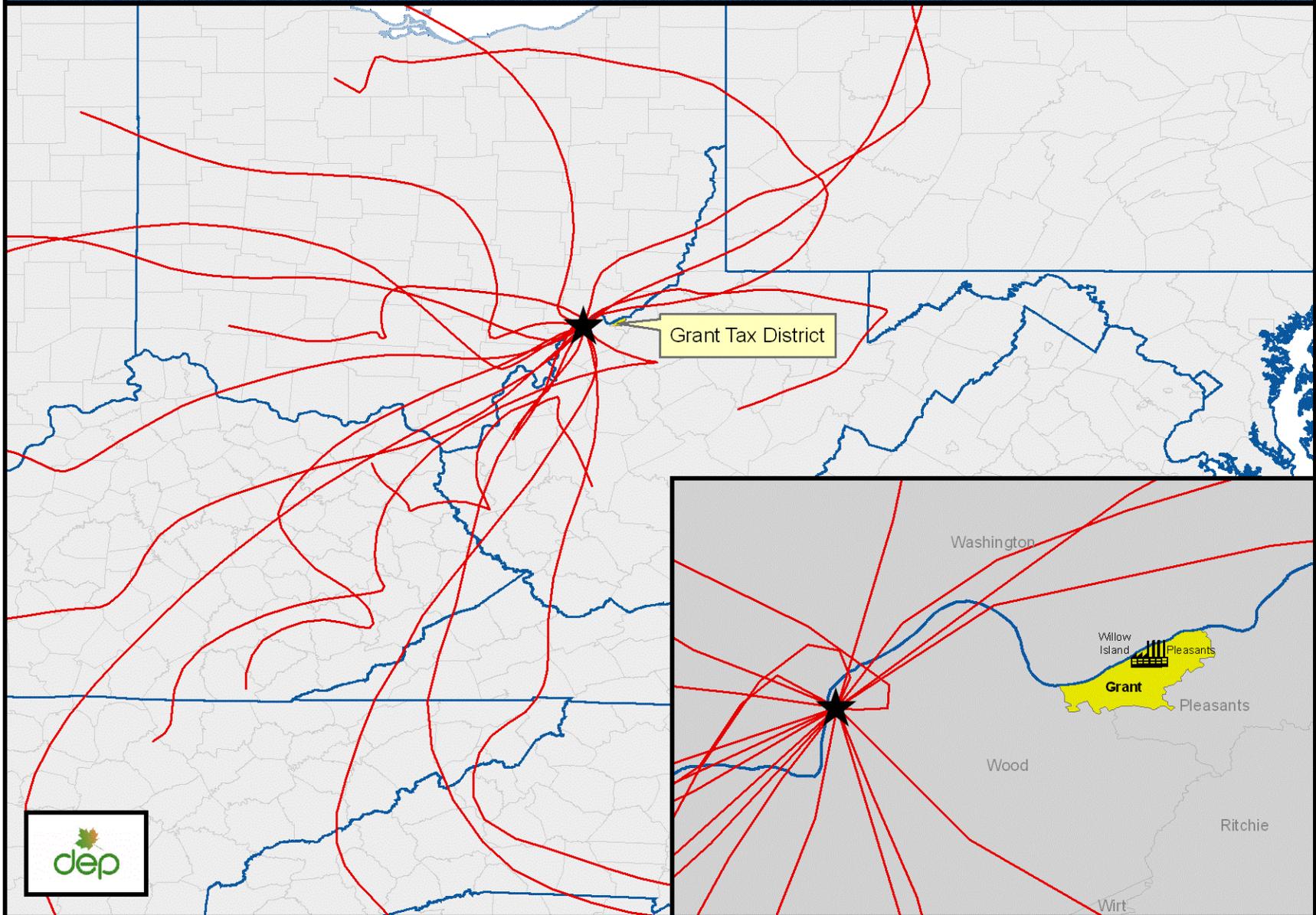
Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 100m AGL Duration: 24 hrs Met Data: EDAS40

Figure 5. Wood Co. Monitor Back Trajectories @ 250m for days > 30 ug/m3 - 2005/2006/2007



Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 250m AGL Duration: 36 hrs Met Data: EDAS40

Figure 6. Wood Co. Monitor Back Trajectories @ 500m for days > 30 ug/m3 - 2005/2006/2007



Trajectories Produced from NOAA HYSPLIT Model (<http://www.arl.noaa.gov/ready>) Height: 500m AGL Duration: 36 hrs Met Data: EDAS40

**7. Factor 7: Geography/Topography(Mountain Ranges or Other Air Basin Boundaries)**

EPA states that this factor did not play a significant role in the decision-making process for the Parkersburg-Marietta area thus has failed to provide justification on the inclusion of the Mason County (partial) area to the Parkersburg-Marietta nonattainment area based on this factor. More importantly, no geographical or topographical features exist in the air shed to enhance the transport of pollutants from the Pleasants County (partial) area to Wood County.

**8. Factor 8: Jurisdictional Boundaries (e.g., Existing PM<sub>2.5</sub> and Ozone Areas)**

EPA identifies the state boundary between Ohio and West Virginia as the major jurisdictional boundary. Further, the agency encourages the two states to work collaboratively to reduce emissions. DEP agrees that cooperation will facilitate meeting the air quality standard. EPA goes on to note that the former 8-hour ozone nonattainment area included Wood County (WV) and Washington County (OH). However, EPA provides absolutely no support for the inclusion of any portion of Pleasants County based upon jurisdictional considerations. DEP continues to pursue litigation concerning EPA's inclusion of the Grant Tax District (Pleasants WV) in the PM<sub>2.5</sub> annual standard designations. We strongly believe that EPA has inappropriately proposed inclusion of this district in the 24-hr. PM<sub>2.5</sub> Parkersburg-Marietta nonattainment area. DEP encourages EPA to reconsider and exclude the entire county of Pleasants from the nonattainment designation.

Pleasants County is not part of the Parkersburg Metropolitan Statistical Area (MSA). Therefore, it is not within the jurisdiction of WWWW, the transportation planning organization. Moreover, its inclusion within the nonattainment area presents an additional and unnecessary burden on WWWW because it must be addressed under transportation conformity requirements even though no air quality benefits result.

**9. Factor 9: Level of Control of Emissions Sources**

The portion of Pleasants County, the Grant Tax District, proposed to be included in the Parkersburg nonattainment area encompasses the Pleasants and Willow Island power plants, both owned by Allegheny Energy.

Pleasants has two units rated at 650 MW each, and both are equipped with an ESP for particulate control, an SCR for NO<sub>x</sub> control and a wet limestone scrubber for SO<sub>2</sub> control. The particulate and SO<sub>2</sub> controls are federally enforceable through regulations and permits. The year round operation of the SCR is required by State Consent Order, which was included in the Parkersburg PM<sub>2.5</sub> SIP revision (submitted to EPA September 9, 2008). Willow Island has two units, Unit 1 rated at 54 MW and Unit 2 rated at 181 MW. Both units are equipped with an ESP for particulate control and overfire air (OFA) for NO<sub>x</sub> control, which are federally enforceable through regulation and permits. In addition, in December of 2007 Pleasants began scrubbing 100% of the flue gas, permanently

eliminating the 15% bypass. This results in a 95% SO<sub>2</sub> removal rate for the additional 15% of the flue gas that is now scrubbed, for a total removal efficiency of 95%.

Historical data shows that between 2002 and 2007 the SO<sub>2</sub> and NO<sub>x</sub> emission rates at Pleasants and Willow Island decreased, while heat input remained steady at Pleasants and decreased slightly at Willow Island. The Pleasants SO<sub>2</sub> emission rate decrease by 5.4%, and the NO<sub>x</sub> emission rate decreased by 34%. The Willow Island SO<sub>2</sub> emission rate decreased by 48.9%, and the NO<sub>x</sub> emission rate decreased by 29.7%.

In addition, DEP has conducted a RACT analysis (which was included in the Parkersburg PM<sub>2.5</sub> SIP revision submitted to EPA on September 9, 2008) to determine the appropriate level of controls for EGUs. It was determined that SCR and wet scrubbers are not economically feasible for units the size of those at Willow Island.

DEP believes that these units are equipped with controls that meet the definition of RACT and there is no air quality benefit to be gained by designating the Grant Tax District as nonattainment.

Furthermore, EPA in the PM<sub>2.5</sub> Implementation Rule stated that for SO<sub>2</sub> and NO<sub>x</sub> “EPA believes that states could justify considering not only all emissions in the nonattainment area but also emissions within a distance that may be up to 200 kilometers from the nonattainment area” [72 FR 20636, 25APR2007]. Since EPA has provided states the flexibility to consider emissions from sources within 200 kilometers of the nonattainment area, it is not necessary for EPA to include the partial counties within the nonattainment areas.

<b>Pleasants County EGU Emissions</b>						
<b>Year</b>	<b>Months Reported</b>	<b>SO<sub>2</sub> (tons)</b>	<b>SO<sub>2</sub> (lb/mmBtu)</b>	<b>NO<sub>x</sub> (tons)</b>	<b>NO<sub>x</sub> (lb/mmBtu)</b>	<b>Heat Input (mmBtu)</b>
<b>Pleasants Power Station, ORIS Code: 6004</b>						
2002	12	41,909.1	1.116	13,714.4	0.365	75,105,623
2003	12	44,396.2	1.149	9,273.4	0.240	77,307,448
2004	12	38,782.2	1.177	6,464.5	0.196	65,918,797
2005	12	47,203.5	1.103	9,790.7	0.229	85,603,621
2006	12	42,867.1	1.101	9,512.2	0.244	77,895,030
2007	12	38,437.5	1.056	8,762.7	0.241	72,818,187

<b>Pleasants County EGU Emissions</b>						
<b>Year</b>	<b>Months Reported</b>	<b>SO<sub>2</sub> (tons)</b>	<b>SO<sub>2</sub> (lb/mmBtu)</b>	<b>NO<sub>x</sub> (tons)</b>	<b>NO<sub>x</sub> (lb/mmBtu)</b>	<b>Heat Input (mmBtu)</b>
<b>Willow Island Power Station, ORIS Code: 3946</b>						
2002	12	14,456.5	2.172	5,945.8	0.893	13,314,118
2003	12	12,139.5	1.939	5,297.0	0.846	12,521,089
2004	12	5,527.0	1.859	2,744.3	0.923	5,945,251
2005	12	5,091.4	1.456	2,525.3	0.722	6,993,335
2006	12	3,859.2	1.064	2,344.3	0.646	7,253,283
2007	12	4,327.7	1.110	2,448.9	0.628	7,795,985

<b>Controls on EGUs in Pleasants County</b>									
<b>Plant</b>	<b>Unit</b>	<b>Size (MW)</b>	<b>Controls</b>					<b>Control Efficiency</b>	
			<b>PM</b>	<b>SO<sub>2</sub></b>	<b>YR</b>	<b>NO<sub>x</sub></b>	<b>YR</b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>
Pleasants	1	650	ESP	wet scrubber	1979	SCR	2003	95%	90%
	2	650	ESP	wet scrubber	1980	SCR	2003	95%	90%
Willow Island	1	54	ESP	–	–	OFA	2001	–	25%
	2	181	ESP	–	–	OFA	2001	–	50%

### **III. Conclusion**

EPA arbitrarily included the partial counties (Mason and Pleasants) in the respective nonattainment areas because they contain power plants. Due to the rural nature of these counties and the fact that the power plants located in the partial counties are currently controlled to the extent that is economically feasible, these areas are unlikely to be able to achieve any additional reductions. Therefore, there is no air quality benefit to designating these partial counties as nonattainment.

EPA has not provided sufficient rationale as to how the nine-factor analysis justifies the inclusion of the partial counties in the nonattainment areas. Therefore, DEP urges EPA to exclude these partial counties from any PM<sub>2.5</sub> nonattainment area.