



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Enclosure 3

The Commonwealth of Pennsylvania's Response to the U.S. Environmental Protection Agency's Proposed Designation of an Allentown Nonattainment Area for the 2012 Annual PM_{2.5} National Ambient Air Quality Standard

**Bureau of Air Quality
Department of Environmental Protection**

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The U.S. Environmental Protection Agency (EPA) promulgated the annual fine particulate matter (PM_{2.5}) National Ambient Air Quality Standard (NAAQS) on December 14, 2012; the standard was lowered to 12.0 micrograms per cubic meter (78 FR 3086; January 15, 2013). The Commonwealth of Pennsylvania submitted its recommendations to EPA, in accordance with Section 107 of the Clean Air Act, 42 U.S.C.A. § 7407, on December 10, 2013, and updated the recommendation on July 30, 2014, based on 2011-2013 ambient air monitoring data.

In its August 19, 2014, letter to Governor Corbett, EPA proposed to expand the PA Department of Environmental Protection's (DEP) recommended Northampton County nonattainment area to include Lehigh County and Northampton County in an Allentown nonattainment area for the 2012 annual PM_{2.5} National Ambient Air Quality Standard (NAAQS). Pennsylvania had recommended to EPA a smaller nonattainment area limited solely to Northampton County.

DEP has conducted a comprehensive evaluation of EPA's proposed modifications to Pennsylvania's designation recommendations. Based on a further review and analysis of available data, Pennsylvania disagrees with EPA's enlargement of the recommended nonattainment area for Northampton County. The final nonattainment area for the 2012 annual PM_{2.5} NAAQS should not include Lehigh County in its nonattainment area, but rather should remain the one-county area, of Northampton County that DEP initially recommended. The information contained in this enclosure supplements the information DEP submitted to EPA on December 10, 2013, and July 30, 2014.

DEP has developed the following information to support the extreme local nature of this fine particulate problem in a limited nonattainment area of Northampton County, as initially recommended. DEP recommends that EPA designate the Northampton County area as a separate nonattainment area, and designate Lehigh County as an unclassifiable/attainment area.

BACKGROUND AND OVERVIEW

On July 18, 1997, EPA published annual and 24-hour primary and secondary standards for fine particulate matter (PM_{2.5}). In February 2004, DEP submitted a letter to EPA with area recommendations for the 1997 annual PM_{2.5} NAAQS, which included the recommendation that the Allentown-Bethlehem-Easton area (Northampton and Lehigh Counties) be designated as attainment, as both counties were monitoring attainment of the standard. On January 5, 2005, EPA published a final rule that included the designation of Lehigh and Northampton Counties as "unclassifiable/attainment" for the 1997 standard.¹

On October 17, 2006, EPA lowered the 24-hour PM_{2.5} standard from 65 µg/m³ to 35 µg/m³. On December 28, 2007, DEP submitted designation recommendations to EPA for the 2006 24-hour PM_{2.5} NAAQS. These recommendations included an Allentown-Bethlehem-Easton nonattainment area, which comprised of Lehigh and Northampton Counties. As DEP's designation recommendations pointed out in the submittal on pages 11-12:

¹ 70 FR 944; January 5, 2005. Effective April 5, 2005.

No area in this metropolitan area violates the 2012 annual PM_{2.5} standard. However, for the 24-hour standard, the Freemansburg monitor in Northampton County is violating the standard. The Allentown monitor in Lehigh County was discontinued at the end of 2005. Twenty-four hour PM_{2.5} design values in 2005, the last year both monitors were operating, for Allentown and Freemansburg were 36.4 µg/m³ and 36.1 µg/m³ respectively.

On November 13, 2009, EPA published a final rule designating the Allentown Area, made up of Lehigh and Northampton Counties, as a nonattainment area for the 2006 24-hour PM_{2.5} NAAQS.²

On December 13, 2012, EPA strengthened the primary annual PM_{2.5} NAAQS to 12.0 µg/m³. On December 10, 2013, DEP recommended that the Northampton County area be designated as nonattainment for the 2012 annual PM_{2.5} NAAQS, based primarily on 2010-2012 air quality data. The Freemansburg monitor exceeded the standard at 13.2 µg/m³, while the other monitor in the county, the Lehigh Valley monitor, attained the standard with a design value of 10.6 µg/m³. The DEP recommended that Lehigh County be considered unclassifiable/attainment since the county does not have any monitors and was not determined to be contributing to the localized problem seen at the Freemansburg monitor in Northampton County.

On July 30, 2014, DEP provided EPA with updated area recommendations for the 2012 PM_{2.5} NAAQS following the review of 2011-2013 air quality data. These updated recommendations did not change the recommended Northampton County nonattainment area. The 2013 design values for monitors in Northampton County were 12.2 µg/m³ at the Freemansburg monitor and 10.6 µg/m³ at the Lehigh Valley monitor.

On August 19, 2014, EPA sent Governor Corbett a 120-day letter and technical support document indicating the intent to modify Pennsylvania's recommended area boundaries for the Northampton County area. EPA noted its intention to designate Northampton County, as well as Lehigh County, as an Allentown nonattainment area for the 2012 annual PM_{2.5} NAAQS, expanding DEP's recommended smaller Northampton County nonattainment area.

² 74 FR 58,688; November 13, 2009. Effective December 14, 2009.

1. AIR QUALITY DATA

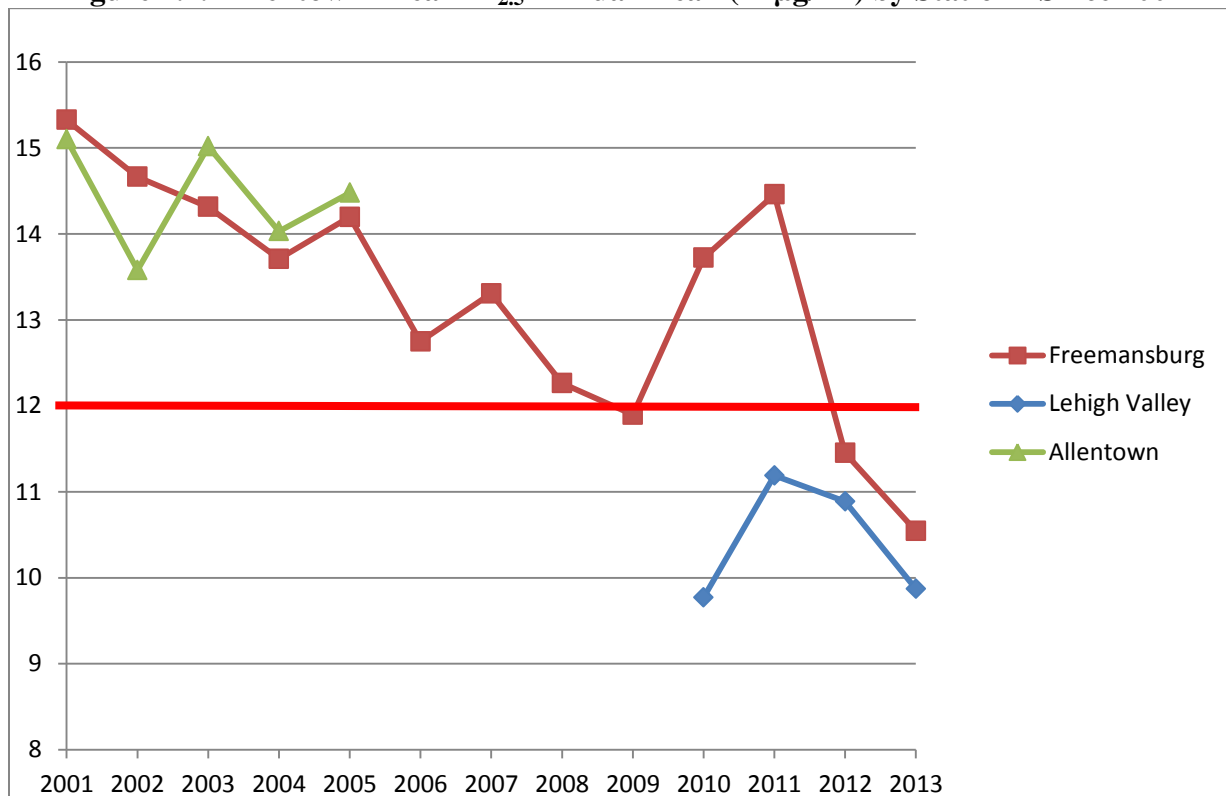
EPA's technical support document (TSD) analysis for the 2012 annual PM_{2.5} NAAQS noted that while Lehigh County does not have a monitor, the county contributes to the nearby violation at the Freemansburg monitor. While Lehigh County does not currently have a monitoring station, a monitor used to be located in Allentown until it ceased operation on December 31, 2005. The Allentown monitor was removed, because at the time it was considered to be a duplicative sampler. In 2010, the Lehigh Valley monitor was added to the Allentown-Bethlehem-Easton Metropolitan Statistical Area (MSA), in Northampton County, due to the requirement in 40 CFR Part 58, Appendix, Table D-5, requiring that this area have two PM_{2.5} monitors.

Table 1.1 and Figure 1.1 show the trend for the annual mean values monitored in the Allentown area.

Table 1.1. Allentown Area PM_{2.5} Annual Mean (in µg/m³) by Station – 2010-2013

<u>Station</u>	<u>AQS Code</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Freemansburg	42-095-0025	13.73	14.46	11.45	10.55
Lehigh Valley	42-095-0027	9.77	11.19	10.89	9.87
	<i>Difference</i>	<i>3.96</i>	<i>3.27</i>	<i>0.56</i>	<i>0.68</i>

Figure 1.1. Allentown Area PM_{2.5} Annual Mean (in µg/m³) by Station - Since 2001



*The Allentown monitor ceased operation on 12/31/2005.

**The Lehigh Valley monitor commenced operation in 2010.

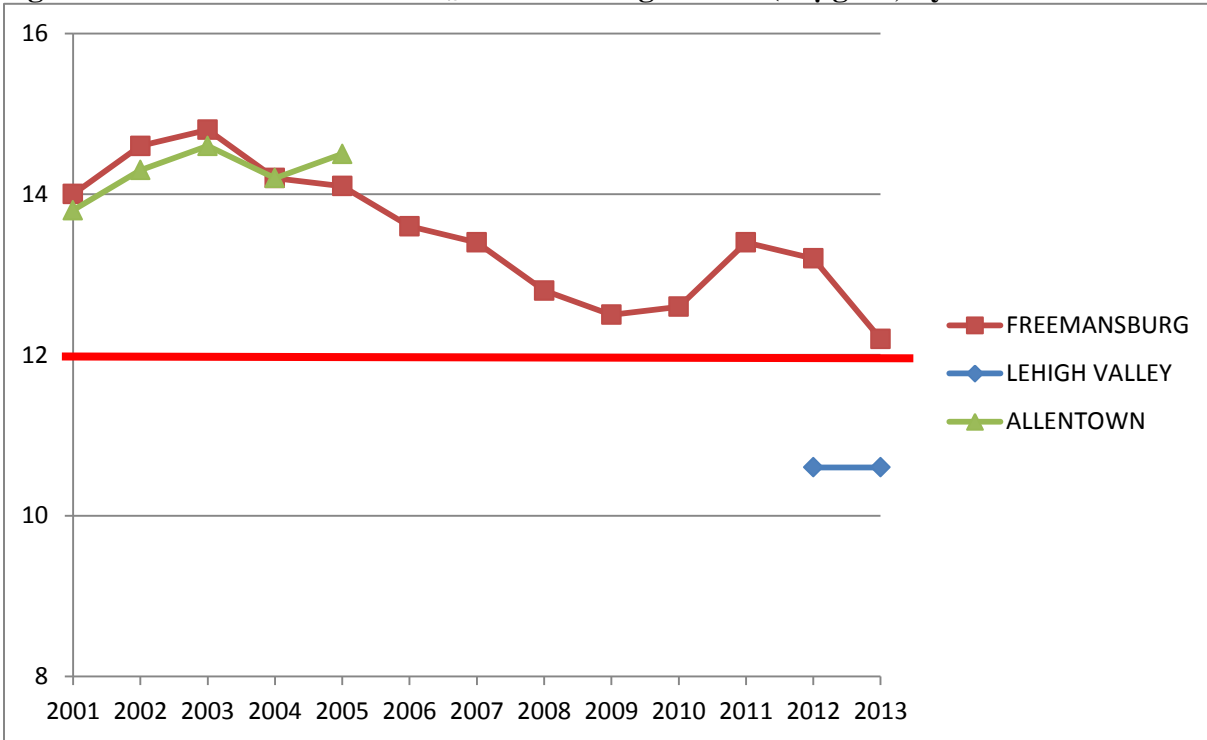
Figure 1.1 clearly illustrates a localized problem being observed at the Freemansburg monitor in 2010 and 2011, with the values seen at the Freemansburg monitor at least 3 $\mu\text{g}/\text{m}^3$ higher than the Lehigh Valley monitor. Information on the Allentown monitor was included in Figure 1.1 to illustrate how these monitors typically correlate well with one another. Other than 2010 and 2011, the Allentown monitor (in 2001-2005) and the Lehigh Valley monitor (in 2012 and 2013), compared to the Freemansburg monitor, never had a difference of more than 1.08 $\mu\text{g}/\text{m}^3$. The increase in the annual mean at the Freemansburg monitor in 2010 and 2011 is an anomaly specific to Freemansburg. If emissions from Lehigh County were causing this increase, the Lehigh Valley monitor also would have gone up significantly, which did not occur. This local issue is tied to construction activity on the land of the former Bethlehem Steel Corporation plant, just south of the Freemansburg monitor, as described in more detail in Section 4.

Table 1.2 and Figure 1.2 show that the trend for annual design values monitored in the Allentown area is downward, with the exception of an upward tick in Freemansburg for the 2011-2013 time period. The Allentown monitor is included in Figure 1.2 to show the strong correlation in monitors in the Allentown area of Lehigh and Northampton Counties. This correlation is not evident in the 2010-2013 time frame, which is due to local construction activities in the vicinity of the Freemansburg monitor. Again, it should be noted that the Allentown monitor ceased operation on December 31, 2005, and the Lehigh Valley monitor began operation in 2010. Since the design value is the average of 3 years of data, Lehigh Valley's design value was not calculated until 2012. Both 2012 and 2013 design values at the Lehigh Valley monitor were steady at 10.6 $\mu\text{g}/\text{m}^3$, while the Freemansburg monitor design values were 13.2 $\mu\text{g}/\text{m}^3$ and 12.2 $\mu\text{g}/\text{m}^3$ respectively.

Table 1.2. Allentown Area PM_{2.5} Annual Design Value (in $\mu\text{g}/\text{m}^3$) by Station – 2010-2013

Station	AQS Code	2010	2011	2012	2013
Freemansburg	42-095-0025	12.6	13.4	13.2	12.2
Lehigh Valley	42-095-0027	N/A	N/A	10.6	10.6

Figure 1.2. Allentown Area PM_{2.5} Annual Design Value (in µg/m³) by Station - Since 2001



*The Allentown monitor ceased operation on 12/31/2005.

**The Lehigh Valley monitor began operation in 2010, so the first design value was valid in 2012.

The downward trend since 2011, shown in the tables and figures above, is expected to continue, with the Freemansburg monitor likely attaining the 2012 annual PM_{2.5} NAAQS based on the 2014 design value.

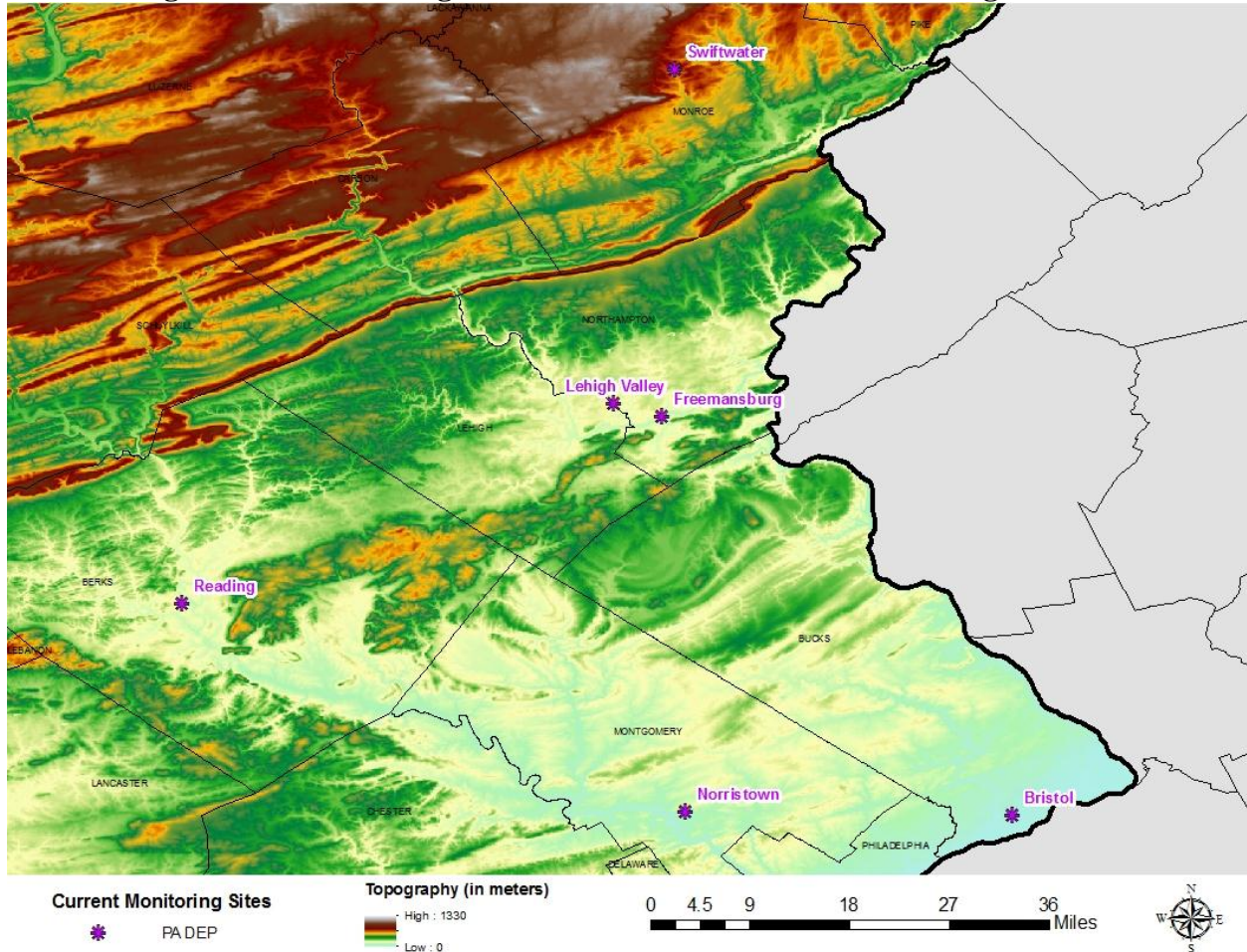
Table 1.3 shows the quarterly average for the Freemansburg and Lehigh Valley monitors for the first and second quarters of 2014. It should be noted that no single quarterly average above 12.0 µg/m³ is a violation of the standard. The annual mean is the average of the four quarterly averages, which is then averaged with the annual mean from each of the two previous years to obtain the current design value. In order to meet the 2012 annual PM_{2.5} NAAQS, the Freemansburg monitor would need a 2014 annual mean of 14.15 µg/m³. Currently, the average of the quarterly averages at both Lehigh Valley and Freemansburg monitors show a value of less than 11 µg/m³.

Table 1.3. Allentown Area Monitoring Station Data – 2014 Quarterly Averages to Date

Station	AQS Code	1 st Quarter Average (µg/m ³)	2 nd Quarter Average (µg/m ³)	Average of 1 st & 2 nd Quarters
Freemansburg	42-003-0002	13.76	7.98	10.87
Lehigh Valley	42-003-0008	13.67	7.72	10.70

A correlation analysis of the 2013 design value PM_{2.5} data was completed using a 24-hour daily average PM_{2.5} comparison of the values measured at Freemansburg compared to those at Lehigh Valley, Reading, Swiftwater, Bristol and Norristown. Figure 1.3 shows the location of these monitors in relation to the Freemansburg monitoring location. The associated chart provides the distance and direction from the Freemansburg monitoring location.

Figure 1.3. Monitoring Locations Related to the Freemansburg Monitor



Monitor	DISTANCE (MILES)	Degrees	Direction	Monitor	DISTANCE (MILES)	Degrees	Direction
LEHIGH VALLEY	3.5	290.1	WNW	BRISTOL	43.4	146.1	SE
SWIFTWATER	31.4	1.7	N	NORRISTOWN	35.6	177.2	S
READING	37.0	242.8	WSW				

Tables 1.4 and 1.5 provide the calculation of the correlation coefficient, ‘r’, and the coefficient of determination ‘r²,’ respectively, for the five monitoring locations compared to the Freemansburg monitor (based on the 2013 design value, for calendar years 2011, 2012 and 2013). The correlation coefficient between two variables is measured by the strength and direction of a linear relationship. The coefficient of determination is indicative of how well the regression line represents the data. If the regression line would pass through each data point on a scatter plot,

then this would explain all of the variation. The further away the line is from each of the points, the less that it is able to be explained.³

Table 1.4. Calculation of r (Correlation Coefficient)

	Lehigh Valley	Reading	Swiftwater	Bristol	Norristown
2011-13	0.828930077	0.787194606	0.613021262	0.735520741	0.742178037
2011	0.767578003	0.764991712	0.755702134	0.667923623	0.721879358
2012	0.827356044	0.747365310	0.617786461	0.727071440	0.704021058
2013	0.953881874	0.909063001	0.689684057	0.857663778	0.828215254

Table 1.5. Calculation of r² (Coefficient of Determination)

	Lehigh Valley	Reading	Swiftwater	Bristol	Norristown
2011-13	0.687125073	0.619675348	0.375795068	0.540990760	0.550828239
2011	0.589175990	0.585212320	0.571085715	0.446121966	0.521109808
2012	0.684518024	0.558554907	0.381660112	0.528632878	0.495645650
2013	0.909890630	0.826395540	0.475664099	0.735587156	0.685940507

In analyzing Tables 1.4 and 1.5, Freemansburg correlates the best with Lehigh Valley (which is expected due the proximity of the sites to one another). Notice the “very high positive correlation” in 2013 as opposed to 2011, which indicates the issue of local emissions near the Freemansburg monitor as opposed to Lehigh Valley.⁴

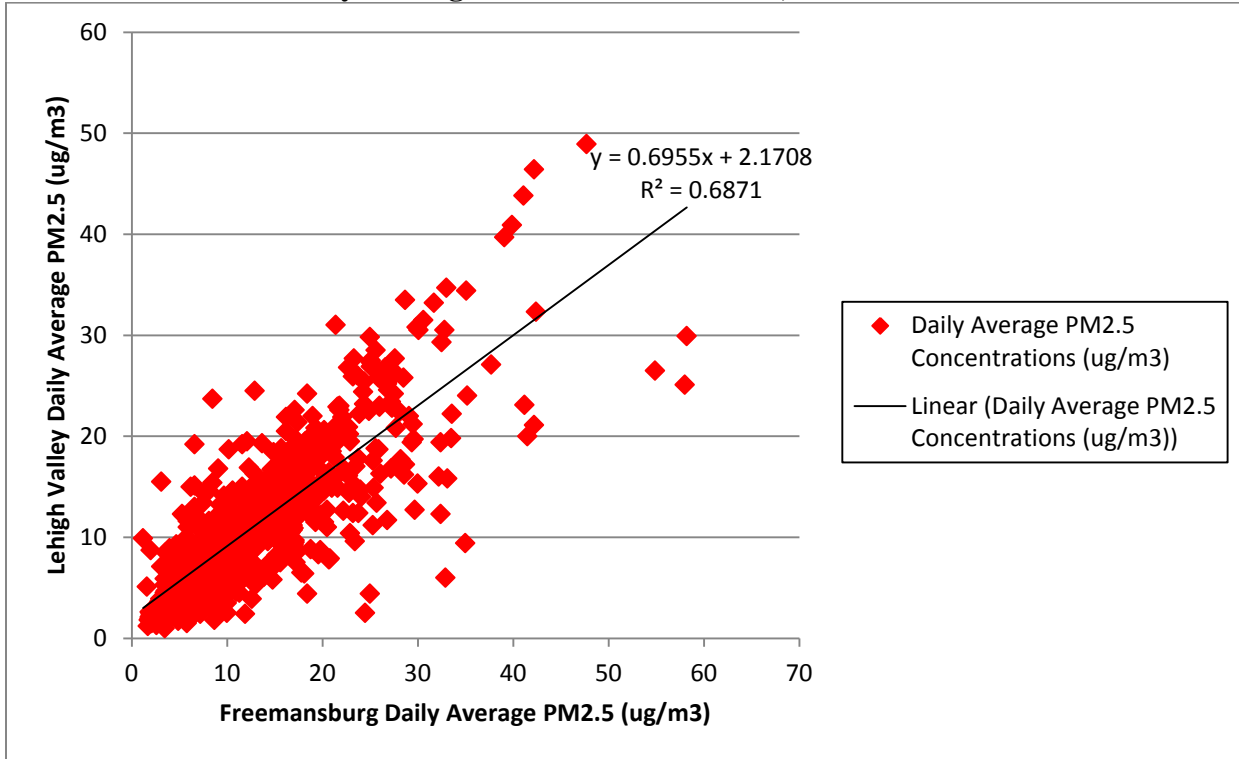
Freemansburg correlates second best with Reading (due to the orientation of the valley from Reading and into the Allentown/Freemansburg area as seen in Figure 1.3). For instance, prevailing westerly flow would ensure that the air mass remains regionalized in nature (blowing from Reading toward Allentown). As was the case with Lehigh Valley, Reading correlates better with Freemansburg in 2013 than 2011.

Figures 1.4 through 1.8 present an illustration of the coefficient of determination, or r² values, as described above and seen in Table 1.5.

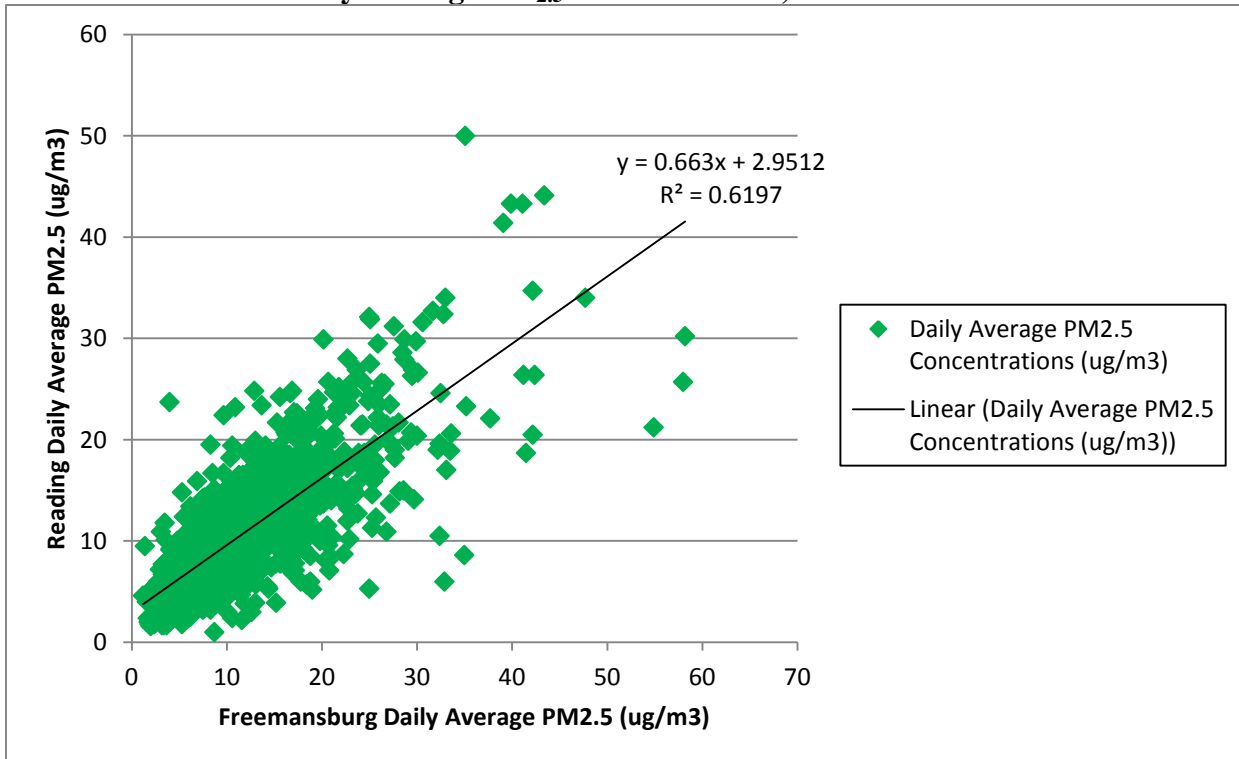
³ <http://mathbits.com/MathBits/TISection/Statistics2/correlation.htm>

⁴ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576830/table/T1/>

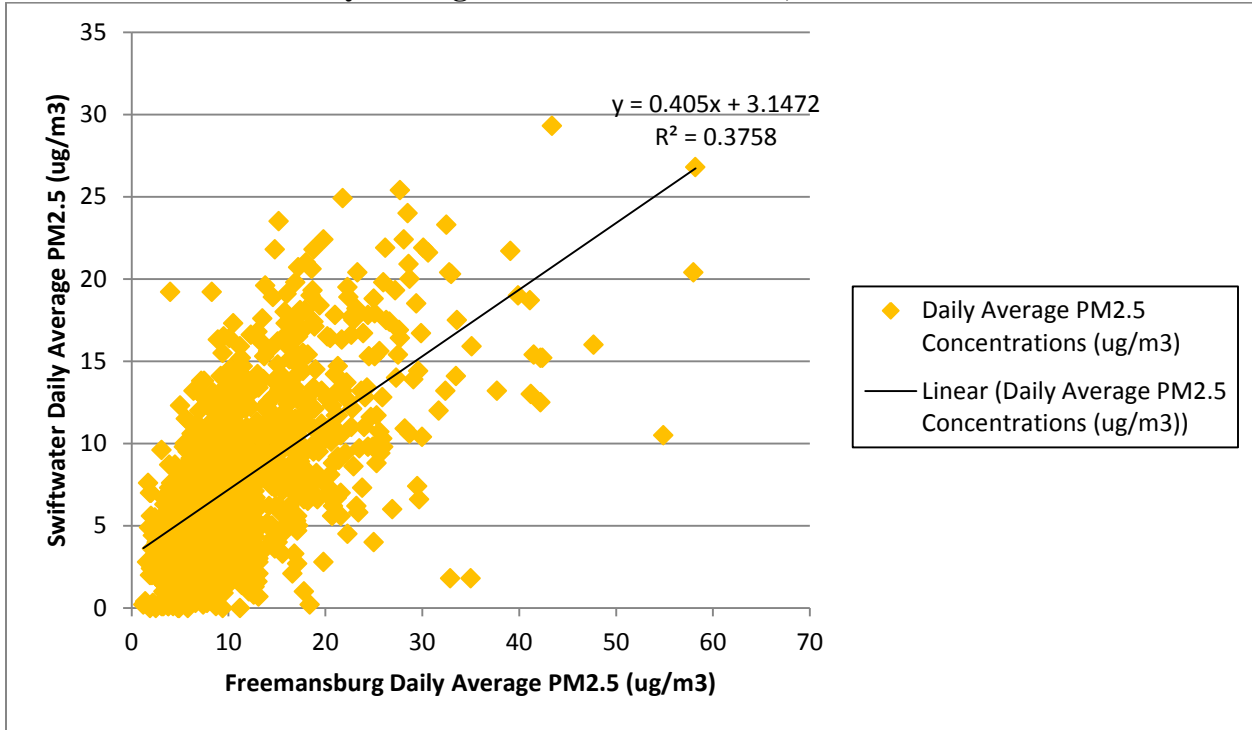
**Figure 1.4. Freemansburg vs. Lehigh Valley
Daily Average PM_{2.5} Concentrations, 2011 to 2013**



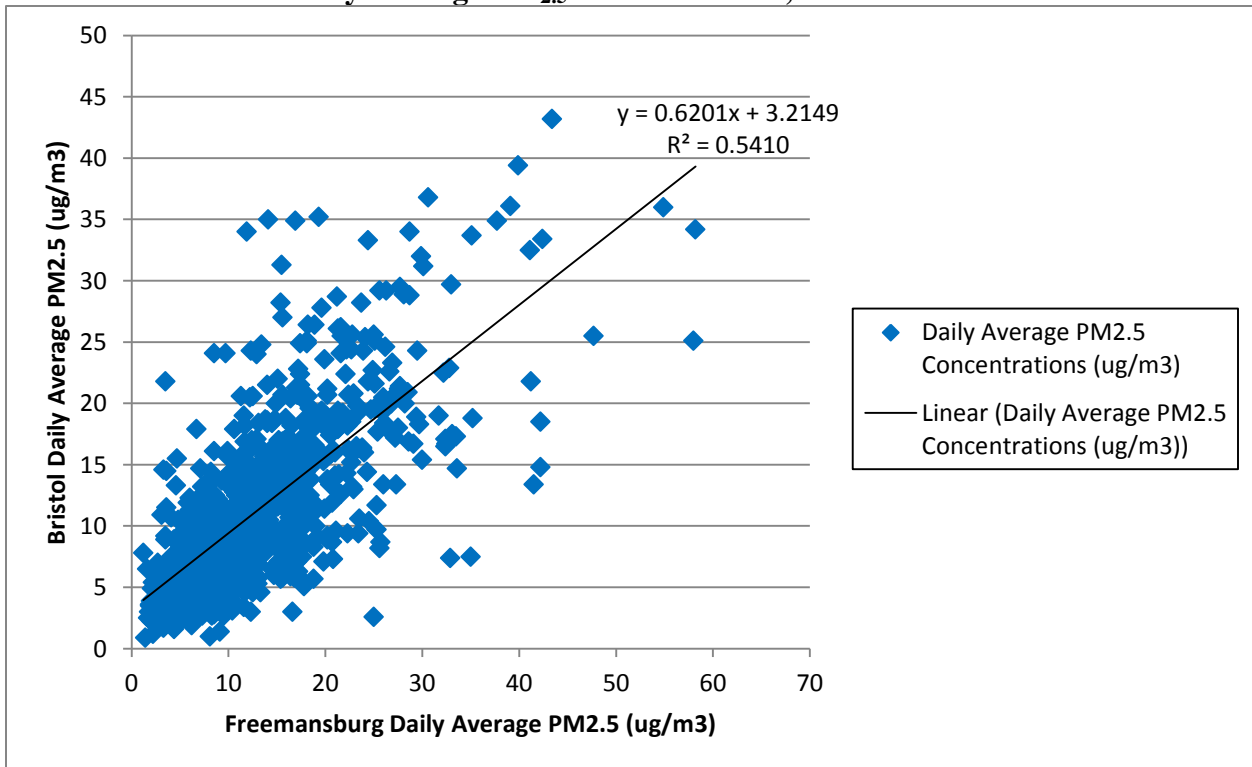
**Figure 1.5. Freemansburg vs. Reading
Daily Average PM_{2.5} Concentrations, 2011 to 2013**



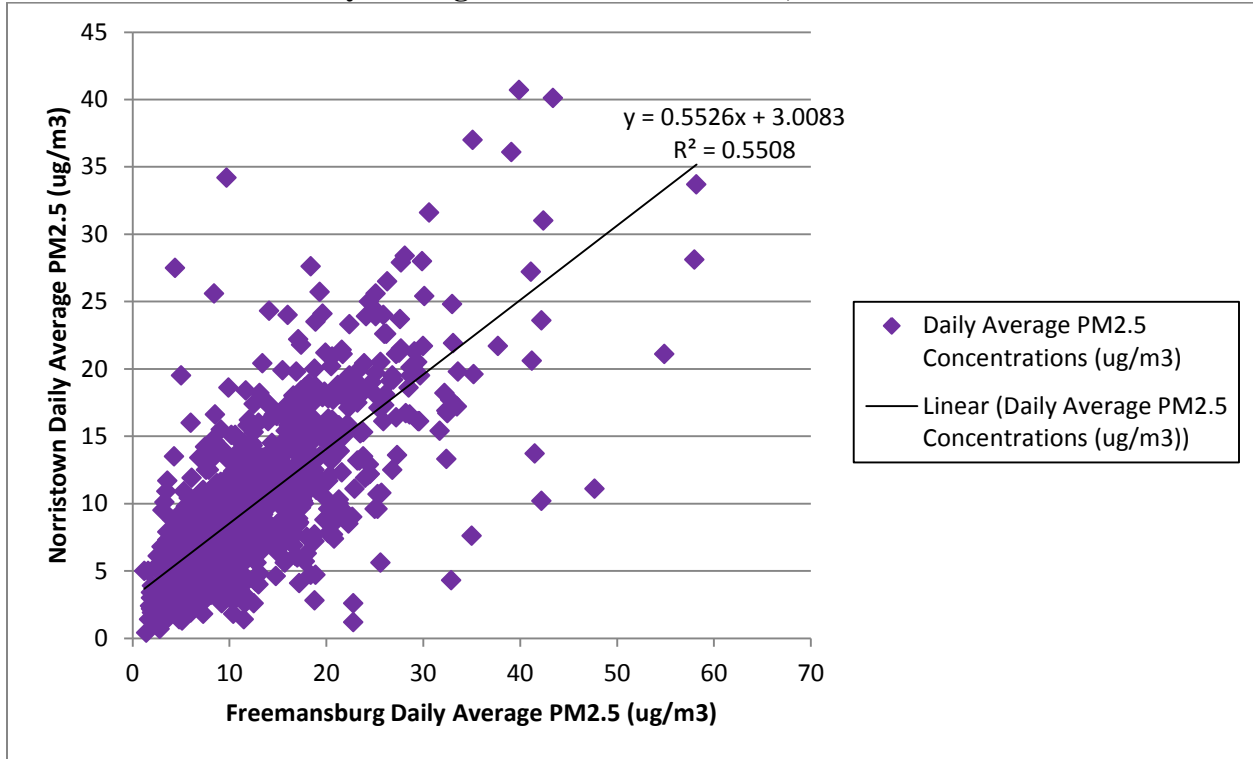
**Figure 1.6. Freemansburg vs. Swiftwater
Daily Average PM_{2.5} Concentrations, 2011 to 2013**



**Figure 1.7. Freemansburg vs. Bristol
Daily Average PM_{2.5} Concentrations, 2011 to 2013**



**Figure 1.8. Freemansburg vs. Norristown
Daily Average PM_{2.5} Concentrations, 2011 to 2013**



2. EMISSIONS AND MONITORING DATA

The EPA TSD analysis on emissions data was based on the 2011 National Emissions Inventory (NEI). Table 5 on page 138 of EPA's TSD analysis indicated major point source emissions from version 1 of the 2011 NEI, in tons per year. Table 5 listed facilities and facility-level emissions in the area of analysis for the Allentown area. In this table, EPA documented six major facilities in Northampton County and one in Lehigh County (in addition to facilities outside of these counties) with emissions of direct PM_{2.5}, components of direct PM_{2.5} and precursor pollutants. Table 2.1 shows the 2011 NEI data for the seven facilities.

Table 2.1. Allentown Area Facilities Over 500 Tons in 2011 NEI

<u>County</u>	<u>Facility Name</u> <u>(Facility ID)</u>	<u>Distance</u> <u>from</u> <u>violating</u> <u>monitor</u> <u>(miles)</u>	<u>NH₃</u>	<u>NO_x</u>	<u>PM_{2.5}</u>	<u>SO₂</u>	<u>VOC</u>	<u>Total</u>
Northampton	Keystone Portland Cement /East Allen (420950012)	7	2	828	57	984	7	1,878
Northampton	Essroc/Nazareth Lower Cement Plant 1 (420950045)	7	68	1,804	522	722	62	3,177
Northampton	Northampton Gen Co /Northampton (420950536)	9	2	441	44	546	2	1,034
Northampton	Hercules Cement Co LP /Stockertown (420950006)	9	3	989	29	1,420	20	2,462
Lehigh	Lafarge Corp/Whitehall Plant (420770019)	10	14	368	36	331	7	754
Northampton	PPL Martins Creek LLC /Martins Creek (420950010)	17	13	943	37	274	30	1,297
Northampton	Genon Rema LLC /Portland Generating Station (420950011)	24	0	1,977	67	15,148	14	17,206
		<u>TOTAL</u>	102	7,350	792	19,425	142	27,808

DEP reviewed these same seven facilities in its Air Information Management System (AIMS) database for the 2013 calendar year. The 2013 emissions for each of the seven facilities within Northampton and Lehigh Counties can be seen in Table 2.2.

Table 2.2. Allentown Area Facilities Over 500 Tons in 2013 in PA's AIMS Database

<u>County</u>	<u>Facility Name (Facility ID)</u>	<u>Distance from violating monitor (miles)</u>	<u>NH₃</u>	<u>NO_x</u>	<u>PM_{2.5}</u>	<u>SO₂</u>	<u>VOC</u>	<u>Total</u>
Northampton	Keystone Portland Cement /East Allen (420950012)	7	3	734	41	743	3	1,524
Northampton	Essroc/Nazareth Lower Cement Plant 1 (420950045)	7	60	1,109	545	878	56	2,648
Northampton	Northampton Gen Co /Northampton (420950536)	9	2	366	15	455	6	844
Northampton	Hercules Cement Co LP /Stockertown (420950006)	9	4	1,405	30	1,418	26	2,883
Lehigh	Lafarge Corp/Whitehall Plant (420770019)	10	12	257	36	273	5	583
Northampton	PPL Martins Creek LLC /Martins Creek (420950010)	17	14	770	16	161	34	995
Northampton	Genon Rema LLC/Portland Generating Station (420950011)	24	0	414	12	2,103	3	2,532
		<u>TOTAL</u>	95	5,055	695	6,031	133	12,009

Emission totals for the seven Lehigh and Northampton County facilities are compared between 2011 and 2013 in Table 2.3.

Table 2.3. Allentown Area Facility Emissions Difference Between 2011 and 2013

<u>County</u>	<u>Facility Name (Facility ID)</u>	<u>2011 Totals</u>	<u>2013 Totals</u>	<u>Difference</u>	<u>Percent Change</u>
Northampton	Keystone Portland Cement/East Allen (420950012)	1,878	1,524	-354	-18.8%
Northampton	Essroc/Nazareth Lower Cement Plant 1 (420950045)	3,177	2,648	-529	-16.7%
Northampton	Northampton Gen Co/Northampton (420950536)	1,034	844	-190	-18.4%
Northampton	Hercules Cement Co LP/Stockertown (420950006)	2,462	2,883	421	17.1%
Lehigh	Lafarge Corp/Whitehall Plant (420770019)	754	583	-171	-22.7%
Northampton	PPL Martins Creek LLC/Martins Creek (420950010)	1,297	995	-302	-23.3%
Northampton	Genon Rema LLC/Portland Generating Sta (420950011)	17,206	2,532	-14,674	-85.3%
	<i>GRAND TOTAL</i>	27,808	12,009	-15,799	-56.8%

As can be seen in the charts above, significant progress has been made in the region, having reduced emissions by more than 56 percent between 2011 and 2013.

3. GEOGRAPHY/TOPOGRAPHY

The EPA TSD analysis accurately describes the geography and topography associated with Lehigh and Northampton Counties. However, the last sentence of Factor 4 in EPA's TSD analysis stated that, "EPA believes that these topographical barriers significantly affect the formation and distribution of PM_{2.5} concentrations in the area of analysis" without any further explanation. There was a large disparity of more than 3 µg/m³ between the Lehigh Valley and Freemansburg monitors. DEP believes that the PM_{2.5} concentrations in the Bethlehem/Freemansburg area were being influenced by emissions south of the Freemansburg monitor.

The history of the Bethlehem Steel property, (approximately 1.5 miles south of the Freemansburg monitor) according to EPA's Corrective Action Statement of Basis document for redevelopment at the former Bethlehem Steel property, is:

From approximately 1899 to 1995, BSC [Bethlehem Steel Corporation] and its corporate predecessors manufactured steel at the approximately 1800-acre BSC Facility. In 1995, BSC discontinued steel manufacturing operations at the BSC Facility and in 2001, filed for bankruptcy under Chapter 7 of the United States Bankruptcy Code. In May 2003, with approval of the U.S. Bankruptcy Court for the Southern District of New York, International Steel Group Acquisition, Inc. (ISG) acquired substantially all of BSC's assets. Title to the BSC Facility was taken by Tecumseh Redevelopment, LLC (Tecumseh), a subsidiary of ISG. A 125-acre westernmost tract, the BW Tract, was sold to Sands Retail, LLC. In addition, Tecumseh sold approximately 1000 acres of the BSC Facility to Lehigh Valley Industrial Park (LVIP). That 1000-acre area is part of the parcel known as Bethlehem Commerce Center. In 2005, ISG merged with Mittal Steel USA, Incorporated (Mittal). Mittal sold 441 acres to Majestic Realty Company in 2007. Tecumseh, now a subsidiary of Mittal, retains the remaining acreage of the BSC Facility.⁵

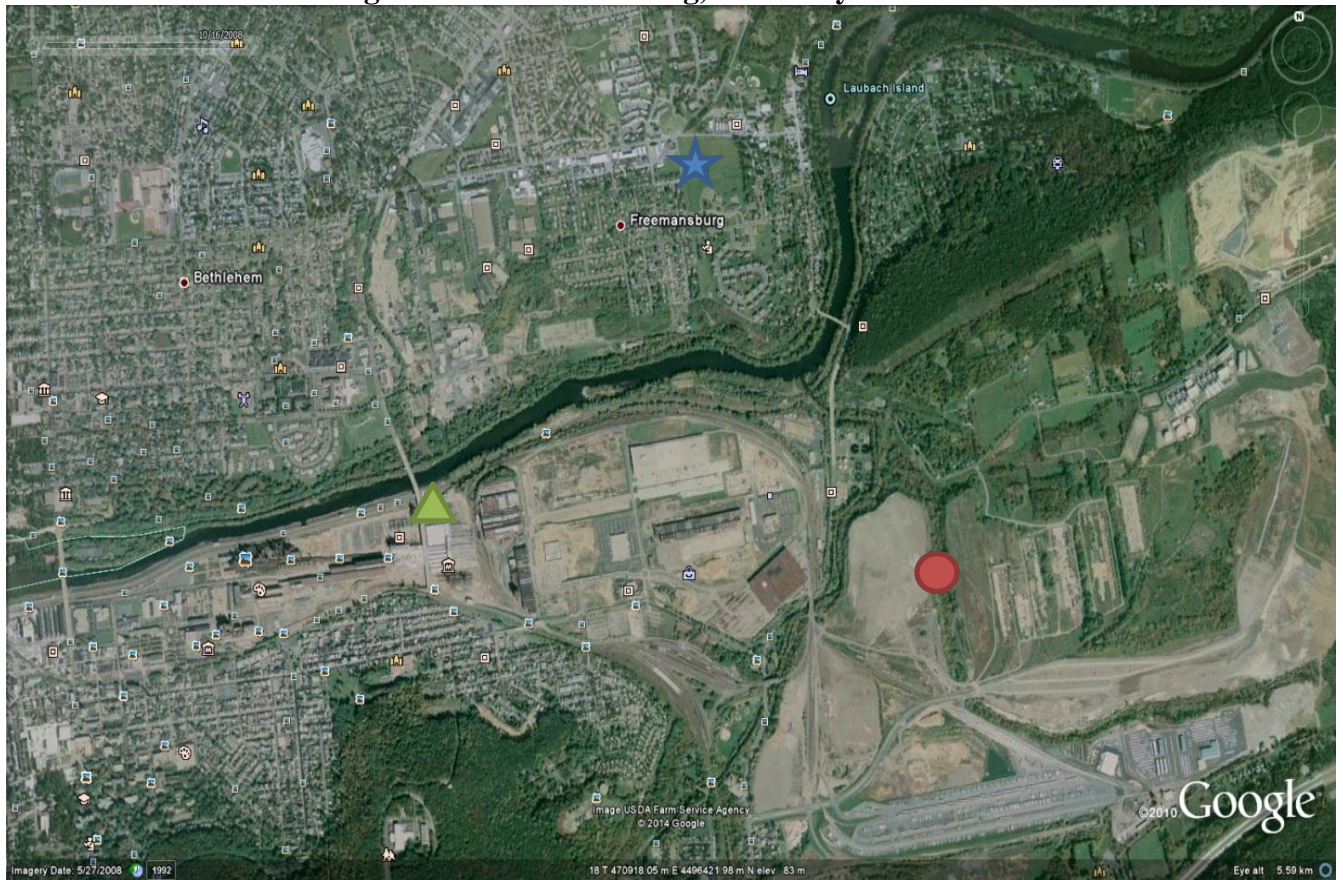
Figures 3.1-3.6 show the nearly 1,800 acres of land formerly owned by Bethlehem Steel (along the southern edge of the Lehigh River). The land, subject to Resource Conservation and Recovery Act (RCRA) Corrective Action activities and DEP's Land Recycling Program (Act 2), has been and continues to be redeveloped.⁶ These images, starting in 2008 (in Figure 3.1), show the land that was heavily developed south of the Freemansburg monitor.

In Figures 3.1, 3.5 and 3.6, the blue star (★) depicts the location of the Freemansburg monitor; the green triangle (▲) is the location of the casino, hotel and shops which were built between late 2008 and mid 2011; the red circle (●) is where warehouses and distribution centers were built between 2010 and 2013.

⁵ http://www.epa.gov/reg3wcmd/ca/pa/otherdocs/BethlehemSteelCommerceCtr_SB.pdf

⁶ http://www.epa.gov/reg3wcmd/ca/pa/reuse/lu_PAD990824161.pdf

Figure 3.1. Freemansburg, PA – May 2008



Source: Google Earth

Figure 3.2 shows the land formerly owned by Bethlehem Steel. This image, from June 2012, is taken from the northwest, looking southeast.

Figure 3.2. Former Property of Bethlehem Steel Corporation



Source: Liberty Property Trust – Lehigh Valley Industrial Park VII

<http://www.gisplanning.net/photos/pa/2785%20Commerce%20Center%20Bld%20LVIP%20VII.pdf>

Figures 3.3 and 3.4 show the redevelopment projects on the old Bethlehem Steel property. The Lehigh Valley Industrial Park VII Land Development project is highlighted in orange in Figure 3.3. Please note that phases 1-4 appear to be completed, while phases 5 and 6 are still in progress.

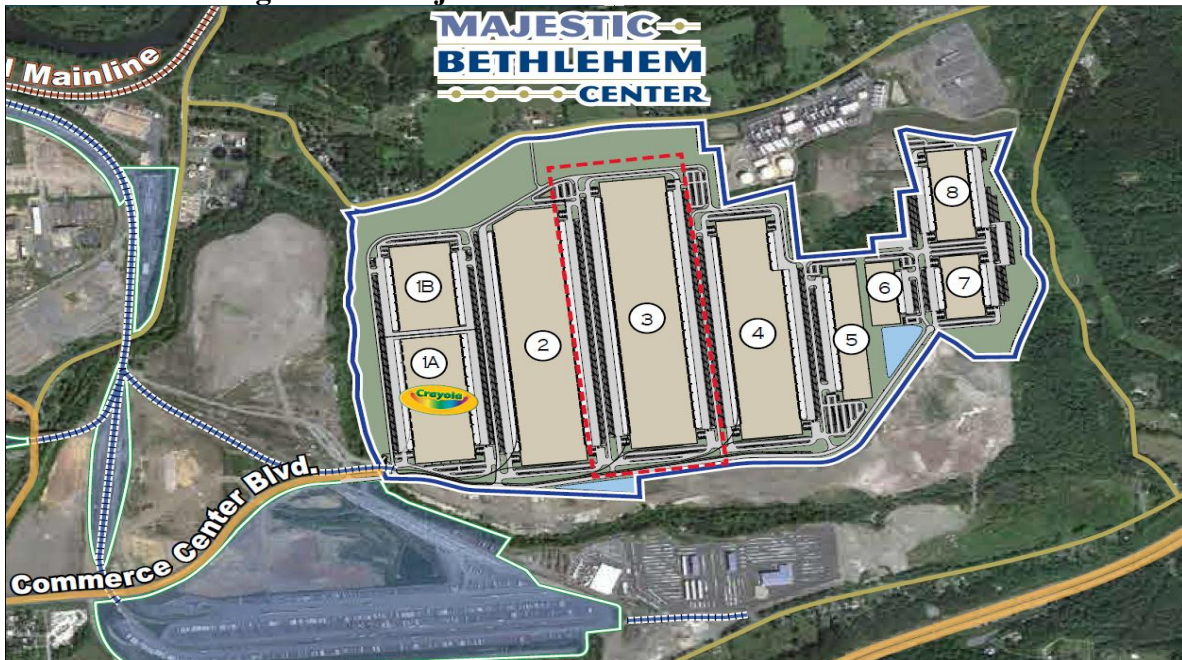
Figure 3.3. Lehigh Valley Industrial Park VII Land Development Project



Source: Lehigh Valley Industrial Park, Inc. <http://www.lvip.org/available-land>

Figure 3.4 shows the redevelopment project by Majestic Realty on the property. The buildings proposed at the Majestic business park are seen in Figure 3.4, which includes the first completed structure, a warehouse and distribution center for Crayola, LLC.

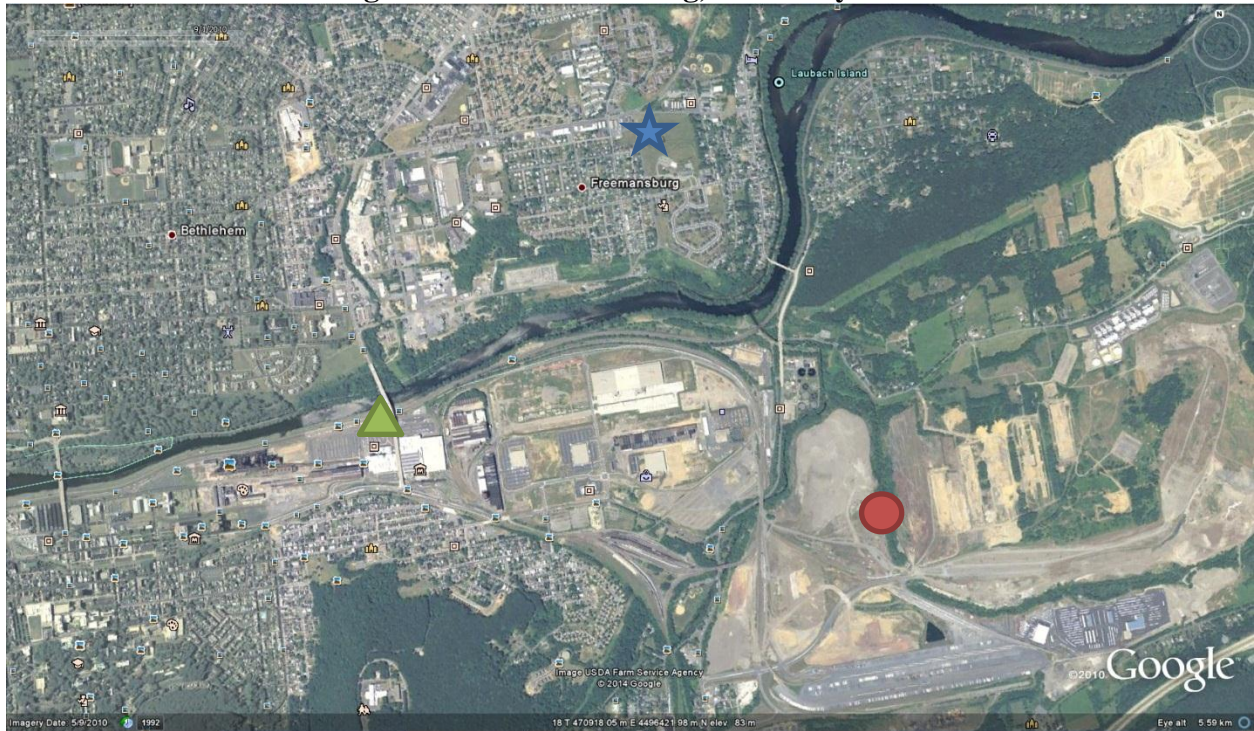
Figure 3.4. Majestic Bethlehem Center Business Park



Source: Majestic Realty. http://www.majesticrealty.com/downloads/beth/majesticbethlehem-bldg3_broch.pdf

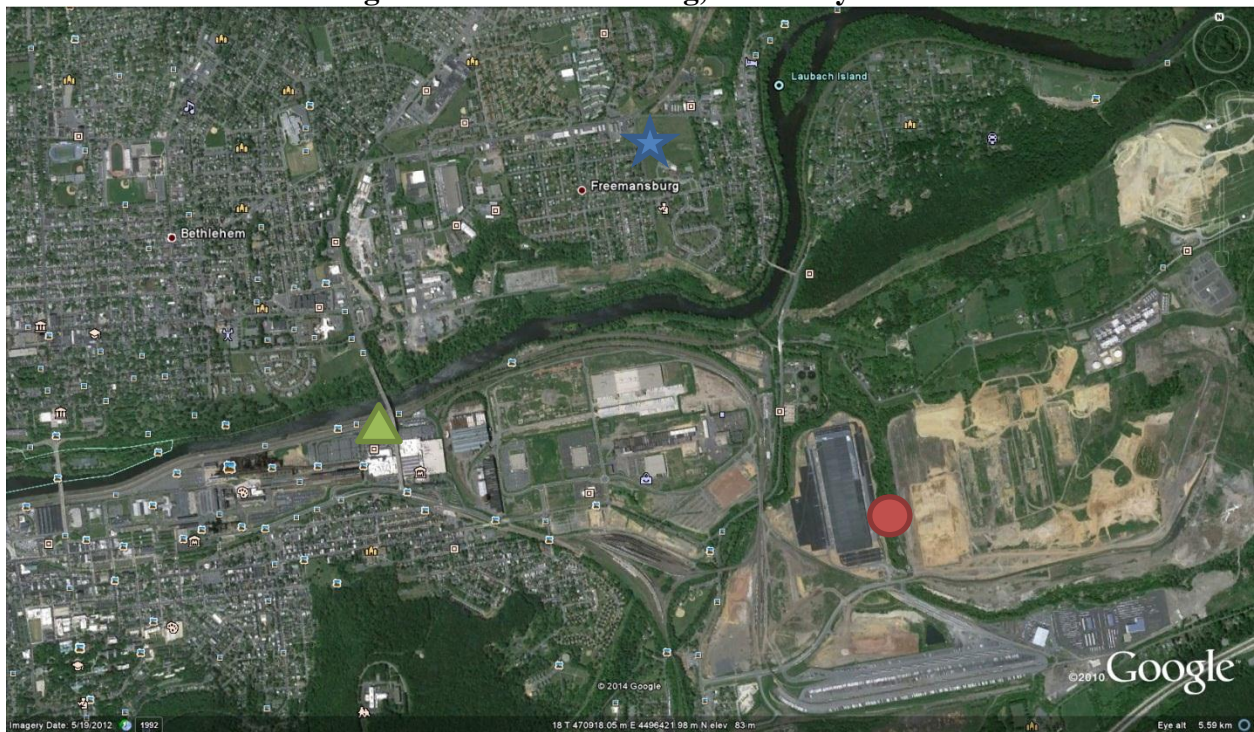
Figures 3.5 and 3.6 show the Freemansburg area in 2010 and 2012, respectively.

Figure 3.5. Freemansburg, PA – May 2010



Source: Google Earth

Figure 3.6. Freemansburg, PA – May 2012



Source: Google Earth

As you can see, when comparing Figures 3.1-3.6, over time, the landscape of the old Bethlehem Steel plant has changed. In 2008, not much work was going on at the site due to economic conditions. However, starting in late 2008 and early 2009, land development including demolition, excavation of land and old foundations, and construction began to occur on various sections of 1,800 acres of land. This work, along with vehicular traffic on unpaved roads on the former Bethlehem Steel property, would likely cause dust to leave the premises. As seen in the Google Earth images, over time, development initially occurred from the western portion of the property and has moved east. Construction on the Bethlehem Sands Casino was completed in mid-2009; the Bethlehem Sands Hotel in mid-2011; and the Outlets at Sands Bethlehem in late 2011. Also note, in Figure 3.6, the Walmart warehouse was completed by May 2012 (with the Crayola warehouse, built immediately to the east of the Walmart warehouse (as indicated in Figure 3.4), being completed since this image). While construction is still ongoing, particularly for warehouses on the eastern-most portion of the property, the preparation and earthmoving is minimal compared to the late 2008-2012 timeframe.

4. JURISDICTIONAL BOUNDARIES

In Factor 5 of EPA's TSD analysis, it is pointed out that, "examples of such jurisdictional boundaries include existing/prior nonattainment area boundaries for particulate matter, county lines, air district boundaries, township boundaries, areas covered by a metropolitan planning organization, state lines, and Reservation boundaries, if applicable."

The EPA TSD analysis described the existing jurisdictional boundaries for the Allentown-Bethlehem-Easton MSA, Lehigh Valley Planning Commission (Metropolitan Planning Organization) and the previously established nonattainment boundary for the 2006 24-hour PM_{2.5} NAAQS. As noted in Section 1, the Freemansburg and Lehigh Valley monitors have typically correlated well. DEP's analysis supports a single-county boundary finding due to a proven local issue caused between 2009 and 2011, by earth-moving activities just south of the Freemansburg monitor in Northampton County. DEP believes that in this case, a jurisdictional boundary of a single-county, Northampton County nonattainment area, is appropriate because the Freemansburg monitor is now showing a downward trend in PM_{2.5} concentrations.

CONCLUSION

After considering the facts as described above, and previously presented in the designation recommendations, DEP is recommending that EPA reduce the intended nonattainment area from the Allentown Area consisting of Lehigh and Northampton County to solely comprise of Northampton County as the nonattainment area. The Allentown-Bethlehem-Easton Area was previously designated nonattainment for the 2006 24-hour PM_{2.5} NAAQS when the monitored 24-hour values had extremely similar values, something that was not seen in 2010 and 2011 between the Freemansburg and Lehigh Valley monitors.

DEP's analysis shows that in 2010 and 2011, the Freemansburg monitor had an annual mean more than 3 µg/m³ higher than the Lehigh Valley monitor. This difference was due to local projects just south of the monitor (where winds come from on the highest PM_{2.5} days, as analyzed in DEP's designation recommendations). Due to higher annual mean values at the Freemansburg monitor in 2010 and 2011, the design values for 2010 through 2013 were also higher. Since the annual mean has dropped below the 2012 annual PM_{2.5} NAAQS, starting in 2012, the annual design value is on the decline (which correlates with much of the demolition and earth-moving of land south of the monitor being completed) and is expected to achieve attainment of the 2012 annual PM_{2.5} NAAQS based on the 2014 design value. Although the EPA TSD analysis points to area and mobile source emissions due to a connection with population and population density within the Allentown area, the Lehigh Valley monitor is more indicative of the regional emissions. In addition, the seven major facilities referenced in Lehigh and Northampton Counties have reduced direct PM_{2.5} and precursor emissions by more than 56 percent.

DEP's analysis supports the conclusion that the size of the 2012 annual PM_{2.5} nonattainment area should be reduced from EPA's proposed designation to a single-county nonattainment area. It is strongly recommended that Northampton County area be designated as a separate PM_{2.5} nonattainment area and that Lehigh County be designated as an unclassifiable/attainment area.