Source Apportionment Scenario Modeling Results and Comparison to the 2017 Cross State Air Pollution Rule Modeling Platform

Prepared by:

Alpine Geophysics, LLC

387 Pollard Mine Road

Burnsville, NC 28714

January 2016

Alpine Geophysics, LLC was tasked by the Midwest Ozone Group to develop an independent source apportionment modeling analysis and to compare the results of that study against published results from EPA's proposed Cross State Air Pollution Rule (CSAPR). In this document, we have identified our methods and approaches to some of these analyses and review and provide some observations for consideration.

Our analysis has looked at multiple aspects of EPA's modeling and our findings suggest that when applying equally credible modeling choices to the same modeling platform, significantly differing results can be generated. This leads us to a conclusion that it may not be appropriate to apply deterministic modeling (i.e., using a single set of inputs to generate a single answer) for such a complex scientific and policy-oriented purpose.

Source Apportionment Modeling

As discussed in other documentation[1], we performed nationwide, state, source category-level ozone source apportionment modeling using the CAMx OSAT technique to quantify the contribution of 2017 base case NOx and VOC emissions from major source categories in each region to projected 2017 ozone concentrations at ozone monitoring sites based on EPA's proposed CSAPR 2017 base case scenario as obtained from EPA.

Two key and important differences in our modeling compared to EPA's modeling are the selection using the Ozone Source Apportionment Technology (OSAT) technique instead of OSAT/ Anthropogenic Precursor Culpability Assessment (APCA) technique and the use of the released version of CAMx, rather than the EPA modified version with the altered HMAX parameter. The decisions for these differences is noted in Alpine's OSAT document.

In the source apportionment model run, we tracked the ozone formed from each of the following contribution categories (i.e., "tags"):

- Regions –NOx and VOC emissions from each state or state group tracked individually using the additional source category "tags" listed below;
    - Biogenic/Fires;
    - On-Road Mobile;
    - Non-Road Mobile/Stationary Area;
    - EGU Point; and
    - Non-EGU Point;
- Boundary and Initial Concentrations – concentrations transported into the modeling domain (e.g., international transport, stratospheric intrusion, domain initialization conditions);
- Canada, Mexico, and over water domains – anthropogenic emissions from sources in the portions of Canada and Mexico included in the modeling domain and from sources in the Pacific and Atlantic Oceans or from the Gulf of Mexico or Great Lakes.

The CAMx modeling domain was subdivided into 24 source groups as presented in Figure 1 and Table 1.

[1] "Independent, Sector-Specific Source Apportionment Modeling of the 2017 Cross State Air Pollution Rule Modeling Platform," Alpine Geophysics, LLC, January 2016.

The contribution modeling provided contributions to ozone from NOx and VOC emissions by region and source category as noted above. This differed from EPA's modeling in that our analysis provides finer category-specific contribution resolution for components in our regions compared to the "all-state" contribution method applied in the proposal. For example, we have determined the relative contribution of Ohio's onroad mobile source sector emissions on ozone concentrations at downwind monitors instead of just Ohio's total anthropogenic contribution to that same monitor. In this regard, we can see what the relative magnitude of category-based emissions is compared to individual monitor concentrations in contrast to just regional or state total contributions. Table 2 provides an example of our results showing the region and source category contribution at the Fairfield, CT monitor (090010017).

Table 1. OSAT source regions definition

Region Number	Region Name
1	Canada/Mexico/Water
2	CT
3	DE
4	MD
5	NJ
6	Northeast
7	NY
8	PA
9	VA/DC
10	WV
11	IL

Region Number	Region Name
14	OH
15	WI
16	KY
17	NC
18	TN
19	South
20	AR
21	MO
22	OK
23	TX
24	West

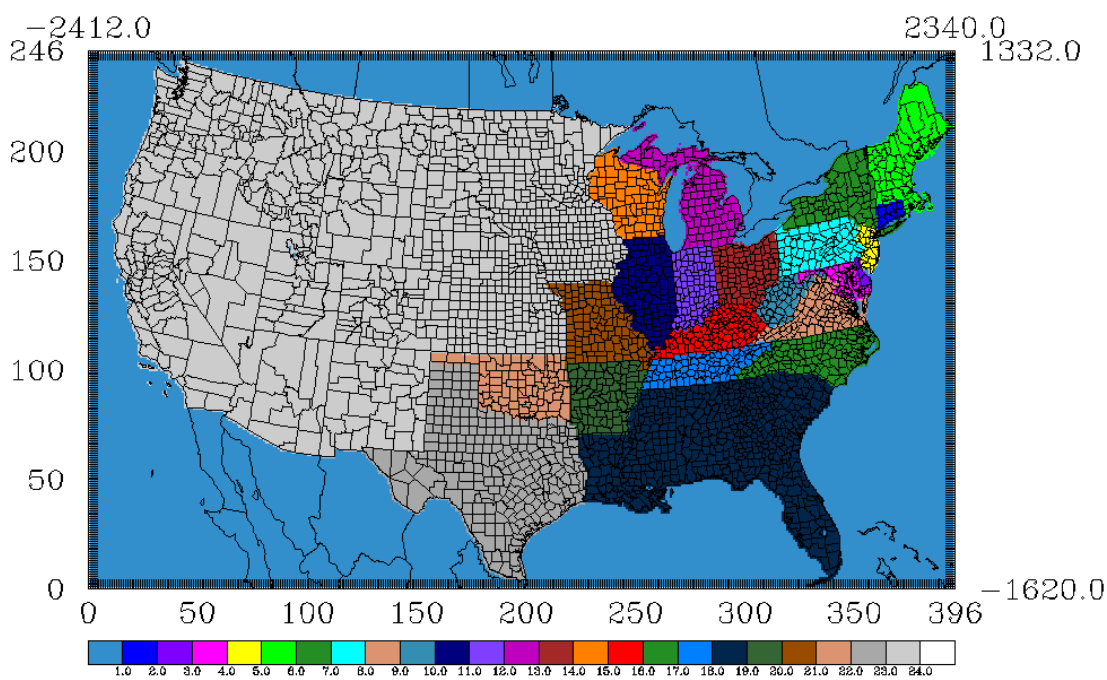


Figure 1. OSAT source region definition

Table 2. Example monitor and EPA proposed rule dv-scaled source apportionment output.

Monitor **090010017** **Fairfield, Connecticut**

	2017 OSAT Results (Modeled ppb) -- 75 ppb Threshold									
Region/State	**Bio/Fire**	**Motor Vehicle**	**Area/NR /MAR**	**EGU Point**	**NonEGU Point**	**Can/Mex /Water**	**Boundary**	**Initial**	**Total**	**% of Total**
BC	0.00	0.00	0.00	0.00	0.00	0.00	15.24	0.00	15.24	20%
IC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0%
CT	4.55	2.06	3.31	0.02	0.03	0.00	0.00	0.00	9.97	13%
DE	0.12	0.13	0.15	0.05	0.05	0.00	0.00	0.00	0.51	1%
MD	0.65	0.54	0.72	0.19	0.17	0.00	0.00	0.00	2.27	3%
NJ	2.26	4.64	4.60	0.43	0.32	0.02	0.00	0.00	12.26	16%
NY	3.21	2.42	3.62	0.33	0.18	0.02	0.00	0.00	9.77	13%
PA	1.97	1.75	2.08	1.62	0.54	0.00	0.00	0.00	7.96	10%
VA/DC	0.83	0.68	0.65	0.17	0.15	0.00	0.00	0.00	2.47	3%
NorthEast	0.04	0.04	0.06	0.00	0.01	0.00	0.00	0.00	0.14	0%
IL	0.25	0.17	0.28	0.19	0.11	0.00	0.00	0.00	0.99	1%
IN	0.19	0.23	0.21	0.25	0.10	0.00	0.00	0.00	0.98	1%
MI	0.20	0.24	0.23	0.20	0.08	0.04	0.00	0.00	0.99	1%
OH	0.39	0.66	0.47	0.27	0.17	0.00	0.00	0.00	1.95	3%
WI	0.11	0.11	0.10	0.03	0.04	0.00	0.00	0.00	0.37	0%
WV	0.17	0.07	0.17	0.12	0.07	0.00	0.00	0.00	0.60	1%
KY	0.15	0.13	0.14	0.11	0.04	0.00	0.00	0.00	0.58	1%
NC	0.19	0.12	0.14	0.10	0.04	0.00	0.00	0.00	0.60	1%
TN	0.08	0.10	0.06	0.02	0.02	0.00	0.00	0.00	0.27	0%
SOUTH	0.24	0.24	0.18	0.07	0.10	0.00	0.00	0.00	0.83	1%
AR	0.10	0.04	0.05	0.03	0.02	0.00	0.00	0.00	0.24	0%
MO	0.16	0.11	0.11	0.04	0.01	0.00	0.00	0.00	0.42	1%
OK	0.13	0.06	0.11	0.05	0.06	0.00	0.00	0.00	0.42	1%
TX	0.19	0.12	0.22	0.06	0.06	0.01	0.00	0.00	0.67	1%
WEST	1.09	0.36	0.62	0.24	0.15	0.01	0.00	0.00	2.47	3%
Can/Mex/Water	0.54	0.00	0.25	0.00	0.00	2.02	0.00	0.00	2.81	4%
Grand Total	**17.78**	**15.00**	**18.54**	**4.60**	**2.49**	**2.12**	**15.24**	**0.03**	**75.80**	**100%**

Additional Analysis

Significant Contribution Assessment

One of the analysis products from our independent OSAT simulation[2] is a compilation of state-level ozone contribution impacts on downwind nonattainment and maintenance monitors. Using the results of our modeling, scaled using the 2017 design values, IPM 5.14 base case modeling platform, and significant contribution determination methods presented by EPA, we have identified an alternative set of linkages between upwind states and downwind monitors.

Our selection of OSAT over OSAT/APCA is a result of the purpose and intended use of the model results. According to the model's documentation[3], the OSAT technique provides a more robust picture of what emissions sources are contributing to ozone formation since it specifically apportions ozone to all source categories, including the "uncontrollable" (e.g., biogenics in EPA's modeling). This allows for a separation of attribution for anthropogenic from biogenic contribution to a downwind monitor's modeled concentration. Under some chemical regimes the APCA technique apportions biogenic emissions to anthropogenic sources when biogenic emissions react with anthropogenic sources and therefore is typically recommended in the development of control strategies. The primary purpose for our simulation was to develop a region and source category specific contribution to each monitor and therefore OSAT was selected as the preferred approach.

While we have many individual states identified as separate source regions in our analysis, we do have some groups of states (as presented in Figure 1) that can't be identified individually, so the comparisons presented are only where we had state-specific concentration calculations.

Table 3 presents a list of linkages where our OSAT modeling identified states, and their anthropogenic source emissions contributions, to be in excess of the 0.75 ppb (1% of NAAQS) significant contribution threshold and where EPA's APCA modeling identified anthropogenic contribution values less than the significance threshold.

Table 4 presents the contrasting findings where EPA's APCA modeling finds significant contribution from a state's anthropogenic emissions contribution and our OSAT modeling does not.

We attribute these differences mainly to the selection of the source apportionment method (OSAT vs. APCA) chosen in each of the compared analyses and the way that each technique assigns anthropogenic and biogenic emission contributions to downwind receptors under certain chemical regimes.

[2] "Independent, Sector-Specific Source Apportionment Modeling of the 2017 Cross State Air Pollution Rule Modeling Platform," Alpine Geophysics, LLC, January 2016.
[3] http://www.camx.com/files/camxusersguide_v6-20.pdf

Table 3. Significant contribution linkage differences in OSAT vs. APCA simulations. States that could be considered significant contributors using OSAT, but not identified with APCA.

			Anthro Contribution (ppb)	
Monitor	**Name**	**Linked State**	**OSAT**	**APCA**
90010017	Fairfield, Connecticut	IN	0.79	0.62
90013007	Fairfield, Connecticut	IL	0.78	0.49
90019003	Fairfield, Connecticut	IL	0.92	0.70
90099002	New Haven, Connecticut	IL	1.07	0.57
		IN	1.02	0.68
211110067	Jefferson, Kentucky	TX	0.91	0.66
240053001	Baltimore, Maryland	IL	1.03	0.64
		MI	0.92	0.69
240251001	Harford, Maryland	IL	1.12	0.67
261630019	Wayne, Michigan	KY	0.94	0.67
		MO	0.96	0.28
		OK	0.89	0.22
		TX	1.44	0.52
340071001	Camden, New Jersey	MD	1.04	0.57
340230011	Middlesex, New Jersey	DE	1.18	0.73
		IL	0.95	0.58
		TX	0.79	0.73
360810124	Queens, New York	CT	0.78	0.41
		DE	0.91	0.60
360850067	Richmond, New York	DE	1.23	0.68
		IL	1.00	0.74
361030002	Suffolk, New York	CT	0.99	0.46
		KY	0.88	0.71
390610006	Hamilton, Ohio	AR	0.83	0.62
421010024	Philadelphia, Pennsylvania	IL	1.23	0.65

Table 4. Significant contribution linkage differences in OSAT vs. APCA simulations. States considered significant contributors using APCA, but not identified as significant with OSAT.

			Anthro Contribution (ppb)	
Monitor	**Name**	**Linked State**	**OSAT**	**APCA**
90013007	Fairfield, Connecticut	MI	0.67	0.89
		WV	0.45	0.92
90019003	Fairfield, Connecticut	MI	0.71	0.89
		WV	0.49	0.95
211850004	Oldham, Kentucky	AR	0.44	0.85
		MO	0.36	0.82
240053001	Baltimore, Maryland	NC	0.67	0.93
261630019	Wayne, Michigan	WI	0.72	1.00
340071001	Camden, New Jersey	MO	0.63	0.76
		WV	0.68	1.07
340150002	Gloucester, New Jersey	NY	0.61	1.22
360810124	Queens, New York	TX	0.62	0.76
		WV	0.52	0.92
361030002	Suffolk, New York	WV	0.54	0.98
390610006	Hamilton, Ohio	MO	0.58	0.77
421010024	Philadelphia, Pennsylvania	TN	0.68	0.90
551170006	Sheboygan, Wisconsin	MI	0.61	2.69
		MO	0.25	1.63
		OH	0.02	0.78
		OK	0.06	1.70
		KY	0.30	0.75

Control Strategy Impact Analysis

In addition to the basic source apportionment analysis conducted for each monitor and for the regions and source categories as selected, we investigated the impact of individual region EGU NOx emission reduction on downwind nonattainment and maintenance monitors.

Time and resource limitations (in particular the amount of time needed to set up, run the CAMx model, and analyze the results for even a single model run) constrained by the significantly short comment period of the rule, precluded the use of full air quality modeling for use in establishing relationships between emission reductions and ozone concentration changes. Because we needed to evaluate emission reductions under several different NOx scenarios within the sixty day comment period allowed, it was not possible to use CAMx air quality modeling to evaluate more than the base case relationship.

It is recognized that NOx emission changes and ozone concentration responses are not necessarily linear. However, comparable to assumptions made by EPA[4] regarding the relative NOx emission changes and associated ozone concentration deltas are small (tenths of ppb), and the emissions being considered are relatively small compared with the total emissions in the area, we (and EPA) assume a closely linear proportion. This assumption infers that each ton of NOx emitted from EGUs has an associated ozone concentration impact on a downwind monitor. We note, as does EPA, that directly scaling our results could possibly overestimate the air quality impacts of emission reductions calculated with this method.

The first step in our analysis was to develop ratios of 2017 ozone season EGU emissions from each region (state or group of states) to ozone concentrations generated with the source-specific OSAT runs (scaled to the proposed 2017 design values) described earlier in this document. This calculation is designed to establish NOx emissions to ozone concentration ratios that will be used in later steps of the analysis and were developed for each monitor in the eastern 12km modeling domain.

Using EPA published ozone season EGU NOx emissions totals for the various pollution control cost thresholds for “all units” [Table B-2, Policy Analysis TSD], we generated ratios of individual state EGU contribution to ozone concentrations at each monitor to the 2017 base case modeled emissions (5.14 base case) used in the air quality modeling of our analysis. From this value (“impact factor”), we used the linear relationship assumption to determine levels of ozone concentration change associated with the other pollution control scenarios generated by EPA. Table 5 provides an example calculation.

Table 5. Example calculation of Indiana EGU impact factor using ozone season NOx emissions and OSAT source apportionment results for Harford, Maryland monitor 240251001.

IN 2017 OS EGU NOx (tons) – IPM 5.14 Base Case	43,910
IN EGU 2017 Contribution (ppb)	0.71
ppb contributed/ton IN EGU NOx (ppb/ton)	1.61E-05

It was determined that seasonal emissions were an adequate surrogate for the ratio development as the relative response factors and source apportionment results generated in the proposed rule were derived from ozone season air quality concentrations generated with CAMx and OSAT.

[4] http://www.epa.gov/sites/production/files/2015-11/documents/ozone_transport_policy_analysis_tsd.pdf

To this impact factor (in units of ppb/ton), we applied the difference in seasonal NOx emissions for each state EGU NOx emissions for a limited number of EPA scenarios and the 5.14 base case. Using this emissions change, we calculated a resulting ozone concentration delta to determine the effectiveness of controlling NOx emissions from EGU sources in the State. A continued example of the calculations conducted for some of the scenarios is provided in Table 6.

Table 6. Example calculation of ozone concentration change for Harford, Maryland monitor 240251001 resulting from changes in Indiana NOx emissions from various EPA EGU scenarios.

Scenario	Resulting tons	Reduction (ppb)
IPM 5.14 Emissions	43,910	---
IPM 5.15 Emissions	42,496	0.02
$500/ton	35,885	0.13
$1,300/ton	30,374	0.22
Proposed Budget	31,033	0.21

From this calculation, and resulting ozone concentration value determined for each upwind state to each downwind monitor, we estimate the resultant concentration of the monitor relative to the strategy in place. The total reduction achieved by the strategy is the IPM 5.14 base case concentration minus the sum total of the contribution concentration changes (both increases and decreases) calculated from the change in emissions.

Keeping with the Harford, Maryland monitor example, Table 7 presents the regional EGU contribution concentration changes associated with EPA's IPM 5.15 base case, $500/ton, $1,300/ton, and proposed budget emission scenarios compared to the 5.14 base case. Negative change values indicate a reduction of the concentration at the monitor (associated with an emissions decrease from the IPM 5.14 base case) while a positive value indicates an increase in the concentration contribution from EGUs from that region (associated with an emissions increase from the IPM 5.14 base case).

Once these metrics were generated for each monitor, the resulting average or maximum design value was recalculated by adding or subtracting the sum total of all change estimated from the state EGU concentration contribution by control scenario. Appendix A to this document presents the monitor level results and associated calculations used in this analysis.

Table 8 and Figure 2 present the resulting 2017 average design values for each of the twenty-one proposed nonattainment and maintenance monitors in the eastern U.S. domain. Table 9 and Figure 3 present the resulting 2017 maximum design values for each of the monitors noted.

Table 7. State-level EGU emissions and impact factor calculation and concentration contribution change example for Harford, Maryland monitor 240251001.

	IPM 5.14 Base Case			EGU Ozone Season NOx Tons				EGU Concentration Change (ppb)			
Region	EGU Ozone Season NOx (Tons)	EGU Contribution (ppb)	Impact Factor (ppb/ton)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.02	5.13E-05	580	580	580	580	0.01	0.01	0.01	0.01
MD	5,107	2.10	4.12E-04	7,324	6,295	6,297	6,138	0.91	0.49	0.49	0.42
NJ	4,617	0.04	8.63E-06	3,950	3,581	3,580	3,090	-0.01	-0.01	-0.01	-0.01
NY	9,123	0.01	1.09E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	2.53	4.85E-05	43,599	41,389	16,834	17,094	-0.42	-0.52	-1.71	-1.70
VA/DC	11,254	0.38	3.36E-05	9,201	8,778	8,662	8,882	-0.07	-0.08	-0.09	-0.08
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.35	2.21E-05	11,002	10,627	10,564	10,761	-0.11	-0.11	-0.12	-0.11
IN	43,910	0.71	1.61E-05	42,496	35,885	30,374	31,033	-0.02	-0.13	-0.22	-0.21
MI	32,421	0.25	7.68E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.84	2.82E-05	29,249	23,503	19,603	19,823	-0.01	-0.17	-0.28	-0.28
WI	8,801	0.03	3.40E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.60	2.33E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.25	-0.25
KY	38,993	0.53	1.35E-05	27,201	23,593	15,306	15,976	-0.16	-0.21	-0.32	-0.31
NC	22,048	0.15	6.78E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.06	9.36E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.16	1.89E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.04	-0.02
AR	11,890	0.04	3.35E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	3.86E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.68E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.13	1.94E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.38	2.08E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Table 8. Average 2017 design values (ppb) as estimated using impact factor analysis for multiple EGU emission scenarios as compared to 2017 IPM 5.14 and IPM 5.15 Base Cases.

		2017 Ozone Design Value (ppb)					
		EPA Proposal		Impact Factor Calculated			
Monitor	Location	5.14 Base Case	5.15 Base Case	5.15 Base Case	$500/ton	$1,300/ton	Proposed Budget
90010017	Fairfield, Connecticut	75.8	75.6	75.2	75.0	74.0	74.0
90013007	Fairfield, Connecticut	77.1	76.9	76.4	76.0	74.8	74.8
90019003	Fairfield, Connecticut	78.0	77.9	77.3	76.9	75.7	75.7
90099002	New Haven, Connecticut	77.2	77.1	76.6	76.3	75.4	75.4
211110067	Jefferson, Kentucky	75.8	74.6	74.7	73.1	71.5	71.7
211850004	Oldham, Kentucky	73.7	72.5	72.4	70.5	68.6	68.9
240053001	Baltimore, Maryland	73.2	73.3	73.0	72.3	70.8	70.8
240251001	Harford, Maryland	81.3	81.4	81.2	80.3	78.4	78.5
260050003	Allegan, Michigan	75.5	75.1	74.3	74.1	73.8	74.0
261630019	Wayne, Michigan	74.0	73.5	72.9	72.7	72.3	72.4
340071001	Camden, New Jersey	74.2	73.8	73.4	72.9	71.0	71.0
340150002	Gloucester, New Jersey	75.1	74.7	74.9	74.2	72.2	72.3
340230011	Middlesex, New Jersey	73.0	72.5	72.3	71.8	70.2	70.2
340290006	Ocean, New Jersey	73.9	73.4	73.0	72.4	71.0	70.9
360810124	Queens, New York	75.7	75.4	75.1	74.7	73.7	73.7
360850067	Richmond, New York	76.3	75.9	75.4	74.8	73.1	73.0
361030002	Suffolk, New York	79.2	79.0	78.4	78.0	76.8	76.8
390610006	Hamilton, Ohio	76.3	74.7	74.9	73.6	72.0	72.2
420031005	Allegheny, Pennsylvania	75.3	74.5	74.0	73.1	70.2	70.4
421010024	Philadelphia, Pennsylvania	75.1	74.6	74.3	73.5	71.0	71.1
551170006	Sheboygan, Wisconsin	77.0	76.7	76.5	76.4	76.3	76.3

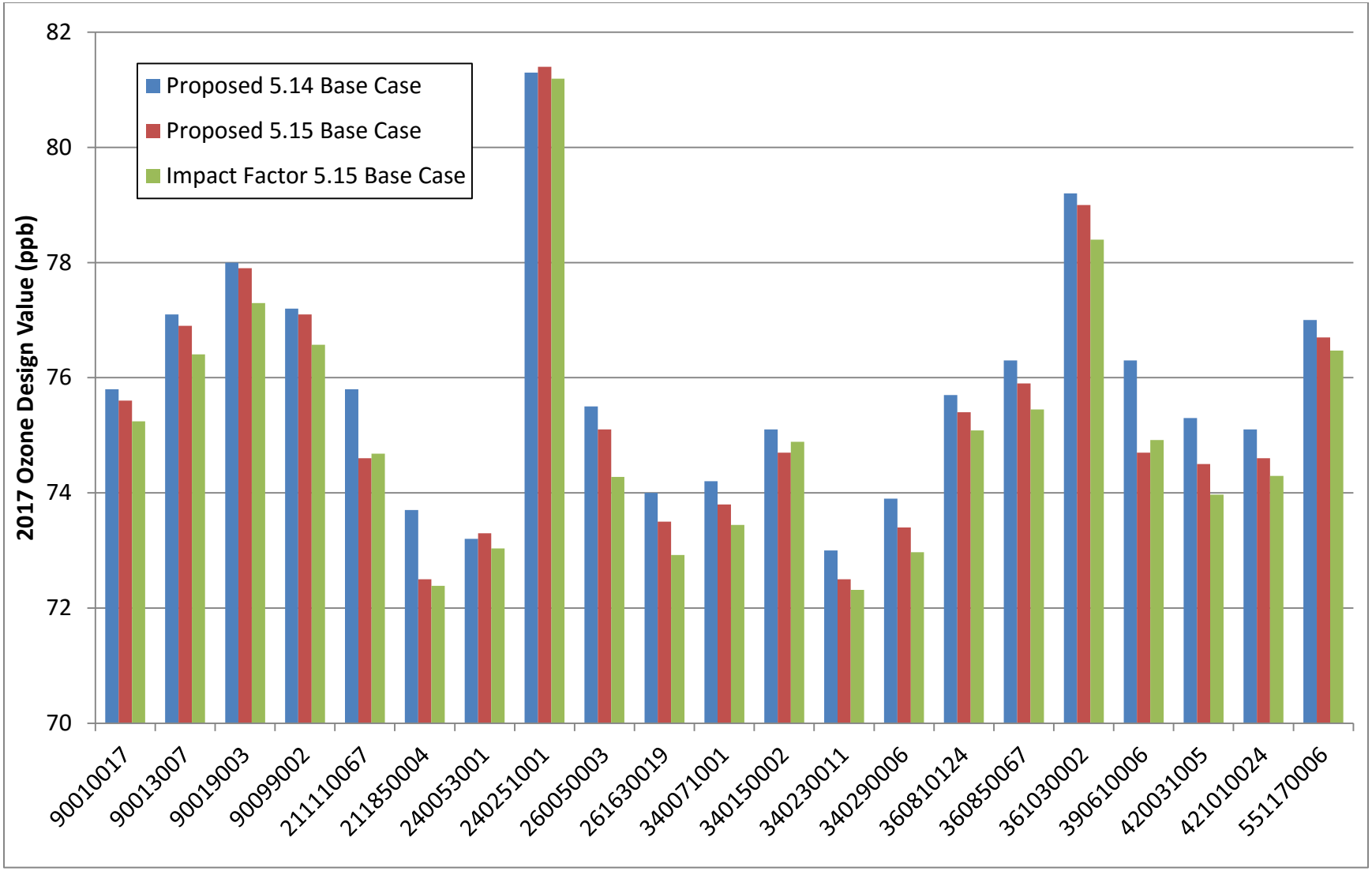


Figure 2. Average 2017 IPM 5.15 base case design values (ppb) as estimated using impact factor analysis as compared to IPM 5.14 and IPM 5.15 Base Cases.

Table 9. Maximum 2017 design values (ppb) as estimated using impact factor analysis for multiple EGU emission scenarios as compared to proposed 2017 IPM 5.14 and IPM 5.15 Base Cases.

		2017 Ozone Design Value (ppb)					
		EPA Proposal		Impact Factor Calculated			
Monitor	Location	5.14 Base Case	5.15 Base Case	5.15 Base Case	$500/ton	$1,300/ton	Proposed Budget
90010017	Fairfield, Connecticut	78.4	78.2	77.8	77.5	76.5	76.6
90013007	Fairfield, Connecticut	81.4	81.2	80.7	80.3	79.0	79.0
90019003	Fairfield, Connecticut	81.1	80.9	80.4	80.0	78.7	78.7
90099002	New Haven, Connecticut	80.2	80.1	79.5	79.2	78.3	78.3
211110067	Jefferson, Kentucky	78.6	77.3	77.4	75.8	74.2	74.4
211850004	Oldham, Kentucky	77.3	76.0	75.9	74.0	72.0	72.3
240053001	Baltimore, Maryland	76.2	76.3	76.0	75.2	73.7	73.7
240251001	Harford, Maryland	84.0	84.1	83.9	82.9	81.1	81.1
260050003	Allegan, Michigan	78.5	78.1	77.2	77.0	76.8	76.9
261630019	Wayne, Michigan	76.2	75.7	75.1	74.9	74.4	74.6
340071001	Camden, New Jersey	78.1	77.6	77.3	76.7	74.8	74.7
340150002	Gloucester, New Jersey	77.5	77.1	77.3	76.6	74.5	74.6
340230011	Middlesex, New Jersey	76.3	75.8	75.6	75.0	73.4	73.4
340290006	Ocean, New Jersey	76.6	76.1	75.6	75.1	73.6	73.5
360810124	Queens, New York	77.6	77.3	77.0	76.6	75.6	75.5
360850067	Richmond, New York	77.8	77.4	76.9	76.3	74.6	74.5
361030002	Suffolk, New York	80.8	80.6	80.0	79.6	78.3	78.4
390610006	Hamilton, Ohio	79.1	77.4	77.7	76.3	74.7	74.9
420031005	Allegheny, Pennsylvania	76.5	75.7	75.2	74.3	71.3	71.5
421010024	Philadelphia, Pennsylvania	78.4	77.9	77.6	76.8	74.2	74.2
551170006	Sheboygan, Wisconsin	79.4	79.2	78.9	78.8	78.7	78.7

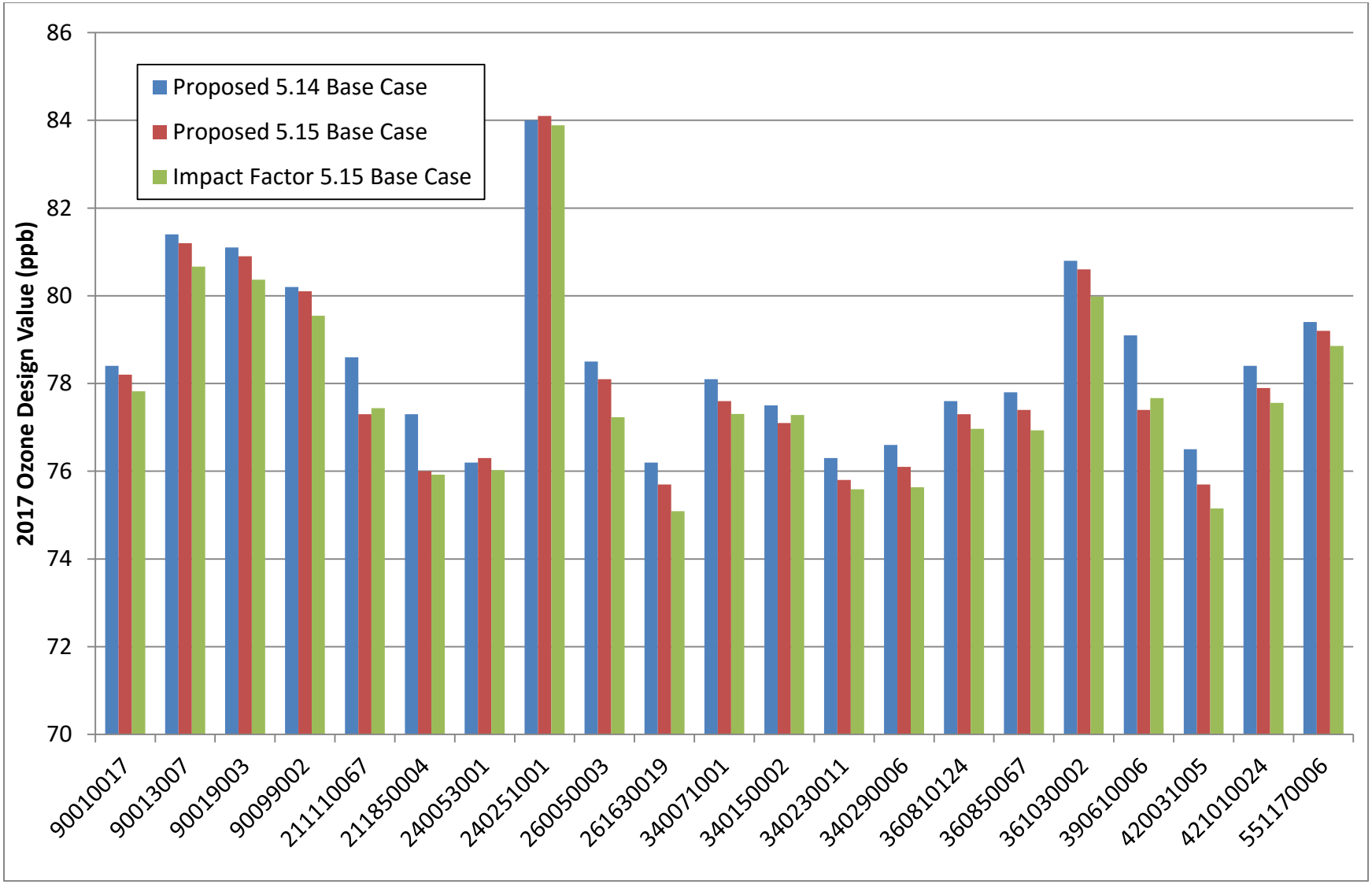


Figure 3. Maximum 2017 IPM 5.15 base case design values (ppb) as estimated using impact factor analysis as compared to IPM 5.14 and IPM 5.15 Base Cases.

We investigated the impact of the EPA calibration method and the impact factor method by comparing the resulting air quality concentrations in going from the IPM 5.14 base case to the emission levels reported with using the IPM 5.15 base case[5]. This IPM 5.15 base case, inclusive of the Clean Power Plan, is also noted by EPA as the preferred base case[6] ("reflect(s) all on-the-books policies as well as the most current power sector modeling data") that the agency would likely have used if time was permitting to run a full air quality simulation and source apportionment study.

As can be seen in these results, using the impact factor calculation method, a ratio tied directly to the EGU contribution concentration from each state, we see that the IPM 5.15 base case emissions scenario achieves a greater potential concentration reduction at each monitor than does the EPA calibration method. We note that the impact of going from IPM base case 5.14 to the emission reduction levels associated with IPM base case 5.15 is greater at most monitors (with noted exceptions at Gloucester, New Jersey and Hamilton, Ohio in both average and maximum calculations) in a large part to our belief in the finer attunement of the impact factor calculated with each state-EGU to monitor ratio compared to the EPA State-total calibrated model method.

Another significant difference noted in the results between the two methods is EPA's projected increase in ozone concentration between the IPM 5.14 base case and 5.15 base case at two monitors located in Maryland. Under EPA's assumptions, the emissions increase in EGU sources between the two base case simulations in states impacting these monitors override the benefits achieved from emission reductions in other states contributing to this monitor's ozone concentrations. While the impact factor method also shows a measurable increase in state level contribution as a result of these emission budget increases, our analysis more than offsets this increase with a resulting small decrease from other contributing states in the two monitors' ozone concentrations.

We recognize that only a complete air quality simulation with input emission inventories reflective of the IPM 5.15 base case will reconcile whether one method is more accurate than the other at each monitor.

We observe from these results presented in Table 8 that the range of concentration differences between the IPM 5.15 base case scenario and our impact factor-generated scenario is about 0.5 ppb lower in the Great Lakes regions (range from 0.2 to 0.8 ppb), 0.4 ppb lower (range 0.2 to 0.6 ppb) at most monitors in the greater New York metro and Long Island area, about 0.3 ppb lower in the Philadelphia metro area (exception at Gloucester where value is 0.2 ppb lower than the proposal), averaging about 0.2 ppb lower in the Baltimore region, and approximately the same at the Ohio valley monitors (+/- 0.1 ppb). Similar values and ranges are demonstrated in Table 9 using the maximum design value estimates.

From these results, we conclude that none of the twenty-one monitors, using the average design value in the control calculation, moves into attainment any differently than predicted by EPA, when transitioning from the IPM 5.14 base case to the IPM 5.15 base case emission levels.

In contrast to EPA projections, we show with our impact factor method that two additional monitors, located in Oldham, Kentucky and Ocean, New Jersey, show attainment with the 2008 ozone NAAQS

[5] Alpine takes no position on the accuracy of the emission estimates predicted by EPA's IPM model and instead seeks only to assess how any such emission reductions would impact ozone concentrations.
[6] http://www.epa.gov/sites/production/files/2015-11/documents/ozone_transport_policy_analysis_tsd.pdf

moving from the emissions associated with IPM 5.14 base case to those in the IPM 5.15 base case. The EPA calibration method shows both of these monitors in exceedance of the standard.

Incremental, Unaccounted For On-The-Way Controls

In addition to the IPM-based control cases and proposed budget analyzed by EPA, we recognize that there are incremental on-the-way controls planned for implementation prior to 2017 by multiple states in the eastern proposal-impacted region that have not been included in the EPA base case modeling for the rule. These additional controls, as applied to EGUs and non-EGU sources, will have an impact on the ozone concentrations simulated at many of the analyzed monitors, especially those in the Ozone Transport Region (OTR).

Pennsylvania RACT II

The final Pennsylvania RACT II requirements[7] will apply to major NOx or VOC emitting facilities that were in existence on or before July 20, 2012 and will affect emissions units at such facilities for which no RACT requirement has been established. The applicability threshold for the RACT II rule is 50 and 100 tpy for NOX and VOC, respectively, including the five-county Philadelphia region (i.e., Bucks, Chester, Delaware, Montgomery, and Philadelphia counties).

The RACT II rule differs significantly from the original Pennsylvania RACT rule as it specifies presumptive RACT limits and defines specific numeric RACT limits and work practice standards for certain combustion units (i.e., boilers) and combustion sources (e.g., engines, combustion turbines, cement kilns, etc.) versus the case-by-case approach of the original rule. Facilities will also have the option to prepare and submit case-by-case RACT analyses for affected emissions units that cannot meet specific numeric standards under the rule.

Where applicable, facilities may also propose facility-wide or systems-wide RACT averaging plans for approval by the Pennsylvania Department of Environmental Protection. Case-by-case analyses will be required for emissions units with potential NOX or VOC emissions that are greater than 5 and 2.7 tpy, respectively, at affected facilities and that are not subject to a presumptive or numeric RACT standard. Compliance demonstrations under RACT II will be generally required within one year of rule promulgation and calls for emission reductions to take effect in January 2017.

OTC Model Rules

The State of Maryland has recently provided[8] a list of incremental NOx and VOC emission reduction programs that are scheduled to be implemented in the OTC prior to calendar year 2017. These rules apply to multiple non-EGU source categories and will result in ozone season NOx emission reductions totaling nearly 27,000 tons and ozone season VOC emission reductions exceeding 22,000 tons.

A list of the OTC control programs, as documented in the Maryland presentation can be seen in Table 10.

[7] 25 PA. Code §§129.91-129.95
[8] http://midwestozonegroup.com/files/MOG_May_7_Final_050515.pptx

Table 10. OTC model control measures not accounted for in CSAPR base case modeling.

OTC Model Control Measures	Regional Reductions (tons per year)	Regional Reductions (tons per day)
Aftermarket Catalysts	14,983 (NOx)	41 (NOx)
	3,390 (VOC)	9 (VOC)
On-Road Idling	19,716 (NOx)	54 (NOx)
	4,067 (VOC)	11 (VOC)
Nonroad Idling	16,892 (NOx)	46 (NOx)
	2,460 (VOC)	7 (VOC)
Heavy Duty I & M	9,326 (NOx)	25 (NOx)
Enhanced SMARTWAY	2.5%	
Ultra Low NOx Burners	3,669 (NOx)	10 (NOx)
Consumer Products	9,729 (VOC)	26 (VOC)
AIM	26,506 (VOC)	72 (VOC)
Auto Coatings	7,711 (VOC)	21 (VOC)

Connecticut RACT and High Energy Demand Days

The Connecticut Department of Energy and Environmental Protection (DEEP) in a recent RACT analysis[9] under the 2008 8-Hour Ozone NAAQS identified that municipal waste combustors and EGUs together are responsible for more than 70% of the stationary source NOx emissions in Connecticut. DEEP acknowledged that emissions limitations required of these sources in other states are more stringent than those required in Connecticut. DEEP committed in their analysis to evaluate additional NOx reductions appropriate to fuel-burning sources now regulated under RCSA section 22a-174-22 and additional NOx emissions reductions from the municipal waste combustors regulated by RCSA section 22a-174-38, and to work to adopt regulatory requirements, as may be appropriate, based on the results of the evaluation.

As a marginal nonattainment area, Connecticut is required to attain the 2008 ozone NAAQS by December 31, 2015. New requirements necessary to update RACT in Connecticut must be effective in the state by January 1, 2017 pursuant to the draft Implementation Rule.

In the same RACT analysis, DEEP notes that "[i]n the eastern United States, high electric demand days (HEDD) occur on the hottest days in summer. The demand for electricity increases primarily as a result of air conditioning. To meet the peak demand, the regional system operators call on additional electric generating units to operate. Both as a result of the operation of additional electric generating units, and

[9] http://www.ct.gov/deep/lib/deep/air/ozone/ozoneplanningefforts/RACT_2008_NAAQS/2014-07-17_-_CT_Final_RACT_SIP_Revision.pdf

due to the nature of the typical peak day generating unit, NOx emissions increase. This elevation in NOx emissions is a significant concern because the HEDD coincide with the highest monitored ozone levels, which often exceed the ozone NAAQS. The additional NOx emissions on these days exacerbate the ozone problem and are one of the keys, in conjunction with limitations on upwind state emissions, to solving Connecticut's resistant ozone problem."

They further go on to state "[t]o reach attainment in the NY-NJ-CT nonattainment area, HEDD emissions need to be addressed in all three state portions of the area" and "to address Connecticut's ozone nonattainment, and Connecticut's good neighbor obligations to downwind states, peak day emissions must be reduced."

Observations

Alpine Geophysics, LLC was tasked by the Midwest Ozone Group to develop an independent source apportionment modeling analysis and to compare the results of that study against published results from EPA's Cross State Air Pollution Rule. In this document, we have identified our methods and approaches to some of these analyses and review and provide some observations for consideration.

We have looked at the impact of using alternative source apportionment techniques with the same modeling platform used in the proposed CSAPR, resetting the air quality model's super stepping parameter to default values in contrast to EPA settings[10], and calculated the air quality impact of EGU control on downwind receptor using an alternate method. This analysis showed that an equally credible, alternate methodology alone can account for changes in concentrations, both increases and decreases, of several parts per billion.

We have provided a list of states and their calculated anthropogenic significant impact on downwind monitors (as measured by the 1% of NAAQS test) resulting from our decision to utilize OSAT instead of the APCA technique and have shown that our modeling includes or removes states from linkages that are identified in the proposal.

We have demonstrated using an impact factor (ppb/ton) ratio method of ozone and NOx emissions relationships, as determined by state and EGU, shows slightly more (and in at least two instances less) impact from upwind EGU NOx controls than does the proposed EPA calibration method for identical emission reduction control scenarios.

We recognize that only a complete air quality simulation with input emission inventories reflective of resulting emission levels from proposed alternatives will reconcile the complex chemistry involved with ozone formation and determine whether any ratio method is more accurate than another for each monitor.

We have identified, yet-to-be implemented, on-the-way control programs at many states in the eastern U.S., that once applied may bring many of the problem areas and monitors into compliance with the 2008 ozone NAAQS.

[10] "Review of CAMx HMAX Configuration in Cross State Air Pollution Rule Air Quality Modeling," Alpine Geophysics, LLC, January 2016.

Elsewhere than this document[11], we have noted the uncertainty involved with simulating air quality at monitors located in complex meteorology land-water interfaces and the poor ability of air quality models to resolve ozone formation and concentrations at grid cell sizes of 12km. We further note the lack of applicability in the one-size-fits-all approach to relative response factor calculation and attainment test application at these uniquely situated monitors. Through our work, we find that more refined treatment of these complex areas (Fairfield and New Haven, CT, Sheboygan, WI, and Allegan, MI monitors) could easily change the future design value and state-receptor linkages from upwind states to these monitors.

In summary, we recognize the limitations in deterministic modeling and the results and relationships that are generated when selecting a single set of input factors and model settings. In applying the alternate techniques, methods, and approaches identified in this document, we have generated air quality results and relationships between upwind state emissions and downwind monitor ozone concentrations that bring into question whether the choices selected by EPA and applied in defining the results of the EPA proposal are the single, most applicable ones for this complex scientific and policy-oriented purpose.

Other issues not investigated during the short comment period associated with the proposed rule, such as selection of meteorological modeling inputs and associated physics options, biogenic model selection, and background and boundary condition ozone impacts may also play a role in the perceived effectiveness and/or applicability of the rule.

Based on our findings, which indicate that there may be significantly differing answers to whether a state is a significant contributor to downwind monitors, whether EGU controls from each state have the impact previously estimated, and/or identified and yet-to-be-considered NOx and VOC controls that most certainly will have an impact on northeastern state ozone concentrations, we note that a range of inputs and methods, maybe in the form of ensemble modeling or probability distributions, would best be applied to the rulemaking modeling simulations in order to address the uncertainty involved with the conclusions.

[11] "Model Performance Review at Monitors with Complex Meteorology Land-Water Interfaces," Alpine Geophysics, LLC, January 2016.

Source Apportionment Scenario Modeling Results and Comparison to the 2017 Cross State Air Pollution Rule Modeling Platform

Appendix A

Monitor Level Impact Factor Analysis and Associated Design Value Results

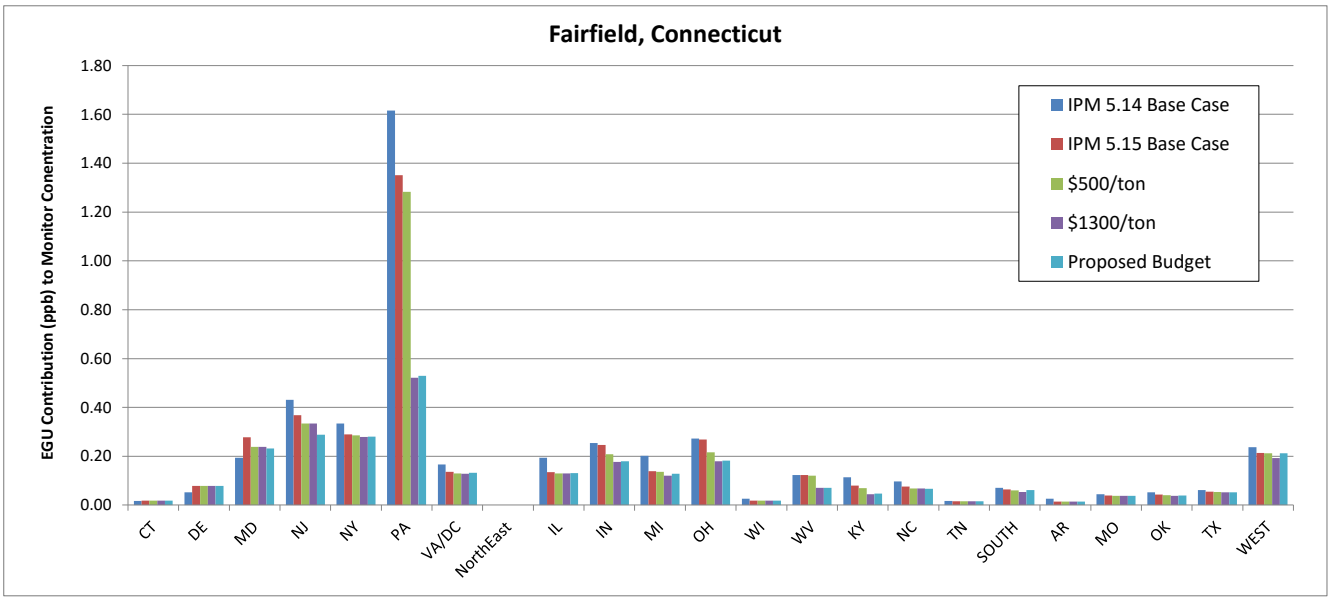
Monitor 90010017 Fairfield, Connecticut Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.02	1.11E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.05	1.36E-04	580	580	580	580	0.03	0.03	0.03	0.03
MD	5,107	0.19	3.78E-05	7,324	6,295	6,297	6,138	0.08	0.04	0.05	0.04
NJ	4,617	0.43	9.32E-05	3,950	3,581	3,580	3,090	-0.06	-0.10	-0.10	-0.14
NY	9,123	0.33	3.66E-05	7,911	7,807	7,638	7,675	-0.04	-0.05	-0.05	-0.05
PA	52,173	1.62	3.10E-05	43,599	41,389	16,834	17,094	-0.27	-0.33	-1.09	-1.09
VA/DC	11,254	0.17	1.48E-05	9,201	8,778	8,662	8,882	-0.03	-0.04	-0.04	-0.04
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.19	1.22E-05	11,002	10,627	10,564	10,761	-0.06	-0.06	-0.06	-0.06
IN	43,910	0.25	5.80E-06	42,496	35,885	30,374	31,033	-0.01	-0.05	-0.08	-0.07
MI	32,421	0.20	6.23E-06	22,233	21,858	19,340	20,635	-0.06	-0.07	-0.08	-0.07
OH	29,693	0.27	9.17E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.09	-0.09
WI	8,801	0.03	2.99E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.12	4.80E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.05	-0.05
KY	38,993	0.11	2.93E-06	27,201	23,593	15,306	15,976	-0.03	-0.05	-0.07	-0.07
NC	22,048	0.10	4.38E-06	17,307	15,385	15,389	15,341	-0.02	-0.03	-0.03	-0.03
TN	6,382	0.02	2.75E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.07	8.34E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.22E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.04	2.13E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.05	2.17E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.01	-0.01
TX	66,651	0.06	9.22E-07	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.24	1.30E-06	163,660	162,932	148,254	162,662	-0.02	-0.03	-0.04	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.02	0.02	0.02	0.02	0.02	0.00	0%
DE	0.05	0.08	0.08	0.08	0.08	0.00	0%
MD	0.19	0.28	0.24	0.24	0.23	0.04	14%
NJ	0.43	0.37	0.33	0.33	0.29	0.08	22%
NY	0.33	0.29	0.29	0.28	0.28	0.00	0%
PA	1.62	1.35	1.28	0.52	0.53	0.82	61%
VA/DC	0.17	0.14	0.13	0.13	0.13	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.19	0.13	0.13	0.13	0.13	0.00	0%
IN	0.25	0.25	0.21	0.18	0.18	0.06	24%
MI	0.20	0.14	0.14	0.12	0.13	0.00	0%
OH	0.27	0.27	0.22	0.18	0.18	0.08	30%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.12	0.12	0.12	0.07	0.07	0.05	41%
KY	0.11	0.08	0.07	0.04	0.05	0.03	38%
NC	0.10	0.08	0.07	0.07	0.07	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.07	0.06	0.06	0.05	0.06	0.00	0%
AR	0.03	0.01	0.01	0.01	0.01	0.00	0%
MO	0.04	0.04	0.04	0.04	0.04	0.00	0%
OK	0.05	0.04	0.04	0.04	0.04	0.00	0%
TX	0.06	0.05	0.05	0.05	0.05	0.00	0%
WEST	0.24	0.21	0.21	0.19	0.21	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.8
Base Case 5.15	75.2
$500/ton	75.0
$1,300/ton	74.0
Proposed Budget	74.0



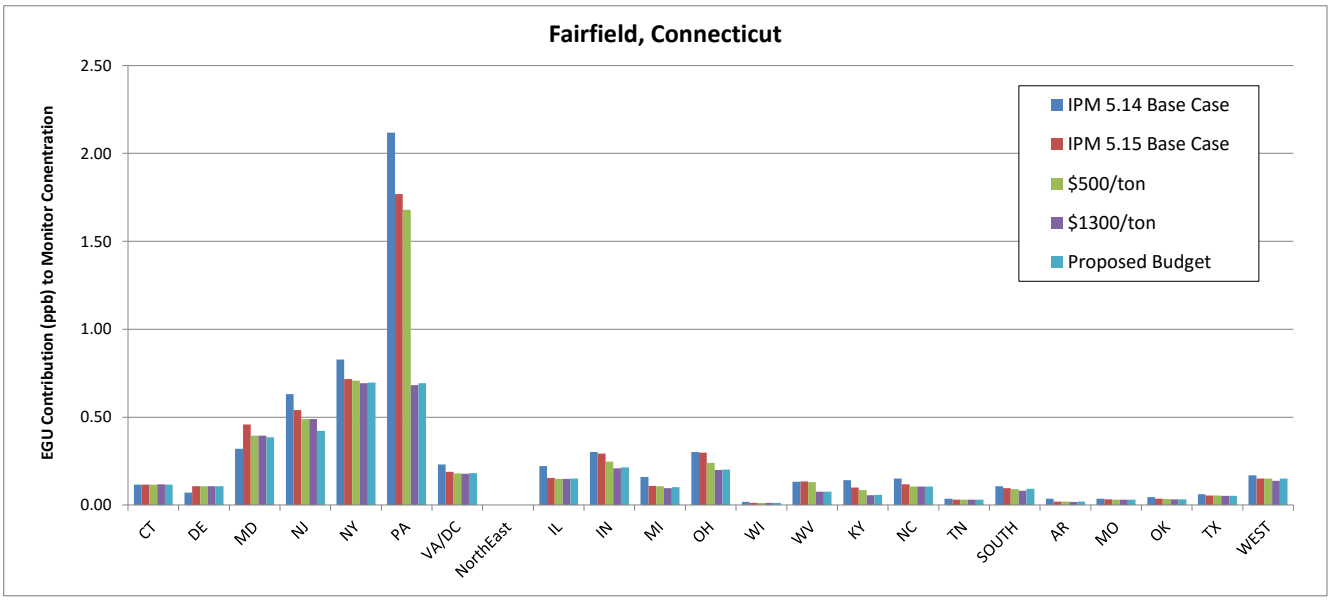
Monitor **90013007** **Fairfield, Connecticut** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.12	7.29E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.07	1.83E-04	580	580	580	580	0.04	0.04	0.04	0.04
MD	5,107	0.32	6.27E-05	7,324	6,295	6,297	6,138	0.14	0.07	0.07	0.06
NJ	4,617	0.63	1.37E-04	3,950	3,581	3,580	3,090	-0.09	-0.14	-0.14	-0.21
NY	9,123	0.83	9.07E-05	7,911	7,807	7,638	7,675	-0.11	-0.12	-0.13	-0.13
PA	52,173	2.12	4.06E-05	43,599	41,389	16,834	17,094	-0.35	-0.44	-1.43	-1.42
VA/DC	11,254	0.23	2.06E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.05	-0.05
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.22	1.41E-05	11,002	10,627	10,564	10,761	-0.07	-0.07	-0.07	-0.07
IN	43,910	0.30	6.89E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.09	-0.09
MI	32,421	0.16	4.94E-06	22,233	21,858	19,340	20,635	-0.05	-0.05	-0.06	-0.06
OH	29,693	0.30	1.02E-05	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.10
WI	8,801	0.02	2.02E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.13	5.21E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.14	3.65E-06	27,201	23,593	15,306	15,976	-0.04	-0.06	-0.09	-0.08
NC	22,048	0.15	6.86E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.04	5.58E-06	5,566	5,492	5,454	5,493	0.00	0.00	-0.01	0.00
SOUTH	84,284	0.11	1.27E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.02	-0.01
AR	11,890	0.04	2.99E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.04	1.72E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	0.00
OK	24,335	0.04	1.83E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.01	-0.01
TX	66,651	0.06	9.34E-07	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.17	9.27E-07	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.03	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.12	0.12	0.12	0.12	0.12	0.00	0%
DE	0.07	0.11	0.11	0.11	0.11	0.00	0%
MD	0.32	0.46	0.39	0.39	0.38	0.07	15%
NJ	0.63	0.54	0.49	0.49	0.42	0.11	20%
NY	0.83	0.72	0.71	0.69	0.70	0.02	3%
PA	2.12	1.77	1.68	0.68	0.69	1.07	60%
VA/DC	0.23	0.19	0.18	0.18	0.18	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.22	0.15	0.15	0.15	0.15	0.00	0%
IN	0.30	0.29	0.25	0.21	0.21	0.07	24%
MI	0.16	0.11	0.11	0.10	0.10	0.00	0%
OH	0.30	0.30	0.24	0.20	0.20	0.09	30%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.13	0.13	0.13	0.08	0.08	0.05	37%
KY	0.14	0.10	0.09	0.06	0.06	0.04	40%
NC	0.15	0.12	0.11	0.11	0.11	0.01	8%
TN	0.04	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.11	0.10	0.09	0.08	0.09	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.04	0.03	0.03	0.03	0.03	0.00	0%
OK	0.04	0.04	0.03	0.03	0.03	0.00	0%
TX	0.06	0.06	0.05	0.05	0.05	0.00	0%
WEST	0.17	0.15	0.15	0.14	0.15	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.1
Base Case 5.15	76.4
$500/ton	76.0
$1,300/ton	74.8
Proposed Budget	74.8



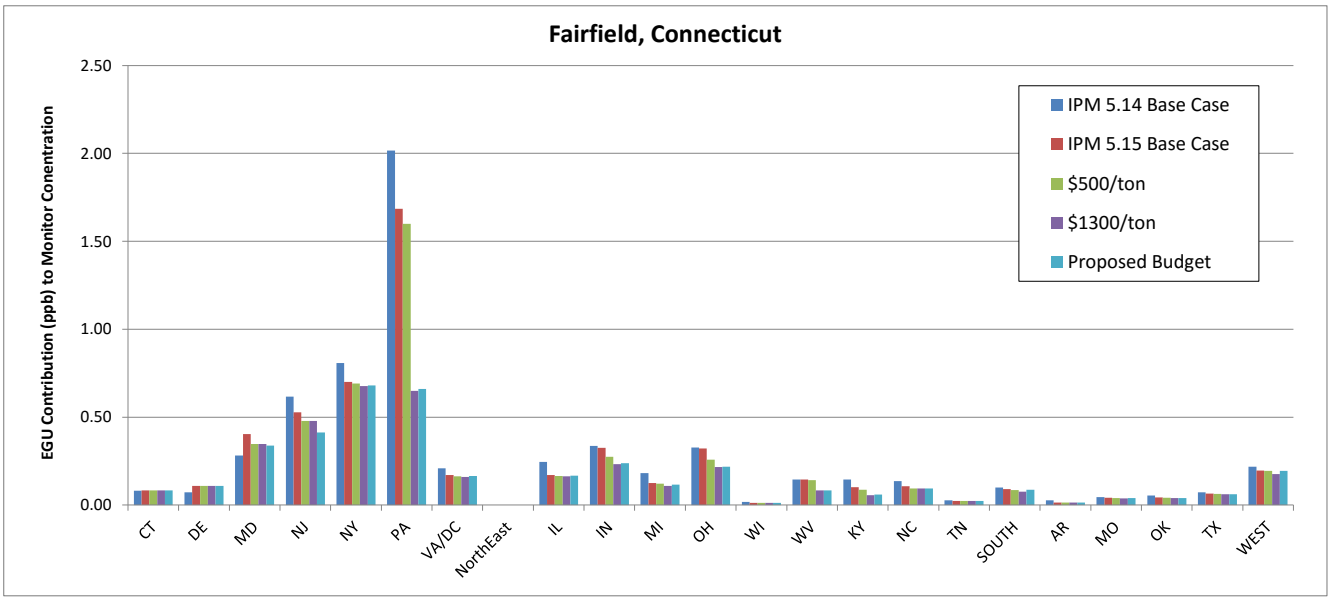
Monitor **90019003** **Fairfield, Connecticut** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.08	5.15E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.07	1.87E-04	580	580	580	580	0.04	0.04	0.04	0.04
MD	5,107	0.28	5.51E-05	7,324	6,295	6,297	6,138	0.12	0.07	0.07	0.06
NJ	4,617	0.62	1.34E-04	3,950	3,581	3,580	3,090	-0.09	-0.14	-0.14	-0.20
NY	9,123	0.81	8.86E-05	7,911	7,807	7,638	7,675	-0.11	-0.12	-0.13	-0.13
PA	52,173	2.02	3.86E-05	43,599	41,389	16,834	17,094	-0.33	-0.42	-1.37	-1.36
VA/DC	11,254	0.21	1.86E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.05	-0.04
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.25	1.55E-05	11,002	10,627	10,564	10,761	-0.07	-0.08	-0.08	-0.08
IN	43,910	0.34	7.65E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.10	-0.10
MI	32,421	0.18	5.60E-06	22,233	21,858	19,340	20,635	-0.06	-0.06	-0.07	-0.07
OH	29,693	0.33	1.10E-05	29,249	23,503	19,603	19,823	0.00	-0.07	-0.11	-0.11
WI	8,801	0.02	2.06E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.15	5.67E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.15	3.73E-06	27,201	23,593	15,306	15,976	-0.04	-0.06	-0.09	-0.09
NC	22,048	0.14	6.18E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.03	4.27E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.10	1.19E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.29E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.05	2.20E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.05	2.24E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.01
TX	66,651	0.07	1.09E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.22	1.20E-06	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.04	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.08	0.08	0.08	0.08	0.08	0.00	0%
DE	0.07	0.11	0.11	0.11	0.11	0.00	0%
MD	0.28	0.40	0.35	0.35	0.34	0.06	15%
NJ	0.62	0.53	0.48	0.48	0.41	0.11	21%
NY	0.81	0.70	0.69	0.68	0.68	0.02	3%
PA	2.02	1.68	1.60	0.65	0.66	1.02	61%
VA/DC	0.21	0.17	0.16	0.16	0.16	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.25	0.17	0.16	0.16	0.17	0.00	0%
IN	0.34	0.33	0.27	0.23	0.24	0.08	25%
MI	0.18	0.12	0.12	0.11	0.12	0.00	0%
OH	0.33	0.32	0.26	0.22	0.22	0.10	31%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.15	0.15	0.14	0.08	0.08	0.06	41%
KY	0.15	0.10	0.09	0.06	0.06	0.04	39%
NC	0.14	0.11	0.10	0.10	0.09	0.01	9%
TN	0.03	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.10	0.09	0.09	0.08	0.09	0.00	0%
AR	0.03	0.01	0.01	0.01	0.01	0.00	0%
MO	0.05	0.04	0.04	0.04	0.04	0.00	0%
OK	0.05	0.04	0.04	0.04	0.04	0.00	0%
TX	0.07	0.06	0.06	0.06	0.06	0.00	0%
WEST	0.22	0.20	0.19	0.18	0.19	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	78.0
Base Case 5.15	77.3
$500/ton	76.9
$1,300/ton	75.7
Proposed Budget	75.7



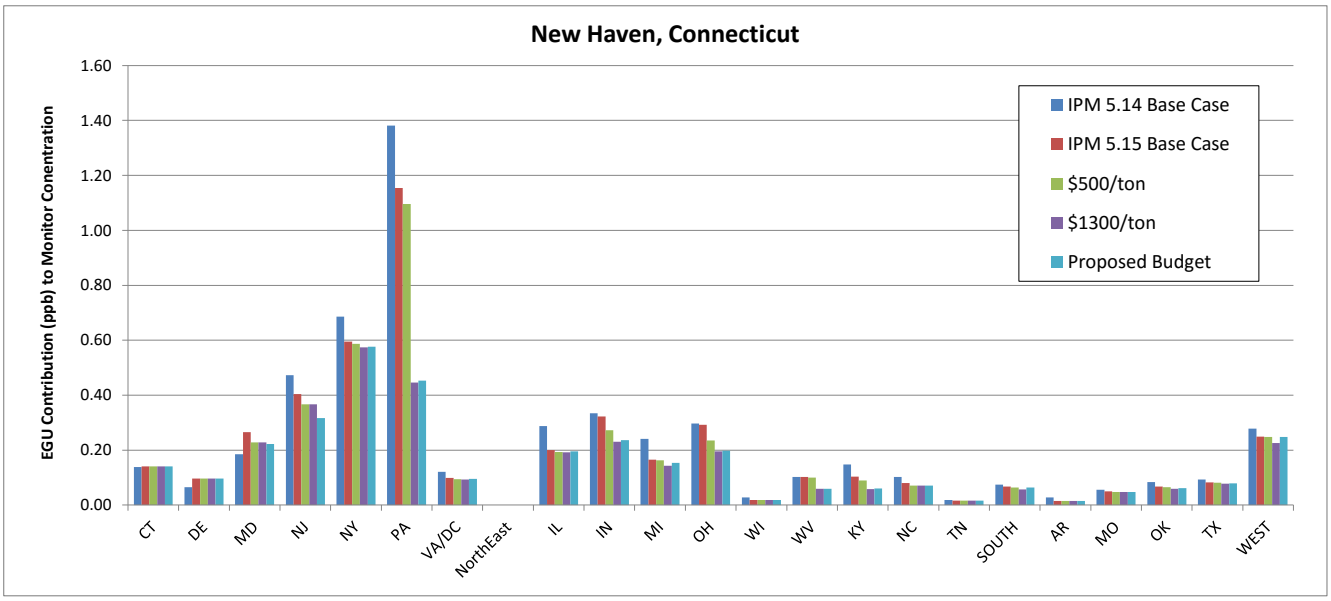
Monitor **90099002** **New Haven, Connecticut** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.14	8.76E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.06	1.67E-04	580	580	580	580	0.03	0.03	0.03	0.03
MD	5,107	0.19	3.63E-05	7,324	6,295	6,297	6,138	0.08	0.04	0.04	0.04
NJ	4,617	0.47	1.02E-04	3,950	3,581	3,580	3,090	-0.07	-0.11	-0.11	-0.16
NY	9,123	0.69	7.52E-05	7,911	7,807	7,638	7,675	-0.09	-0.10	-0.11	-0.11
PA	52,173	1.38	2.65E-05	43,599	41,389	16,834	17,094	-0.23	-0.29	-0.94	-0.93
VA/DC	11,254	0.12	1.07E-05	9,201	8,778	8,662	8,882	-0.02	-0.03	-0.03	-0.03
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.29	1.82E-05	11,002	10,627	10,564	10,761	-0.09	-0.09	-0.10	-0.09
IN	43,910	0.33	7.60E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.10	-0.10
MI	32,421	0.24	7.43E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.30	9.99E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.10
WI	8,801	0.03	3.16E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.10	3.98E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.04	-0.04
KY	38,993	0.15	3.80E-06	27,201	23,593	15,306	15,976	-0.04	-0.06	-0.09	-0.09
NC	22,048	0.10	4.62E-06	17,307	15,385	15,389	15,341	-0.02	-0.03	-0.03	-0.03
TN	6,382	0.02	2.90E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.07	8.80E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.34E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.06	2.70E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.08	3.43E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.09	1.39E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.28	1.53E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.05	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.14	0.14	0.14	0.14	0.14	0.00	0%
DE	0.06	0.10	0.10	0.10	0.10	0.00	0%
MD	0.19	0.27	0.23	0.23	0.22	0.04	15%
NJ	0.47	0.40	0.37	0.37	0.32	0.08	20%
NY	0.69	0.59	0.59	0.57	0.58	0.01	2%
PA	1.38	1.15	1.10	0.45	0.45	0.70	61%
VA/DC	0.12	0.10	0.09	0.09	0.10	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.29	0.20	0.19	0.19	0.20	0.00	0%
IN	0.33	0.32	0.27	0.23	0.24	0.08	25%
MI	0.24	0.17	0.16	0.14	0.15	0.01	6%
OH	0.30	0.29	0.23	0.20	0.20	0.09	31%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.10	0.10	0.10	0.06	0.06	0.04	39%
KY	0.15	0.10	0.09	0.06	0.06	0.04	39%
NC	0.10	0.08	0.07	0.07	0.07	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.07	0.07	0.06	0.06	0.06	0.00	0%
AR	0.03	0.01	0.01	0.01	0.01	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.08	0.07	0.06	0.06	0.06	0.00	0%
TX	0.09	0.08	0.08	0.08	0.08	0.00	0%
WEST	0.28	0.25	0.25	0.23	0.25	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.2
Base Case 5.15	76.6
$500/ton	76.3
$1,300/ton	75.4
Proposed Budget	75.4



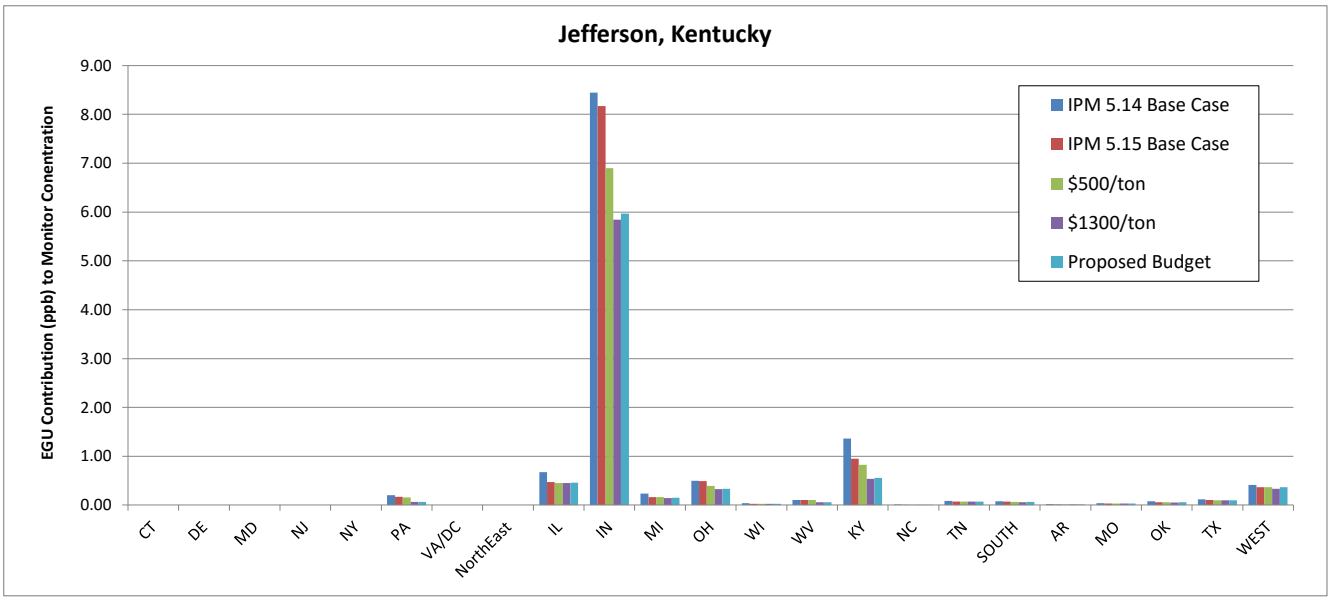
Monitor **211110067** **Jefferson, Kentucky** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.20	3.83E-06	43,599	41,389	16,834	17,094	-0.03	-0.04	-0.14	-0.13
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.68	4.27E-05	11,002	10,627	10,564	10,761	-0.21	-0.22	-0.22	-0.22
IN	43,910	8.44	1.92E-04	42,496	35,885	30,374	31,033	-0.27	-1.54	-2.60	-2.48
MI	32,421	0.24	7.34E-06	22,233	21,858	19,340	20,635	-0.07	-0.08	-0.10	-0.09
OH	29,693	0.49	1.67E-05	29,249	23,503	19,603	19,823	-0.01	-0.10	-0.17	-0.16
WI	8,801	0.04	4.33E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.10	4.09E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.04	-0.04
KY	38,993	1.36	3.49E-05	27,201	23,593	15,306	15,976	-0.41	-0.54	-0.83	-0.80
NC	22,048	0.01	4.32E-07	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.09	1.34E-05	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.08	9.04E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.02	1.60E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.04	1.85E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.08	3.13E-06	19,620	18,918	17,450	18,103	-0.01	-0.02	-0.02	-0.02
TX	66,651	0.11	1.71E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.41	2.25E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.08	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.20	0.17	0.16	0.06	0.07	0.10	60%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.68	0.47	0.45	0.45	0.46	0.01	2%
IN	8.44	8.17	6.90	5.84	5.97	2.20	27%
MI	0.24	0.16	0.16	0.14	0.15	0.01	6%
OH	0.49	0.49	0.39	0.33	0.33	0.15	31%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.10	0.10	0.10	0.06	0.06	0.04	38%
KY	1.36	0.95	0.82	0.53	0.56	0.39	41%
NC	0.01	0.01	0.01	0.01	0.01	0.00	0%
TN	0.09	0.07	0.07	0.07	0.07	0.00	0%
SOUTH	0.08	0.07	0.07	0.06	0.07	0.00	0%
AR	0.02	0.01	0.01	0.01	0.01	0.00	0%
MO	0.04	0.03	0.03	0.03	0.03	0.00	0%
OK	0.08	0.06	0.06	0.05	0.06	0.00	0%
TX	0.11	0.10	0.10	0.10	0.10	0.00	0%
WEST	0.41	0.37	0.37	0.33	0.37	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.8
Base Case 5.15	74.7
$500/ton	73.1
$1,300/ton	71.5
Proposed Budget	71.7



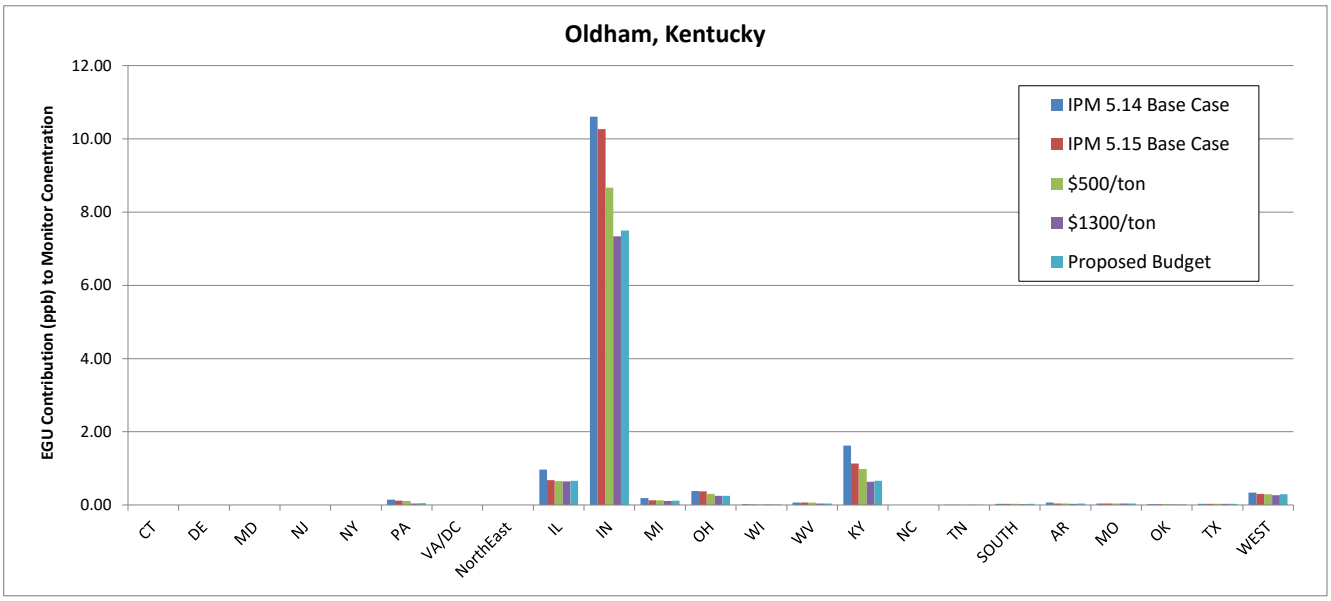
Monitor 211850004 Oldham, Kentucky Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.15	2.79E-06	43,599	41,389	16,834	17,094	-0.02	-0.03	-0.10	-0.10
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.97	6.15E-05	11,002	10,627	10,564	10,761	-0.30	-0.32	-0.32	-0.31
IN	43,910	10.61	2.42E-04	42,496	35,885	30,374	31,033	-0.34	-1.94	-3.27	-3.11
MI	32,421	0.19	5.89E-06	22,233	21,858	19,340	20,635	-0.06	-0.06	-0.08	-0.07
OH	29,693	0.38	1.29E-05	29,249	23,503	19,603	19,823	-0.01	-0.08	-0.13	-0.13
WI	8,801	0.03	3.10E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.07	2.84E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.03	-0.03
KY	38,993	1.63	4.17E-05	27,201	23,593	15,306	15,976	-0.49	-0.64	-0.99	-0.96
NC	22,048	0.00	0.00E+00	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.01	1.42E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.04	4.31E-07	76,472	72,244	64,612	73,131	0.00	-0.01	-0.01	0.00
AR	11,890	0.07	6.12E-06	6,399	6,386	6,295	6,414	-0.03	-0.03	-0.03	-0.03
MO	20,632	0.05	2.20E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.03	1.12E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.01	-0.01
TX	66,651	0.04	5.46E-07	59,199	58,570	56,391	57,146	0.00	0.00	-0.01	-0.01
WEST	182,298	0.34	1.84E-06	163,660	162,932	148,254	162,662	-0.03	-0.04	-0.06	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.15	0.12	0.12	0.05	0.05	0.07	58%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.97	0.68	0.65	0.65	0.66	0.01	1%
IN	10.61	10.27	8.67	7.34	7.50	2.76	27%
MI	0.19	0.13	0.13	0.11	0.12	0.00	0%
OH	0.38	0.38	0.30	0.25	0.25	0.12	32%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.07	0.07	0.07	0.04	0.04	0.03	41%
KY	1.63	1.14	0.98	0.64	0.67	0.46	41%
NC	0.00	0.00	0.00	0.00	0.00	0.00	0%
TN	0.01	0.01	0.01	0.01	0.01	0.00	0%
SOUTH	0.04	0.03	0.03	0.03	0.03	0.00	0%
AR	0.07	0.04	0.04	0.04	0.04	0.00	0%
MO	0.05	0.04	0.04	0.04	0.04	0.00	0%
OK	0.03	0.02	0.02	0.02	0.02	0.00	0%
TX	0.04	0.03	0.03	0.03	0.03	0.00	0%
WEST	0.34	0.30	0.30	0.27	0.30	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	73.7
Base Case 5.15	72.4
$500/ton	70.5
$1,300/ton	68.6
Proposed Budget	68.9



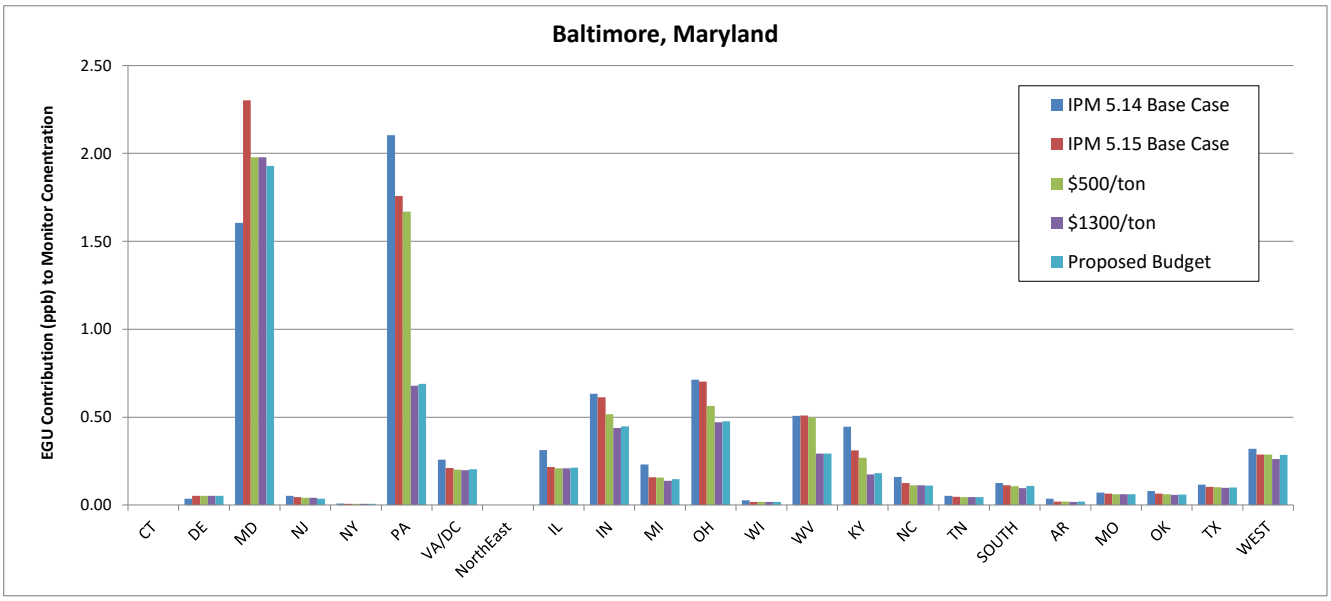
Monitor **240053001** **Baltimore, Maryland** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.04	9.19E-05	580	580	580	580	0.02	0.02	0.02	0.02
MD	5,107	1.60	3.14E-04	7,324	6,295	6,297	6,138	0.70	0.37	0.37	0.32
NJ	4,617	0.05	1.16E-05	3,950	3,581	3,580	3,090	-0.01	-0.01	-0.01	-0.02
NY	9,123	0.01	9.77E-07	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	2.10	4.03E-05	43,599	41,389	16,834	17,094	-0.35	-0.43	-1.43	-1.41
VA/DC	11,254	0.26	2.30E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.05
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.31	1.97E-05	11,002	10,627	10,564	10,761	-0.09	-0.10	-0.10	-0.10
IN	43,910	0.63	1.44E-05	42,496	35,885	30,374	31,033	-0.02	-0.12	-0.20	-0.19
MI	32,421	0.23	7.15E-06	22,233	21,858	19,340	20,635	-0.07	-0.08	-0.09	-0.08
OH	29,693	0.71	2.40E-05	29,249	23,503	19,603	19,823	-0.01	-0.15	-0.24	-0.24
WI	8,801	0.03	3.04E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.51	1.98E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.22	-0.22
KY	38,993	0.45	1.14E-05	27,201	23,593	15,306	15,976	-0.13	-0.18	-0.27	-0.26
NC	22,048	0.16	7.28E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.05	8.38E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.12	1.48E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.04	3.00E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.07	3.46E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.08	3.30E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.12	1.74E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.32	1.76E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.04	0.05	0.05	0.05	0.05	0.00	0%
MD	1.60	2.30	1.98	1.98	1.93	0.37	16%
NJ	0.05	0.05	0.04	0.04	0.04	0.00	0%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	2.10	1.76	1.67	0.68	0.69	1.06	60%
VA/DC	0.26	0.21	0.20	0.20	0.20	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.31	0.22	0.21	0.21	0.21	0.00	0%
IN	0.63	0.61	0.52	0.44	0.45	0.16	26%
MI	0.23	0.16	0.16	0.14	0.15	0.01	6%
OH	0.71	0.70	0.56	0.47	0.48	0.22	31%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.51	0.51	0.50	0.29	0.29	0.21	41%
KY	0.45	0.31	0.27	0.17	0.18	0.12	39%
NC	0.16	0.13	0.11	0.11	0.11	0.01	8%
TN	0.05	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.12	0.11	0.11	0.10	0.11	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.08	0.06	0.06	0.06	0.06	0.00	0%
TX	0.12	0.10	0.10	0.10	0.10	0.00	0%
WEST	0.32	0.29	0.29	0.26	0.29	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	73.2
Base Case 5.15	73.0
$500/ton	72.3
$1,300/ton	70.8
Proposed Budget	70.8



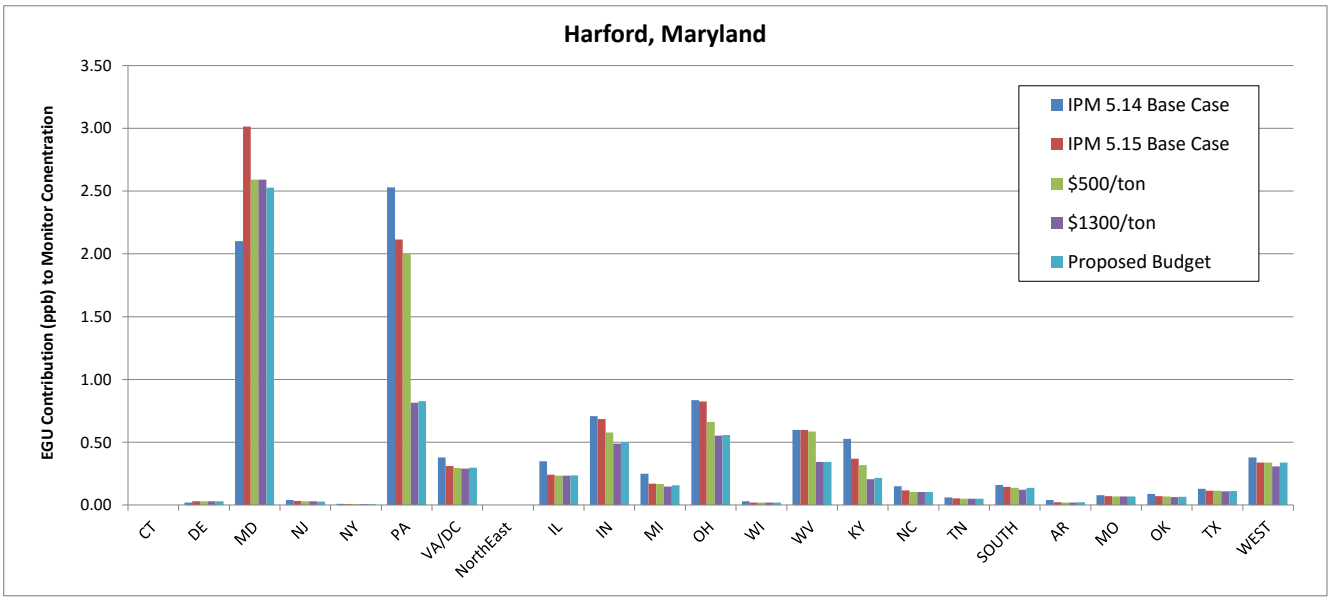
Monitor 240251001 Harford, Maryland Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.02	5.13E-05	580	580	580	580	0.01	0.01	0.01	0.01
MD	5,107	2.10	4.12E-04	7,324	6,295	6,297	6,138	0.91	0.49	0.49	0.42
NJ	4,617	0.04	8.63E-06	3,950	3,581	3,580	3,090	-0.01	-0.01	-0.01	-0.01
NY	9,123	0.01	1.09E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	2.53	4.85E-05	43,599	41,389	16,834	17,094	-0.42	-0.52	-1.71	-1.70
VA/DC	11,254	0.38	3.36E-05	9,201	8,778	8,662	8,882	-0.07	-0.08	-0.09	-0.08
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.35	2.21E-05	11,002	10,627	10,564	10,761	-0.11	-0.11	-0.12	-0.11
IN	43,910	0.71	1.61E-05	42,496	35,885	30,374	31,033	-0.02	-0.13	-0.22	-0.21
MI	32,421	0.25	7.68E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.84	2.82E-05	29,249	23,503	19,603	19,823	-0.01	-0.17	-0.28	-0.28
WI	8,801	0.03	3.40E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.60	2.33E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.25	-0.25
KY	38,993	0.53	1.35E-05	27,201	23,593	15,306	15,976	-0.16	-0.21	-0.32	-0.31
NC	22,048	0.15	6.78E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.06	9.36E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.16	1.89E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.04	-0.02
AR	11,890	0.04	3.35E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	3.86E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.68E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.13	1.94E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.38	2.08E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.02	0.03	0.03	0.03	0.03	0.00	0%
MD	2.10	3.01	2.59	2.59	2.53	0.48	16%
NJ	0.04	0.03	0.03	0.03	0.03	0.00	0%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	2.53	2.11	2.01	0.82	0.83	1.28	61%
VA/DC	0.38	0.31	0.30	0.29	0.30	0.01	3%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.35	0.24	0.23	0.23	0.24	0.00	0%
IN	0.71	0.68	0.58	0.49	0.50	0.18	26%
MI	0.25	0.17	0.17	0.15	0.16	0.01	6%
OH	0.84	0.82	0.66	0.55	0.56	0.26	32%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.60	0.60	0.59	0.34	0.34	0.25	42%
KY	0.53	0.37	0.32	0.21	0.22	0.15	41%
NC	0.15	0.12	0.10	0.10	0.10	0.01	9%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.16	0.14	0.14	0.12	0.14	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.08	0.07	0.07	0.07	0.07	0.00	0%
OK	0.09	0.07	0.07	0.06	0.07	0.00	0%
TX	0.13	0.12	0.11	0.11	0.11	0.00	0%
WEST	0.38	0.34	0.34	0.31	0.34	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	81.3
Base Case 5.15	81.2
$500/ton	80.3
$1,300/ton	78.4
Proposed Budget	78.5



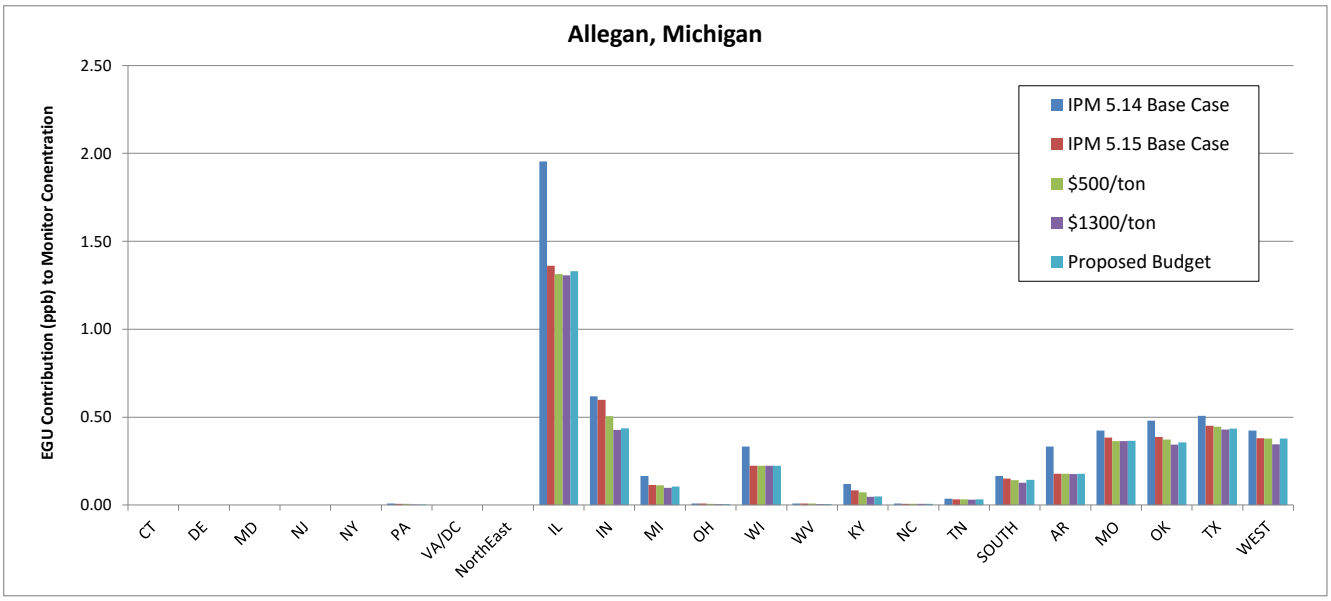
Monitor 260050003 Allegan, Michigan Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.01	1.77E-07	43,599	41,389	16,834	17,094	0.00	0.00	-0.01	-0.01
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	1.96	1.24E-04	11,002	10,627	10,564	10,761	-0.59	-0.64	-0.65	-0.62
IN	43,910	0.62	1.41E-05	42,496	35,885	30,374	31,033	-0.02	-0.11	-0.19	-0.18
MI	32,421	0.17	5.12E-06	22,233	21,858	19,340	20,635	-0.05	-0.05	-0.07	-0.06
OH	29,693	0.01	3.11E-07	29,249	23,503	19,603	19,823	0.00	0.00	0.00	0.00
WI	8,801	0.33	3.77E-05	5,923	5,920	5,906	5,917	-0.11	-0.11	-0.11	-0.11
WV	25,606	0.01	3.60E-07	25,664	25,071	14,755	14,755	0.00	0.00	0.00	0.00
KY	38,993	0.12	3.07E-06	27,201	23,593	15,306	15,976	-0.04	-0.05	-0.07	-0.07
NC	22,048	0.01	4.18E-07	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.04	5.78E-06	5,566	5,492	5,454	5,493	0.00	-0.01	-0.01	-0.01
SOUTH	84,284	0.17	1.97E-06	76,472	72,244	64,612	73,131	-0.02	-0.02	-0.04	-0.02
AR	11,890	0.33	2.79E-05	6,399	6,386	6,295	6,414	-0.15	-0.15	-0.16	-0.15
MO	20,632	0.42	2.06E-05	18,663	17,732	17,705	17,793	-0.04	-0.06	-0.06	-0.06
OK	24,335	0.48	1.97E-05	19,620	18,918	17,450	18,103	-0.09	-0.11	-0.14	-0.12
TX	66,651	0.51	7.61E-06	59,199	58,570	56,391	57,146	-0.06	-0.06	-0.08	-0.07
WEST	182,298	0.42	2.33E-06	163,660	162,932	148,254	162,662	-0.04	-0.05	-0.08	-0.05

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.01	0.01	0.01	0.00	0.00	0.00	0%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	1.96	1.36	1.31	1.31	1.33	0.02	1%
IN	0.62	0.60	0.50	0.43	0.44	0.16	27%
MI	0.17	0.11	0.11	0.10	0.11	0.00	0%
OH	0.01	0.01	0.01	0.01	0.01	0.00	0%
WI	0.33	0.22	0.22	0.22	0.22	0.00	0%
WV	0.01	0.01	0.01	0.01	0.01	0.00	0%
KY	0.12	0.08	0.07	0.05	0.05	0.03	36%
NC	0.01	0.01	0.01	0.01	0.01	0.00	0%
TN	0.04	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.17	0.15	0.14	0.13	0.14	0.00	0%
AR	0.33	0.18	0.18	0.18	0.18	0.00	0%
MO	0.42	0.38	0.36	0.36	0.37	0.01	3%
OK	0.48	0.39	0.37	0.34	0.36	0.02	5%
TX	0.51	0.45	0.45	0.43	0.43	0.01	2%
WEST	0.42	0.38	0.38	0.34	0.38	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.5
Base Case 5.15	74.3
$500/ton	74.1
$1,300/ton	73.8
Proposed Budget	74.0



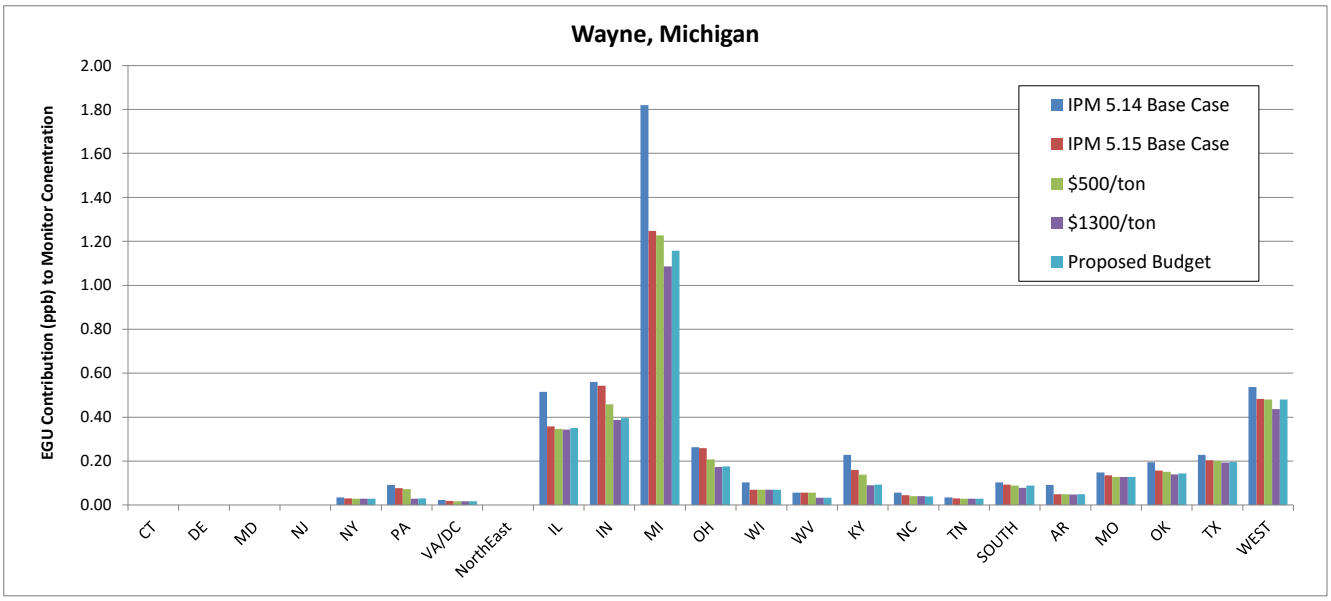
Monitor 261630019 Wayne, Michigan Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.03	3.76E-06	7,911	7,807	7,638	7,675	0.00	0.00	-0.01	-0.01
PA	52,173	0.09	1.75E-06	43,599	41,389	16,834	17,094	-0.02	-0.02	-0.06	-0.06
VA/DC	11,254	0.02	2.03E-06	9,201	8,778	8,662	8,882	0.00	-0.01	-0.01	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.51	3.26E-05	11,002	10,627	10,564	10,761	-0.16	-0.17	-0.17	-0.16
IN	43,910	0.56	1.28E-05	42,496	35,885	30,374	31,033	-0.02	-0.10	-0.17	-0.16
MI	32,421	1.82	5.61E-05	22,233	21,858	19,340	20,635	-0.57	-0.59	-0.73	-0.66
OH	29,693	0.26	8.86E-06	29,249	23,503	19,603	19,823	0.00	-0.05	-0.09	-0.09
WI	8,801	0.10	1.17E-05	5,923	5,920	5,906	5,917	-0.03	-0.03	-0.03	-0.03
WV	25,606	0.06	2.23E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.02	-0.02
KY	38,993	0.23	5.87E-06	27,201	23,593	15,306	15,976	-0.07	-0.09	-0.14	-0.14
NC	22,048	0.06	2.59E-06	17,307	15,385	15,389	15,341	-0.01	-0.02	-0.02	-0.02
TN	6,382	0.03	5.38E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.10	1.22E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.09	7.70E-06	6,399	6,386	6,295	6,414	-0.04	-0.04	-0.04	-0.04
MO	20,632	0.15	7.21E-06	18,663	17,732	17,705	17,793	-0.01	-0.02	-0.02	-0.02
OK	24,335	0.19	7.99E-06	19,620	18,918	17,450	18,103	-0.04	-0.04	-0.06	-0.05
TX	66,651	0.23	3.43E-06	59,199	58,570	56,391	57,146	-0.03	-0.03	-0.04	-0.03
WEST	182,298	0.54	2.95E-06	163,660	162,932	148,254	162,662	-0.05	-0.06	-0.10	-0.06

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.03	0.03	0.03	0.03	0.03	0.00	0%
PA	0.09	0.08	0.07	0.03	0.03	0.04	52%
VA/DC	0.02	0.02	0.02	0.02	0.02	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.51	0.36	0.35	0.34	0.35	0.00	0%
IN	0.56	0.54	0.46	0.39	0.40	0.14	26%
MI	1.82	1.25	1.23	1.09	1.16	0.08	6%
OH	0.26	0.26	0.21	0.17	0.18	0.08	31%
WI	0.10	0.07	0.07	0.07	0.07	0.00	0%
WV	0.06	0.06	0.06	0.03	0.03	0.02	35%
KY	0.23	0.16	0.14	0.09	0.09	0.06	38%
NC	0.06	0.04	0.04	0.04	0.04	0.00	0%
TN	0.03	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.10	0.09	0.09	0.08	0.09	0.00	0%
AR	0.09	0.05	0.05	0.05	0.05	0.00	0%
MO	0.15	0.13	0.13	0.13	0.13	0.00	0%
OK	0.19	0.16	0.15	0.14	0.14	0.01	6%
TX	0.23	0.20	0.20	0.19	0.20	0.00	0%
WEST	0.54	0.48	0.48	0.44	0.48	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	74.0
Base Case 5.15	72.9
$500/ton	72.7
$1,300/ton	72.3
Proposed Budget	72.4



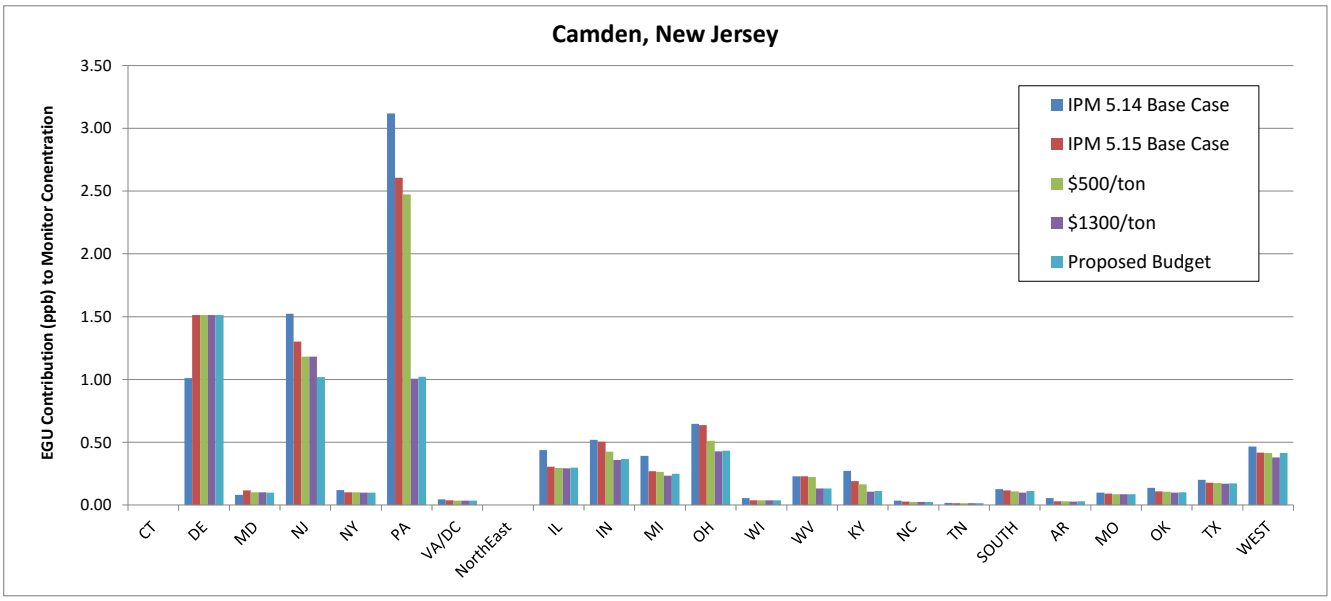
Monitor **340071001** **Camden, New Jersey** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	1.01	2.61E-03	580	580	580	580	0.50	0.50	0.50	0.50
MD	5,107	0.08	1.61E-05	7,324	6,295	6,297	6,138	0.04	0.02	0.02	0.02
NJ	4,617	1.52	3.30E-04	3,950	3,581	3,580	3,090	-0.22	-0.34	-0.34	-0.50
NY	9,123	0.12	1.30E-05	7,911	7,807	7,638	7,675	-0.02	-0.02	-0.02	-0.02
PA	52,173	3.12	5.98E-05	43,599	41,389	16,834	17,094	-0.51	-0.64	-2.11	-2.10
VA/DC	11,254	0.05	4.05E-06	9,201	8,778	8,662	8,882	-0.01	-0.01	-0.01	-0.01
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.44	2.77E-05	11,002	10,627	10,564	10,761	-0.13	-0.14	-0.15	-0.14
IN	43,910	0.52	1.18E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.16	-0.15
MI	32,421	0.39	1.21E-05	22,233	21,858	19,340	20,635	-0.12	-0.13	-0.16	-0.14
OH	29,693	0.65	2.18E-05	29,249	23,503	19,603	19,823	-0.01	-0.13	-0.22	-0.22
WI	8,801	0.05	6.22E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.23	8.90E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.10	-0.10
KY	38,993	0.27	7.02E-06	27,201	23,593	15,306	15,976	-0.08	-0.11	-0.17	-0.16
NC	22,048	0.04	1.65E-06	17,307	15,385	15,389	15,341	-0.01	-0.01	-0.01	-0.01
TN	6,382	0.02	2.86E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.13	1.51E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.05	4.60E-06	6,399	6,386	6,295	6,414	-0.03	-0.03	-0.03	-0.03
MO	20,632	0.10	4.86E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.14	5.62E-06	19,620	18,918	17,450	18,103	-0.03	-0.03	-0.04	-0.04
TX	66,651	0.20	3.01E-06	59,199	58,570	56,391	57,146	-0.02	-0.02	-0.03	-0.03
WEST	182,298	0.47	2.55E-06	163,660	162,932	148,254	162,662	-0.05	-0.05	-0.09	-0.05

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	1.01	1.51	1.51	1.51	1.51	0.00	0%
MD	0.08	0.12	0.10	0.10	0.10	0.01	8%
NJ	1.52	1.30	1.18	1.18	1.02	0.28	21%
NY	0.12	0.10	0.10	0.10	0.10	0.00	0%
PA	3.12	2.61	2.47	1.01	1.02	1.58	61%
VA/DC	0.05	0.04	0.04	0.04	0.04	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.44	0.30	0.29	0.29	0.30	0.00	0%
IN	0.52	0.50	0.42	0.36	0.37	0.13	26%
MI	0.39	0.27	0.26	0.23	0.25	0.01	4%
OH	0.65	0.64	0.51	0.43	0.43	0.20	31%
WI	0.05	0.04	0.04	0.04	0.04	0.00	0%
WV	0.23	0.23	0.22	0.13	0.13	0.09	39%
KY	0.27	0.19	0.17	0.11	0.11	0.07	37%
NC	0.04	0.03	0.03	0.03	0.03	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.13	0.12	0.11	0.10	0.11	0.00	0%
AR	0.05	0.03	0.03	0.03	0.03	0.00	0%
MO	0.10	0.09	0.09	0.09	0.09	0.00	0%
OK	0.14	0.11	0.11	0.10	0.10	0.00	0%
TX	0.20	0.18	0.18	0.17	0.17	0.00	0%
WEST	0.47	0.42	0.42	0.38	0.41	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	74.2
Base Case 5.15	73.4
$500/ton	72.9
$1,300/ton	71.0
Proposed Budget	71.0



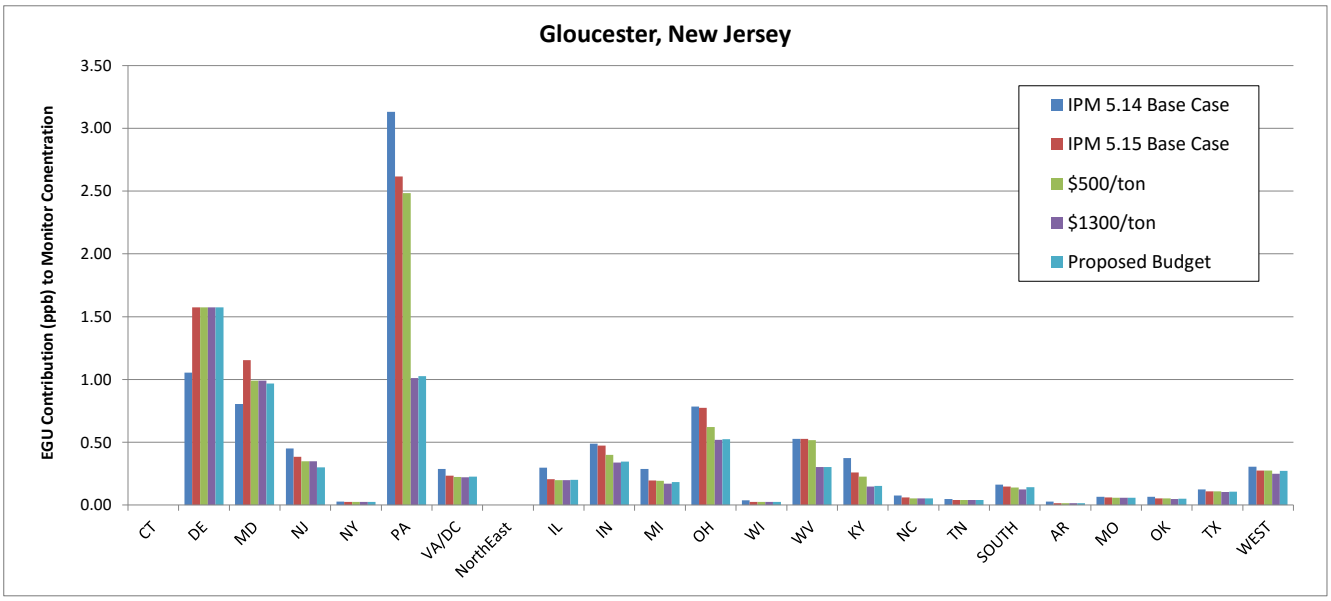
Monitor 340150002 Gloucester, New Jersey Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	1.05	2.72E-03	580	580	580	580	0.52	0.52	0.52	0.52
MD	5,107	0.80	1.58E-04	7,324	6,295	6,297	6,138	0.35	0.19	0.19	0.16
NJ	4,617	0.45	9.75E-05	3,950	3,581	3,580	3,090	-0.07	-0.10	-0.10	-0.15
NY	9,123	0.03	3.15E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	3.13	6.00E-05	43,599	41,389	16,834	17,094	-0.51	-0.65	-2.12	-2.11
VA/DC	11,254	0.29	2.55E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.07	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.30	1.88E-05	11,002	10,627	10,564	10,761	-0.09	-0.10	-0.10	-0.09
IN	43,910	0.49	1.11E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.15	-0.14
MI	32,421	0.29	8.86E-06	22,233	21,858	19,340	20,635	-0.09	-0.09	-0.12	-0.10
OH	29,693	0.79	2.65E-05	29,249	23,503	19,603	19,823	-0.01	-0.16	-0.27	-0.26
WI	8,801	0.04	4.35E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.53	2.06E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.22	-0.22
KY	38,993	0.37	9.58E-06	27,201	23,593	15,306	15,976	-0.11	-0.15	-0.23	-0.22
NC	22,048	0.08	3.48E-06	17,307	15,385	15,389	15,341	-0.02	-0.02	-0.02	-0.02
TN	6,382	0.05	7.50E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.16	1.93E-06	76,472	72,244	64,612	73,131	-0.02	-0.02	-0.04	-0.02
AR	11,890	0.03	2.42E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.07	3.25E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.07	2.76E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.02
TX	66,651	0.12	1.87E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.31	1.68E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	1.05	1.57	1.57	1.57	1.57	0.00	0%
MD	0.80	1.15	0.99	0.99	0.97	0.18	16%
NJ	0.45	0.39	0.35	0.35	0.30	0.08	21%
NY	0.03	0.02	0.02	0.02	0.02	0.00	0%
PA	3.13	2.62	2.48	1.01	1.03	1.59	61%
VA/DC	0.29	0.23	0.22	0.22	0.23	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.30	0.21	0.20	0.20	0.20	0.00	0%
IN	0.49	0.47	0.40	0.34	0.35	0.12	25%
MI	0.29	0.20	0.19	0.17	0.18	0.01	5%
OH	0.79	0.77	0.62	0.52	0.52	0.24	31%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.53	0.53	0.52	0.30	0.30	0.22	42%
KY	0.37	0.26	0.23	0.15	0.15	0.10	38%
NC	0.08	0.06	0.05	0.05	0.05	0.00	0%
TN	0.05	0.04	0.04	0.04	0.04	0.00	0%
SOUTH	0.16	0.15	0.14	0.12	0.14	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.07	0.05	0.05	0.05	0.05	0.00	0%
TX	0.12	0.11	0.11	0.11	0.11	0.00	0%
WEST	0.31	0.28	0.27	0.25	0.27	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.1
Base Case 5.15	74.9
$500/ton	74.2
$1,300/ton	72.2
Proposed Budget	72.3



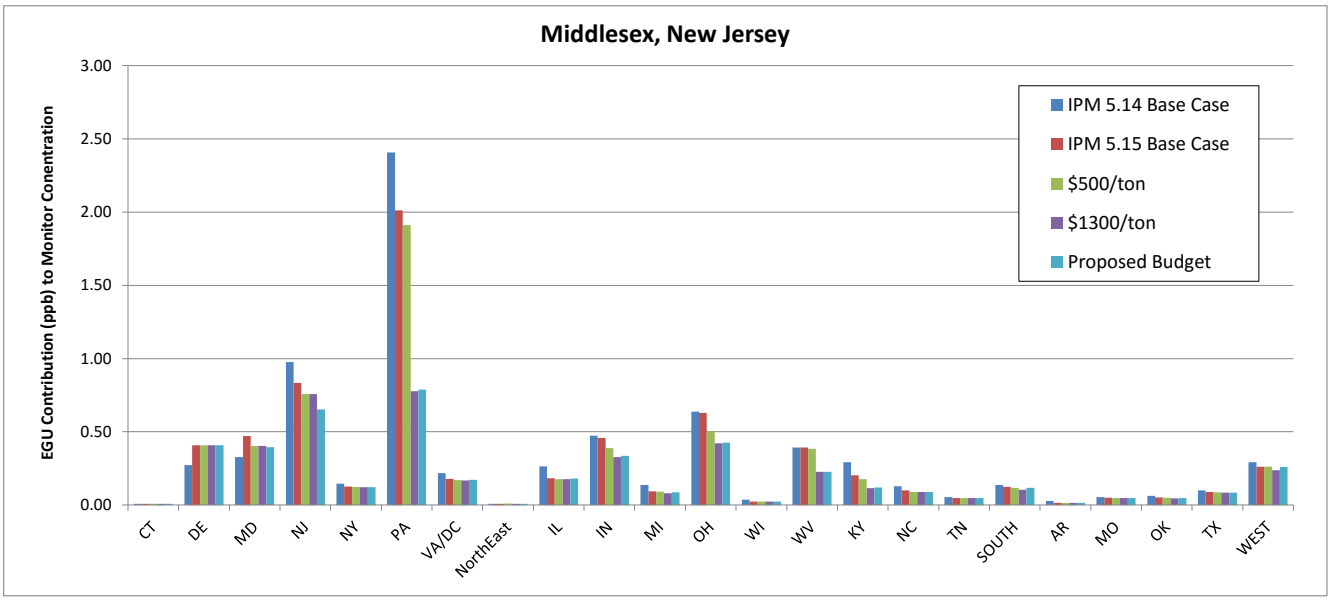
Monitor 340230011 Middlesex, New Jersey Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	5.75E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.27	7.05E-04	580	580	580	580	0.14	0.14	0.14	0.14
MD	5,107	0.33	6.43E-05	7,324	6,295	6,297	6,138	0.14	0.08	0.08	0.07
NJ	4,617	0.98	2.11E-04	3,950	3,581	3,580	3,090	-0.14	-0.22	-0.22	-0.32
NY	9,123	0.15	1.60E-05	7,911	7,807	7,638	7,675	-0.02	-0.02	-0.02	-0.02
PA	52,173	2.41	4.61E-05	43,599	41,389	16,834	17,094	-0.40	-0.50	-1.63	-1.62
VA/DC	11,254	0.22	1.94E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.05	-0.05
NorthEast	4,272	0.01	2.13E-06	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.26	1.67E-05	11,002	10,627	10,564	10,761	-0.08	-0.09	-0.09	-0.08
IN	43,910	0.47	1.08E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.15	-0.14
MI	32,421	0.14	4.22E-06	22,233	21,858	19,340	20,635	-0.04	-0.04	-0.06	-0.05
OH	29,693	0.64	2.15E-05	29,249	23,503	19,603	19,823	-0.01	-0.13	-0.22	-0.21
WI	8,801	0.04	4.14E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.39	1.53E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.17	-0.17
KY	38,993	0.29	7.48E-06	27,201	23,593	15,306	15,976	-0.09	-0.12	-0.18	-0.17
NC	22,048	0.13	5.79E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.05	8.57E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.14	1.62E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.03	2.30E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.05	2.65E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.06	2.62E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.02
TX	66,651	0.10	1.51E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.01
WEST	182,298	0.29	1.60E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.05	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.27	0.41	0.41	0.41	0.41	0.00	0%
MD	0.33	0.47	0.40	0.40	0.39	0.07	15%
NJ	0.98	0.83	0.76	0.76	0.65	0.18	22%
NY	0.15	0.13	0.12	0.12	0.12	0.00	0%
PA	2.41	2.01	1.91	0.78	0.79	1.22	61%
VA/DC	0.22	0.18	0.17	0.17	0.17	0.00	0%
NorthEast	0.01	0.01	0.01	0.01	0.01	0.00	0%
IL	0.26	0.18	0.18	0.18	0.18	0.00	0%
IN	0.47	0.46	0.39	0.33	0.34	0.12	26%
MI	0.14	0.09	0.09	0.08	0.09	0.00	0%
OH	0.64	0.63	0.51	0.42	0.43	0.20	32%
WI	0.04	0.02	0.02	0.02	0.02	0.00	0%
WV	0.39	0.39	0.38	0.23	0.23	0.16	41%
KY	0.29	0.20	0.18	0.11	0.12	0.08	39%
NC	0.13	0.10	0.09	0.09	0.09	0.01	10%
TN	0.05	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.14	0.12	0.12	0.10	0.12	0.00	0%
AR	0.03	0.01	0.01	0.01	0.01	0.00	0%
MO	0.05	0.05	0.05	0.05	0.05	0.00	0%
OK	0.06	0.05	0.05	0.05	0.05	0.00	0%
TX	0.10	0.09	0.09	0.08	0.09	0.00	0%
WEST	0.29	0.26	0.26	0.24	0.26	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	73.0
Base Case 5.15	72.3
$500/ton	71.8
$1,300/ton	70.2
Proposed Budget	70.2



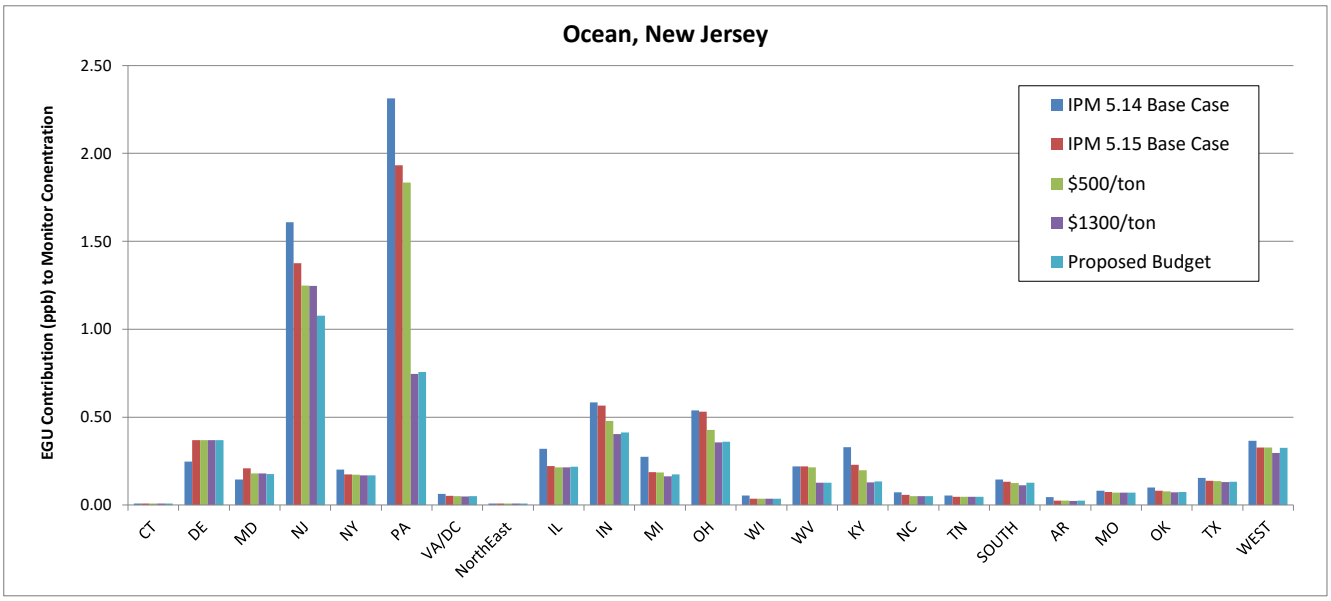
Monitor **340290006** **Ocean, New Jersey** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	5.76E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.25	6.36E-04	580	580	580	580	0.12	0.12	0.12	0.12
MD	5,107	0.15	2.86E-05	7,324	6,295	6,297	6,138	0.06	0.03	0.03	0.03
NJ	4,617	1.61	3.48E-04	3,950	3,581	3,580	3,090	-0.23	-0.36	-0.36	-0.53
NY	9,123	0.20	2.20E-05	7,911	7,807	7,638	7,675	-0.03	-0.03	-0.03	-0.03
PA	52,173	2.31	4.43E-05	43,599	41,389	16,834	17,094	-0.38	-0.48	-1.57	-1.55
VA/DC	11,254	0.06	5.68E-06	9,201	8,778	8,662	8,882	-0.01	-0.01	-0.01	-0.01
NorthEast	4,272	0.01	2.14E-06	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.32	2.02E-05	11,002	10,627	10,564	10,761	-0.10	-0.10	-0.11	-0.10
IN	43,910	0.58	1.33E-05	42,496	35,885	30,374	31,033	-0.02	-0.11	-0.18	-0.17
MI	32,421	0.27	8.46E-06	22,233	21,858	19,340	20,635	-0.09	-0.09	-0.11	-0.10
OH	29,693	0.54	1.82E-05	29,249	23,503	19,603	19,823	-0.01	-0.11	-0.18	-0.18
WI	8,801	0.05	6.23E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.22	8.57E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.09	-0.09
KY	38,993	0.33	8.44E-06	27,201	23,593	15,306	15,976	-0.10	-0.13	-0.20	-0.19
NC	22,048	0.07	3.32E-06	17,307	15,385	15,389	15,341	-0.02	-0.02	-0.02	-0.02
TN	6,382	0.05	8.59E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.15	1.73E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.05	3.84E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	3.99E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	4.13E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.03
TX	66,651	0.16	2.33E-06	59,199	58,570	56,391	57,146	-0.02	-0.02	-0.02	-0.02
WEST	182,298	0.37	2.01E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.25	0.37	0.37	0.37	0.37	0.00	0%
MD	0.15	0.21	0.18	0.18	0.18	0.03	14%
NJ	1.61	1.38	1.25	1.25	1.08	0.29	21%
NY	0.20	0.17	0.17	0.17	0.17	0.00	0%
PA	2.31	1.93	1.83	0.75	0.76	1.17	61%
VA/DC	0.06	0.05	0.05	0.05	0.05	0.00	0%
NorthEast	0.01	0.01	0.01	0.01	0.01	0.00	0%
IL	0.32	0.22	0.22	0.21	0.22	0.00	0%
IN	0.58	0.57	0.48	0.40	0.41	0.15	26%
MI	0.27	0.19	0.18	0.16	0.17	0.01	5%
OH	0.54	0.53	0.43	0.36	0.36	0.17	32%
WI	0.05	0.04	0.04	0.04	0.04	0.00	0%
WV	0.22	0.22	0.21	0.13	0.13	0.09	41%
KY	0.33	0.23	0.20	0.13	0.13	0.09	39%
NC	0.07	0.06	0.05	0.05	0.05	0.00	0%
TN	0.05	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.15	0.13	0.13	0.11	0.13	0.00	0%
AR	0.05	0.02	0.02	0.02	0.02	0.00	0%
MO	0.08	0.07	0.07	0.07	0.07	0.00	0%
OK	0.10	0.08	0.08	0.07	0.07	0.00	0%
TX	0.16	0.14	0.14	0.13	0.13	0.00	0%
WEST	0.37	0.33	0.33	0.30	0.33	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	73.9
Base Case 5.15	73.0
$500/ton	72.4
$1,300/ton	71.0
Proposed Budget	70.9



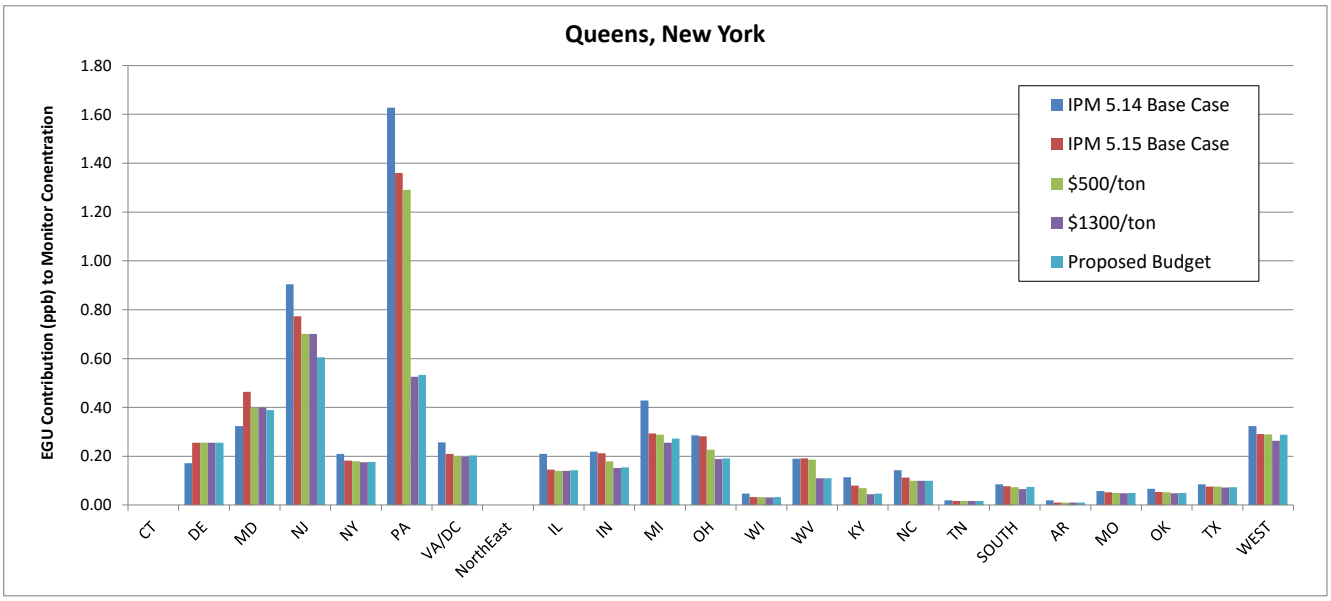
Monitor **360810124** **Queens, New York** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.17	4.41E-04	580	580	580	580	0.08	0.08	0.08	0.08
MD	5,107	0.32	6.34E-05	7,324	6,295	6,297	6,138	0.14	0.08	0.08	0.07
NJ	4,617	0.90	1.96E-04	3,950	3,581	3,580	3,090	-0.13	-0.20	-0.20	-0.30
NY	9,123	0.21	2.29E-05	7,911	7,807	7,638	7,675	-0.03	-0.03	-0.03	-0.03
PA	52,173	1.63	3.12E-05	43,599	41,389	16,834	17,094	-0.27	-0.34	-1.10	-1.09
VA/DC	11,254	0.26	2.28E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.05
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.21	1.32E-05	11,002	10,627	10,564	10,761	-0.06	-0.07	-0.07	-0.07
IN	43,910	0.22	4.98E-06	42,496	35,885	30,374	31,033	-0.01	-0.04	-0.07	-0.06
MI	32,421	0.43	1.32E-05	22,233	21,858	19,340	20,635	-0.13	-0.14	-0.17	-0.16
OH	29,693	0.29	9.61E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.09
WI	8,801	0.05	5.41E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.19	7.43E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.08	-0.08
KY	38,993	0.11	2.93E-06	27,201	23,593	15,306	15,976	-0.03	-0.05	-0.07	-0.07
NC	22,048	0.14	6.47E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.02	2.98E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.09	1.02E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.02	1.60E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.06	2.77E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.07	2.74E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.02
TX	66,651	0.09	1.28E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.32	1.77E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.17	0.26	0.26	0.26	0.26	0.00	0%
MD	0.32	0.46	0.40	0.40	0.39	0.07	15%
NJ	0.90	0.77	0.70	0.70	0.61	0.16	21%
NY	0.21	0.18	0.18	0.18	0.18	0.00	0%
PA	1.63	1.36	1.29	0.53	0.53	0.82	60%
VA/DC	0.26	0.21	0.20	0.20	0.20	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.21	0.15	0.14	0.14	0.14	0.00	0%
IN	0.22	0.21	0.18	0.15	0.15	0.05	24%
MI	0.43	0.29	0.29	0.26	0.27	0.02	7%
OH	0.29	0.28	0.23	0.19	0.19	0.09	32%
WI	0.05	0.03	0.03	0.03	0.03	0.00	0%
WV	0.19	0.19	0.19	0.11	0.11	0.08	42%
KY	0.11	0.08	0.07	0.04	0.05	0.03	38%
NC	0.14	0.11	0.10	0.10	0.10	0.01	9%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.09	0.08	0.07	0.07	0.07	0.00	0%
AR	0.02	0.01	0.01	0.01	0.01	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.07	0.05	0.05	0.05	0.05	0.00	0%
TX	0.09	0.08	0.08	0.07	0.07	0.00	0%
WEST	0.32	0.29	0.29	0.26	0.29	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.7
Base Case 5.15	75.1
$500/ton	74.7
$1,300/ton	73.7
Proposed Budget	73.7



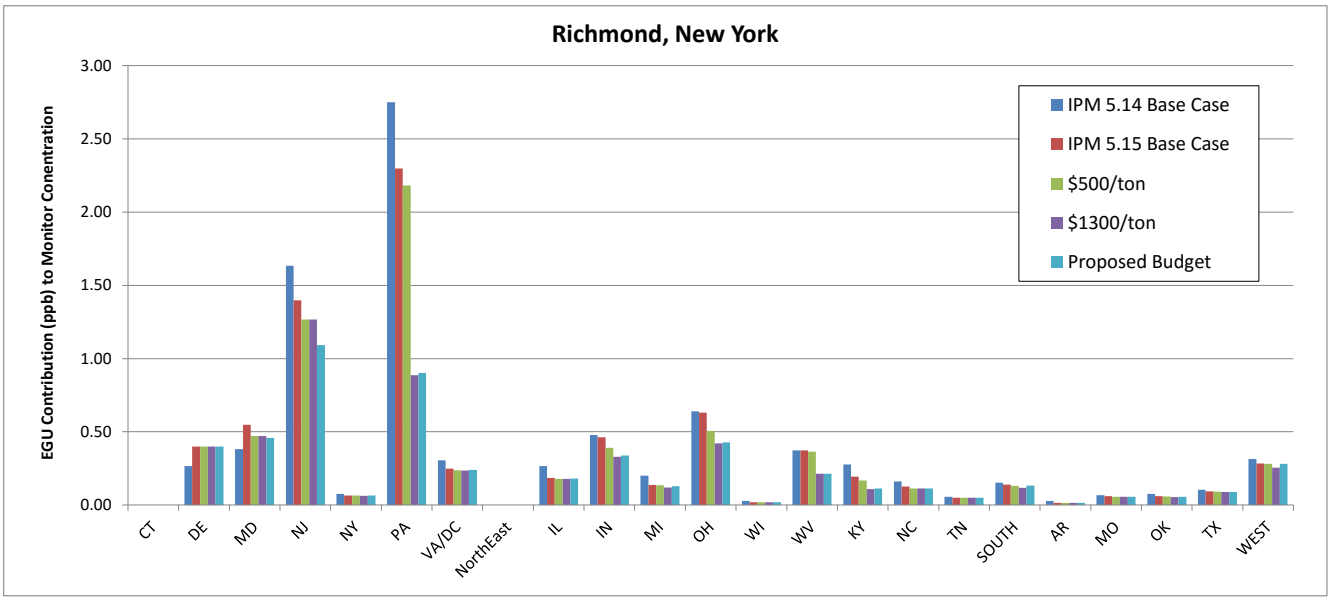
Monitor 360850067 Richmond, New York Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.27	6.89E-04	580	580	580	580	0.13	0.13	0.13	0.13
MD	5,107	0.38	7.48E-05	7,324	6,295	6,297	6,138	0.17	0.09	0.09	0.08
NJ	4,617	1.63	3.54E-04	3,950	3,581	3,580	3,090	-0.24	-0.37	-0.37	-0.54
NY	9,123	0.08	8.37E-06	7,911	7,807	7,638	7,675	-0.01	-0.01	-0.01	-0.01
PA	52,173	2.75	5.27E-05	43,599	41,389	16,834	17,094	-0.45	-0.57	-1.86	-1.85
VA/DC	11,254	0.31	2.71E-05	9,201	8,778	8,662	8,882	-0.06	-0.07	-0.07	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.27	1.69E-05	11,002	10,627	10,564	10,761	-0.08	-0.09	-0.09	-0.09
IN	43,910	0.48	1.09E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.15	-0.14
MI	32,421	0.20	6.18E-06	22,233	21,858	19,340	20,635	-0.06	-0.07	-0.08	-0.07
OH	29,693	0.64	2.15E-05	29,249	23,503	19,603	19,823	-0.01	-0.13	-0.22	-0.21
WI	8,801	0.03	3.25E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.37	1.45E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.16	-0.16
KY	38,993	0.28	7.10E-06	27,201	23,593	15,306	15,976	-0.08	-0.11	-0.17	-0.16
NC	22,048	0.16	7.36E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.06	8.97E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.15	1.81E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.04	-0.02
AR	11,890	0.03	2.41E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.07	3.24E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.08	3.14E-06	19,620	18,918	17,450	18,103	-0.01	-0.02	-0.02	-0.02
TX	66,651	0.11	1.58E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.01
WEST	182,298	0.32	1.73E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.27	0.40	0.40	0.40	0.40	0.00	0%
MD	0.38	0.55	0.47	0.47	0.46	0.08	15%
NJ	1.63	1.40	1.27	1.27	1.09	0.30	21%
NY	0.08	0.07	0.07	0.06	0.06	0.00	0%
PA	2.75	2.30	2.18	0.89	0.90	1.39	61%
VA/DC	0.31	0.25	0.24	0.24	0.24	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.27	0.19	0.18	0.18	0.18	0.00	0%
IN	0.48	0.46	0.39	0.33	0.34	0.12	26%
MI	0.20	0.14	0.14	0.12	0.13	0.00	0%
OH	0.64	0.63	0.51	0.42	0.43	0.20	32%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.37	0.37	0.36	0.21	0.21	0.15	40%
KY	0.28	0.19	0.17	0.11	0.11	0.07	36%
NC	0.16	0.13	0.11	0.11	0.11	0.01	8%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.15	0.14	0.13	0.12	0.13	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.08	0.06	0.06	0.05	0.06	0.00	0%
TX	0.11	0.09	0.09	0.09	0.09	0.00	0%
WEST	0.32	0.28	0.28	0.26	0.28	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.3
Base Case 5.15	75.4
$500/ton	74.8
$1,300/ton	73.1
Proposed Budget	73.0



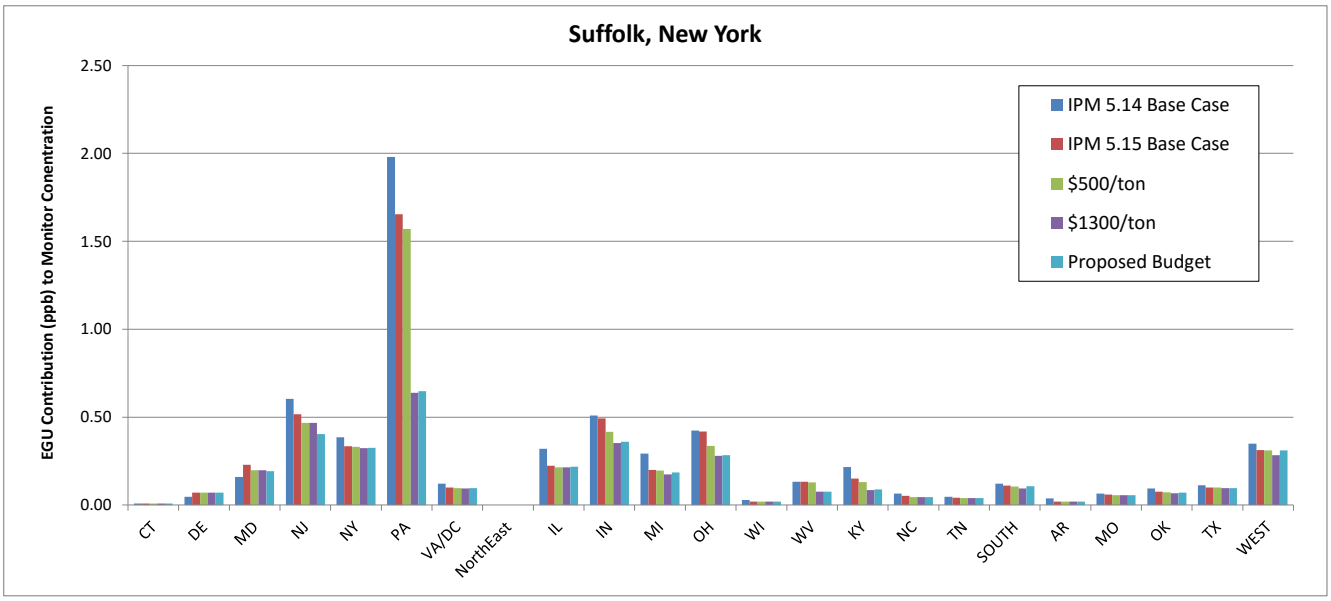
Monitor 361030002 Suffolk, New York Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	5.94E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.05	1.21E-04	580	580	580	580	0.02	0.02	0.02	0.02
MD	5,107	0.16	3.14E-05	7,324	6,295	6,297	6,138	0.07	0.04	0.04	0.03
NJ	4,617	0.60	1.31E-04	3,950	3,581	3,580	3,090	-0.09	-0.14	-0.14	-0.20
NY	9,123	0.39	4.24E-05	7,911	7,807	7,638	7,675	-0.05	-0.06	-0.06	-0.06
PA	52,173	1.98	3.79E-05	43,599	41,389	16,834	17,094	-0.33	-0.41	-1.34	-1.33
VA/DC	11,254	0.12	1.09E-05	9,201	8,778	8,662	8,882	-0.02	-0.03	-0.03	-0.03
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.32	2.03E-05	11,002	10,627	10,564	10,761	-0.10	-0.11	-0.11	-0.10
IN	43,910	0.51	1.16E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.16	-0.15
MI	32,421	0.29	9.01E-06	22,233	21,858	19,340	20,635	-0.09	-0.10	-0.12	-0.11
OH	29,693	0.42	1.43E-05	29,249	23,503	19,603	19,823	-0.01	-0.09	-0.14	-0.14
WI	8,801	0.03	3.21E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.13	5.15E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.22	5.56E-06	27,201	23,593	15,306	15,976	-0.07	-0.09	-0.13	-0.13
NC	22,048	0.07	2.99E-06	17,307	15,385	15,389	15,341	-0.01	-0.02	-0.02	-0.02
TN	6,382	0.05	7.39E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.12	1.45E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.04	3.17E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.07	3.20E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.87E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.11	1.70E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.35	1.91E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.05	0.07	0.07	0.07	0.07	0.00	0%
MD	0.16	0.23	0.20	0.20	0.19	0.03	13%
NJ	0.60	0.52	0.47	0.47	0.40	0.11	21%
NY	0.39	0.34	0.33	0.32	0.33	0.00	0%
PA	1.98	1.65	1.57	0.64	0.65	1.00	60%
VA/DC	0.12	0.10	0.10	0.09	0.10	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.32	0.22	0.22	0.21	0.22	0.00	0%
IN	0.51	0.49	0.42	0.35	0.36	0.13	26%
MI	0.29	0.20	0.20	0.17	0.19	0.01	5%
OH	0.42	0.42	0.34	0.28	0.28	0.13	31%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.13	0.13	0.13	0.08	0.08	0.05	38%
KY	0.22	0.15	0.13	0.09	0.09	0.06	40%
NC	0.07	0.05	0.05	0.05	0.05	0.00	0%
TN	0.05	0.04	0.04	0.04	0.04	0.00	0%
SOUTH	0.12	0.11	0.11	0.09	0.11	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.09	0.08	0.07	0.07	0.07	0.00	0%
TX	0.11	0.10	0.10	0.10	0.10	0.00	0%
WEST	0.35	0.31	0.31	0.28	0.31	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	79.2
Base Case 5.15	78.4
$500/ton	78.0
$1,300/ton	76.8
Proposed Budget	76.8



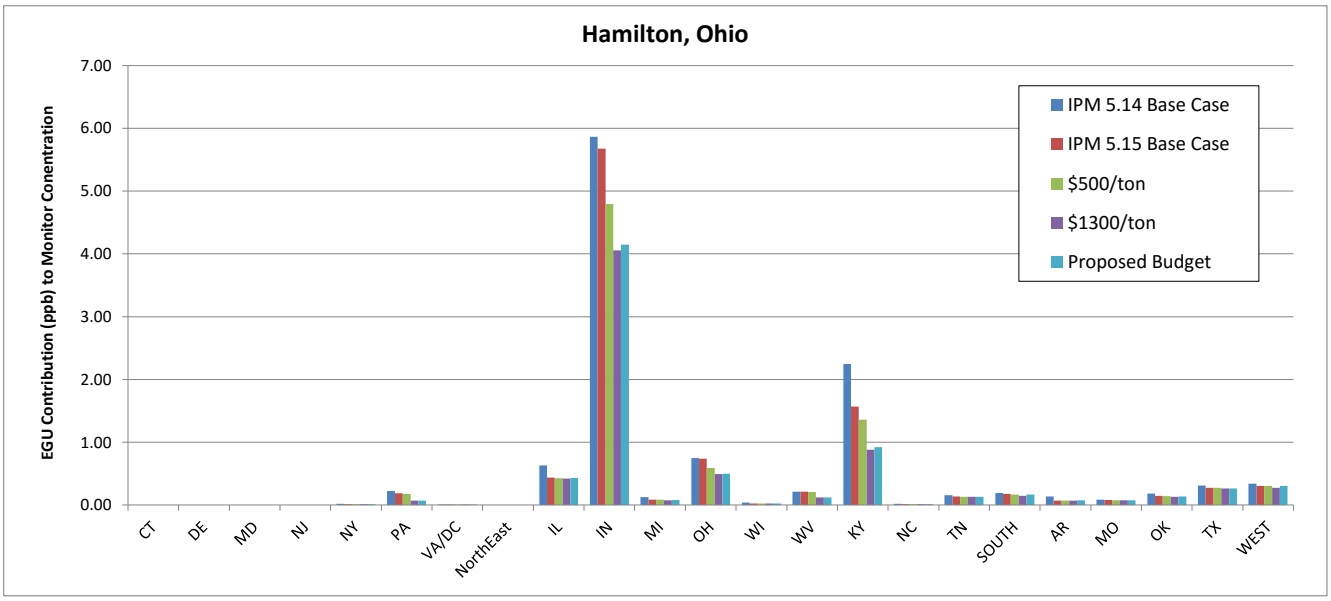
Monitor 390610006 Hamilton, Ohio Average Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.02	2.13E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.22	4.29E-06	43,599	41,389	16,834	17,094	-0.04	-0.05	-0.15	-0.15
VA/DC	11,254	0.01	8.64E-07	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.63	4.00E-05	11,002	10,627	10,564	10,761	-0.19	-0.21	-0.21	-0.20
IN	43,910	5.87	1.34E-04	42,496	35,885	30,374	31,033	-0.19	-1.07	-1.81	-1.72
MI	32,421	0.13	3.90E-06	22,233	21,858	19,340	20,635	-0.04	-0.04	-0.05	-0.05
OH	29,693	0.75	2.52E-05	29,249	23,503	19,603	19,823	-0.01	-0.16	-0.25	-0.25
WI	8,801	0.04	4.42E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.21	8.36E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.09	-0.09
KY	38,993	2.25	5.76E-05	27,201	23,593	15,306	15,976	-0.68	-0.89	-1.37	-1.33
NC	22,048	0.02	8.82E-07	17,307	15,385	15,389	15,341	0.00	-0.01	-0.01	-0.01
TN	6,382	0.16	2.44E-05	5,566	5,492	5,454	5,493	-0.02	-0.02	-0.02	-0.02
SOUTH	84,284	0.19	2.31E-06	76,472	72,244	64,612	73,131	-0.02	-0.03	-0.05	-0.03
AR	11,890	0.14	1.15E-05	6,399	6,386	6,295	6,414	-0.06	-0.06	-0.06	-0.06
MO	20,632	0.09	4.24E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.18	7.60E-06	19,620	18,918	17,450	18,103	-0.04	-0.04	-0.05	-0.05
TX	66,651	0.31	4.67E-06	59,199	58,570	56,391	57,146	-0.03	-0.04	-0.05	-0.04
WEST	182,298	0.34	1.87E-06	163,660	162,932	148,254	162,662	-0.03	-0.04	-0.06	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.02	0.02	0.02	0.02	0.02	0.00	0%
PA	0.22	0.19	0.18	0.07	0.07	0.11	59%
VA/DC	0.01	0.01	0.01	0.01	0.01	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.63	0.44	0.43	0.42	0.43	0.00	0%
IN	5.87	5.68	4.79	4.06	4.15	1.53	27%
MI	0.13	0.09	0.09	0.08	0.08	0.00	0%
OH	0.75	0.74	0.59	0.49	0.50	0.23	31%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.21	0.21	0.21	0.12	0.12	0.09	42%
KY	2.25	1.57	1.36	0.88	0.92	0.64	41%
NC	0.02	0.02	0.01	0.01	0.01	0.00	0%
TN	0.16	0.14	0.13	0.13	0.13	0.00	0%
SOUTH	0.19	0.18	0.17	0.15	0.17	0.00	0%
AR	0.14	0.07	0.07	0.07	0.07	0.00	0%
MO	0.09	0.08	0.08	0.08	0.08	0.00	0%
OK	0.18	0.15	0.14	0.13	0.14	0.01	7%
TX	0.31	0.28	0.27	0.26	0.27	0.00	0%
WEST	0.34	0.31	0.30	0.28	0.30	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.3
Base Case 5.15	74.9
$500/ton	73.6
$1,300/ton	72.0
Proposed Budget	72.2



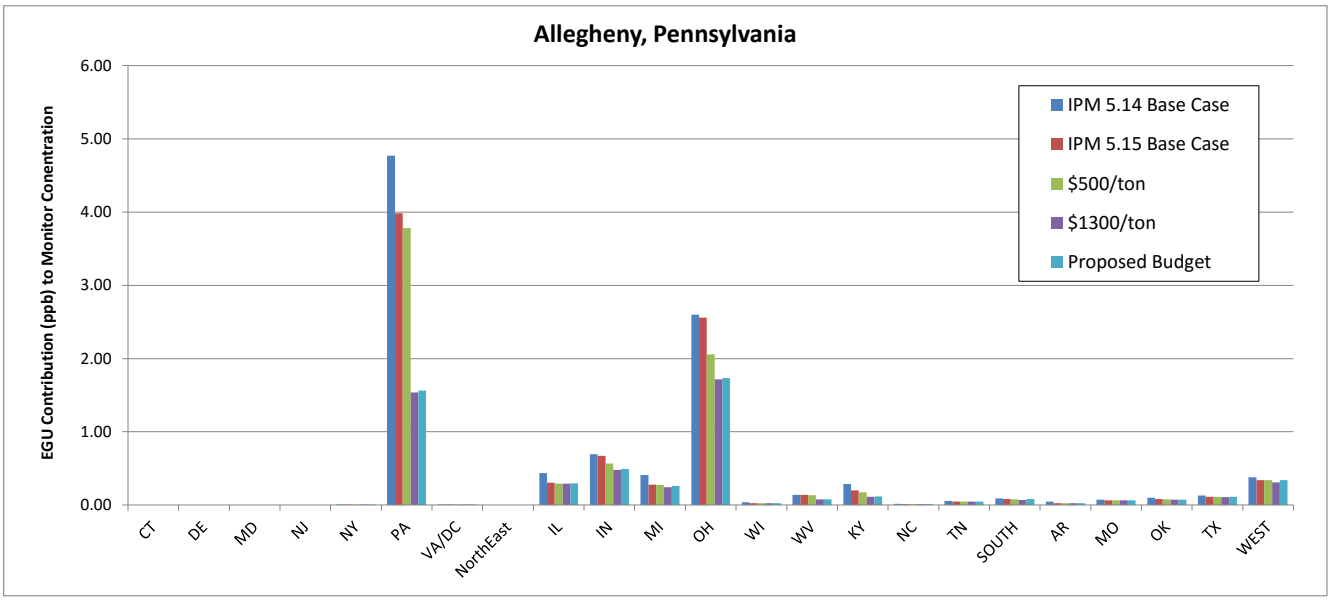
Monitor **420031005** **Allegheny, Pennsylvania** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.01	1.02E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	4.77	9.14E-05	43,599	41,389	16,834	17,094	-0.78	-0.99	-3.23	-3.21
VA/DC	11,254	0.01	8.24E-07	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.44	2.76E-05	11,002	10,627	10,564	10,761	-0.13	-0.14	-0.14	-0.14
IN	43,910	0.70	1.58E-05	42,496	35,885	30,374	31,033	-0.02	-0.13	-0.21	-0.20
MI	32,421	0.41	1.26E-05	22,233	21,858	19,340	20,635	-0.13	-0.13	-0.16	-0.15
OH	29,693	2.60	8.75E-05	29,249	23,503	19,603	19,823	-0.04	-0.54	-0.88	-0.86
WI	8,801	0.04	4.22E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.14	5.43E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.29	7.37E-06	27,201	23,593	15,306	15,976	-0.09	-0.11	-0.17	-0.17
NC	22,048	0.02	8.41E-07	17,307	15,385	15,389	15,341	0.00	-0.01	-0.01	-0.01
TN	6,382	0.06	8.72E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.09	1.10E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.05	3.90E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.07	3.60E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	4.19E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.03
TX	66,651	0.13	1.95E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.38	2.09E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	4.77	3.98	3.78	1.54	1.56	2.42	61%
VA/DC	0.01	0.01	0.01	0.01	0.01	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.44	0.30	0.29	0.29	0.30	0.00	0%
IN	0.70	0.67	0.57	0.48	0.49	0.18	27%
MI	0.41	0.28	0.28	0.24	0.26	0.02	7%
OH	2.60	2.56	2.06	1.71	1.73	0.82	32%
WI	0.04	0.02	0.02	0.02	0.02	0.00	0%
WV	0.14	0.14	0.14	0.08	0.08	0.05	36%
KY	0.29	0.20	0.17	0.11	0.12	0.08	40%
NC	0.02	0.01	0.01	0.01	0.01	0.00	0%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.09	0.08	0.08	0.07	0.08	0.00	0%
AR	0.05	0.02	0.02	0.02	0.03	0.00	0%
MO	0.07	0.07	0.06	0.06	0.06	0.00	0%
OK	0.10	0.08	0.08	0.07	0.08	0.00	0%
TX	0.13	0.12	0.11	0.11	0.11	0.00	0%
WEST	0.38	0.34	0.34	0.31	0.34	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.3
Base Case 5.15	74.0
$500/ton	73.1
$1,300/ton	70.2
Proposed Budget	70.4



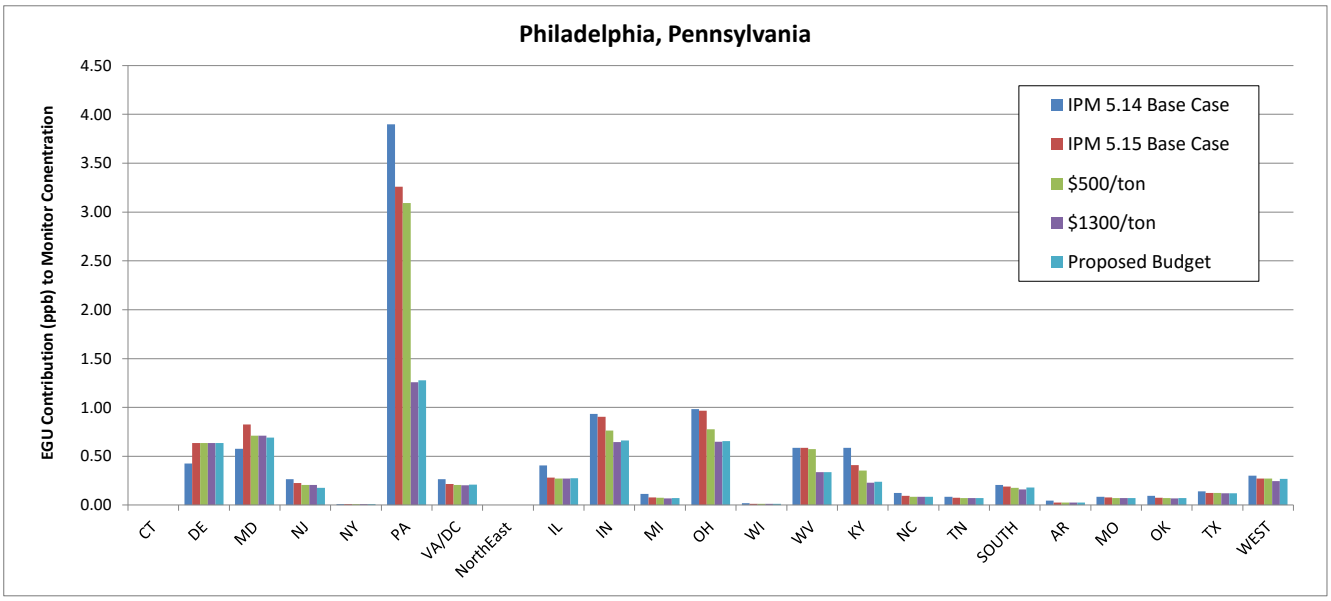
Monitor **421010024** **Philadelphia, Pennsylvania** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.42	1.09E-03	580	580	580	580	0.21	0.21	0.21	0.21
MD	5,107	0.58	1.13E-04	7,324	6,295	6,297	6,138	0.25	0.13	0.13	0.12
NJ	4,617	0.26	5.73E-05	3,950	3,581	3,580	3,090	-0.04	-0.06	-0.06	-0.09
NY	9,123	0.01	1.03E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	3.90	7.47E-05	43,599	41,389	16,834	17,094	-0.64	-0.81	-2.64	-2.62
VA/DC	11,254	0.26	2.35E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.41	2.57E-05	11,002	10,627	10,564	10,761	-0.12	-0.13	-0.13	-0.13
IN	43,910	0.93	2.13E-05	42,496	35,885	30,374	31,033	-0.03	-0.17	-0.29	-0.27
MI	32,421	0.11	3.49E-06	22,233	21,858	19,340	20,635	-0.04	-0.04	-0.05	-0.04
OH	29,693	0.98	3.31E-05	29,249	23,503	19,603	19,823	-0.01	-0.20	-0.33	-0.33
WI	8,801	0.02	2.15E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.59	2.29E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.25	-0.25
KY	38,993	0.59	1.50E-05	27,201	23,593	15,306	15,976	-0.18	-0.23	-0.36	-0.35
NC	22,048	0.12	5.57E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.08	1.33E-05	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.21	2.46E-06	76,472	72,244	64,612	73,131	-0.02	-0.03	-0.05	-0.03
AR	11,890	0.05	3.97E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	4.12E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.88E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.14	2.12E-06	59,199	58,570	56,391	57,146	-0.02	-0.02	-0.02	-0.02
WEST	182,298	0.30	1.66E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.42	0.64	0.64	0.64	0.64	0.00	0%
MD	0.58	0.83	0.71	0.71	0.69	0.13	16%
NJ	0.26	0.23	0.21	0.20	0.18	0.04	18%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	3.90	3.26	3.09	1.26	1.28	1.98	61%
VA/DC	0.26	0.22	0.21	0.20	0.21	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.41	0.28	0.27	0.27	0.28	0.00	0%
IN	0.93	0.90	0.76	0.65	0.66	0.24	27%
MI	0.11	0.08	0.08	0.07	0.07	0.00	0%
OH	0.98	0.97	0.78	0.65	0.66	0.31	32%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.59	0.59	0.57	0.34	0.34	0.24	41%
KY	0.59	0.41	0.35	0.23	0.24	0.16	39%
NC	0.12	0.10	0.09	0.09	0.09	0.01	10%
TN	0.08	0.07	0.07	0.07	0.07	0.00	0%
SOUTH	0.21	0.19	0.18	0.16	0.18	0.00	0%
AR	0.05	0.03	0.03	0.02	0.03	0.00	0%
MO	0.08	0.08	0.07	0.07	0.07	0.00	0%
OK	0.09	0.08	0.07	0.07	0.07	0.00	0%
TX	0.14	0.13	0.12	0.12	0.12	0.00	0%
WEST	0.30	0.27	0.27	0.25	0.27	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	75.1
Base Case 5.15	74.3
$500/ton	73.5
$1,300/ton	71.0
Proposed Budget	71.1



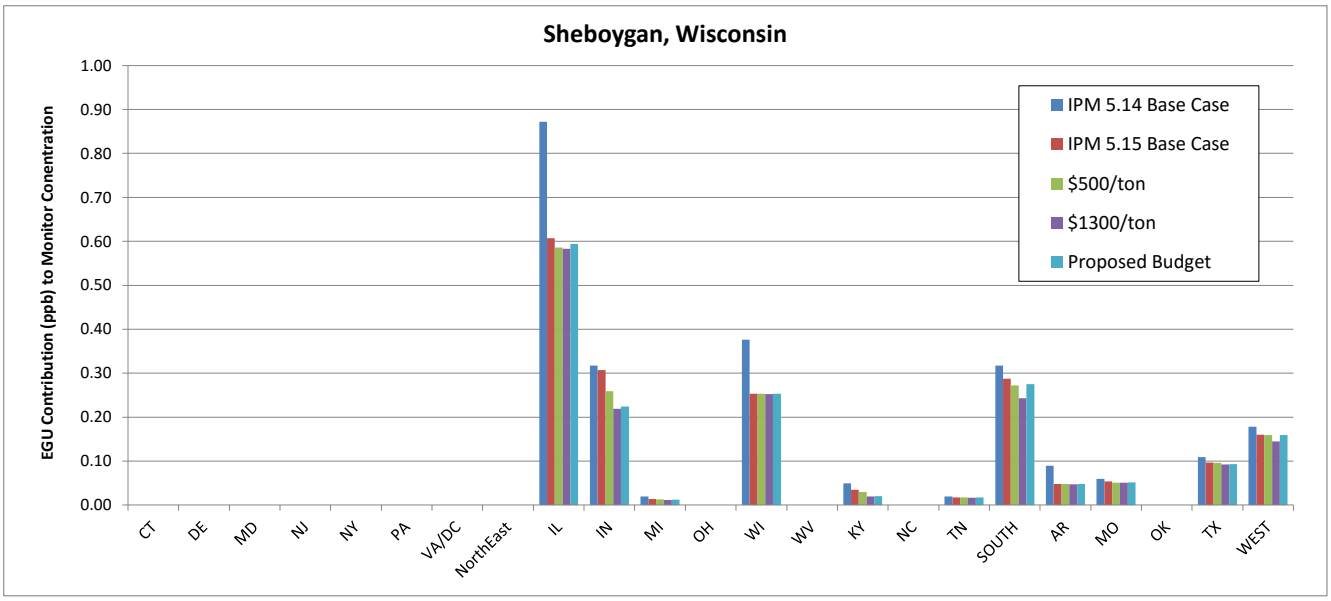
Monitor **551170006** **Sheboygan, Wisconsin** **Average Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.00	0.00E+00	43,599	41,389	16,834	17,094	0.00	0.00	0.00	0.00
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.87	5.52E-05	11,002	10,627	10,564	10,761	-0.27	-0.29	-0.29	-0.28
IN	43,910	0.32	7.22E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.10	-0.09
MI	32,421	0.02	6.11E-07	22,233	21,858	19,340	20,635	-0.01	-0.01	-0.01	-0.01
OH	29,693	0.00	0.00E+00	29,249	23,503	19,603	19,823	0.00	0.00	0.00	0.00
WI	8,801	0.38	4.28E-05	5,923	5,920	5,906	5,917	-0.12	-0.12	-0.12	-0.12
WV	25,606	0.00	0.00E+00	25,664	25,071	14,755	14,755	0.00	0.00	0.00	0.00
KY	38,993	0.05	1.27E-06	27,201	23,593	15,306	15,976	-0.01	-0.02	-0.03	-0.03
NC	22,048	0.00	0.00E+00	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.02	3.11E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.32	3.76E-06	76,472	72,244	64,612	73,131	-0.03	-0.05	-0.07	-0.04
AR	11,890	0.09	7.50E-06	6,399	6,386	6,295	6,414	-0.04	-0.04	-0.04	-0.04
MO	20,632	0.06	2.88E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.00	0.00E+00	19,620	18,918	17,450	18,103	0.00	0.00	0.00	0.00
TX	66,651	0.11	1.64E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.18	9.79E-07	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.03	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.00	0.00	0.00	0.00	0.00	0.00	0%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.87	0.61	0.59	0.58	0.59	0.01	2%
IN	0.32	0.31	0.26	0.22	0.22	0.08	26%
MI	0.02	0.01	0.01	0.01	0.01	0.00	0%
OH	0.00	0.00	0.00	0.00	0.00	0.00	0%
WI	0.38	0.25	0.25	0.25	0.25	0.00	0%
WV	0.00	0.00	0.00	0.00	0.00	0.00	0%
KY	0.05	0.03	0.03	0.02	0.02	0.01	29%
NC	0.00	0.00	0.00	0.00	0.00	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.32	0.29	0.27	0.24	0.28	0.01	3%
AR	0.09	0.05	0.05	0.05	0.05	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.00	0.00	0.00	0.00	0.00	0.00	0%
TX	0.11	0.10	0.10	0.09	0.09	0.00	0%
WEST	0.18	0.16	0.16	0.15	0.16	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.0
Base Case 5.15	76.5
$500/ton	76.4
$1,300/ton	76.3
Proposed Budget	76.3



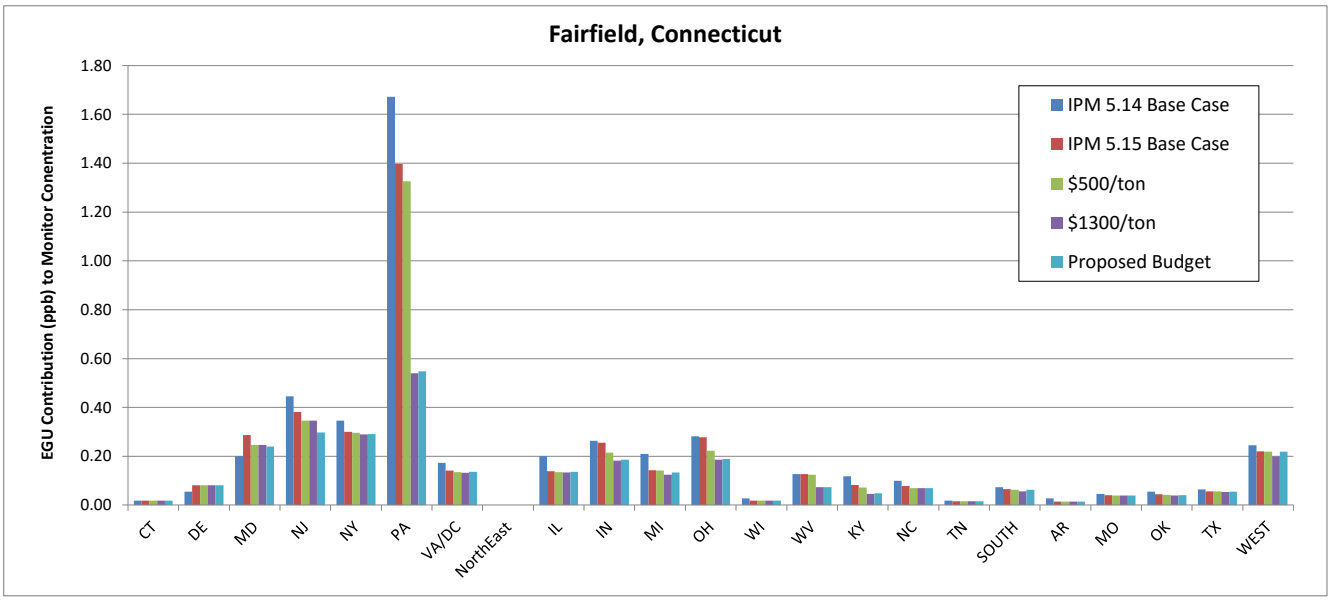
Monitor 90010017 Fairfield, Connecticut Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.02	1.14E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.05	1.40E-04	580	580	580	580	0.03	0.03	0.03	0.03
MD	5,107	0.20	3.91E-05	7,324	6,295	6,297	6,138	0.09	0.05	0.05	0.04
NJ	4,617	0.45	9.64E-05	3,950	3,581	3,580	3,090	-0.06	-0.10	-0.10	-0.15
NY	9,123	0.35	3.78E-05	7,911	7,807	7,638	7,675	-0.05	-0.05	-0.06	-0.05
PA	52,173	1.67	3.20E-05	43,599	41,389	16,834	17,094	-0.27	-0.35	-1.13	-1.12
VA/DC	11,254	0.17	1.53E-05	9,201	8,778	8,662	8,882	-0.03	-0.04	-0.04	-0.04
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.20	1.26E-05	11,002	10,627	10,564	10,761	-0.06	-0.07	-0.07	-0.06
IN	43,910	0.26	6.00E-06	42,496	35,885	30,374	31,033	-0.01	-0.05	-0.08	-0.08
MI	32,421	0.21	6.44E-06	22,233	21,858	19,340	20,635	-0.07	-0.07	-0.08	-0.08
OH	29,693	0.28	9.48E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.09
WI	8,801	0.03	3.10E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.13	4.97E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.05	-0.05
KY	38,993	0.12	3.03E-06	27,201	23,593	15,306	15,976	-0.04	-0.05	-0.07	-0.07
NC	22,048	0.10	4.53E-06	17,307	15,385	15,389	15,341	-0.02	-0.03	-0.03	-0.03
TN	6,382	0.02	2.85E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.07	8.62E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.29E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.05	2.20E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.05	2.24E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.01
TX	66,651	0.06	9.54E-07	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.25	1.35E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.05	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.02	0.02	0.02	0.02	0.02	0.00	0%
DE	0.05	0.08	0.08	0.08	0.08	0.00	0%
MD	0.20	0.29	0.25	0.25	0.24	0.04	14%
NJ	0.45	0.38	0.35	0.35	0.30	0.08	21%
NY	0.35	0.30	0.30	0.29	0.29	0.00	0%
PA	1.67	1.40	1.33	0.54	0.55	0.84	60%
VA/DC	0.17	0.14	0.13	0.13	0.14	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.20	0.14	0.13	0.13	0.14	0.00	0%
IN	0.26	0.25	0.22	0.18	0.19	0.06	24%
MI	0.21	0.14	0.14	0.12	0.13	0.01	7%
OH	0.28	0.28	0.22	0.19	0.19	0.08	29%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.13	0.13	0.12	0.07	0.07	0.05	39%
KY	0.12	0.08	0.07	0.05	0.05	0.03	36%
NC	0.10	0.08	0.07	0.07	0.07	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.07	0.07	0.06	0.06	0.06	0.00	0%
AR	0.03	0.01	0.01	0.01	0.01	0.00	0%
MO	0.05	0.04	0.04	0.04	0.04	0.00	0%
OK	0.05	0.04	0.04	0.04	0.04	0.00	0%
TX	0.06	0.06	0.06	0.05	0.05	0.00	0%
WEST	0.25	0.22	0.22	0.20	0.22	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	78.4
Base Case 5.15	77.8
$500/ton	77.5
$1,300/ton	76.5
Proposed Budget	76.6



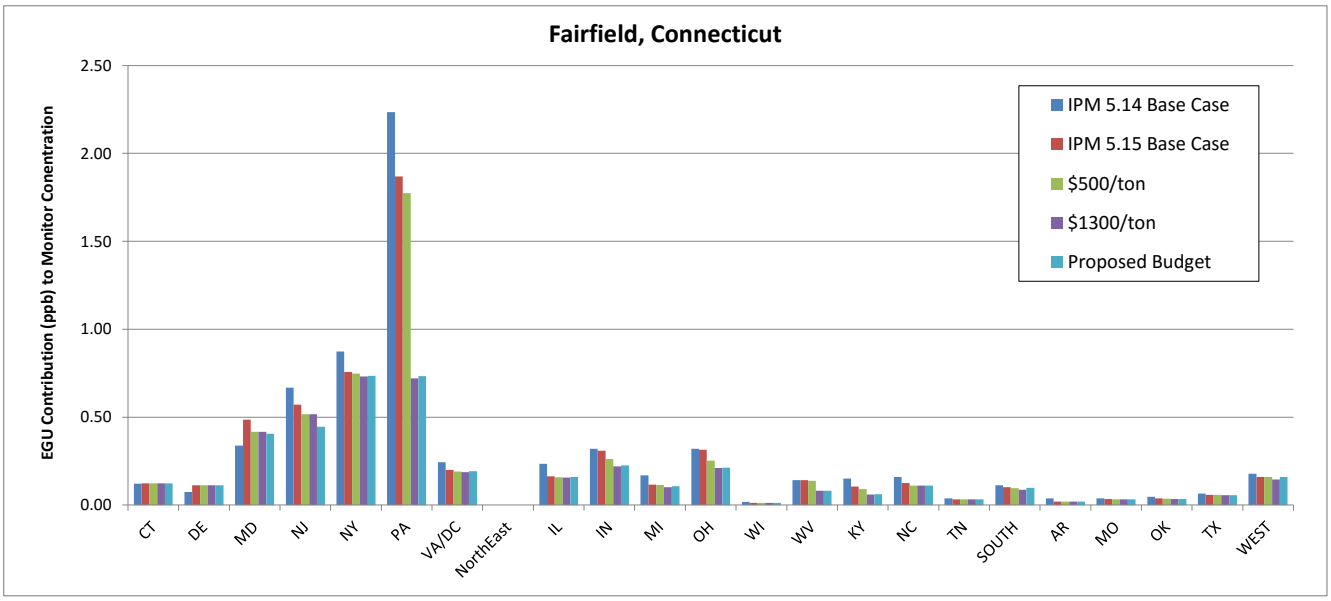
Monitor **90013007** **Fairfield, Connecticut** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.12	7.69E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.08	1.94E-04	580	580	580	580	0.04	0.04	0.04	0.04
MD	5,107	0.34	6.62E-05	7,324	6,295	6,297	6,138	0.15	0.08	0.08	0.07
NJ	4,617	0.67	1.44E-04	3,950	3,581	3,580	3,090	-0.10	-0.15	-0.15	-0.22
NY	9,123	0.87	9.58E-05	7,911	7,807	7,638	7,675	-0.12	-0.13	-0.14	-0.14
PA	52,173	2.24	4.28E-05	43,599	41,389	16,834	17,094	-0.37	-0.46	-1.51	-1.50
VA/DC	11,254	0.24	2.17E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.06	-0.05
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.23	1.49E-05	11,002	10,627	10,564	10,761	-0.07	-0.08	-0.08	-0.07
IN	43,910	0.32	7.27E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.10	-0.09
MI	32,421	0.17	5.21E-06	22,233	21,858	19,340	20,635	-0.05	-0.06	-0.07	-0.06
OH	29,693	0.32	1.08E-05	29,249	23,503	19,603	19,823	0.00	-0.07	-0.11	-0.11
WI	8,801	0.02	2.13E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.14	5.50E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.15	3.85E-06	27,201	23,593	15,306	15,976	-0.05	-0.06	-0.09	-0.09
NC	22,048	0.16	7.24E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.04	5.89E-06	5,566	5,492	5,454	5,493	0.00	-0.01	-0.01	-0.01
SOUTH	84,284	0.11	1.34E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.01
AR	11,890	0.04	3.16E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.04	1.82E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.05	1.93E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.01	-0.01
TX	66,651	0.07	9.87E-07	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.18	9.79E-07	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.03	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.12	0.12	0.12	0.12	0.12	0.00	0%
DE	0.08	0.11	0.11	0.11	0.11	0.00	0%
MD	0.34	0.48	0.42	0.42	0.41	0.07	14%
NJ	0.67	0.57	0.52	0.52	0.45	0.12	21%
NY	0.87	0.76	0.75	0.73	0.73	0.02	3%
PA	2.24	1.87	1.77	0.72	0.73	1.13	60%
VA/DC	0.24	0.20	0.19	0.19	0.19	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.23	0.16	0.16	0.16	0.16	0.00	0%
IN	0.32	0.31	0.26	0.22	0.23	0.08	26%
MI	0.17	0.12	0.11	0.10	0.11	0.00	0%
OH	0.32	0.31	0.25	0.21	0.21	0.10	32%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.14	0.14	0.14	0.08	0.08	0.06	42%
KY	0.15	0.10	0.09	0.06	0.06	0.04	38%
NC	0.16	0.13	0.11	0.11	0.11	0.01	8%
TN	0.04	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.11	0.10	0.10	0.09	0.10	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.04	0.03	0.03	0.03	0.03	0.00	0%
OK	0.05	0.04	0.04	0.03	0.03	0.00	0%
TX	0.07	0.06	0.06	0.06	0.06	0.00	0%
WEST	0.18	0.16	0.16	0.15	0.16	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	81.4
Base Case 5.15	80.7
$500/ton	80.3
$1,300/ton	79.0
Proposed Budget	79.0



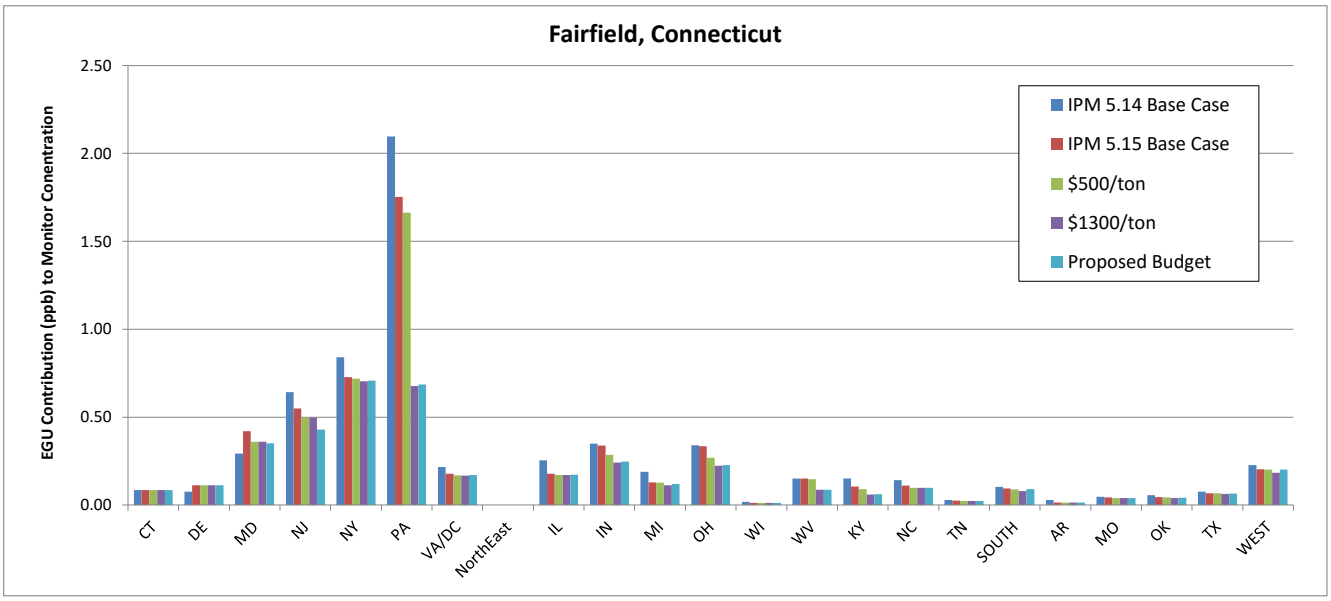
Monitor **90019003** **Fairfield, Connecticut** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.08	5.35E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.08	1.95E-04	580	580	580	580	0.04	0.04	0.04	0.04
MD	5,107	0.29	5.73E-05	7,324	6,295	6,297	6,138	0.13	0.07	0.07	0.06
NJ	4,617	0.64	1.39E-04	3,950	3,581	3,580	3,090	-0.09	-0.14	-0.14	-0.21
NY	9,123	0.84	9.21E-05	7,911	7,807	7,638	7,675	-0.11	-0.12	-0.14	-0.13
PA	52,173	2.10	4.02E-05	43,599	41,389	16,834	17,094	-0.34	-0.43	-1.42	-1.41
VA/DC	11,254	0.22	1.93E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.05	-0.05
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.25	1.61E-05	11,002	10,627	10,564	10,761	-0.08	-0.08	-0.08	-0.08
IN	43,910	0.35	7.96E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.11	-0.10
MI	32,421	0.19	5.82E-06	22,233	21,858	19,340	20,635	-0.06	-0.06	-0.08	-0.07
OH	29,693	0.34	1.14E-05	29,249	23,503	19,603	19,823	-0.01	-0.07	-0.12	-0.11
WI	8,801	0.02	2.15E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.15	5.90E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.15	3.87E-06	27,201	23,593	15,306	15,976	-0.05	-0.06	-0.09	-0.09
NC	22,048	0.14	6.42E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.03	4.44E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.10	1.23E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.38E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.05	2.29E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.06	2.33E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.01
TX	66,651	0.08	1.13E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.23	1.24E-06	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.04	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.08	0.09	0.09	0.09	0.09	0.00	0%
DE	0.08	0.11	0.11	0.11	0.11	0.00	0%
MD	0.29	0.42	0.36	0.36	0.35	0.06	14%
NJ	0.64	0.55	0.50	0.50	0.43	0.11	20%
NY	0.84	0.73	0.72	0.70	0.71	0.02	3%
PA	2.10	1.75	1.66	0.68	0.69	1.06	61%
VA/DC	0.22	0.18	0.17	0.17	0.17	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.25	0.18	0.17	0.17	0.17	0.00	0%
IN	0.35	0.34	0.29	0.24	0.25	0.09	27%
MI	0.19	0.13	0.13	0.11	0.12	0.00	0%
OH	0.34	0.33	0.27	0.22	0.23	0.10	30%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.15	0.15	0.15	0.09	0.09	0.06	40%
KY	0.15	0.11	0.09	0.06	0.06	0.04	38%
NC	0.14	0.11	0.10	0.10	0.10	0.01	9%
TN	0.03	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.10	0.09	0.09	0.08	0.09	0.00	0%
AR	0.03	0.02	0.02	0.01	0.02	0.00	0%
MO	0.05	0.04	0.04	0.04	0.04	0.00	0%
OK	0.06	0.05	0.04	0.04	0.04	0.00	0%
TX	0.08	0.07	0.07	0.06	0.06	0.00	0%
WEST	0.23	0.20	0.20	0.18	0.20	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	81.1
Base Case 5.15	80.4
$500/ton	80.0
$1,300/ton	78.7
Proposed Budget	78.7



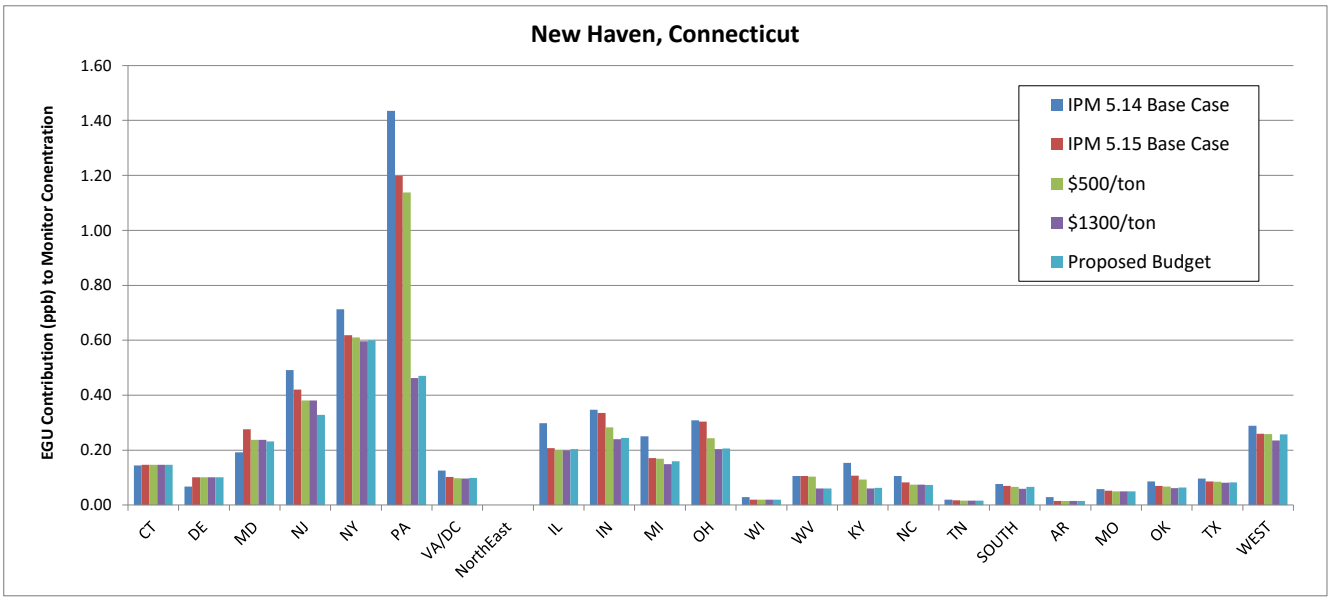
Monitor 90099002 New Haven, Connecticut Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.14	9.10E-05	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.07	1.74E-04	580	580	580	580	0.03	0.03	0.03	0.03
MD	5,107	0.19	3.77E-05	7,324	6,295	6,297	6,138	0.08	0.04	0.04	0.04
NJ	4,617	0.49	1.06E-04	3,950	3,581	3,580	3,090	-0.07	-0.11	-0.11	-0.16
NY	9,123	0.71	7.81E-05	7,911	7,807	7,638	7,675	-0.09	-0.10	-0.12	-0.11
PA	52,173	1.43	2.75E-05	43,599	41,389	16,834	17,094	-0.24	-0.30	-0.97	-0.96
VA/DC	11,254	0.13	1.11E-05	9,201	8,778	8,662	8,882	-0.02	-0.03	-0.03	-0.03
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.30	1.89E-05	11,002	10,627	10,564	10,761	-0.09	-0.10	-0.10	-0.10
IN	43,910	0.35	7.89E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.11	-0.10
MI	32,421	0.25	7.72E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.31	1.04E-05	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.10
WI	8,801	0.03	3.28E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.11	4.14E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.04	-0.04
KY	38,993	0.15	3.95E-06	27,201	23,593	15,306	15,976	-0.05	-0.06	-0.09	-0.09
NC	22,048	0.11	4.80E-06	17,307	15,385	15,389	15,341	-0.02	-0.03	-0.03	-0.03
TN	6,382	0.02	3.02E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.08	9.14E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.03	2.43E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.06	2.80E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.56E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.10	1.44E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.29	1.58E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.05	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.14	0.15	0.15	0.15	0.15	0.00	0%
DE	0.07	0.10	0.10	0.10	0.10	0.00	0%
MD	0.19	0.28	0.24	0.24	0.23	0.04	14%
NJ	0.49	0.42	0.38	0.38	0.33	0.09	21%
NY	0.71	0.62	0.61	0.60	0.60	0.01	2%
PA	1.43	1.20	1.14	0.46	0.47	0.72	60%
VA/DC	0.13	0.10	0.10	0.10	0.10	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.30	0.21	0.20	0.20	0.20	0.00	0%
IN	0.35	0.34	0.28	0.24	0.24	0.09	27%
MI	0.25	0.17	0.17	0.15	0.16	0.01	6%
OH	0.31	0.30	0.24	0.20	0.21	0.09	30%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.11	0.11	0.10	0.06	0.06	0.04	38%
KY	0.15	0.11	0.09	0.06	0.06	0.04	37%
NC	0.11	0.08	0.07	0.07	0.07	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.08	0.07	0.07	0.06	0.07	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.09	0.07	0.07	0.06	0.06	0.00	0%
TX	0.10	0.09	0.08	0.08	0.08	0.00	0%
WEST	0.29	0.26	0.26	0.23	0.26	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	80.2
Base Case 5.15	79.5
$500/ton	79.2
$1,300/ton	78.3
Proposed Budget	78.3



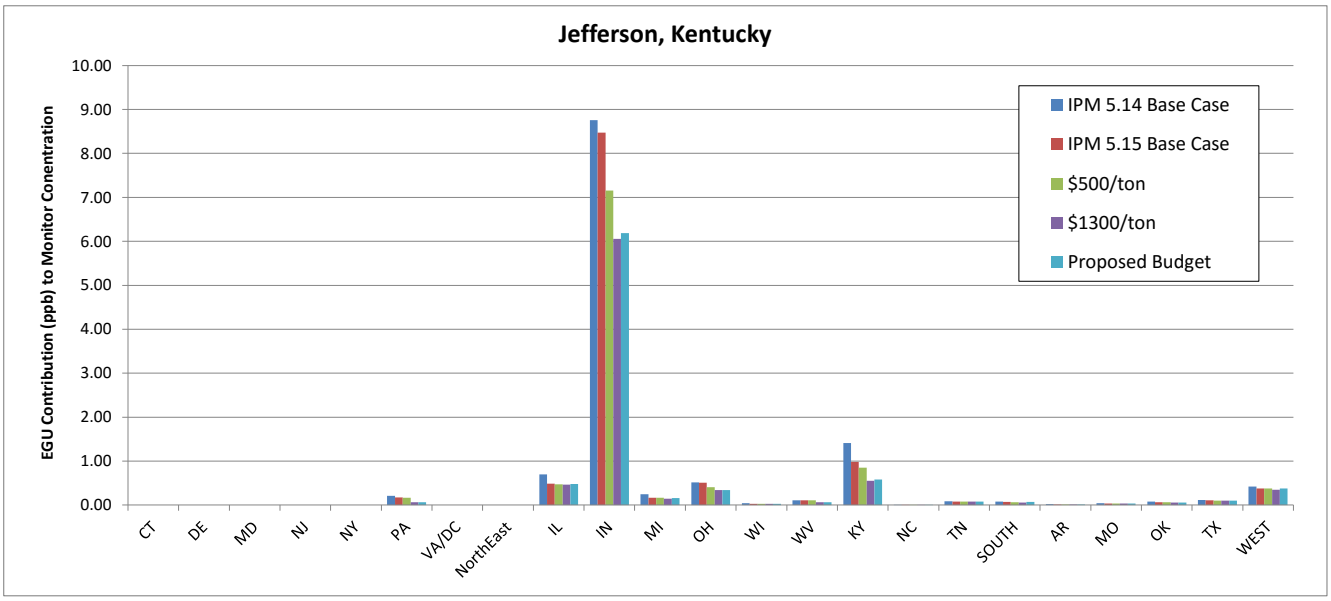
Monitor 211110067 Jefferson, Kentucky Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.21	3.97E-06	43,599	41,389	16,834	17,094	-0.03	-0.04	-0.14	-0.14
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.70	4.43E-05	11,002	10,627	10,564	10,761	-0.21	-0.23	-0.23	-0.22
IN	43,910	8.76	1.99E-04	42,496	35,885	30,374	31,033	-0.28	-1.60	-2.70	-2.57
MI	32,421	0.25	7.61E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.51	1.73E-05	29,249	23,503	19,603	19,823	-0.01	-0.11	-0.17	-0.17
WI	8,801	0.04	4.49E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.11	4.24E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.05	-0.05
KY	38,993	1.41	3.62E-05	27,201	23,593	15,306	15,976	-0.43	-0.56	-0.86	-0.83
NC	22,048	0.01	4.48E-07	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.09	1.39E-05	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.08	9.37E-07	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.02	1.66E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.04	1.91E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.08	3.24E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.12	1.78E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.42	2.33E-06	163,660	162,932	148,254	162,662	-0.04	-0.05	-0.08	-0.05

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.21	0.17	0.16	0.07	0.07	0.10	58%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.70	0.49	0.47	0.47	0.48	0.01	2%
IN	8.76	8.47	7.16	6.06	6.19	2.28	27%
MI	0.25	0.17	0.17	0.15	0.16	0.01	6%
OH	0.51	0.51	0.41	0.34	0.34	0.16	32%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.11	0.11	0.11	0.06	0.06	0.04	37%
KY	1.41	0.98	0.85	0.55	0.58	0.40	41%
NC	0.01	0.01	0.01	0.01	0.01	0.00	0%
TN	0.09	0.08	0.08	0.08	0.08	0.00	0%
SOUTH	0.08	0.07	0.07	0.06	0.07	0.00	0%
AR	0.02	0.01	0.01	0.01	0.01	0.00	0%
MO	0.04	0.04	0.03	0.03	0.03	0.00	0%
OK	0.08	0.06	0.06	0.06	0.06	0.00	0%
TX	0.12	0.11	0.10	0.10	0.10	0.00	0%
WEST	0.42	0.38	0.38	0.35	0.38	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	78.6
Base Case 5.15	77.4
$500/ton	75.8
$1,300/ton	74.2
Proposed Budget	74.4



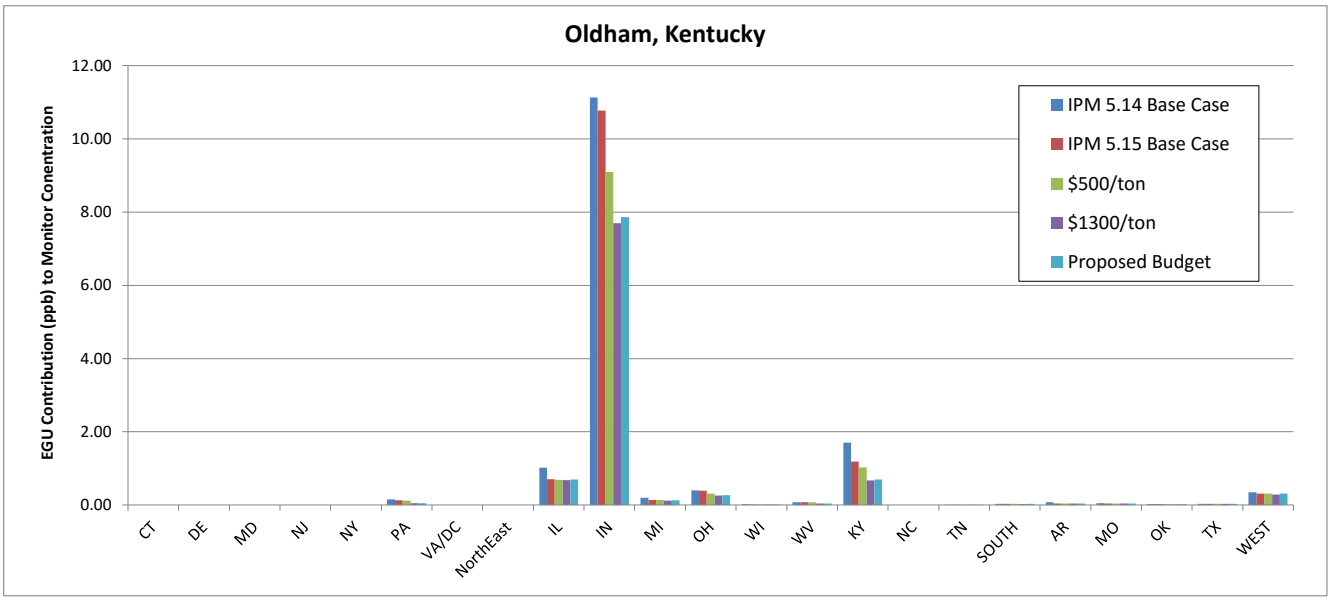
Monitor 211850004 Oldham, Kentucky Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.15	2.92E-06	43,599	41,389	16,834	17,094	-0.03	-0.03	-0.10	-0.10
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	1.02	6.45E-05	11,002	10,627	10,564	10,761	-0.31	-0.33	-0.34	-0.33
IN	43,910	11.13	2.53E-04	42,496	35,885	30,374	31,033	-0.36	-2.03	-3.43	-3.26
MI	32,421	0.20	6.18E-06	22,233	21,858	19,340	20,635	-0.06	-0.07	-0.08	-0.07
OH	29,693	0.40	1.35E-05	29,249	23,503	19,603	19,823	-0.01	-0.08	-0.14	-0.13
WI	8,801	0.03	3.25E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.08	2.98E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.03	-0.03
KY	38,993	1.71	4.38E-05	27,201	23,593	15,306	15,976	-0.52	-0.67	-1.04	-1.01
NC	22,048	0.00	0.00E+00	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.01	1.49E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.04	4.52E-07	76,472	72,244	64,612	73,131	0.00	-0.01	-0.01	-0.01
AR	11,890	0.08	6.41E-06	6,399	6,386	6,295	6,414	-0.04	-0.04	-0.04	-0.04
MO	20,632	0.05	2.31E-06	18,663	17,732	17,705	17,793	0.00	-0.01	-0.01	-0.01
OK	24,335	0.03	1.18E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.01	-0.01
TX	66,651	0.04	5.72E-07	59,199	58,570	56,391	57,146	0.00	0.00	-0.01	-0.01
WEST	182,298	0.35	1.94E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.15	0.13	0.12	0.05	0.05	0.07	55%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	1.02	0.71	0.69	0.68	0.69	0.01	1%
IN	11.13	10.77	9.09	7.70	7.86	2.90	27%
MI	0.20	0.14	0.13	0.12	0.13	0.00	0%
OH	0.40	0.39	0.32	0.26	0.27	0.12	30%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.08	0.08	0.07	0.04	0.04	0.03	39%
KY	1.71	1.19	1.03	0.67	0.70	0.49	41%
NC	0.00	0.00	0.00	0.00	0.00	0.00	0%
TN	0.01	0.01	0.01	0.01	0.01	0.00	0%
SOUTH	0.04	0.03	0.03	0.03	0.03	0.00	0%
AR	0.08	0.04	0.04	0.04	0.04	0.00	0%
MO	0.05	0.04	0.04	0.04	0.04	0.00	0%
OK	0.03	0.02	0.02	0.02	0.02	0.00	0%
TX	0.04	0.03	0.03	0.03	0.03	0.00	0%
WEST	0.35	0.32	0.32	0.29	0.31	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.3
Base Case 5.15	75.9
$500/ton	74.0
$1,300/ton	72.0
Proposed Budget	72.3



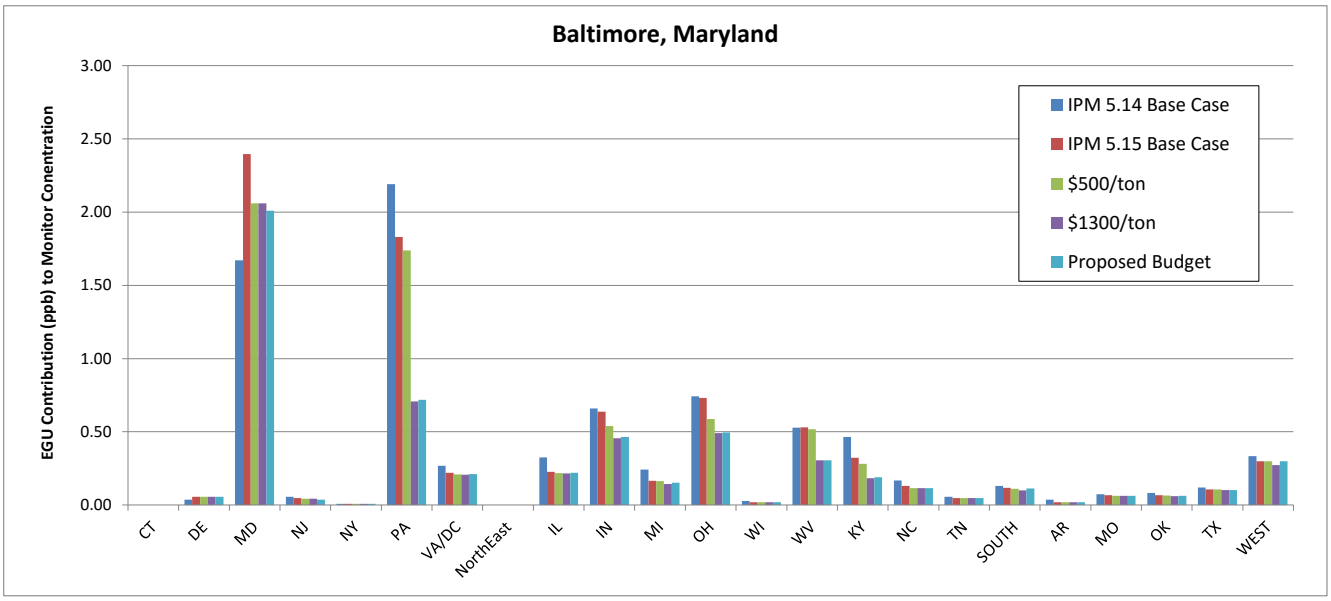
Monitor 240053001 Baltimore, Maryland Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.04	9.57E-05	580	580	580	580	0.02	0.02	0.02	0.02
MD	5,107	1.67	3.27E-04	7,324	6,295	6,297	6,138	0.73	0.39	0.39	0.34
NJ	4,617	0.06	1.21E-05	3,950	3,581	3,580	3,090	-0.01	-0.01	-0.01	-0.02
NY	9,123	0.01	1.02E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	2.19	4.20E-05	43,599	41,389	16,834	17,094	-0.36	-0.45	-1.48	-1.47
VA/DC	11,254	0.27	2.39E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.32	2.05E-05	11,002	10,627	10,564	10,761	-0.10	-0.11	-0.11	-0.10
IN	43,910	0.66	1.50E-05	42,496	35,885	30,374	31,033	-0.02	-0.12	-0.20	-0.19
MI	32,421	0.24	7.44E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.74	2.50E-05	29,249	23,503	19,603	19,823	-0.01	-0.15	-0.25	-0.25
WI	8,801	0.03	3.16E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.53	2.07E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.22	-0.22
KY	38,993	0.46	1.19E-05	27,201	23,593	15,306	15,976	-0.14	-0.18	-0.28	-0.27
NC	22,048	0.17	7.58E-06	17,307	15,385	15,389	15,341	-0.04	-0.05	-0.05	-0.05
TN	6,382	0.06	8.73E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.13	1.54E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.04	3.12E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.07	3.60E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.08	3.43E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.12	1.81E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.33	1.83E-06	163,660	162,932	148,254	162,662	-0.03	-0.04	-0.06	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.04	0.06	0.06	0.06	0.06	0.00	0%
MD	1.67	2.40	2.06	2.06	2.01	0.38	16%
NJ	0.06	0.05	0.04	0.04	0.04	0.01	21%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	2.19	1.83	1.74	0.71	0.72	1.11	61%
VA/DC	0.27	0.22	0.21	0.21	0.21	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.32	0.23	0.22	0.22	0.22	0.00	0%
IN	0.66	0.64	0.54	0.46	0.47	0.17	27%
MI	0.24	0.17	0.16	0.14	0.15	0.01	6%
OH	0.74	0.73	0.59	0.49	0.50	0.23	31%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.53	0.53	0.52	0.30	0.30	0.22	41%
KY	0.46	0.32	0.28	0.18	0.19	0.13	40%
NC	0.17	0.13	0.12	0.12	0.12	0.01	8%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.13	0.12	0.11	0.10	0.11	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.07	0.06	0.06	0.06	0.00	0%
OK	0.08	0.07	0.06	0.06	0.06	0.00	0%
TX	0.12	0.11	0.11	0.10	0.10	0.00	0%
WEST	0.33	0.30	0.30	0.27	0.30	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.2
Base Case 5.15	76.0
$500/ton	75.2
$1,300/ton	73.7
Proposed Budget	73.7



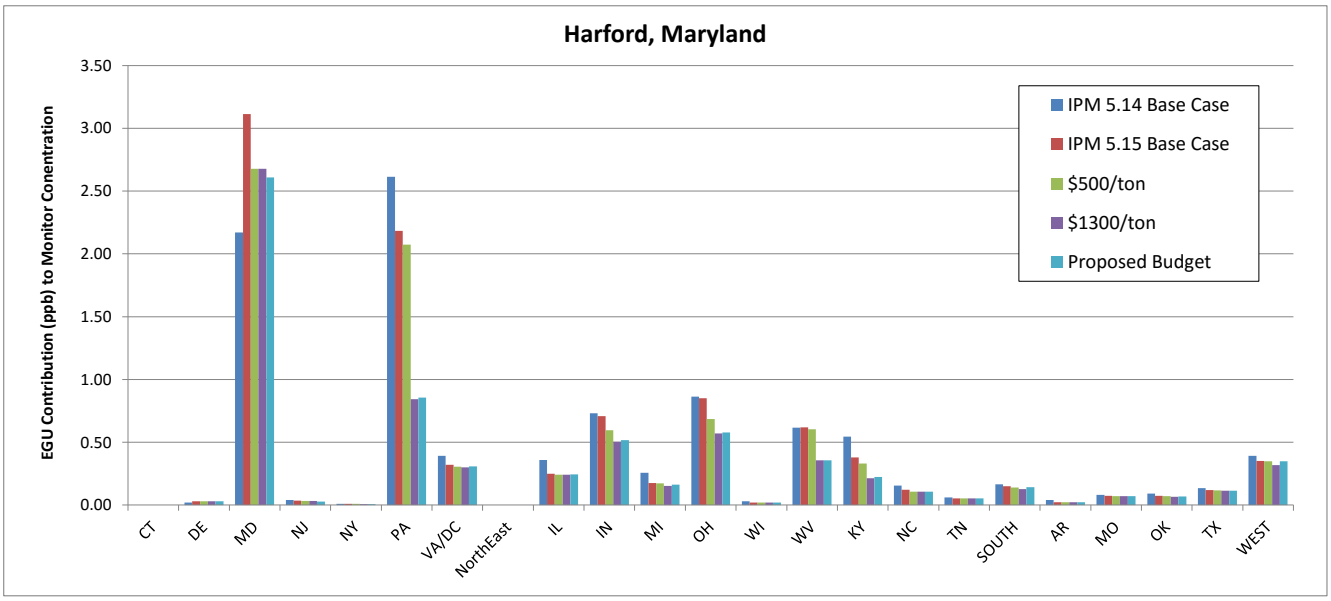
Monitor 240251001 Harford, Maryland Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.02	5.30E-05	580	580	580	580	0.01	0.01	0.01	0.01
MD	5,107	2.17	4.25E-04	7,324	6,295	6,297	6,138	0.94	0.51	0.51	0.44
NJ	4,617	0.04	8.92E-06	3,950	3,581	3,580	3,090	-0.01	-0.01	-0.01	-0.01
NY	9,123	0.01	1.13E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	2.61	5.01E-05	43,599	41,389	16,834	17,094	-0.43	-0.54	-1.77	-1.76
VA/DC	11,254	0.39	3.48E-05	9,201	8,778	8,662	8,882	-0.07	-0.09	-0.09	-0.08
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.36	2.28E-05	11,002	10,627	10,564	10,761	-0.11	-0.12	-0.12	-0.12
IN	43,910	0.73	1.66E-05	42,496	35,885	30,374	31,033	-0.02	-0.13	-0.23	-0.21
MI	32,421	0.26	7.94E-06	22,233	21,858	19,340	20,635	-0.08	-0.08	-0.10	-0.09
OH	29,693	0.86	2.91E-05	29,249	23,503	19,603	19,823	-0.01	-0.18	-0.29	-0.29
WI	8,801	0.03	3.51E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.62	2.41E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.26	-0.26
KY	38,993	0.55	1.40E-05	27,201	23,593	15,306	15,976	-0.16	-0.22	-0.33	-0.32
NC	22,048	0.15	7.00E-06	17,307	15,385	15,389	15,341	-0.03	-0.05	-0.05	-0.05
TN	6,382	0.06	9.68E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.16	1.95E-06	76,472	72,244	64,612	73,131	-0.02	-0.02	-0.04	-0.02
AR	11,890	0.04	3.46E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	3.99E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.09	3.81E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.13	2.01E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.39	2.15E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.02	0.03	0.03	0.03	0.03	0.00	0%
MD	2.17	3.11	2.68	2.68	2.61	0.50	16%
NJ	0.04	0.04	0.03	0.03	0.03	0.00	0%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	2.61	2.18	2.07	0.84	0.86	1.32	60%
VA/DC	0.39	0.32	0.31	0.30	0.31	0.01	3%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.36	0.25	0.24	0.24	0.25	0.00	0%
IN	0.73	0.71	0.60	0.51	0.52	0.19	27%
MI	0.26	0.18	0.17	0.15	0.16	0.01	6%
OH	0.86	0.85	0.68	0.57	0.58	0.27	32%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.62	0.62	0.60	0.36	0.36	0.26	42%
KY	0.55	0.38	0.33	0.21	0.22	0.15	39%
NC	0.15	0.12	0.11	0.11	0.11	0.01	8%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.16	0.15	0.14	0.13	0.14	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.08	0.07	0.07	0.07	0.07	0.00	0%
OK	0.09	0.07	0.07	0.07	0.07	0.00	0%
TX	0.13	0.12	0.12	0.11	0.11	0.00	0%
WEST	0.39	0.35	0.35	0.32	0.35	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	84.0
Base Case 5.15	83.9
$500/ton	82.9
$1,300/ton	81.1
Proposed Budget	81.1



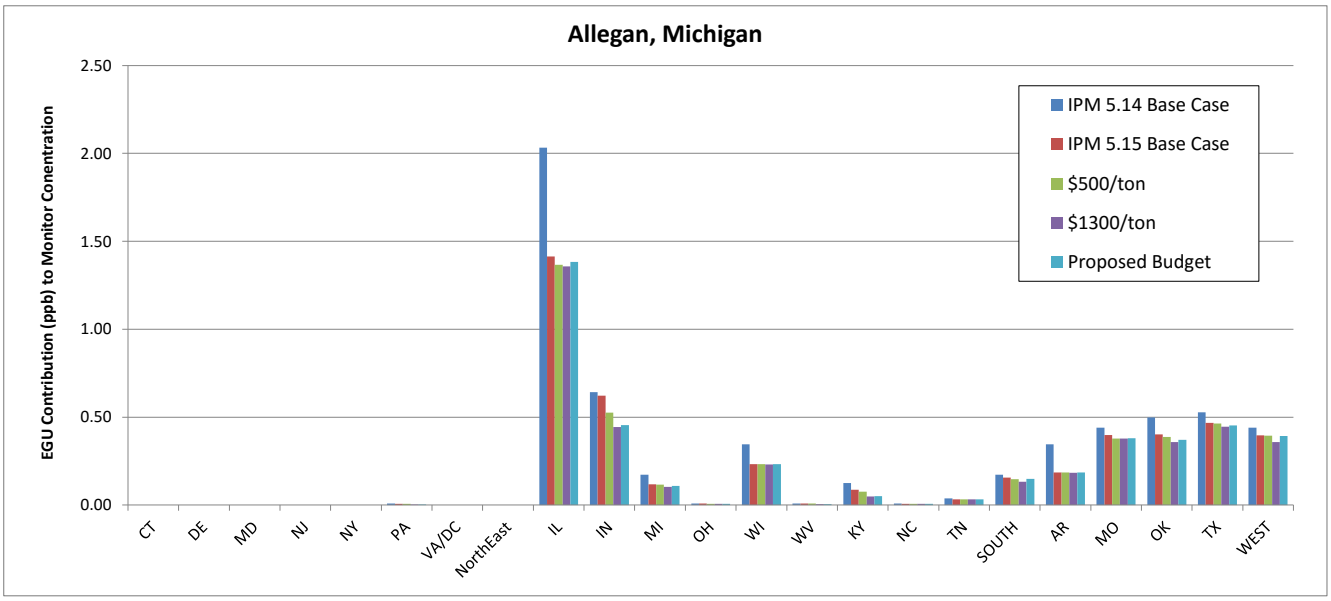
Monitor 260050003 Allegan, Michigan Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.01	1.84E-07	43,599	41,389	16,834	17,094	0.00	0.00	-0.01	-0.01
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	2.03	1.29E-04	11,002	10,627	10,564	10,761	-0.62	-0.67	-0.67	-0.65
IN	43,910	0.64	1.46E-05	42,496	35,885	30,374	31,033	-0.02	-0.12	-0.20	-0.19
MI	32,421	0.17	5.32E-06	22,233	21,858	19,340	20,635	-0.05	-0.06	-0.07	-0.06
OH	29,693	0.01	3.23E-07	29,249	23,503	19,603	19,823	0.00	0.00	0.00	0.00
WI	8,801	0.35	3.92E-05	5,923	5,920	5,906	5,917	-0.11	-0.11	-0.11	-0.11
WV	25,606	0.01	3.74E-07	25,664	25,071	14,755	14,755	0.00	0.00	0.00	0.00
KY	38,993	0.12	3.20E-06	27,201	23,593	15,306	15,976	-0.04	-0.05	-0.08	-0.07
NC	22,048	0.01	4.35E-07	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.04	6.01E-06	5,566	5,492	5,454	5,493	0.00	-0.01	-0.01	-0.01
SOUTH	84,284	0.17	2.05E-06	76,472	72,244	64,612	73,131	-0.02	-0.02	-0.04	-0.02
AR	11,890	0.35	2.90E-05	6,399	6,386	6,295	6,414	-0.16	-0.16	-0.16	-0.16
MO	20,632	0.44	2.14E-05	18,663	17,732	17,705	17,793	-0.04	-0.06	-0.06	-0.06
OK	24,335	0.50	2.05E-05	19,620	18,918	17,450	18,103	-0.10	-0.11	-0.14	-0.13
TX	66,651	0.53	7.91E-06	59,199	58,570	56,391	57,146	-0.06	-0.06	-0.08	-0.08
WEST	182,298	0.44	2.42E-06	163,660	162,932	148,254	162,662	-0.05	-0.05	-0.08	-0.05

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.01	0.01	0.01	0.00	0.00	0.00	0%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	2.03	1.41	1.37	1.36	1.38	0.03	2%
IN	0.64	0.62	0.53	0.44	0.45	0.16	26%
MI	0.17	0.12	0.12	0.10	0.11	0.00	0%
OH	0.01	0.01	0.01	0.01	0.01	0.00	0%
WI	0.35	0.23	0.23	0.23	0.23	0.00	0%
WV	0.01	0.01	0.01	0.01	0.01	0.00	0%
KY	0.12	0.09	0.08	0.05	0.05	0.03	35%
NC	0.01	0.01	0.01	0.01	0.01	0.00	0%
TN	0.04	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.17	0.16	0.15	0.13	0.15	0.00	0%
AR	0.35	0.19	0.19	0.18	0.19	0.00	0%
MO	0.44	0.40	0.38	0.38	0.38	0.01	3%
OK	0.50	0.40	0.39	0.36	0.37	0.03	7%
TX	0.53	0.47	0.46	0.45	0.45	0.01	2%
WEST	0.44	0.40	0.39	0.36	0.39	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	78.5
Base Case 5.15	77.2
$500/ton	77.0
$1,300/ton	76.8
Proposed Budget	76.9



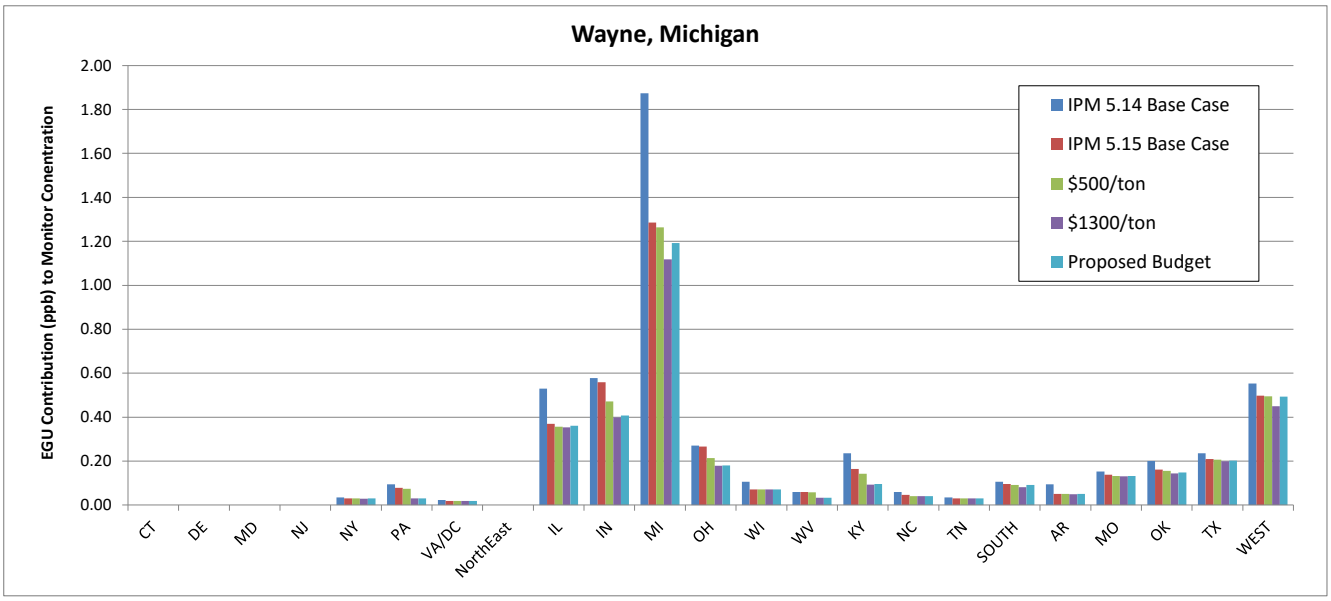
Monitor 261630019 Wayne, Michigan Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.04	3.87E-06	7,911	7,807	7,638	7,675	0.00	-0.01	-0.01	-0.01
PA	52,173	0.09	1.81E-06	43,599	41,389	16,834	17,094	-0.02	-0.02	-0.06	-0.06
VA/DC	11,254	0.02	2.09E-06	9,201	8,778	8,662	8,882	0.00	-0.01	-0.01	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.53	3.35E-05	11,002	10,627	10,564	10,761	-0.16	-0.17	-0.18	-0.17
IN	43,910	0.58	1.31E-05	42,496	35,885	30,374	31,033	-0.02	-0.11	-0.18	-0.17
MI	32,421	1.87	5.78E-05	22,233	21,858	19,340	20,635	-0.59	-0.61	-0.76	-0.68
OH	29,693	0.27	9.13E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.09	-0.09
WI	8,801	0.11	1.20E-05	5,923	5,920	5,906	5,917	-0.03	-0.03	-0.03	-0.03
WV	25,606	0.06	2.30E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.02	-0.02
KY	38,993	0.24	6.04E-06	27,201	23,593	15,306	15,976	-0.07	-0.09	-0.14	-0.14
NC	22,048	0.06	2.67E-06	17,307	15,385	15,389	15,341	-0.01	-0.02	-0.02	-0.02
TN	6,382	0.04	5.54E-06	5,566	5,492	5,454	5,493	0.00	0.00	-0.01	0.00
SOUTH	84,284	0.11	1.26E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.02	-0.01
AR	11,890	0.09	7.93E-06	6,399	6,386	6,295	6,414	-0.04	-0.04	-0.04	-0.04
MO	20,632	0.15	7.42E-06	18,663	17,732	17,705	17,793	-0.01	-0.02	-0.02	-0.02
OK	24,335	0.20	8.23E-06	19,620	18,918	17,450	18,103	-0.04	-0.04	-0.06	-0.05
TX	66,651	0.24	3.54E-06	59,199	58,570	56,391	57,146	-0.03	-0.03	-0.04	-0.03
WEST	182,298	0.55	3.04E-06	163,660	162,932	148,254	162,662	-0.06	-0.06	-0.10	-0.06

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.04	0.03	0.03	0.03	0.03	0.00	0%
PA	0.09	0.08	0.07	0.03	0.03	0.04	51%
VA/DC	0.02	0.02	0.02	0.02	0.02	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.53	0.37	0.36	0.35	0.36	0.00	0%
IN	0.58	0.56	0.47	0.40	0.41	0.15	27%
MI	1.87	1.28	1.26	1.12	1.19	0.09	7%
OH	0.27	0.27	0.21	0.18	0.18	0.08	30%
WI	0.11	0.07	0.07	0.07	0.07	0.00	0%
WV	0.06	0.06	0.06	0.03	0.03	0.02	34%
KY	0.24	0.16	0.14	0.09	0.10	0.06	36%
NC	0.06	0.05	0.04	0.04	0.04	0.00	0%
TN	0.04	0.03	0.03	0.03	0.03	0.00	0%
SOUTH	0.11	0.10	0.09	0.08	0.09	0.00	0%
AR	0.09	0.05	0.05	0.05	0.05	0.00	0%
MO	0.15	0.14	0.13	0.13	0.13	0.00	0%
OK	0.20	0.16	0.16	0.14	0.15	0.01	6%
TX	0.24	0.21	0.21	0.20	0.20	0.00	0%
WEST	0.55	0.50	0.49	0.45	0.49	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.2
Base Case 5.15	75.1
$500/ton	74.9
$1,300/ton	74.4
Proposed Budget	74.6



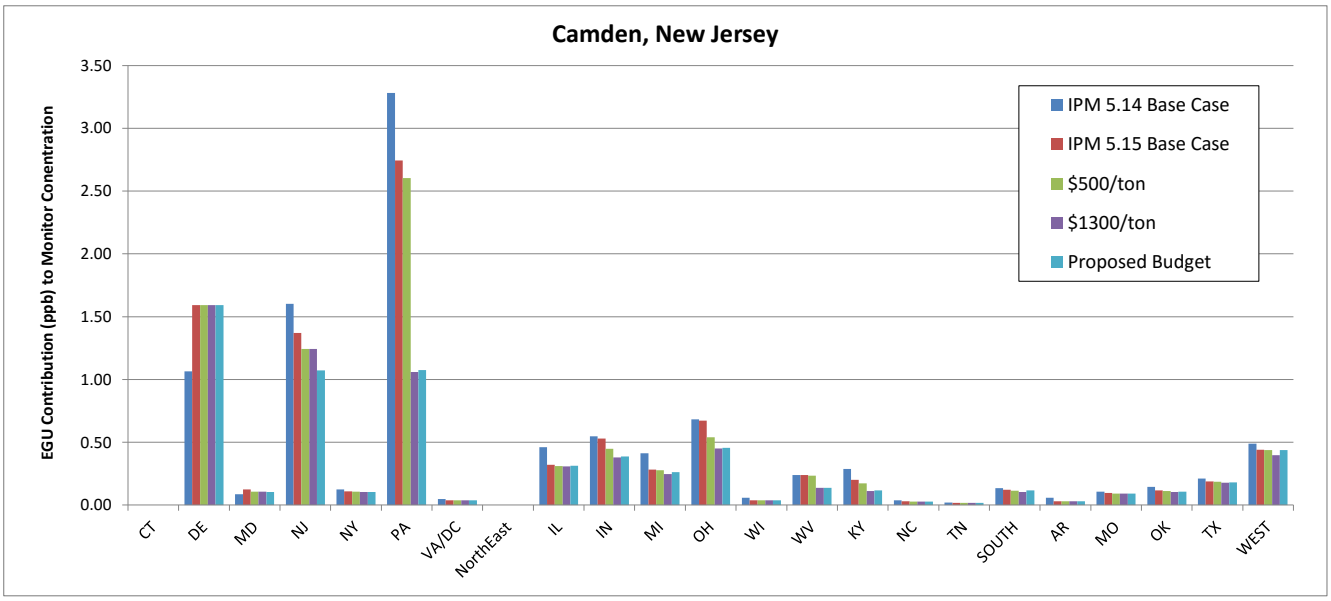
Monitor **340071001** **Camden, New Jersey** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	1.07	2.75E-03	580	580	580	580	0.53	0.53	0.53	0.53
MD	5,107	0.09	1.69E-05	7,324	6,295	6,297	6,138	0.04	0.02	0.02	0.02
NJ	4,617	1.60	3.47E-04	3,950	3,581	3,580	3,090	-0.23	-0.36	-0.36	-0.53
NY	9,123	0.12	1.37E-05	7,911	7,807	7,638	7,675	-0.02	-0.02	-0.02	-0.02
PA	52,173	3.28	6.29E-05	43,599	41,389	16,834	17,094	-0.54	-0.68	-2.22	-2.21
VA/DC	11,254	0.05	4.26E-06	9,201	8,778	8,662	8,882	-0.01	-0.01	-0.01	-0.01
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.46	2.91E-05	11,002	10,627	10,564	10,761	-0.14	-0.15	-0.15	-0.15
IN	43,910	0.55	1.25E-05	42,496	35,885	30,374	31,033	-0.02	-0.10	-0.17	-0.16
MI	32,421	0.41	1.27E-05	22,233	21,858	19,340	20,635	-0.13	-0.13	-0.17	-0.15
OH	29,693	0.68	2.30E-05	29,249	23,503	19,603	19,823	-0.01	-0.14	-0.23	-0.23
WI	8,801	0.06	6.54E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.24	9.37E-06	25,664	25,071	14,755	14,755	0.00	-0.01	-0.10	-0.10
KY	38,993	0.29	7.38E-06	27,201	23,593	15,306	15,976	-0.09	-0.11	-0.17	-0.17
NC	22,048	0.04	1.74E-06	17,307	15,385	15,389	15,341	-0.01	-0.01	-0.01	-0.01
TN	6,382	0.02	3.01E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.13	1.59E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.06	4.84E-06	6,399	6,386	6,295	6,414	-0.03	-0.03	-0.03	-0.03
MO	20,632	0.11	5.12E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.14	5.92E-06	19,620	18,918	17,450	18,103	-0.03	-0.03	-0.04	-0.04
TX	66,651	0.21	3.17E-06	59,199	58,570	56,391	57,146	-0.02	-0.03	-0.03	-0.03
WEST	182,298	0.49	2.69E-06	163,660	162,932	148,254	162,662	-0.05	-0.05	-0.09	-0.05

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	1.07	1.59	1.59	1.59	1.59	0.00	0%
MD	0.09	0.12	0.11	0.11	0.10	0.02	16%
NJ	1.60	1.37	1.24	1.24	1.07	0.29	21%
NY	0.12	0.11	0.11	0.10	0.10	0.00	0%
PA	3.28	2.74	2.60	1.06	1.08	1.66	61%
VA/DC	0.05	0.04	0.04	0.04	0.04	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.46	0.32	0.31	0.31	0.31	0.00	0%
IN	0.55	0.53	0.45	0.38	0.39	0.14	26%
MI	0.41	0.28	0.28	0.25	0.26	0.02	7%
OH	0.68	0.67	0.54	0.45	0.45	0.21	31%
WI	0.06	0.04	0.04	0.04	0.04	0.00	0%
WV	0.24	0.24	0.23	0.14	0.14	0.10	42%
KY	0.29	0.20	0.17	0.11	0.12	0.08	40%
NC	0.04	0.03	0.03	0.03	0.03	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.13	0.12	0.12	0.10	0.12	0.00	0%
AR	0.06	0.03	0.03	0.03	0.03	0.00	0%
MO	0.11	0.10	0.09	0.09	0.09	0.00	0%
OK	0.14	0.12	0.11	0.10	0.11	0.00	0%
TX	0.21	0.19	0.19	0.18	0.18	0.00	0%
WEST	0.49	0.44	0.44	0.40	0.44	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	78.1
Base Case 5.15	77.3
$500/ton	76.7
$1,300/ton	74.8
Proposed Budget	74.7



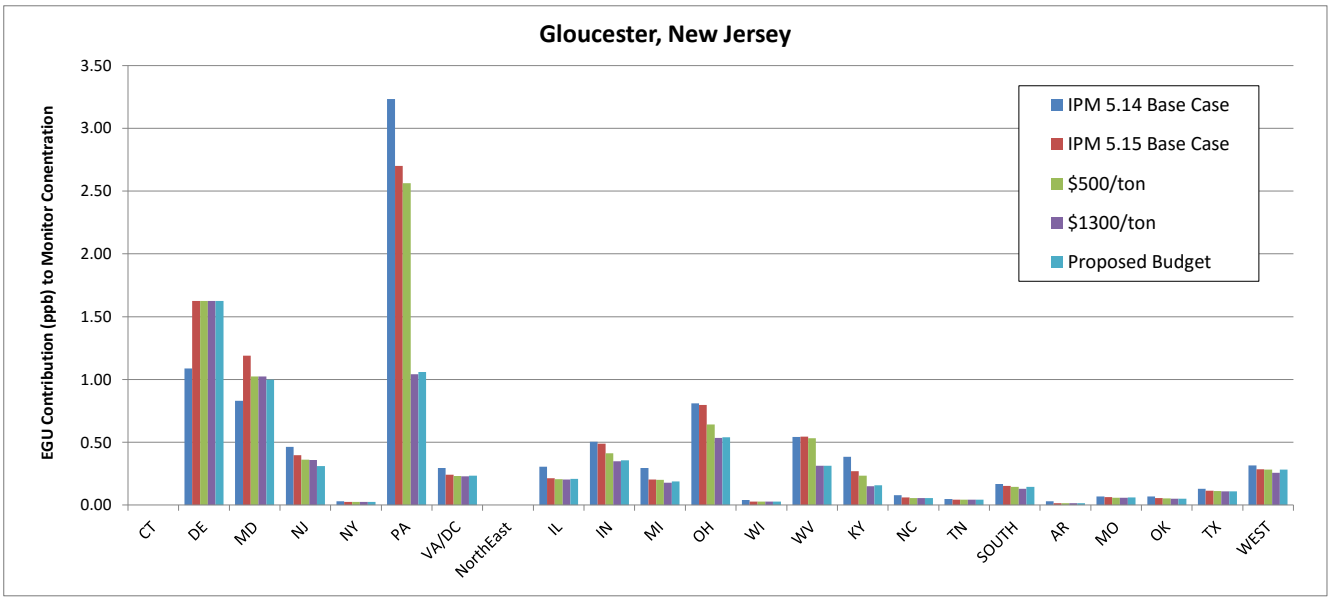
Monitor 340150002 Gloucester, New Jersey Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	1.09	2.80E-03	580	580	580	580	0.54	0.54	0.54	0.54
MD	5,107	0.83	1.63E-04	7,324	6,295	6,297	6,138	0.36	0.19	0.19	0.17
NJ	4,617	0.46	1.01E-04	3,950	3,581	3,580	3,090	-0.07	-0.10	-0.10	-0.15
NY	9,123	0.03	3.25E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	3.23	6.19E-05	43,599	41,389	16,834	17,094	-0.53	-0.67	-2.19	-2.17
VA/DC	11,254	0.30	2.63E-05	9,201	8,778	8,662	8,882	-0.05	-0.07	-0.07	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.31	1.94E-05	11,002	10,627	10,564	10,761	-0.09	-0.10	-0.10	-0.10
IN	43,910	0.50	1.15E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.16	-0.15
MI	32,421	0.30	9.15E-06	22,233	21,858	19,340	20,635	-0.09	-0.10	-0.12	-0.11
OH	29,693	0.81	2.73E-05	29,249	23,503	19,603	19,823	-0.01	-0.17	-0.28	-0.27
WI	8,801	0.04	4.49E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.54	2.12E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.23	-0.23
KY	38,993	0.39	9.89E-06	27,201	23,593	15,306	15,976	-0.12	-0.15	-0.23	-0.23
NC	22,048	0.08	3.59E-06	17,307	15,385	15,389	15,341	-0.02	-0.02	-0.02	-0.02
TN	6,382	0.05	7.74E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.17	1.99E-06	76,472	72,244	64,612	73,131	-0.02	-0.02	-0.04	-0.02
AR	11,890	0.03	2.49E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.07	3.35E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.07	2.84E-06	19,620	18,918	17,450	18,103	-0.01	-0.02	-0.02	-0.02
TX	66,651	0.13	1.93E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.32	1.73E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	1.09	1.63	1.63	1.63	1.63	0.00	0%
MD	0.83	1.19	1.02	1.02	1.00	0.19	16%
NJ	0.46	0.40	0.36	0.36	0.31	0.08	20%
NY	0.03	0.03	0.03	0.02	0.02	0.00	0%
PA	3.23	2.70	2.56	1.04	1.06	1.64	61%
VA/DC	0.30	0.24	0.23	0.23	0.23	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.31	0.21	0.21	0.20	0.21	0.00	0%
IN	0.50	0.49	0.41	0.35	0.36	0.13	27%
MI	0.30	0.20	0.20	0.18	0.19	0.01	5%
OH	0.81	0.80	0.64	0.54	0.54	0.25	31%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.54	0.54	0.53	0.31	0.31	0.23	42%
KY	0.39	0.27	0.23	0.15	0.16	0.11	41%
NC	0.08	0.06	0.06	0.06	0.06	0.00	0%
TN	0.05	0.04	0.04	0.04	0.04	0.00	0%
SOUTH	0.17	0.15	0.14	0.13	0.15	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.07	0.06	0.05	0.05	0.05	0.00	0%
TX	0.13	0.11	0.11	0.11	0.11	0.00	0%
WEST	0.32	0.28	0.28	0.26	0.28	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.5
Base Case 5.15	77.3
$500/ton	76.6
$1,300/ton	74.5
Proposed Budget	74.6



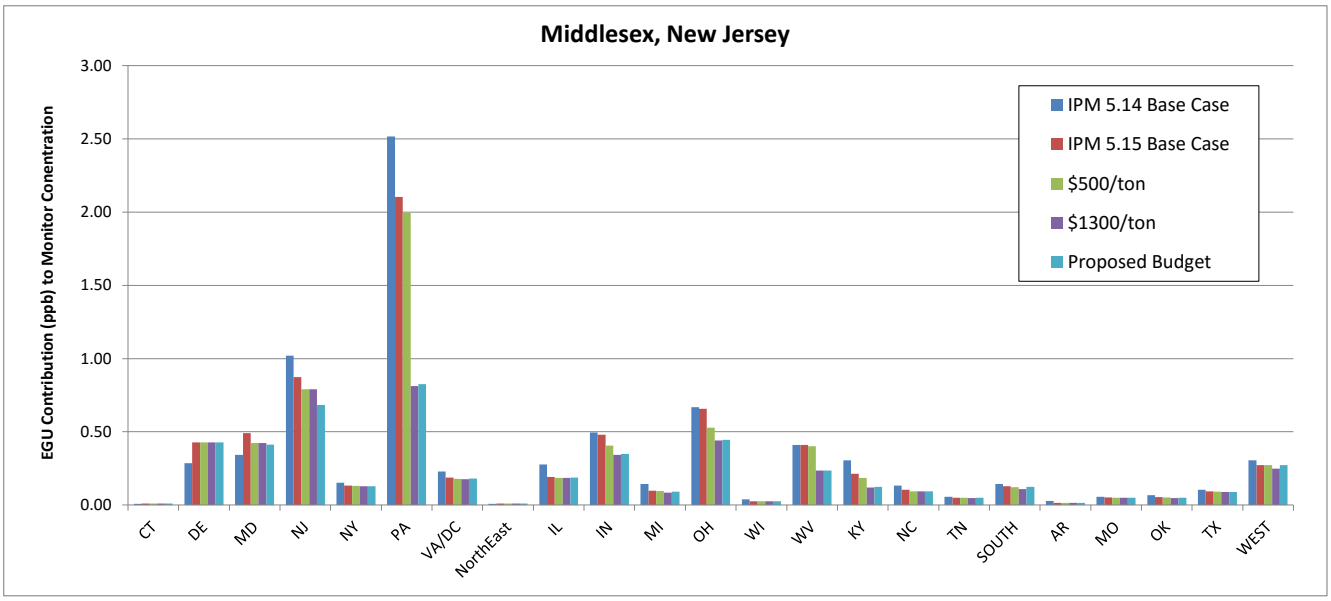
Monitor 340230011 Middlesex, New Jersey Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	6.01E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.29	7.37E-04	580	580	580	580	0.14	0.14	0.14	0.14
MD	5,107	0.34	6.72E-05	7,324	6,295	6,297	6,138	0.15	0.08	0.08	0.07
NJ	4,617	1.02	2.21E-04	3,950	3,581	3,580	3,090	-0.15	-0.23	-0.23	-0.34
NY	9,123	0.15	1.67E-05	7,911	7,807	7,638	7,675	-0.02	-0.02	-0.02	-0.02
PA	52,173	2.52	4.82E-05	43,599	41,389	16,834	17,094	-0.41	-0.52	-1.70	-1.69
VA/DC	11,254	0.23	2.03E-05	9,201	8,778	8,662	8,882	-0.04	-0.05	-0.05	-0.05
NorthEast	4,272	0.01	2.23E-06	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.28	1.75E-05	11,002	10,627	10,564	10,761	-0.08	-0.09	-0.09	-0.09
IN	43,910	0.50	1.13E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.15	-0.15
MI	32,421	0.14	4.41E-06	22,233	21,858	19,340	20,635	-0.04	-0.05	-0.06	-0.05
OH	29,693	0.67	2.25E-05	29,249	23,503	19,603	19,823	-0.01	-0.14	-0.23	-0.22
WI	8,801	0.04	4.33E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.41	1.60E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.17	-0.17
KY	38,993	0.31	7.82E-06	27,201	23,593	15,306	15,976	-0.09	-0.12	-0.19	-0.18
NC	22,048	0.13	6.05E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.06	8.96E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.14	1.70E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.03	2.40E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.06	2.77E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.07	2.74E-06	19,620	18,918	17,450	18,103	-0.01	-0.01	-0.02	-0.02
TX	66,651	0.10	1.57E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.01
WEST	182,298	0.31	1.67E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.29	0.43	0.43	0.43	0.43	0.00	0%
MD	0.34	0.49	0.42	0.42	0.41	0.07	14%
NJ	1.02	0.87	0.79	0.79	0.68	0.18	21%
NY	0.15	0.13	0.13	0.13	0.13	0.00	0%
PA	2.52	2.10	2.00	0.81	0.82	1.27	60%
VA/DC	0.23	0.19	0.18	0.18	0.18	0.00	0%
NorthEast	0.01	0.01	0.01	0.01	0.01	0.00	0%
IL	0.28	0.19	0.19	0.18	0.19	0.00	0%
IN	0.50	0.48	0.41	0.34	0.35	0.12	25%
MI	0.14	0.10	0.10	0.09	0.09	0.00	0%
OH	0.67	0.66	0.53	0.44	0.45	0.21	32%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.41	0.41	0.40	0.24	0.24	0.17	41%
KY	0.31	0.21	0.18	0.12	0.12	0.08	38%
NC	0.13	0.10	0.09	0.09	0.09	0.01	10%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.14	0.13	0.12	0.11	0.12	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.07	0.05	0.05	0.05	0.05	0.00	0%
TX	0.10	0.09	0.09	0.09	0.09	0.00	0%
WEST	0.31	0.27	0.27	0.25	0.27	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.3
Base Case 5.15	75.6
$500/ton	75.0
$1,300/ton	73.4
Proposed Budget	73.4



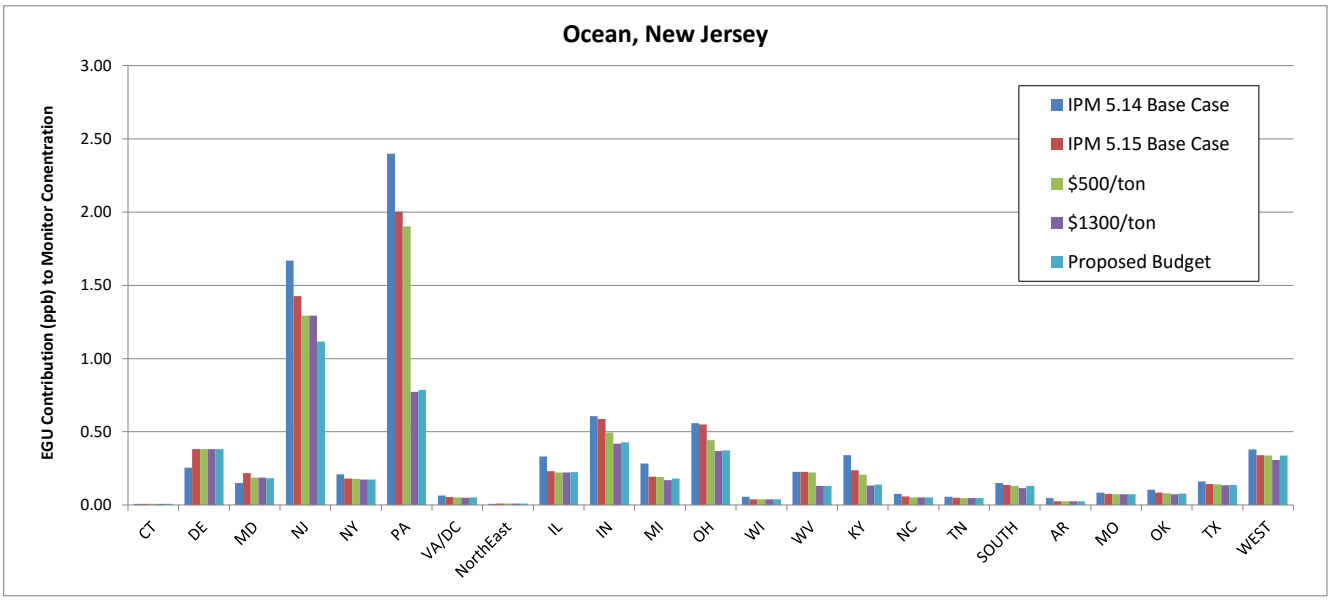
Monitor 340290006 Ocean, New Jersey Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	5.97E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.26	6.59E-04	580	580	580	580	0.13	0.13	0.13	0.13
MD	5,107	0.15	2.97E-05	7,324	6,295	6,297	6,138	0.07	0.04	0.04	0.03
NJ	4,617	1.67	3.61E-04	3,950	3,581	3,580	3,090	-0.24	-0.37	-0.37	-0.55
NY	9,123	0.21	2.28E-05	7,911	7,807	7,638	7,675	-0.03	-0.03	-0.03	-0.03
PA	52,173	2.40	4.59E-05	43,599	41,389	16,834	17,094	-0.39	-0.50	-1.62	-1.61
VA/DC	11,254	0.07	5.89E-06	9,201	8,778	8,662	8,882	-0.01	-0.01	-0.02	-0.01
NorthEast	4,272	0.01	2.22E-06	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.33	2.10E-05	11,002	10,627	10,564	10,761	-0.10	-0.11	-0.11	-0.11
IN	43,910	0.61	1.38E-05	42,496	35,885	30,374	31,033	-0.02	-0.11	-0.19	-0.18
MI	32,421	0.28	8.77E-06	22,233	21,858	19,340	20,635	-0.09	-0.09	-0.11	-0.10
OH	29,693	0.56	1.88E-05	29,249	23,503	19,603	19,823	-0.01	-0.12	-0.19	-0.19
WI	8,801	0.06	6.46E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.23	8.88E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.10	-0.10
KY	38,993	0.34	8.75E-06	27,201	23,593	15,306	15,976	-0.10	-0.13	-0.21	-0.20
NC	22,048	0.08	3.44E-06	17,307	15,385	15,389	15,341	-0.02	-0.02	-0.02	-0.02
TN	6,382	0.06	8.91E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.15	1.80E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.04	-0.02
AR	11,890	0.05	3.98E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.09	4.13E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	4.28E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.03
TX	66,651	0.16	2.42E-06	59,199	58,570	56,391	57,146	-0.02	-0.02	-0.02	-0.02
WEST	182,298	0.38	2.08E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.26	0.38	0.38	0.38	0.38	0.00	0%
MD	0.15	0.22	0.19	0.19	0.18	0.03	14%
NJ	1.67	1.43	1.29	1.29	1.12	0.31	22%
NY	0.21	0.18	0.18	0.17	0.18	0.00	0%
PA	2.40	2.00	1.90	0.77	0.79	1.21	60%
VA/DC	0.07	0.05	0.05	0.05	0.05	0.00	0%
NorthEast	0.01	0.01	0.01	0.01	0.01	0.00	0%
IL	0.33	0.23	0.22	0.22	0.23	0.00	0%
IN	0.61	0.59	0.50	0.42	0.43	0.15	26%
MI	0.28	0.19	0.19	0.17	0.18	0.01	5%
OH	0.56	0.55	0.44	0.37	0.37	0.17	31%
WI	0.06	0.04	0.04	0.04	0.04	0.00	0%
WV	0.23	0.23	0.22	0.13	0.13	0.09	39%
KY	0.34	0.24	0.21	0.13	0.14	0.09	38%
NC	0.08	0.06	0.05	0.05	0.05	0.00	0%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.15	0.14	0.13	0.12	0.13	0.00	0%
AR	0.05	0.03	0.03	0.03	0.03	0.00	0%
MO	0.09	0.08	0.07	0.07	0.07	0.00	0%
OK	0.10	0.08	0.08	0.07	0.08	0.00	0%
TX	0.16	0.14	0.14	0.14	0.14	0.00	0%
WEST	0.38	0.34	0.34	0.31	0.34	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.6
Base Case 5.15	75.6
$500/ton	75.1
$1,300/ton	73.6
Proposed Budget	73.5



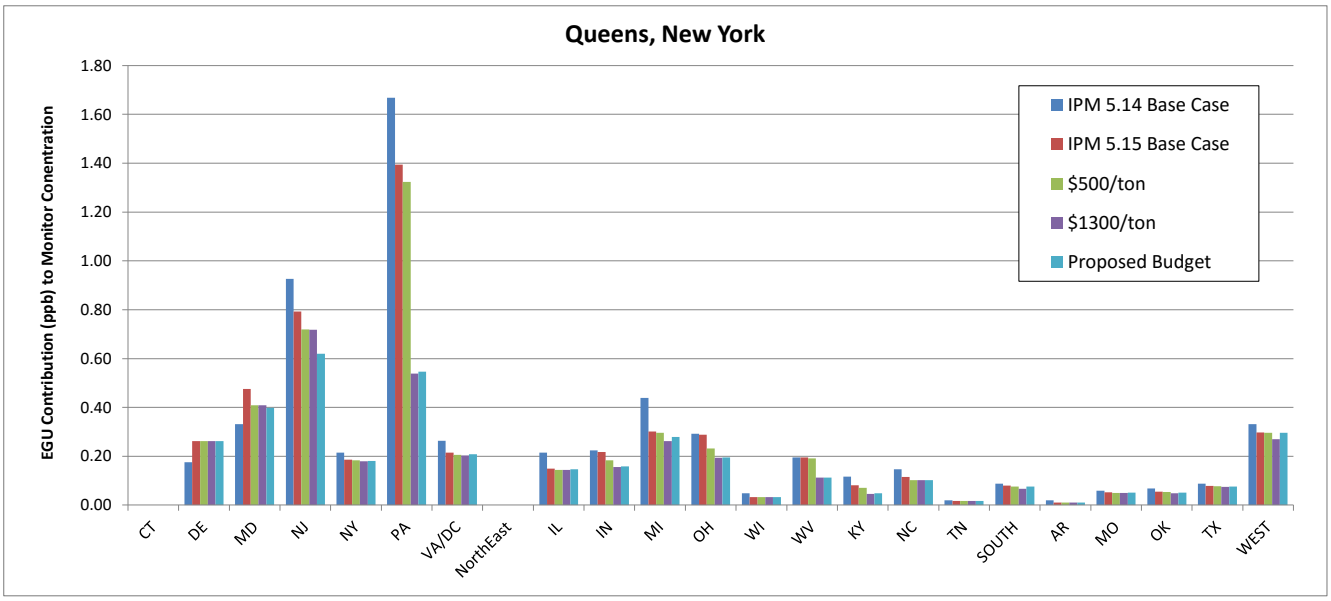
Monitor **360810124** **Queens, New York** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.18	4.53E-04	580	580	580	580	0.09	0.09	0.09	0.09
MD	5,107	0.33	6.49E-05	7,324	6,295	6,297	6,138	0.14	0.08	0.08	0.07
NJ	4,617	0.93	2.01E-04	3,950	3,581	3,580	3,090	-0.13	-0.21	-0.21	-0.31
NY	9,123	0.21	2.35E-05	7,911	7,807	7,638	7,675	-0.03	-0.03	-0.03	-0.03
PA	52,173	1.67	3.20E-05	43,599	41,389	16,834	17,094	-0.27	-0.34	-1.13	-1.12
VA/DC	11,254	0.26	2.34E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.21	1.36E-05	11,002	10,627	10,564	10,761	-0.07	-0.07	-0.07	-0.07
IN	43,910	0.22	5.11E-06	42,496	35,885	30,374	31,033	-0.01	-0.04	-0.07	-0.07
MI	32,421	0.44	1.35E-05	22,233	21,858	19,340	20,635	-0.14	-0.14	-0.18	-0.16
OH	29,693	0.29	9.86E-06	29,249	23,503	19,603	19,823	0.00	-0.06	-0.10	-0.10
WI	8,801	0.05	5.54E-06	5,923	5,920	5,906	5,917	-0.02	-0.02	-0.02	-0.02
WV	25,606	0.20	7.62E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.08	-0.08
KY	38,993	0.12	3.00E-06	27,201	23,593	15,306	15,976	-0.04	-0.05	-0.07	-0.07
NC	22,048	0.15	6.64E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.02	3.06E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.09	1.04E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.02	1.64E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.06	2.84E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.07	2.81E-06	19,620	18,918	17,450	18,103	-0.01	-0.02	-0.02	-0.02
TX	66,651	0.09	1.32E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.01	-0.01
WEST	182,298	0.33	1.82E-06	163,660	162,932	148,254	162,662	-0.03	-0.04	-0.06	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.18	0.26	0.26	0.26	0.26	0.00	0%
MD	0.33	0.48	0.41	0.41	0.40	0.07	15%
NJ	0.93	0.79	0.72	0.72	0.62	0.17	21%
NY	0.21	0.19	0.18	0.18	0.18	0.00	0%
PA	1.67	1.39	1.32	0.54	0.55	0.84	60%
VA/DC	0.26	0.22	0.21	0.20	0.21	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.21	0.15	0.14	0.14	0.15	0.00	0%
IN	0.22	0.22	0.18	0.16	0.16	0.05	23%
MI	0.44	0.30	0.30	0.26	0.28	0.02	7%
OH	0.29	0.29	0.23	0.19	0.20	0.09	31%
WI	0.05	0.03	0.03	0.03	0.03	0.00	0%
WV	0.20	0.20	0.19	0.11	0.11	0.08	41%
KY	0.12	0.08	0.07	0.05	0.05	0.03	37%
NC	0.15	0.11	0.10	0.10	0.10	0.01	9%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.09	0.08	0.08	0.07	0.08	0.00	0%
AR	0.02	0.01	0.01	0.01	0.01	0.00	0%
MO	0.06	0.05	0.05	0.05	0.05	0.00	0%
OK	0.07	0.06	0.05	0.05	0.05	0.00	0%
TX	0.09	0.08	0.08	0.07	0.08	0.00	0%
WEST	0.33	0.30	0.30	0.27	0.30	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.6
Base Case 5.15	77.0
$500/ton	76.6
$1,300/ton	75.6
Proposed Budget	75.5



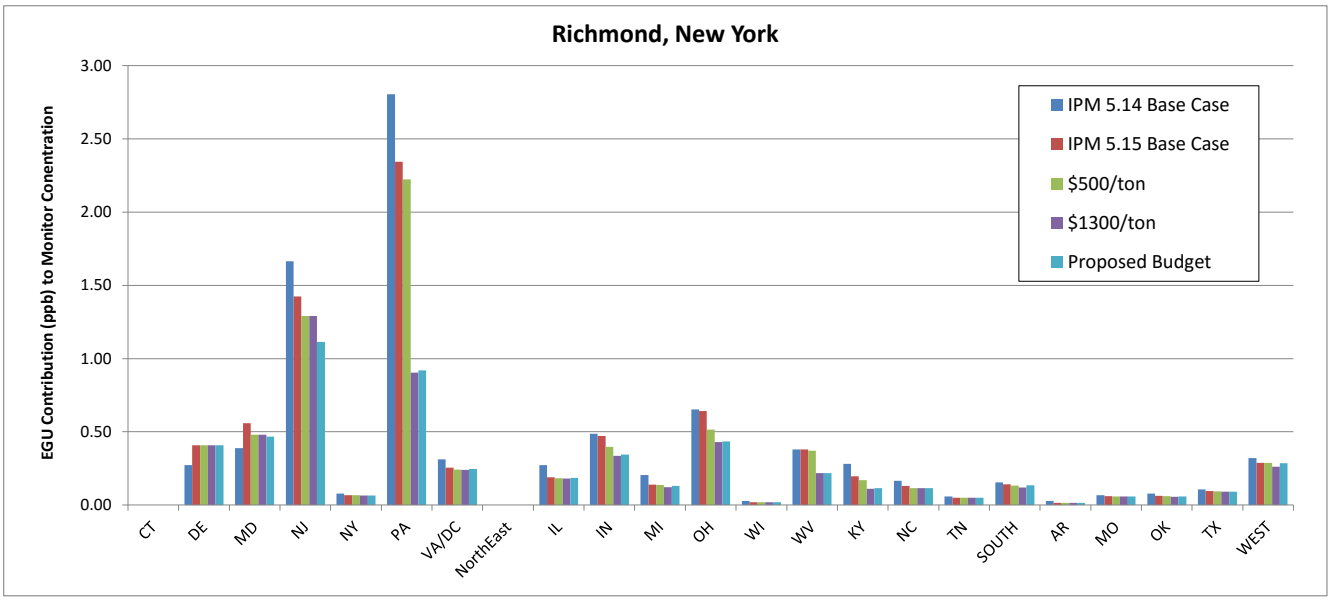
Monitor 360850067 Richmond, New York Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.27	7.02E-04	580	580	580	580	0.13	0.13	0.13	0.13
MD	5,107	0.39	7.62E-05	7,324	6,295	6,297	6,138	0.17	0.09	0.09	0.08
NJ	4,617	1.66	3.61E-04	3,950	3,581	3,580	3,090	-0.24	-0.37	-0.37	-0.55
NY	9,123	0.08	8.54E-06	7,911	7,807	7,638	7,675	-0.01	-0.01	-0.01	-0.01
PA	52,173	2.80	5.37E-05	43,599	41,389	16,834	17,094	-0.46	-0.58	-1.90	-1.88
VA/DC	11,254	0.31	2.77E-05	9,201	8,778	8,662	8,882	-0.06	-0.07	-0.07	-0.07
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.27	1.72E-05	11,002	10,627	10,564	10,761	-0.08	-0.09	-0.09	-0.09
IN	43,910	0.49	1.11E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.15	-0.14
MI	32,421	0.20	6.30E-06	22,233	21,858	19,340	20,635	-0.06	-0.07	-0.08	-0.07
OH	29,693	0.65	2.20E-05	29,249	23,503	19,603	19,823	-0.01	-0.14	-0.22	-0.22
WI	8,801	0.03	3.32E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.38	1.48E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.16	-0.16
KY	38,993	0.28	7.24E-06	27,201	23,593	15,306	15,976	-0.09	-0.11	-0.17	-0.17
NC	22,048	0.17	7.50E-06	17,307	15,385	15,389	15,341	-0.04	-0.05	-0.05	-0.05
TN	6,382	0.06	9.15E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.16	1.85E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.04	-0.02
AR	11,890	0.03	2.46E-06	6,399	6,386	6,295	6,414	-0.01	-0.01	-0.01	-0.01
MO	20,632	0.07	3.30E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.08	3.20E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.02	-0.02
TX	66,651	0.11	1.61E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.32	1.76E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.27	0.41	0.41	0.41	0.41	0.00	0%
MD	0.39	0.56	0.48	0.48	0.47	0.09	16%
NJ	1.66	1.42	1.29	1.29	1.11	0.31	22%
NY	0.08	0.07	0.07	0.07	0.07	0.00	0%
PA	2.80	2.34	2.22	0.90	0.92	1.42	61%
VA/DC	0.31	0.25	0.24	0.24	0.25	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.27	0.19	0.18	0.18	0.19	0.00	0%
IN	0.49	0.47	0.40	0.34	0.34	0.12	25%
MI	0.20	0.14	0.14	0.12	0.13	0.01	7%
OH	0.65	0.64	0.52	0.43	0.44	0.20	31%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.38	0.38	0.37	0.22	0.22	0.16	42%
KY	0.28	0.20	0.17	0.11	0.12	0.08	41%
NC	0.17	0.13	0.12	0.12	0.12	0.01	8%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.16	0.14	0.13	0.12	0.14	0.00	0%
AR	0.03	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.08	0.06	0.06	0.06	0.06	0.00	0%
TX	0.11	0.10	0.09	0.09	0.09	0.00	0%
WEST	0.32	0.29	0.29	0.26	0.29	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	77.8
Base Case 5.15	76.9
$500/ton	76.3
$1,300/ton	74.6
Proposed Budget	74.5



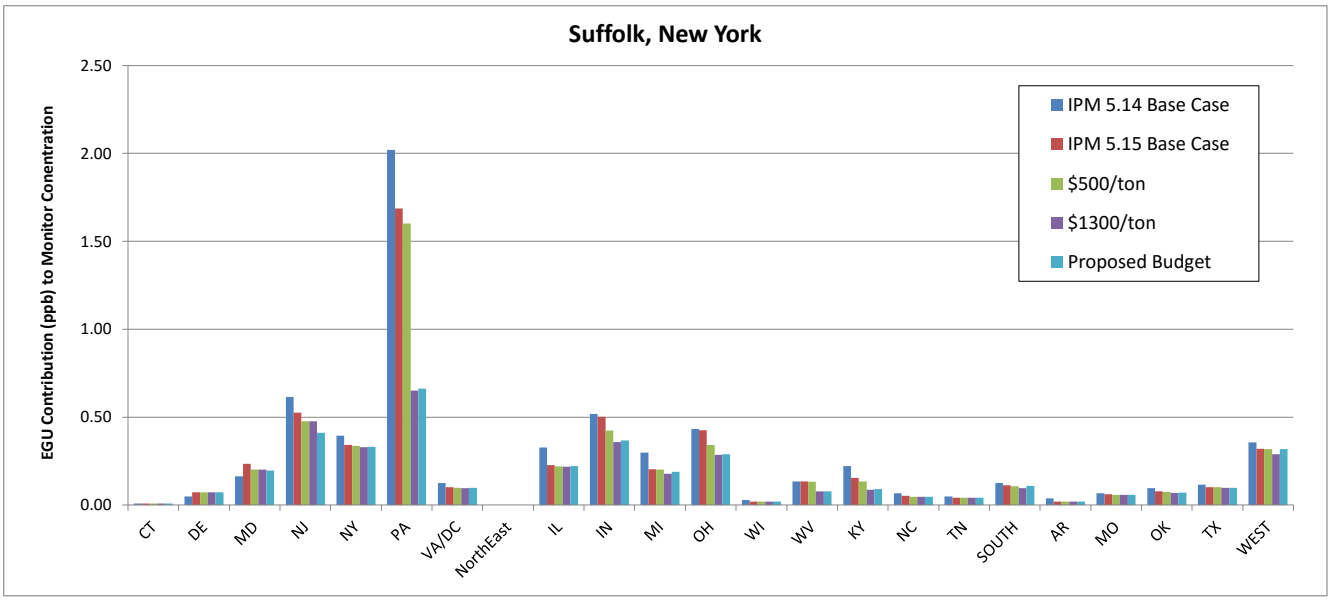
Monitor **361030002** **Suffolk, New York** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.01	6.06E-06	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.05	1.24E-04	580	580	580	580	0.02	0.02	0.02	0.02
MD	5,107	0.16	3.20E-05	7,324	6,295	6,297	6,138	0.07	0.04	0.04	0.03
NJ	4,617	0.62	1.33E-04	3,950	3,581	3,580	3,090	-0.09	-0.14	-0.14	-0.20
NY	9,123	0.39	4.32E-05	7,911	7,807	7,638	7,675	-0.05	-0.06	-0.06	-0.06
PA	52,173	2.02	3.87E-05	43,599	41,389	16,834	17,094	-0.33	-0.42	-1.37	-1.36
VA/DC	11,254	0.13	1.11E-05	9,201	8,778	8,662	8,882	-0.02	-0.03	-0.03	-0.03
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.33	2.07E-05	11,002	10,627	10,564	10,761	-0.10	-0.11	-0.11	-0.10
IN	43,910	0.52	1.18E-05	42,496	35,885	30,374	31,033	-0.02	-0.09	-0.16	-0.15
MI	32,421	0.30	9.20E-06	22,233	21,858	19,340	20,635	-0.09	-0.10	-0.12	-0.11
OH	29,693	0.43	1.46E-05	29,249	23,503	19,603	19,823	-0.01	-0.09	-0.15	-0.14
WI	8,801	0.03	3.28E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.13	5.26E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.22	5.67E-06	27,201	23,593	15,306	15,976	-0.07	-0.09	-0.13	-0.13
NC	22,048	0.07	3.05E-06	17,307	15,385	15,389	15,341	-0.01	-0.02	-0.02	-0.02
TN	6,382	0.05	7.53E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.13	1.48E-06	76,472	72,244	64,612	73,131	-0.01	-0.02	-0.03	-0.02
AR	11,890	0.04	3.24E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.07	3.26E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	3.95E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.02
TX	66,651	0.12	1.73E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.36	1.95E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.01	0.01	0.01	0.01	0.01	0.00	0%
DE	0.05	0.07	0.07	0.07	0.07	0.00	0%
MD	0.16	0.23	0.20	0.20	0.20	0.03	13%
NJ	0.62	0.53	0.48	0.48	0.41	0.11	21%
NY	0.39	0.34	0.34	0.33	0.33	0.01	3%
PA	2.02	1.69	1.60	0.65	0.66	1.02	60%
VA/DC	0.13	0.10	0.10	0.10	0.10	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.33	0.23	0.22	0.22	0.22	0.00	0%
IN	0.52	0.50	0.42	0.36	0.37	0.13	26%
MI	0.30	0.20	0.20	0.18	0.19	0.01	5%
OH	0.43	0.43	0.34	0.29	0.29	0.13	30%
WI	0.03	0.02	0.02	0.02	0.02	0.00	0%
WV	0.13	0.13	0.13	0.08	0.08	0.05	37%
KY	0.22	0.15	0.13	0.09	0.09	0.06	39%
NC	0.07	0.05	0.05	0.05	0.05	0.00	0%
TN	0.05	0.04	0.04	0.04	0.04	0.00	0%
SOUTH	0.13	0.11	0.11	0.10	0.11	0.00	0%
AR	0.04	0.02	0.02	0.02	0.02	0.00	0%
MO	0.07	0.06	0.06	0.06	0.06	0.00	0%
OK	0.10	0.08	0.07	0.07	0.07	0.00	0%
TX	0.12	0.10	0.10	0.10	0.10	0.00	0%
WEST	0.36	0.32	0.32	0.29	0.32	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	80.8
Base Case 5.15	80.0
$500/ton	79.6
$1,300/ton	78.3
Proposed Budget	78.4



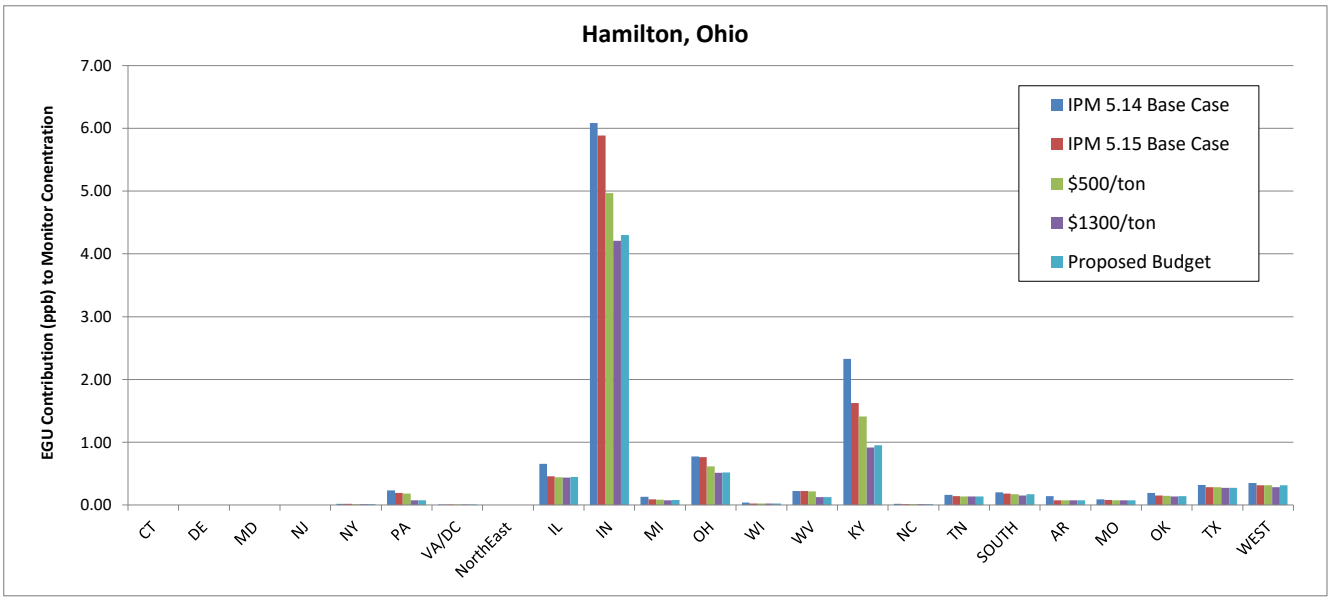
Monitor 390610006 Hamilton, Ohio Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.02	2.21E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.23	4.45E-06	43,599	41,389	16,834	17,094	-0.04	-0.05	-0.16	-0.16
VA/DC	11,254	0.01	8.96E-07	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.66	4.15E-05	11,002	10,627	10,564	10,761	-0.20	-0.21	-0.22	-0.21
IN	43,910	6.08	1.38E-04	42,496	35,885	30,374	31,033	-0.20	-1.11	-1.87	-1.78
MI	32,421	0.13	4.04E-06	22,233	21,858	19,340	20,635	-0.04	-0.04	-0.05	-0.05
OH	29,693	0.78	2.62E-05	29,249	23,503	19,603	19,823	-0.01	-0.16	-0.26	-0.26
WI	8,801	0.04	4.58E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.22	8.67E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.09	-0.09
KY	38,993	2.33	5.97E-05	27,201	23,593	15,306	15,976	-0.70	-0.92	-1.42	-1.38
NC	22,048	0.02	9.15E-07	17,307	15,385	15,389	15,341	0.00	-0.01	-0.01	-0.01
TN	6,382	0.16	2.53E-05	5,566	5,492	5,454	5,493	-0.02	-0.02	-0.02	-0.02
SOUTH	84,284	0.20	2.39E-06	76,472	72,244	64,612	73,131	-0.02	-0.03	-0.05	-0.03
AR	11,890	0.14	1.19E-05	6,399	6,386	6,295	6,414	-0.07	-0.07	-0.07	-0.07
MO	20,632	0.09	4.40E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.19	7.87E-06	19,620	18,918	17,450	18,103	-0.04	-0.04	-0.05	-0.05
TX	66,651	0.32	4.84E-06	59,199	58,570	56,391	57,146	-0.04	-0.04	-0.05	-0.05
WEST	182,298	0.35	1.94E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.02	0.02	0.02	0.02	0.02	0.00	0%
PA	0.23	0.19	0.18	0.07	0.08	0.11	57%
VA/DC	0.01	0.01	0.01	0.01	0.01	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.66	0.46	0.44	0.44	0.45	0.00	0%
IN	6.08	5.89	4.97	4.21	4.30	1.58	27%
MI	0.13	0.09	0.09	0.08	0.08	0.00	0%
OH	0.78	0.76	0.61	0.51	0.52	0.24	31%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.22	0.22	0.22	0.13	0.13	0.09	40%
KY	2.33	1.63	1.41	0.91	0.95	0.67	41%
NC	0.02	0.02	0.01	0.01	0.01	0.00	0%
TN	0.16	0.14	0.14	0.14	0.14	0.00	0%
SOUTH	0.20	0.18	0.17	0.15	0.18	0.00	0%
AR	0.14	0.08	0.08	0.07	0.08	0.00	0%
MO	0.09	0.08	0.08	0.08	0.08	0.00	0%
OK	0.19	0.15	0.15	0.14	0.14	0.01	6%
TX	0.32	0.29	0.28	0.27	0.28	0.00	0%
WEST	0.35	0.32	0.32	0.29	0.31	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	79.1
Base Case 5.15	77.7
$500/ton	76.3
$1,300/ton	74.7
Proposed Budget	74.9



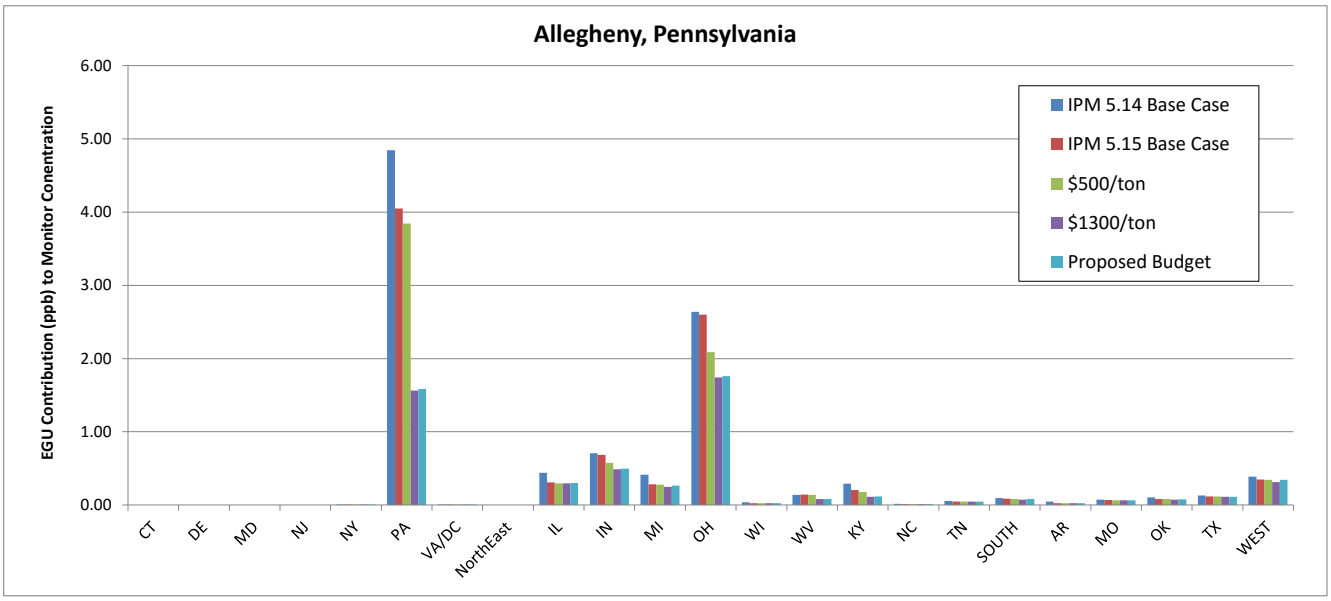
Monitor 420031005 Allegheny, Pennsylvania Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.01	1.03E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	4.84	9.28E-05	43,599	41,389	16,834	17,094	-0.80	-1.00	-3.28	-3.26
VA/DC	11,254	0.01	8.37E-07	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.44	2.80E-05	11,002	10,627	10,564	10,761	-0.13	-0.15	-0.15	-0.14
IN	43,910	0.71	1.61E-05	42,496	35,885	30,374	31,033	-0.02	-0.13	-0.22	-0.21
MI	32,421	0.41	1.28E-05	22,233	21,858	19,340	20,635	-0.13	-0.14	-0.17	-0.15
OH	29,693	2.64	8.89E-05	29,249	23,503	19,603	19,823	-0.04	-0.55	-0.90	-0.88
WI	8,801	0.04	4.28E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.14	5.52E-06	25,664	25,071	14,755	14,755	0.00	0.00	-0.06	-0.06
KY	38,993	0.29	7.49E-06	27,201	23,593	15,306	15,976	-0.09	-0.12	-0.18	-0.17
NC	22,048	0.02	8.55E-07	17,307	15,385	15,389	15,341	0.00	-0.01	-0.01	-0.01
TN	6,382	0.06	8.86E-06	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.09	1.12E-06	76,472	72,244	64,612	73,131	-0.01	-0.01	-0.02	-0.01
AR	11,890	0.05	3.96E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.08	3.65E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	4.26E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.03
TX	66,651	0.13	1.98E-06	59,199	58,570	56,391	57,146	-0.01	-0.02	-0.02	-0.02
WEST	182,298	0.39	2.12E-06	163,660	162,932	148,254	162,662	-0.04	-0.04	-0.07	-0.04

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	4.84	4.05	3.84	1.56	1.59	2.46	61%
VA/DC	0.01	0.01	0.01	0.01	0.01	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.44	0.31	0.30	0.30	0.30	0.00	0%
IN	0.71	0.68	0.58	0.49	0.50	0.18	26%
MI	0.41	0.28	0.28	0.25	0.26	0.02	7%
OH	2.64	2.60	2.09	1.74	1.76	0.83	32%
WI	0.04	0.03	0.03	0.03	0.03	0.00	0%
WV	0.14	0.14	0.14	0.08	0.08	0.06	42%
KY	0.29	0.20	0.18	0.11	0.12	0.08	39%
NC	0.02	0.01	0.01	0.01	0.01	0.00	0%
TN	0.06	0.05	0.05	0.05	0.05	0.00	0%
SOUTH	0.09	0.09	0.08	0.07	0.08	0.00	0%
AR	0.05	0.03	0.03	0.02	0.03	0.00	0%
MO	0.08	0.07	0.06	0.06	0.07	0.00	0%
OK	0.10	0.08	0.08	0.07	0.08	0.00	0%
TX	0.13	0.12	0.12	0.11	0.11	0.00	0%
WEST	0.39	0.35	0.35	0.31	0.34	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	76.5
Base Case 5.15	75.2
$500/ton	74.3
$1,300/ton	71.3
Proposed Budget	71.5



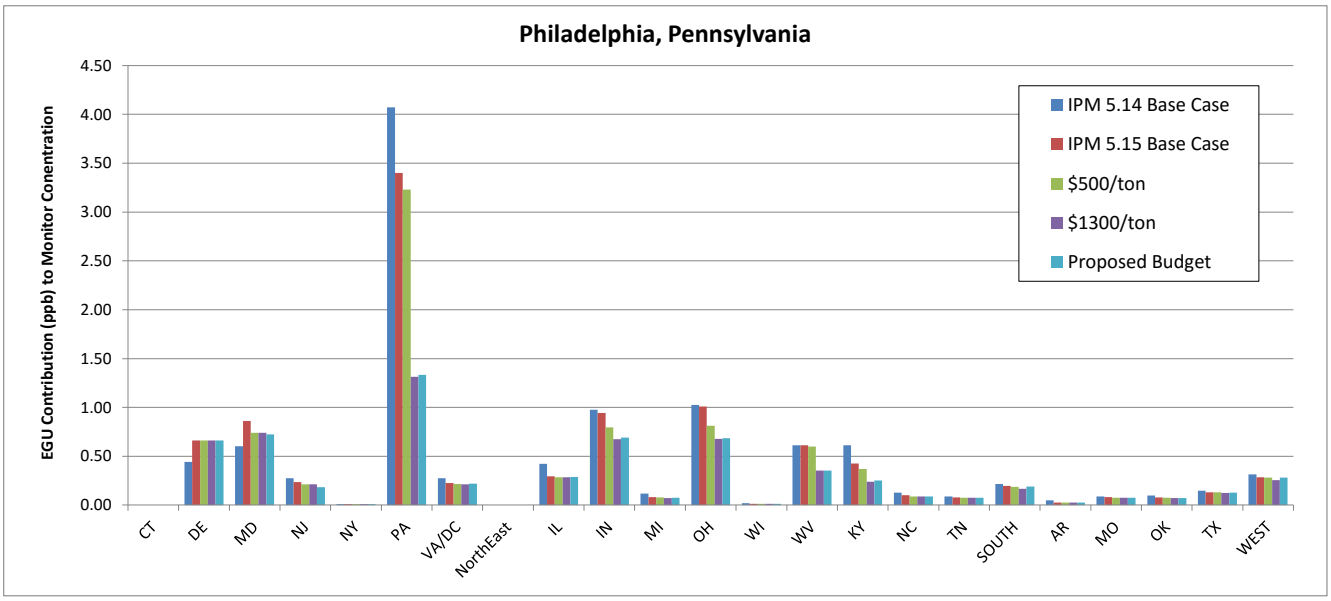
Monitor 421010024 Philadelphia, Pennsylvania Maximum Design Value Calculations

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.44	1.14E-03	580	580	580	580	0.22	0.22	0.22	0.22
MD	5,107	0.60	1.18E-04	7,324	6,295	6,297	6,138	0.26	0.14	0.14	0.12
NJ	4,617	0.28	5.98E-05	3,950	3,581	3,580	3,090	-0.04	-0.06	-0.06	-0.09
NY	9,123	0.01	1.08E-06	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	4.07	7.80E-05	43,599	41,389	16,834	17,094	-0.67	-0.84	-2.76	-2.74
VA/DC	11,254	0.28	2.45E-05	9,201	8,778	8,662	8,882	-0.05	-0.06	-0.06	-0.06
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.42	2.68E-05	11,002	10,627	10,564	10,761	-0.13	-0.14	-0.14	-0.14
IN	43,910	0.98	2.22E-05	42,496	35,885	30,374	31,033	-0.03	-0.18	-0.30	-0.29
MI	32,421	0.12	3.65E-06	22,233	21,858	19,340	20,635	-0.04	-0.04	-0.05	-0.04
OH	29,693	1.02	3.45E-05	29,249	23,503	19,603	19,823	-0.02	-0.21	-0.35	-0.34
WI	8,801	0.02	2.24E-06	5,923	5,920	5,906	5,917	-0.01	-0.01	-0.01	-0.01
WV	25,606	0.61	2.39E-05	25,664	25,071	14,755	14,755	0.00	-0.01	-0.26	-0.26
KY	38,993	0.61	1.57E-05	27,201	23,593	15,306	15,976	-0.18	-0.24	-0.37	-0.36
NC	22,048	0.13	5.81E-06	17,307	15,385	15,389	15,341	-0.03	-0.04	-0.04	-0.04
TN	6,382	0.09	1.39E-05	5,566	5,492	5,454	5,493	-0.01	-0.01	-0.01	-0.01
SOUTH	84,284	0.22	2.57E-06	76,472	72,244	64,612	73,131	-0.02	-0.03	-0.05	-0.03
AR	11,890	0.05	4.14E-06	6,399	6,386	6,295	6,414	-0.02	-0.02	-0.02	-0.02
MO	20,632	0.09	4.30E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.10	4.05E-06	19,620	18,918	17,450	18,103	-0.02	-0.02	-0.03	-0.03
TX	66,651	0.15	2.22E-06	59,199	58,570	56,391	57,146	-0.02	-0.02	-0.02	-0.02
WEST	182,298	0.32	1.73E-06	163,660	162,932	148,254	162,662	-0.03	-0.03	-0.06	-0.03

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.44	0.66	0.66	0.66	0.66	0.00	0%
MD	0.60	0.86	0.74	0.74	0.72	0.13	15%
NJ	0.28	0.24	0.21	0.21	0.18	0.05	21%
NY	0.01	0.01	0.01	0.01	0.01	0.00	0%
PA	4.07	3.40	3.23	1.31	1.33	2.06	61%
VA/DC	0.28	0.23	0.22	0.21	0.22	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.42	0.29	0.28	0.28	0.29	0.00	0%
IN	0.98	0.94	0.80	0.67	0.69	0.25	26%
MI	0.12	0.08	0.08	0.07	0.08	0.00	0%
OH	1.02	1.01	0.81	0.68	0.68	0.32	32%
WI	0.02	0.01	0.01	0.01	0.01	0.00	0%
WV	0.61	0.61	0.60	0.35	0.35	0.26	42%
KY	0.61	0.43	0.37	0.24	0.25	0.17	40%
NC	0.13	0.10	0.09	0.09	0.09	0.01	10%
TN	0.09	0.08	0.08	0.08	0.08	0.00	0%
SOUTH	0.22	0.20	0.19	0.17	0.19	0.00	0%
AR	0.05	0.03	0.03	0.03	0.03	0.00	0%
MO	0.09	0.08	0.08	0.08	0.08	0.00	0%
OK	0.10	0.08	0.08	0.07	0.07	0.00	0%
TX	0.15	0.13	0.13	0.13	0.13	0.00	0%
WEST	0.32	0.28	0.28	0.26	0.28	0.00	0%

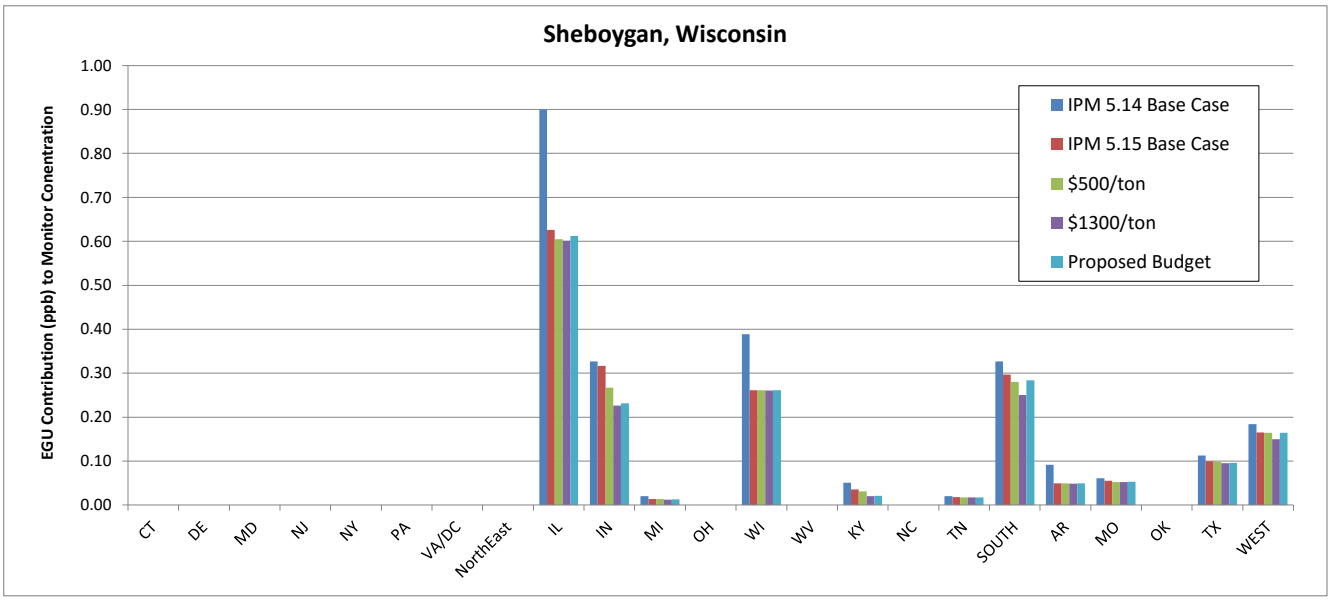
Resulting Design Values (ppb)	
Base Case 5.14	78.4
Base Case 5.15	77.6
$500/ton	76.8
$1,300/ton	74.2
Proposed Budget	74.2



Monitor **551170006** **Sheboygan, Wisconsin** **Maximum Design Value Calculations**

Region	IPM 5.14 Base Case: Ozone Season Tons	IPM 5.14 Base Case: EGU Contribution (ppb)	IPM 5.14 Base Case: Impact Factor (ppb/ton)	EGU Ozone Season NOx Tons: IPM 5.15 Base Case	EGU Ozone Season NOx Tons: $500/ton	EGU Ozone Season NOx Tons: $1300/ton	EGU Ozone Season NOx Tons: Proposed Budget	Impact Factor Calculated EGU Concentration Change (ppb): IPM 5.15 Base Case	Impact Factor Calculated EGU Concentration Change (ppb): $500/ton	Impact Factor Calculated EGU Concentration Change (ppb): $1300/ton	Impact Factor Calculated EGU Concentration Change (ppb): Proposed Budget
CT	1,587	0.00	0.00E+00	1,607	1,607	1,610	1,607	0.00	0.00	0.00	0.00
DE	388	0.00	0.00E+00	580	580	580	580	0.00	0.00	0.00	0.00
MD	5,107	0.00	0.00E+00	7,324	6,295	6,297	6,138	0.00	0.00	0.00	0.00
NJ	4,617	0.00	0.00E+00	3,950	3,581	3,580	3,090	0.00	0.00	0.00	0.00
NY	9,123	0.00	0.00E+00	7,911	7,807	7,638	7,675	0.00	0.00	0.00	0.00
PA	52,173	0.00	0.00E+00	43,599	41,389	16,834	17,094	0.00	0.00	0.00	0.00
VA/DC	11,254	0.00	0.00E+00	9,201	8,778	8,662	8,882	0.00	0.00	0.00	0.00
NorthEast	4,272	0.00	0.00E+00	4,493	4,542	4,506	4,494	0.00	0.00	0.00	0.00
IL	15,810	0.90	5.69E-05	11,002	10,627	10,564	10,761	-0.27	-0.29	-0.30	-0.29
IN	43,910	0.33	7.45E-06	42,496	35,885	30,374	31,033	-0.01	-0.06	-0.10	-0.10
MI	32,421	0.02	6.30E-07	22,233	21,858	19,340	20,635	-0.01	-0.01	-0.01	-0.01
OH	29,693	0.00	0.00E+00	29,249	23,503	19,603	19,823	0.00	0.00	0.00	0.00
WI	8,801	0.39	4.41E-05	5,923	5,920	5,906	5,917	-0.13	-0.13	-0.13	-0.13
WV	25,606	0.00	0.00E+00	25,664	25,071	14,755	14,755	0.00	0.00	0.00	0.00
KY	38,993	0.05	1.31E-06	27,201	23,593	15,306	15,976	-0.02	-0.02	-0.03	-0.03
NC	22,048	0.00	0.00E+00	17,307	15,385	15,389	15,341	0.00	0.00	0.00	0.00
TN	6,382	0.02	3.20E-06	5,566	5,492	5,454	5,493	0.00	0.00	0.00	0.00
SOUTH	84,284	0.33	3.88E-06	76,472	72,244	64,612	73,131	-0.03	-0.05	-0.08	-0.04
AR	11,890	0.09	7.74E-06	6,399	6,386	6,295	6,414	-0.04	-0.04	-0.04	-0.04
MO	20,632	0.06	2.97E-06	18,663	17,732	17,705	17,793	-0.01	-0.01	-0.01	-0.01
OK	24,335	0.00	0.00E+00	19,620	18,918	17,450	18,103	0.00	0.00	0.00	0.00
TX	66,651	0.11	1.69E-06	59,199	58,570	56,391	57,146	-0.01	-0.01	-0.02	-0.02
WEST	182,298	0.18	1.01E-06	163,660	162,932	148,254	162,662	-0.02	-0.02	-0.03	-0.02

Impact Factor Calculation and Resulting EGU Concentration Contribution (ppb)

Region	IPM 5.14 Base Case (ppb)	IPM 5.15 Base Case	$500/ton	$1300/ton	Proposed Budget	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: ppb	Change in EGU Contribution IPM 5.15 Base to Proposed Budget: %
CT	0.00	0.00	0.00	0.00	0.00	0.00	0%
DE	0.00	0.00	0.00	0.00	0.00	0.00	0%
MD	0.00	0.00	0.00	0.00	0.00	0.00	0%
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0%
NY	0.00	0.00	0.00	0.00	0.00	0.00	0%
PA	0.00	0.00	0.00	0.00	0.00	0.00	0%
VA/DC	0.00	0.00	0.00	0.00	0.00	0.00	0%
NorthEast	0.00	0.00	0.00	0.00	0.00	0.00	0%
IL	0.90	0.63	0.60	0.60	0.61	0.01	2%
IN	0.33	0.32	0.27	0.23	0.23	0.08	25%
MI	0.02	0.01	0.01	0.01	0.01	0.00	0%
OH	0.00	0.00	0.00	0.00	0.00	0.00	0%
WI	0.39	0.26	0.26	0.26	0.26	0.00	0%
WV	0.00	0.00	0.00	0.00	0.00	0.00	0%
KY	0.05	0.04	0.03	0.02	0.02	0.01	28%
NC	0.00	0.00	0.00	0.00	0.00	0.00	0%
TN	0.02	0.02	0.02	0.02	0.02	0.00	0%
SOUTH	0.33	0.30	0.28	0.25	0.28	0.01	3%
AR	0.09	0.05	0.05	0.05	0.05	0.00	0%
MO	0.06	0.06	0.05	0.05	0.05	0.00	0%
OK	0.00	0.00	0.00	0.00	0.00	0.00	0%
TX	0.11	0.10	0.10	0.10	0.10	0.00	0%
WEST	0.18	0.17	0.16	0.15	0.16	0.00	0%

Resulting Design Values (ppb)	
Base Case 5.14	79.4
Base Case 5.15	78.9
$500/ton	78.8
$1,300/ton	78.7
Proposed Budget	78.7