

Appendix B

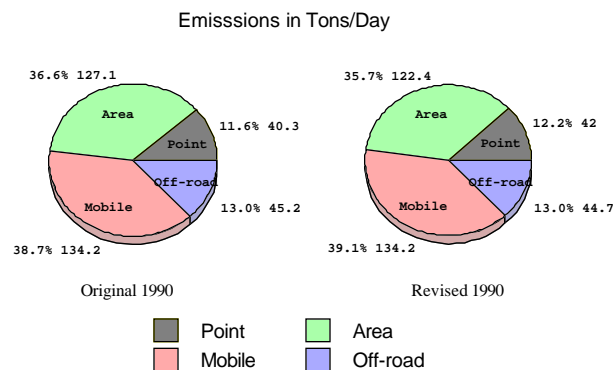
Modifications to the 1990 Base Year Ozone Precursor Inventory

The 1990 Base Year Inventory used in this *Post 1996 RPP* has been modified from the 1990 Base Year Inventory presented in *The 1990 Base Year Inventory for Precursors of Ozone for the State of Maryland*, Maryland Department of the Environment, September 30, 1993. Figures B-1 & B-2 show the overall change in emissions from each source category for VOCs and NOx in the Baltimore Nonattainment Area. These changes are explained in the following sections. The modifications are very important to SIP strategies because they impact air emission reduction calculations, emission target levels, and environmental policy.

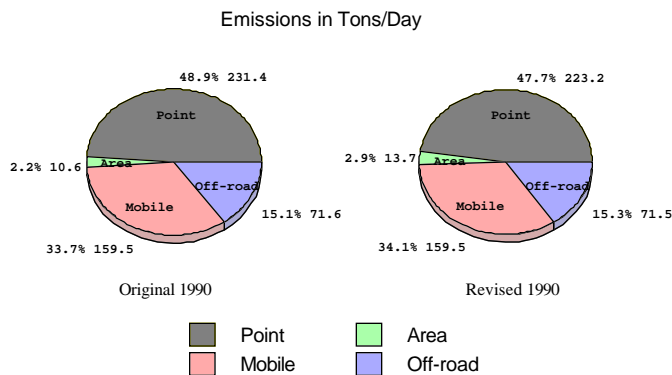
1.0 Point Sources

The Baltimore Nonattainment Area point source changes occurred from changes in emission factors, available stack test data, policy changes, missing sources, or clerical errors. Point source emissions from 1990 did not change in Cecil County. A retrieval of 1990 air emissions from the Aerometric Information Retrieval System (AIRS) was performed in July 1996. These emissions were compared to the information presented in Table 2-3 Point Source Emissions by Category for the Baltimore Nonattainment Area of *The 1990 Base Year Ozone Emission Inventory* document. Each modified facility is listed with its original 1990 emissions, modified 1990 emissions, amount of change, and reason for change. This list appears in Table B-1 at the end of this appendix.

Baltimore's 1990 VOC Inventory



Baltimore's 1990 NOx Inventory



2.0 Area Sources

Area source changes occurred from emission calculation corrections from the fuel fired combustion sources. Changes were made to the Baltimore Nonattainment Area VOC and NOx area source emissions (see Tables B-2 and B-3 at the end of the appendix). Also, corrections were made to the VOC and NOx area source emissions from Cecil County (see Tables B-4 and B-5 at the end of the appendix).

In the document *The 1990 Base Year Ozone Emission Inventory*, the coal combustion category on page 3-99 used equations with an activity level of 365 days per year. These equations should have been corrected to use an activity level of 183 ozone days per year. The total area source VOC emissions for the Baltimore Nonattainment Area were 127.1 tons/day as listed in Table 3-5 of *The 1990 Base Year Ozone Emission Inventory*. The revised area source VOC emissions total is 122.4 tons/day. Errors in rounding accounted for other minor changes. For the Baltimore Nonattainment Area NOx inventory, the area sources accounted for 10.61 tons/day as seen in Table 3-4. In this table, the NOx natural gas combustion category contained a reporting error. The document reported no NOx emissions from natural gas sources. NOx emissions should have been calculated by the same methodology on pages 3-102 and 3-103. The natural gas emissions, along with rounding corrections, gives an additional 3.1 tons/day of NOx emissions to the Baltimore Nonattainment Area. The revised NOx area source total is 13.7 tons/day.

In Cecil county, area source VOC emissions changed in the same manner as the Baltimore Nonattainment Area. Coal combustion calculations were changed to incorporate the activity level correction from 365 days per year to 183 ozone days per year. The original area source VOC emissions total from Table 3-9 of *The 1990 Base Year Ozone Emission Inventory* was 9.2 tons per day. The corrections decreased the coal combustion category by 0.52 tons per day. The revised area source VOC emissions total is 8.7 tons per day. The Cecil county area source NOx emissions changed in the same manner as the area source NOx emissions in the Baltimore Nonattainment Area. Coal combustion calculations were corrected to reflect the change in activity level; and, as in the Baltimore Nonattainment Area, NOx natural gas emissions were omitted from the totals in Table 3-12 of *The 1990 Base Year Ozone Emission Inventory*. Also, the NOx emission stationary (area) source totals in Table 3-12 were added incorrectly. The total was 1.67 tons per day. The corrections made to the NOx natural gas and coal combustion categories add 0.13 tons per day to the area source NOx emissions total 1.67 tons per day. The revised area source NOx emissions total for Cecil County is 1.8 tons per day.

Sample Calculations:

Baltimore County VOC Emissions for Coal Combustion:

$$\begin{array}{l} \text{Residential} \quad \frac{10 \text{ lbs. VOC}}{2000 \text{ lbs.}} * \frac{1 \text{ Ton}}{\text{Season}} * \frac{174 \text{ Tons of Coal}}{183 \text{ Days}} * \frac{1 \text{ Season}}{1} \\ \text{Tons of Coal} \end{array}$$

$$\text{Residential Coal} = 0.00475 \text{ tons VOC/day}$$

$$\text{Industrial} \quad \frac{14 \text{ lbs. VOC}}{1} * \frac{1 \text{ Ton}}{1} * \frac{171 \text{ Tons of Coal}}{1} * \frac{1 \text{ Season}}{1}$$

Tons of Coal 2000 lbs. Season 312 Days

Industrial Coal = 0.00384 tons VOC/day

Commercial $\frac{14 \text{ lbs. VOC}}{2000 \text{ lbs.}}$ * $\frac{1 \text{ Ton}}{\text{Season}}$ * $\frac{0.9 \text{ Tons of Coal}}{312 \text{ Days}}$ * $\frac{1 \text{ Season}}{312 \text{ Days}}$

Commercial Coal = 0.00002 tons VOC/day

VOC Coal Combustion = Residential + Industrial + Commercial = 0.00475 + 0.00384 + 0.00002
VOC Coal Combustion = 0.009 tons/day

Baltimore County NOx Emissions for Natural Gas Combustion:

Residential $\frac{100 \text{ lbs. NOx}}{\text{mft}^3}$ * $\frac{12241 \text{ mft}^3 \text{ burned}}{\text{year}}$ * $\frac{1 \text{ Ton}}{2000 \text{ lbs.}}$ * $\frac{\text{year}}{365 \text{ days}}$

Residential = 1.677 tons/day

Commercial $\frac{100 \text{ lbs. NOx}}{\text{mft}^3}$ * $\frac{2314 \text{ mft}^3 \text{ burned}}{\text{year}}$ * $\frac{1 \text{ Ton}}{2000 \text{ lbs.}}$ * $\frac{\text{year}}{365 \text{ days}}$

Commercial = 0.317 tons/day

NOx Natural Gas Combustion = Residential + Commercial = 1.677 + 0.317

NOx Natural Gas Combustion = 1.994 tons/day

3.0 Nonroad Mobile Sources

Nonroad mobile source changes occurred during a review of the Energy & Environmental Analysis, Inc. (EEA) Nonroad Engines Inventory for the Baltimore Metropolitan Statistical Area, and the nonroad categories listed in *The 1990 Base Year Ozone Emission Inventory*. Nonroad emissions were calculated on a spreadsheet by EEA; and adjusted for gasoline volatility (RVP 8.2) and a week-day/weekend adjustment for pleasure boats and lawn & garden equipment. Missing from Tables 3-2, 3-4, 3-10, and 3-12 of *The 1990 Base Year Ozone Emission Inventory* was the light commercial equipment category. After examining the EEA nonroad inventory, light commercial equipment emissions were separated from the industrial equipment category. For example, the industrial equipment VOC emissions for the Baltimore Nonattainment Area had 5.56 tons/day removed from the category in *The 1990 Base Year Ozone Emission Inventory*. Of the 5.56 tons/day, the EEA nonroad inventory showed that 3.8 tons/day should have been reported in the light commercial equipment category. The other 1.76 tons/day should have been added into the construction equipment category. The same example can be used for Baltimore's nonroad NOx emissions. Other rounding errors were corrected to match the EEA nonroad inventory. Tables B-6 and B-7 at the end of this appendix show the modifications made to the Baltimore Nonattainment Area and Cecil County Emissions Inventory, respectively.

4.0 Mobile Sources

Mobile sources were reviewed and found to have no change in VOC or NO_x emissions for the Baltimore Nonattainment Area and Cecil County.

**Table B-1
Changes Made to the 1990 Point Source Inventory**

Premise Company	Original		Modified		Change		Reason
	VOC	NOx	VOC	NOx	VOC	NOx	
20014 Balto. Gas & Elec. - Wagner Station	0.215	44.311	0.215	60.207	0.000	15.897	Stack test
20015 Cox Creek Refining Company	xx	0.266	xx	0.178	xx	-0.088	Calculation change
20046 Rainbow Cleaners & Uniform Rental	0.039	xx	0.055	xx	0.017	xx	New emission factor
20056 Chemetals	0.319	0.605	xx	0.653	-0.319	0.049	Eliminated old equipment
20234 Crown Central Petroleum - Terminal	0.695	xx	0.792	xx	0.098	xx	Greater temperature & throughput
20247 Westinghouse Electric - ATL	xx	xx	0.062	xx	0.062	xx	Identified new source
20250 Westinghouse Electric - Friendship	0.153	xx	0.157	xx	0.004	xx	Rounding error
20269 DC Children's Center	xx	0.280	xx	0.333	xx	0.054	Registered new boiler
20274 Quebecor Printing (USA)	4.270	xx	2.837	xx	-1.433	xx	Solvent emission factor change
20309 Amoco Terminal - Curtis Bay	0.837	xx	1.138	xx	0.302	xx	Greater temperature & throughput
20310 U.S. Naval Academy - South Severn	xx	0.042	0.054	0.179	0.054	0.137	Registered new boiler
20317 National Security Agency	xx	0.167	xx	1.897	xx	1.730	Registered new boiler
20322 Fort George Meade	0.122	0.061	0.209	0.132	0.088	0.072	Registered new boiler
20468 Balto. Gas & Elec. - Brandon Shores	0.351	67.637	0.177	33.979	-0.174	-33.658	Match OTC Inventory (Boiler off-line issue)
30076 Balto. Gas & Elec. - Notchcliff	xx	1.624	xx	1.633	xx	0.010	Rounding error
30079 Balto. Gas & Elec. - Crane	0.091	43.003	0.091	43.019	0.000	0.017	Stack test
30126 Eastern Stainless Steel Corporation	xx	0.247	xx	0.270	xx	0.023	Stack test
30127 Cleaners Hanger	0.086	xx	0.112	xx	0.026	xx	New emission factor
30129 Heileman Breweries	0.064	xx	0.269	xx	0.205	xx	Emission factor change
30146 Segram, Joseph E., Inc.	xx	xx	0.693	xx	0.693	xx	Identified new source
30147 Bethlehem Steel	1.637	27.375	1.673	27.946	0.036	0.571	Calculation change
30183 U S Can - Sparrows Point	1.654	xx	0.805	xx	-0.849	xx	Incorrect emis. doc. of eqpt. #6-0923
30184 Noxell Corporation	0.035	0.028	0.035	xx	0.001	-0.028	Rounding error
30222 Martin Marietta - Aero & Naval Sys.	0.233	xx	0.241	xx	0.009	xx	Rounding error
30236 Schmidt Baking	0.234	xx	0.876	xx	0.643	xx	Calc. based on same EF as 1992
30240 Thomas Manufacturing	0.614	xx	0.128	xx	-0.486	xx	Emission factor change
30310 Ekco-Glaco Ltd.	0.164	xx	0.133	xx	-0.031	xx	Calculation error
30332 Bethlehem Steel Shipyard	0.236	xx	0.719	xx	0.484	xx	Emission factor change
30487 Maryland Paper Box Company	0.065	xx	0.061	xx	-0.004	xx	Rounding error
30812 Back River Waste Water Treatment	0.314	xx	0.150	xx	-0.164	xx	Stack test
30979 American Yeast	0.096	xx	0.198	xx	0.103	xx	Calculation error
31094 Athens Cleaners - Taylor Avenue	0.022	xx	0.035	xx	0.014	xx	New emission factor
31873 McCormick & Co. - 10820 Gilroy Road	xx	xx	0.040	xx	0.040	xx	Identified new source
32209 Parkville Custom Cleaners	xx	xx	0.044	xx	0.044	xx	Identified new source
60012 Lehigh Portland Cement	xx	2.878	xx	8.520	xx	5.643	New EF dev. for cement kilns
60056 Colonial Pipeline Company	0.500	xx	0.441	xx	-0.059	xx	Greater temperature & throughput

Premise Company	Original		Modified		Change		Reason
	VOC	NOx	VOC	NOx	VOC	NOx	
60102 Miller Asphalt Products	0.036	0.153	0.035	0.118	-0.001	-0.035	Rounding error
120016 Kroh's Cleaners	xx	xx	0.039	xx	0.039	xx	Identified new source
120076 Colonial Pipeline Company	0.070	xx	0.062	xx	-0.008	xx	Greater temperature & throughput
120081 Aberdeen Proving Ground	0.082	0.283	0.105	0.355	0.024	0.073	Registered new boiler
120082 Edgewood Area	xx	0.355	0.045	0.469	0.045	0.115	Registered new boiler
120145 Cello Chemical - Havre De Grace	xx	xx	0.195	xx	0.195	xx	Identified new source
120212 Waste Energy Partners	xx	0.762	xx	0.479	xx	-0.283	Stack test
130005 Simkins Industries	xx	0.072	xx	0.075	xx	0.003	Rounding error
130172 Alcore	0.062	xx	0.062	xx	0.001	xx	Rounding error
130223 Transcontinental Gas Pipe Line	0.129	6.794	0.282	6.982	0.154	0.188	Greater temperature & throughput
240001 Johns Hopkins Hospital	xx	0.429	xx	0.440	xx	0.012	Registered new boiler
240006 Balto. Gas & Elec. - Westport	0.044	4.878	0.045	5.998	0.001	1.121	Stack test
240063 Exxon - USA Terminal	0.728	xx	0.891	xx	0.164	xx	Greater temperature & throughput
240069 Wimpey Minerals USA - Monroe Street	0.097	xx	0.072	xx	-0.025	0.000	New emission factor
240071 GAF Building Products	0.021	xx	xx	xx	-0.021	0.000	New emission factor
240072 Chevron USA Asphalt Company	0.088	0.506	0.087	0.335	-0.001	-0.171	New emission factor
240073 FMC Corp. Organic Chemicals Division	4.113	0.685	4.184	0.685	0.072	0.001	Stack test
240100 Vista Chemical Company	1.499	0.471	2.028	0.471	0.529	0.001	Stack test
240119 Star Enterprises - Texaco Terminal	0.240	xx	0.181	xx	-0.059	xx	Vent #D-201 found to be 1150 lbs./day
240166 Nield Cleaners	0.036	xx	0.048	xx	0.013	xx	Greater temperature & throughput
240171 Flanigan, P. & Sons, Inc.	0.133	0.283	0.067	xx	-0.066	-0.283	New emission factor
240188 Chesapeake Paperboard Company	xx	0.160	xx	0.597	xx	0.437	Old equipment should have been deleted
240233 National Gypsum	xx	0.135	xx	0.137	xx	0.003	Calculation error
240286 Sherwin-Williams Company	0.376	xx	0.368	xx	-0.008	xx	Rounding error
240301 H & S Bakery	0.187	xx	0.145	xx	-0.042	xx	Rounding error
240305 Valspar Corporation	0.102	xx	0.070	xx	-0.032	xx	Calculation based on same EF as 1992
240309 DOVCO Industrial Fabricators	0.052	xx	xx	xx	-0.052	xx	Calculation error
240314 Domino Sugar	xx	0.996	xx	0.879	xx	-0.117	Stack test
240321 Crown Beverage Packaging	0.767	xx	0.452	xx	-0.315	xx	Change in throughput
240340 Baltimore Specialty Steels	xx	0.718	xx	0.722	xx	0.004	Rounding error
240354 General Motors Truck & Bus Group	3.944	0.245	3.680	0.655	-0.264	0.410	Stack test
240565 Patapsco Waste Water Treatment Plant	0.105	0.214	0.100	0.220	-0.005	0.007	Stack test
240582 Hauswald Bakery/Div of Schmidt's	0.126	xx	0.106	xx	-0.020	xx	Stack test
240651 Baltimore Thermal - N. Central Ave.	xx	0.054	xx	0.162	xx	0.108	Calculation based on same EF as 1992
240676 Conoco-Sun Gasoline Terminal	0.648	xx	1.487	xx	0.840	xx	Stack test
240677 Chevron Oil Terminal	0.283	xx	0.312	xx	0.029	xx	Greater temperature & throughput
240678 Mobile Oil Terminal	0.397	xx	0.513	xx	0.117	xx	Greater temperature & throughput
240703 BP Terminal	0.410	xx	0.755	xx	0.346	xx	Greater temperature & throughput

Premise	Company	Original		Modified		Change		Reason
		VOC	NOx	VOC	NOx	VOC	NOx	
240710	Parker Metal Decorating Company	0.231	xx	0.170	xx	-0.061	xx	Change in throughput
240728	Shell Oil Terminal	0.520	xx	0.759	xx	0.240	xx	Greater temperature & throughput
240730	Dreyfus, Louis Energy Corp.	0.107	xx	0.126	xx	0.020	xx	Greater temperature & throughput
240754	Fleischmann's Vinegar	0.212	xx	0.097	xx	-0.115	xx	Calculation error
240765	Mercury Cleaners & Laundry	xx	xx	0.034	xx	0.034	xx	Identified new source
240778	LB Cleaners - 3710 East Baltimore St.	xx	xx	0.043	xx	0.043	xx	Identified new source
240918	Amerada Hess Terminal	0.431	xx	0.479	xx	0.048	xx	Greater temperature & throughput
241158	Key, Francis Scott Medical Center	xx	0.129	xx	0.242	xx	0.113	Registered new boiler
241203	Metro Lexington Cleaners	xx	xx	0.041	xx	0.041	xx	Identified new source
241322	Crispy Baking	0.055	xx	0.103	xx	0.049	xx	Calculation based on same EF as 1992
241400	Automatic Rolls	0.115	xx	0.160	xx	0.045	xx	Calculation based on same EF as 1992
241491	Lee & Eds Cleaners	xx	xx	0.033	xx	0.033	xx	Identified new source
241495	Leatherite Cleaners & Dyers	0.057	xx	0.072	xx	0.016	xx	Calculation error
241497	American Cleaners	0.038	xx	0.064	xx	0.026	xx	Calculation error
241499	Abbot, J.J. Incorporated	0.062	xx	0.053	xx	-0.009	xx	Rounding error
241590	Westside Cleaners	xx	xx	0.035	xx	0.035	xx	Identified new source
241923	Petroleum Fuel & Terminal Comapany	0.168	xx	0.142	xx	-0.026	xx	Greater temperature & throughput
241986	Tnrec Company	0.040	xx	0.073	xx	0.034	xx	Company's EFs higher than MDE's
242010	Schroedl Custom Cleaners	0.115	xx	0.058	xx	-0.057	xx	MDE discrepancy
242796	Thermal Resources - Spring Gardens	xx	0.492	xx	0.482	xx	-0.010	Stack test
242871	Dext Company	xx	xx	0.254	xx	0.254	xx	Identified new source
242975	Medical Waste Associates	xx	0.300	xx	xx	xx	-0.300	Stack test
Totals		29.954	207.630	31.652	199.449	1.698	-8.181	

Table B-2
Area Source VOC Emissions
Baltimore Nonattainment Area

Category	Original	Modified	Change	Reason
Fuel Oil Combustion	0.05	0.07	+0.02	Rounding
Coal Combustion	4.81	0.05	-4.76	Changed activity days to ozone season - 183 days
Total	4.86	0.12	-4.74	

Table B-3
Area Source NOx Emissions
Baltimore Nonattainment Area

Category	Original	Modified	Change	Reason
Coal Combustion	4.89	4.81	-0.08	Changed activity days to ozone season - 183 days
Natural Gas	0.00	3.20	+3.20	NOx emissions not listed in original document
Total	4.89	8.01	+3.12	

Table B-4
Area Source VOC Emissions
Cecil County

Category	Original	Modified	Change	Reason
Coal Combustion	0.53	0.01	-0.52	Changed activity days to ozone season - 183 days
Total	0.53	0.01	-0.52	

Table B-5
Area Source NOx Emissions
Cecil County

Category	Original	Modified	Change	Reason
Coal Combustion	0.54	0.53	-0.01	Changed activity days to ozone season - 183 days
Natural Gas	0.00	0.14	+0.14	NOx emissions not listed in original document
Total	0.54	0.67	+0.13	

Table B-6
Nonroad Mobile Source VOC Emissions

Nonroad Mobile Source Category	1990 Baltimore N.A.A.		1990 Cecil County	
	Original	Modified	Original	Modified
Recreational Equipment	0.86	0.86	0.21	0.24
Construction Equipment	3.72	5.48	0.07	0.12
Industrial Equipment	7.40	1.77	0.09	0.05
Light Commercial Equipment	***	3.80	***	0.12
Lawn & Garden Equipment	17.99	17.68	0.64	0.68
Farm Equipment	1.73	1.72	0.23	0.24
Logging Equipment	0.34	0.33	0.02	0.02
Aircraft Support Equipment	0.88	0.88	0.00	0.00
Commercial Aviation	0.49	0.49	0.00	0.00
General Aviation	0.14	0.14	0.00	0.00
Air Taxis	0.08	0.08	0.00	0.00
Military Aviation	2.81	2.81	0.00	0.00
Vessels	0.41	0.41	0.00	0.00
Pleasure Boats	7.82	7.71	0.74	0.55
Railroads	0.49	0.49	0.02	0.02
Total	45.16	44.65	2.02	2.04

Table B-6
Nonroad Mobile Source NOx Emissions

Nonroad Mobile Source Category	1990 Baltimore N.A.A.		1990 Cecil County	
	Original	Modified	Original	Modified
Recreational Equipment	0.00	0.00	0.00	0.00
Construction Equipment	28.83	37.04	0.64	0.81
Industrial Equipment	12.41	3.68	0.26	0.08
Light Commercial Equipment	***	0.51	***	0.07
Lawn & Garden Equipment	0.30	0.29	0.00	0.04
Farm Equipment	7.86	7.87	1.00	1.00
Logging Equipment	0.00	0.00	0.00	0.00
Aircraft Support Equipment	5.39	5.38	0.00	0.00
Commercial Aviation	1.44	1.44	0.00	0.00
General Aviation	0.01	0.01	0.00	0.00
Air Taxis	0.01	0.01	0.00	0.00
Military Aviation	0.98	0.98	0.00	0.00
Vessels	2.78	2.78	0.00	0.00
Pleasure Boats	0.92	0.92	0.08	0.12
Railroads	10.65	10.58	0.52	0.52
Total	71.58	71.49	2.5	2.64

Baltimore Area Highway Vehicle Phase-I ROP Inventories

7/2/197

Milestone Year : 1999

Scenario Number Emissions Type	1990		1999		1999		1999		1999		1999	
	Baseline	Adjusted B/L	Uncntrl	Pre-Tier1	Tier1	Reform	IM240	Refueling	1999	1999	1999	1999
Stab/AvgExh VOC	54.6	36.1	65.4	43.7	42.1	37.5	27.3	27.3	27.3	27.3	27.3	27.2
ColdExh VOC	17.3	16.2	22.9	20.1	18.2	16.3	12.7	12.7	12.7	12.7	12.7	12.5
HotExh VOC	4.4	3.3	5.8	4.4	4.2	3.7	2.7	2.7	2.7	2.7	2.7	2.7
SubTotal Exhaust VOC	76.3	55.6	94.1	68.2	64.5	57.5	42.7	42.7	42.7	42.7	42.7	42.4
SubTotal Evap VOC	71.0	47.2	73.0	46.1	42.9	37.4	19.1	19.1	19.1	19.1	19.1	19.1
Total VOC	147.3	102.8	167.1	114.3	107.4	94.9	61.8	61.8	61.8	61.8	61.8	61.5
Refueling VOC	13.1	12.5	13.1	12.1	12.1	11.4	11.4	11.4	11.4	11.4	11.4	3.3
Total NonRefueling VOC	134.2	90.3	154.0	102.2	95.3	83.5	61.8	61.8	61.8	61.8	61.8	61.5
Stab/AvgExh NOx	149.4	112.5	171.5	129.7	116.1	117.7	102.1	102.1	102.1	102.1	102.1	101.7
ColdExh NOx	9.4	8.4	11.8	10.5	8.1	8.1	6.9	6.9	6.9	6.9	6.9	6.9
HotExh NOx	3.7	2.8	5.1	3.9	3.2	2.9	2.5	2.5	2.5	2.5	2.5	2.5
TotalExh NOx	159.5	123.7	188.4	144.1	127.4	128.7	111.5	111.5	111.5	111.5	111.5	111.1
NRefVOC Benefit		43.9		51.8	6.9	11.8	21.7	-0.0	-0.0	-0.0	-0.0	0.3
RefVOC Benefit		0.6		1.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
NOx Benefit		35.8		44.3	16.7	-1.3	17.2	0.0	0.0	0.0	0.0	0.4

Note: A) Baseline and Adjusted Baseline Inventories

Scenario #1 is the 1990 Summertime Baseline Link/Trip based Emission Inventory for VOC and NOx.

Scenario #2 is the 1990 Adjusted Baseline Inventory in 1999. Emission benefits under in this column are non-creditable. These emission reductions are due to the Federal MVCP & RVP Phase II Control Programs.

Scenario #3 is the 1999 Projected Inventory with 1990 baseline controls - computed for comparative purposes only.

Scenario #4 is Scenario #3 plus 1992 Phase II RVP Controls modeled with all the requirements of CAAA 1990 disabled. These Pre-Tier1 emissions estimates are used as a bench mark in the computation of individual control program benefits.

B) 1999 Projected Inventories - Control after Control - Creditable Emissions Benefits

Scenario #5 is Scenario #4 plus CAAA 1990 requirements enabled to compute Tier1 benefits.

Scenario #6 is Scenario #5 plus Reformulated gasoline (RFG) modeled to compute RFG benefits.

Scenario #7 is Scenario #6 plus Enhanced I & M Program (IM240) modeled to compute I & M benefits.

Scenario #8 is Scenario #7 plus Refueling Programs (Stage II + OBVR) modeled to compute Refueling benefits, and

Scenario #9 is Scenario #8 plus Low Emission Vehicle Program (LEV) modeled to compute LEV benefits.

Projected inventory for 1999 uses TIP-98 Link/Trip data supplied by BMC.

Baltimore Area Highway Vehicle Phase-I ROP Inventories

7/21/97

Milestone Years : 2002 and 2005

Scenario Number Emissions Type	Emissions Basis	1 1990 Baseline		2 2002 Adjusted B/L		3 2002 Uncntrld Full Cntrls		4 2002 Adjustd B/L Full Cntrls		5 2005 Uncntrld Full Cntrls		6 2005 Uncntrld Full Cntrls		7 2005 Uncntrld Full Cntrls			
		54.6	17.3	4.4	34.5	16.2	3.3	69.4	23.0	10.0	2.0	70.7	20.3	23.4	9.2	6.1	1.9
Stab/AvgExh VOC	VMT																
ColdExh VOC	VMT																
HotExh VOC	VMT																
SubTotal Exhaust VOC	VMT	76.3			54.0		97.5	35.0	53.3		100.2	31.4					
SubTotal Evap VOC	Event	71.0			45.3		83.2	16.6	44.8		76.5	12.6					
Total VOC	Event+VMT	147.3			99.3		180.7	51.6	98.1		176.7	44.0					
Refueling VOC	Event	13.1			12.5		12.6	1.6	12.5		12.4	1.5					
Total NonRefueling VOC	Event+VMT	134.2			86.8		168.1	50.0	85.6		164.3	42.5					
Stab/AvgExh NOx	VMT	146.4			110.1		185.9	97.9	109.8		182.3	87.8					
ColdExh NOx	VMT	9.4			8.1		12.3	5.8	8.0		12.4	5.3					
HotExh NOx	VMT	3.7			2.7		4.8	1.9	2.6		5.4	1.8					
TotalExh NOx	VMT	159.5			120.9		203.0	105.6	120.4		200.1	94.9					
NRefVOC Benefit	Event				47.4			118.1	48.6			121.8					
RefVOC Benefit	Event				0.6			11.0	0.6			10.9					
NOx Benefit	VMT				38.6			97.4	39.1			105.2					

Note:

1990 Baseline, 1990 Adjusted Baseline and Projected Inventories in 2002 & 2005

Scenario #1 is the 1990 Summertime Baseline Link/Trip based Emission Inventory for VOC and NOx.

Scenario #2 is the 1990 Adjusted Baseline Inventory in 2002. Emission benefits under in this column are non-creditable. These emission reductions are due to the Federal MVCP & RVP Phase II Control Programs.

Scenario #3 is the 2002 Projected Inventory with 1990 baseline controls - computed for comparative purposes only.

Scenario #4 is Scenario #3 modeled with all controls in place to compute Total benefits in 2002.

Scenario #5 is the 1990 Adjusted Baseline Inventory in 2005. Emission benefits under in this column are non-creditable. These emission reductions are due to the Federal MVCP & RVP Phase II Control Programs.

Scenario #6 is the 2005 Projected Inventory with 1990 baseline controls - computed for comparative purposes only.

Scenario #7 is Scenario #6 modeled with all controls in place to compute Total benefits in 2005.

Projected inventory for 2002 - all numbers extracted from the 1994 analyses for lack of Link/Trip data from BMC.

Projected inventory for 2005 uses TIP-98 Link/Trip data supplied by BMC.

1999 Cecil County Highway Vehicle RFP Inventories and R.O.P Analysis

11/11/94

Emissions Type	Emiss Basis	1990 Baseline	Adj 1990 B/L in 99	1999 UnCntrlId	1999 Tier 0	1999 T0&92Rvp+	1999 Tier 1	1999 Reform	1999 IM240	1999 Stage II	1999 Obvr+Lev
Stab/AvgExh HC	VMT	4.1	2.6	4.2	2.7	2.7	2.6	2.4	1.5	1.8	1.5
ColdExh HC	VMT										
HotExh HC	VMT										
TotalExh HC	VMT	4.1	2.6	4.2	2.7	2.7	2.6	2.4	1.5	1.5	1.5
D/HS/Cc HC	VMT	2.2	1.1	2.3	1.3	1.0	1.0	0.9	0.7	0.7	0.7
Refueling HC	VMT	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.2	0.1
Running HC	VMT	0.6	0.5	0.6	0.6	0.4	0.4	0.3	0.2	0.2	0.2
Resting HC	VMT	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Total Evap HC	VMT	3.7	2.3	3.8	2.6	2.2	2.1	1.9	1.5	1.2	1.1
Exh+NonRef HC	VMT	7.2	4.4	7.4	4.7	4.4	4.2	3.8	2.5	2.5	2.5
Hot Soak HC	Event										
WgtdSingle Diur	Event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mult Diurnal	Event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WgtdTotal Diur	Event	0.6	0.3	0.8	0.5	0.4	0.4	0.3	0.2	0.2	0.2
Crankcase HC	VMT	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Refueling HC	Event	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.2	0.1
Resting HC	Event	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
D/HS/Cc HC	Event										
Exh+NonRef HC	Event										
Stab/AvgExh CO	VMT	68.7	35.5	71.6	37.2	37.0	36.8	29.8	19.0	19.0	18.9
ColdExh CO	VMT										
HotExh CO	VMT										
TotalExh CO	VMT	68.7	35.5	71.6	37.2	37.0	36.8	29.8	19.0	19.0	18.9
Stab/AvgExh NOx	VMT	9.3	7.3	9.7	7.5	8.7	6.8	6.9	5.7	5.7	5.7
ColdExh NOx	VMT										
HotExh NOx	VMT										
TotalExh NOx	VMT	9.3	7.3	9.7	7.5	7.5	6.8	6.9	5.7	5.7	5.7
INReVOC Benefit	Event	n/a	2.8	n/a	2.7	0.3	0.2	0.4	1.3	0.0	0.0
ReVOC Benefit	Event	n/a	0.1	n/a	0.0	0.1	0.0	0.0	0.0	0.3	0.1
CO Benefit	VMT	n/a	33.2	n/a	34.4	0.2	0.2	7.0	10.8	0.0	0.1
NOx Benefit	VMT	n/a	2.0	n/a	2.2	0.0	0.7	-0.1	1.2	0.0	0.0

R.O.P Analysis for VOC	1996	1999
Adjusted 1990 B/L	4.9	4.4
Mandated Reductions - MR	0.7	0.4
Fleet Turnover - FT	2.3	0.5
Target Level - TL	4.2	3.3
Projected Emissions	3.0	2.5
On-Road Surplus VOC	1.2	0.8

- Note:
- 1) Emission units: Tons/Summer Weekday.
 - 2) MR: 15% in 1996 and 9% in 1999.
 - 3) TL_96 = 90 B/L in 96 - 15% MR.
 - 4) TL_99 = TL_96 - 9% MR - FT bet. 1996 and 1999.

2002 Cecil County Highway Vehicle RFP Inventories and R.O.P Analysis

11/11/94

Emissions Type	1990		Adj 1990		2002		2002		2002		2002		2002		2002	
	Baseline	B/L in 02	4.1	2.5	4.3	Tier 0	Tier 1	Reform	IM240	Stage II	Obvr+Lev					
Stab/AvgExh HC	4.1	2.5	4.3	2.6	2.6	2.6	2.5	2.0	1.2	1.2	1.2	2.0	1.2	1.2	1.2	1.2
ColdExh HC																
HotExh HC																
TotalExh HC	4.1	2.5	4.3	2.6	2.6	2.6	2.5	2.0	1.2	1.2	1.2	2.0	1.2	1.2	1.2	1.2
D/HS/Cc HC	2.2	1.0	2.3	1.1	1.0	1.0	0.8	0.7	0.4	0.4	0.4	0.5	0.2	0.2	0.2	0.2
Refueling HC	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Running HC	0.6	0.5	0.6	0.5	0.5	0.5	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Resting HC	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Evap HC	3.7	2.2	3.8	2.5	2.1	2.1	1.9	1.5	1.2	0.9	0.8	1.5	1.2	0.9	0.8	0.8
Exh+NonRef HC	7.2	4.2	7.5	4.5	4.2	4.2	3.9	3.0	1.9	1.9	1.9	3.0	1.9	1.9	1.9	1.9
Hot Soak HC																
Event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WgtdSingle Diur	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Event	0.6	0.3	0.9	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2
WgtdTotal Diur	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Event	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Refueling HC	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Event																
D/HS/Cc HC																
Event																
Exh+NonRef HC																
Event																

72.9	32.6	32.5	32.2	26.0	15.8	15.0
72.9	32.6	32.5	32.2	26.0	15.8	15.0
9.8	7.3	7.3	6.3	6.3	5.2	5.0
9.8	7.3	7.3	6.3	6.3	5.2	5.0
n/a	3.0	0.3	0.3	0.9	1.1	0.0
n/a	0.0	0.0	0.0	0.0	0.0	0.1
n/a	40.3	0.1	0.3	6.2	10.2	0.8
n/a	2.5	0.0	1.0	0.0	1.1	0.2

68.7	30.6	30.6	30.6	30.6	30.6	30.6
68.7	30.6	30.6	30.6	30.6	30.6	30.6
9.3	7.0	7.0	7.0	7.0	7.0	7.0
9.3	7.0	7.0	7.0	7.0	7.0	7.0
n/a	0.0	0.0	0.0	0.0	0.0	0.0
n/a	0.1	0.1	0.1	0.1	0.1	0.1
n/a	38.1	38.1	38.1	38.1	38.1	38.1
n/a	2.3	2.3	2.3	2.3	2.3	2.3

4.9	4.4	4.2
0.7	0.4	0.4
2.3	0.5	0.2
4.2	3.3	2.7
3.0	2.5	1.9
1.2	0.8	0.8

NR/VOC Benefit	Event
Re/VOC Benefit	Event
CO Benefit	VMT
NOx Benefit	VMT

NR/VOC Benefit	Event
Re/VOC Benefit	Event
CO Benefit	VMT
NOx Benefit	VMT

Adjusted 1990 B/L VOC	4.4
Mandated Reductions - MR	0.4
Fleet Turnover - FT	0.5
Target Level - TL	3.3
Projected Emissions	2.5
On-Road Surplus VOC	0.8

R.O.P Analysis for VOC	2002
Adjusted 1990 B/L VOC	4.4
Mandated Reductions - MR	0.4
Fleet Turnover - FT	0.5
Target Level - TL	3.3
Projected Emissions	2.5
On-Road Surplus VOC	0.8

R.O.P Analysis for VOC	2002
Adjusted 1990 B/L VOC	4.4
Mandated Reductions - MR	0.4
Fleet Turnover - FT	0.5
Target Level - TL	3.3
Projected Emissions	2.5
On-Road Surplus VOC	0.8

R.O.P Analysis for VOC	2002
Adjusted 1990 B/L VOC	4.4
Mandated Reductions - MR	0.4
Fleet Turnover - FT	0.5
Target Level - TL	3.3
Projected Emissions	2.5
On-Road Surplus VOC	0.8

R.O.P Analysis for VOC	2002
Adjusted 1990 B/L VOC	4.4
Mandated Reductions - MR	0.4
Fleet Turnover - FT	0.5
Target Level - TL	3.3
Projected Emissions	2.5
On-Road Surplus VOC	0.8

- Note:
- 1) Emission units: Tons/Summer Weekday.
 - 2) MR: 15% in 1996 and 9% in 1999 and 2002.
 - 3) TL_96 = 90 B/L in 96 - 15% MR.
 - 4) TL_99 = TL_96 - 9% MR - FT bet. 1996 and 1999.
 - 5) TL_02 = TL_99 - 9% MR - FT bet. 1999 and 2002.

2005 Cecil County Highway Vehic. RFP Inventories and R.O.P Analysis

1/11/94

Emissions Type	Emiss Basis	1990		2005		2005		2005		2005		2005		2005	
		Baseline	Adj 1990 B/L in 05	UnCntId	Tier 0	T0&92Rvp+	Tier 1	Reform	IM240	Stage II	Obvr+Lev				
Stab/AvgExh HC	VMT	4.1	2.4	4.3	2.6	2.6	2.4	1.9	1.1	1.1	1.1	1.1	1.1	1.0	
ColdExh HC	VMT														
HotExh HC	VMT														
TotalExh HC	VMT	4.1	2.4	4.3	2.6	2.6	2.4	1.9	1.1	1.1	1.1	1.1	1.0		
D/HS/Cc HC	VMT	2.2	0.9	2.3	1.1	0.9	0.8	0.6	0.4	0.4	0.4	0.4	0.4		
Refueling HC	VMT	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.1		
Running HC	VMT	0.6	0.5	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1		
Resting HC	VMT	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
Total Evap HC	VMT	3.7	2.2	3.9	2.5	2.1	1.7	1.4	1.1	0.8	0.8	0.8	0.6		
Exh+NonRef HC	VMT	7.2	4.1	7.6	4.5	4.2	3.6	2.8	1.7	1.7	1.7	1.7	1.5		
Hot Soak HC	Event														
WgtdSingle Diur	Event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Mult Diurnal	Event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
WgtdTotal Diur	Event	0.6	0.3	1.0	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2		
Crankcase HC	VMT	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Refueling HC	Event	0.5	0.4	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1		
Resting HC	Event	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
D/HS/Cc HC	Event														
Exh+NonRef HC	Event														

74.2	30.3	30.2	29.8	24.0	14.4	14.4	12.9
74.2	30.3	30.2	29.8	24.0	14.4	14.4	12.9
10.0	7.4	7.3	6.1	6.2	4.9	4.9	4.7
10.0	7.4	7.3	6.1	6.2	4.9	4.9	4.7
n/a	3.1	0.3	0.6	0.8	1.1	0.0	0.2
n/a	0.0	0.1	0.0	0.0	0.0	0.3	0.1
n/a	43.9	0.1	0.4	5.8	9.6	0.0	1.5
n/a	2.6	0.1	1.2	-0.1	1.3	0.0	0.2

68.7	28.0	28.0	28.0	28.0	28.0	28.0	28.0
68.7	28.0	28.0	28.0	28.0	28.0	28.0	28.0
9.3	6.9	6.9	6.9	6.9	6.9	6.9	6.9
9.3	6.9	6.9	6.9	6.9	6.9	6.9	6.9
n/a	0.0	0.0	0.0	0.0	0.0	0.0	0.0
n/a	0.1	0.1	0.1	0.1	0.1	0.1	0.1
n/a	40.7	40.7	40.7	40.7	40.7	40.7	40.7
n/a	2.4	2.4	2.4	2.4	2.4	2.4	2.4

1996	1999	2002	2005
4.9	4.4	4.2	4.1
0.7	0.4	0.4	0.4
2.3	0.5	0.2	0.1
4.2	3.3	2.7	2.2
3.0	2.5	1.9	1.5
1.2	0.8	0.8	0.7

NRRefVOC Benefit	Event
ReVOC Benefit	Event
CO Benefit	VMT
NOx Benefit	VMT

Stab/AvgExh NOx	VMT
ColdExh NOx	VMT
HotExh NOx	VMT
TotalExh NOx	VMT

Stab/AvgExh NOx	VMT
ColdExh NOx	VMT
HotExh NOx	VMT
TotalExh NOx	VMT

R.O.P Analysis for VOC
Adjusted 1990 B/L VOC
Mandated Reductions - MR
Fleet Turnover - FT
Target Level - TL
Projected Emissions
On-Road Surplus VOC

NRRefVOC Benefit	Event
ReVOC Benefit	Event
CO Benefit	VMT
NOx Benefit	VMT

NRRefVOC Benefit	Event
ReVOC Benefit	Event
CO Benefit	VMT
NOx Benefit	VMT

R.O.P Analysis for VOC
Adjusted 1990 B/L VOC
Mandated Reductions - MR
Fleet Turnover - FT
Target Level - TL
Projected Emissions
On-Road Surplus VOC

- Note:
- 1) Emission units: Tons/Summer Weekday.
 - 2) MR: 15% in 1996 and 9% in 1999, 2002 and 2005.
 - 3) TL_96 = 90 B/L in 96 - 15% MR.
 - 4) TL_99 = TL_96 - 9% MR - FT bet. 1996 and 1999.
 - 5) TL_02 = TL_99 - 9% MR - FT bet. 1999 and 2002.
 - 6) TL_05 = TL_02 - 9% MR - FT bet. 2002 and 2005.

Point Source Inventory

PREMISE NUMBER	SOURCES	1990 VOC	1999 VOC	1990 NOx	1999 NOx
	PETRO.PRODUCT HANDLING	8.237	9.800	0.000	0.000
20234	Crown Central Petroleum	0.792	0.943	0.000	0.000
20309	Amoco Terminal - Curtis Bay	1.138	1.354	0.000	0.000
31816	Clark Oil Co.	0.128	0.152	0.000	0.000
60056	Colonial Pipeline Co.	0.441	0.525	0.000	0.000
120076	Colonial Pipeline Co.	0.062	0.073	0.000	0.000
240063	Exxon Co. - USA Terminal	0.891	1.060	0.000	0.000
240119	Star Enterprises - TEXACO Terminal	0.181	0.215	0.000	0.000
240676	CONOCO - SUN Gasoline Terminal	1.487	1.770	0.000	0.000
240677	Chevron Oil Terminal	0.312	0.371	0.000	0.000
240678	Mobil Oil Terminal	0.513	0.611	0.000	0.000
240703	B.P. Oil Terminal	0.755	0.899	0.000	0.000
240728	Shell Oil Terminal	0.759	0.903	0.000	0.000
240730	Louis Dreyfus Energy Corp.	0.126	0.149	0.000	0.000
240918	Amerada Hess Corporation	0.479	0.570	0.000	0.000
241923	Petroleum Fuel & Terminal Co.	0.142	0.169	0.000	0.000
242091	ST Services, Inc.	0.031	0.036	0.000	0.000
	INDUSTRIAL PROCESSES	18.494	20.556	43.823	46.740
20015	Cox Creek Refining Co.	0.000	0.000	0.178	0.209
20021	Nevamar Corporation	0.798	0.844	0.127	0.129
20056	Chemetals	0.000	0.000	0.653	0.708
20118	Wm. T. Burnette Co.	0.107	0.126	0.000	0.000
20247	Westinghouse Electric - ATL	0.062	0.063	0.000	0.000
20250	Westinghouse Electric - Friendship	0.157	0.157	0.000	0.000
30126	Eastern Stainless Steel	0.000	0.000	0.270	0.294
30127	Cleaners Hanger	0.112	0.146	0.000	0.000
30129	Heileman Breweries	0.269	0.282	0.000	0.000
30134	Greif Bros. Corp.	0.198	0.230	0.000	0.000
30146	Seagram, Joseph E.	0.693	0.726	0.000	0.000
30147	Bethlehem Steel	1.673	1.853	27.946	29.613
30184	Noxell Corp.	0.035	0.038	0.000	0.000
30222	Martin Marietta - Aero & Naval Sys.	0.241	0.271	0.000	0.000
30236	Schmidt Baking	0.876	0.902	0.000	0.000
30306	Sweetheart Cup	0.326	0.398	0.000	0.000
30487	MD Paper Box Co.	0.061	0.065	0.000	0.000
30979	American Yeast Corporation	0.198	0.230	0.000	0.000
31614	Thorn EMI/MALCO Plastics	0.141	0.158	0.000	0.000
31873	McCormick & Co.	0.040	0.049	0.000	0.000
31956	Polystyrene Products	0.067	0.072	0.000	0.000
32005	Langenfelder - Pulaski Hwy.	0.040	0.052	0.000	0.000
60012	Lehigh Portland Cement	0.000	0.000	8.520	9.390
60059	Goodyear Tire and Rubber	0.071	0.071	0.000	0.000
60102	Miller Asphalt Products	0.035	0.039	0.118	0.132
120006	Cytec Industries	0.891	1.011	0.000	0.000
120145	Cello Chemical	0.195	0.227	0.000	0.000
120189	Johnson Controls	0.103	0.111	0.000	0.000
120195	Monarch Manufacturing	0.050	0.054	0.000	0.000
120231	Baycraft Fiberglass Eng - Clark Rd.	0.065	0.084	0.000	0.000
130005	Simkins Industries	0.000	0.000	0.075	0.076
130052	Maryland Virginia Milk Producers	0.000	0.000	0.108	0.113
130172	Alcore	0.062	0.069	0.000	0.000
240069	Wimpey Minerals USA	0.072	0.080	0.000	0.000
240071	GAF Building Products	0.000	0.000	0.000	0.000
240072	Chevron USA Asphalt Company	0.087	0.096	0.335	0.334
240073	FMC Corp.	4.184	4.553	0.685	0.696
240076	W.R. Grace	0.057	0.061	0.725	0.777
240100	Vista Chemical	2.028	2.212	0.471	0.494
240106	United States Gypsum Co.	0.000	0.000	0.269	0.296
240109	SCM Chemicals	0.000	0.000	0.915	0.948
240121	Lever Bros.	0.000	0.000	0.093	0.096
240171	Flanigan, P. & Sons, Inc.	0.067	0.075	0.000	0.000
240188	Chesapeake Paperboard Co.	0.000	0.000	0.597	0.597

Point Source Inventory

PREMISE NUMBER	SOURCES	1990 VOC	1999 VOC	1990 NOx	1999 NOx
240191	Red Star Yeast Plant	0.778	0.907	0.000	0.000
240233	National Gypsum	0.000	0.000	0.137	0.150
240286	Sherwin Williams Co.	0.368	0.415	0.000	0.000
240301	H & S Bakery	0.145	0.150	0.000	0.000
240305	Valspar Corporation	0.070	0.078	0.000	0.000
240309	DOVCO Industrial Fabricators	0.000	0.000	0.000	0.000
240314	Domino Sugar	0.000	0.000	0.879	0.884
240337	Kaydon Ring & Seal, Inc.	0.439	0.493	0.000	0.000
240340	Baltimore Specialty Steels	0.000	0.000	0.722	0.804
240582	Hauswald Bakery/Div. of Schmidt's	0.106	0.109	0.000	0.000
240636	Field Container - Eastfield Div.	0.099	0.121	0.000	0.000
240754	Fleischmann's Vinegar	0.097	0.106	0.000	0.000
240761	Durapak Company	0.095	0.112	0.000	0.000
240944	Lenmar, Inc.	0.126	0.142	0.000	0.000
241322	Crispy Baking	0.103	0.106	0.000	0.000
241346	Furst Bros. Co.	0.072	0.081	0.000	0.000
241400	Automatic Rolls	0.160	0.184	0.000	0.000
241499	J.J. Abbot, Inc.	0.053	0.066	0.000	0.000
241986	Tnemec Co.	0.073	0.082	0.000	0.000
242035	Alford Industries	1.139	1.391	0.000	0.000
242142	Hood Vinegar Co.	0.071	0.087	0.000	0.000
242871	Dext Co.	0.254	0.296	0.000	0.000
242936	Rock-Tenn - Broening Hwy.	0.185	0.225	0.000	0.000
INDUSTRIAL SURFACE COATING		12.684	15.048	0.655	0.676
20274	Quebecor Printing	2.837	3.466	0.000	0.000
20854	Irvine Access Floors	0.050	0.056	0.000	0.000
30097	Signode Supply Corp.	0.062	0.080	0.000	0.000
30148	Steeltin Can	0.046	0.051	0.000	0.000
30183	U.S. Can - Sparrows Pt.	0.805	0.897	0.000	0.000
30240	Thomas Manufacturing Corp.	0.128	0.144	0.000	0.000
30290	Lawson Mardon Label	0.139	0.169	0.000	0.000
30310	Glaco Corp.	0.133	0.150	0.000	0.000
30332	Bethlehem Steel Shipyard	0.719	0.901	0.000	0.000
30358	JCB, Inc.	0.077	0.086	0.000	0.000
30384	MALCO Plastics	0.139	0.164	0.000	0.000
30407	David-Edward Ltd.	0.037	0.045	0.000	0.000
30692	General Motors - Electromotive Div.	0.058	0.065	0.000	0.000
30843	Port City Press	0.133	0.162	0.000	0.000
31040	Crown Beverage Packaging	0.413	0.460	0.000	0.000
31149	Gamse Lithographing Co.	0.102	0.124	0.000	0.000
31980	Schmitz, E. John & Sons - Loveton	0.051	0.062	0.000	0.000
60052	3M Company	0.052	0.058	0.000	0.000
120002	McCorquodale Process	0.354	0.432	0.000	0.000
120219	Sullivan Graphics	0.090	0.110	0.000	0.000
130080	Chesapeake Finished Metals	0.348	0.458	0.000	0.000
130127	Tate Access Floors	0.128	0.168	0.000	0.000
130259	Bettinger West	0.051	0.058	0.000	0.000
240321	Crown Beverage Packaging	0.452	0.504	0.000	0.000
240354	General Motors Truck & Bus Group	3.680	4.239	0.655	0.676
240360	Gordon D. Garratt Co.	0.094	0.102	0.000	0.000
240508	Ball Metal Decorating & Service	0.428	0.563	0.000	0.000
240604	Baltimore Sign Company	0.077	0.087	0.000	0.000
240710	Parker Metal Decorating Company	0.170	0.190	0.000	0.000
242034	National Graphics	0.171	0.210	0.000	0.000
242053	Dundalk Signs, Inc.	0.035	0.045	0.000	0.000
242800	Hobelmann Port Services	0.062	0.055	0.000	0.000
242900	C.E. Stevens Packaging	0.038	0.046	0.000	0.000
242953	John D. Lucas Printing	0.245	0.299	0.000	0.000
243033	Garamond/Pridemark Press	0.066	0.080	0.000	0.000
243097	Art Litho - Patapsco Ave.	0.089	0.108	0.000	0.000
243105	National Lith/National Graphics	0.126	0.154	0.000	0.000

Point Source Inventory

PREMISE NUMBER	SOURCES	1990 VOC	1999 VOC	1990 NOx	1999 NOx
	OTHER SOLVENT USE	0.915	0.982	0.000	0.000
20046	Rainbow Cleaners & Uniform Rental	0.055	0.060	0.000	0.000
31094	Athens Cleaners - Taylor Ave.	0.035	0.037	0.000	0.000
32209	Parkville Custom Cleaners	0.044	0.047	0.000	0.000
120016	Kroh's Cleaners	0.039	0.041	0.000	0.000
130057	David & Hemphill	0.108	0.118	0.000	0.000
240166	Nield Cleaners	0.048	0.051	0.000	0.000
240765	Mercury Cleaners	0.034	0.036	0.000	0.000
240778	LBCleaners	0.043	0.046	0.000	0.000
241203	Metro Lexington Cleaners	0.041	0.044	0.000	0.000
241491	Lee and Eds Cleaners	0.033	0.035	0.000	0.000
241495	Leatherite Cleaners & Dyers	0.072	0.076	0.000	0.000
241497	American Cleaners	0.064	0.068	0.000	0.000
241590	Westside Cleaners	0.035	0.037	0.000	0.000
242010	Schroedl Custom Cleaners	0.058	0.061	0.000	0.000
242854	BARCO	0.206	0.225	0.000	0.000
	EXTERNAL COMB.SOURCES	1.032	1.137	166.517	180.843
20014	Baltimore Gas & Electric - Wagner	0.215	0.238	60.207	65.238
20269	D.C. Children's Center	0.000	0.000	0.333	0.339
20310	U.S. Naval Academy - South Severn	0.054	0.060	0.179	0.182
20317	National Security Agency	0.000	0.000	1.897	1.934
20322	Fort George Meade	0.209	0.228	0.132	0.135
20468	Balto. Gas & Electric - Brandon Shores	0.177	0.189	33.979	36.376
30076	Baltimore Gas & Electric - Notchcliff	0.000	0.000	1.633	1.633
30078	Baltimore Gas & Electric - Riverside	0.091	0.106	10.517	12.296
30079	Baltimore Gas & Electric - Crane	0.091	0.098	43.019	46.097
120024	Baltimore Gas & Electric - Perryman	0.000	0.000	2.938	3.435
120081	Aberdeen Proving Ground	0.105	0.117	0.355	0.362
120082	Edgewood Arsenal	0.045	0.049	0.469	0.478
240001	Johns Hopkins Hospital	0.000	0.000	0.440	0.447
240006	Baltimore Gas & Electric - Westport	0.045	0.052	5.998	6.832
240007	Baltimore Gas & Electric - Gould Street	0.000	0.000	2.428	2.839
240265	Baltimore Gas & Electric Co. - Phila. Rd.	0.000	0.000	1.107	1.294
240651	Baltimore Thermal Resources - 201 N. Ce	0.000	0.000	0.162	0.189
241158	Francis Scott Key Medical Center	0.000	0.000	0.242	0.247
242796	Baltimore Thermal Resources - Spring Gar	0.000	0.000	0.482	0.490
	STATIONARY INTERNAL COMB.	0.282	0.287	6.982	7.098
130223	Transcontinental Gas Pipe Line Corp.	0.282	0.287	6.982	7.098
	WASTE DISPOSAL	0.398	0.299	5.205	5.205
30812	Back River Waste Water Treatment Plant	0.150	0.151	0.000	0.000
30921	Norris Farm Landfill	0.041	0.041	0.000	0.000
120212	Waste Energy Partners	0.000	0.000	0.479	0.479
240498	Pulaski Company	0.000	0.000	1.644	1.644
240565	Patapsco Waste Water Plant	0.100	0.000	0.220	0.220
241886	Baltimore RESCO	0.107	0.107	2.862	2.862
242975	Medical Waste Associates	0.000	0.000	0.000	0.000
	TOTAL	42.042	48.109	223.182	240.562

Total for Baltimore NAA

Category	Indicator	VOC	VOC	VOC	VOC	VOC	NOx	NOx	NOx	NOx	NOx
		1990	1996	1999	2002	2005	1990	1996	1999	2002	2005
Service Station Refueling	GAS	13.200	14.124	14.560	15.035	15.510	0.000	0.000	0.000	0.000	0.000
Tank Truck Unloading	GAS	0.800	0.856	0.882	0.911	0.940	0.000	0.000	0.000	0.000	0.000
Tank Breathing	GAS	1.050	1.123	1.158	1.196	1.234	0.000	0.000	0.000	0.000	0.000
Tank Trucks in Transit	GAS	0.180	0.193	0.199	0.205	0.211	0.000	0.000	0.000	0.000	0.000
Aircraft Refueling	EMP	0.410	0.516	0.561	0.597	0.627	0.000	0.000	0.000	0.000	0.000
Pet. Vessel Unloading	EMP	0.040	0.037	0.036	0.035	0.034	0.000	0.000	0.000	0.000	0.000
Cold Cleaning Degreasing	EMP	10.420	10.363	10.346	10.319	10.286	0.000	0.000	0.000	0.000	0.000
Architectural Surface Coatings	POP	19.230	20.363	20.828	21.263	21.684	0.000	0.000	0.000	0.000	0.000
Auto Refinishing	EMP	10.390	11.824	12.460	12.981	13.446	0.000	0.000	0.000	0.000	0.000
Graphic Arts	EMP	4.496	4.909	5.095	5.241	5.367	0.000	0.000	0.000	0.000	0.000
Pesticide Application	NONE	6.410	6.410	6.410	6.410	6.410	0.000	0.000	0.000	0.000	0.000
Commercial/Consumer Solvents	POP	20.260	21.454	21.943	22.402	22.845	0.000	0.000	0.000	0.000	0.000
Cutback Asphalt	POP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Emulsified Asphalt	POP	0.024	0.025	0.026	0.027	0.027	0.000	0.000	0.000	0.000	0.000
Traffic Marking	POP	0.610	0.646	0.661	0.674	0.688	0.000	0.000	0.000	0.000	0.000
Factory Finished Wood	EMP	0.320	0.322	0.328	0.330	0.328	0.000	0.000	0.000	0.000	0.000
Furniture and Fixtures	EMP	3.450	3.471	3.534	3.555	3.555	0.000	0.000	0.000	0.000	0.000
Electrical Insulation	EMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Metal Cans	EMP	3.696	3.205	3.042	2.893	2.750	0.000	0.000	0.000	0.000	0.000
Misc. Finished Metals	EMP	0.710	0.710	0.710	0.704	0.696	0.000	0.000	0.000	0.000	0.000
Machinery and Equipment	EMP	1.152	1.152	1.152	1.150	1.146	0.000	0.000	0.000	0.000	0.000
Appliances	EMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
New Motor Vehicles	EMP	1.780	1.747	1.726	1.704	1.683	0.000	0.000	0.000	0.000	0.000
OtherTransportation Equipment	EMP	0.264	0.271	0.274	0.276	0.278	0.000	0.000	0.000	0.000	0.000
Marine Coatings	EMP	1.208	1.239	1.253	1.263	1.270	0.000	0.000	0.000	0.000	0.000
Misc. Manufacturing	EMP	2.715	2.715	2.715	2.715	2.715	0.000	0.000	0.000	0.000	0.000
Industrial Maintenance Ctgs.	EMP	3.617	3.137	2.977	2.831	2.691	0.000	0.000	0.000	0.000	0.000
Other Coatings	EMP	3.617	3.137	2.977	2.831	2.691	0.000	0.000	0.000	0.000	0.000
Municipal Landfills	POP	2.510	2.658	2.719	2.775	2.830	0.000	0.000	0.000	0.000	0.000
Incinerators	POP	0.036	0.038	0.039	0.040	0.041	0.260	0.275	0.282	0.287	0.293
POTWs	HHS	2.520	2.668	2.729	2.786	2.842	0.000	0.000	0.000	0.000	0.000
Structure Fires	POP	0.050	0.053	0.054	0.055	0.056	0.000	0.000	0.000	0.000	0.000
Slash/Prescribed Burning	NONE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Forest Fires	NONE	0.020	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000
Open Burning	NONE	3.640	3.640	3.640	3.640	3.640	0.760	0.760	0.760	0.760	0.760
Leaking U.S.T.	NONE	3.360	3.360	3.360	3.360	3.360	0.000	0.000	0.000	0.000	0.000
R/C/I Fuel Use - Coal	POP	0.054	0.057	0.058	0.060	0.061	4.832	5.117	5.234	5.343	5.449
R/C/I Fuel Use - Fuel Oil	POP	0.074	0.078	0.080	0.081	0.083	4.415	4.675	4.782	4.882	4.978
R/C/I Fuel Use - Natural Gas	POP	0.114	0.121	0.123	0.126	0.129	3.199	3.387	3.465	3.537	3.607
R/C/I Fuel Use - LPG	POP	0.002	0.002	0.002	0.002	0.002	0.252	0.267	0.273	0.278	0.284
Bakeries	EMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Breweries	EMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wineries	EMP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oil Spills	POP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Biogenic*	NONE	180.090	180.090	180.090	180.090	180.090	0.000	0.000	0.000	0.000	0.000
Total		122.428	126.643	128.677	130.492	132.175	13.718	14.481	14.795	15.088	15.371

Category	Indicator	VOC	VOC	VOC	VOC	VOC	NOx	NOx	NOx	NOx	NOx
		1990	1996	1999	2002	2005	1990	1996	1999	2002	2005
Recreational Equipment	EGAS	0.860	0.931	0.974	1.014	1.042	0.000	0.000	0.000	0.000	0.000
Construction Equipment	EGAS	5.480	6.175	6.598	7.062	7.561	37.040	41.740	44.596	47.711	51.115
Industrial Equipment	EGAS	1.770	1.883	2.100	2.260	2.426	3.680	3.916	4.368	4.687	5.045
Light Commercial Equipment	EGAS	3.800	4.261	4.621	5.015	5.449	0.510	0.572	0.616	0.674	0.731
Lawn & Garden Equipment	EGAS	17.680	19.241	20.028	20.756	20.028	0.290	0.316	0.329	0.338	0.348
Farm Equipment	NONE	1.720	1.720	1.720	1.720	1.720	7.870	9.887	7.870	7.870	7.870
Logging Equipment	EGAS	0.330	0.349	0.374	0.398	0.433	0.000	0.000	0.000	0.000	0.000
Aircraft Support	EGAS	0.880	1.001	1.124	1.251	1.408	5.380	6.119	6.847	7.650	8.574
Commercial Aviation	EGAS	0.490	0.581	0.624	0.728	0.781	1.440	1.638	1.836	2.054	2.295
General Aviation	EGAS	0.140	0.166	0.178	0.208	0.223	0.010	0.011	0.013	0.014	0.016
Air Taxis	EGAS	0.080	0.095	0.102	0.119	0.128	0.010	0.011	0.013	0.014	0.016
Military Aviation	NONE	2.810	2.810	2.810	2.810	2.810	0.980	0.980	0.980	0.980	0.980
Vessels	EGAS	0.410	0.449	0.479	0.510	0.544	2.780	3.045	3.250	3.460	3.689
Pleasure Boats	EGAS	7.710	8.391	8.734	9.048	9.342	0.920	1.001	1.050	1.080	1.120
Railroads	EGAS	0.490	0.475	0.475	0.470	0.469	10.580	10.263	10.189	10.113	10.040
Total		44.650	48.529	50.941	53.370	54.364	71.490	79.499	81.956	86.646	91.840