

### **3.0 Permit Requirements**

#### **E.5. County Property Management**

Baltimore County shall identify all County–owned facilities requiring NPDES stormwater general permit coverage and submit Notices of Intent (NOI) to MDE for each. The status of pollution prevention plan development and implementation shall be submitted annually.

#### **E.6. Road Maintenance**

A plan to reduce pollutants associated with road maintenance activities shall be developed and implemented. At a minimum, an annual progress report shall be submitted that documents the following activities:

- a. Street sweeping;
- b. Inlet cleaning;
- c. Reducing the use of pesticides, herbicides, fertilizers, and other pollutants associated with roadside vegetative management practices through the use of integrated pest management (IPM); and
- d. Controlling the overuse of winter weather deicing materials through continual testing and improvement of materials, equipment calibration, employee training, and effective decision-making.

### **3.1 Introduction**

Baltimore County has established several programs to control the amount of pollution that reaches the stream systems and landfills: a Storm Drain Cleaning Program, a Street Sweeping Program, and a Hazardous Waste Collection Program. Both the Storm Drain Cleaning Program and the Street Sweeping Program are the responsibility of the Baltimore County Department of Public Works (DPW). Within the Department of Public Works, the Bureau of Utilities handles the Vac-Con program. Vac-Con was originally created to remove the sediment from the storm drain systems in the watersheds of dredged tidal creeks, thereby increasing the longevity of the original dredging. The Program has since been expanded to clean the County’s entire storm drain system, including the drain inlets, connecting pipes and outfalls. Debris, sediment, and pollutants can also be taken off the streets before they enter the storm drain system. This is accomplished with the Street Sweeping Program that is managed by the Bureau of Highways.

### **3.2 County Property Management**

Over the last few years, three meetings of the Baltimore County NPDES Management Committee were held. The first meeting in December 2005 presented the requirements of the renewed NPDES permit to the Management Committee, including the requirement that certain County owned facilities acquire an NPDES Industrial Stormwater General Permit. A NPDES Management Committee meeting in February 2006 covered how to fill out the Notice of Intent (NOI) and the elements of the pollution prevention plan. A third meeting in May covered in more detail the elements of a Pollution Prevention Plan and used a highway shop to demonstrate how to conduct a site assessment and the types of controls that should be considered in the

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pollution prevention plan. A sample Pollution Prevention Plan in draft form is included on the enclosed CD.

*3.2.1 County Facility NPDES Permit Compliance*

Baltimore County DEPRM has been assisting other County Departments to gain compliance with NPDES general stormwater permit requirements. Table 3-1 shows the status of County Facilities that we have started assisting. DEPRM is still identifying all County –owned facilities requiring NPDES stormwater general permit coverage. DEPRM estimates approximately 30 facilities may be included. As facilities are identified, we will assist them in submitting a Notice of Intent (NOI) to MDE and assist in the preparation of a Pollution Prevention Plan.

**Table 3-1: NPDES Permit Compliance Status**

County Department	Facility Name	Notice of Intent (NOI)	Pollution Prevention Plan (PPP)
Community College of Baltimore County	Catonsville, Essex, and Dundalk Campuses	Yes	In progress
Community College of Baltimore County	Essex Campus	Yes	No
Community College of Baltimore County	Dundalk Campus	Yes	No
Department of Public Works Highways	All 11 Shops	Yes	In progress for the Clark’s Lane and Middleton Shops
Resource Recovery Facility	Texas Facility	Yes	No
Baltimore County Public Schools	Arbutus Shop	Yes	No
Baltimore County Public Schools	Providence Shop	Yes	No

**3.3 Vac-Con Storm Drain Cleaning Program**

*3.3.1 Vac-Con Overview*

The Baltimore County storm drain system consists of approximately 2,040,000 linear feet (388 miles) of storm drainpipe, 14,400 inlets, and 3,460 outfalls. In order to keep the entire system clean of trash, debris, and sediment, the Department of Public Works maintains three Vac-Con vehicles and employs three crews of two men each on a daily basis to clean the storm drains and pipes. Removing the material from the storm drain system reduces street flooding, a potential safety hazard, and aids in the detection of illicit connections.

Each time a crew cleans an inlet or pipe the amount of debris removed is recorded on a data sheet that typically contains all cleaning records for that particular location. Completed data sheets are sent to the Department of Environmental Protection and Resource Management

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(DEPRM), where the data is entered into a database. The database facilitates reporting for NPDES purposes.

*3.3.2 Vac-Con Data Analysis*

The data entered into the database are analyzed for a number of measures, including the amount of material removed per inlet, the amount of material removed per linear foot of pipe cleaned, total amount of material removed by watershed, the amount of pollutants removed as a result of the program.

Inlet data are reported as the average annual cubic feet of material removed per inlet, and pipe data are reported in cubic feet of material removed per linear foot of pipe. The removal rates for 1993 to 2007 are presented in Table 3-2. Figure 3-1 shows a yearly comparison of the number of inlets cleaned and the total volume of material removed. Figure 3-2 shows the mean volume of debris removed per inlet. Figure 3-3 shows a yearly comparison of the length of pipe cleaned and the amount of material removed, and Figure 3-4 shows the mean volume of debris removed per linear foot of pipe.

**Table 3-2: Removal Rates of Vac-Con Inlet and Pipe Cleaning by Year**

<b>Year</b>	<b>Inlet Vol. Cu. yd.</b>	<b># Inlets</b>	<b>Vol. / Inlet Cu. yd</b>	<b>Pipe Vol. Cu. yd.</b>	<b>Length in feet</b>	<b>Vol. / Ft. Cu. yd.</b>
1993	760	8,955	0.08	1,186	68,830	.0172
1994	769	2,615	0.29	347	21,193	.0164
1995	642	1,532	0.42	306	14,491	.0211
1996	1,536	1,347	1.14	1,558	67,676	.0230
1997	1,731	1,485	1.17	2,822	119,900	.0235
1998	2,059	1,178	1.75	988	93,918	.0105
1999	662	462	1.43	446	38,451	.0116
2000	689	580	1.19	672	89,145	.0075
2001	902	746	1.21	585	46,319	.0126
2002	919	602	1.53	409	34,384	.0118
2003	660	428	1.54	519	30,374	.0171
2004	898	653	1.37	1,169	54,795	.0213
2005	1,385	888	1.56	1,001	53,069	.0189
2006	950	659	1.44	538	30,891	.0174
2007	429	223	1.92	179	10,257	.0175
<b>Totals</b>	<b>29,553</b>	<b>36,915</b>		<b>27,287</b>	<b>788,255</b>	

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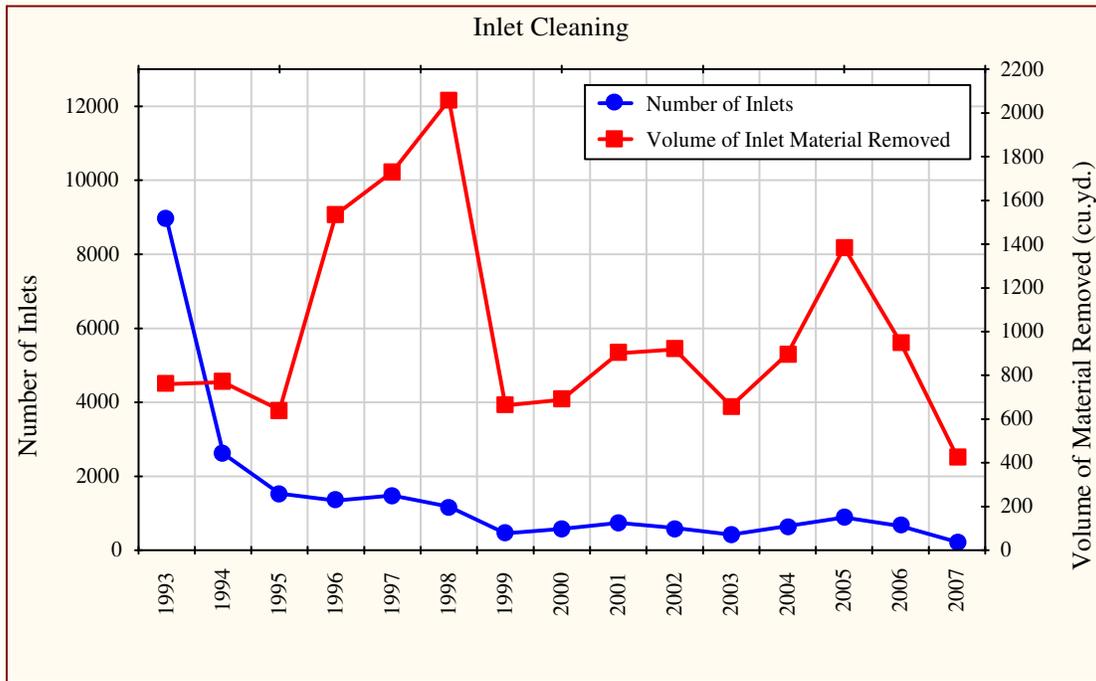


Figure 3-1: Vac-Con Summary Report for Inlets

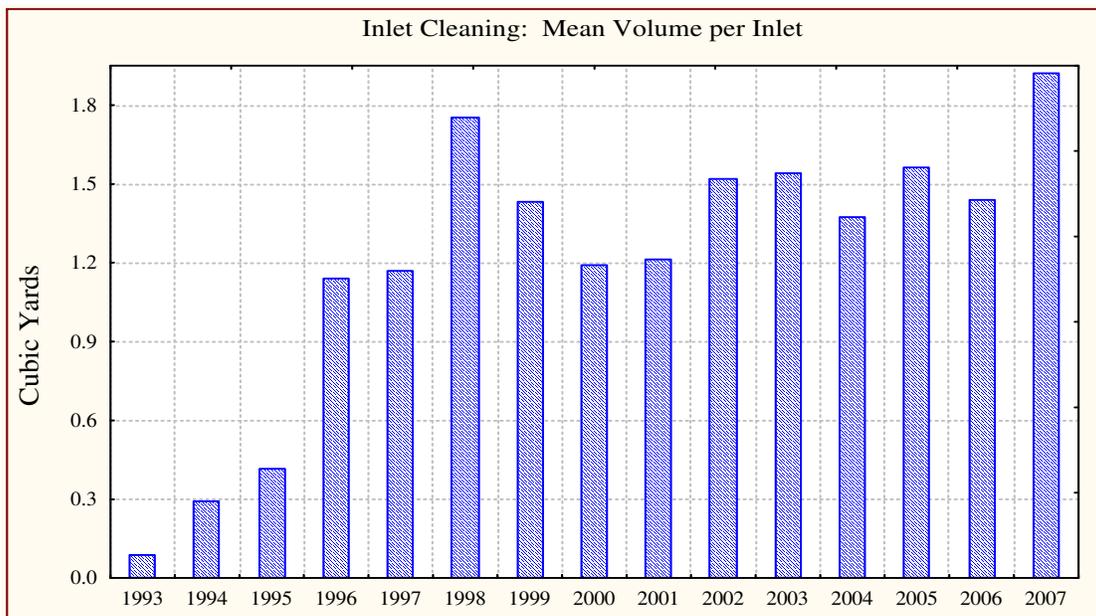


Figure 3-2: Vac-Con Annual Inlet Debris Removal Rates

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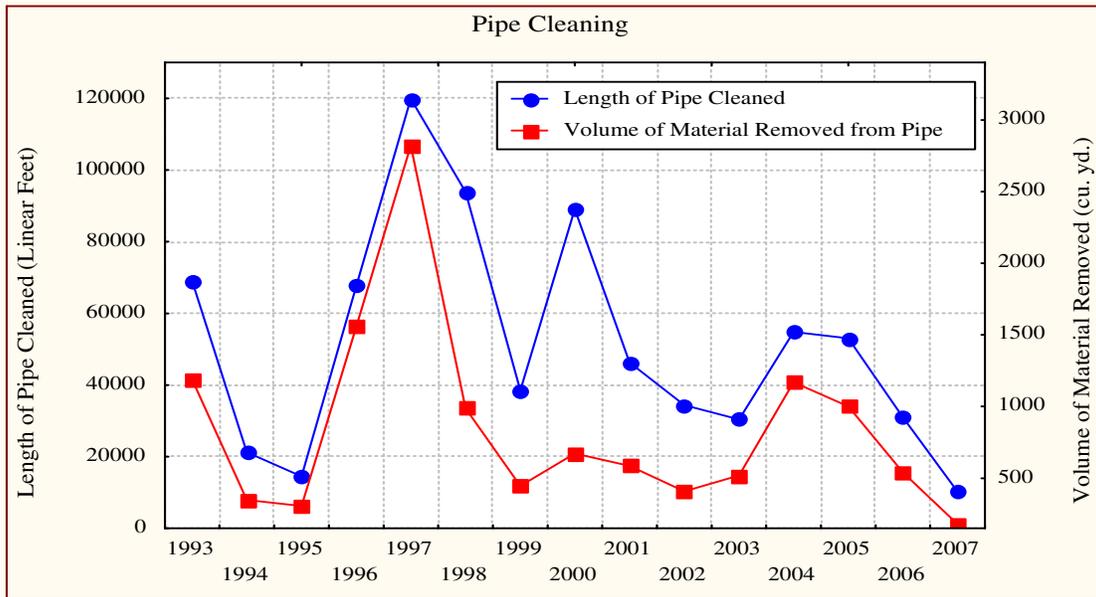


Figure 3-3: Vac-Con Summary Report for Pipes

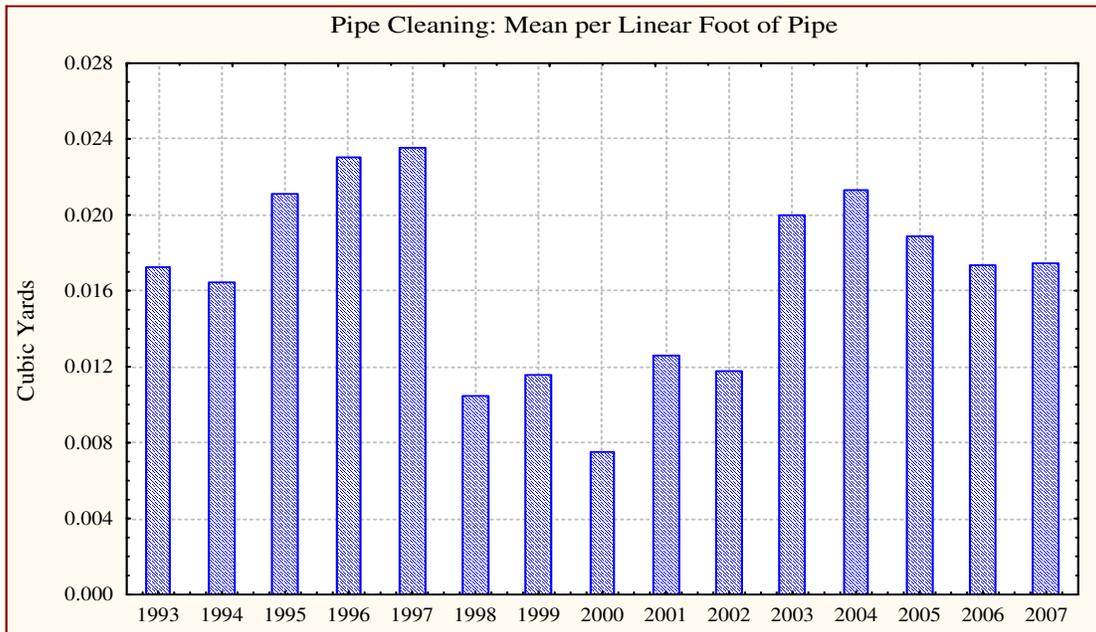


Figure 3-4: Vac-Con Annual Pipe Debris Removal Rates

While the number of inlets cleaned has declined since 1998, the volume removed per inlet has increased significantly and is now fairly consistent. For the period from 1993 through 1998, the average number of inlets cleaned was ~2,850 per year in contrast to ~582 per year in the 1999-2007 time period. The average amount of material removed per inlet increased from ~0.8 cubic yards per inlet to ~1.5 cubic yards per inlet for the same two time periods. In the early years of the program (1993-1995), all inlets within the County were cleaned, some with little or no accumulation of material. This resulted in low volumes of material removed per inlet cleaned. This method was changed after 1995. The current method does not include routinely cleaning storm drains; they are cleaned based on comments or complaints received. During the winter

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months (Nov - Mar), they respond only to emergencies due to the temperature. Therefore the numbers of pipes and inlets cleaned out after 1995 varies each year.

The volume of material removed from inlets grew beginning in 1993 and peaked in 1998, at over 2,000 cubic yards of material removed (Figure 3-1). The total amount of material removed was lower for the years 1999 through 2003. There was an upward trend in 2004 and 2005 that has fallen and continued to fall in 2007.

The largest amount of material removed from pipes was in 1997. This was also the greatest length of pipe cleaned (see Figure 3-2). The average length of pipe cleaned in the time period 1993 through 1998 was ~64,500 linear feet compared to ~43,076 linear feet in the 1999 through 2007 time period. The volume removed per linear foot decreased from .019 cubic yards to ~.015 cubic yards for those two time periods. This is in contrast with the cleaning of inlets that showed an increase in the amount of material removed per inlet for the latter time period.

It should also be noted that drought conditions from 1999 through 2002 might have resulted in less material being washed into the storm drain system. That material was likely removed by street sweeping. Conversely, the increase in removal rates in the 2003 to 2005 was probably due to above normal levels of precipitation.

*3.3.3 Vac-Con Data by Watershed*

The Vac-Con data for 2007, showing the total number of inlets and lengths of pipe cleaned for each of Baltimore County's fourteen (14) major watersheds, are displayed in Table 3-3.

**Table 3-3: 2007 Material Removed in Cubic Yards by Watershed**

Watershed	Inlets Cleaned	Inlet Volume Cleaned (Cu. yd.)	Length of Pipe Cleaned (Ft.)	Pipe Volume Cleaned (Cu. yd.)	Total Volume (Cu. yd.)
Deer Creek	1	0.7	115	2.4	3.1
Prettyboy Reservoir	0	0.0	0	0	0
Loch Raven Reservoir	9	11.8	750	9.0	20.8
Lower Gunpowder River	1	0.8	100	0.9	1.7
Little Gunpowder Falls	0	0.0	0	0	0
Bird River	14	12.8	750	8.9	21.7
Gunpowder River	2	8.5	60	1.1	9.6
Middle River	17	45.5	985	21.8	67.3
<b>UWS Totals</b>	<b>44</b>	<b>80.1</b>	<b>2,760</b>	<b>44.1</b>	<b>124.2</b>
<b>Patapsco/Back River</b>					
Liberty Reservoir	0	0	0	0	0
Patapsco River	28	43.4	1,245	18.8	62.2
Gwynns Falls	49	83.8	1,645	38.8	122.6
Jones Falls	12	18.8	1,275	18.9	37.7
Back River	26	56.8	1,130	19.0	75.8
Baltimore Harbor	64	145.9	2,202	39.0	184.9
<b>Pat./Back R. Totals</b>	<b>179</b>	<b>348.7</b>	<b>7,297</b>	<b>134.5</b>	<b>483.2</b>
<b>County Totals</b>	<b>223</b>	<b>428.8</b>	<b>10,257</b>	<b>178.6</b>	<b>607.4</b>

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Over 79% of the material removed from the storm drain system was removed from the heavily urbanized Patapsco/Back River Basin with Gwynns Falls and Baltimore Harbor having the highest amounts removed.

In the fall of 2005, a study was initiated on the pollutant removal effectiveness of street sweeping and storm drain cleaning. This study is funded by the Chesapeake Bay Program and is being led by the Center for Watershed Protection and UMBC. Both Baltimore County and Baltimore City are partners in this research effort. Baltimore County specifically is looking at the storm drain cleaning portion of the study by measuring monthly accumulation rates in 100 inlets and conducting sampling and chemical analysis of the material from a subset of the inlets on a quarterly basis. The results from this study will be used to estimate pollutant load reductions from street sweeping and storm drain cleaning activities. In the interim, the preliminary results from the storm drain analysis will be used to estimate pollutant load reduction for this year's report.

The composition of 16 inlets sampled in spring and fall of 2006 was divided into three categories; sediment, leaves (organic matter), and trash. The weight and volume of each component was determined for each inlet sampled. In the spring, sediment accounted for 63.5%, leaves 28.8% and trash 7.7% of the material accumulated in the inlets. In the fall, sediment accounted for 61.3%, leaves 31.0%, and trash 7.7% of the material accumulated in the inlets. The average bulk density for the spring was 330.7 pounds/cubic yard of material and for the fall 331.4 pounds/cubic yard of material. In past reports, a bulk density of 548.3 pounds/cubic yard was used. This weight was determined based a waste haulers handbook. There may be a seasonal component to the material in the inlets. The results of the full study should clarify the seasonal variation in materials and bulk density, as well as, the chemical composition.

The following formula was used to determine kilograms of material per cubic yard:

$$331 \text{ pounds/cubic yard} \times 0.45 \text{ kilograms/pound} = 148.95 \text{ kilograms/cubic yard}$$

The derived kilograms/cubic yard was then multiplied by the total cubic yards of material removed from each watershed in 2006 to determine the total kilograms of material removed. These results were then multiplied by the preliminary average concentrations for each pollutant to determine the milligrams of pollutant removed. The concentrations used were 1825.92 mg/kg total nitrogen and 707.95 mg/kg total phosphorus. Finally, the milligrams of pollutant were back calculated for pounds of pollutant removed.

The amount of each pollutant removed from each major watershed in the county during 2007 is shown in Table 3-4. The pollutants removed from the Patapsco/Back River Basin watersheds were nearly 5 times the amounts removed from the Upper Western Shore watersheds. DEPRM in the future may consult with the Department of Public works to discuss refocusing efforts.

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**Table 3-4: 2007 Pollutant Removal (Pounds) by Watershed Attributed to the Vac-Con Program**

Watershed	TN	TP	TSS
<b>Upper Western Shore</b>			
Deer Creek	1.9	0.7	1,026.1
Prettyboy Reservoir	0.0	0.0	0
Loch Raven Reservoir	12.5	4.8	6,884.8
Lower Gunpowder River	1.0	0.4	562.7
Little Gunpowder Falls	0.0	0.0	0
Bird River	13.0	5.0	7,182.7
Gunpowder River	5.8	2.2	3,177.6
Middle River	40.4	15.6	22,276.3
<b>UWS Totals</b>	<b>74.5</b>	<b>28.9</b>	<b>41,110.2</b>
<b>Patapsco/Back River</b>			
Liberty Reservoir	0.0	0.0	0
Patapsco River	37.3	14.5	20,588.2
Gwynns Falls	73.5	28.5	40,580.6
Jones Falls	22.6	8.8	12,478.7
Back River	45.5	17.6	25,089.8
Baltimore Harbor	110.9	43.0	61,201.9
<b>Patapsco/Back R. Tot</b>	<b>289.8</b>	<b>112.4</b>	<b>159,939.2</b>
<b>County Totals</b>	<b>364.3</b>	<b>141.3</b>	<b>201,049.4</b>

**3.3.4 Program Summary - Vac-Con**

In sixteen years, the Vac-Con storm drain-cleaning program has removed over 56,800 cubic yards of material from the Baltimore County storm drain system. At 331 pounds per cubic yard, that amounts to approximately 18.8 million pounds. Without intervention, this material would have eventually entered our waterways.

**3.4 Street Sweeping**

**3.4.1 Street Sweeping Overview**

Removing materials such as trash, sediment, and debris, from public streets also results in a reduction of in the pollutant load (toxins and nutrients) that could have entered waterways. Baltimore County removes these materials by utilizing a street sweeping program managed by the Bureau of Highways. Seven employees operate seven sweepers on a daily basis, following prescribed routes.

The data on how many street miles are swept and tonnage collected is recorded by the Department of Public Works and submitted to DEPRM on an annual basis. Table 3-5 shows this data for each of the past seventeen years. The removal rates or productivity is also expressed in a tons-per-mile ratio for each year in the table. Approximately ½ ton of material was collected each mile from 1991 through 1995, with a spike to 0.88 in 1994. In 1994, during a particularly severe winter, the county experienced a salt shortage and found it necessary to utilize slag to provide traction on the icy roads. Subsequently, the material removed per mile spiked to the highest-ever that year. In 1996, the one half ton per mile average began to decrease, reaching its lowest point of 0.112 tons/mile in 1998. The decreasing trend began in 1996 and leveled off in 1998 through 2001 at approximately 0.11 tons/mile and staying at that level through 2001. Since then the efficiency has been stable at 0.30 tons/mile.

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**Table 3-5: Annual Street Sweeping Summary**

Year	Miles Swept	Tons Collected	Tons/Mile
1991	7,566	3,792	0.50
1992	6,663	3,161	0.47
1993	6,300	3,108	0.49
1994	8,532	7,473	0.88
1995	5,333	2,990	0.56
1996	8,605	2,990	0.35
1997	14,785	3,177	0.21
1998	24,863	2,792	0.11
1999	24,968	2,880	0.12
2000	21,949	2,491	0.11
2001	12,147	1,395	0.12
2002	7,800	2,364	0.30
2003	8,640	2,592	0.30
2004	6,617	1,985	0.29
2005	6,126	1,838	0.30
2006	6,306	1,892	0.30
2007	5,133	1,540	0.30
<b>Totals</b>	<b>182,333</b>	<b>48,460</b>	<b>17 yr avg = 0.34</b>

Figure 3-5 provides graphic displays of the information contained in Table 3-5.

Even with the fluctuations in productivity, tonnage removed each year has been relatively consistent as shown in Figure 3-5. However, the mileage needed to collect each ton of sediment increased greatly from 1997 through 2000 while the productivity continued a decline that began in 1996. Although experiencing a slight decrease in 2000, mileage began significantly decreasing in 2001 and returned to the approximate mileage recorded early in the program. Although the tonnage remained relatively steady in 2002 and 2003, the mileage declined enough to raise the productivity to about two-thirds of the rate in the first five years of the program.

The decline in productivity does not necessarily indicate a serious problem. It may simply indicate that the bulk of sediment and debris accumulated over many years was removed during the early years of the program, as might be expected. Absent any major sediment influx (e.g. more cinders used for snow removal), street sweeping efficiency may have reached a maintenance level where it is simply keeping up with the average annual loading. Optimizing the program's performance may now depend mostly on fine-tuning the interrelated activities, for example a route analysis could lead prioritizing and redefining the sweeping routes, and concentrating efforts more on the commercial areas.

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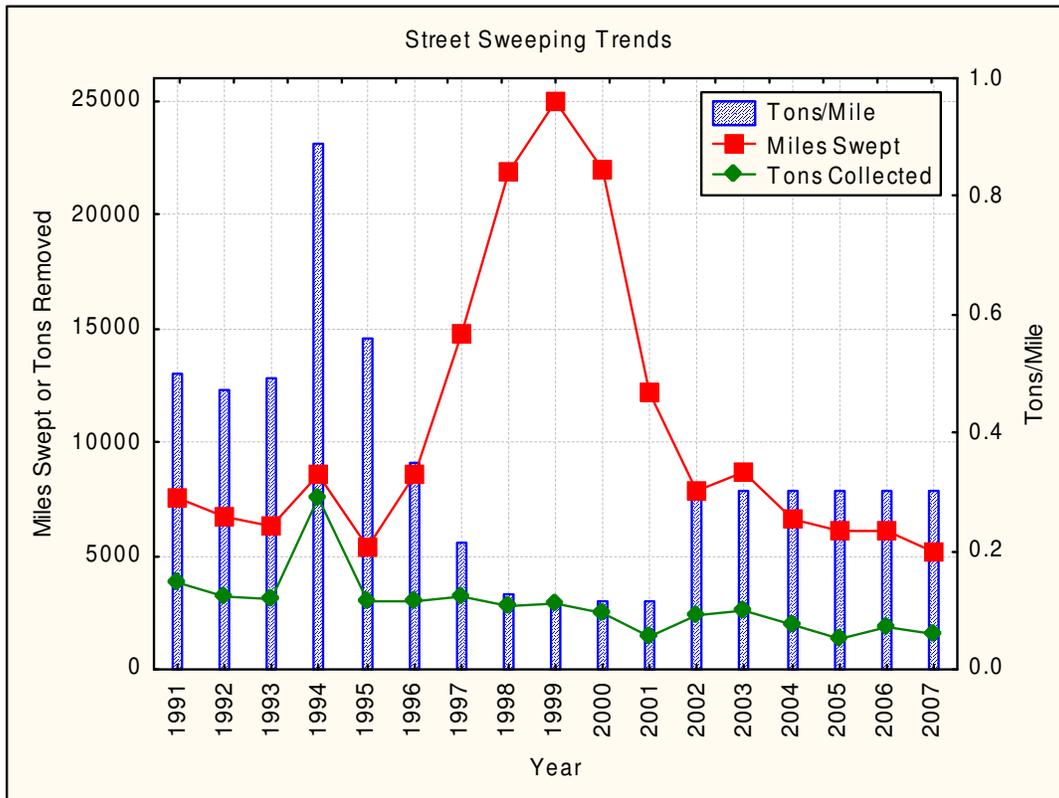


Figure 3-5: Miles of Street Swept, Tons of Material Removed and Tons/Mile Swept

3.4.2 Street Sweeping by Watershed

Utilizing the same methodology used to calculate Vac-Con pollutant removal rates, the reduction in pollutant loading attributable to the Street Sweeping Program was also quantified. The tonnage of material removed is reported on a countywide basis. In order to determine the material removed by watershed, it is assumed that the pollutant loading per pound of debris did not vary among watersheds or land uses. The street sweeping routes were digitized into a GIS map and then overlaid with the watershed boundaries to determine the proportion of swept miles per watershed. The tonnage of swept material per watershed was then determined by multiplying the total tonnage by the proportion of miles in each watershed. The results are displayed in Table 3-6. The breakdown into watersheds is based on the actual miles available for sweeping, without regard to the number of repeat visits.

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**Table 3-6: 2007 Street Sweeping Program – Tons Removed from Watersheds**

Watershed	Route Miles (1 circuit)	Percent of Total Miles	Tons Removed
<b>Upper Western Shore Watersheds</b>			
Deer Creek	0.0	0.0	0.0
Prettyboy Reservoir	0.0	0.0	0.0
Loch Raven Reservoir	142.8	11.5	177.1
Lower Gunpowder Falls	78.8	6.4	98.6
Little Gunpowder Falls	17.0	1.4	21.6
Bird River	72.6	5.9	90.9
Gunpowder River	7.7	0.6	9.2
Middle River	27.2	2.2	33.9
<b>Totals for UWS</b>	<b>346.1</b>	<b>28%</b>	<b>431.2</b>
<b>Patapsco/Back River Watersheds</b>			
Liberty Reservoir	6.9	0.6	9.2
Patapsco River	170.0	13.8	212.5
Gwynns Falls	321.4	26.0	400.4
Jones Falls	68.3	5.5	84.7
Back River	229.0	18.5	284.9
Baltimore Harbor	93.8	7.6	117.0
<b>Totals for Pat/Back R.</b>	<b>889.4</b>	<b>72%</b>	<b>1,108.8</b>
<b>Totals</b>	<b>1,235.5</b>	<b>100%</b>	<b>1,540</b>

Unlike the Vac-Con program, the exact location where the material is collected is not known. A basic assumption was made that material swept from the county's streets was the same, as far as pollutants are concerned, to the material that washes off the streets and into its storm drains. Using the preliminary pollutant concentrations from the on-going Street Sweeping- Inlet Cleaning study, the distribution of pounds of pollutants removed in 2007 from each of the major watersheds in the County were calculated and are shown in Table 3-7.

**Table 3-7: 2007 Street Sweeping Program Pollutant Removal (Pounds)**

Watershed	TN	TP
<b>Upper Western Shore</b>		
Deer Creek	0.0	0.0
Prettyboy Reservoir	0.0	0.0
Loch Raven Reservoir	646.9	250.8
Lower Gunpowder River	360.1	139.6
Little Gunpowder Falls	78.9	30.6
Bird River	332.0	128.7
Gunpowder River	33.6	13.0
Middle River	123.8	48.0
<b>UWS Totals</b>	<b>1,575.3</b>	<b>610.8</b>
<b>Patapsco/Back River</b>		
Liberty	33.6	13.0
Patapsco River	776.1	300.9
Gwynns Falls	1,462.4	567.0
Jones Falls	309.4	119.9
Back River	1,040.6	403.5
Baltimore Harbor	427.3	165.7
<b>Patapsco/Back R Totals</b>	<b>4,049.5</b>	<b>1,570.1</b>
<b>Annual County Totals</b>	<b>5,624.8</b>	<b>2,180.9</b>

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3.4.3 Program Summary - Street Sweeping

From 1991 to 2007, the Street Sweeping program removed almost forty-eight thousand five hundred tons of debris from Baltimore County streets (Table 3-5). Without this program, this debris would have entered waterways.

The Street Sweeping program appears to have reached a maintenance level and now needs to be evaluated to determine where the most significant amounts of sediments are consistently collected. The number of times each route is swept each year, the land use, and other variables need to be factored into the program to increase its efficiency.

Both the Vac-con and Street Sweeping programs make a contribution to the County’s overall goal of reducing sediment and other pollutants, including toxics and nutrients that enter the waters of the State. The tonnage collected by the street sweepers and Vac-Con trucks is not just pollutant-laden sediment, but includes significant amounts of paper, plastic, glass, wood, aluminum cans, and metal objects. During rainy weather the lighter, more floatable debris gets washed into the storm drains to be removed by the Vac-Con program instead of by the street sweepers.

**3.5 Household Hazardous Wastes (HHW)**

Household Hazardous Wastes are specifically exempted from the Maryland State Recycling Act. The Household Hazardous Waste Recycling Program was initiated by Baltimore County DEPRM in response to numerous requests from County citizens and elected officials concerned with disposal of hazardous wastes from their own homes.

Baltimore County citizens can drop off household hazardous waste materials for recycling or proper disposal at a permanent processing facility located at the Eastern Sanitary Landfill Solid Waste Management Facility. This facility is operated by DEPRM, in cooperation with the Department of Public Works (DPW), Monday through Saturday, from April through November. Materials dropped off for processing include unwanted household chemicals, such as paints, flammable cleaning solvents, automotive fluids, pesticides, pool chemicals, acids, mercury thermometers, gasoline, corrosive material, etc. Table 3-8 provides a listing of material collected and amounts since 1998. DEPRM holds two one-day collection events annually, in the spring and fall, at different locations around Baltimore County.

**Table 3-8: Household Hazardous Waste Recycled (2002-2007)**

Material Type	2002	2003	2004	2005	2006	2007	Total*
<i>Total Liquids (gal)</i>							
Flammables	5,830	3,685	9,570	8,910	9,130	7,495	58,425
Ammonia	10	5	2	7	22	5	81
Corrosive	550	495	**	**	**	**	2,860
PCBs	0	0	0	0	0	0	165
Gasoline	2,203	2,393	2,914	2,043	2,727	2,202	20,320
Motor oil	110,149	93,251	100,735	93,277	85,565	86,055	845,784
Antifreeze	4,100	5,815	5,874	5,378	4,214	6,808	47,363
Paint (Latex)	6,036	5,815	14,480	16,060	12,685	12,445	79,506
<b>(liquid) totals</b>	<b>128,878</b>	<b>111,459</b>	<b>133,575</b>	<b>125,675</b>	<b>114,343</b>	<b>115,010</b>	<b>1,054,504</b>

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Material Type	2002	2003	2004	2005	2006	2007	Total*
<i>Total Solids (lbs.)</i>							
Corrosive	**	**	5,250	5,744	8,860	8,740	28,594
Pesticides	12,458	8,930	14,140	16,150	13,630	18,256	62,176
Batteries (auto)	0	280,000	294,300	160,920	358,040	219,640	1,032,900
Batteries (rechargeable)	***	***	***	***	***	578	578
Cylinders (propane)	0	79,480	38,980	29,720	42,420	28,660	139,780
Mercury	25	168	125	50	40	112	327
Reactives	35	10	40	15	19	15	89
Toxics	65	40	360	105	14	199	773
Oxidizers	385	459	1,240	1,985	1,422.5	1,664	6,312
Freon	***	***	***	***	***	923	923
<b>(solids) totals</b>	12,978	369,091	354,505	214,714	424,446	278,787	1,272,452
<i>Total Solids (number of items)</i>							
Fluorescent Light bulbs	***	***	***	***	***	2,564	2,564
Ammunition (rounds)	***	***	***	***	***	1,011	1,011
<b>(solids) totals</b>	***	***	***	***	***	3,665	3,665

**Table 3-8 (cont.): Household Hazardous Waste Recycled (2002-2007)**

\* Includes 1998-2001, which are not shown on table.

\*\* Corrosives changed from reporting in gallons to pounds in 2004

\*\*\* Not recorded for these years

Motor oil remains the most abundant and frequently recycled household hazardous waste. Motor oil and antifreeze are recycled throughout the County at drop-off facilities operated by the Baltimore County Department of Public Works (DPW), in cooperation with the Maryland Environmental Service (MES). Statistics for recycled motor oil and anti-freeze for all participating collection facilities have been reported since 1991. DEPRM provided assistance in establishing the motor oil and antifreeze recycling program at the DPW facilities. County drop-off sites include landfills, transfer stations, two rural DPW Highways shops. The Bowley's Quarters Marina also is a collection site for this program.

The various industries that reuse the materials, recycled oils and metals in particular, pay the market-based price for them. Because the material is essentially donated by people that recycle, the current rates generate sufficient revenue to pay the administrative costs of the program, which is facilitated by Maryland Environmental Service (MES). Individual commercial facilities that do not participate in the program, such as garages, gasoline stations, and tire and auto centers, are not included. They are typically paid directly by scheduled collectors.

Figure 3-6 displays the estimated statistics for recycled combustibles, gasoline and pesticides. After three years of steady increases, the amount of recycled gasoline has remained relatively steady in a range of 2,000 to 3,000 gallons per year. The amount of pesticides recycled declined in 2003, however, this could be due to the cancellation of the fall collection event caused by hurricane Isabel. Similar reductions in toxic materials, corrosives, latex and solvent-based paints

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were also attributed to the cancellation of the same event. The 2005 collection results in an increase in pesticides collected to its highest level, 16,150 pounds.

Flammables had shown an increase each year until 2003, when amounts declined significantly, by 2,145 gallons. These decreases were also the result, at least in part, to the cancellation of the fall event due to hurricane Isabel. Paint sludge is now bulked together into the same drums with other combustible material and labeled as flammable. These categories were first combined for the 2002 report, making that year the largest amount recycled so far. In previous reports, these two materials were reported separately. This explains the dramatic increase in flammables recycled in 2002. The greatest volume, 9,570 gallons, was recycled in 2004 with a slight decrease in 2005 to 8,910. For 2007, the totals for all three categories declined.

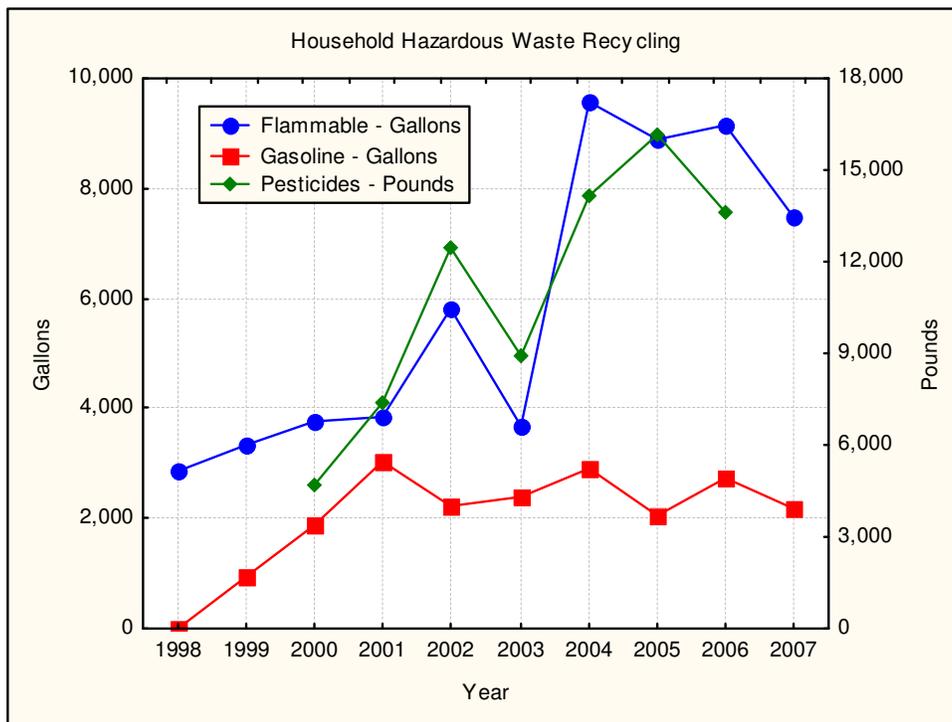


Figure 3-6. Household Hazardous Waste Recycling of Flammables, Gasoline, and Pesticides.

Mercury was added to the list of solid wastes in 2001, showing a steady increase from 20 pounds in 2002 to a peak of 168 pounds in 2003. An increase to 112 pounds this year has occurred after several years of decline from the 2003 peak. There are mercury TMDLs for the Prettyboy, Liberty and Loch Raven Reservoirs and this program helps to meet that criteria.

Oil and antifreeze recycling is reported through Maryland Environmental Service, local government, and private facility partnership efforts. Additional unreported recycling of oil and anti-freeze occurs through a network of 65 private sector collection centers across the County, most of which are neighborhood gas/service stations. As can be seen in Figure 3-7 the recycling of motor oil has been around 100,000 gallons since 1998, holding steady for 2007 at 86,055 gallons. A total of nearly 1.5 million gallons of motor oil has been collected for recycling since 1991. The annual volume of recycled anti-freeze, as shown in Figure 3-7, is typically between 4,000 to 5,000 gallons. Following an initial increase in 1992, antifreeze amounts reached this

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average by 1993. 2007 was the exception with an increase to 6,808 gallons. Over 80,600 gallons of anti-freeze have been recycled in Baltimore County since 1991.

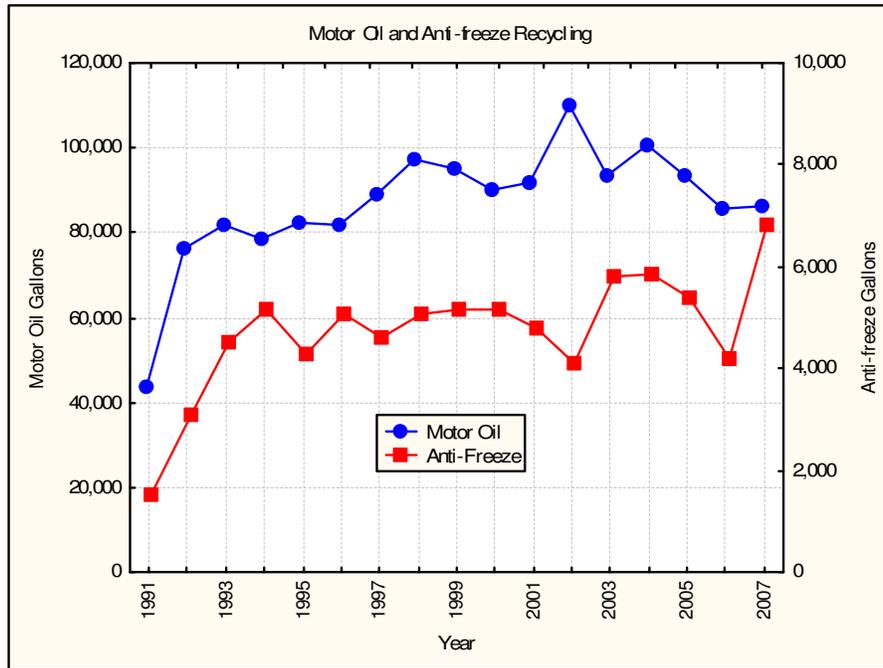


Figure 3-7. Waste Oil and Anti-freeze Recycled from 1991 through 2007

As evidenced by the continued citizen participation, DEPRM’s recycling program for Household Hazardous Wastes continues to be a successful program. The contribution to reducing nonpoint source pollution remains significant.

*3.5.1 Recycling Program Summary*

Baltimore County, through its recycling programs, has made steady progress in reducing toxins in the environment through the DEPRM Hazardous Household Waste Recycling Program and in diverting recyclable materials from landfills through the Maryland State Recycling Act (MRA) solid waste recycling program.

Baltimore County’s Recycling Program has achieved significant progress and continues to be a success story of state and local governments working in partnership with private citizens and local businesses. For 2007, 28,856 tons of paper and 7,274 tons of plastic, aluminum, and glass bottles were collected.

**3.6 Fertilizer, Pesticide, and Deicing Statistics**

Members of the Baltimore County NPDES Management Committee have submitted statistics for usage of fertilizers, pesticides and deicing materials. Quantities of fertilizers and pesticides are reported in pounds, tons, gallons, and ounces. All results have been converted to pounds for this report. Fluid measure is assumed to have a density of 7.0 pounds per gallon. The statistics for 2007 by individual agencies are presented in Table 3-9. The amounts used by the entire County are presented in Table 3-10.

Among the County agencies that fertilize and use pesticides, golf courses are consistently the biggest users of these materials. Deicing materials are also used throughout County agencies.

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Logically, because of its responsibility to clear roads, the DPW– Bureau of Highways remains the biggest user of deicing materials. In 2007, the Bureau of Highways accounted for 99.6% of the deicer material used.

**Table 3-9: 2007 County Agency Fertilizer, Pesticide and Deicing Materials Use (lbs.)**

Agency	Fertilizer	Pesticide	Deicing
<b>Golf Courses:</b>			
Diamond Ridge	36892.6	5,070.9	0
Greystone	460	388.1	25
Gunpowder Falls	10,615	2,088	0
Rocky Point	29,745	10,610	0
Longview	582	3,713.9	0
Woodlands	46,138	5,619.2	0
<b>Golf Course Totals</b>	<b>124,433</b>	<b>27,490</b>	<b>25</b>
Catonsville Comm. Coll.	300	14	160,500
Essex Comm. Coll.	2,000	72.3	59,000
Dundalk Comm. Coll.	2,000	20	85,520
County Public Schools	1,500	576.1	66,800
Bureau of Utilities	0	25	0
Bureau of Highways	0	2,100	156,184,406
Recreation and Parks	2,000	166.6	133,800
<b>Non-Golf Course Totals</b>	<b>7,800</b>	<b>2,974</b>	<b>156,690,026</b>
<b>Totals Pounds =</b>	<b>131,191</b>	<b>26,362</b>	<b>156,690,026</b>

Table 3-10 shows the annual usage of fertilizer, pesticides and deicing material from 1999 through 2007. The 58 inches of snow in the calendar year 2003 resulted in the highest salt usage recorded. The amount of deicing materials used depends not only on snowfall but also the number of events.

**Table 3-10: Annual Fertilizer, Pesticide and Deicing Materials Used By County Agencies (in Pounds)**

Calendar Year	Fertilizer	Pesticide	Deicing Mat.	Snowfall (in.)	Number of Winter Weather Events
1999	275,400	34,320	83,978,000	12.4	8
2000	213,114	21,028	94,467,750	27.2	5
2001	221,609	21,509	48,566,400	7.4	4
2002	200,060	21,229	100,437,859	12.0	5
2003	191,726	22,137	205,164,341	58.0	6
2004	227,309	34,762	147,537,040	8.7	2
2005	133,881	20,899	185,118,740	24.5	10
2006	166,870	29,607	23,888,950	13.1	2
2007	131,191	26,362	156,690,026	14.4	7
<b>Totals</b>	<b>1,761,160</b>	<b>231,853</b>	<b>1,045,849,106</b>		