

# Municipal Waste Management Plan Revision 2006 - 2015



June 2006

MONTGOMERY COUNTY COMMISSIONERS

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Financial assistance for the preparation of this plan was provided in part by a grant from the Pennsylvania Department of Environmental Resources under the provisions of Act 101, the Municipal Waste Planning, Recycling and Waste Reduction Act.

# Municipal Waste Management Plan Revision 2006 - 2015





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# Chapter 1

## Existing Plan, Plan Update Requirements and Process

### Existing Plan and Contents

The 1990 Municipal Waste Management Plan was prepared as a supplement to the approved Plan to reflect changes to the collection, transport, processing, and disposal of municipal waste in the county and to plan for new municipal waste and recycling programs. The existing Integrated Waste Management System in the county was developed under the 1990 Plan. This integrated system is comprised of four components: waste reduction, recycling, energy recovery through incineration (waste-to-energy), and landfilling. The 1990 Plan expands on each of these four system components, and discusses other issues including a description of waste (municipal and residual), a description of facilities, estimated future capacity requirements, recycling, location of facilities, and plan implementation.

The 1994 revision to the Plan was prepared to revise the waste systems in the Northern and Western Districts, and to address special waste handling and recycling issues. Since the Montgomery County Municipal Waste Management Plan's adoption in 1986, the Plan has been revised and supplemented to address various changes in the waste management environment. References to the Plan shall generally be considered to refer to all such revisions, including this Plan revision except when the context makes it clear that a narrower meaning is intended.

### Context of Municipal Waste Planning

Montgomery County has been planning for and managing the processing and disposal of municipal waste since the Refuse Collection and Disposal Plan was completed in 1962. Prepared by the PA Economy League, the 1962 Plan contains recommendations for municipal waste management. Subsequent plans addressed the various processing and disposal issues that the county was facing at that time. The 1985 Plan was prepared under Act 97, the predecessor of Act 101, which was passed in 1988. A supplement to the 1985 Plan was prepared to address the requirements of Act 101. The Plan Supplement was approved in 1989, and the county's Plan was determined by DEP to be in compliance with Act 101.

### Municipal Waste Management Plan Update Requirements and Process

Act 101 requires the Montgomery County Municipal Waste Management Plan to be updated at least every 10 years. The Act requires that the plans ensure at least 10 years of disposal capacity is available through contracts with permitted disposal facilities. The Plan must also show what steps are being taken to comply with the State's mandatory diversion rate through recycling. This plan supplement will satisfy these two requirements of Act 101, and address additional issues that the county currently faces.

The Plan update process began on October 16, 2003, when the county sent a letter of intent to update the Plan to Calvin E. Ligons, Solid Waste Supervisor at DEP Southeast Region. A month later, the county met with Calvin Ligons and Mary Alice Reisse of DEP to discuss the requirements for the update and the scope of the Plan Update.

After the discussion, it was apparent that the Plan revision would likely be a “nonsubstantial” update, showing that sufficient capacity exists and that the necessary steps to achieve recycling rate were being taken.

Advisory Committee: The next step in the update process was to form an advisory committee. Chapter 272 of the Pennsylvania Code (Municipal Waste Planning, Recycling and Waste Reduction) requires that the county form an advisory committee. According to the PA Code, “The committee shall review the plan during its preparation, make suggestions and propose changes it believes appropriate.” A list of potential members was prepared and submitted to the County Commissioners, who then formed the Municipal Waste Advisory Committee (MWAC) by resolution in January 2005.

Act 101 specifies the composition of the MWAC as follows:

1. At least one representative from 1st class/second class township, home rule municipality, and borough
2. Citizen: A resident of the county
3. Industry: representative of industry in general in the county
4. Private Waste Company: representative of the waste management industry in the county
5. Private Recycling Company: representative of the recycling industry in the county
6. County Recycling Coordinator

Figure 1 lists the Municipal Waste Advisory Committee members and their designation pertaining to Act 101 requirements. Mary Alice Reisse, PADEP Southeast Region, was also an active participant at the WPAC meetings. Some of the MWAC members were unable to attend the meetings, or attended only a few, due to other commitments. All members of the committee received the minutes of the meetings and any handouts distributed, including the draft chapters. The resolution to form the Advisory Committee, passed by the County Commissioners on January 13, 2005, is included in the appendix, along with copies of the minutes of the MWAC meetings.

Mary Alice Reisse from DEP Southeast Region, Michael Stokes and Drew Shaw from the Montgomery County Planning Commission, assisted the MWAC during the monthly meetings, which were held from the spring of 2005 to the summer of 2006. The topics of those meetings covered the required material for the Plan update under Act 101, and other various issues relating to municipal Solid Waste (MSW). Draft chapters of the Plan update were reviewed in draft by the MWAC and discussed at the monthly meeting.

## Plan Preparation

This Plan update was initially started to meet the requirements of Act 101. As such, it needs to show that adequate capacity exists for disposal of the county’s MSW from 2006 to 2015, and show that the county’s recycling program is effective in diverting a significant volume of recyclables away from disposal.

The following are the overall goals for municipal waste management in Montgomery County:

1. Secure commitments for disposal capacity at the landfills listed in this plan to satisfy the county’s need for capacity for the next ten years.
2. Increase recycling rates, particularly in those municipalities with low rates.

Figure 1  
Municipal Waste Plan Advisory Committee

NAME AND AFFILIATION	ACT 101 DESIGNATION				
	MUNICIPAL DESIGNATION	CITIZEN	INDUSTRY	PRIVATE WASTE Co.	PRIVATE RECYCLING Co.
Donald Berger <i>Springfield Twp. Manager</i>	1st Class				
Phyllis Bittenbender <i>Pennsburg Council</i>	Borough				
Timothy Boyd* <i>Plymouth Twp. Public Works</i>	Home Rule				
Richard S. Burns <i>Richard S. Burns Sanitation Co.</i>				X	
Vincent Catagnus <i>A. J. Catagnus, Inc</i>					X
P. Michael Coll <i>Souderton Borough Manager,</i>	Borough				
Burton T. Conway <i>Abington Twp. Manager</i>	1st Class				
Phil Dahlin <i>McNeil Pharmaceutical</i>			X		
Albert DeGenarro <i>J. P. Mascaro and Sons</i>				X	
Theodore Dorand <i>Towamencin Twp. Supervisor</i>	2nd Class				
Art Feltes <i>Mont. Co. Recycling Coord.</i>					
Ralph Fluharty <i>New Hanover Twp. EAC</i>	2nd Class				
Ned Foley <i>Two Particular Acres</i>		X			
David Froehlich <i>Wissahickon V. Watershed Assn.</i>		X			
Kenneth Hamilton <i>Souderton High School</i>		X			
Rodney P. Hawthorne <i>Lower Pottsgrove Twp. Manager</i>	1st Class				
Randy Hendricks <i>Specialty Waste Services Inc.</i>				X	
Jack P. Layne <i>Pottstown Borough Manager</i>	Borough				
Tony Manhertz <i>BFI Waste Systems</i>					X
Thomas Maslany <i>Perkiomen Watershed Cons.</i>		X			
Jay McLaughlin <i>Waste Management</i>				X	
John Miller <i>John Miller, Inc.</i>				X	
Thomas Murphy <i>Montenay Energy Resources</i>				X	
Chuck Oyler* <i>U. Dublin Twp. Public Works</i>	1st Class				
Stephen Ruprecht <i>Merck &amp; Company</i>			X		
Andrew Sabia <i>Domino Salvage</i>					X
Christopher van de Velde <i>Acting Mgr., Whitemarsh Twp.</i>	Home Rule				

3. Develop a better system for tracking residential and nonresidential recyclables in the county.
4. Determine a sustainable strategy for funding the Specialty Waste Collection Program (Household Hazardous Waste and electronics).
5. Continue to be involved in the Pottstown Landfill post closure activities and the use of the site, including any effort to site a transfer station in the area.
6. Gain a better understanding of construction and demolition waste processing; encourage recycling of material where appropriate.
7. Gain a better understanding of biosolids management in the county, and encourage its beneficial use.

The MWAC has played an important role in helping the county meet these goals. The committee suggested that the Plan update contain information on biosolids, construction and demolition waste, and composting food waste. The information required by Act 101 will be presented in the following sections, followed by the subjects suggested by the MWAC.

# Chapter 2

## Context of Municipal Waste Planning in Montgomery County

This plan supplements and revises in specific ways the 1994 Municipal Waste Management Plan Revision. That plan likewise selectively revised previous plans. The various plans and implementation documents prepared by Montgomery County provide the basis for an evolving waste management system that has serviced the county for nearly the past five decades. The various plans and studies addressed critical issues in the management of municipal waste and the requirements of state laws and regulations. The county has prepared and implemented the following plans that have established the current municipal waste management system operating in the county:

### Municipal Waste Planning in Montgomery County

#### **1962 Refuse Collection and Disposal Plan**

The 1962 Plan, which was prepared for the county by the Pennsylvania Economy League, focused on the potential health issues pertaining to the management of municipal waste and the inconsistent pricing structure of collection service. At that time several small unlined landfills and municipal incinerators were used to manage solid waste in the county. The plan recommended the adoption of standards and regulations governing the management of municipal wastes and suggested that the county work with municipalities in securing and developing property for a sanitary landfill.

#### **1972 Plan**

In 1972, a solid waste management plan was prepared for the county by A. W. Martin Associates, Inc. under the Pennsylvania Solid Waste Management Act (Act 241 of 1968). This plan established a waste management system to be operated by the county involving landfill disposal, the phase out of older municipally run incinerators, and the establishment of 3 transfer stations.

With the adoption of the 1972 Plan, the county established landfills at two former limestone quarries in Upper Merion Township and West Conshohocken Borough. Both landfills were managed by the county solid waste department and received wastes from municipalities and private haulers in the eastern portion of the county until 1985. The county developed a trash transfer station at the Abington incinerator, and Lower Merion Township converted their incinerator into a transfer station.

#### **1985/1988 Plan**

In the early 1980s the county developed a municipal waste management plan under the Solid Waste Management Act (Act 97 of 1980). At the time it was recognized that capacity at the two county landfills in Upper Merion Township and West Conshohocken Borough was limited and the county's attempts to establish two new quarry based landfills in Plymouth Township would not be successful. The municipal waste management plan prepared in 1985 envisioned six separate waste management areas to be serviced by various disposal and processing facilities. The two service areas in the eastern portion of the county would utilize a waste to energy plant to be located in Plymouth Township. The district roughly comprising the North Penn Area would use a 425 ton per day waste to energy plant to be developed by the North Penn Area Regional Waste Management Commission. The three other districts covering the western portion of the county would continue to work with the county to designate a

resource recovery facility to meet their waste disposal needs. The plan received preliminary approval by the Department of Environmental Resources (DER) on May 6, 1985 (In 1995, certain functions of the Pennsylvania Department of Environmental Resources (DER) were taken over by the newly formed Department of Environmental Protection (DEP)).

In 1988 a supplement was prepared to make the 1985 Plan conform to Act 101 and was approved by the DER on May 15, 1989. As a condition of approval the county agreed to prepare a complete plan under Act 101 prior to September 1990.

### **1990 Plan**

The municipal waste management plan adopted and ratified in 1990 further refined the waste management system developed in the 1985 Plan and 1988 Plan supplement. The plan emphasizes the development of an integrated waste management system consisting of waste reduction, recycling, volume reduction and resource recovery through incineration, and landfilling. Volume reduction and resource recovery in the eastern district would be performed at the 1200 ton per day Montenary Waste to Energy Facility through a contract managed by the Waste System Authority of Eastern Montgomery County. In the North Penn Area, the Waste System Authority of Northern Montgomery County replaced the North Penn Area Regional Waste Management Commission and entered into a 10-year interim disposal agreement with Waste Management Inc. Additionally, the Northern Authority initiated a process to procure long-term resource recovery based processing operations. The Waste Authority of Western Montgomery County was formed to manage waste from the three waste management areas in the western part of the county. Like the Waste System Authority of Northern Montgomery County, the Western Authority entered into a 10-year contract with Waste Management, Inc. for disposal services initiated a process to procure long-term resource recovery based processing operations.

DER approved the 1990 Draft Municipal Waste Plan Revision on November 20, 1990. The county submitted the complete set of implementation documents required under Condition Number One of the approval in September 1991. On November 18, 1991, DER acknowledged that all required implementation documents had been submitted.

### **1994 Plan Revision**

This plan prepared in accordance with the Municipal Waste Planning, Recycling and Waste Reduction Act ("Act 101") is a revision to the 1990 Montgomery County Municipal Waste Management Plan. The plan revision only amended and revised portions of the 1990 Plan. Other elements of the 1990 Plan that were not specifically revised remain unchanged. This also includes the implementation documents developed and executed in accordance with the 1990 Plan.

The 1994 Plan revision was developed in response to concerns raised about elements of the municipal waste management system in the county and the issues raised by the United States Supreme Court's 1994 decision in C&A Carbonne. It was felt that changes within the solid waste industry throughout the Commonwealth created opportunities for the county to provide a more efficient, environmentally sound, and lower cost waste collection and disposal system for Montgomery County. The plan developed a multiple site waste disposal system for the northern and western systems to replace the waste disposal contracts with Waste Management, Inc. Also, with the open disposal system and the fact that waste to energy disposal systems were no longer viable for the northern and western districts, the two authorities representing those areas were no longer needed. The plan also addressed special waste disposal needs and recycling efforts required to achieve further reduction of waste volumes.

The Waste System Authority of Western Montgomery County and the Waste Sys-

tem Authority of Northern Montgomery County formed in order to implement the 1990 Plan were both terminated on September 1995. The assets, staff, and legal obligations of the authorities were transferred to the county. Under the revised municipal waste management plan, the county took over the management of the multi-site waste disposal system through an agreement with the Eastern Authority (1 In 1995, certain functions of the Pennsylvania Department of Environmental Resources (DER) were taken over by the newly formed Department of Environmental Protection (DEP)).

This 1994 municipal waste management plan was approved by DEP on February 16, 1996. Implementation agreements for the plan regarding the dissolution of the Northern and Western Authority and the transfer of enforcement responsibilities were reviewed and approved by DEP.

Additional implementation agreements were submitted in 1998 and 2000 regarding Montgomery County's Waste Generation Fee (WGF) system implemented in January 1999 by the Waste System Authority of Montgomery County. The Waste Generation Studies prepared in August 1998 and September 2000 document the technical basis for establishing the waste generation rates of numerous categories of business and residential waste generators. These documents were approved by the DEP.



# Chapter 3

## Capacity Assurance

### Request for Capacity

As preparation of the Plan update began, a Request for Proposals for Municipal Solid Waste Capacity was issued through the PA Bulletin and via an advertisement in Waste Age. The RFP as it appeared in the PA Bulletin and in Waste Age is included in the appendix. At the suggestion of the MWAC, the notice was also sent to each of the facilities listed in the 1994 Plan. Letters of interest were received from 15 facilities. Each of the responding facilities was sent a short survey that would help determine if including the facility in the Plan update was appropriate. The survey responses were evaluated for including the facility in the Plan update. Available capacity, distance from the county, and capacity agreements with other counties were all considered. Those facilities determined to be suitable for including in the plan will be sent capacity agreements for execution.

### Capacity Assurance

The county is charged with showing that adequate disposal capacity exists for the ten-year scope of this Plan Update. Two figures are needed for this determination: an estimate of the municipal waste generated in the county over the next ten years, and assurances from facilities listed in the plan that capacity exists for disposing of this waste in accordance with current operating permits.

### Projected Municipal Waste Volumes

The amount of MSW disposed of in any one year is the result of many factors, including population, economic health, new construction (both residential and nonresidential), and recycling rates. The amount of municipal solid waste (MSW) generated in the county rose from 490,821 tons in 1995 to 791,175.4 tons in 2004. This represents an increase of 300,355 tons, or 38.0% over the ten-year period. However, it is interesting to note that disposal rates did not increase evenly or even linearly over the ten years. As Figure 2 shows, there were periods of increase and decrease in the disposal rates. The chart only reflects in-state disposal, and reporting errors could be a factor influencing the data. The population increase and the amount of MSW generated per person are provided in the chart below for comparative purposes. It is important to note that the per capita tonnage of MSW has been steadily increasing, emphasizing a need for increased efforts in promoting recycling, and demonstrating a continued need for disposal capacity.

### Calculating Future Disposal Needs

The numerous factors that influence waste generation make it difficult to project the amount of MSW that will be disposed of ten years from now, and thereby, the amount of disposal capacity needed. However, a rough idea of the disposal capacity needed can be gained using three methods: population increase, the average yearly increase in waste generated and total increase in the last ten years. In all three scenarios, the assumption is made that there will be no change in recycling rates.

*Population increase:* U.S. Census Department population projections estimate that

Figure 2  
**Municipal Waste Disposal in Montgomery County 1995 - 2004**

YEAR	TONS MSW GENERATED	% CHANGE FROM PREVIOUS YEAR	# CHANGE FROM PREVIOUS YEAR	POPULATION	POPULATION INCREASE	PERCENT INCREASE	TONS MSW PER PERSON	PER CAPITA INCREASE	PERCENT INCREASE
1995	490,820.8			710,000			0.69		
1996	541,295.9	9.3%	50,475.1						
1997	503,997.9	-7.4%	-37,298.0						
1998	628,499.8	19.8%	124,501.9						
1999	700,344.8	10.3%	71,845.0						
2000	711,415.9	1.6%	11,071.1	750,097	40,097	5.3%	0.95	0.26	27.1%
2001	673,692.6	-5.6%	-37,723.3						
2002	787,016.5	14.4%	113,323.9						
2003	830,487.3	5.2%	43,470.8						
2004	791,175.4	-5.0%	-39,311.9	774,000	23,903	3.1%	1.02	0.07	7.2%

1995 and 2004 populations are estimates, based on U.S. Census Bureau and DVRPC data

the county's population in 2015 will be 818,220. Figure 2 above shows that the per capita waste generation figure was 0.69 in 1995, 0.95 in 2000, and 1.02 in 2004. Though not a straight arithmetic increase, these figures would indicate a per capita generation rate of around 1.1 in 2010, and 1.15 in 2015. Using 1.15 tons per person and a 2015 estimated population of 818,220 yields a projected total waste generation amount of 940,953 tons in 2015.

*Average Yearly Increase:* The average yearly increase in waste generated is 4.7%. Increasing the tons generated per year for each year by this amount for years 2005 through 2014 results in an estimate of 1,252,390 tons of waste generated in 2014.

*Total 10-year Increase:* Applying the total increase over the past 10 years (38%) to the next decade provides an estimate of 1.1 million tons generated in 2014.

Using these three methods yields a range of possible generation rates for 2015 of between 0.94 million tons and 1.25 million tons. Figure 3, Per Capita Waste Generation and Disposal Needs, assumes a steady increase in population and waste generation. Beginning with a 2005 estimated population of 782,040 and an estimated tonnage of 793,580, the chart progresses to a 2015 population of 818,220 and a tonnage of 949,135 (based on a per capita generation rate yearly increase of 0.014 tons). The total amount of municipal waste generated during that 10-year period is 9,575,650 tons. Dividing this figure by 3,650 (the number of days in ten years) yields 2,623 tons per day. This is the capacity that the county will require for waste disposal over the life of the plan.

The county contacted the waste disposal facilities that had indicated a willingness to provide disposal capacity to the county and requested a rough estimate of the amount of municipal solid waste each facility could accept from the county. The estimate of available capacity specifically for Montgomery County is not a guarantee of capacity, nor is it a contractual amount. It is merely an initial estimate of capacity available to the county at each facility in order to assess if adequate capacity exists to accommodate the county's municipal solid waste over the next ten years.

Figure 4 shows that sufficient capacity is available for this purpose. As indicated by the facilities, this capacity would be available once the final capacity assurance documents are finalized. The daily need that has been calculated is an average figure over the 10-year planning period. For example, based on population figures and the waste

Figure 3  
**Per Capita Waste Generation and Disposal Needs**

YEAR	PER CAPITA INCREASE (Tons)	ESTIMATED POPULATION YEARLY INCREASE	PER CAPITA WASTE GENERATION RATE MULTIPLIED BY THE ESTIMATED POPULATION	ESTIMATED DAILY CAPACITY NEED* (Tons)
2005		778,020	793,580	2,174
2006	1.034	782,040	808,629	2,215
2007	1.048	786,060	823,791	2,257
2008	1.062	790,080	839,065	2,299
2009	1.076	794,100	854,452	2,341
2010	1.090	798,120	869,951	2,383
2011	1.104	802,140	885,563	2,426
2012	1.118	806,160	901,287	2,469
2013	1.132	810,180	917,124	2,513
2014	1.146	814,200	933,073	2,556
2015	1.160	818,220	949,135	2,600
			<b>Total: 9,575,650</b>	

\*Based on a 5.5 day per week collection

generation rate, the capacity needed in the first year (2006) would be 2,174 tpd. In the final year (2015), the daily capacity need would be 2,600 tpd. Since the initial indication of available capacity is 2,911 tpd, there is adequate disposal capacity throughout the 10-year planning period. Following approval of this plan by PADEP, the county intends to execute capacity assurance agreements with these facilities to guarantee sufficient disposal capacity.

Figure 4  
**Regional Disposal Capacity**  
 Initial Allocation for Montgomery County MSW

FACILITY NAME	ESTIMATED RATE	TONS*	90% PER DAY	CUMULATIVE OF RATE CAPACITY
Brooke County Landfill	33 TPD	33	30	30
Chrin Brothers Landfill	100 TPD	100	90	120
Commonwealth Env. Systems	100 tons per week	17	15	135
Conestoga/New Morgan Landfill	200 TPD, 6 days/wk	170	153	288
COVANTA Delaware Valley	1000 TPD	1,000	900	1,188
GROWS Landfill	150 TPD	150	135	1,323
Harrisburg MERRF	100 TPD, 7 days/week	100	90	1,413
IESI Bethlehem Landfill			0	1,413
Keystone Sanitary Landfill	100 tons per week	17	15	1,428
Lanchester Landfill	1,500 tons per year	5	4	1,432
Montenay Waste to Energy	1200 TPD	1,200	1,080	2,512
Pioneer Crossing Landfill	300 TPD	260	234	2,746
Tullytown Landfill	150 TPD	150	135	2,881
Veolia ES Chestnut Valley <sup>o</sup>	100 TPD	100	90	2,971
Veolia ES GreenTree Landfill <sup>o</sup>				
Wetzel County Landfill	33 TPD	33	30	3,001
<b>Total Daily Capacity Available:</b>				<b>3,001 TPD</b>
<b>Total Daily Capacity Needed:</b>				<b>2,623 TPD</b>
<b>Excess Daily Capacity (TPD):</b>				<b>378 TPD</b>

\* Based on 365 days per year

<sup>o</sup> 100 TPD total for these two facilities

## Municipal Waste Disposal Facilities and the County Plan

Municipal waste disposal facilities may appear to be static components of the landscape, but they in fact are constantly changing as they apply for and in many cases receive permits to expand. Landfills may also close, as they reach capacity or fail to receive permit renewal. These changes affect the county plan and the availability of disposal capacity. As part of the plan update, the county surveyed existing facilities and considered the impacts associated with facility closure.

### Facility Survey

The facilities that responded to the county's advertised intent to update its Municipal Waste Management Plan were mailed a short survey. In addition, facilities included in the current plan, and known facilities in the region received notice. The mailing list included 24 facilities, both landfills and incinerators. The advertisement and the mailing list of facilities are included in the Appendix.

- The survey requested the following types of information:
- Permit Information (number and date)
- Capacity Information (permitted capacity, current disposal rate, remaining capacity)

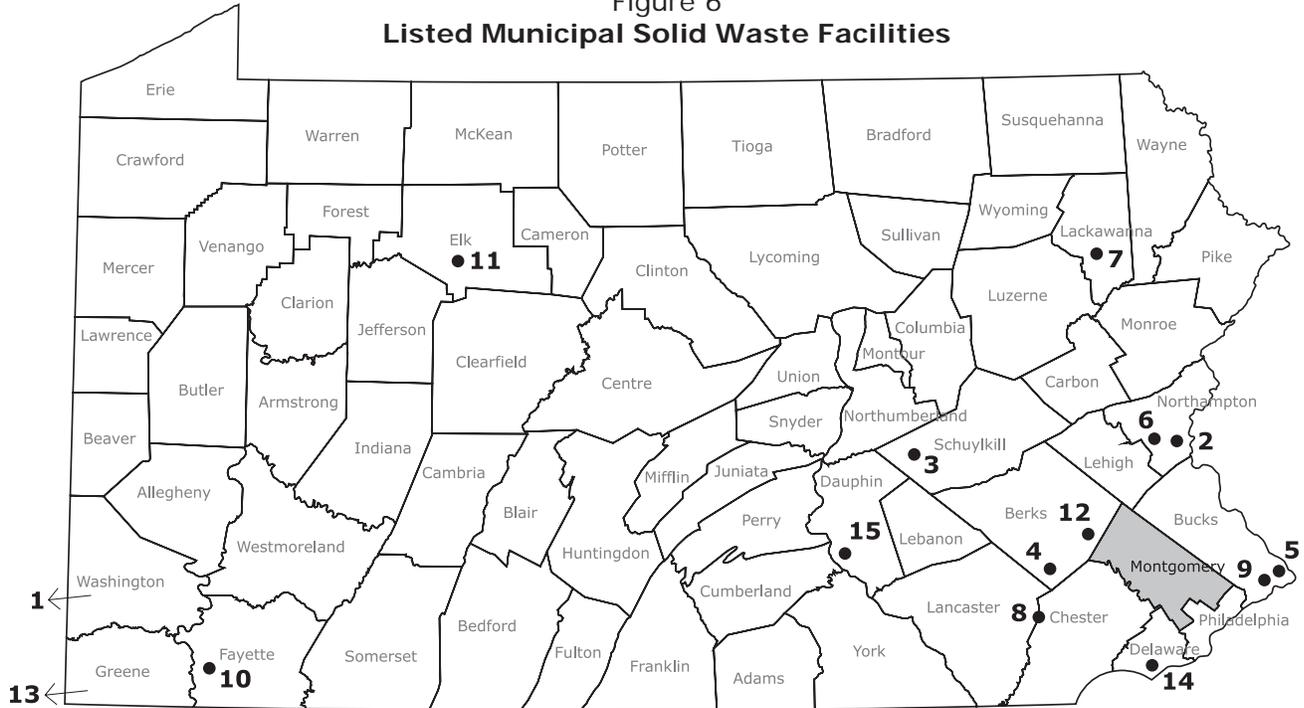
Figure 5  
**Facilities Responding to the Request for Capacity**  
 (Facilities listed in the County Plan)

FACILITY NAME, PERMIT AND DATE	OWNER	LOCATION (MILES FROM NORRISTOWN)
Brooke County Landfill SWF-1013 WV0109020 12/12/03	Valero Terrestrial Corporation	330
Chrin Brothers 100022 4/61	Charles Chrin	57
Commonwealth Environmental 101615 12/1/04	Louis & Dominic DeNaples	107
Conestoga Landfill Co 101509 2/11/02	New Morgan Landfill Company, Inc.	35
Covanta Delaware Valley 400593 9/7/99	Covanta Energy	27
Greentree Landfill 101397 3/12/01	Veolia Environmental Services	267
GROWS Landfill 100148 3/22/04	Waste Mgt. Disposal Services of PA	35
Harrisburg MERRF 100758 6/20/05	The Harrisburg Authority	91
IESI Bethlehem Landfill 100020 5/17/03	IESI Corporation	51
Keystone Sanitary Landfill 101247 3/4/05	Louis & Dominic DeNaples	83
Lanchester Landfill 100944 7/15/05	Chester County Solid Waste Authority	41
Montgomery Co. Res. Rec. Facility 400558 3/25/04	Montenay Montgomery Ltd. Partnership	3
Veolia ES Chestnut Valley 100419 9/17/90	Veolia Environmental Services	292
Pioneer Crossing 100346 5/30/02	F.R.&S. Incorporated	32
Tullytown Landfill 101494 4/12/00	Waste Mgt. Disposal Services of PA	33
Wetzel County Landfill/Mascaro SWF-1021 WV0109185	Lackawana Transport Company	365

- Municipal Information (which counties include the facility in their Municipal Waste Management Plan, which long term contracts the facility has with other municipalities)
- Planning Information (future expansions, permit modifications)

20 Surveys were mailed out, 15 responses were received. The facilities that expressed an interest in being included in the Plan Update are listed in Figure 5. These are the facilities that are listed in the Plan for disposal of municipal solid waste. A map of these facilities and transfer stations serving Montgomery County is contained in Figure 6.

Figure 6  
Listed Municipal Solid Waste Facilities



**Landfills**

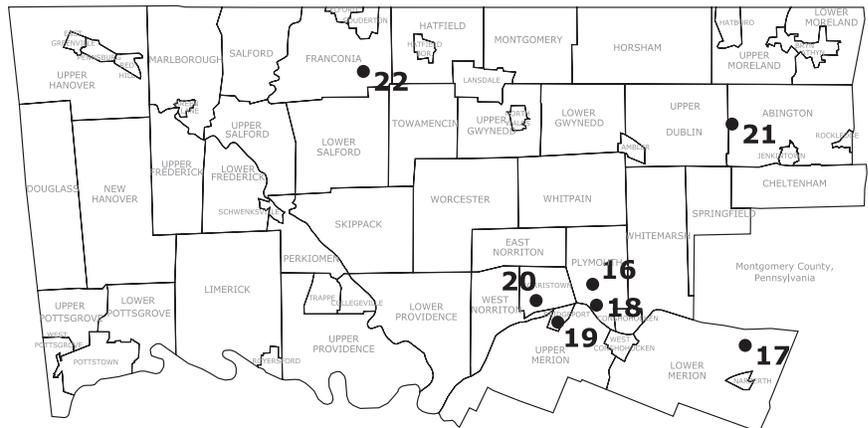
- 1 Brooke County
- 2 Chrin Brothers
- 3 Commonwealth Environmental
- 4 Conestoga/New Morgan
- 5 GROVS
- 6 IESI Bethlehem
- 7 Keystone Sanitary
- 8 Lanchester
- 9 Tullytown
- 10 Veolia ES Chestnut Valley
- 11 Veolia ES Greentree
- 12 Pioneer Crossing
- 13 Wetzell County

**Waste-to Energy Facilities**

- 14 Covanta Delaware Valley
- 15 Harrisburg
- 16 Montgomery County

**Montgomery County Trash Transfer Stations**

- 17 Lower Merion
- 18 BFI River Road
- 19 Great Valley Recycling
- 20 Veolia
- 21 Abington
- 22 J. P. Mascaro



Although some of these facilities are located far from Montgomery County, the existing trash transfer stations are adequate to provide transfer capacity needed to make long-range hauling feasible. The existing transfer facilities are listed in Figure 7.

Figure 7  
**Transfer Stations in Montgomery County**

TRANSFER STATIONS	LOCATION	PERMITTED VOLUME (TPD)	TRANSFER STATION OPERATOR	DEP PERMIT NUMBER/MCPC NUMBER
Abington	Upper Dublin	940	WSAEMC	100817/T13
BFI River Road	Upper Merion	1,500	BFI	101609/T8
Great Valley Recycling	Bridgeport	600	J. P. Mascaro	101497/T10
Lower Merion	Lower Merion	409	Lower Merion	101076/T14
J. P. Mascaro	Franconia	800	J. P. Mascaro	101237/T1
Santangelo	Norristown	300	Santangelo Hauling	101432/T6

Additional transfer capacity is available in neighboring counties. For example, some haulers operating in Montgomery County may also use the Waste Management transfer station on Progress Drive in Hilltown Township (1,200 tons per day, DEP permit # 101390). This facility's location only 8 miles from the county line facilitates its use by haulers operating in Montgomery County.

Figure 8  
**Remaining Capacity in Facilities Responding to Survey**

LANDFILLS			
FACILITY	REMAINING CAPACITY (TONS)	DISPOSAL RATE (TONS PER DAY)	YEARS OF OPERATION LEFT
Brooke County	4,562,500	250	50.0
Chrin Brothers	6,500,000	1,500	11.9
Conestoga/New Morgan	4,725,000	5,000	2.6
Commonwealth Environmental	3,000,000	2,100	3.9
Greentree	4,600,000	5,500	4.9
GROWS	2,670,000	3,790	2.3
IESI Bethlehem	2,055,333	1,375	4.1
Keystone Sanitary	29,000,000	4,750	16.7
Lanchester	1,166,667	1,100	2.9
Onyx Chestnut Valley	1,441,666	500	7.9
Pioneer Crossing	6,860,000	1,360	13.8
Tullytown	4,030,000	5,660	2.0
Wetzel County	3,650,000	200	50.0
<b>Total Landfill Capacity:</b>		<b>63,922,239</b>	
WASTE TO ENERGY FACILITIES			
FACILITY	RATED CAPACITY (TONS PER DAY)	COMMITTED CAPACITY (TONS PER DAY)	EXCESS CAPACITY (TONS PER DAY)
Del Co Res Rec Fac (Covanta)	5,250	1,850	3,400
Harrisburg Waste to Energy Facility	985	266	719
Montenay Waste to Energy Facility	1,200	1,100	100*
<b>Total Waste to Energy Capacity:</b>		<b>7,435</b>	

*Data in italics is approximate, data in bold is from DEP database.*

*\*Per the existing agreement, the WSAEMC has sufficient capacity in the Montenay facility to process the MSW from eastern Montgomery County municipalities.*

These facilities possess a certain amount of remaining capacity. As part of the survey, each facility listed the remaining capacity available at that facility. Figure 8 shows the estimated remaining capacity available at the facilities. Of course, proposals to expand the facility will affect the available capacity. This figure is important to the county, in that should a facility listed in the plan be unable to provide capacity to the county, the needed capacity would be sought from these other facilities.

## Loss of Several Facilities

Figure 4 shows that the county will require 2,623 tpd of disposal capacity, and that tentative commitments for 2,911 TPD disposal capacity have been received. This gives the county a surplus of over 280 TPD, which would also help temper the loss of any facility listed in the plan with the exception of the Montenay and COVANTA facilities. The available capacity figures are tentative until the capacity certification agreements are signed with the various facilities listed in the plan. It is likely that the available capacity will either remain the same as the estimated capacity, or increase. Should a disposal facility fail to receive permit renewal, it will be dropped from the plan, and the impact of this loss will be evaluated at this time. As stated earlier, it is likely that the capacity certification agreements with the remaining facilities could be renegotiated to accommodate the loss of the dropped facility. However, should the available disposal capacity drop below 75% of the capacity needed to dispose of the MSW for any of the remaining years of the scope of this Plan Update, a plan revision will need to be undertaken.

The majority of the facilities listed in this Plan Update have permits that expire within the 10-year planning time frame of this plan. The county has contacted each of these facilities to determine a preliminary estimate of the disposal capacity available to the county. While many of the facilities acknowledged that the facility permit was expiring within the next few years, none of them indicated that they were not going to apply for a permit renewal. Several with a permit expiration date in the next few years indicated that they were already preparing the renewal application.

Should a facility listed in this plan not receive approval of its permit renewal application, the MSW being sent to that facility will be directed elsewhere. The Plan shows initial commitments from disposal sites totaling several hundred tons per day more than the projected need, providing a buffer should a facility not receive permit renewal. Most of the facilities listed in the plan have indicated that if necessary, the allocation for county MSW could be increased with advanced notice. If a facility were to close, there would be some advance notice, giving the county time to contact other listed facilities to obtain disposal services.

## Pottstown Landfill Closure

Before the Pottstown Landfill closed on October 2, 2005, it had operated for over 50 years in West Pottsgrove Township. Originally owned by the Rhinehart family, it was sold to SCA, which then was acquired by Waste Management, Inc. in 1984. The permitted landfill area encompasses approximately 276 acres including the disposal area, an office, wastewater/ leachate treatment system, gas collection and combustion system, scale house, and laboratory. For many years it was the disposal site for municipal waste, sewage sludge, ash, residual waste, asbestos, and infectious waste generated in the county.

In December 2003, Pennsylvania Department of Environmental Protection (DEP) Secretary Kathleen A. McGinty formally suspended the Department's review of the Pottstown Landfill vertical expansion application and directed Waste Management, Inc.

to close the facility. Following that announcement, the Pottstown Landfill Closure Committee was established to develop a collaborative closure process for the 276-acre landfill that would address the concerns of the community. In doing this, the committee explored not only health issues that pertain to the location of the landfill within the Pottstown area, but has also attempted to examine how the landfill affects the quality of life in the community.

The Committee benefited from professional expertise provided by two different consultants. GAI, Inc., a consulting firm funded by Waste Management, Inc., prepared an assessment of the current status of the landfill. Dr. Henry Cole and Dr. Fred Lee were also hired as peer review consultants for the Committee and funded by Montgomery and Berks counties. Reports with recommendations were prepared by each of the consultants and were used by the Committee in drafting recommendations for the closure of the landfill.

In October 2004, DEP denied Waste Management's application for a vertical expansion of the eastern portion of the Pottstown Landfill. The company had also sought a renewal of its current permit for operation of the landfill, which expired in October 2005. Along with its denial of the vertical expansion, the Department denied the company's application for an operating permit renewal. Waste Management, Inc. appealed those permit decisions to the Environmental Hearing Board which on May 19 upheld the DEP's action. Following that decision, Waste Management, Inc. elected to take no further action in pursuit of an expansion of the landfill, and ceased accepting waste at the landfill on October 2 beginning the closure process.

While the landfill operated, it provided desirable disposal capacity at close proximity to generating sources. Host fees benefited the municipalities and county. With the closing of the landfill, other facilities will be employed for municipal waste disposal. To provide access to these facilities, it may be beneficial for a transfer station to be developed in the western area of the county. Such a facility should be considered to provide reasonable access to various disposal facilities located outside the county. However, the closing of the landfill does not present a capacity problem for Montgomery County. As this chapter shows, there is adequate disposal capacity to meet the county's needs for the next ten years available at other permitted facilities.

## Montenay Agreement

The county's agreement with Montenay expires during the last years of the 10-year scope of this Plan Update. The next Plan Update after this current update will be initiated three years prior to the end of the 10-year scope of this plan. The impacts of the Montenay agreement expiring will be looked at more closely in that subsequent update. For now, it is recognized that the Montenay agreement will need to be renewed, and that renegotiation of the terms should be commenced well in advance of the expiration of the agreement.

## Procedure to Include a Facility in the Waste Plan

The county's 1994 Municipal Waste Management Plan contains the administrative procedures for including facilities in the Plan for disposal of county MSW, as well as the procedure for adding new facilities to the plan. When the 1994 Plan was written, the county was divided into districts. The Northern and Western Districts no longer exist, and other changes to the system have occurred since the 1994 Plan was adopted. The plan designated the Montgomery County Resource Recovery Facility in Plymouth Township as the sole processing and disposal site for the Eastern District. This remains unchanged for the Plan Update. However, it should be noted that the current contract

between the WSAEMC and the resource recovery facility will expire during the 10-year planning period of this Plan Update. For further discussion of this issue, please refer to the Special Consideration of Facilities portion of the Plan Update.

The Plan Update acknowledges that additional facilities may seek to be included in the plan within the 10-year horizon of the Plan, and that it may be beneficial to the county to allow access to them by the haulers collecting in the county. In order to accommodate such new facilities, a procedure was developed for adding new sites to the Plan. The absolute criteria and valutive criteria have been updated below in order to assist the county in meeting its goals of providing the most efficient, environmentally safe, and cost-effective waste disposal system for county residents and businesses.

## Absolute Criteria

The 1994 Plan contained absolute criteria that must be met by any facility wishing to be included in the plan, and valutive criteria to help assess new facilities in the county (proposed after the plan was adopted) to determine if they should be included in the plan.

### A. Absolute Criteria

Absolute criteria, which were required to be met by all facilities to be placed within the plan, was developed by the Municipal Waste Advisory Committee for the 1994 Plan. This criteria has been amended as follows:

1. The facility must be fully permitted and available for receiving wastes on or prior to January 1, 2005 or at the time they are seeking to be included in the plan, and be in full compliance with Pennsylvania Solid Waste Site regulations if located in Pennsylvania or the USEPA regulations promulgated under Subtitle D of the Resource Conservation and Recovery Act (RCRA).
2. The facility shall possess sufficient capacity to handle a portion of the municipal wastes generated in Montgomery County.
3. The facility shall be open for use by all Montgomery County haulers
4. Record Keeping: The disposal site shall demonstrate that it has sufficient record keeping systems in place to accurately account for all waste received from Montgomery County, listed by hauler.
5. Hours of Operation: The facility must be available between the hours of 7 a.m. and 4:00 p.m. weekdays.
6. Capacity Reservation: The facility owner must execute a capacity reservation agreement with Montgomery County.

### B. Valutive Criteria

The valutive criteria for siting new landfill or waste-to-energy disposal sites proposed to be located within Montgomery County was also developed by the MWAC for the 1994 Plan, based on the landfill siting criteria adopted by the county as part of the 1985 Municipal Waste Management Plan. The siting criteria include topography, floodprone areas, areas with potential groundwater pollution through bedrock, high water table and shallow soils, surface groundwater sources, environmentally protected areas, airport restrictions, and developed areas. The county may further evaluate the suitability of all disposal facilities to be located within the county, based upon the following additional criteria:

1. Access

- a) Distance to the facility from various locations in the county (actual driving distance)
- b) Quality of road access
  - located on an arterial road
  - located on a local or residential road or arterial road with weight restrictions
- 2. Disposal Capacity: Expected Available Capacity
  - current permitted airspace sufficient to provide capacity for current average annual usage over ten- year period
  - current permitted capacity less than ten years
- 3. Compliance History of Operator
  - No outstanding or significant major notices of violation at other facilities in the Commonwealth
- 4. Expansion Capabilities
  - Expansion potential exists at the site to provide additional disposal capacity
  - No expansion potential
- 5. Other Types of Waste Accepted at the Disposal Site
  - Site can receive only municipal waste
  - Site can receive municipal and industrial (residual) waste
  - Site can receive municipal, industrial, and hazardous waste

## Capacity Certification Waste Disposal Agreement

The agreement between the owner of the facility and the county ensures that the owner will provide disposal capacity at the facility for suitable municipal waste generated within Montgomery County, while at the same time serves to inform the owner that the county is not obligated to guarantee any minimum quantity of waste for disposal. The agreement further lists facility operating criteria that the owner must guarantee if the facility is to be included in the plan. A copy of the Capacity Certification Waste Disposal Agreement is included in the appendix.

## Designated Disposal

The facilities to be used for disposing of municipal waste from Montgomery County are those listed in Figure 5 that meet the absolute criteria. In the event of a facility to be located in the county, the county may list it depending on how it meets the qualitative criteria. If a listed facility is unable to maintain its permit status, it will be dropped from the list of designated disposal sites in the Plan Update. Disposal sites must continue to serve the county and comply with the policies developed in this Plan Update and the various rules and regulations established by the Montgomery County Waste System Authority and the state. To remain as a listed site, the facility owner or operator must continue to renew a licensing agreement annually. Facilities whose owners or operators fail to do this or do not otherwise comply with the rules and regulations established as part of the county waste management system may be removed from the plan. The county will notify DEP if there is a change in the status of any facility regarding listing in this plan in the annual report filed in accordance with Section 303f of Act 101.

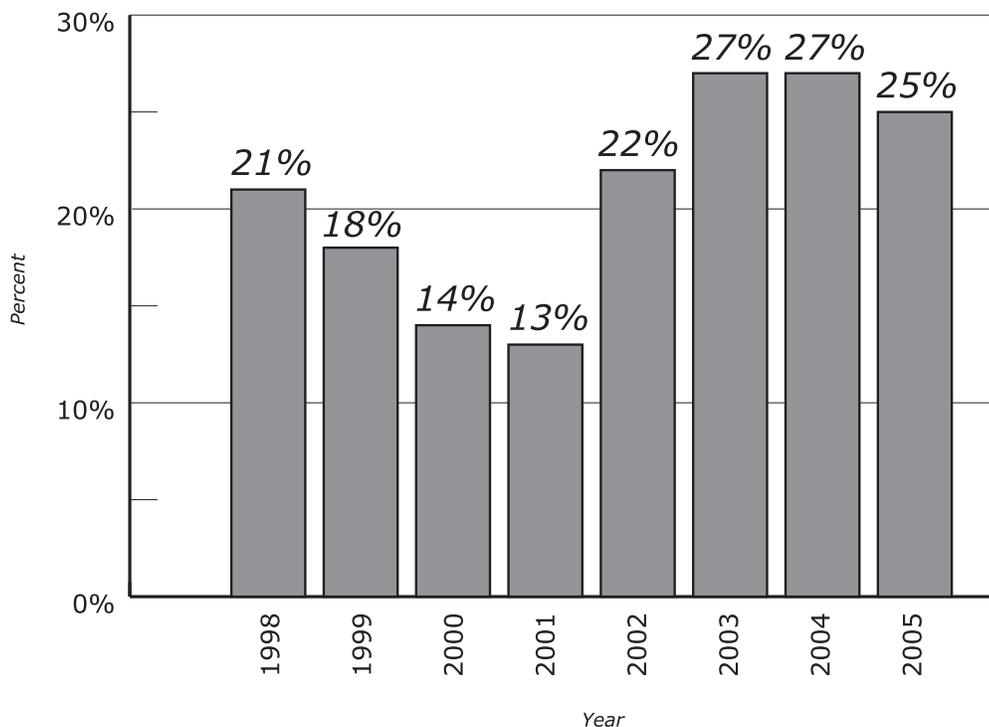
# Chapter 4

## Recycling

The 1990 Plan revision noted that Act 101 established a statewide goal of recycling at least 25% of all municipal waste and source separated recyclable materials. That goal was adopted by Montgomery County and met in the mid 1990s. Subsequently, the goal was met statewide in the late 1990s, and the State set its sights on achieving 35% recycling by 2005. That goal was met statewide in 2003. As Figure 9 below shows, recycling rates in Montgomery County dropped in the late 1990s through 2001, although the rate has been increasing steadily since then. Continued diligence and some innovative efforts are needed to sustain this upward trend and reach the statewide goal of 35% recycling.

The current municipal waste system in Montgomery County relies heavily upon the continued success of various recycling efforts throughout the county. The recycling programs and activities developed prior to Act 101, as well as the substantial number of programs developed in response to mandates within the act, have worked to significantly reduce the quantity of trash disposed of in Montgomery County. However, successful recycling efforts require continual innovation and attention. Currently Montgomery County still falls short of the Commonwealth's 35% recycling goal. This chapter describes some recycling policies and programs to be incorporated into the existing county municipal waste management system to build upon the current recycling effort. Major recommendations included in this chapter focus on a municipal waste program recycling goal hierarchy, compost management, dropoff centers, commercial/institutional facilities recycling, enforcement of recycling ordinances, special waste collection and recycling programs, and recycling and beneficial reuse of incinerator ash.

Figure 9  
**County Recycling Percentage**



# Municipal Waste Collection Program Recycling Goal Hierarchy

The proposed hierarchy for recycling programs recognizes the differences in the municipalities with respect to their ability to reasonably achieve different recycling goals based on the collection of aluminum and steel cans, glass bottles, plastics #1 and 2, and paper. The composting of other materials is addressed in a separate recommendation. Those municipalities able to increase their recycling rates should work towards a higher goal. Other municipalities will need guidance and assistance before they can increase recycling. In parts of the county where curbside collection is not available and dropoff centers are scarce, the county and municipalities should facilitate the creation of one or more dropoff center(s) and emphasize other waste reduction techniques.

Hierarchy:

1. Waste reduction
2. Reuse
3. Curbside or dropoff recycling
4. Waste-to-Energy

The following map (Figure 10) indicates the mandated/nonmandated status of the municipalities, according to the 2000 census and population thresholds contained in Act 101.

Figure 10  
**Mandated/Nonmandated Status of the Municipalities**  
 (Based on the 2000 Census)

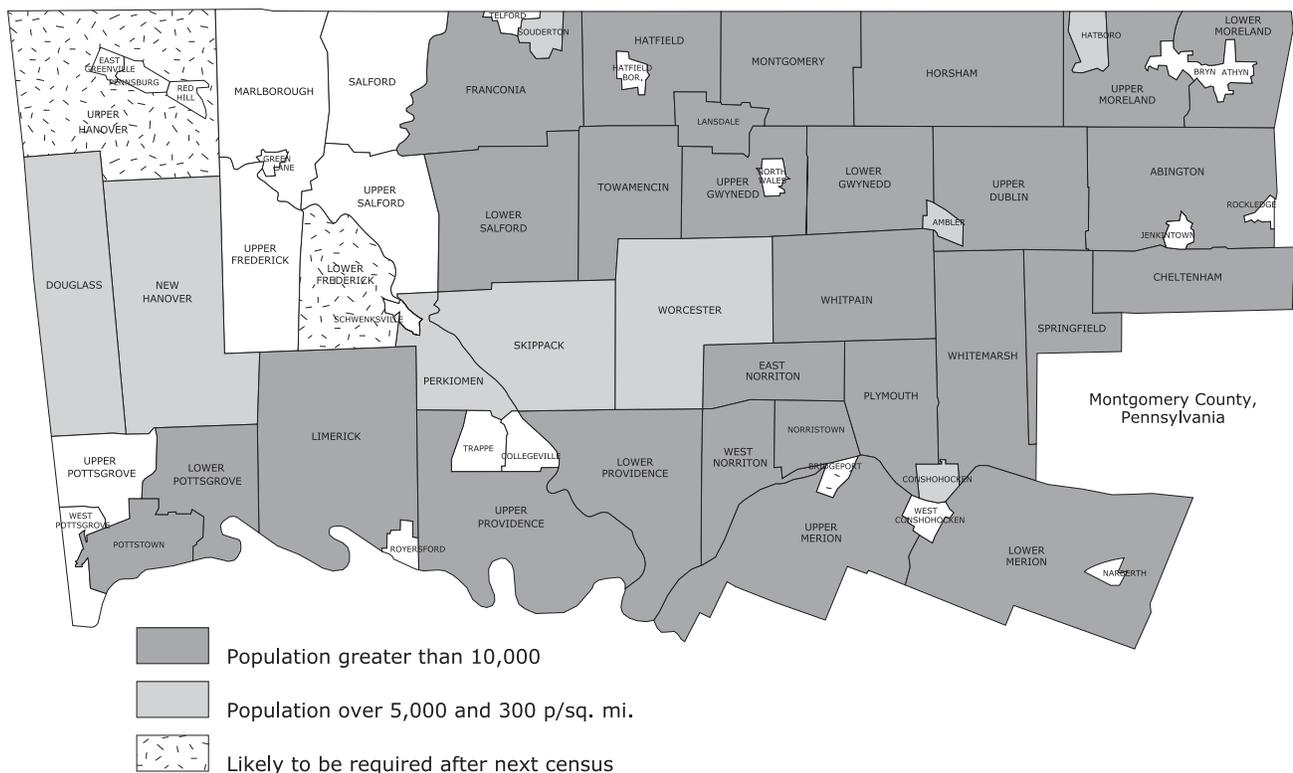


Figure 11  
2005 Municipal Recycling Rate

MANDATED PROGRAMS	PERCENT	NONMANDATED PROGRAMS	PERCENT
Upper Merion . . . . .	76.81%	West Conshohocken . . . . .	82.11%
Abington . . . . .	74.21%	Rockledge . . . . .	80.54%
Lower Moreland . . . . .	46.02%	Telford . . . . .	59.42%
UPPER Dublin . . . . .	44.30%	North Wales . . . . .	36.62%
East Norriton . . . . .	44.09%	Hatfield Borough . . . . .	29.47%
Cheltenham . . . . .	44.06%	*Red Hill . . . . .	24.10%
Montgomery . . . . .	42.60%	Upper Frederick . . . . .	21.02%
Pottstown . . . . .	40.88%	Narberth . . . . .	20.66%
Horsham . . . . .	37.93%	Upper Pottsgrove . . . . .	17.28%
Whitemarsh . . . . .	37.53%	Royersford . . . . .	15.83%
Upper Moreland . . . . .	34.58%	Collegetown . . . . .	11.96%
Lower Salford . . . . .	31.15%	Jenkintown . . . . .	11.39%
West Norriton . . . . .	29.65%	Lower Frederick . . . . .	9.90%
Souderton . . . . .	29.27%	Upper Hanover . . . . .	8.92%
Lower Merion . . . . .	27.74%	Green Lane . . . . .	7.66%
Plymouth . . . . .	27.53%	West Pottsgrove . . . . .	7.18%
Upper Gwynedd . . . . .	26.73%	Bryn Athyn . . . . .	4.12%
Springfield . . . . .	26.57%	Trappe . . . . .	3.13%
Hatboro . . . . .	24.92%	Bridgeport . . . . .	2.62%
Hatfield Township . . . . .	24.63%	Salford . . . . .	2.06%
Amber . . . . .	24.60%	*Pennsburg . . . . .	1.48%
Lower Gwynedd . . . . .	23.27%	*East Greenville . . . . .	1.27%
Lower Providence . . . . .	22.46%	Schwenksville . . . . .	0.99%
Franconia . . . . .	20.52%	Marlborough . . . . .	0.85%
Douglass . . . . .	20.06%	Upper Salford . . . . .	0.28%
Conshohocken . . . . .	19.84%		
Perkiomen . . . . .	18.69%		
Towamencin . . . . .	17.93%		
Limerick . . . . .	17.18%		
Worcester . . . . .	17.02%		
Whitpain . . . . .	16.31%		
Lansdale . . . . .	13.83%		
New Hanover . . . . .	10.92%		
Lower Pottsgrove . . . . .	10.83%		
Skippack . . . . .	10.75%		
Norristown . . . . .	10.57%		
Upper Providence . . . . .	7.50%		

\*The Boroughs of Red Hill, East Greenville and Pennsburg work together on a Dropoff Program.

All figures are based on municipal annual self-reporting.

Several municipalities have included many nonstandard recycled materials (i.e. motor oil, asphalt, etc.), which results in a high percent recycled rate.

## Nonmandated Municipalities

When Act 101 took effect in 1988, all but 28 municipalities were required to develop recycling programs, based on population and density. Twenty of these nonmandated municipalities currently have curbside collection, either through municipal contracts or individual hauler services. Several other noncontract municipalities have voluntarily developed dropoff recycling programs. Other nonmandated municipalities have access to recycling services through either a commercial/institutional recycling facility located near the municipality or curbside collection being offered as a service to private subscription residents. Eight of the nonmandated municipalities do not have easy access to a dropoff center but may have private subscription curbside

collection of recyclables included in their waste bill, whether they utilize it or not. Figure 11 contains the municipal recycling rate, based on 2005 data. It should be noted that several of the municipalities reported recycling of materials that not standard (such as asphalt). Recycling such material is encouraged; however, it should be noted that since not all municipalities recycle those materials, or report them if they do recycle the materials, several of the recycling rates are very high, compared to other municipalities. The increase in recycling rate can be particularly dramatic if the materials recycled are heavy, such as asphalt, since recycling percentages are based on weight. Based on the current status of their programs, recommendations for recycling are as follows:

*No Current Recycling Program/No Access:* The municipalities that do not have curbside recycling collection or dropoff service within their borders, nor have a dropoff center within close proximity. These municipalities should do one or more of the following within one to two years:

1. Site one or more dropoff centers within the municipality. Several options for particular materials are low or no cost. Grant funding from PADEP should be used when available.
2. Develop a curbside collection program. Grant funding from PADEP should be used when available.
3. Educate residents on waste reduction techniques. Grant funding periodically available.
4. Develop a dropoff center through multimunicipal cooperation.
5. Contact the county recycling coordinator periodically for updated dropoff centers and advise residents of nearby locations.

*No Current Recycling Program/Access to a Nearby Recycling Program:* Municipalities with no recycling program but reasonable access to a recycling dropoff site should work to formalize relationships with the collection site to ensure its continued availability.

*Recycling Collection Program in Place:* Nonmandated municipalities with recycling programs in place should enhance their programs in ways similar to the mandated municipalities listed in the next section.

Three municipalities, Upper Hanover Township, Lower Frederick Township, and Bridgeport Borough, are nearing the population threshold for mandatory recycling. Each has received proposals for large-scale development within its borders. Should these proposals be approved and built, it is likely that the resulting population increase will move the municipalities over the threshold. The next census would reflect this population increase, if the proposed development occurs.

## Mandated Municipalities Under 25% Diversion Rate

These municipalities have developed a recycling program as required under Act 101. The Act requires municipal programs to include both residential and nonresidential sectors, although many municipalities have not aggressively enforced recycling in both sectors. Recycling in these municipalities results in a waste diversion rate of less than 25%. Although 25% is an arbitrary number, it identifies programs that have some form of systemic problem; either data collection, education, lack of enforcement, little attention to mandated commercial/institutional recycling and education, or some other program-wide deficiency. The diversion rates in these municipalities range from one

percent to just less than 25%, and the experience of municipalities within this range is quite varied.

First, these municipalities should review their recycling effort and identify the impediments to the program, and revise the program based on the findings. Impediments may include:

*Socioeconomic Barriers.* Barriers could be as straightforward as people with English as a second language. Many multilingual informational programs are available at little or no cost to the municipalities from the county.

*Poor Promotion.* Act 101 contains a requirement for nonmandated municipalities to conduct education programs. Municipalities should review what was done to announce and publicize the program. A more widespread, interesting, and sustained effort may be needed for people to make recycling a permanent part of their daily routine. The county has representatives that can educate at special events, and who can participate with school districts in environmental education. Education and promotion are essential as programs and materials change.

*Compliance Problems.* Studies have shown that programs with complex schedules or sorting requirements have a lower participation rate among residents. Look for ways to simplify, such as going to a commingled collection, or a multimunicipal standardized effort.

*Marketing Problems for Materials Collected.* Are the collected materials easy to market for recycling? Work with the Commonwealth's Recycling Market Center to find market options.

*Cost and Quality of Recyclables.* The cost and success of many recycling programs is dependent upon the quality of collected recyclables. Minor amounts of contamination can cause additional costs in processing and marketing collected materials.

After thoroughly evaluating the recycling program, recommendations for program improvements or modifications should be made. Each municipality in this category should strongly consider producing and distributing various forms of public information about its recycling program. The county recycling coordinator will assist municipalities in this process. Potential program modifications include:

1. Focusing on increased participation. When was the last time the municipality mailed out promotional fliers or had a promotion campaign on the local radio?
2. Considering the expansion of materials collected. If the municipality is successfully handling glass, aluminum, and newsprint, perhaps it should consider collecting plastics #1 and 2, office paper, or cardboard.
3. Changing the collection process, schedules, or containers.
4. Reviewing the effectiveness of commingled versus source separated collections.
5. Enhancing education on recyclable material quality.
6. Increasing data collection efforts resulting in additional DEP 904 grant monies. Currently, several consultants work in this field.

## Mandated Municipalities with a 25% or Greater Diversion Rate

These municipalities have an established program which is running well. They need to continue to educate and promote recycling, so that the recycling effort will continue to succeed. These municipalities should also investigate opportunities for adding additional recycling materials into their program. One potential area for expanding the

recycling program is the nonresidential sector, including multifamily housing with 4 or more units in a building, and institutional facilities.

## Countywide Recycling Council

The county recycling coordinator will form a countywide council on recycling, made up of representatives from a diverse group of municipalities and environmental organizations. The council will serve as a forum for information and as a steering committee to help track various portions of the municipal waste plan that pertain to recycling. This would include a "list serve" E-mail network. The Council could institute or partner with existing award programs to recognize successful recycling programs.

## Commercial/Institutional Facilities Recycling

Generally, it appears that most large- and medium-sized businesses have developed recycling programs. Small businesses and institutions, however, need a convenient location to take recyclables. They may not generate enough recyclables to interest a hauler. Demonstration projects are underway in conjunction with a merchant's association to establish a centrally located commercial/institutional waste recycling collection center to be used by small businesses. Results of these activities need to be shared with all municipalities.

The county should work with municipalities to develop a simplified but accurate way for businesses and institutions to report recycling activity. Reporting could include the development of one standardized form mailed to businesses and a standardized database for follow-up on noncompliance. Municipalities must be committed to enforcing their recycling ordinance where it relates to noncompliant businesses.

Recycling must continue to be a focal issue among businesses in the county. Chambers of commerce and business associations must be encouraged to push for recycling among their members. The county is providing information to these business organizations on a continual basis. This ongoing effort needs to be expanded.

Increasing recycling in the small to mid range businesses will increase the municipality's recycling rate and may result in a larger grant from DEP.

## Regional Dropoff Centers

Different types of dropoff centers are needed to further recycling efforts in the county. Permanent dropoff sites, preferably located at convenient locations such as food stores, should be encouraged in a variety of ways. Dropoff sites in rural communities may provide the only opportunity for residential recycling. Dropoff centers also provide unique recycling opportunities for small businesses where separate recycling collection is not justified. Lastly, dropoff centers could provide opportunities for the collection of various types of seasonal or specialty wastes (i.e. holiday trees, phone books, tires, etc.).

Design criteria, including buffers, aesthetics, and circulation criteria, could also be developed for new development proposals to follow. Municipalities should negotiate a dropoff center when a developer comes in to the municipality with a land development proposal.

## Leaf Waste

Leaf waste collection and composting is an important part of the county's effort to

reduce waste. In 1992, the county developed a Compost Management Feasibility Study. The study recommendations addressed source reduction, collection, processing, compost quality management, marketing and co-composting. Education through the recycling coordinator to stimulate compost management efforts throughout Montgomery County will include developing master composter classes, seminars, and training sessions; develop a composting demonstration park, and provide technical assistance on composting.

The recommendations in the *Compost Management Feasibility Study* still appear to be valid and should be followed.

Due to DEP's denial of grant applications to municipalities that are not in compliance with the leaf and wood waste requirements of Act 101, municipalities should be assisted and encouraged by the county recycling coordinator to establish composting programs that conform to the act. Leaf waste by DEP's definition is leaves, garden residues, shrubbery and tree trimmings, and similar material, but not including grass clippings.

As a clarification of its policy, DEP has provided the following 2 paragraphs:

*Act 101 requires that mandated municipalities have an ordinance that states that persons are to separate leaf waste from other municipal wastes until collected, unless they have made other arrangements for it to be composted. It is then the responsibility of the municipality to make sure that these leaves are recycled. Burning is considered a method of disposal, and is not considered recycling. One of the preferred methods for recycling leaf waste is composting.*

*When a municipality applies for a Section 902 grant, part of the selection criteria revolves around a compliance audit with Act 101 requirements. Mandated municipalities that allow the burning of yard waste are not in compliance with Act 101. Communities determined to be out of compliance with Act 101 or that allow the burning of leaf waste are therefore at a disadvantage and may not be able to effectively compete for the limited amount of funds available for the 902 grant program. There is a critical need to either include grass clippings in existing compost programs, or to promote grass-cycling as an alternative to disposal. Grass-cycling involves using a mulching mower to turn grass clippings directly into compost while trimming the lawn.*

## Food Waste Composting

To reduce food waste disposed of in landfills or waste-to-energy plants, food waste can be composted on farms under the DEP's On-Farm Compost Permit program. The permit allows a farmer to operate a compost facility on his/her farm as part of their "normal farming operation". Under the permit, a farmer can take in up to 500 tons of pre-consumer food waste per year as a feedstock. Pre-consumer food waste is essentially food prep waste from institutions and cull/spoilage from grocery stores.

Each grocery store produces on average 250 tons per year of food waste. Therefore each farm could handle the wastes of two grocery stores. Montgomery County has the potential to divert a significant portion of its waste by promoting diversion of food waste to farmers through this program. The county could assist in linking key stakeholders including food stores, haulers and farmers. The county should consider promoting food waste composting, which has the following benefits:

1. As more farmers participate, more grocery stores can divert wastes and this is likely to reduce trucking fees. Reduced costs will encourage greater participation.

2. Food waste is an excellent feedstock for compost. Can significantly improve farm's soil structure and reduce the need and costs of fertilizer and spray inputs.
3. Either through improving the fertility of the soil, or through sales of the composted material, this type of program will make farms more viable.
4. Grant funds are available from the DEP for the purchase of compost equipment.

There are challenges that would need to be addressed in coordinating farmers, food stores and haulers. These include:

1. Township ordinances may consider this a commercial operation. It may not be permitted in certain agricultural districts. Unfamiliarity with agricultural practices may make municipalities reluctant to allow this type of operation. Education and roundtable meetings will be necessary to dispel concerns.
2. Most farms are located away from commercial centers, where food stores are located. Transportation will make up a large part of the costs of a program. A high participation rate will make trucking economical. Also, farms on the suburban fringe may be close enough to sources of food waste to make this program work for them.
3. Administration will be a large effort (securing permits, coordinating between sources, farms, and haulers).
4. Large amounts of carbon (such as leaves, yard waste, cardboard etc.) are necessary for proper composting. These feedstocks may already be locked up at municipal compost operations.

Despite these challenges, the idea of connecting food stores, farmers, and haulers to enable food wastes to be composted instead of landfilled is an attractive one. The county planning commission and the waste authority should investigate how such a cooperative effort could be developed and implemented.

## Special Waste Handling

**Household Hazardous Waste:** The county has held household hazardous waste collections since 1989, when it was one of two programs statewide. The first collection event was held on May 6, 1989 at the East Norriton Township building, where 467 residents participated in the event. The county held 4 or 5 collection days per year for the next nine years. In 1998, the year the county and the other southeastern Pennsylvania counties formed a joint program, Montgomery County's portion of the program had grown tremendously. That year, the county served 3,802 participants bringing a total of more than 520,000 pounds of household hazardous waste to four collection sites. More than a third of the participants in the regional program came to a Montgomery County site that year.

The county has implemented a regional program, cooperating with neighboring counties for the past six years. This allows for more frequent collection days and has lessened the administrative burden on any one county. These have averaged 1,000 to 1,500 cars per day, for five one-day collections, distributed evenly throughout the region. The regional program has become institutionalized, so that people know that there is a collection almost every weekend from spring to fall in the Delaware Valley. Education is a major part of the program, encouraging people to produce less hazardous waste and thereby rely on household hazardous waste collections less.

Serious consideration needs to be given to establishing a permanent household

hazardous waste facility. With the added publicity of the county's current efforts, participation has doubled in the past ten years. This has created traffic concerns and has limited the number of one-day sites that can reasonably accommodate this number of participants.

In addition, the eastern authority has enacted policies at the Montgomery County Resource Recovery Facility that prohibit the disposal of electronics, white goods, batteries and other designated wastes which may negatively impact the emissions or operations of the facility. Although a positive action, this policy has increased the need for additional county collections or a permanent site. The public is also able to dispose of used motor oil at area gas stations, and automobile batteries at participating auto service centers. Promoting this would lessen the demand on the regional collection program. However, the participating gas stations and service centers frequently change, making it difficult to publicize an up-to-date list.

Regardless of whether the program remains as is, or becomes a dedicated dropoff site, the cost of operating the program is an issue that needs to be addressed. Currently, funds for the program come from the county's recycling fund. This fund has been supported by money coming into the county from a settlement with Waste Management, and the county host fee. With the closing of the Pottstown Landfill, these funds are no longer available. The planning commission and the authority should evaluate funding options for the HHW collection program. Options may include:

1. Municipal contributions based on past resident participation
2. Participant fees
3. Host fees for other processing facilities in the county (since the program keeps HHW out of these other facilities)
4. Corporate sponsorship
5. County general revenue

There have been proposals recently for waste transfer stations in the Pottstown area. These are only proposals, and there is no guarantee that permits will be issued for these facilities. However, a host fee associated with these facilities could be put towards funding the program.

*Phone Books:* A phone book collection program has been conducted periodically over the last four years at several sites around the county. The phone book collection program has been mildly successful. The program could be more successful by providing ongoing dropoff sites for phone directories or by allowing phone directories to be commingled with newspaper. Unfortunately, many paper mills won't take phone books, primarily because of the hot glue used for binding and the yellow dye in the pages. To improve feasibility of recycling of phone directories, it is recommended that the county lobby for removal of materials within phone books that are an impediment to their recycling. Also, phone companies should be encouraged to hold several phone book collections as a public service.

*Automobile Tire Collection:* The authorities have been successful in collecting tires during one-day Saturday collection programs held throughout the county. This program has been effective in removing bulky tires and should be continued. However, municipalities should provide a list of service centers and parts distributors in their territory to the county recycling coordinator that are willing to accept tires, batteries and used motor oil. The coordinator in turn will contact each of these organizations to access the possibility of these facilities to provide the collection service, even if the hours are limited or a small fee is required. The finished list will be provided to the

municipalities, posted on the county's recycling website, and provided to the general public. The list will be updated three times during this plan.

*Other Special Traits:* Additional types of materials, such as propane tanks and smoke detectors, prove difficult for residents to dispose of. While it is not necessarily the responsibility of the county to collect and dispose of these types of items, an effort should be made to determine how these items can be safely and conveniently dropped off. The county should be part of this effort, and should initiate discussions with the manufacturers to provide corporate responsibility in establishing disposal alternatives.

## Enforcement and Updating of Recycling Ordinances

Most municipalities have ordinances in place that require recycling. In many cases, county residents and businesses recycle because it makes sense and not because it is required. Recycling incentives have been instrumental in fostering good participation. However, to ensure fairness and to encourage companies and residents that have not started to recycle, municipalities should improve recycling ordinance enforcement. Enforcement can be assisted by the recycling coordinator. If recycling coordinator assistance is used a portion of the fine should be shared with the county to reduce the cost of assistance when necessary.

Current recycling ordinances need to be reviewed by all municipalities to make sure they are up to date and reflect the present recycling program. A review of the legality of any flow-control section should be undertaken at the same time. During this process a unique opportunity to expand enforcement penalties and clearly define waste handling procedures can greatly simplify compliance issues that have caused problems in past plans.

## Ash Recycling

Over 110,000 tons per year of ash produced at the Montgomery County Resource Recovery Facility is disposed of at the Rolling Hills Landfill in Earl Township, Berks County under a beneficial reuse permit from PADEP. The ash takes up space that might otherwise be used for disposal of unprocessed municipal wastes. Due to the unique physical and chemical characteristics of ash, various forms of recycling and waste reduction may be successfully employed in handling ash produced at the Montgomery County Resource Recovery Facility.

Subject to further guidance from the EPA on incinerator ash, the county and Waste System Authority of Eastern Montgomery County should explore ways to develop safe facilities for the recycling or beneficial reuse of the ash produced by the Montgomery County Resource Recovery facility.

## Recommendations

In summary, the Recycling chapter of the county's plan recommends the following:

1. Nonmandated municipalities should develop a dropoff center (alone or cooperatively) or curbside collection program, including education on waste reduction.
2. Mandate municipalities should review their programs to achieve higher recycling rates.

3. A countywide recycling council should be formed to help implement recycling goals.
4. Yard waste composting should be promoted.
5. Food waste composting should be promoted.
6. Regional dropoff centers should be explored to promote recycling of commonly recycled materials as well as seasonal and specialty recyclables.
7. Municipal recycling ordinances must be adopted by mandated municipalities. Existing ordinances should be reviewed for effectiveness, and enforced to encourage greater recycling rates. Enforcement of recycling ordinances can be assisted by the recycling coordinator where staff is limited and help is needed.
8. Increase accuracy and consistency in recycling data reporting.
9. The potential to site a permanent HHW collection facility should be investigated.
10. Funding mechanisms for the HHW collection program should be explored.



# Chapter 5

## Biosolids Management

The MWAC expressed interest in biosolids management and disposal. A survey of sewage treatment plants was conducted to determine the biosolids generation rates and disposal methods.

### Biosolids Disposal in Montgomery County

Sewage sludge is primarily produced either from the treatment of wastewater at municipal treatment plants or from individual home septic tanks. Pennsylvanians produce an estimated 2.2 million tons of wastewater solids each year, nearly a quarter of a ton per household. The wastewater that enters a sewage treatment plant is actually a dilute suspension of solids. Approximately 1% is sludge. Once the wastewater reaches the plant, domestic sewage undergoes physical, chemical and biological processes that clean the sewage and remove solids. Some of the solids are treated with lime to raise the pH level to eliminate objectionable odor as necessary. A separate process then reduces pathogens and other organisms capable of transporting disease in the solids. Sludge may also be dewatered to reduce its volume and increase solids concentration. Typically, sludge is around 2% solids. Pennsylvania regulations require sludge to be 20% solids prior to landfilling.

Biosolids are neither raw sewage, nor are they sewage sludge that contains large quantities of environmental pollutants. Biosolids are the nutrient-rich solid organic matter recovered through the treatment process. Biosolids are generated when solids produced during the treatment of domestic sewage are further treated to meet regulatory requirements. Treated wastewater solids must undergo processes (such as composting) to reduce or eliminate pathogens and minimize odors. Concentration of metals is the most significant health risk associated with biosolids. Testing is performed to determine that biosolids meet strict quality and safety requirements before it may be safely applied to the land. All other biosolids must be landfilled or incinerated. Figure 14 lists the land application sites in Montgomery County.

Sewage sludge can be viewed either as a nutrient rich resource to be beneficially used or as a waste material of which to be disposed. Prior to 1991, large amounts of sewage sludge were dumped into the ocean for disposal. Concerns about excess nutrient loading in oceans resulted in the banning of this practice. At present, almost all sewage sludge generated in Pennsylvania has been treated and is of suitably high quality to be classified as biosolids. A little more than half of all sewage sludge is biosolids that is beneficially used as a fertilizer to help rejuvenate forest, farmland and abandoned mine land. The remainder is incinerated or is landfilled. Each of these options has economic and environmental benefits, challenges and hazards associated with it. Figures 12 and 13 list information on generation and disposal of biosolids.

Figure 12  
Biosolids Generation in Montgomery County

TREATMENT PLANT	2000	2001	YEAR * 2002	2003	2004	5-YEAR AVERAGE
Abington WWTP	345.0	349.0	325.0	354.0	354.0	345.4
Ambler WWTP	256.1	241.9	273.9	239.2	233.4	248.9
Berks-Montgomery MA	158.5	184.6	176.0	177.9	159.6	171.3
Boyertown Borough STP	62.6	57.2	52.2	62.1	66.5	60.1
Bridgeport ***	—	—	82.2	85.9	110.0	55.6
Bryn Athyn Borough STP***	—	—	—	—	—	0.0
Conshohocken	155.6	144.6	108.4	111.5	146.9	133.4
East Norriton PWJSA	1830.0	2286.0	1750.2	1468.9	1200.1	1707.0
Green Lane MJA	—	—	—	—	—	0.0
Hatfield**	4,910.0	4,903.0	4,880.0	4,240.0	4,452.0	4,677.0
Horsham SA	235.9	308.7	295.4	254.6	267.9	272.5
Lansdale STP	408.3	434.3	391.1	437.8	423.3	419.0
Limerick	159.6	151.1	147.9	135.3	177.5	154.3
Lower Frederick WWTP***	—	29.4	27.7	42.0	51.0	30.0
Lower Moreland	23.3	22.3	27.2	28.0	37.0	27.6
LPVRS - Oaks	1,469.0	1,375.0	1,570.0	1,408.0	1,529.0	1,470.2
Lower Salford MA ##	3.88 MG	3.40 MG	4.26 MG	4.44 MG	5.19 MG	4.23 MG
Montgomery MSA	551.7	551.7	502.1	570.3	389.6	513.1
New Hanover MA	37.3	39.1	22.5	70.9	61.9	46.3
Norristown MWA	521.9	521.8	544.4	503.8	571.1	532.6
North Wales	141.0	141.0	141.0	141.0	141.0	141.0
Pottstown SWA	1,080.3	1,431.9	2,286.2	2,936.6	2,527.6	2,052.5
Royersford***	—	—	—	—	—	0.0
Schwenksville	25.4	25.8	26.1	25.9	28.2	26.3
Souderton MSA	114.9	137.9	177.0	134.3	154.1	143.6
Telford SA #	713.8	900.0	146.6	172.7	146.0	415.8
Upper Dublin WWTP	577.1	254.6	224.1	236.2	188.8	296.2
Upper Frederick STP ***	—	—	15.0	14.8	16.8	9.3
Upper Gwynedd STP	365.3	353.2	364.1	426.1	405.6	382.9
Upper Gwynedd Towamencin	863.0	1,124.0	1,026.8	1,115.0	1,068.8	1,039.5
Upper Hanover***	18.1	20.8	23.1	25.7	28.6	23.3
Upper Merion	917.0	961.0	834.0	991.0	941.0	928.8
Upper Montgomery JSA	141.2	156.1	119.8	148.9	164.2	146.0
UMHJSA	932.6	1097.4	1318.3	1611.5	1588.9	1309.7
Whitemarsh ***	370.0	—	325.0	321.0	312.0	265.6
Worcester STP	—	—	—	—	—	0.0

\* Quantities are in US dry tons unless otherwise noted.

\*\* Denotes total dry tons incinerated.

\*\*\* Denotes some records are not available.

# Telford no.s are in wet tons for 2000 & 2001 - no % solids data available from this time period.

## no.s are in gallons - no % solids data available.

In cases where liquid sludge was converted to dry tons, % solids data was taken from an average.

Additional notes:

Bryn Athyn does not have records of how much sludge was fed to or taken from reed beds because until recently, they were privately owned.

Green Lane estimates they generate between 44 and 50 cubic yards of sludge in a year. Their next reed plant cleaning is scheduled for October this year.

Hatfield imports sludge from Horsham, Lower Salford, Lansdale, & Upper Dublin as well as several municipalities outside the County.

Pottstown imports sludge from municipal WWTPs and Sewer Authorities from outside the county as well as within Montgomery County.

Royersford data was unavailable.

Schwenksville fed their reed beds 456,000 gallons of biosolids between 2000 and 2004. Reed beds last cleaned in 1997. At that time, approximately 173 dry tons (estimated) were taken from it.

Upper Frederick figures are from the Perkiomen Crossing Plant.

Upper Hanover upgraded their Macoby plant last year and land applied dried humus from their reed beds last year.

Between 2000-2004 18.1 dry tons were applied to the reed beds at the Upper Hanover Macoby plant.

Worcester data was unavailable during this time period.

Between 2000-2004 22 dry tons were hauled to Valley Forge Treatment Plant.

Figure 13  
**Biosolids Disposal Methods in Montgomery County**

TREATMENT PLANT	BIOSOLIDS DISPOSAL
Abington WWTP	Applied under general permit to farmland in Bucks Co.
Ambler WWTP	Landfill - Pioneer Crossing, Grows
Berks-Montgomery MA	Landfill - Pottstown
Boyertown Borough STP	Landfill - Pioneer Crossing
Bridgeport ***	Landfill - Pioneer Crossing
Bryn Athyn Borough STP	Sludge sent to reedbed, and hauled to an incinerator
<b>Conshohocken</b>	Landfill - Grows, import sludge from W. Conshohocken
<b>East Norriton PWJSA</b>	Imports liquid sludge, incinerator on site, ash hauled to landfill.
Green Lane MJA	Reed bed, material later landfilled
<b>Hatfield**</b>	Incineration, then landfill
<i>Horsham SA</i>	Sludge is hauled to Hatfield or ENPJSA
<i>Lansdale STP</i>	Liquid sludge hauled to Hatfield or ENPWJSA for incineration
Limerick	Land applied, landfill in Berks Co, Pottstown or Exeter, or incineration
<i>Lower Frederick WWTP***</i>	Liquid sludge goes to Pottstown for treatment
<i>Lower Moreland</i>	Liquid sludge goes to Hatfield for incineration
<b>LPVRS - Oaks</b>	Incineration, landfill, land applied
<i>Lower Salford MA ##</i>	Liquid sludge goes to Hatfield for incineration
<i>Montgomery MSA</i>	Liquid sludge goes to Hatfield for incineration
New Hanover MA	Landfill - Pottstown, Pioneer, Grows
Norristown MWA	Landfill - Grows
<i>North Wales</i>	Liquid sludge goes to Valley Forge WWTP (approx. 140 tons p yr.)
<b>Pottstown SWA</b>	Imports sludge from WWTP in & outside of the county
<i>Royersford</i>	Liquid sludge hauled to Pottstown and Valley Forge WWTPs
<i>Schwenksville</i>	Reed beds; then to Pottstown, Phoenixville and Valley Forge WWTPs
Souderton MSA	Landfill - Pottstown, Pioneer and Grows
Telford SA #	Landfill and land application
<i>Upper Dublin WWTP</i>	Liquid sludge hauled to East Norriton, Phoenixville, and Exeter
<i>Upper Frederick STP ***</i>	Liquid sludge goes to Pottstown WWTP then is landfilled
<i>Upper Gwynedd STP</i>	Liquid sludge goes to E. Norriton, Valley Forge, and Pottstown WWTP
Upper Gwynedd Towamencin	Majority is land applied in Berks or Lancaster Co., some land filled
Upper Hanover***	Applied dried humus on-site; hauled biosolids to Valley Forge WWTP
Upper Merion	Biosolids sent to Chester landfill and Chester Co. SWA
<i>Upper Montgomery JSA</i>	Liquid sludge hauled to Lehigh Co.
UMHJSA	Sludge cake incinerated on site, ash hauled to landfill
Whitemarsh ***	Landfilled - Grows or Pottstown
<i>Worcester STP</i>	Sewage goes to Coshohocken

*Italics denote sewer authorities that send liquid sludge/sewage somewhere else for treatment.  
 Bold denotes WWTPs that accept sewage from other county sewer authorities for treatment.*

## Composting Biosolids

Pennsylvania is home to several biosolids composting facilities. For example, Penn State University operates a facility in Center County, Philadelphia Water Department operates a facility in Philadelphia, Natural Soil Products, Inc. has a facility in Schuylkill County, and J. P. Mascaro operates A&M Compost, located in Lancaster County. In many of these sites, biosolids from municipal wastewater treatment plants are composted to produce Class A organic compost suitable for landscaping and soil enhancement applications. Similar beneficial use of biosolids should be encouraged as a means of processing of biosolids. Biosolids composting facilities should be located in appropriately zoned areas, and measures should be taken to eliminate odor and visual impacts to neighboring properties. In any operation, concentration of metals has the potential to be a significant problem. Testing should be conducted to determine that metals content is at acceptable levels.

## Landfill Disposal

Presently, landfill disposal is the predominant disposal method of sewage sludge in Montgomery County. Between 2000 and 2004, more than 10,413 dry tons of biosolids were landfilled in Montgomery County. This will change, however, as landfill space becomes limited and tipping fees increase. From an environmental standpoint, the risk of released sludge-borne pollutants, pathogens, or concentrations of heavy metals is reduced by concentrating the sludge into a single location. However, the anaerobic decomposition of organic wastes produces methane gas that could be released into the atmosphere. Methane gas is a greenhouse gas that has been associated with global warming. Other gasses released from landfills can cause objectionable odors. Lastly, if a landfill liner fails or a leachate collection system malfunction occurs, the large quantities of nutrients from the sludge could contaminate the groundwater and surface water.

## Incineration Disposal

Sewage sludge incineration eradicates pathogens and decomposes most organic chemicals, resulting in a residual ash that is a stable, relatively inert, inorganic material that has just 10-20% of the original sludge's volume. This material is generally landfilled, as it is in Montgomery County, although it could potentially be used in construction materials.

Incineration releases carbon dioxide (another greenhouse gas) and possibly other volatile pollutants such as mercury and lead into the atmosphere. Incineration is one of the more expensive options for sewage disposal because of the sophisticated systems required. As with land filling, the potential benefits from organic matter and plant nutrients in sewage sludge are absent.

## Land Application

Land application of biosolids seeks to beneficially reuse the organic matter and plant nutrients in biosolids, generating a sustainable cycle, since the source of most of the organic matter and nutrients ultimately is from crops and agricultural lands. Land application of biosolids returns those materials to the soil so they can be used to produce another crop. Land application in Pennsylvania occurs primarily on agricultural and mined land. The organic matter in biosolids provides valuable benefits to the soils where organic matter has been depleted through continuous row cropping or in mine reclamation where little or no soil exists. Permitted land application sites in Montgomery County are listed in Figure 14.

Figure 14  
**Land Application Sites in Montgomery County**

OWNER	NAME	ADDRESS	CITY	TOWNSHIP	REMARKS
Clarence Standhardt	Standhardt Farm	Olberholtz Rd.	Gilbertsville	Douglas	Active
Maurice Henry	Henry Farm	County Line Rd.	E. Greenville	U. Hanover	No application since 2001
M.B. Investments	Frey Road Farm	Frey/Buck Rds.	Kleinville	Upper Hanover	Approved site but no application
Pasquale Mascaro	Mascaro Farm	Faust/Little Rds.	—	U. Frederick	No recent application
Schiegel	Schiegel Farm	Schiegel Rd.	Gilbertsville	Douglass	Active

*Data compiled from DEP, Southeast Region As Of June 1, 2005.*

Biosolids also provide an economic benefit to farmers, because the nutrients they contain will substitute for commercial inorganic fertilizers. The use of biosolids reduces the farmer's production costs and replenishes the organic material that has been exhausted over time. Biosolids can also help reduce erosion. Many farms can lose as much as 10 tons of topsoil per acre per year as a result of continuous cropping. In addition, soil erosion and runoff from agricultural fields are the largest cause of water pollution in the United States. Organic matter from the biosolids gives the soil a spongy texture, allowing it to hold water and nutrients, preventing them from running off and causing erosion. Only a small portion (roughly 7%) of the biosolids generated in Montgomery County is land applied.

The beneficial use of land application of biosolids is sometimes obstructed by public opposition. Public acceptance concerns entail pollutants in biosolids, risk of groundwater contamination, risk of disease, and nuisance issues. DEP has regulations and good farming practices in place to assure that biosolids have little or no potential risk to polluting groundwater. Since many of the plant nutrients in biosolids are in a slow-release organic form, the potential for water or groundwater contamination is lower than that of similar amounts of inorganic fertilizer. The greatest concern for groundwater is nitrate contamination from over application. Regulations strictly limit the amount of nitrogen applied in biosolids land application. As a further precaution, DEP regulations require mandatory training of individuals responsible for land-application programs, and that only biosolids of exceptional quality be applied within 300 feet of a well or water source used for human consumption, on steep slopes or on soil with a high water table.

Over 30 years of research show that when conducted according to regulation, the land application of biosolids is safe. The National Academy of Sciences has reviewed current practices and has stated that "the use of these materials in the production of crops for human consumption when practiced in accordance with existing federal guidelines and regulations, presents negligible risk to the consumer, to crop production and to the environment." However, concerns over soil and groundwater contamination from trace elements, toxic chemicals, and pathogens remains. In response to these concerns, EPA conducted a comprehensive risk assessment that evaluated the health risk to the general population as well as to the highly exposed individual. To date there have been no documented negative human cases where the biosolids met all federal and state requirements.

## Plan Recommendations

Because of the many economic and environmental benefits of both composting and land application of biosolids, these methods should be the preferred options of biosolids disposal. Disposal in a landfill should be the next choice if land application is not possible, and lastly, incineration should only be used when no other options are feasible or where energy recovery can be achieved. Any concerns about these methods of biosolids processing can be effectively addressed through a combination of approaches, including careful monitoring of public attitudes, modifications to biosolids management programs, assertive outreach and education, and successful marketing of biosolids products. Any new biosolids facilities should only be constructed if local demand is high enough. New facilities should be designed to minimize visual odor, vehicular, and other impacts, and should be sited in predominantly industrial areas or within existing treatment plant sites.



# Chapter 6

## Construction and Demolition Processing and Recovery

Although this section is not required by Act 101 and the municipal waste planning process, significant reductions in overall waste can be obtained through simple activities. According to a 2004 EPA report, Waste News, and C&D Recycling about 25% of the waste that goes to all landfills nationwide is construction and demolition (C&D) debris. And, although the 2004 DEP Municipal Waste Composition Study specifically excluded commercial C&D materials and C&D landfill facilities, still 7-10% of the overall municipal waste stream in the Commonwealth could be directly linked to construction and demolition activities. The waste that is generated during construction of a new building is the equivalent to one or two years of trash that occupants of that building are likely to throw out. Based on the formulas in the 2004 EPA report more than 100,000 tons of this material in Montgomery County alone, could be recovered for other uses each year. Basic cardboard, wood, dry-wall, asphalt, and concrete recovery programs would capture close to 60% of that 100,000 tons. Not only would this increase the county's recycling rate, but would also decrease the amount being landfilled.

Being the first time that this plan considers C&D options, surveying current markets, volumes, and activities will be the totality of the effort in this period.

Haulers and markets are the most obvious and critical link in C&D processing. Without markets, recyclable materials are discarded as trash. Without haulers, recyclable materials become trash because they cannot reach the markets. The best news in C&D recycling, and one thing that's really changed in the past five years, is the great increase in the number and variety of recycling markets and the number of haulers willing to handle C&D wastes. In addition, the economic incentives for recycling construction and demolition debris have never been higher.

There is hardly a single waste material from a job site that cannot be recycled. In total, from almost any job site, 90% to 95% of all waste materials can be recycled; regardless of whether it's in new construction, renovation, or demolition. However, to accomplish such high recycling rates, contractors need additional information and training on available site management, recycling and disposal options, or on hazardous waste disposal requirements. Also, one needs to recognize that the most effective national construction and demolition programs have the most stringent ordinances pushing them forward.

### Recycling Costs Less Than Throwing Away

In almost all cases, the cost of recycling is lower than the cost of throwing materials away. Occasionally the costs are close to equal, such as with a very small job, a site with physical constraints, a very tight job completion schedule, or an odd mix of materials. However, day in and day out, for the architect, owner, and contractor, recycling makes economic sense. This is a critical point. If recycling costs more than disposal, then there will always be a very good reason NOT to recycle. But if recycling is cost-competitive or less expensive than disposal, then recycling should be considered part of every job. Typically there are two main methods of C&D recycling; source separated and commingled.

## Source Separation

The advantages of source separation are higher recycling rates, lower recycling costs (revenues paid for some materials), and almost always a cleaner, safer work site. The disadvantages, however are numerous and quite often discourage recycling construction/demolition debris. They include multiple containers on site, time and effort spent by workers separating materials for recycling, more complex logistics, and multiple markets adding another level of complexity to project management.

## Commingled Recycling

The advantages of commingled recycling are:

- Only one or two containers needed on site
- No need for workers to separate materials for recycling
- Easier logistics
- One market (less information to manage)

The disadvantages of a commingled recycling system include a lower recycling rate and higher recycling costs (less revenue).

The biggest tradeoff between source separation and commingled recycling is complexity vs. economics. Source separation is more complex because workers must separate waste materials before they throw them away, there are more containers on site, and there are more markets and haulers to work with and keep track of. But in most cases, source separation is economically more advantageous than commingled recycling. This is true because:

- Source separation produces materials that are ready to go directly to market; there is no need to pay a processor to sort materials.
- Source separated materials are generally of higher quality, with fewer contaminants, so they're worth more in recycling markets.

On balance, *source separation is generally preferable* to commingled recycling. It costs less, and recycling rates are typically higher. Complexity is usually not much of an issue. It takes only slightly more effort for workers to toss different materials into different containers than to throw them out mixed together. Being smaller, containers for source separated materials can often be placed closer to work areas, so that source separation can actually take less time and effort than carrying wastes to a central container for mixed debris.

## Construction and Demolition Waste and the Municipal Waste Management Plan

With this being Montgomery County's first municipal waste management plan to address construction and demolition waste recycling, the following steps are suggested:

- Prepare a survey of locally available construction and demolition recyclers.
- Survey local building contractors with regards to current waste disposal and recycling practices.
- Research the viability of a legal requirement for construction and demolition recycling (including the best materials to recycle based on volume and cost).

- Compile all of the above data into one singular report, and establish a committee to recommend subsequent actions.

Good planning is the single most important part of construction waste management. Like anything else in construction, recycling is straightforward if you have a good blueprint, but becomes much more difficult and expensive if it's an afterthought. A well thought out, planned approach to recycling C & D Waste during a project will:

- Identify all recyclable materials and management options
- Address how each waste material will be handled
- Determine what containers will be used and when they'll be on site
- Establish where each material will be marketed
- Assess the costs and benefits of recycling and decide which materials to source separate, which to recycle as commingled debris, and which to discard as trash.
- Weigh communication, training, and troubleshooting needs
- Develop tracking and reporting procedures for documentation

These are the reasons the county should require a waste management and recycling plan as part of the permit and building application process for all projects in Montgomery County. Some outlines of possible requirements to mandate would include the following:

- Estimated types of C&D wastes generated during each phase of the job
- Identify how each waste will be managed and marketed, including phone numbers, addresses, contact people, and current market price, and product.
- Provide an estimate of the overall job recycling rate and, upon completion, finished project recycling tonnages and weights.
- Plan for training, meetings, and other communications related to job-site waste management;
- Provide troubleshooting instructions and contact information
- Verification that each new project has newly completed data, to ensure that building contractors are kept abreast of current recycling market conditions. If, for instance, wood trimmings went from a net disposal charge to a net revenue generator, more building contractors would be immediately aware of such a change and take advantage of it.

By making submission of a waste disposal and recycling plan a mandatory part of the building application process with requirements for tonnage reporting and verification of current research: Montgomery County can dramatically increase recycling, reduce waste, and manage growth in an environmentally sound manner. In addition, all internal county construction and renovation activities should specifically require construction and demolition debris recycling.

*To summarize:* the solid waste plan intends to gather data over the next six years on existing construction and demolition recycling, existing markets and processors, and the viability of a countywide ordinance. After all this data is gathered the solid waste plan suggests formulating a committee to make recommendations on the next steps to be taken. This committee would be comprised of planning commission members, C&D recyclers, members of the building industry, and county representatives.



# Chapter 7

## Plan Update Approval

The Plan update is being considered a nonsubstantial update, meaning there are no major changes to the existing plan being proposed, and that sufficient capacity will be shown to exist for waste disposal for the next ten years.

The county began this Plan update too late to have it adopted and in place before the ten-year scope of the existing plan expired. While the policies and integrated waste system established by the plan are still in effect, in a technical sense, the county is without a plan. Despite this, and because the Plan is a nonsubstantial update, the county does not need to have the plan ratified by the municipalities. However, the plan is being distributed to the municipalities during a 30-day comment period. Comments received by the municipalities will be compiled in the appendix.

The following steps are necessary for plan adoption and implementation:

1. 30-day public comment period – August/September
  - County public hearing – September Commissioners Meeting
  - Any issues raised would need to be addressed.
  - Commissioners would adopt the plan at the meeting. A copy of the resolution adopting the plan is included in the appendix.
2. Submit the Plan to DEP for 30-day review – September/October
  - Any issues raised will be addressed following DEP review. Once the plan is acceptable to DEP, it will be approved.
3. Anticipated Plan approval by DEP – November, 2006
4. Plan implementation – Begins November, 2006
  - Firm capacity agreements with facilities listed in the Plan will be negotiated within one year of Plan approval.



Municipal Waste Management Plan: 2006 - 2015

# **Appendix**



Resolution by the  
County Commissioners  
to Form the  
Watershed Plan Advisory Committee



# Request for Capacity



Mailing List for  
Capacity Survey



Capacity Certification  
Waste Disposal Agreement



Comments  
From the Municipalities



# Resolution Adopting the Plan





