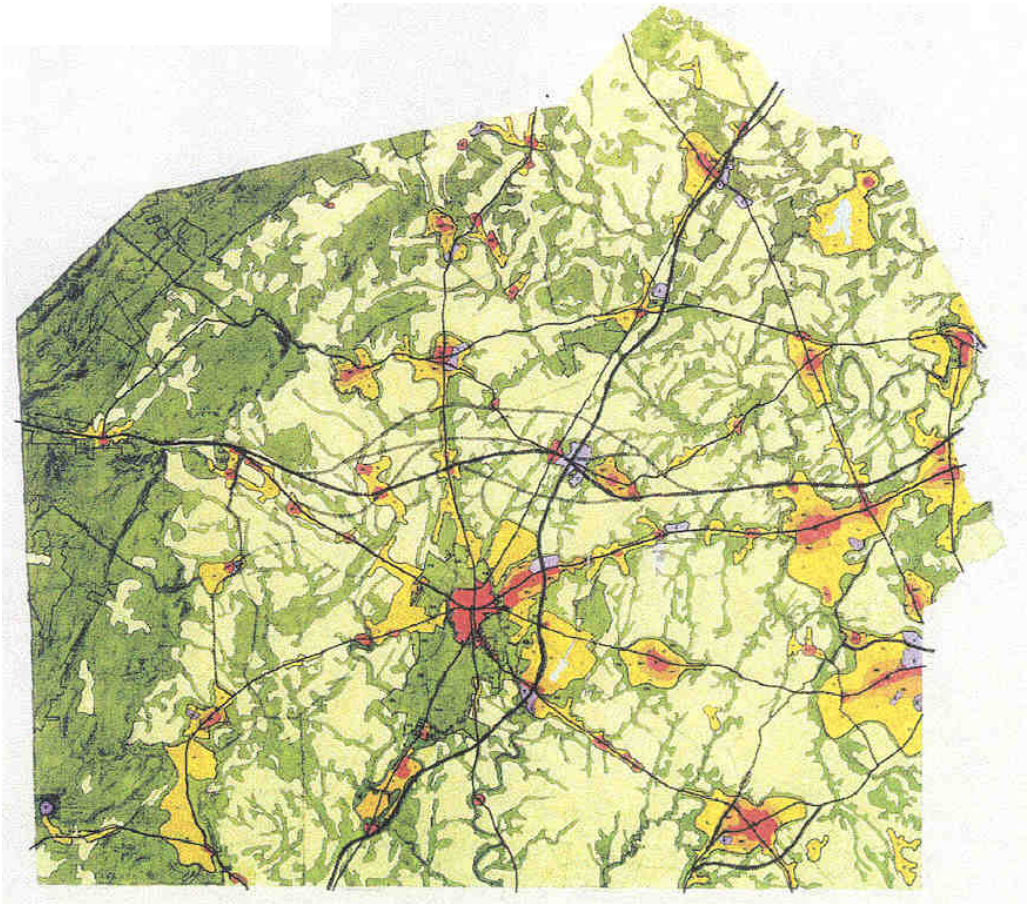
Note – At this time, the Appendices are only available through the Environmental Services Dept.

PLAN DOCUMENT

Adams County



Municipal Waste Management Plan
September 2005

Prepared By

Adams County Department of Solid Waste & Recycling

with assistance provided by

Gannett Fleming

ADAMS COUNTY
MUNICIPAL WASTE MANAGEMENT PLAN

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ADAMS COUNTY
MUNICIPAL WASTE MANAGEMENT PLAN UPDATE
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Note – At this time, the Appendices are only available through the Environmental Services Dept.

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- Adams County Recycling Brochure
- PADEP Guidelines for Yard Waste and Composting Facilities (Sept. 1997)
- Annual Recycling Report Backup (2001-2002)

APPENDIX B: DISPOSAL PROPOSAL AND HANDLING COST ANALYSIS

- Municipal Waste Proposal Review Handout (July 2002)
- Hauler Cost Model Spreadsheets
- Map Figure: Regional Waste Disposal Sites

APPENDIX C: REQUEST FOR PROPOSALS (RFP)

- RFP Document
- Application Package
- Submittal Form
- Disposal Facility Questionnaire
- Draft Disposal Agreements
- Selection of Designated Facilities

APPENDIX D: BIOSOLIDS AND SEPTAGE MANAGEMENT STUDIES

- Adams County Biosolids and Septage Management Study (September 2000)
- 2003 Update to Adams County Biosolids and Septage Management Study (Dec. 2003)

APPENDIX E: BIOSOLIDS AND SEPTAGE MANAGEMENT INFORMATION SURVEY

- Listing of Wastewater Treatment Plant Survey Respondents
- Biosolids and Septage Management Study Information Survey Form

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APPENDIX G: MUNICIPAL SOLID WASTE COLLECTION CONTRACTS & MUNICIPAL ORDINANCES

- General Specifications for Curbside Collection and Disposal of Refuse and Recyclables Joint Contract for Boroughs of Carroll Valley and Fairfield (Oct. 2001)
- General Specifications for Curbside Collection and Disposal of Refuse and Recyclables for the Borough of New Oxford (July 2002)
- General Specifications for Municipal and Waste Recycling Collection, Transportation, Processing/Disposal for Multiple Municipalities (Sept. 2002 & Nov. 2002)
- General Specifications for Municipal and Waste Recycling Collection for Arendtsville Borough and Biglerville (November 2002)
- Municipal Ordinances from the Boroughs of Arendtsville, Biglerville, Bendersville, Bonneauville, the Townships of Butler and Conewago, the Borough of East Berlin, the Township of Franklin, the Borough of Gettysburg, the Townships of Highland, Huntington and Latimore, the Borough of McSherrystown, the Township of Menallen, and the Borough of New Oxford

APPENDIX H: OTHER PLAN IMPLEMENTATION DOCUMENTS

- Hauler Regulations
- Correspondence Regarding Plan Revision
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APPENDIX I: FLOW CONTROL

- Flow Control/Market Participation Discussion Notes

APPENDIX J: OPEN DUMPING

- Adams County Illegal Dump Survey (1995)
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APPENDIX K: RESOLUTION BY ADAMS COUNTY COMMISSIONERS

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- SWAC Meeting Minutes/Handouts

APPENDIX O: PUBLIC AND PADEP COMMENT AND RESPONSE CORRESPONDENCE

CHAPTER 1
DESCRIPTION OF WASTE

1.1 INTRODUCTION

1.1.1 Overview of Planning Process

This municipal waste management plan was prepared in accordance with the requirements of Act 101 of 1988, the Municipal Waste Planning, Recycling, and Waste Reduction Act. Act 101 delegates to counties the power and duty to prepare and implement plans for the processing and disposal of municipal waste generated in the county. The responsibility and authority for the collection and transportation of municipal waste and of source-separated recyclables is delegated to local municipalities. To implement the plans, the Act accords to counties the authority to adopt ordinances and regulations and enter into contracts for management of waste within the county in accordance with the county municipal waste management plan. The Act specifically allows counties to delegate their power and duty for municipal waste planning and implementation to another body, such as a municipal authority.

Act 101 calls for Pennsylvania counties to develop comprehensive, integrated municipal waste management plans. A county municipal waste management plan should consider the optimal complementary use of a variety of management technologies, such as waste reduction, recycling, waste processing, composting, landfilling and waste-to-energy. The Act specifically requires that the county plan provide for the maximum feasible development and implementation of recycling programs to meet the goals of the Commonwealth.

This 2005 Adams County Municipal Waste Management Plan (Plan) builds upon and updates information contained in the 1989 Adams County Municipal Waste Management Plan, as updated in 1993 and 1995. Beginning in 1992 and extending to the present, Adams County (County) and the Adams County Solid Waste Department have investigated several issues that may affect the long-term management of solid waste in Adams County. These investigations were included within the first three phases of a four-phase planning process, and provided the background necessary to develop future solid waste management strategies in Adams County.
In the first phase of the four-phase planning process, the County and Adams County Solid Waste Department:

- Established a Solid Waste Advisory Committee (SWAC)
- Issued a Request for Qualifications (RFQ) for waste processing technologies
- Evaluated Refuse-Derived Fuel (RDF) technology, identified potential RDF markets, and assessed regulatory implications of RDF combustion
- Estimated hauling cost implications of existing and proposed solid waste systems
- Determined the technical and economic feasibility of waste processing options
- Completed a feasibility study for constructing an in-county municipal waste co-composting facility

In the second phase of the planning process the County completed the following activities:

- Revised the Adams County Municipal Waste Management Plan to include the in-county co-composting facility as the designated long-term disposal option for municipal waste, as well as a portion of the sewage sludge and septage generated in the County
- Involved SWAC in the research/review/comment process throughout plan revision activities

In the third phase of the planning process the County completed the following activities:

- Conducted a Facility Siting Study / Site Selection Process
- Issueda Request For Proposals (RFP) for a private vendor to negotiate a contract for the design, permitting, construction and operation of a proposed Adams County Co-Composting Facility
- Developed and issued RFP Addenda, held a pre-proposal conference, and received proposals
- Established a Proposal Evaluation Team that conducted an Evaluations Process including Proposal reviews, vendor interviews, Reference Facility site visits, and SWAC and public information presentations
- Performed further County Plan updates with SWAC interaction
- Evaluated Revised/Clarified Project Design and cost submittals from project proposers
- Explored the feasibility of developing a County-owned and operated facility through a re-evaluation of the technical viability and project capital costs. A recommendation resulted for the County to consider the development of the Co-Composting Project in phases, as the phases are determined to be economical.
- Performed hauling and disposal cost evaluations and comparisons
- Worked with municipalities to structure municipal waste collection bids to guarantee future commitment of waste to the composting facility
- Issued a Request For Proposals for disposal capacity for the County's next planning period. The RFP solicited three (3) proposal options: the Base Proposal, which is a disposal-only option; the second option, which is a disposal plus hauling services option (from a County-owned and operated Processing Facility, "CPF"); and the third option, which involves construction and operation of a County Processing Facility (CPF) by the Proposer, together with hauling and disposal services

The fourth phase of the planning process included continuing planning activities related to the development and completion of this Plan. In phase four of the planning process the County completed the following activities:

- Updated Adams County population, municipal waste tonnage, and recycling projections for the next planning period
- Identified existing waste collection, transportation, and disposal practices
- Estimated waste disposal needs of Adams County for the planning period through January 1, 2016
- Evaluated current recycling activities in the County, and identified ways to stimulate further recycling over the planning period
- Evaluated the proposals submitted in response to the disposal RFP, including disposal-only; disposal plus hauling; and construction/operation of a Phase 1 CPF with hauling and disposal
- Entered long-term disposal contracts (Option 1) with multiple disposal sites, to secure 10 years of disposal capacity for Adams County through January 1, 2016
- Identified the economic impact/ per-ton cost of the proposed Phase 1 CPF project
- Identified options/costs of biosolids (sludge and septage) dewatering/processing
- Identified the economic impact and per-ton cost of the proposed full-scale cocomposting project
- Laid the groundwork for the County to further consider the development and implementation of waste management processing and disposal alternatives in the future, when and if they are determined to be cost-effective and in the best interests of the County
- Conducted other planning activities as necessary to complete this Plan to meet the guidelines of PADEP for the preparation of County plan updates and revisions

Adams County has completed a comprehensive study of the feasibility of establishing a MSW in-vessel co-composting facility and has concluded that, at least for the time being, the project is not economically feasible.

Information regarding the co-composting project is contained in the June 1993, Adams County Municipal Waste Composting Study Final Report; the 1993 Revised Municipal Solid Waste Plan; the 1996 Request for Proposals for the Adams County, Pennsylvania MSW Co-Composting Facility document; and the November 20, 2001, Hugh Ettinger Report.

Public Participation

In order to provide for public participation in the planning efforts related to this Plan, the Solid Waste Advisory Committee (SWAC), appointed by the Adams County Commissioners, assisted the Adams County Solid Waste Department in preparing the Municipal Waste Management Plan for the County by providing input from the citizenry, waste management organizations, selected interest groups, and municipal officials within Adams County. SWAC members met initially in Phase One of the planning process (1992-1993) to establish County goals and objectives, and have been active throughout the past 10-12 years in the ongoing activities from Phase One

throughout Phase Four. The current list of SWAC members is shown on the inside cover page of the Plan.

Purpose – Chapter 1

The purpose of this Chapter is to describe the types and quantity of municipal solid waste (MSW) generated in Adams County that will be managed by the systems described in this Plan. In order to plan for the processing and disposal of municipal waste in Adams County, certain methods of measuring the quantity and composition of the County's waste were identified. These methods were used to determine historical waste generation rates, project future waste generation rates and estimate the potential diversion of waste through source separation, recycling and composting programs. These methods were also used to estimate the required capacity of any processing and disposal facilities that may be used.

Sections 1.1 and 1.2 describe the County. A description of the various waste types is presented in Section 1.3. Sections 1.4 - 1.12 describe waste generation and composition in the County, including municipal solid waste, construction/demolition waste, sewage sludge, infectious and chemotherapeutic waste, household hazardous waste, residual waste, waste tires, yard waste, and bulky waste.

1.1.2 Description of the County

Location

Adams County is located in Southcentral Pennsylvania along the Maryland border. The County lies between York and Franklin Counties to the east and west respectively, Cumberland County to the north, and Frederick and Carroll Counties to the south in Maryland as illustrated by the Regional Location Map presented in Figure 1-1. Adams County is situated on the western fringe of the vast urban and urbanizing complex stretching from Boston to Norfolk, including other major cities of New York, Philadelphia, Baltimore, Washington and Richmond. Adams County is under increasing pressure from these urbanizing areas. Areas of regional influence are depicted in the Proximity Map presented in Figure 1-2. It is expected these cities and metropolitan areas may have an increasing impact on Adams County as these areas continue to grow.

Growth Trends and Issues

The County has experienced a significant increase in the level of development activity in recent years and is now under considerable development pressure from a variety of directions. Land costs, development regulations, and new impact fees in the nearby Maryland counties are generating a strong push into Adams County from the southeast and southwest. From the east, the expansion of Hanover and York is creating new development pressure, and the emergence of new employment centers southwest of Harrisburg is creating growth pressure down along the US Route 15 corridor. Even in the western fruit belt, new subdivisions have been proposed in response to the attractive ambiance of the area and its proximity to growing employment centers along Interstate 81 near Chambersburg.

Prominent in the economy of Adams County are agricultural activities and tourism. The overall level of agricultural activity is relatively high, but is subject to new pressures from urban development activities in many parts of the County. Tourism, which until recently was focused almost exclusively on Gettysburg and the National Military Park, is now spreading into the fruit belt, the South Mountain area, and into the picturesque villages and scenic areas of the countryside.

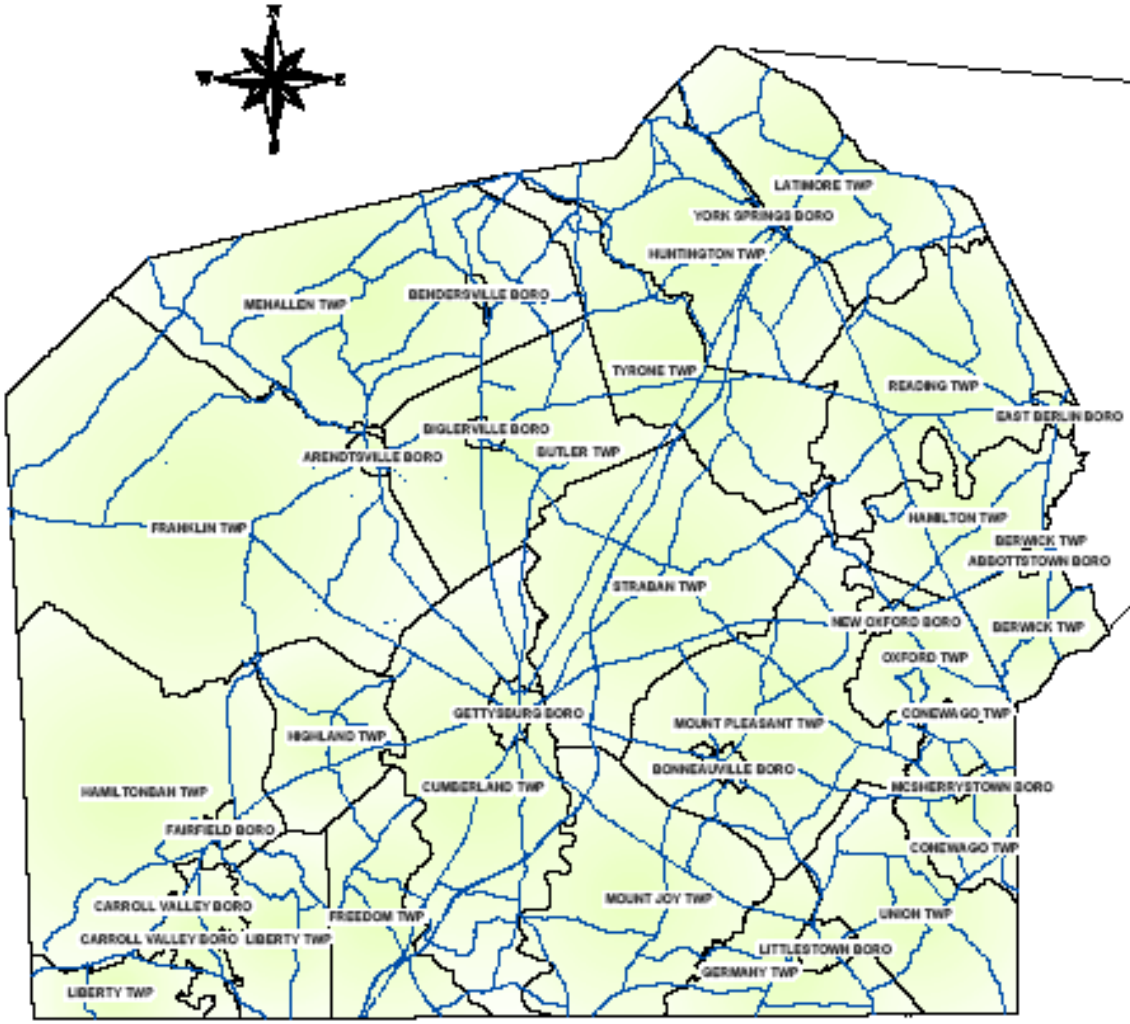
By 1990, many residents of Adams County had become increasingly concerned with the pace and type of development, particularly as it began to affect the quality of life in their communities. Increased traffic, loss of farmland, threatened natural amenities and historic resources, and strained public services are some of the present and potential problems associated with growth. On the other hand, many residents recognized high-quality development could also serve as a catalyst for needed economic growth.

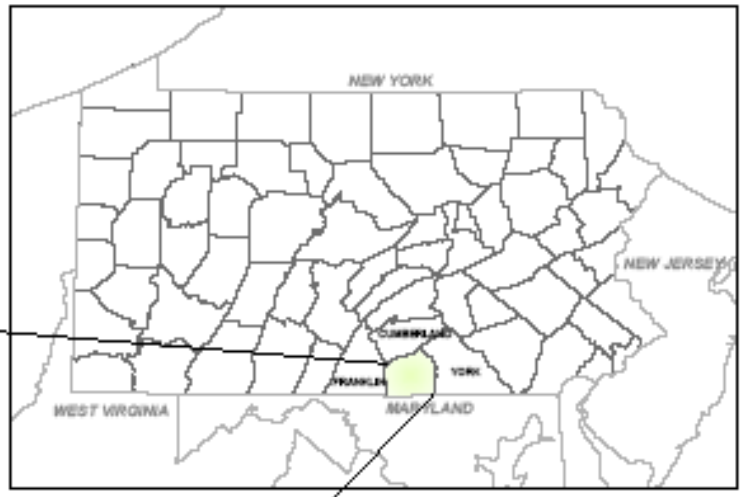
The significant development issues and problems of concern to County residents are many and varied, and may include, but not be limited to the following:

- The steady pace of development, which has resulted in an average growth rate of approximately 14% per decade since 1950
- Planning program and development decisions made outside Adams County which strongly affect the location and pace of development within the County
- Some existing sewer and water systems are inadequate to accommodate new development. Most new development should be located within or adjacent to designated growth areas served by public sewer and water. If public sewer and water capacity is not provided in designated growth areas, new development is likely to locate outside designated growth areas and be served by privately developed infrastructure. The pattern that ultimately emerges will significantly impact how solid waste management is addressed.
- Circulation problems in a number of corridors and at key intersections in the County are leading to congestion and safety issuesMany of the small historic villages, as well as the scenic roads and countryside, are being threatened by random scattered urban development
- The setting and quality of the National Military Park is threatened, both by urban development pressure and by increased levels of tourism and related economic activities
- The agricultural resources of the County are being threatened, both by urban development pressure and limited economic opportunities for young farmers
- The general lack of economic opportunities and new employment choices in the County for all age groups, but most especially for young adults, is leading to significant and unhealthful demographic changes

FIGURE 1-1

Regional Location Map
Adams County, PA





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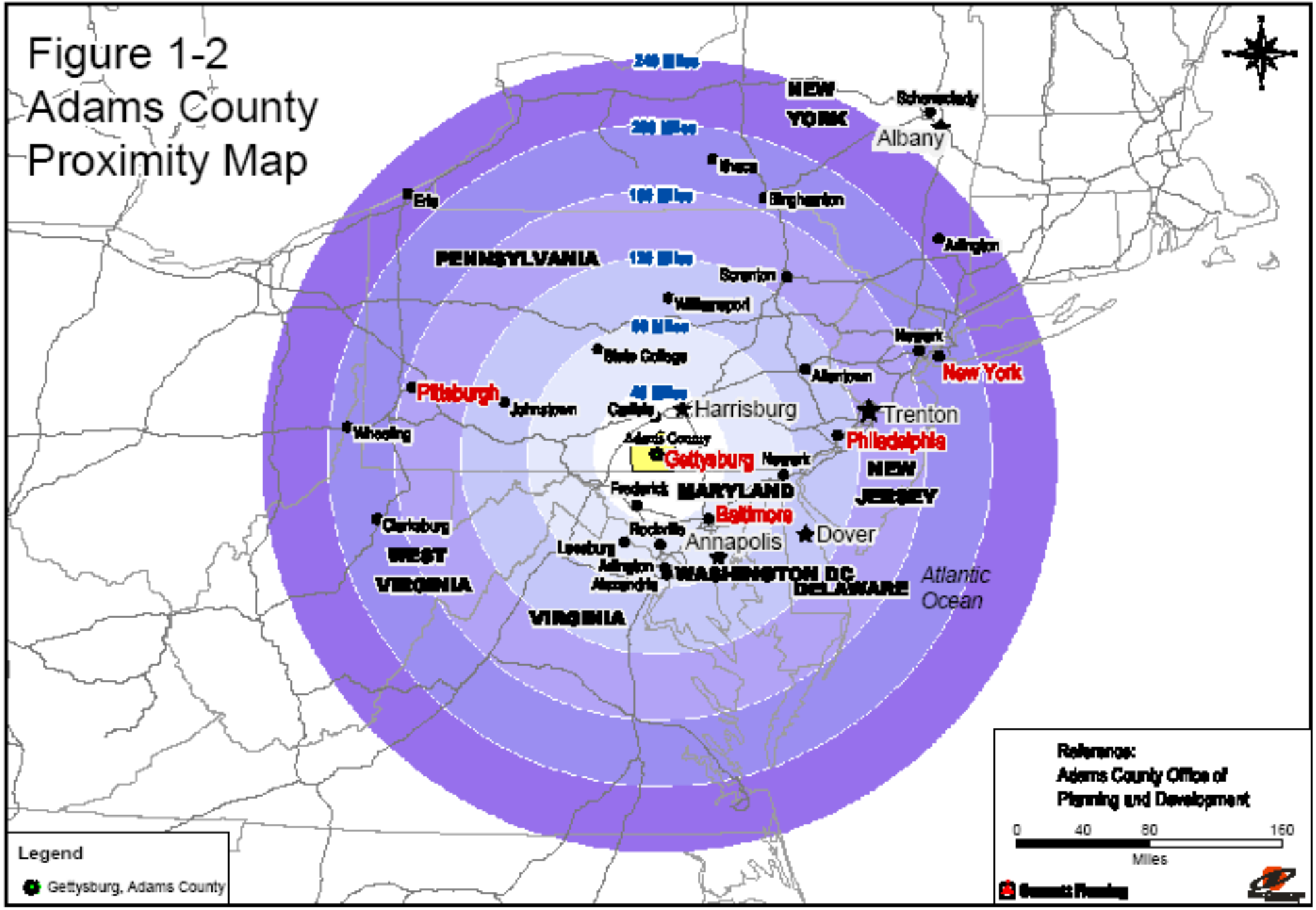
Figure 1-2
Adams County
Proximity Map
NEW YORK
Albany
Erie
Binghamton
PENNSYLVANIA
Scranton
Williamsport
State College
Pittsburgh
Johnstown
Harrisburg
Trenton
New York
Philadelphia
Wheeling
Adams County
Gettysburg
Newark
NEW JERSEY
Frederick
MARYLAND
Baltimore
Clarksburg
Rockville
Annapolis
Dover
WEST VIRGINIA
Leesburg
Arlington
Alexandria
WASHINGTON DC
DELAWARE
Atlantic Ocean
VIRGINIA
Legend
Gettysburg, Adams County
Reference:
Adams County Office of Planning and Development
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40
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160
Miles

Adams County is heavily influenced by neighboring communities. Both employment opportunity and shopping facilities are comparatively more abundant in the Hanover, York and Harrisburg areas in particular, and to a lesser extent in Chambersburg and Carlisle. The availability of these out-of-county facilities within easy commute for Adams County residents has probably caused a slowdown in industrial and commercial growth in Adams County. There is, however, an expanding shopping facility located south of Gettysburg, which is attracting clientele from parts of Northern Maryland.

Economically, the County is characterized by a low wage structure and relatively low income levels, especially among long-term residents. Average household income in the County is rising, but the increase appears to be the result of the in-migration of new residents continuing to work outside the County. There is a general concern for the lack of new economic and employment opportunities in the County and a growing concern for the increasing disparity of income levels between older and newer residents. It is important to note that almost 50 percent of Adams County's commuters work outside of the County. It can be assumed this condition would have an impact on waste generation figures.

Adams County comprises approximately 526 square miles of land. According to the 2000 U.S. Census, the total population was 91,292 people. Adams County is divided into 13 boroughs and 21 townships, each with its own local government. The Borough of Gettysburg, in the southcentral part of the County, is the largest population center. The 13 boroughs represent approximately 30 percent of the County's total population. The remaining 70 percent of the population is located in the relatively rural townships, although there are a few densely populated areas within some of the townships.

Residential development is the greatest use of land among the high-activity uses in the County. Roadways are the second greatest activity use, and occupy over four times the land devoted to commercial and industrial activities. The estimated number of commercial, industrial, and occupied residential establishments is provided in Table 1-1.

TABLE 1-1
ADAMS COUNTY
ESTIMATED NUMBER OF ESTABLISHMENTS IN COUNTY (2002)

SECTOR	NUMBER(1)
Commercial	1,862
Industrial	104
Occupied Residential Housing Units	34,670

(1) Adams County Planning Department, 2003.

The pattern of residential development in the County is an important factor related to solid waste management. For the past 15 years, the majority of new development in Adams County has occurred within, or adjacent to, existing boroughs or villages and within growth areas established in County and municipal comprehensive plans. There are exceptions, however, and a portion of the County's new housing development has occurred on subdivisions in rural settings.

Approximately 30% of new housing has been developed on rural lots located outside designated growth areas or other areas served by public utilities. This development pattern was envisioned by the Adams County Comprehensive Plan. Subdivision plans reviewed by the County in the past five years would indicate a continuance of this trend.

One of the more effective means for reducing service costs is through inter-municipal cooperation. State Law provides that municipalities may do virtually everything collectively that they may do individually. Such cooperation is absolutely necessary if citizens are to receive the types of services they desire and are entitled to at a reasonable cost.

Rural residential patterns often create uneconomical waste collection systems. The fewer customers per mile, the greater the cost per customer. The absence of mandatory refuse pick-up requirements in Adams County results in possibly one-half to two-thirds of rural residences foregoing refuse service in favor of disposing of their wastes on their own. In some cases, residents share refuse service with relatives and friends (without the knowledge of the hauler), while others self-haul their wastes directly to disposal facilities. Other residents perform improper self-disposal, by means of burning, burial or littering, which creates, and may continue to create, environmental degradation and, in particular, threaten ground water quality. The County, through its Department of Protective Services, will continue to assist municipalities with enforcement of State laws relative to the practices of burning, dumping and littering. In addition, the County will promote the education of municipalities and residents regarding the hazards of such practices.

In addition to household refuse, residential land use generates septage and sewage sludge. Septage and sewage sludge disposal is a problem that is becoming more prevalent as adverse reaction to land application of this material increases. Septage is the residue from the septic tanks of houses (not on public sewage systems) that typically is trucked to land application sites or wastewater treatment plants located primarily outside the County. Sewage treatment plant sludge, potentially containing one or more of a variety of heavy metals, has created considerable concern in areas of Adams County where land application disposal has been used. Sludge disposal, while not at a crisis stage in some urban areas, is a solid waste problem that must be addressed in Adams County. It is important to recognize that a substantial number of out-of-county sources generate sludge that is land applied in Adams County. Increasingly, available permitted land disposal sites will become competitively sought by these out-of-county sources, thereby limiting opportunities for local treatment plants. The County will monitor this situation, research and identify new opportunities for a means of disposal.

Existing wastewater treatment plants in Adams County lack the necessary technology to produce Class A sludge for unrestricted uses. Technologies for producing Class A sludge are an important consideration for the future planning for Adams County biosolids.

The concentration of tourist facilities in the Gettysburg area has serious implications for solid waste management. Since there is a seasonal fluctuation in refuse generation by the resident population (high in 2nd and 3rd quarters, lower in 1st and 4th quarters) and the tourist influx peaks in summer, the County experiences a marked increase of the volumes of refuse between the winter low and summer high. Since refuse cannot be stockpiled or stored raw for any period of time, collection, processing and disposal facilities must be designed and operated to accommodate the peak loads. This situation has serious implications for solid waste management.

Gettysburg College currently has a stabilized enrollment of approximately 2,000 students. The students help to balance the solid waste stream because the college operates while tourist activity is lowest. All public and private schools in the County have a similar impact.

Gettysburg Hospital (recently renovated and expanded), provides medical services for most of Adams County and a small portion of northern Maryland. Hospitals and retirement home/nursing home institutions generate some specialized wastes which cannot be placed in the municipal waste system.

Regional Influences

As previously mentioned, Adams County is situated on the western fringe of the east coast metropolitan area once referred to as "megalopolis". The proximity of urban activities naturally impacts the County in a number of ways, and these are generally considered good or bad depending upon a personal point of view.

Although some industrial activities contribute to the municipal waste stream, individual industrial wastes (residual wastes) do not impact the Municipal Waste Management Plan under preparation. Industry is individually responsible for the proper disposal of residual wastes generated, and they may or may not be permitted to dispose of those wastes in a facility handling municipal wastes.

Agricultural activities in the County generate considerable volumes of animal and vegetable wastes. Agricultural wastes also fall within the definition of residual wastes. Most agricultural wastes are processed and disposed of on-farm, and if proper procedures are followed, land disposal of agricultural wastes is the most logical and effective means available. Problems occur when the volumes of wastes, particularly manure, exceed the capacity of available land to accommodate disposal. For example, Lancaster County animal populations have been concentrated to the point that serious overloading of crop land with manure has been determined to be a major contributor to nutrient pollution of the Chesapeake Bay.

Agricultural waste disposal problems fall into two categories. First is the nutrient concentration problem described above. Second is the improper handling of wastes, either during storage or during land application. Animal wastes allowed to accumulate, where subsequent saturation with water and rapid runoff can occur, typically produce high levels of nutrient loss to nearby streams. This results in a loss of fertilizer for the farmer and produces degradation of stream quality. Along the same lines, manures should not be applied to saturated, frozen or snow-covered fields. This activity substantially increases the chances of the material being flushed into streams. Many farms do not have adequate storage capacity to hold the manure generated during extended periods of time, and are thus tempted or required to apply it at inappropriate times or to areas that are vulnerable to runoff. Manure utilization is a problem of increasing concern to Adams County, and one that the Adams County Solid Waste Department will monitor with a goal of assisting farmers in managing.

Public and semi-public land uses in Adams County include a variety of activities ranging from the National Park Service complex to churches and other relatively small facilities. Institutional uses, such as Gettysburg College, Gettysburg Hospital, the Adams County Courthouse Complex, the Adams County Adult Correctional Facility and "Green Acres" (the Adams County Nursing & Rehabilitation Center), all fall into this category.

Although the Gettysburg National Military Park, National Cemetery and Eisenhower Historic Site do not generate unusual amounts of solid wastes, they are directly responsible for attracting tourists that patronize the commercial facilities. Tourists contribute substantially to the solid waste stream in Adams County. Over 1.8 million tourists have visited the National Military Park attractions during each of the past three (3) years. It is important to note that many of these visitors do not stay longer than one day.

Three large retirement home complexes are located in the County. The Lutheran Home just north of Gettysburg, Brethren Home at Cross Keys near New Oxford, and the Laurel Run Home over South Mountain near Caledonia continually alter their operations and expand as federal and state regulations change and the demand for facilities increases. As the elderly portion of the population increases, facilities of this nature can be expected to increase in size and number.

Transportation Network

Rail service in Adams County consists of a Western Maryland Line crossing the County from east to west, and the Gettysburg Branch Line that begins at Gettysburg and exits the County to the north. Passenger service is limited to a recreational run on the Gettysburg Branch that gives riders a steam engine ride through part of the fruit belt. This line also provides freight service to several industries in northern Adams County.

The Western Maryland Line enters the County at Hanover, circles northwest through New Oxford to Gettysburg, and then begins a west and southwest arc to exit the County a few miles north of the Maryland State line. Passenger service on this line was terminated many years ago.

It is doubtful that rail service will play a role in the Adams County Solid Waste Management Plan. However, rail service could become important in the unlikely scenario where the disposal option selected would be delivery to a more distant disposal site accessible directly by rail. The density and scattered pattern of development in the County make rail transportation of refuse unfeasible for an in-county disposal system.

The Adams County highway system is a vast web-like network of state and municipal roads. Except for some remote forested areas in Western Adams County, it is virtually impossible to find a point that is more than one mile from a public road. There are many miles of private roads, some of which are comparable to the quality of public roads.

Although Adams County is not directly served by the Interstate Highway System, Route 15 and Route 30 provide relatively rapid access to the Interstate System to the north, east, south and west. Passing through the County in a general east-west direction, Route 30 (also called the Lincoln Highway) carries a heavy volume of truck traffic. Significant increases in overall traffic occur along Route 30 during the tourist season.

1.2 POPULATION

Population projections can be used to develop future waste generation figures, to assist with solid waste management planning. Total waste generation is normally presented on a per-person basis, thus population figures may provide a reasonable guide to future waste quantities that must be accommodated. The best and most readily available database used for population projections

for Adams County municipalities are County building permits. Building permit data for fifteen years (1970 to 1985), were accumulated and analyzed to determine the number of residential units that might be expected to develop in the future. By applying a people-per-unit multiplier, future population numbers were generated.

The County population for year 2000 is 91,292 based on U.S. Census data. As projected over the next 10 to 20 years, the population is expected to grow at a rate similar to that experienced in Adams County since 1950. Table 1-2 presents the projected populations of each municipality. The 2005, 2010, 2015 and 2020 population projections are from the Adams County Office of Planning and Development. These figures represent preliminary, linear projections for 2015 and 2020, and may be revised during the forthcoming update of the Adams County Comprehensive Plan.

Population projections indicate the County's population will increase from the year 2000 population of 91,292 to 103,870 by 2005 (14 percent growth from 2000 population), to 117,195 by 2010, to 130,520 by 2015 and to 143,845 by 2020. These figures indicate an average annual County population growth rate of almost 3 percent.

TABLE 1-2
ADAMS COUNTY
COUNTY POPULATION PROJECTIONS

Adams County	2000[1]	2005[2]	2010[2]	2015[2]	2020[2]
Abbottstown Borough	905	944	950	956	963
Arendtsville Borough	848	884	925	966	1,006
Bendersville Borough	576	603	630	658	686
Berwick Township	1,818	2,409	3,200	3,991	4,781
Biglerville Borough	1,101	1,156	1,200	1,244	1,288
Bonneauville Borough	1,378	1,616	1,900	2,184	2,468
Butler Township	2,678	2,931	3,200	3,469	3,738
Carroll Valley Borough	3,291	4,046	4,800	5,554	6,308
Conewago Township	5,709	6,853	7,900	8,947	9,994
Cumberland Township	5,718	6,543	7,500	8,457	9,414
East Berlin Borough	1,365	1,554	1,700	1,846	1,992
Fairfield Borough	486	640	850	1,060	1,270
Franklin Township	4,590	4,999	5,300	5,601	5,902
Freedom Township	844	1,556	2,700	3,844	4,988
Germany Township	2,269	2,579	2,700	2,821	2,942
Gettysburg Borough	7,490	7,535	7,600	7,665	7,730
Hamilton Township	2,044	2,506	2,800	3,094	3,388
Hamiltonban Township	2,216	2,359	2,400	2,441	2,482
Highland Township	825	939	1,050	1,161	1,272
Huntington Township	2,233	2,598	3,000	3,403	3,806
Latimore Township	2,528	2,876	3,200	3,524	3,848
Liberty Township	1,063	1,160	1,200	1,240	1,280
Littlestown Borough	3,947	4,355	4,800	5,245	5,690
McSherrystown Borough	2,691	2,888	3,100	3,313	3,525
Menallan Township	2,974	3,206	3,400	3,594	3,788
Mount Joy Township	3,232	3,615	3,900	4,185	4,470
Mount Pleasant Township	4,420	5,158	6,000	6,843	7,686
New Oxford Borough	1,696	1,838	2,050	2,263	2,476
Oxford Township	4,876	5,702	6,800	7,898	8,996
Reading Township	5,106	5,987	7,000	8,013	9,026
Straban Township	4,539	5,421	6,500	7,579	8,658
Tyrone Township	2,273	2,477	2,600	2,723	2,846
Union Township	2,989	3,336	3,700	4,064	4,428
York Springs Borough	574	605	640	675	710
Total Population	**91,292**	**103,870**	**117,195**	**130,520**	**143,845**

[1] 2000 U.S. Census.
[2] Projections from the Adams County Planning and Development Department, 2004.

Projections developed for this study are subject to a number of limitations, which could materially alter the figures. The smaller the database, the greater the possibility of error and the magnitude of error. Therefore, the figures for the County as a whole have a higher degree of reliability compared to those for individual municipalities. Projections typically assume no significant changes in economic conditions, or other factors, will occur which materially alter the estimated projections. Substantial economic changes may occur, however, and it is impossible to predict these changes and if they will have a positive or negative impact on the projections. Finally, it is recognized that the projections provided in this Plan have been estimated solely for use in this Plan.

To summarize, it is anticipated that Adams County will continue to grow at a rate consistent with the trend since 1950. More growth will occur in the townships, because much of the vacant land area in the Boroughs has been developed in recent years.

Understanding historical population change is critical to generating population projections that are needed to support many planning activities. As shown in Table 1-3, Adams County has undergone relatively rapid population growth from 1980 through 2000. Additionally, existing population characteristics and projections of future population levels are critical to any planning project, especially for a community facility or service (e.g. solid waste disposal). Population density and distribution may provide insight into existing conditions. The projections provided herein should give a relatively accurate picture of population numbers 10 to 20 years into the future.

Population density, normally expressed in people per square mile, is frequently used to determine the necessity for or feasibility of various community facilities or services. However, in the case of individual Adams County municipalities, density figures alone do not necessarily provide an accurate spatial picture. Many large municipalities, having very low overall densities, have significant developed areas yielding sometimes misleading population density figures. For instance, both Straban Township and Cumberland Township (Cumberland Township contains a significant portion of the National Military Park lands) have densities of under 200 people per square mile, yet both have major commercial developments underway, which require the full range of municipal services. Further, housing development in Straban is likely to increase due to job growth and critical location. Table 1-4 provides population density information for Adams County.

TABLE 1-3
ADAMS COUNTY MUNICIPALITIES
POPULATION CHANGE PER DECADE (1970, 1980, 1990)

BOROUGHS	1970	1980	CHANGE	% CHANGE	1980	1990	CHANGE	% CHANGE	1990	2000	CHANGE	% CHANGE
Abbottstown	552	689	137	24.8%	689	539	-150	-21.8%	539	905	366	67.9%
Arendtsville	589	600	11	1.9%	600	693	93	15.5%	693	848	155	22.4%
Bendersville	528	533	5	0.9%	533	560	27	5.1%	560	576	16	2.9%
Biglerville	977	991	14	1.4%	991	993	2	0.2%	993	1,101	108	10.9%
Bonneauville	819	920	101	12.3%	920	1,282	362	39.3%	1,282	1,378	96	7.5%
Carroll Valley	0	817	817	0.0%	817	1,457	640	78.3%	1,457	3,291	1,834	125.9%
East Berlin	1,086	1,054	-32	-2.9%	1,054	1,175	121	11.5%	1,175	1,365	190	16.2%
Fairfield	547	591	44	8.0%	591	524	-67	-11.3%	524	486	-38	-7.3%
Gettysburg	7,275	7,194	-81	-1.1%	7,194	7,025	-169	-2.3%	7,025	7,490	465	6.6%
Littlestown	3,026	2,870	-156	-5.2%	2,870	2,974	104	3.6%	2,974	3,947	973	32.7%
McSherrystown	2,773	2,764	-9	-0.3%	2,764	2,769	5	0.2%	2,769	2,691	-78	-2.8%
New Oxford	1,495	1,921	426	28.5%	1,921	1,617	-304	-15.8%	1,617	1,696	79	4.9%
York Springs	467	556	89	19.1%	556	547	-9	-1.6%	547	574	27	4.9%
BOROUGH TOTAL	**20,134**	**21,500**	**1,366**	**6.8%**	**21,500**	**22,155**	**655**	**3.0%**	**22,155**	**26,348**	**4,193**	**18.9%**

TOWNSHIPS	1970	1980	CHANGE	% CHANGE	1980	1990	CHANGE	% CHANGE	1990	2000	CHANGE	% CHANGE
Berwick	1,379	1,492	113	8.2%	1,492	1,831	339	22.7%	1,831	1,818	-13	-0.7%
Butler	1,757	2,166	409	23.3%	2,166	2,514	348	16.1%	2,514	2,678	164	6.5%
Conewago	3,431	3,405	-26	-0.8%	3,405	4,532	1,127	33.1%	4,532	5,709	1,177	26.0%
Cumberland	3,497	4,637	1,140	32.6%	4,637	5,431	794	17.1%	5,431	5,718	287	5.3%
Franklin	2,744	3,692	948	34.5%	3,692	4,126	434	11.8%	4,126	4,590	464	11.2%
Freedom	555	650	95	17.1%	650	692	42	6.5%	692	844	152	22.0%
Germany	1,308	1,652	344	26.3%	1,652	1,949	297	18.0%	1,949	2,269	320	16.4%
Hamilton	1,048	1,692	644	61.5%	1,692	1,760	68	4.0%	1,760	2,044	284	16.1%
Hamiltonban	1,686	1,835	149	8.8%	1,835	1,872	37	2.0%	1,872	2,216	344	18.4%
Highland	662	717	55	8.3%	717	815	98	13.7%	815	825	10	1.2%
Huntington	1,484	1,557	73	4.9%	1,557	1,989	432	27.7%	1,989	2,233	244	12.3%
Latimore	1,105	1,369	264	23.9%	1,369	2,209	840	61.4%	2,209	2,528	319	14.4%
Liberty	1,075	823	-252	-23.4%	823	938	115	14.0%	938	1,063	125	13.3%
Menallen	1,937	2,354	417	21.5%	2,354	2,700	346	14.7%	2,700	2,974	274	10.1%
Mount Joy	1,795	2,564	769	42.8%	2,564	2,848	284	11.1%	2,848	3,232	384	13.5%
Mount Pleasant	1,817	3,473	1,656	91.1%	3,473	4,076	603	17.4%	4,076	4,420	344	8.4%
Oxford	1,808	2,302	494	27.3%	2,302	3,437	1,135	49.3%	3,437	4,876	1,439	41.9%
Reading	1,724	2,660	936	54.3%	2,660	3,828	1,168	43.9%	3,828	5,106	1,278	33.4%
Straban	3,221	4,240	1,019	31.6%	4,240	4,565	325	7.7%	4,565	4,539	-26	-0.6%
Tyrone	1,291	1,534	243	18.8%	1,534	1,829	295	19.2%	1,829	2,273	444	24.3%
Union	1,479	1,978	499	33.7%	1,978	2,178	200	10.1%	2,178	2,989	811	37.2%
TOWNSHIP TOTAL	**36,803**	**46,792**	**9,989**	**27.1%**	**46,792**	**56,119**	**9,327**	**19.9%**	**56,119**	**64,944**	**8,825**	**15.7%**
COUNTY TOTAL	**56,937**	**68,292**	**11,355**	**19.9%**	**68,292**	**78,274**	**9,982**	**14.6%**	**78,274**	**91,292**	**13,018**	**16.6%**

TABLE 1-4

ADAMS COUNTY MUNICIPALITIES
2000 POPULATION DENSITY

BOROUGHS	2000 POPULATION	AREA IN SQUARE MILES	POPULATION PER SQUARE MILE
Abbottstown	905	0.6	1,508
Arendtsville	848	0.7	1,211
Bendersville	576	0.4	1,440
Biglerville	1,101	0.6	1,835
Bonneauville	1,378	1.0	1,378
Carroll Valley	3,291	5.5	598
East Berlin	1,365	0.7	1,950
Fairfield	486	0.7	694
Gettysburg	7,490	1.6	4,681
Littlestown	3,947	1.6	2,467
McSherrystown	2,691	0.5	5,382
New Oxford	1,696	0.6	2,827
York Springs	574	0.2	2,870
BOROUGH TOTAL	**26,348**	**14.7**	**1,792**

TOWNSHIPS	POPULATION	AREA IN SQUARE MILES	POPULATION PER SQUARE MILE
Berwick	1,818	7.7	236
Butler	2,678	24.0	112
Conewago	5,709	10.5	544
Cumberland	5,718	34.0	168
Franklin	4,590	69.0	67
Freedom	844	14.0	60
Germany	2,269	10.9	208
Hamilton	2,044	13.7	149
Hamiltonban	2,216	39.3	56
Highland	825	12.1	68
Huntington	2,233	25.1	89
Latimore	2,528	21.4	118
Liberty	1,063	16.2	66
Menallen	2,974	43.0	69
Mount Joy	3,232	26.1	124
Mount Pleasant	4,420	31.5	140
Oxford	4,876	10.0	488
Reading	5,106	26.8	191
Straban	4,539	34.4	132
Tyrone	2,273	21.5	106
Union	2,989	17.5	171
TOWNSHIP TOTAL	**64,944**	**508.7**	**128**
COUNTY TOTAL	**91,292**	**523.4**	**174**

1.3 FOCUS OF THIS PLAN

This Plan will focus on the conventional municipal solid waste fraction of the waste stream, and will consider special handling wastes separately from non-special handling waste. Construction and demolition wastes, which are also subject to different handling and disposal considerations from conventional waste (but are regulated as municipal-like waste materials), will likewise be examined separately. This Plan will also separately consider household hazardous waste, and will acknowledge the quantities of residual waste generated and disposed.

In summary, the Plan will examine each of the following, with primary emphasis on the first two categories in accordance with 25 Pa. Code Chapter 272:

(1) Residential, commercial, and institutional waste - (i.e. municipal solid waste),
(2) Sewage sludge,
(3) Construction and demolition waste,
(4) Infectious and chemotherapeutic waste,
(5) Household hazardous waste, and
(6) Residual waste
(7) Other wastes (i.e. waste tires, leaf & yard waste, bulky waste).

The Adams County Plan provides for adequate disposal capacity during the 10-year planning period, 2005 through 2015, for County-generated municipal solid waste. In addition, the Plan places a greater emphasis on the diversion of recyclable materials from the waste stream through a variety of means, such as: enhancing educational efforts; developing a County-wide recycling ordinance; implementing better reporting methods; seeking new opportunities; encouraging partnerships; and working with the Adams Rescue Mission to offer more curbside and drop-off-recycling services.

1.3.1 Municipal Waste

Municipal waste is defined in 25 Pa. Code §271.1 of the PA Municipal Waste Management Regulations (Regulations) as:

> "Garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, wastewater treatment plant or air pollution control facility."

Any material meeting the definition of residual waste, hazardous waste, or source-separated recyclable material, is not a municipal waste under the regulations.

1.3.1.1 Special Handling Wastes

Within municipal waste are certain waste materials, which because of their quantity or unique physical, chemical, or biological characteristics, are subject to additional PADEP storage, collection, transportation, processing or disposal requirements. Sewage sludge is defined by

PADEP as a special handling waste. The other wastes classified by PADEP as special handling waste are dredged material, infectious waste, chemotherapeutic waste, ash residue from municipal waste incinerators, friable asbestos containing waste, PCB containing waste and waste oil that is not hazardous. A "permit modification" is required by a municipal waste facility to receive special handling wastes for disposal from a specific source.

1.3.2 Source-Separated Recyclable Materials

Source-separated recyclable materials are defined under 25 Pa. Code §271.1 of the Regulations as:

> "Materials that are separated from municipal waste at the point of origin for the purpose of recycling. The term is limited to clear glass, colored glass, aluminum, steel and bimetallic cans, high-grade office paper, newsprint, corrugated paper, plastics and other marketable grades of paper. "

These materials are not subject to regulation as municipal waste.

1.3.2.1 Special Event (Community Activities) Recycling

Community Activities is defined under 25 PA Code §271.1 of the Regulations as:

> "Events sponsored in whole, or in part, by a municipality, or conducted within a municipality and sponsored privately, which include, but are not limited to, fairs, bazaars, socials, picnics and organized sporting events that will be attended by 200 or more individuals per day."

Section 4.6.4 provides information on Special Event Recycling in Adams County.

1.3.3 Residual Waste

Residual waste is defined under 25 Pa. Code §271.1 of the Regulations as:

> "Garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations; and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under the Clean Streams Law."

In short, residual waste is non-hazardous solid waste produced by industrial processes such as manufacturing, mining, food processing and by agricultural operations.

Residual waste may be disposed at a permitted "captive" disposal facility (a disposal facility at the site of waste generation), land applied at permitted sites (food processing and agricultural residues) or disposed at a municipal waste landfill, provided the landfill has obtained a

modification to accept the waste. The modification is approved on a case-by-case basis by the PADEP.

1.3.4 Hazardous Waste Generation

Hazardous Waste is defined in 25 Pa. Code § 271.1 of the Regulations as:

> "Garbage, refuse or sludge from an industrial or other wastewater treatment plant; sludge from a water supply treatment plant or air pollution control facility; and other discarded material, including solid, liquid, semisolid or contained gaseous material resulting from municipal, commercial, industrial, institutional, mining, or agricultural operations, and from community activities; or a combination of the above which, because of its quantity, concentration or physical, chemical or infectious characteristics may do one of the following:
>
> (i) Cause or significantly contribute to an increase in mortality or increase in morbidity in either an individual or the total population.
>
> (ii) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed."

Waste meeting the definition of hazardous waste is subject to the stringent regulations under the PA Solid Waste Management Act (Act 97), 25 Pa. Code, Chapters 260-270 and the federal Resource Conservation and Recovery Act (RCRA). While municipal waste landfills may obtain permit modifications allowing them to receive residual waste, hazardous waste may only be accepted at permitted hazardous waste disposal facilities. Materials that would otherwise be regulated as hazardous waste are considered a municipal waste if generated in the household (household hazardous waste, commonly referred to as HHW). HHW materials would include such items as paint, paint thinner, batteries, used oil, pesticides, computers, TV's, electronic items, etc.

1.4 MUNICIPAL SOLID WASTE GENERATION

This section presents projected quantities of municipal waste from Adams County and summarizes the method used to develop these projections. Section 1.4.1 is a brief overview of the estimating method. Section 1.4.2 discusses the estimated composition of the County's municipal waste.

1.4.1 Overview of Estimating Method

Table 1-5 identifies the tons of municipal waste reportedly received at disposal facilities from Adams County sources in 2002, based on PADEP Waste Destination Reports. These figures do not account for any illegal dumping, burning or composting of waste generated. To calculate the estimated per-capita rate of municipal solid waste generation (i.e., before recycling, composting, burning or dumping) Adams County used the Pennsylvania Department of Environmental Protection's (PADEP) calculation of 4.75 pounds per-person per-day. Using PADEP's waste generation figure, the tons per-capita, per-year equates to .87. This generation rate excludes

sewage sludge (i.e., biosolids), C&D waste and other special handling waste. Using this per-capita rate, together with the 2002 estimated population projection from the Adams County Planning and Development Department, results in a total estimated residential generation figure of 83,411 tons of municipal waste for 2002.

Table 1-5 shows a total of 54,111 tons of municipal waste (Table 1-6 presents the 2002 projected waste generation by each municipality) reported as disposed in 2002. This figure, however, includes both residential and commercial sources of municipal waste. To determine the separate approximate quantities of residential and commercial wastes, Adams County used PADEP's municipal waste breakdown (from the April 2003 R. W. Beck Statewide Waste Composition Study) of 54% residential and 46% commercial. Using these calculations, the resulting breakdown of the 54,111 tons of waste disposed in 2002 is: 29,220 tons of residential and 24,891 tons of commercial. If, however, the total estimated generation figure for residential and commercial waste in 2002 is 83,411 tons, and the estimated residential waste disposal figure is only 29,220 tons, then it can only be assumed that 15,822 tons of residential waste (83,411 tons x .54(%) = 45,042 tons – 29,220 tons) and 13,478 tons of commercial waste (83,411 tons x .46(%) = 38,369 tons – 24,891 tons): is not being generated; is not being properly reported at disposal facilities; is being burned, composted or illegally dumped; or is not being reported as recycled.

Adams County remains a relatively rural area, where over 70% of its residents dwell in less-densely populated townships. The local governments in these townships, for the most part, do not ordain mandatory residential or commercial garbage collection. They also do not discourage the burning of waste through ordinances. It should be noted that PADEP's "2003 Statewide Waste Composition Study" determined that the rural areas in the Southcentral Region contribute the lowest fraction of paper (especially office paper, magazines and non-recyclable paper) to the waste materials entering disposal facilities. These rural areas also contribute lower amounts of yard waste and diapers. Paper, yard waste and diapers are generally the primary materials burned by rural households in Adams County; therefore, it can be assumed that much of this material is being disposed through burning. Privacy and stolen identity issues are also a factor in many residents choosing to burn, even some residents who have contracted for waste collection services. Although the Adams Rescue Mission collects office paper waste, few residents recycle paper, with the exception of newsprint. The Mission does not accept magazines.

Commercial businesses, if unregulated by ordinance and enforcement, may also resort to burning to save on disposal costs. Adams County, through its Department of Protective Inspections offers assistance to municipalities with regard to enforcement of State regulations concerning burning of waste materials by commercial businesses.

The Year 2002 Act 101 Annual Report estimates that 7,670 tons of materials were recycled in the County. This quantity of recycled materials (including recycling and yard waste composting) represents approximately 10% of the gross quantity of municipal waste (Note: 10% figure was calculated using DEP's standardized generation rate.) The year 2002 10% diversion rate is projected to grow steadily over the planning period, as better reporting methods are implemented. In 2003, Adams County began requiring all haulers of recyclable materials to obtain a license and submit reports on the amounts and types of materials recycled. This reporting requirement should help Adams County to reach a diversion rate of 35% by 2015.

Table 1-7 shows Adams County's projected gross and net generation estimates over the next 20 years. Using yearly waste generation estimates and yearly County population estimates, the municipal generation rate in Adams County has been calculated at .87 tons per-capita, per year. This generation rate excludes sewage sludge (i.e., biosolids), C&D waste and other special handling waste. Using this per-capita waste generation rate, together with the population projections and the projected recycling/waste diversion rates over the next 20 years, both gross (before recycling and composting) and net (after these activities) generation rates can be estimated.

The projected gross generations were calculated by applying the current per-capita waste generation rate to population projections, assuming steady population growth between 2003 and 2020. While per-capita waste generation has increased historically, it is assumed that this rate has peaked and will remain level (according to EPA, the generation rate has stabilized as presented in their report titled "Municipal Solid Waste in the United States: 2001 Facts and Figures".) Table 1-7 presents projected gross and net generations for the period 2001 through 2020.

The projected net generations requiring disposal were calculated by projecting the County's gross generations through 2020 and then subtracting projected rates of diversion (estimated by percentages through 2020) resulting from waste reduction and recycling.

TABLE 1-5
ADAMS COUNTY
MSW REPORTED RECEIVED FROM ADAMS COUNTY
AT DISPOSAL FACILITIES (2002)[1]

Disposal Facility	**[1]Municipal Waste (tons)**
Southern Alleghenies Landfill	0[2]
Modern Landfill	7,584
IESI PA Blue Ridge Landfill	5,570
Cumberland County Landfill	45
Mountain View Reclamation Landfill	36,182
York County Resource Recovery Facility	4,730
Totals	**54,111**

[1] PADEP - County Waste Destination Reports – 2002.
[2] PADEP Waste Destination Reports incorrectly reported 7.7 Tons (that has been deleted) of MW received at Southern Alleghenies Landfill.

TABLE 1-6

ADAMS COUNTY
PROJECTED GROSS WASTEGENERATION BY MUNICIPALITY
(MUNICIPAL WASTE TONS PER YEAR 2002)

Municipality	2002 Population[1]	Waste Generation (tpy)[2]
Abbottstown Borough	940	818
Arendtsville Borough	860	748
Bendersville Borough	586	510
Berwick Township	1,935	1,683
Biglerville Borough	1,130	983
Bonneauville Borough	1,446	1,258
Butler Township	2,769	2,409
Carroll Valley Borough	3,593	3,126
Conewago Township	6,225	5,416
Cumberland Township	5,969	5,193
East Berlin Borough	1,466	1,275
Fairfield Borough	514	447
Franklin Township	4,818	4,192
Freedom Township	869	756
Germany Township	2,506	2,180
Gettysburg Borough	7,496	6,522
Hamilton Township	2,330	2,027
Hamiltonban Township	2,335	2,031
Highland Township	872	759
Huntington Township	2,356	2,050
Latimore Township	2,682	2,333
Liberty Township	1,136	988
Littlestown Borough	4,088	3,557
McSherrystown Borough	2,760	2,401
Menallan Township	3,089	2,687
Mount Joy Township	3,444	2.996
Mount Pleasant Township	4,652	4,047
New Oxford Borough	1,710	1,488
Oxford Township	5,043	4,387
Reading Township	5,379	4,680
Straban Township	4,773	4,153
Tyrone Township	2,403	2,091
Union Township	3,117	2,712
York Springs Borough	584	508
TOTALS	**95,875**	**83,411**

[1] 2002 Population provided by Adams County Planning Department.
[2] Based on .87 tons per capita waste generation rate using Adams County Planning Department population projections (refer to Table 1-3). Numbers are rounded. This generation rate excludes sewage sludge (i.e., biosolids), C&D waste and other special handling waste.

TABLE 1-7
ADAMS COUNTY
PROJECTED GROSS AND NET GENERATIONS OF MSW[1]
(2000 - 2020)

Year	Population[2]	Gross Generation (tons)[3]	Diversion Rate[4]	NetGeneration (tons)[5]	Waste Diverted to Recycling (tons)[6]
2001	93,584	81,418	14% (as reported)	73,215	8,203 (as reported)
2002	95,875	83,411	10% (as reported)	75,741	7,670 (as reported)
2003	98,540	85,730	15%	72,870	12,860
2004	101,205	88,048	18%	72,199	15,849
2005	103,870	90,367	20%	72,294	18,073
2006	106,535	92,685	22%	72,294	20,391
2007	109,200	95,004	23%	73,153	21,851
2008	111,865	97,323	24%	73,965	23,358
2009	114,530	99,641	25%	74,731	24,910
2010	117,195	101,960	26%	75,450	26,510
2011	119,860	104,278	28%	75,080	29,198
2012	122,525	106,597	30%	74,618	31,979
2013	125,193	108,918	32%	74,064	34,854
2014	127,855	111,234	33%	74,527	36,707
2015	130,520	113,552	35%	73,809	39,743
2016	133,188	115,874	35%	75,318	40,556
2017	135,853	118,192	36%	75,643	42,549
2018	138,487	120,484	37%	75,905	44,579
2019	141,181	122,827	38%	76,153	46,674
2020	143,845	125,145	38%	77,590	47,555

(1) Year 2001: Gross Generation ÷ 2002 Population = 0.87 tons per capita. Assumed constant for projections.
(2) 2001 - 2020 Population Data/ Projections: Adams County Planning Department, 2003.
(3) Projected Waste Generation based on a per capita rate of 0.87 tons.
(4) 2001 -2002 diversion rates based on Adams County Annual Recycling Reports. 2003 through 2020 diversion rate estimated to achieve PADEP goal of 35 percent recycling rate by 2015
(5) Net Generation = Gross Generation × (100% - Diversion Rate). Tonnages are approximate.
(6) Gross Generation - Net Generation = Waste Diverted to Recycling. Diversion Projections 2003-2020 based on achieving DEP recycling percentage (35%) requirement by Year 2015.

1.4.2 Municipal Waste Composition

Adams County's municipal waste stream, exclusive of construction/demolition waste and sewage sludge, is described using results from *The Statewide Waste Composition Study* conducted by R.W. Beck in 2003. The waste composition study identifies the percentage of the total waste stream comprised of various types of materials. The study also characterizes the waste for each of the six regions of Pennsylvania. The study identifies the types of materials in the typical Pennsylvania waste stream by volume and by weight. The data for the Southcentral region, where Adams County is located, was used in determining the composition of the Adams County waste stream. The estimated composition of municipal waste for Adams County is shown in Table 1-8.

1.5 CONSTRUCTION AND DEMOLITION WASTE GENERATION

Based on 2002 PADEP Waste Destination Reports, 12,299 tons of construction and demolition (C&D) waste was generated in Adams County and disposed at Pennsylvania landfills in 2002. This equates to approximately .13 tons per capita disposed per year. Construction and demolition waste was disposed at the following facilities in 2002: Modern Landfill, IESI Blue Ridge Landfill, Cumberland County Landfill, and the Mountain View Reclamation Landfill. C&D waste disposal is expected to reflect Adams County's population growth trend. C&D disposal is estimated to increase from 12,299 tons in 2002 to approximately 18,700 tons in year 2020 (143,845 pop. x .13 tons per capita disposed per year).

It should be noted that C&D waste such as uncontaminated bricks, concrete and asphalt are potentially recyclable, and can be utilized in landscaping applications, manufacturing of products or as clean fill material. An undetermined volume of C&D waste materials may also have been diverted from the County's wastestream through recycling, reuse or burning.

1.6 SEWAGE SLUDGE GENERATION

Adams County has 22 operating municipal treatment/collection systems, approximately 12 non-municipal treatment/collection systems, and no proposed new municipal wastewater treatment facilities. Combined, these treatment and collection systems service 28 municipalities in Adams County, and 3 municipalities in York County (the Borough of Hanover, Paradise Township, and Penn Township). Figure 1-3 shows the location of municipal wastewater treatment facilities in Adams County.

In order to obtain data on each source of sludge generation, municipal wastewater sludge surveys were updated in 2003 for the identified municipal (publicly-owned) wastewater treatment plants in the County. Municipal wastewater survey results are presented in Table 1-9.

TABLE 1-8
ADAMS COUNTY
ESTIMATED COMPOSITION OF MSW (percent, by weight after recycling) FOR 2002

Material	Material Subcategory	R.W. Beck Statewide Composition Study 2003[1]	Adams Co. PA[2] (Est. % Composition)
Paper	Newspaper	3.6	3.6
	Corrugated Cardboard	9.4	9.4
	Office	4.8	4.8
	Magazine/Glossy	3.1	3.1
	Polycoated/Aseptic Containers	0.5	0.5
	Mixed Paper	4.5	4.5
	Non-recyclable Paper	8.8	8.8
	Subtotal Paper	**34.7**	**34.7**
Plastic	#1 PET Bottles	0.9	0.9
	#2 HDPE Bottles	0.5	0.5
	#3 #7 Bottles	0.2	0.2
	Expanded Polystyrene	0.8	0.8
	Film Plastic	4.4	4.4
	Other Rigid Plastic	4.3	4.3
	Subtotal Plastic	**11.1**	**11.1**
Glass	Clear Glass	1.6	1.6
	Green Glass	0.7	0.7
	Amber Glass	1.0	1.0
	Non-recyclable Glass	0.5	0.5
	Subtotal Glass	**3.8**	**3.8**
Metals	Steel Cans	0.8	0.8
	Aluminum Cans	0.6	0.6
	Other Ferrous	2.8	2.8
	Other Aluminum	0.4	0.4
	Other Non-Ferrous	0.4	0.4
	Subtotal Metals	**5.0**	**5.0**
Organics	Yard Waste – Grass	0.7	0.7
	Yard Waste – Other	5.8	5.8
	Wood – Unpainted	6.4	6.4
	Wood – Painted	1.9	1.9
	Food Waste	11.3	11.3
	Textiles	3.5	3.5
	Diapers	1.8	1.8
	Fines	0.9	0.9
	Other Organics	1.4	1.4
	Subtotal Organics	**33.7**	**33.7**
Inorganics	Electronics	1.9	1.9
	Carpet	1.3	1.3
	Drywall	0.9	0.9
	Other C&D	4.4	4.4
	HHW	0.2	0.2
	Other Inorganics	1.4	1.4
	Furniture	1.6	1.6
	Subtotal Inorganics	**11.7**	**11.7**
Totals		**100**	**100**

[1] Source: R.W. Beck Statewide Waste Composition Study, Southcentral Region Data, 2003. All values shown in this table are estimates.

[2] The R.W. Beck estimates are assumed to be a reasonable estimate of Adams County's waste composition (after recycling) and are used for planning purposes in the Adams County Plan.

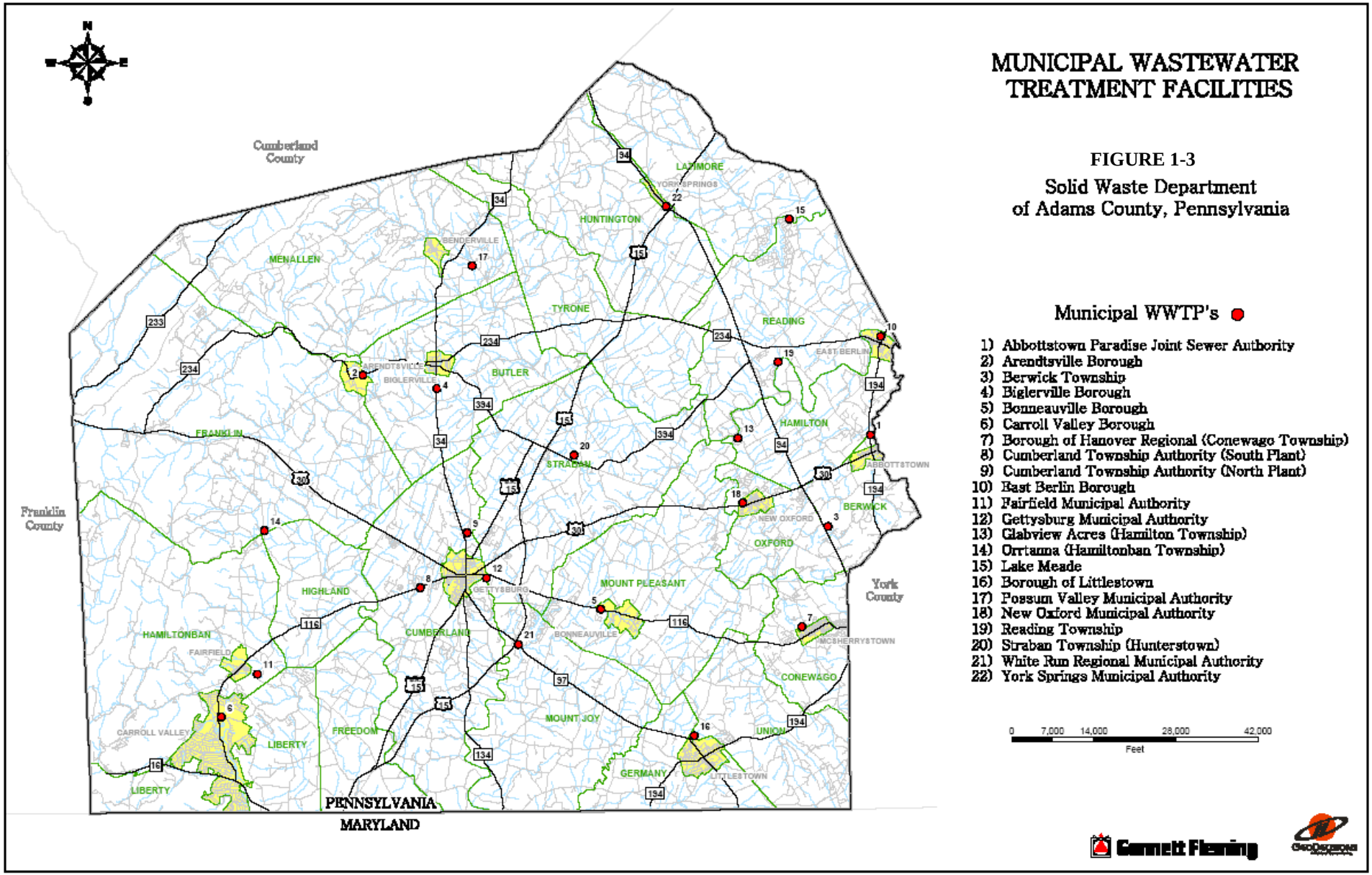

MUNICIPAL WASTEWATER TREATMENT FACILITIES
FIGURE 1-3
Solid Waste Department of Adams County, Pennsylvania
Municipal WWTP's
1) Abbottstown Paradise Joint Sewer Authority
2) Arendtsville Borough
3) Berwick Township
4) Biglerville Borough
5) Bonneauville Borough
6) Carroll Valley Borough
7) Borough of Hanover Regional (Conewago Township)
8) Cumberland Township Authority (South Plant)
9) Cumberland Township Authority (North Plant)
10) East Berlin Borough
11) Fairfield Municipal Authority
12) Gettysburg Municipal Authority
13) Glabview Acres (Hamilton Township)
14) Orrtanna (Hamiltonban Township)
15) Lake Meade
16) Borough of Littlestown
17) Possum Valley Municipal Authority
18) New Oxford Municipal Authority
19) Reading Township
20) Straban Township (Hunterstown)
21) White Run Regional Municipal Authority
22) York Springs Municipal Authority
0 7,000 14,000 28,000 42,000
Feet
Cumberland County
Franklin County
York County
PENNSYLVANIA
MARYLAND
MENALLEN
HUNTINGTON
LATIMORE
TYRONE
READING
BUTLER
FRANKLIN
HAMILTON
STRABAN
BERWICK
OXFORD
HIGHLAND
MOUNT PLEASANT
CUMBERLAND
HAMILTONBAN
CONEWAGO
MOUNT JOY
FREEDOM
LIBERTY
GERMANY
UNION
BENDERVILLE
ARENDTSVILLE
BIGLERVILLE
EAST BERLIN
ABBOTTSTOWN
NEW OXFORD
GETTYSBURG
BONNEAUVILLE
MCSHERRYSTOWN
FAIRFIELD
CARROLL VALLEY
LITTLESTOWN
YORK SPRINGS
Gannett Fleming

TABLE 1-9
ADAMS COUNTY SLUDGE GENERATION
MUNICIPAL WASTEWATER TREATMENT PLANTS

MUNICIPAL WWTP	Design Capacity (mgd)	2002 Avg. Plant Flow (mgd)	2006 Projected Flow (mgd)	2002 Biosolids Generation			
				GPD-5	WTPD-5	DTPD-5	% Solids
Abbottstown-Paradise	0.350	0.159	0.160	2,840	11.84	0.20	1.7
Arendtsville	0.147	0.056	0.060	500	2.09	0.04	1.8
Berwick Township	0.300	0.030	*0.030*	240	1.00	0.02	1.9
Biglerville	0.370	0.244	0.263	---	0.18	0.04	19 to 24
Bonneauville	0.331	0.221	0.213	808	3.37	0.05	1.5
Carroll Valley	0.140	0.074	0.109	840	3.50	0.09	2.5
Conewago(Borough of Hanover WWTP)	5.500	3.430	3.609	4,237	17.67	2.84	16.1
Cumberland Twp. North	0.500	0.140	0.190	1,077	4.49	0.13	3.0
Cumberland Twp. South	0.650	0.230	0.294				
East Berlin	0.150	0.089	*0.089*	300	1.25	0.02	1.3
Fairfield	0.175	0.095	0.100	800	3.34	0.04	1.3
Gettysburg	3.150	1.570	1.620	6,500	27.11	1.08	4.0
Glabview Acres (Hamilton Twp.)	No Response						
Orrtanna (Hamiltonban Twp.)	0.050	0.031	0.031	38	0.16	0.002	1.5
Lake Meade	0.200	0.146	0.151	880	3.67	0.15	4.0
Littlestown	1.000	0.680	0.660	---	5.00	0.75	15.0
New Oxford	1.800	1.054	1.182	1,385	5.78	1.13	19.6
Possum Valley	0.123	0.065	0.070	308	1.28	0.03	2.6
Reading Township	0.330	0.102	0.106	365	1.52	0.03	2.0
Straban Township	0.225	0.110	*0.110*	---	---	---	---
White Run	0.330	0.138	0.186	1,000	4.17	0.07	1.6
York Springs	0.120	0.088	0.085	776	3.23	0.06	2.0
Total Reported/Estimated	15.941	8.751	9.318	22,894	100.64	6.78	---

Source: 2003 WWTP Survey

(1) Where survey responses did not include a projected flow for 2006 the 2002 flow was used for the purposes of calculating a total projected flow. These numbers are shown in italics.

(2) GPD-5, gallons per day, 5 days/week; WTPD-5, wet tons per day, 5 days/week; DTPD-5, dry tons per day, 5 days/week;

1.6.1 Municipal Wastewater Treatment Facilities

At present, Adams County has 22 operational municipal wastewater treatment facilities. Currently, there are no proposed new municipal facilities. The locations of the operating facilities are presented in Figure 1-3.

The total design capacity of the municipal facilities is 15.9 million gallons per day (MGD). Combined, the 22 operating facilities treat an average of approximately 8.75 MGD of wastewater, based on 2002 wastewater treatment plant survey data. These facilities are therefore estimated to be at 55 percent of total design capacity.

The total quantity of sludge produced from the municipal treatment facilities in Adams County is 33.9 dry tons per week or 6.78 dry tons per day (DTPD-5) based on a five-day work week. The central region of the County generates the majority of the sewage sludge within Adams County.

1.6.2 Non-municipal Wastewater Treatment Facilities

In addition to the municipal treatment/collection systems, there are also approximately 12 non-municipal sewage treatment systems. An estimated 0.042 DTPD-5 of sludge was generated by these 12 private and institutional facilities as per a 1999 survey, as presented in Table 1-10.

1.6.3 Septage

Septage generated in Adams County must be disposed of at a permitted disposal site. (See Section 6.2, Waste Disposal Sites, for a listing of permitted disposal sites utilized by Adams County haulers.) Disposal sites receiving septage from Adams County include: permitted agricultural fields and municipal wastewater treatment facilities, located primarily outside of the County. With the exception of four wastewater treatment plants that accept septage from a limited number of households (some of which are malfunctioning septic systems) located in or near their service areano municipal wastewater treatment plants currently accept septage from private haulers in Adams County.

To lessen the problem of locating septage disposal sites, municipal wastewater treatment plant operators are encouraged to accept septage from their municipal service areas. However, none do in Adams County. There is reluctance in Adams County to accept septage based on the strength of the septage material and the demands it places on the treatment facility.

Section 1.6.4 describes the estimating method used for projecting septage quantities in Adams County.

TABLE 1-10
ADAMS COUNTY SLUDGE GENERATION
NON-MUNICIPAL WASTEWATER TREATMENT PLANTS

NON-MUNICIPAL WWTP	Design Capacity (mgd)	1998 Avg. Plant Flow (mgd)	2003 Projected Flow[2] (mgd)	1998 Biosolids Generation[3]			
				GPD-5	WTPD-5	DTPD-5	% Solids[4]
Anchor MHP Estates (Anchor Associates)[1]	0.021	0.010	0.010	200	0.834	0.017	2.0
Bermudian Springs School District	---	---	---	---	---	---	---
Cavalry Heights Mobile Home Park (MHP)	0.010	0.004	0.004	---	---	---	---
D&L Enterprises (Rental Homes)[1]	---	0.0019	*0.0019*	---	---	---	---
Flat Bush Golf Course	0.0075	0.075	0.075	3.8	0.016	0.0003	2.0
Franklin Township Elementary School	0.020	0.005	0.003	16	0.067	0.002	3.0
Morton Buildings	0.003	0.0005	0.0006	12	0.050	0.002	3.0
Pike Management Castle Hill MHP	0.014	---	---	---	---	---	---
Piney Mountain Home Retirement Community	0.050	0.110	*0.110*	69	0.289	0.006	2.0
Pine Run Inc. Retirement Community	0.040	0.002	0.001	---	---	---	---
Mountain View MHP (Rife Road Associates)	0.015	0.009	0.009	---	---	---	---
United States Department of the Army[1]	0.360	0.360	0.360	92	0.384	0.015	4.0
Total Reported/Estimated	0.541	0.577	0.575	393	1.64	0.042	---

Source: 1996 WWTP Survey and 1999 Survey Update (via telephone).

(1) Average plant flow from 1996 projected to 2000. All other data updated in 1999 via telephone.

(2) Where survey responses did not include a projected flow for 2006 the 2002 flow was used for the purposes of calculating a total projected flow. These numbers are shown in italics.

(3) GPD-5, gallons per day, 5 days per week; WTPD-5, wet tons per day; 5 days per week; DTPD-5, dry tons per day, 5 days per week.

(4) Where survey responses did not include a value for % solids, 2.0% was assumed for the purposes of calculating dry tons.

1.6.4 Septage Quantity Estimates

Based on Adams County Planning Department estimates for 2002, there are a total of 34,670occupied housing units in the County. The County estimates that a total of 18,288 occupied housing units are connected to public sewers and a total of 15,382 units are connected to on-lot septic systems. Based on the ratio information developed from occupied housing data listed above, it is estimated that 53% of the total housing units in Adams County are connected to or have access to public sewer service. It is estimated that another 1,000 housing units are connected to private sewer systems.

The average number of people per occupied housing unit in the County is 2.77 (95,875 Year 2002 population / 34,670 occupied housing units). Using this information, it is estimated that 42,608 people in Adams County currently use on-lot sewer systems (15,382 occupied units with

on-lot systems x 2.77 people per occupied unit), which represent approximately 44% of the County population.

To determine the volume of septage produced in Adams County, a number of factors were considered: total number of housing units with septic systems, number of persons per housing unit, and the size of the septic tank. According to the Pennsylvania State University's Agricultural and Biological Engineering Fact Sheet – Septic Tank Pumping (F161), Pennsylvania law states that a 900-gallon tank is the minimum size required for a home with three bedrooms or less. Based on this fact sheet, a 900-gallon septic tank servicing a household of three persons should be pumped every 3.3 years.

Using 2.77 people per occupied housing unit on septic systems in conjunction with information presented in the Fact Sheet, a 900-gallon septic tank in Adams County should be pumped every 3.7 years. If this pumping frequency is applied to all septic systems in Adams County, it is estimated that an average of approximately 3,741,567 gallons of septage would be pumped annually from septic tanks in the County (15,382 septic systems x 900 gallons/3.7 years pumping frequency). This is equivalent to about 88 gallons per year of septage generated per capita for County residents served by septic systems (3,741,567 gallons septage/(15,382 occupied units with on-lot systems x 2.77 people per occupied unit)). It is important to note however, that only a few municipalities have enacted sewage management districts, which require septic tanks to be pumped on a three-year basis.

1.6.5 Septage and Sludge Projections

Using the County population projections from Table 1-4, assuming a constant percentage of the County population served by septic systems in the future (44%), and assuming a constant per capita septage generation rate (88 gallons per capita per year), projections of septage quantities through 2020 can be computed. These are presented in Table 1-11.

Total biosolids generation for the County was determined using the reported wastewater treatment plant biosolids generation volumes from the 2003 WWTP Survey. As summarized in Table 1-9, the reported municipal wastewater biosolids generation in 2002 was 33.9 dry tons per week (approximately 1,763 dry tons per year). County population served by municipal wastewater treatment plants was estimated at 50,658 in 2002. The per capita biosolids generation rate, based on dry tons per capita generation of sludge for Adams County, was 0.035 dry tons per year (1,763 dry tons per year/50,658 persons served by public sewer). Based on population projections and assuming a constant percentage of the County population served by municipal wastewater systems in the future (53%), and assuming a constant per capita sludge generation rate (0.035 dry tons per capita per year) projections of sludge quantities through 2020 can be computed. Biosolids and septage generation quantities are presented in Table 1-11.

TABLE 1-11
ADAMS COUNTY
BIOSOLIDS AND SEPTAGE GENERATION QUANTITIES (2002-2020)

Biosolids Generation	2002	2005	2010	2015	2020
Projected population	---	103,870	117,195	130,520	143,845
Estimated population served by municipal wastewater treatment plants	50,658	55,051	62,113	69,176	76,238
Dry tons per year	1763	1916	2161	2407	2653
Dry tons per day (DTPD-5)[(1)]	6.8	7.4	8.3	9.3	10.2
Septage Generation	**2002**	**2005**	**2010**	**2015**	**2020**
Projected population	---	103,870	117,195	130,520	143,845
Estimated population served by septic systems	42,608	45,703	51,566	57,429	63,292
Gallons per year	3,741,567	4,013,320	4,528,170	5,043,020	5,557,870
Gallons per day (GPD-5)[(1)]	14,391	15,436	17,416	19,396	21,376

[(1)] DTPD-5, dry tons per day, 5 days per week; GPD-5, gallons per day, 5 days per week.

1.7 INFECTIOUS AND CHEMOTHERAPEUTIC WASTE

Infectious and chemotherapeutic waste constitutes a very small portion of the municipal waste generated in Adams County. To date, no tonnages have been reported for infectious and chemotherapeutic waste in PA DEP Waste Destination Reports.

The principal generators of infectious and chemotherapeutic waste are Gettysburg Hospital, physician offices, geriatric nursing facilities, veterinarian offices and other County-related medical and dental facilities. These establishments generate the majority of infectious and chemotherapeutic waste in the County. Contaminated bandages, dressings, and surgical equipment are some of the common materials reported as infectious and chemotherapeutic waste types.

It is noted that there has been an increasing trend to provide in-home medical care. The concern of infectious waste entering the municipal waste stream (e.g. needles for diabetics) has also been heightened as an increasing number of patients receive treatment at home and are left with the responsibility to properly dispose of medical waste that could potentially be a threat to public safety. Various pharmacies in Adams County offer needle-take-back programs for a fee.

Another growing waste threat is outdated medications. Improper disposal methods, such as flushing medications into on-lot systems or municipal treatment systems, have the potential to

cause groundwater and surface water pollution (See 1.8 HHW Section.) Some pharmacies in Adams County accept used medications free of charge for proper disposal. (See Recycling Brochure in Appendix A.)

1.8 HOUSEHOLD HAZARDOUS WASTE

Household hazardous waste (HHW) constitutes a small fraction of the municipal waste stream (less than 0.5 percent according to the PADEP). Because of its chemical or biological nature, it is potentially hazardous to humans and the environment. The U.S. Environmental Protection Agency (EPA) classifies waste as hazardous if it is toxic, corrosive, ignitable or reactive. There are numerous federal and state statutes that regulate hazardous wastes, but the disposal of hazardous waste from households is exempt from these regulations. PADEP requires that HHW be addressed in County solid waste plans. Adams County does not have a household hazardous waste program. However, there are programs in place in the County that will accept items such as used oil, nickel-cadmium rechargeable batteries (currently there are no options for non-rechargeable cell batteries), computers and pesticides. Large quantities of old paint materials are referred to the York County Solid Waste and Refuse Authority, Waste to Energy Facility. The County will continue to seek partnerships with other municipalities, or organizations, to provide for the proper handling and disposal of these materials. As an example, in 2005, Penn Township, York County, opened its electronics recycling program to Adams County residents.

Although the disposal of HHW is not subject to special regulations, there are a number of reasons why safe handling and disposal are important. Traditionally, these wastes have been disposed as ordinary trash in municipal waste landfills, poured down drains, or stored in garages or basements. When HHW is disposed as municipal waste, there is a potential health hazard to waste handlers or haulers. Large amounts of hazardous waste disposed down drains may cause septic tank failure, may upset sewage treatment plant effluent requirements, or may pass through the system and contaminate a downstream drinking water source. With the development of new technologies and higher standards of living, the volumes of HHW have increased, and many municipalities and local governments are now evaluating options for safer handling and disposal of HHW. Act 101 requires operators of resource recovery facilities to develop programs to remove hazardous materials from municipal wastes. The Act also requires recycling of lead acid batteries, which are prohibited from disposal directly into landfills. Lead-acid battery wholesalers and retailers are required to take used acid batteries from customers, in a quantity at least equal to the number of new batteries purchased. In addition, several local scrapyards purchase used lead-acid batteries.

1.9 RESIDUAL WASTE

The quantity of residual waste generated in Adams County was determined by reviewing the 2002 PADEP County Waste Destinations Reports from area landfills. The total tonnage of residual waste disposed at approved disposal facilities in 2002 was 8,230 tons. Additional quantities of residual waste from Adams County may be disposed in captive facilities owned by private industry, or in other disposal sites located out-of-county, or land applied at permitted sites.

1.10 WASTE TIRES

Adams County, in partnership with the Adams County Conservation District (ACCD), has held two successful tire collection events with funding from the Department of Environmental Protection. The County will continue its partnership efforts with the ACCD to pursue sources of funding in the future, in order to provide similar collection programs. It is important to note that several nearby facilities accept tires for a fee. (See Recycling Brochure in Appendix A.)

In addition, 22 municipalities have signed contracts for residential waste collection that provides for disposal of one tire (or other bulky item) per week placed at the curb. McSherrystown Borough residents can dispose of two tires per week as part of their contract with York County.

1.11 LEAF AND YARD WASTE

Several municipalities in Adams County collect leaf and yard waste through curbside collection and drop-off recycling sites. (See Section 4.8.6, Adams County Initiatives in Yard Waste Management.)

Many homeowners opt to compost such materials on-site. The Penn State Cooperative Extension Master Gardener Program has provided home composting educational programs since 1999. Over 800 composting bins have been distributed through these programs.

In total, approximately 1,100 tons of leaf and yard waste were reported as collected in Adams County in 2002. Most of this material was composted or applied to farmland.

The remainder of leaf and yard waste materials generated within the County are assumed to be disposed of on-site, mixed with regular waste for pick-up, burned or illegally dumped (in rural areas such as Micheaux State Forest.) Adams County will continue to encourage and assist municipalities with implementing leaf and yard waste programs. Currently, the County is working with Cumberland Township and Gettysburg Borough to assess the feasibility of a joint yard waste composting initiative.

All recycling activities undertaken by the Adams County Solid Waste Department will continue to be performed in full compliance with applicable regulations, including the Permit–by-Rule Guidelines for Yard Waste Composting Facilities. DEP has been contacted to assist several municipalities in gaining approval (permit-by-rule) for their yard waste composting operations. PADEP's Permit-By-Rule program for yard waste composting site permitting and operation is discussed in Section 4.8.1 of this Plan.

1.12 BULKY WASTE

Several options exist for the handling, recycling or disposal of bulky waste items (white goods). Twenty-two municipalities have signed contracts for waste collection that allow for collection of one bulky waste item per week at curbside. Several small haulers operating in the County will pick up bulky items for a fee. A few municipalities sponsor Spring or Fall clean-up days during

which they accept bulky waste items for disposal. Additionally, individuals can transport these items to scrap yards located in the County, or disposal facilities in adjacent counties.

CHAPTER 2
EXISTING WASTE MANAGEMENT SYSTEM

It is necessary to understand the existing waste management system in Adams County because this knowledge may serve as a baseline from which to create alternative scenarios for future planning and waste management. The existing waste management system may be an indicator of existing problem areas and also an indicator of planning practices that are working well. The first section of this chapter describes the current collection practices for conventional municipal solid waste. The second section describes the processing and disposal facilities that receive MSW generated in the County. Finally, Sections 2.3 - 2.8 describe the collection, processing, and disposal practices for construction/demolition wastes, special handling wastes and residual waste. Current recycling and yard waste composting activities are described in Chapter 4 - Recycling Strategy.

2.1 MUNICIPAL SOLID WASTE COLLECTION

All municipalities in the County, serviced by private collection, have weekly residential collection of refuse. Commercial entities are serviced based on need. At least 22 of the municipalities that have recently bid contracts for weekly waste collection include once-a-week large item, or "bulky item", pickup as part of the contract.

Several municipalities have bulky item cleanup days. Generally, bulky item collection is once a year (Spring or Fall), and in a few municipalities it takes place two times per year, for residents to drop off items for disposal. These collections exclude hazardous materials.

Several municipalities also offer curbside or drop-off collection services for yard waste and leaves.

The following municipalities participate in a joint municipal waste collection contract:

- Bendersville Borough
- Bonneauville Borough
- Butler Township
- Conewago Township
- Cumberland Township
- Franklin Township
- Freedom Township
- Gettysburg Borough
- Highland Township
- Huntington Township
- Latimore Township
- Liberty Township
- Menallen Township
- Mt. Joy Township
- Straban Township
- Tyrone Township
- York Springs Borough

The joint municipal waste contract is awarded to a single waste hauler. Under this contract, all municipalities, with the exception of Conewago Township and Gettysburg Borough, allow <u>optional</u> participation by residents. If residents elect to participate, they may select municipal waste collection only (includes one bulky item per week), municipal waste collection plus weekly recycling services (for an additional fee), a tag-a-bag option, or a dumpster service.

Conewago

Conewago Township, recently mandated by Act 101 to implement a curbside recycling program, requires mandatory participation by all residents for municipal waste and recyclables collection. Collection includes municipal waste, bulky items, Christmas trees and recyclable materials. The Township contract also includes a tag-a-bag option and dumpster service.

Gettysburg

Gettysburg Borough requires mandatory participation by all residents and commercial establishments. Collection includes municipal waste, bulky items and recyclable materials. The Borough contract also includes a tag-a-bag option and dumpster services.

Arendtsville and Biglerville Boroughs and Carroll Valley and Fairfield Boroughs

Arendtsville Borough and Biglerville Borough participate in a joint waste collection contract which was awarded to one hauler. Likewise, Carroll Valley Borough and Fairfield Borough also participate in a joint contract. Under the contracts, these municipalities allow optional participation by residents. If residents participate, they may select municipal waste collection only (includes one bulky item per week), weekly recycling services for an additional fee, a tag-a-bag option or dumpster service. (Fairfield Borough did not opt for weekly recycling services.)

Hamiltonban Township

Hamiltonban Township negotiated a separate municipal waste collection contract with optional recycling services for residents.

New Oxford Borough and East Berlin Borough

New Oxford Borough and East Berlin Borough both have separate contracts for municipal waste collection services only. Residents and commercial establishments are required to participate under these contracts. The Boroughs collect payments from customers, and in turn provide payments to the collectors.

McSherrystown Borough

McSherrystown Borough ended municipal waste collection and curbside recycling services in April 2005. The Borough has contracted for private weekly waste collection services that do not include recycling. Residents are encouraged to drop off their recyclables at the Borough's Maintenance Building. The Adams Rescue Mission transports and processes the recyclable materials for the Borough.

Eighteen municipalities in the County have solid waste management ordinances governing municipal collection.

Municipalities with solid waste ordinances include:

- Arendtsville Borough
- Biglerville Borough
- Butler Township
- Conewago Township
- Franklin Township
- Hamiltonban Township
- Huntington Township
- McSherrystown Borough
- New Oxford Borough
- Bendersville Borough
- Bonneauville Borough
- Carroll Valley Borough
- East Berlin Borough
- Gettysburg Borough
- Highland Township
- Latimore Township
- Menallen Township
- York Springs Borough

Table 2-1 lists the large, full-service refuse haulers currently operating in Adams County. According to Adams County manifest reports, the eight identified large private haulers disposed of approximately 38,390 tons in 2002. The haulers disposed of Adams County waste at the following facilities: York County Waste-to-Energy Facility, Cumberland County Landfill; IESI Blue Ridge Landfill; Modern Landfill, and Mountain View Reclamation Landfill. Of the 38,390 tons disposed, the Borough of McSherrystown disposed of approximately 1,025 tons of Adams County waste at the York County Solid Waste Refuse Authority's Waste-to-Energy Facility.

In total, 1,394 tons of Adams County material was reportedly delivered to the Hanover Transfer Station in 2002. McSherrystown uses the Hanover Transfer Station, as do individuals and building contractors. The additional 394 tons were most likely landfilled at Modern Landfill. C/D, bulky items, etc. are not accepted at the York County Solid Waste Refuse Authority's Waste-to-Energy Facility.

It is noted that Adams County does not currently have any in-county waste disposal facilities, and all municipal waste (and residual waste that is landfilled) is disposed at out-of-county facilities.

In general, any full-service refuse hauler may provide residential, commercial, institutional, and residual waste collection and disposal services, and recycling collection and processing services unless a municipality ordains that only the contracted municipal hauler may provide these services. Adams County instituted a hauler licensing program in 1993, and currently has approximately 150 licensed haulers in the program. Many of these haulers are very small private haulers that typically provide general refuse hauling (i.e. residential or commercial) or C&D waste collection (e.g. C&D removal from jobsites) for processing and disposal. Adams County does not require haulers of residual waste or hazardous waste to obtain a license.

The Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101), as regulated under Title 25 of the Pa. Code Chapter 272, mandates curbside recycling in communities with a population over 10,000 and in communities over 5,000 with a density of at least 300 persons per square mile. Currently, only Gettysburg Borough and Conewago Township are mandated to recycle under Act 101. On average, Gettysburg residents currently pay approximately $43.00 per household per quarter for their waste collection and disposal and recycling program services.

Conewago residents currently pay approximately $42.00 per household per quarter for their waste collection and disposal and recycling program services.

All other non-mandated municipalities, whose residents are responsible to arrange for waste disposal services with a contracted waste hauler, pay a range of approximately $31 - $33 per quarter per year for these services without recycling. Residents, whose municipality is not under contract, pay up to $55 per quarter for waste disposal services.

The recycling figures reported under Act 101 include the materials collected by the Adams Rescue Mission (glass, plastics, etc.)

TABLE 2-1
ADAMS COUNTY
MAJOR MUNICIPAL WASTE HAULERS

Chambersburg Waste Paper
2047 Loop Road
P.O. Box 975
Chambersburg, PA 17201
(717) 264-4890

IESI PA Corporation
P.O. Box 399
Scotland, PA 17254
(717) 709-1700

Neiderer Sanitation
1745 Storm's Store Road
New Oxford, PA 17350
(717) 624-7430

Penn Waste, Inc.
P.O. Box 3066
York, PA 17402
(717) 767-4456

Stonesifer & Sons Sanitation, Inc.
791 Sell's Station Road
Littlestown, PA 17340
(717) 359-4627

Waste Systems Int'l – Harrisburg Hauling
135 Vaughn Road
Shippensburg, PA 17257
(717) 423-5383

Waste Management
9446 Letzburg Road
Greencastle, PA 17225
(717) 597-4056

York Waste Disposal, Inc.
1110 E. Princess Street
P.O. Box 1401
York, PA 17405
(717) 845-1557

2.2 MUNICIPAL SOLID WASTE TRANSPORTATION, PROCESSING AND DISPOSAL

2.2.1 Transportation and Transfer Facilities

Generally, Adams County waste is hauled directly to one of several out-of-County designated disposal facilities by licensed waste haulers. Currently, there are no transfer facilities within the County that accept municipal waste generated in Adams County for processing and transfer

hauling to the designated disposal facilities. There are two out-of-County transfer facilities currently handling Adams County wastes.

Hanover Transfer Station

The Hanover Transfer Station located in Penn Township, York County serves Hanover Borough, McSherrystown Borough, individual and commercial accounts. McSherrystown Borough waste is sent from the transfer station to the York County Solid Waste and Refuse Authority (YCSWA) resource recovery facility under a long-term disposal agreement between YCSWA and McSherrystown. The YCSWA facility is a designated facility in this Plan. The Hanover Transfer Station is a compaction-type transfer station that transfers solid waste from collection vehicles serving the greater Hanover area to large-capacity transfer vehicles. The facility is currently permitted to accept up to 300 tons per day and up to 200 tons per day, quarterly average. The municipal waste throughput of the current operation averages 80-125 tons per day.

Washington Township Transfer Station and Materials Recovery Facility (MRF)

The Washington Township Transfer Facility is located in Franklin County. The facility service area includes Adams, Franklin, Frederick, and Washington Counties. The facility is an open top transfer station permitted at 50 tons per day. The municipal waste throughput of the current operation averages 15 – 20 tons per day. Municipal waste can be brought to the transfer station, by anyone, for a fee.

The transfer facility site includes a Materials Recovery Facility (MRF) and a small yard waste composting area. The MRF is used to separate co-mingled recyclable materials and paper. Aluminum cans, tin/bi-metallic cans, glass, newspaper, cardboard, and plastics make up the majority of the volume received at the facility. The facility also accepts tires, white goods, junk metal and yard waste. Adams County residents (and other County residents) may drop-off recyclables at no cost. Some of the recyclables collected in Adams County by IESI are taken to the Washington Township MRF for processing.

2.2.2 Description of Disposal and Processing Facilities

2.2.2.1 Permitted Disposal and Processing Facilities

Adams County does not own and/or operate any landfills or transfer stations. For the past 10 +/- years, Adams County has been under contract with the following disposal sites for acceptance of Adams County's municipal wastes: Modern Landfill, York County; IESI Blue Ridge Landfill, Franklin County (formerly the R&A Bender Landfill); Mountain View Reclamation Landfill, Franklin County, and; the York County Resource Recovery Facility, York County.

Currently, the majority of Adams County waste is disposed at the Mountain View Reclamation Landfill located in Franklin County. 2002 PADEP waste destination reports list the following permitted disposal sites (in-state) that have reported receipt of Adams County waste:

Permit No.	Site
100113	Modern Landfill
100934	IESI Blue Ridge Landfill
100945	Cumberland County Landfill
101100	Mountain View Reclamation Landfill
101389	Frey Farms Landfill
400561	York County Resource Recovery Facility
400592	Lancaster County Solid Waste Management

Through a fair and competitive RFP process, Adams County has identified and selected qualified respondents/ facilities to be listed in this Plan as designated disposal sites for Adams County municipal waste. Chapter 5 of this Plan describes the process that was used to solicit disposal capacity for Adams County's municipal wastes under this Plan. Contracted disposal sites selected in the disposal RFP solicitation and their locations are discussed in Chapter 6 of this Plan. The York County Resource Recovery Facility has renewed its long-term disposal contract with Adams County by default, and is also listed as a designated disposal facility for Adams County. The designated disposal facilities are expected to accommodate Adams County waste until January 1, 2016.

2.2.2.2 Illegal Dumping Activities

Remote, rural, and isolated regions like portions of Adams County are prone to illegal dumping activities. In May of 1995, the County distributed an illegal dumping survey form to Micheaux State Forest and to all 34 municipalities in the County. Fourteen municipalities and Micheaux State Forest completed and returned the survey forms. At the time of the survey, responding municipalities identified eight major illegal dumpsites. The Micheaux State Forest reported nine dumpsites at that time in the County. Although the survey results indicated a total of 17 dumpsites were located in Adams County, it is believed that a substantially larger number of dumpsites may exist throughout the County that were not identified during the 1995 survey.

The Adams County Department of Protective Inspections provides direct support to the Adams County Department of Solid Waste and Recycling, municipalities, PADEP and individuals in investigation, monitoring and prevention of illegal dumping activities.

Some **contributing factors** to illegal dumping in the County may be:

- residents illegally dump out of habit or from cultural practice
- solid waste ordinances are either non-existent or ineffective in addressing illegal dumping
- lack of illegal dumping enforcement

- in some areas, disposal and/or recycling options are unavailable, inconvenient, or limited
- existing disposal and recycling opportunities are unknown to residents (education)
- disposal options are unaffordable for residents, or the perception exists that disposal costs are too high

Currently, Adams County has a variety of **waste disposal and recycling alternatives** available to residents. These disposal options serve as alternative outlets to illegal dumping and include:

- municipal bid contract hauling and/or recyclables collection services
- individual/private subscription hauling and/or recyclables collection services between homeowner and hauler
- the Adams Rescue Mission offers recycling collection services at no cost to residents and businesses (curbside and drop-off)
- drop-off recycling sites
- municipal yard waste drop-off sites
- drop-off disposal sites
- white-goods and bulky item disposal under municipal bid contracts
- Spring/Fall pick-up or "clean-up" events
- Tire disposal opportunities
- Scrap yard drop-off locations

Other related initiatives in the County include the Pennsylvania Department of Transportation's Adopt-A-Highway Program used to combat litter along state-maintained highways, the successful from "The Ground Up" volunteer litter abatement program in Gettysburg Borough and various community service initiatives through the Adams County Juvenile and Adult Probation Departments, and Manito Day Treatment Service.

In addition, the Forest Lands Beautification Program is administered by the state Department of Conservation and Natural Resources (DCNR) in conjunction with PA CleanWays. PA CleanWays is DCNR's cleanup partner under the program, and has played an important role in dump site cleanups. The Forest Lands Beautification Act, signed into law in December 1998, sets aside funding from the state recycling fund to assist with cleanup activities. Micheaux State Forest staff clean up illegal dump sites on an ongoing basis. Some of the larger dumpsites have been cleaned up with the help of PA CleanWays. The Watershed Alliance of Adams County also organizes and conducts stream-side cleanups.

The Adams County Solid Waste Department has tried, without success, over the last several years to establish a County Chapter of PA CleanWays, a non-profit organization that fights illegal dumping and littering in Pennsylvania. However, the Solid Waste Department has worked successfully in conjunction with local organizations and individuals to clean up some of

the County's larger dumpsites. One of the largest dumpsite cleanups received national recognition for the removal of almost 6,500 tires.

Adams County requested "free" disposal capacity for material collected from community dumpsite cleanups in the Request for Proposals (RFP) distributed in January 2002 for waste transportation and disposal services. Several disposal facilities offered free disposal capacity for dumpsite material.

IESI Blue Ridge Landfill, Inc. has roll-off containers for use at no charge for community clean up activities through an in-lieu agreement with the Department of Environmental Protection. This service has been available for several years and it is anticipated to be continued at least for the short-term. Adams County has utilized this service for several clean-ups.

Adams County has also offered backyard composting training through Penn State Extension Service as a way to educate residents about composting as a disposal alternative. County recycling programs are discussed in detail in Chapter 4 – Recycling Strategy.

2.2.2.3 Open Burning

The Environmental Protection Agency (EPA) recently initiated a campaign against backyard burning of household waste. EPA cites backyard burning of household waste as the nation's largest quantified source of dioxins, in addition to other dangerous pollutants, such as lead, mercury, particulate matter and hexachlorobenzene. All of these compounds are toxic to the environment, can be a nuisance to nearby homeowners and may even pose a threat to public health.

Act 97, The Pennsylvania Solid Waste Management Act, 35 P.S. 6018.610 provides that it shall be unlawful for any person or municipality to: "Burn solid wastes without a permit from the Department" and, DEP advises that the Department does <u>not</u> issue any permits to open burn solid waste. There are, however, certain exemptions which include the burning of domestic (residential) refuse if the fire is on the premises of a structure occupied solely as a dwelling by two families or less and when the refuse results from the normal occupancy of the structure. The burning of domestic refuse is also governed by the County's Fire Prevention Ordinance (Ordinance No. 6 of 1993). In addition, the Adams County Conservation District , as part of the conditions of issuing Erosion and Sedimentation permits, prohibits the burning, burying, dumping or discharging of building materials, wastes or unused building materials at construction sites.

According to DEP refuse from normal occupancy does not include such items as demolition waste, home insulation, shingles, treated wood, paint, painted or stained objects or furniture, tires, mattresses, box springs, metal, insulating rubber coating on copper wire, old television sets, old appliances, automobiles, and automobile components or items of this nature.

Very few municipalities in Adams County restrict backyard burning through the enactment of ordinances. However, the majority of the existing solid waste ordinances provide for the proper handling of municipal waste, restrict handling of waste in a manner that causes a nuisance and do

not specifically support backyard burning of municipal wastes. There has not been an assessment of the number of burn barrels in use throughout the County, but the most prevalent complaint received by the Solid Waste Department regards open burning and the smoke and odor associated with incomplete combustion. As discussed in Section 1.4.1, it is assumed that a significant amount of residential waste, and some commercial waste, in the County is being burned (especially paper).

One of the few state regulations a person can utilize to combat open burning problems is the Pennsylvania Odor Regulation – this is a regulation that prohibits "malodors" (an odor which causes annoyance or discomfort to the public and which the Department determines to be objectionable to the public) from any type of activity other than agriculture.

2.2.3 Consideration of Expanding Existing Facilities

Chapter 271 mandates that the County Plan must consider facilities that meet the definition of "existing facility". Adams County does not currently own or operate any existing waste disposal and/or transfer facilities, and there are no existing private facilities in the County.

Due to the need for additional disposal capacity, and as required by PADEP and Act 101, a Request for Proposals (RFP) for securing long-term solid waste disposal capacity for Adams County was distributed as part of this Plan Update. Adams County has successfully executed disposal contracts with the designated disposal facilities identified in this Plan. These contracts satisfy the disposal capacity requirement as specified by Act 101. The RFP is described in detail in Chapter 3, Section 3.1.2.

The selection procedure for disposal facilities is outlined in Chapter 5 of this Plan. In order to allow for flexibility and backup capacity, Adams County decided to utilize multiple disposal facilities in a menu type Plan. This action is also expected to help maintain competition in the area.

It is intended by Adams County that this Plan does not interfere with any existing facility's effort to find other customers or to expand their facilities.

2.3 CONSTRUCTION AND DEMOLITION WASTE COLLECTION AND DISPOSAL

The predominant collection method for C&D waste is hauling by private waste hauling contractors. According to PADEP Waste Destination Reports, Adams County disposed of 12,299 tons of C&D waste in 2002. Based on reports from 1999 through 2002, Adams County C&D waste disposed of at permitted landfills has ranged between 12 and 16 percent of the total recorded waste landfilled. An undeterminable amount of C&D waste is recycled, reused, used as fill, burned, or illegally disposed of at dumpsites. Over 90 percent of the County's C&D waste, which is reported as disposed, is transported to Mountain View Reclamation Landfill, IESI Blue Ridge Landfill and Modern Landfill.

2.4 SEWAGE SLUDGE DISPOSAL

Table 2-2 summarizes the sludge disposal practices of the municipal wastewater treatment facilities (WWTP) in the County. Information was collected through a WWTP survey distributed to municipal facilities in 2003. The survey was originally conducted in 1997 and updated by phone in 1999.

The large majority of facilities rely on land application or landfills for the disposal of their sludge. Based on responses to the 2003 Survey, the following municipal facilities rely exclusively on land application for sludge disposal:

- Abbottstown-Paradise Joint Sewer Authority (Hamilton Township)
- Arendtsville Borough
- Berwick Township
- Bonneauville Borough
- Conewago Township (Borough of Hanover Regional WWTP)
- Cumberland Township North
- Cumberland Township South
- Lake Meade (Reading Twp.)
- Possum Valley Municipal Authority
- White Run Regional Municipal Authority
- York Springs Municipal Authority

Landfilling is used for sewage sludge disposal by Biglerville, Littlestown and New Oxford treatment facilities. Several plants dispose of their solids at other wastewater treatment plants such as Dover Township, Gettysburg, the City of Harrisburg and Springettsbury Township. These plants, in turn, may dispose of the solids at a landfill, or utilize land application. Some plants use a combination of disposal methods which may include land application or reed bed drying in conjunction with disposal through another wastewater treatment facility.

The final disposal sites for the sludge are located both within and outside of Adams County. It is expected that facilities using land application will continue to use this method, unless proposed regulatory requirements related to phosphorus and nitrogen loading, or competition from out-of-county sources (or any other reasons), prevent land application from being a feasible disposal option. The potential development and impact of phosphorus standards for land application is discussed further in Chapter 5, and in the 2000 Biosolids and Septage Management Study and the 2003 Study Update included in Appendix D.

TABLE 2-2
ADAMS COUNTY
SLUDGE DISPOSAL PRACTICES AND PLANS
MUNICIPAL TREATMENT PLANTS

Authority/Municipal WWTP	2002 Disposal Method	Private Contractor/Municipal Wastewater Treatment Facility/Landfill	Anticipated use of current disposal method, yrs.
Abbottstown-Paradise	Land Application	None	5 or more.
	Land Application (WWTP)	Dover Township WWTP	
Arendtsville	Land Application	Peck's Septic Service	15 or more.
Berwick Township	Land Application	Peck's Septic Service	10 or more.
Biglerville	Landfill	Unknown.	5 or more.
Bonneauville	Land Application	Synagro	15 or more.
Carroll Valley	WWTP	Harrisburg WWTP	15 or more.
Conewago (Borough of Hanover WWTP)	Land Application	BioGro	Less than 5.
Cumberland Twp. North	Land Application	None	10 or more.
Cumberland Twp. South	Land Application	None	
East Berlin	Land Application	None	15 or more.
Fairfield	WWTP	Harrisburg WWTP	15 or more.
Gettysburg	Land Application	None	(1)
	WWTP (1-3% of total production)	Springettsbury WWTP	
Glabview Acres (Hamilton Twp.)	No Response		
Orrtanna (Hamiltonban Twp.)	WWTP	Various plants including Harrisburg WWTP.	5 or more.
Lake Meade	Land Application	Peck's Septic Service	15 or more.
Littlestown	Landfill	Modern Landfill	15 or more.
New Oxford	Landfill	Modern Landfill	15 or more.
Possum Valley	Land Application	Peck's Septic Service	5 or more.
Reading Township	Land Application	Peck's Septic Service	15 or more.
	Reed Beds	None	
Straban Township	WWTP	Gettysburg Municipal Authority WWTP	(2)
White Run	Land Application	None	15 or more.
York Springs	Land Application	Peck's Septic Service	15 or more.

(1) Until a more effective, efficient method is available or regulations change.
(2) As long as needed/until regulations change.

2.5 INFECTIOUS AND CHEMOTHERAPEUTIC WASTE COLLECTION AND DISPOSAL

Adams County requires any person who hauls infectious/chemotherapeutic waste to register with, and obtain a license from, the County.

2.6 HOUSEHOLD HAZARDOUS WASTE

PADEP studies indicate that less than one (1) percent of the municipal solid waste generated is household hazardous waste (HHW). As described by PADEP, HHW are those wastes produced in our households (which also include multiple residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) that are hazardous in nature, but are not regulated as hazardous waste under federal and state laws. HHW per capita generation for Pennsylvanians is approximately four pounds per year (a total of about 25,000 tons per year statewide). Included are such items as old paints and paint related products, pesticides, pool chemicals, drain cleaners, degreasers, batteries, computers, electronic equipment, car care products and other related products. Such consumer waste products, if carelessly managed can, and frequently do, create environmental and public health hazards.

The Adams County Solid Waste Department offers information on disposal options for materials such as: batteries, used oil, antifreeze, appliances containing freon, computers, prescription medications, pesticides and paint. The majority of HHW inquiries received by the Solid Waste Department are concerning disposal of paint. The preferred disposal option that is offered to callers is incineration at the York County Waste to Energy Facility. Adams County has an agreement with York County to accept materials for disposal on a spot-market basis. Frequently residents will take these materials to the Hanover Transfer Station for shipment to the York County facility. In 2005, for the first time, Penn Township, York County, accepted electronic equipment from Adams County residents at a drop-off recycling program.

Occasionally, Adams County offers residential pesticide drop-off collection programs. Adams County conducted their third residential pesticide drop-off collection program in 2003. These drop-off programs have been conducted under the sponsorship of the Pennsylvania Department of Agriculture (PDA). The program accepts all types of pesticides including: insecticides, herbicides, rodenticides and fungicides. PDA will also accept pesticide materials from residents on an ongoing basis, outside of the drop-off collection programs. Residents must contact PDA to make arrangements for disposal.

At this time, Adams County does not hold annual or semi-annual collection events for HHW. Only McSherrystown Borough residents are included in the semi-annual HHW programs sponsored by the York County Solid Waste and Refuse Authority (YCSWRA), as part of their contract agreement with YCSWRA.

The Adams County Solid Waste Department recently engaged Waste Management of Central PA (WM) in discussions regarding the possibility of offering curbside collection and recycling of old electronic equipment (including computers) through its Recycle America facility. WM may

consider adding this service as part of the next municipal collection contract bid to take place in 2005.

2.7 USED OIL / AUTOMOTIVE BATTERIES/ ANTIFREEZE

Used oil and intact automotive batteries from households are not considered to be hazardous wastes in Pennsylvania. However, these materials are generated in most households and are thus often grouped in the household hazardous waste category, and included in HHW collection programs.

Adams County maintains a current list of facilities that will accept used motor oil, anti-freeze, waste oil and other automotive products. This list is provided to PADEP and all County municipalities. In 2005, Adams County performed a comprehensive survey of all service facilities located within, and adjacent to, the County to determine the number of facilities already accepting used oil, or those facilities interested in offering this service. As a result of the survey, new recycling sites were added to the listing. Currently PADEP recognizes the following oil recycling sites in Adams County:

- **Allied Oil & Chemical Sales**
  1530 Clugston Road
  York, PA 17404
  (717) 767-5502

- **BKC Mobile RV & Auto Repair Service**
  985 York Street
  Hanover, PA 17331
  (717) 632-4225

- **Carroll Valley Borough**
  5685 Fairfield Road
  Fairfield, PA 17320
  (717) 642-8269

- **Cooper Motors, Inc.**
  985 York Street
  Hanover, PA 17331
  (717)632-4225

- **Dale's Auto & Truck Repair**
  2040 Idaville Road
  York Springs, PA 17372
  (717) 528-7926

- **Dave & Keith's Service Center**
  1826 Baltimore Pike
  East Berlin PA 17316
  (717) 432-5646

- **Greg's Automotive Repair**
  500 York Street
  Gettysburg PA 17325
  (717) 334-7466

- **Grofts Service Center**
  151 N. Franklin Street
  Hanover, PA 17331
  (717) 632-7211

- **Keith's Pit Stop**
  2784 York Road
  Gettysburg, PA 17325
  (717) 334-3153

- **Lincolnway Sales & Service**
  Rt. 30, Lincoln Way, West
  Abbottstown, PA 17301
  (717) 624-8500

- **Moon's II**
  1742 Upper Bermudian Road
  Gardners, PA 17324
  (717) 528-7163

- **Neiderer Sanitation**
  1745 Storm Store Road
  New Oxford, PA 17350
  (717) 624-7430

- **Paul's Garage**
  186 Old Rt. 15
  York Springs, PA 17372
  (717) 528-4132

- **Renn Kirby Chev., Buick, Pontiac**
  791 York Road
  Gettysburg, PA 17325
  (717) 334-9234

- **Rick's Repair Services**
  51 Sandoe Road
  Gettysburg, PA
  (717) 338-9000

- **Russ Hill Automotive**
  935 Mountain Road
  York Springs, PA 17372
  717) 528-4730

- **S & S RV Service**
  40 Knight Road
  Gettysburg PA 17325
  (717) 334-0149

- **Tom Knox Auto Services**
  61 Buford Avenue
  Gettysburg, PA 17325
  (717) 334-2297

- **Wolf's Bus Lines, Inc**
  200 Old Route 15 PO Box 235
  York Springs PA 17372
  (717) 5284125

Automotive dealers and battery retailers in the County, and throughout the State, are required to take old batteries when new ones are purchased (lead-acid batteries may not be discarded in landfills).

Used car batteries are accepted at the following sites:

- **A&A Auto Salvage**
  1661 Chambersburg Street
  Gettysburg, PA 17325
  (717) 334-8788

- **CSR/Wagamans Iron & Metal**
  Rt. 30
  Gettysburg, PA 17325
  (717) 334-3009 or 334-0080

- **Staiman Recycling**
  213 Poplar Street
  Hanover, PA 17331
  (717) 646-0951

- **Stonesifer & Sons Sanitation**
  791 Sell Station Road
  Littlestown, PA 17340
  (717) 359-4627

- **Swope Salvage and Recycling**
  92 Hoffman Road
  East Berlin, PA 17316
  (717) 292-2285

- **Tom Knox Auto Services**
  61 Buford Avenue
  Gettysburg, PA 17325
  (717) 334-2297

- **Washington Transfer Station**
  13013 Welty Road
  Waynesboro, PA 17268
  (717) 762-4413

- **Wal-Mart (with battery purchase)**
  1270 York Road
  Gettysburg, PA 17325
  (717) 334-2000

Used antifreeze is accepted at the following sites:

- **Greg's Automotive Repair**
  500 York Street
  Gettysburg, PA 17325
  (717) 334-7466

- **Groft's Service Center**
  151 N. Franklin Street
  Hanover, PA 17331
  (717) 632-7211

- **Renn Kirby Chevrolet, Buick, Pontiac**
  791 York Road
  Gettysburg, PA 17325
  (717) 334-9234

2.8 RESIDUAL WASTE

According to 2002 PADEP County Waste Destination Report Disposal Tonnages, 8,230 tons of residual waste generated in Adams County was disposed at the following six facilities (tonnages in parenthesis):

- Modern Landfill (1,774 tons)
- IESI Blue Ridge Landfill (76 tons)
- Cumberland County Landfill (2 tons)
- Mountain View Reclamation Landfill (4,668 tons)
- Frey Farm Landfill (15 tons)
- Lancaster Resource Recovery Facility (1,695)

PADEP requires that solid waste disposal facilities obtain the necessary permit approvals for each generator. Disposal agreements are individually arranged between the facility and generator. Adams County does not regulate residual waste haulers.

CHAPTER 3
DISPOSAL CAPACITY NEEDS

3.1 MUNICIPAL WASTE DISPOSAL NEEDS

The purpose of Chapter 3 is to consider possible waste management system changes through the planning period to January 1, 2016, and to estimate municipal waste disposal capacity needs for Adams County over this same period, as mandated by PADEP.

According to PADEP County Waste Destination tonnage records, Adams County disposed of 54,111 tons of MSW (see Table 1-5) in 2002. Municipal recycling records and the annual Act 101 Recycling Report documented that countywide recycling programs diverted an estimated 7,670 tons of recyclable materials in 2002. In the future, Adams County waste generation quantities will continue to change to reflect County growth. Changes in recycling activities will be reflected as the percentage of waste diversion.

Table 3-1 lists the quantity of waste requiring disposal in Adams County from 2003 through January 1, 2016, before and after recycling. The projected quantity of municipal waste requiring disposal after recycling certain waste materials, for 2003 through January 1, 2016, is 959,054 tons, or an average of about 202 tons per day, based on 7 days per week.

The method and assumptions used to determine these capacity requirements are described in detail in Chapter 1 - Description of Waste. The analysis in Table 1-7 shows a waste reduction rate of 10 percent in 2002. This waste reduction rate is projected to increase to 35 percent by 2015.

The estimated waste reduction rates should be considered as waste reduction goals by the County. Act 101 currently has a 35 percent recycling goal (as of 2003) that was established in 1998 when Act 101 was reauthorized by the Pennsylvania Legislature. The current County recycling rate (10 percent) is short of this goal. Adams County's projections anticipate attaining this recycling goal by 2015. The timeline for achieving this goal may be significantly reduced if better reporting methods and comprehensive municipal recycling programs are implemented in the County.

The primary variables affecting waste generation estimates and projections include, but are not limited to, population, economic development and employment growth, per capita income, waste minimization, source separation and recycling efforts, recycling materials markets and consumer purchasing trends.

Table 3-1 indicates the estimated required annual disposal capacity from 2003 through January 1, 2016. Population (and thus gross waste generation) will increase steadily over the planning period through January 1, 2016.

TABLE 3-1
ADAMS COUNTY
VOLUMES OF MSW REQUIRING DISPOSAL IN ADAMS COUNTY
(2003-2015)

Year	Waste Requiring Disposal[1] (before recycling) (tons)	Waste Requiring Disposal (net generation after recycling) (tons)
2003	85,730	72,870
2004	88,048	72,199
2005	90,367	72,294
2006	92,685	72,294
2007	95,004	73,153
2008	97,323	73,965
2009	99,641	74,731
2010	101,960	75,450
2011	104,278	75,080
2012	106,597	74,618
2013	108,918	74,064
2014	111,234	74,527
2015	113,552	73,809
Total Tons	**1,295,337**	**959,054**

Source: Table 1-7.
[1] Waste tonnages exclude sewage sludge (i.e., biosolids), C&D waste, and other special handling waste.

3.1.1 Available Landfill Disposal Capacity vs. Disposal Need

There are currently no landfills or transfer stations in Adams County. Therefore, there is a need to reserve disposal capacity from other processing and disposal facilities to ensure sufficient municipal waste processing and disposal capacity for the County and its municipalities (for the planning period through January 1, 2016).

Adams County will require an average of approximately 74,000 tons per year of disposal capacity (or approximately 959,054 tons for the planning period from 2003 through January 1, 2016) to meet estimated municipal waste disposal capacity needs over the required 10-year planning period. The Request for Proposals (RFP) released in January 2002 resulted in executed agreements with the disposal facilities listed in Chapter 6 of this Plan. In addition, Adams County executed a disposal agreement with the York Resource Recovery Facility to accept municipal solid waste from municipalities without agreements on a spot-market basis, to the extent of available capacity at the York Facility. And, in August 2005, Adams County approved a disposal agreement with Cumberland County Landfill under the *Procedure to Add Facilities to the Plan as Designated Facilities*.

3.1.2 Request for Proposals (RFP) for Disposal Capacity

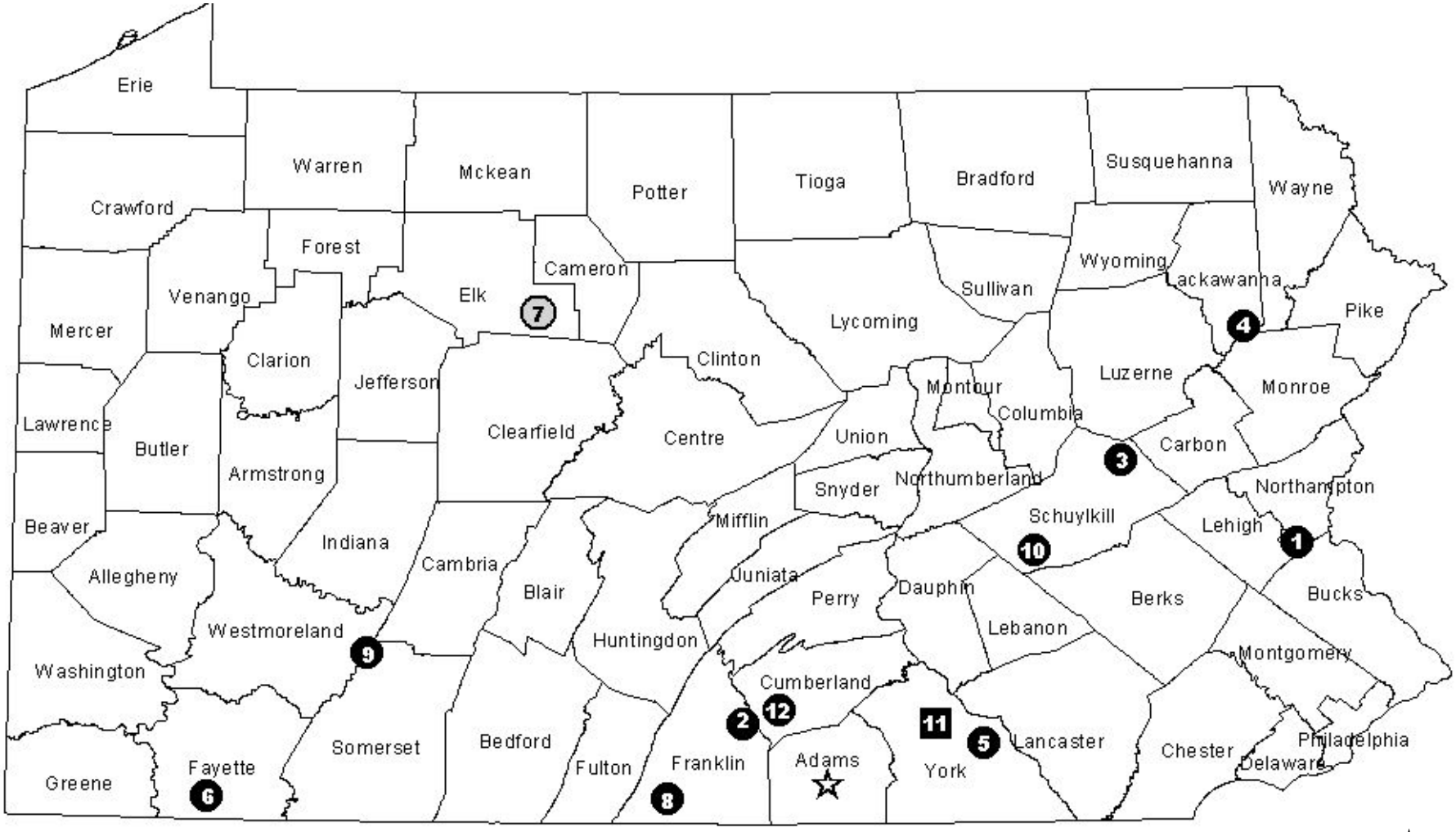
Because of the extensive and lengthy efforts employed by the County, relative to planning for the construction of a co-composting facility, Adams County was unable to meet the demands of Act 101 that require a County "to submit a revised plan to PADEP at least three years prior to the time all remaining available permitted capacity for the County will be exhausted." (See the March 11, 2003 letter to Mark G. Vottero in Appendix H.) Adams County's initial intention was to submit a minor plan revision to demonstrate sufficient disposal capacity for a new 10-year planning period, beginning in 2003, to be followed by a more comprehensive update of the 1989 Plan. However, PADEP indicated that the 1989 Municipal Waste Management Plan had expired and a new, full Plan Update was required. (See two PADEP letters in Appendix H, dated February 21, 2003 and April 4, 2003.)

The County issued a Request for Proposals (RFP) on January 21, 2002 from qualified municipal waste disposal facilities to provide disposal capacity for Adams County's municipal waste, beginning in 2003 (See Section 5.4.2, Background.). The prior 10-year disposal contract period ended on December 31, 2002. A copy of the RFP document is included in Appendix C. Ten responses/proposals were received from various disposal facilities. These proposals were evaluated based on criteria outlined in the RFP. Five of the ten proposal responses were determined to meet the minimum required qualifying criteria. The five non-qualifying respondents failed to provide the required performance bond with their submittals, and therefore contracts were not executed with these facilities. The Adams County Solid Waste Department executed Municipal Waste Disposal Capacity Agreements with the initial qualified RFP respondents.

Although the York Resource Recovery Facility did not respond directly to the RFP, the York facility provided a letter response to the County that referred to the agreement with Adams County (that renewed by default) to accept MSW from municipalities without agreements on a spot-market basis, to the extent of available capacity at the Facility. The York County Resource Recovery Facility will be included in the Plan as a designated facility, along with the other qualified RFP respondents.

Additional facilities may be added to the Plan, provided they complete the Application Package available from the Adams County Solid Waste Department, and meet minimum qualifying criteria. Section 5.7.5.3 describes the procedure to add facilities to the Plan. Cumberland County Landfill submitted an Application Package and was approved to be added to the County's Plan in August 2005.

The locations of the facilities that have responded to the RFP are shown in Figure 3-1. Additional information pertaining to the RFP and waste disposal system selection process is contained in Chapters 5 and 6 of this Plan.



IESI PA Bethlehem Landfill	Superior Greentree Landfill (Option 3)
IESI Blue Ridge Landfill	Mountain View Reclamation Landfill
Commonwealth Env. Sys. Landfill	Southern Alleghenies Landfill
Keystone Sanitary Landfill	Pine Grove Landfill
Modern Landfill	YCSWA (Pre-existing Contract – No Response)
CBF Landfill	Gettysburg, Adams County

Figure 3-1

Adams County Regional Municipal Waste Disposal Sites: RFP Respondents

Scale is 1 inch equals approximately 35 miles

Original Map Created by Gannett Fleming

3.2 SEWAGE SLUDGE CONSIDERATIONS

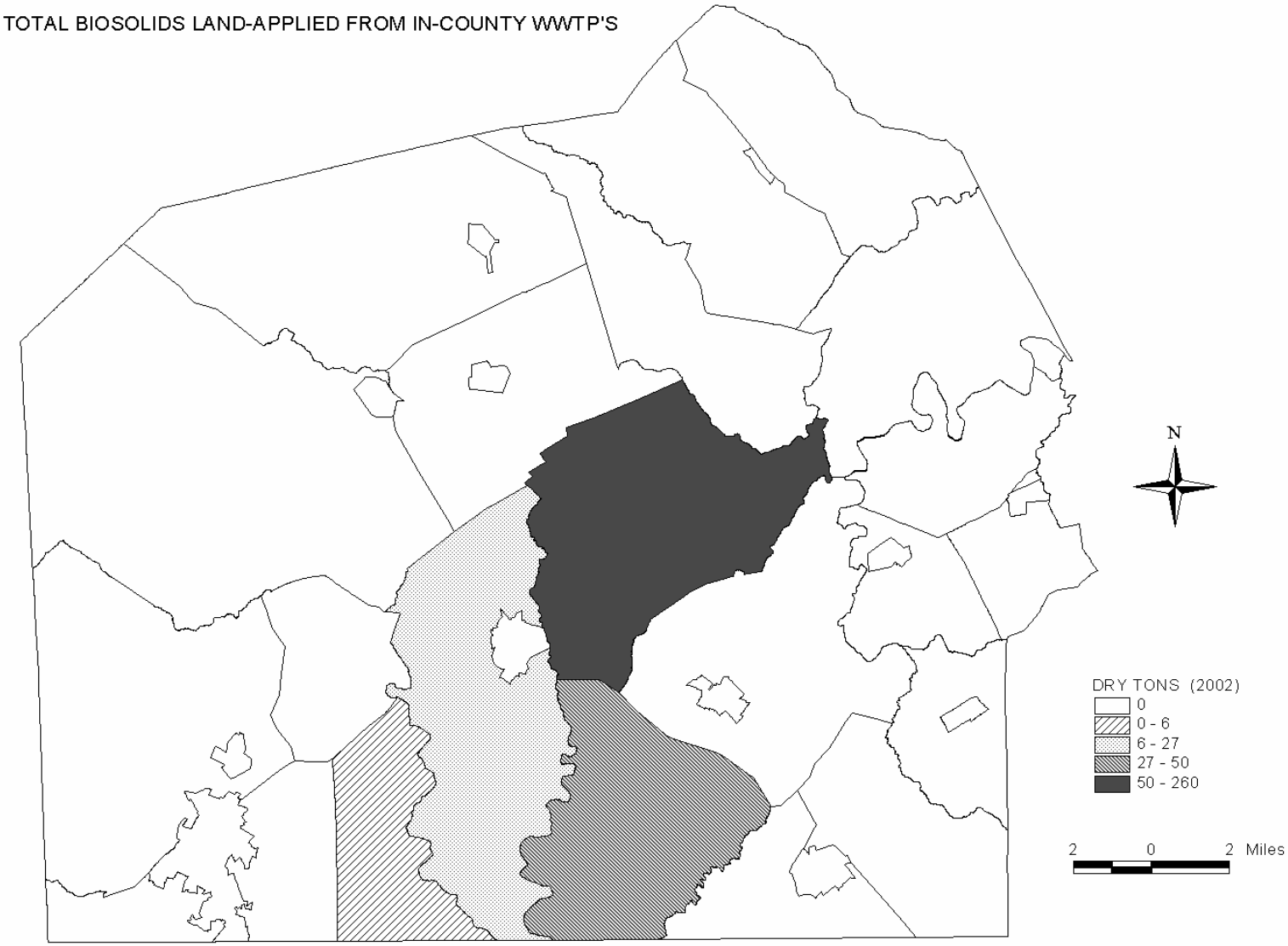
Tables 1-9 and 1-10 presented information on the wet and dry tonnages of sewage sludge that are currently generated by the 22 municipal and the approximately 12 non-municipal wastewater treatment plants (WWTPs) operating in Adams County.

Using data reported in the 2003 WWTP Survey, an average of 1.92 dry tons per day (DTPD-5) is currently dewatered and landfilled. This is an estimated 29 percent of the solids generated by municipal wastewater treatment plants in Adams County. As stated in Chapter 2, several treatment plants dispose of their biosolids through other wastewater treatment plants. These treatment plants either landfill material once it is dewatered at the treatment facility, or land apply it to out-of-county permitted agricultural sites.

The remaining biosolids from County wastewater treatment plants are land-applied, in liquid form, on in-county agricultural sites under either a site-specific permit or a general permit by PADEP (refer to Table 3-1 of the Biosolids and Septage Management Study, 2003 Update, Appendix D). Figures 3-2 to 3-4 show land application patterns in Adams County. Figure 3-2 shows the density of land application activity, from the disposal of biosolids from wastewater treatment plants in the County in 2002. Most of the in-County biosolids are applied in the south-central region of the County (Cumberland, Freedom, Mount Joy, and Straban Townships) near the points of generation. Figure 3-3 indicates that most biosolids that are generated outside the County are land applied in the north-eastern region of the County in Reading, Tyrone and Straban Townships. The majority of biosolids that are land applied in Adams County are from sources outside the County. Synagro Mid-Atlantic is a large contract hauling company that land applies on many acres in Reading Township. Some of the biosolids they land apply are from in-county sources; however, they also have contracts with the Dover Township, City of York and East Pennsboro Wastewater Treatment Plants, in addition to some sources in Maryland. These out-of-County sources account for most of the biosolids they land apply in Adams County. Figure 3-4 combines the land application locations of both of the in-and out-of-County generated sources that are land applied throughout Adams County.

Figure 3-2

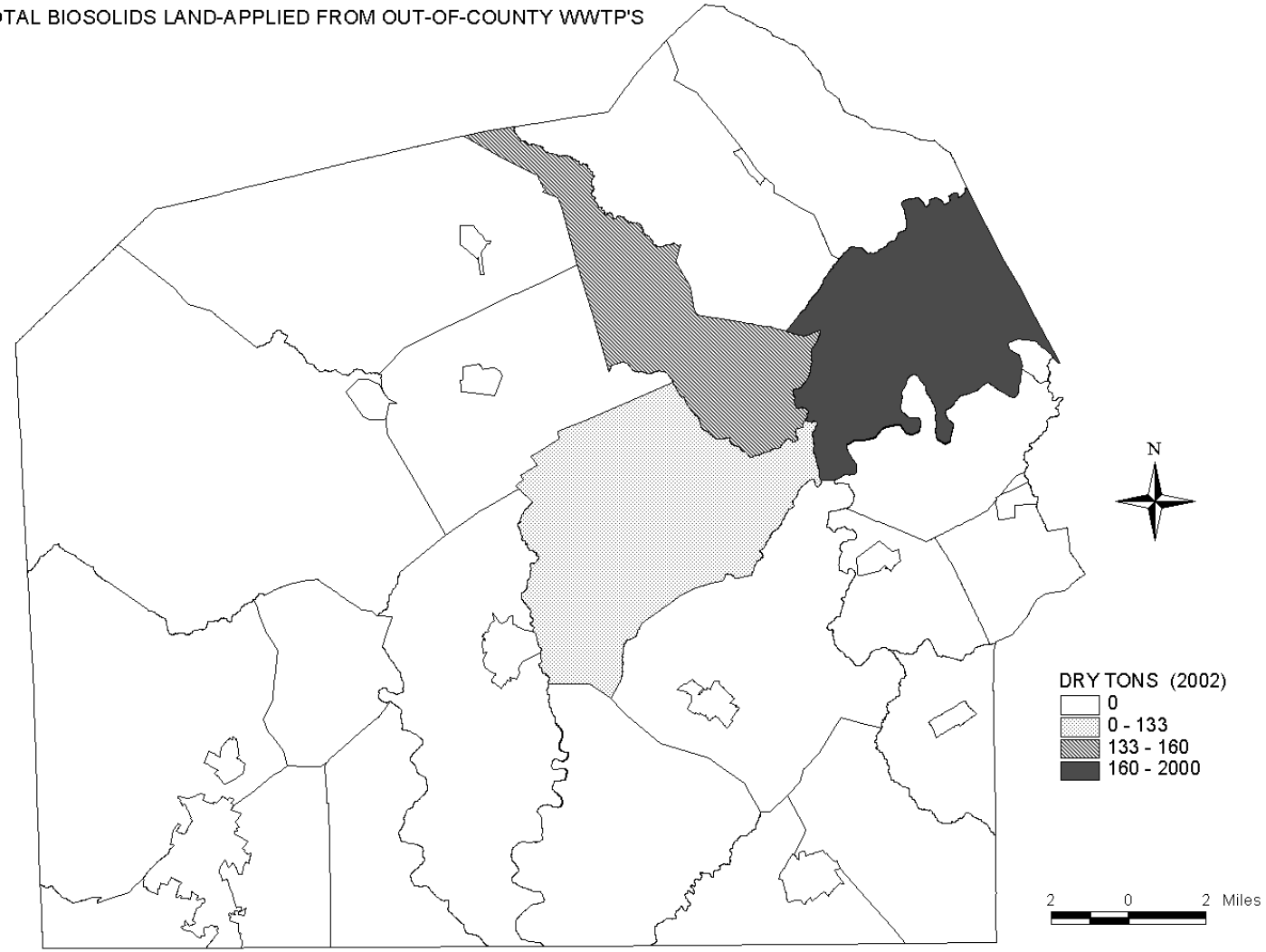
TOTAL BIOSOLIDS LAND-APPLIED FROM IN-COUNTY WWTP'S



PREPARED BY THE ADAMS COUNTY GIS/MAPPING OFFICE RAH 9/30/03

Figure 3-3

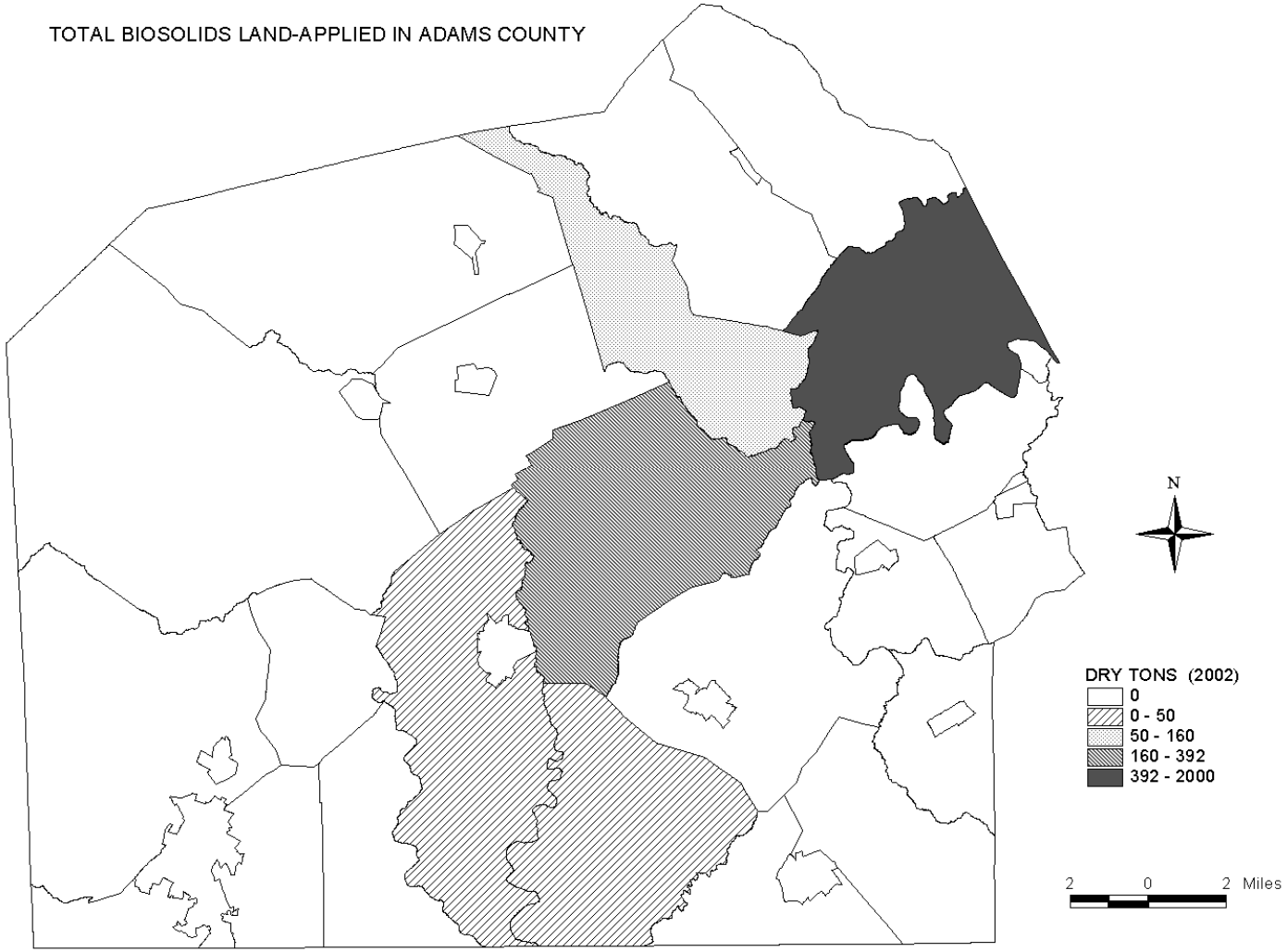
TOTAL BIOSOLIDS LAND-APPLIED FROM OUT-OF-COUNTY WWTP'S



PREPARED BY THE ADAMS COUNTY GIS/MAPPING OFFICE RAH 9/30/03

Figure 3-4

TOTAL BIOSOLIDS LAND-APPLIED IN ADAMS COUNTY



PREPARED BY THE ADAMS COUNTY GIS/MAPPING OFFICE RAH 9/30/03

In addition to WWTP biosolids, septage pumped out of Adams County's on-lot disposal septic tanks is in liquid form, and is generally taken to out-of-county wastewater treatment plants for processing and disposal.

Table 1-11, provides projections of WWTP biosolids and on-lot septic tank septage generated in Adams County. Liquid septic tank pumpings were estimated to total approximately 3.7 million gallons in 2002; this is projected to grow to about 4.5 million gallons by 2010. Current practices of land application and/or WWTP treatment of liquid sewage sludge are expected to continue throughout the planning period of this Plan. Issues and concerns over the future of the land application program, and whether this disposal method is at risk of being lost as a disposal option, is discussed in Chapter 5 of this Plan.

A reported 2,212 tons of biosolids from WWTPs in the County were landfilled in 2002. Mountain View Reclamation Landfill disposed of 1,729 tons of biosolids received from various plants and septage haulers in the County. Modern Landfill disposed of 483 tons of biosolids from the Littlestown and New Oxford wastewater treatment plants.

Based on data reported in the 2003 WWTP Survey, Table 3-2 estimates the quantities of Adams County biosolids that were landfilled, or land applied. The Table indicates approximately 30 percent (dry weight) of biosolids are landfilled, while the remainder is land applied. By applying this percentage of landfilled biosolids as a constant to the biosolids production totals in Table 1-11, the quantity of landfilled biosolids is projected to increase to approximately 650 dry tons per year by 2010.

Chapter 5 of this Plan examines available options for future disposal of dewatered cake from Adams County's WWTPs.

TABLE 3-2
ADAMS COUNTY
BIOSOLIDS TO LANDFILL AND LAND APPLICATION IN 2002

MUNICIPAL WWTP	2002 Biosolids to Landfill			
	GPD-5	WTPD-5	DTPD-5	% Solids
Biglerville	---	0.18	0.04	19 to 24
Carroll Valley	840	3.50	0.09	2.5
Fairfield	800	3.34	0.04	1.3
Orrtanna (Hamiltonban Twp.)	38	0.16	0.002	1.5
Littlestown	---	5.00	0.75	15.0
New Oxford	1,385	5.78	1.13	19.6
Estimated Biosolids to Landfill in 2002		**4,667**	**533**	
MUNICIPAL WWTP	**2002 Biosolids to Land Application**			
	GPD-5	**WTPD-5**	**DTPD-5**	**% Solids**
Abbottstown-Paradise	2,840	11.84	0.20	1.7
Arendtsville	500	2.09	0.04	1.8
Bonneauville	808	3.37	0.05	1.5
Conewago (Borough of Hanover WWTP)	4,237	17.67	2.84	16.1
Cumberland Twp. North Cumberland Twp. South	1,077	4.49	0.13	3.0
East Berlin	300	1.25	0.02	1.3
Gettysburg	6,500	27.11	1.08	4.0
Glabview Acres (Hamilton Twp.)	No Response			
Lake Meade	880	3.67	0.15	4.0
Possum Valley	308	1.28	0.03	2.6
Reading Township[(2)]	57	0.24	0.005	2.0
Straban Township	---	---	---	---
White Run	1,000	4.17	0.07	1.6
York Springs	776	3.23	0.06	2.0
Estimated Biosolids to Land Application in 2002	**4,275,156**	**17,827**	**1,218**	

Source: 2003 WWTP Survey

(1) GPD-5, gallons per day, 5 days/week; WTPD-5, wet tons per day, 5 days/week; DTPD-5, dry tons per day, 5 days/week;

(2) Reading Township utilizes reed beds for a majority of sludge generated during the year. The values in this table represent only the portion that is processed by Peck's Septic Service and land applied.

3.3 RESIDUAL WASTE CONSIDERATIONS

Residual waste generated in the County was disposed of at six disposal facilities in 2002. The breakdown of residual waste quantities by facility is presented in Section 2.8. The County does not regulate, nor is it required to manage, residual waste disposal. According to the PADEP County Waste Destination Report, 8,230 tons of Adams County generated residual waste was disposed in 2002.

In order to determine the residual waste impact, the County Request for Proposal (RFP) for waste disposal services included a request for respondents to specify the maximum amount of residual waste that could be accepted by the facility, as well as an estimation of the "not to exceed" per ton annual tipping fee for residual waste types.

CHAPTER 4
RECYCLING STRATEGY

4.1 INTRODUCTION

Gettysburg Borough and Conewago Township are the only two municipalities mandated to recycle by Act 101 requirements (population total and population density) within Adams County. Table 4-1 lists the township and boroughs, and their corresponding 2000 populations (most recent decennial census).

There are nine (9)drop-off sites in operation within the County. These drop-off sites are administered by the Adams Rescue Mission, a non-profit entity offering free recycling services to residents and businesses in Adams County. The locations of drop-off sites and municipalities with curbside recycling programs are presented on the map in Figure 4-1. The Adams County Solid Waste and Recycling Department updates, and distributes, a recycling brochure throughout the year. The brochure provides recycling information to residents including the addresses, phone numbers and accepted types of recyclable materials for the various recycling outlets located in, and in some cases, outside of the County. The recycling brochure is presented in Appendix A.

TABLE 4-1

ADAMS COUNTY - YEAR 2000 MUNICIPAL POPULATIONS

Municipality	2000 Population[1]
Townships and Boroughs	
Abbottstown Borough	905
Arendtsville Borough	848
Bendersville Borough	576
Berwick Township	1,818
Biglerville Borough	1,101
Bonneauville Borough	1,378
Butler Township	2,678
Carroll Valley Borough	3,291
Conewago Township	5,709
Cumberland Township	5,718
East Berlin Borough	1,365
Fairfield Borough	486
Franklin Township	4,590
Freedom Township	844
Germany Township	2,269
Gettysburg Borough	7,490
Hamilton Township	2,044
Hamiltonban Township	2,216
Highland Township	825
Huntington Township	2,233
Latimore Township	2,528
Liberty Township	1,063
Littlestown Borough	3,947
McSherrystown Borough	2,691
Menallan Township	2,974
Mount Joy Township	3,232
Mount Pleasant Township	4,420
New Oxford Borough	1,696
Oxford Township	4,876
Reading Township	5,106
Straban Township	4,539
Tyrone Township	2,273
Union Township	2,989
York Springs Borough	574
Totals	**91,292**

[1]Source: U.S. Census, 2000.

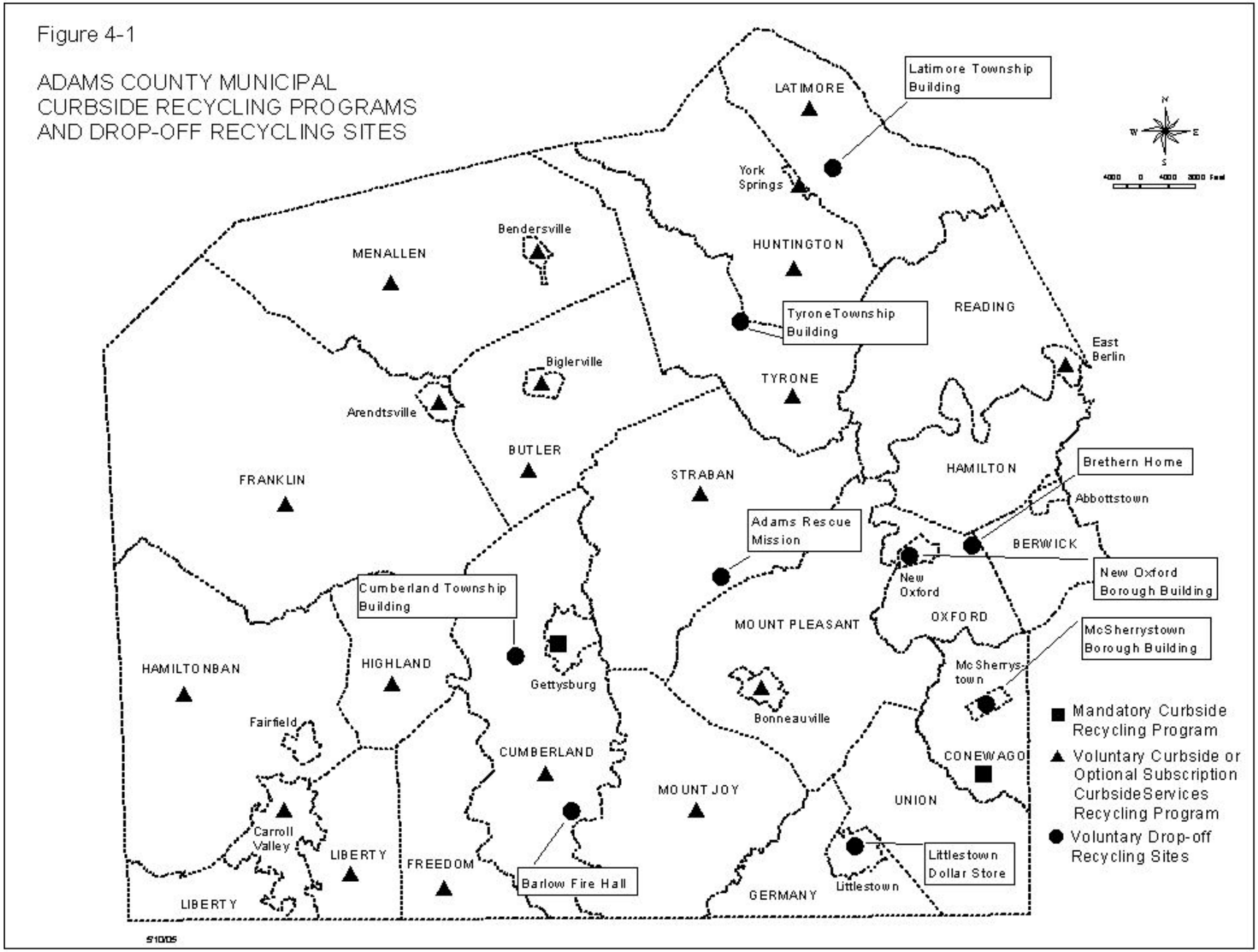


Figure 4-1
ADAMS COUNTY MUNICIPAL
CURBSIDE RECYCLING PROGRAMS
AND DROP-OFF RECYCLING SITES
LATIMORE
Latimore Township Building
York Springs
HUNTINGTON
Bendersville
MENALLEN
Tyrone Township Building
READING
East Berlin
Biglerville
TYRONE
Arendtsville
BUTLER
FRANKLIN
STRABAN
HAMILTON
Brethern Home
Abbottstown
Adams Rescue Mission
BERWICK
New Oxford
New Oxford Borough Building
Cumberland Township Building
MOUNT PLEASANT
OXFORD
McSherrystown Borough Building
HAMILTONBAN
HIGHLAND
Gettysburg
McSherrystown
Bonneauville
Fairfield
CUMBERLAND
CONEWAGO
MOUNT JOY
UNION
Carroll Valley
LIBERTY
FREEDOM
Barlow Fire Hall
Littlestown Dollar Store
Littlestown
GERMANY
LIBERTY
Mandatory Curbside Recycling Program
Voluntary Curbside or Optional Subscription CurbsideServices Recycling Program
Voluntary Drop-off Recycling Sites

4.2 RECYCLABLE MATERIALS IN THE COUNTY WASTE STREAM

A recycling program may target just a few materials, or a large number of materials. The decision of which materials to include in a particular program rests on considerations of expected waste stream impact, cost, convenience to participants and markets. As with other recycling planning alternatives, the choice will depend largely on expected waste reduction and expected cost, in many cases with a trade-off between the two objectives.

This section describes materials targeted by the Adams County municipal recycling programs. Table 4-2 presents the estimated percent of recyclable materials in Adams County's municipal solid waste stream, based on the R.W. Beck Statewide Waste Composition Study, presented in Chapter 1 of this Plan.

As of April 2005, McSherrystown Borough terminated its curbside municipal waste collection and recycling services. A private firm, Penn Waste is currently under contract by the Borough to provide waste collection services. These services do not include recycling. Residents of the Borough do, however, have access to a drop-off program for recyclables, located at the Borough's maintenance building. The Adams Rescue Mission transports the recyclables to their recycling center for processing. Other municipalities in Adams County are either serviced by private hauling companies, or by a non-profit entity (The Adams Rescue Mission). Twenty municipalities have contracted optional recycling under collection services with private haulers, while two municipalities (the Act 101-mandated municipalities) provide for mandatory curbside recycling under their private collection contracts.

The various recyclable materials that are currently managed in Adams County are presented below. The public and private facilities within the County that currently accept each type of material are also listed within each subsection.

Newspaper

Newspaper comprises a significant percentage of the municipal waste stream and is primarily generated in the residential sector. Recycled newspaper is frequently turned back into newsprint. And, newspaper is often reused for animal bedding or mulch, or recycled into low-grade computer printout paper and cardboard.

Newspapers are collected in all Adams County municipal curbside recycling programs, whether it is collected privately, or by a municipal program. The Adams Rescue Mission also collects newsprint at nine (9) drop-off locations. Boy Scout Troop 75 from Bendersville, the Littlestown Jaycees Organization, Boy Scout Troop 78, Explorer Post 2075, and Cub Pack 78 collect newsprint in separate programs, and sell it to Mason Dixon Dairy Farms. These organizations supplied Mason Dixon with approximately 84 tons of newspaper in 2004, for use as bedding materials. Several additional farming operations within the county offer drop-off sites for newspaper for use as bedding material; there is no data reported from these operations. One area business, Sealed Air Corporation uses newsprint to manufacture mailing envelopes.

Corrugated Paper

Corrugated paper, referred to in the recycling industry as "old corrugated containers or OCC" may comprise a significant portion of the municipal waste stream. The majority of it is generated by the commercial sector (or local businesses.)

The majority of OCC recycling in Adams County is conducted by the Adams Rescue Mission as a free service. Waste Management, IESI, Chambersburg Waste Paper and York Waste Disposal also maintain contracts for collection of OCC from various businesses.

Office Paper

Office paper and high-grade paper include fine papers, computer printout, office papers and ledger paper. Office paper is typically three to seven percent of a municipality's total waste stream, and generates relatively high revenue per volume. Adams County has a relatively small number of industries or institutions that produce large quantities of office paper. Based on the 2003 R. W. Beck Statewide Composition Study, disposal of office paper in rural areas is half that disposed of by suburban and urban areas. It is assumed that much of the paper generated by Adams County households is disposed of through backyard burning.

Currently, the Adams Rescue Mission (free) and two private hauling companies, Chambersburg Waste Paper Company and Shred-It, collect office paper. No municipal recycling programs in Adams County collect office paper as a separate collection item.

Mixed Paper

Mixed paper refers to a mix of any of the above three types of waste paper plus other waste papers such as junk mail, phone books, magazines, cereal and pizza boxes. By the nature of the material, mixed paper includes a small amount of contamination, including glue and plastic. Roofing material and boxboard manufacturing are traditional uses of mixed paper, and for the production of low-grade tissue and toweling products.

Mixed paper is not collected in any Adams County municipal recycling programs. Chambersburg Waste Paper Company is a private hauling company that provides mixed paper collection service to several businesses and institutions. The Penn Township, York County, recycling program allows Adams County residents to drop off mixed paper materials for recycling. In addition, the U.S. Postal Service offers drop-off sites for unwanted mail at a few postal locations in the County. They back-haul this material to their regional location. It is assumed that much of the mixed paper generated in Adams County is disposed of through burning.

Glass

Three colors, or forms, of glass are found in the municipal solid waste stream (e.g. clear, green and amber). Container glass (i.e., bottles and jars) is usually the most marketable, and most commonly, recycled form of glass. Collected waste container glass can be melted and mixed with virgin glass ingredients to make new container glass. Some of the cullet (broken container glass) is used to manufacture asphalt products, bricks and other building products. The majority

of glass is generated in the residential sector. Over the past several (or more) years the percentage of glass in the municipal solid waste stream has decreased, due to the trend of manufacturers to replace glass containers with plastic containers.

Based on the 2003 R.W. Beck Statewide Composition Study, glass (clear, green, amber and nonrecyclable) makes up about 3.7 percent of Adams County's waste stream. All County curbside recycling programs and drop-off sites accept all colors of glass containers.

Steel and Bi-metal Cans

There are two types of steel cans: tin-coated steel cans commonly known as tin food cans and "bi-metal" beverage cans. Bi-metal cans have a coated steel body and aluminum ends. These cans are collected together. The steel scrap yielded from these containers can be combined with "cleaner", in-plant scrap and virgin material, in the steel manufacturing process.

As with other recyclable materials, processing costs, and the costs of haul-to-market, erode the value of tin and bi-metal cans to recyclers.

All County curbside recycling programs and drop-off sites accept steel and bi-metallic cans.
The Adams Rescue Mission, Consolidated Scrap Resources, Gastley's Scrap Iron & Metals, Stonesifer & Sons Sanitation, Inc. and Swope Salvage & Recycling accept steel and bi-metallic cans for recycling.

Aluminum Cans

Aluminum cans, or used beverage cans, are among the most readily recoverable aluminum products. Aluminum cans comprise about 0.8 percent of the waste stream based on the R.W Beck Statewide Composition Study completed in 2003. Aluminum cans are very readily reprocessed into new aluminum sheet. In the past, cost savings from using scrap-aluminum, rather than virgin inputs, provided for a strong scrap-aluminum market. Currently, aluminum markets are less stable than in past years. However, in a fragile recycling market, aluminum remains a relatively stable and marketable recyclable commodity. Many individuals, and some service organizations, collect aluminum cans as a fund-raising activity.
Aluminum cans are collected in all municipal curbside recycling programs, and at all drop-off locations, in Adams County. Private recyclers including The Adams Rescue Mission, Consolidated Scrap Resources, Gastley's Scrap Iron & Metals, Stonesifer & Sons Sanitation, Inc. and Swope Salvage & Recycling accept aluminum cans.

Plastics

The two most common recyclable plastics are PET (polyethylene terepthalate - #1) and HDPE (high-density polyethylene - #2). PET is most commonly used to produce soft drink bottles. HDPE is most commonly used to produce milk and water containers, colored and opaque detergent bottles, and motor oil containers. These types of plastics can be processed and substituted for virgin materials in a variety of products. One example is plastic lumber, a product suitable for making park benches and boat docks. Markets are available, and fairly stable, for clean PET and HDPE.

The private haulers, Waste Management and IESI collect plastic bottles labeled #1 and #2 in all contracted curbside programs. The Adams Rescue Mission does not accept plastics in its curbside collection programs, but does accept #1 and #2 plastic bottles at all of its drop-off locations.

The Pennsylvania Department of Agriculture accepts only high-density polyethylene (HDPE) plastic pesticide containers in its Plastic Pesticide Container Recycling (PPCR) Program. In 2002, 8,649 pounds of materials were recycled into the PPCR Program from Adams County.

Other Recyclable Materials

Provided markets can be found, various other types of materials in the municipal waste stream can be recycled. White goods, tires, used motor oil, automotive batteries, computers, Ni-Cad batteries, cell phones and textiles (clothing) are examples of items that may be recycled, in addition to the recyclables designated under Act 101 guidelines presented in the beginning of this chapter (See Recycling Brochure in Appendix A). The examples mentioned potentially pose disposal problems in both landfills and incinerators, and may end up at illegal dumpsites.

White Goods

Large appliances or "white goods" can be shredded, and the steel separated for recycling. Prior to recycling, the Freon must be removed from all freon-containing appliances (i.e., refrigerators and freezers, etc.) by a certified individual.

Waste Management and IESI offer a large-item pick-up program to customers for a fee, and accept Freon containing appliances as part of their weekly large-item disposal service. Although Adams County requests information on the amounts of large-item materials that may be recycled; currently this information is not provided. All identified locations accepting white goods in the County only accept non-freon-containing appliances, or appliances that are certified freon-free. Several private businesses in Adams County offer Freon removal/recycling services for a fee (See Recycling Brochure in Appendix A).

Tires

Used tires can be re-treaded, shredded and processed into crumb rubber for use in rubber plastic products. Tires can be recycled to produce a durable ingredient in the production of asphalt. Alternatively, tires can be shredded and burned as a source of fuel.

Tires are accepted at the Washington Township Transfer Station located in Franklin County, and at the York County Resource Recovery Facility located in York County, for a fee. In addition, several local tire distributors accept used tires for a fee. Waste Management and IESI accept one tire per pick-up as part of their weekly large item disposal service. McSherrystown Borough's contract with the York County Incinerator allows its residents to dispose of two tires per week with their curbside collection service.

Adams County, with financial assistance from the Department of Environmental Protection, sponsored two very successful tire recycling programs in 2003 and 2005. The County will continue to seek this type of assistance to sponsor future tire recycling programs.

Textiles

Used textiles can also be recycled. Textiles can be reused as rags, or reprocessed into filler products such as insulation or furniture padding.

The Adams Rescue Mission recycles textiles through its curbside and drop-off locations. Some of these textiles are selected for sale through their re-use store. Additionally, several thrift shops in the County also offer used textiles for sale.

Used Motor Oil

Used motor oil and many industrial lubricants can be refined to produce heating fuel.

Several area businesses accept used motor oil and lubricants as a source of heating fuel for their facilities, while other businesses offer used oil recycling to their customers as a free service, or for a nominal fee. Additional information for disposal of used motor oil is provided in Chapter 2, Section 2.7.

Batteries

State regulations prohibit the disposal of automotive batteries in municipal waste landfills. The metal in automotive batteries and the polypropylene plastic can be recycled.

Currently there are several facilities that accept used automotive batteries in, or within a reasonable distance of, Adams County. Additional information on battery disposal is provided in Chapter 2, Section 2.7.

4.3 POTENTIAL BENEFITS OF RECYCLING

Act 101 requires that each County Municipal Waste Management Plan describe and evaluate the potential benefits of recycling. The cost benefits of recycling stem from two sources: the revenue returns generated from recyclable materials markets, and a reduction of municipal costs from lower quantities of waste requiring collection, transportation, processing and disposal. The reuse value of the material is reflected in its market price and is subject to frequent changes. Currently, the average recyclables net market value for many types of recyclables (after transportation and processing) is close to zero, so the chief benefits of recycling are the avoided cost of disposal and environmental considerations.

TABLE 4-2
ADAMS COUNTY
ESTIMATED RECYCLABLE MATERIALS COMPOSITION OF THE COUNTY'S MUNICIPAL SOLID WASTE STREAM GENERATED IN 2002

	Material	R.W. Beck Statewide Composition Study 2003[1] Weight Percent	Tons in Waste Stream
Paper	Newspaper	3.6%	3,003
	Corrugated Cardboard	9.4%	7,841
	Office	4.8%	4,004
	Magazine/Glossy	3.1%	2,586
	Polycoated/Aseptic Containers	0.5%	417
	Mixed Paper	4.5%	3,753
	Non-recyclable Paper	8.8%	7,340
	Subtotal Paper	**34.7%**	**28,944**
Plastic	#1 PET Bottles	0.9%	751
	#2 HDPE Bottles	0.5%	417
	#3 #7 Bottles	0.2%	167
	Expanded Polystyrene	0.8%	667
	Film Plastic	4.4%	3,670
	Other Rigid Plastic	4.3%	3,587
	Subtotal Plastic	**11.1%**	**9,259**
Glass	Clear Glass	1.6%	1,335
	Green Glass	0.7%	584
	Amber Glass	1.0%	834
	Non-recyclable Glass	0.5%	417
	Subtotal Glass	**3.8%**	**3,170**
Metals	Steel Cans	0.8%	667
	Aluminum Cans	0.6%	500
	Other Ferrous	2.8%	2,335
	Other Aluminum	0.4%	334
	Other Non-Ferrous	0.4%	334
	Subtotal Metals	**5.0%**	**4,170**
Organics	Yard Waste – Grass	0.7%	584
	Yard Waste – Other	5.8%	4,838
	Wood – Unpainted	6.4%	5,338
	Wood – Painted	1.9%	1,585
	Food Waste	11.3%	9,425
	Textiles	3.5%	2,919
	Diapers	1.8%	1,501
	Fines	0.9%	751
	Other Organics	1.4%	1,168
	Subtotal Organics	**33.7%**	**28.109**
Inorganics	Electronics	1.9%	1,585
	Carpet	1.3%	1,084
	Drywall	0.9%	751
	Other C&D	4.4%	3,670
	HHW	0.2%	167
	Other Inorganics	1.4%	1,168
	Furniture	1.6%	1,334
	Subtotal Inorganics	**11.7%**	**9,759**
Totals		**100%**	**83,411**

[1] Source: R.W. Beck Statewide Waste Composition Study, 2003. All values shown in this table are estimates.

4.4 EXISTING RECYCLING ACTIVITIES

Gettysburg Borough and Conewago Township are the only municipalities in Adams County required by Act 101 to implement a mandatory recycling and yard waste collection program. The remaining 32 municipalities in the County, due to low total populations or low population densities, are not required to establish recycling programs under Act 101. Refer to Section 2.1 of Chapter 2 for a summary of the waste collection activities in the County including recycling and yard waste collection.

Some Adams County municipalities have contracted with a private hauler for waste collection services. These contracts contain provisions for residents to optionally select recycling services for an additional fee. In total, 21 municipalities have waste collection contracts with private hauling companies that include curbside recycling as an option for residents, while 2 additional municipalities mandate recycling under their private collection contracts.

The Adams Rescue Mission also provides collection services within the Borough of Gettysburg to businesses and institutions for office paper, corrugated cardboard and most other recyclables. In addition, the Adams Rescue Mission operates nine (9) recyclable drop-off locations in the County.

Based on information reported by the Adams County Solid Waste Department in the 2002 Act 101 Annual Recycling Report, it is estimated that Adams County recycled 7,670 tons of materials, or 10% of the total County waste stream in 2002. This rate is expected to increase incrementally in the future, with better reporting methods and increased participation.

4.4.1 Gettysburg Curbside Recycling Program

As one of only two municipalities mandated to recycle in Adams County, The Borough of Gettysburg's recycling program is an important part of the overall recycling effort within the County. The Borough uses a source-separated curbside collection program for recyclables.

Currently, Gettysburg Borough accepts the following materials for curbside collection under its waste collection contract with a private hauler:

- steel and bi-metallic cans (food and beverage cans)
- aluminum (food and beverage cans)
- newspaper
- plastic (natural HDPE and PET)
- clear glass (food and beverage containers)
- brown glass (food and beverage containers)
- green glass (food and beverage containers)

Leaf waste, brush and Christmas trees are picked up separately by the Borough, and recycled. Gettysburg Borough is currently assessing a potential joint yard waste composting initiative with Cumberland Township, and possibly Conewago Township.

4.4.2 Conewago Curbside Recycling Program

Mandated as of the most recent decennial Census in 2000, Conewago Township has a fairly new curbside recycling program. Like Gettysburg, the Township uses a source-separated curbside collection program for recyclable materials. The recycling program is a component of the Township's waste collection contract with a private hauler.

Currently, Conewago accepts the following materials for curbside collection:

- steel and bi-metallic cans (food and beverage cans)
- aluminum (food and beverage cans)
- newspaper
- plastic (natural HDPE and PET)
- clear glass (food and beverage containers)
- brown glass (food and beverage containers)
- green glass (food and beverage containers)
- Christmas trees are included under the collection contract

Conewago is currently exploring various options for managing its leaf waste and brush to comply with ACT 101 requirements.

4.5 Compatibility with other Processing and Disposal methods

Act 101 requires each County Municipal Waste Management Plan to "describe and evaluate the compatibility of recycling with other municipal waste processing or disposal methods, giving consideration to and describing anticipated and available markets for materials collected through municipal recycling programs". This section briefly presents issues of compatibility with landfilling, waste-to-energy, municipal waste composting and centralized materials recovery.

4.5.1 Compatibility With Landfilling

Technically, recycling of waste materials is compatible with landfilling operations. Removal of organic and other decomposable materials, such as paper, leaf and yard waste, reduces the environmental impact of landfilling while also preserving landfill space. Removing inert material, such as plastics, preserves landfill space and saves on operating costs. In addition, landfill operators are required to provide a recycling drop-off station at their facility.

4.5.2 Compatibility with Waste-to-Energy

Removal of non-combustible material such as glass and metals improves combustion efficiency, reduces wear on the equipment and combustion unit, and reduces the amount of ash produced. Waste characterization studies performed by Gannett Fleming, Inc. have concluded that comprehensive recycling programs do not lead to a decrease in the BTU content of municipal waste. Any reduction in the waste stream saves incineration costs by decreasing the required throughput capacity of a new facility.

The York County Resource Recovery Facility received and processed over 4,700 tons of Adams County municipal waste in 2002, based on PADEP waste destination reports.

4.5.3 Compatibility with Centralized Materials Recovery

Centralized materials recovery involves the separation, at a centralized facility, of recyclable (and compostable) materials from mixed municipal solid waste. For municipal solid waste composting systems, materials recovery is often a preprocessing step conducted prior to composting. Source separation recycling benefits the process by removing non-compostable materials, such as glass and metals that will need to be removed from the compost feedstock anyway.

4.5.4 Compatibility with Municipal Waste Composting

A cleaner compost feedstock will produce a cleaner and better final compost product. Recycling is compatible with composting; removing inerts from the wastestream. Since paper can be composted as well as recycled, only the high-value recyclable paper fractions are normally removed from the wastestream prior to composting.

Municipal Waste Composting is a technology well-suited to processing the highly degradable organic portion of the County's wastestream. In fact composting, together with recycling, usually creates a 60-80% reduction in the tonnage of waste to be disposed of. For this reason, composting as a form of volume and tonnage reduction is compatible with recycling that is done for waste reduction. It also provides a long-term solution to the disposal of municipal waste water treatment plant sludge, generated by the County's many public treatment plants, as well as septic tank pumpings now disposed of by private septic haulers. In addition, many industrial residual waste materials (food processing wastes) and agricultural waste products are suited to processing through municipal waste composting.

4.6 PROGRAM ALTERNATIVES: COLLECTION METHODS

This section presents the collection system options for residential curbside collection programs, for drop-off programs and for commercial and institutional recycling programs.

4.6.1 Curbside Collection Alternatives

One alternative for municipalities that are not mandated (non-mandated) to recycle is to consider implementing a voluntary recycling program. Many municipalities in Adams County currently are participating in optional subscription curbside recycling programs. For mandated or voluntary recycling programs there are many choices facing a municipality when planning a residential curbside collection program. Some of these choices include: commingled (mixed) collection versus segregated collection; size and type of storage/collection containers for residents; pick-up frequency (including what days to offer collection); contracted services vs. participating in services provided free of charge; provisions to include multi-family dwellings and determining the specific details on how the collection service will be provided. These considerations are examined below.

4.6.1.1 Commingled or Source-Separated Curbside Recycling

There are a variety of ways that material can be set out by residents, and collected by the recycling service provider. Residents can place all materials in a single bin or bag (commingled). Collection workers can then either empty the bin, or bag, into a single compartment of a truck (commingled pickup), the contents in a single bin on the collection vehicle or sort the materials at the curb into separate compartments of the truck (curb-sort) bins. A common variant of commingled collection is to place glass, plastics, and aluminum and metal food and beverage containers in one curbside bin. If included in curbside collection, paper products like newspaper (and perhaps also corrugated cardboard) are separated into another bin.

Totally segregated "set-out" (set-out refers to residential recycling method where materials are placed at the curb by residents) requires residents to sort materials into three or more containers, depending on the number of materials accepted by the recycling program. A common variant of segregated set-out is to have residents set out glass in one container and cans (tin, bi-metal, and aluminum) in another. In this scenario, collection crews might empty the cans in one truck bin, and color-sort the glass into three truck compartment bins at the curb.

Commingled set-out is another recycling method frequently chosen for curbside recycling programs. This method is considered to be more convenient for residents (which may increase participation). Relative to segregated collection; commingled collection saves collection labor expenses, and allows fuller truck utilization by reducing collection time. Commingled collection can also be more flexible than segregated collection: materials can be easily removed from, or added to, the program without affecting the number of containers and truck bins needed. A common variant of commingled collection is to place glass, plastics, and aluminum and metal food and beverage containers in one curbside bin. If included in curbside collection, paper products like newspaper (and perhaps also corrugated cardboard) are separated into another bin. Another more modern variant of this is to place all recyclable materials, including paper, in one bin, for collection in a single compartment truck and sorting/processing at a central site. This is called single-stream recycling.

Typically, the municipality selects the type of set-out that is required of residents, and the private contractor collects, hauls and markets the materials. Regardless of whether commingled or segregated set-out is chosen, it is advantageous to distribute specially marked household containers. Supplying containers makes recycling more convenient. The container's presence in the home reminds people to recycle, and their presence at the curb helps route drivers to quickly spot where to stop for pickups. It also serves as a recurring reminder to neighbors to recycle. Consistent weekly collection is easy for residents to remember, and is the least demanding of home storage space.

4.6.1.2 Recycling Collection Contracting Options

A municipality may use its own vehicles and staff to collect recyclables, or it may contract with a private collector for the service. PADEP grants are available to reimburse up to 90 percent of the cost of collection equipment purchased by municipalities to do their own collections.

4.6.2 Recycling Collection at Multi-Family Housing

Multi-family residential housing units (4 or more units) are required under Act 101 to recycle as part of a municipal mandatory recycling program. Multi-family housing units typically provide recycling as part of an independent commercial waste collection and recycling program. However, Act 101 requires that a mandated municipality must make recycling available for owners of multi-family housing in its recycling ordinance. The ordinance must define landlord compliance as establishing a collection system that includes "suitable containers for collecting and sorting materials, easily accessible locations for the containers and written instructions to occupants...". As requested, the Adams County Solid Waste Department will continue to assist municipalities and owners of multi-family units develop recycling programs.

4.6.3 Drop-Off Centers

With only two municipalities, Gettysburg and Conewago, having mandatory curbside recycling collection, public and private drop-off centers are an important consideration in the County's recycling strategy. With the County's low population density, drop-off centers are potentially the lowest cost, and most feasible alternative, to implementing curbside collection programs.

Nine recyclables drop-off locations (including the drop-off at The Adams Rescue Mission recycling center) in the County are maintained by the Adams Rescue Mission. Below is a brief description of the Mission's drop-off recycling program that is operated in the County. Drop-off locations are depicted in Figure 4-1.

Currently, the Mission accepts the following materials at the drop-offs (and also through curbside collection):

- steel and bi-metallic cans (food and beverage cans)
- aluminum (food and beverage cans)
- high-grade office paper
- newspaper
- corrugated cardboard
- plastic - natural HDPE and PET (not accepted through curbside collection)
- clear glass (food and beverage containers)
- brown glass (food and beverage containers)
- green glass (food and beverage containers)
- textiles

4.6.4 Commercial and Institutional Recycling

Act 101 instructs mandated municipalities to require persons at commercial, institutional, municipal establishments and at community activities (e.g., fairs, sporting events) to source-separate certain materials for recycling. At a minimum, mandated municipalities must require programs to include high-grade office paper, corrugated cardboard, aluminum cans and leaf waste, if applicable. It is worth noting that in May 2005, a recycling program was implemented at the annual Apple Blossom event held at the South Mountain Fairgrounds. Further efforts will be made to implement a similar recycling program in 2005 at the Apple Harvest event, also held at the Fairgrounds each fall.

Mandated municipalities are required to provide a system that collects recyclable materials from the curbside, or similar location. In municipalities, the mandate applies to all residences, institutions, and commercial or municipal establishments. Mandated municipalities must adopt a recycling ordinance that may not be less stringent than the Act 101 mandate.

Municipalities must also allow establishments to meet their recycling requirements by providing for their own collection and marketing, as long as the establishments provide written documentation of the tons recycled. This documentation is required to be submitted to the County each year.

Gettysburg Borough and Conewago Township are the only mandated municipalities required to implement commercial and institutional recycling programs.

4.7 PROGRAM ALTERNATIVES: PROCESSING, STORAGE, AND SALE

4.7.1 Background

Most recyclable materials are not immediately useful to manufacturers in the form in which they are collected. Collected materials must be processed to remove contaminants, be sorted by material type, and be baled or densified (if required) for shipping to market. Prior to passage of Act 101, scrap yards and recycling centers had been accepting recyclable materials from businesses and the public, and preparing it for sale to manufacturers. There are multiple scrap yards located in the region. In some cases the recovered material can bypass these intermediaries, going directly from the collectors to the end user.

Buyers typically prefer doing business with a supplier who can be relied on to provide a large flow of materials that is consistent in both quantity and quality. Such a function, beyond the capacity of most individual municipalities, is often fulfilled by private intermediate processors or by public, multi-municipal facilities.

In recent years there has been a growth in the size and number of recyclables processing facilities, commonly known as materials recovery facilities (MRFs). Less frequently, these facilities are referred to as intermediate processing centers (IPCs). Such facilities typically accept a variety of recovered materials from municipal recycling programs and commercial waste recovery efforts. After receipt of materials the MRF processes the material to sort and consolidate the material, upgrade its value and ship to final markets when sufficient quantity has

accumulated. Most recycling facilities have the capability to sort commingled glass and metal containers. Some can also sort paper into several grades. Washington Township (Franklin County), Recycle America (York County) and the Adams Rescue Mission host MRF facilities in the region.

4.8 YARD WASTE MANAGEMENT

4.8.1 Introduction

Chapter 272 of the Municipal Waste Management Regulations defines "leaf waste" as "leaves, garden residues, shrubbery and tree trimmings, and similar material, but not including grass clippings." Although not defined in Act 101 or the PA Municipal Solid Waste Regulations of 1988, an accurate description of "yard waste" would be leaf waste plus grass clippings. Yard waste comprise 10 to 20 percent, possibly more, of a typical municipal waste stream, making it an attractive target for diversion through a composting program.

Composting is a natural biological process in which organic matter decomposes into a useful humus material that is valuable as a soil amendment. While the nutrient content of yard waste compost is too low for it to be considered a fertilizer, it is a valuable soil conditioner and organic amendment, improving the physical, chemical and biological properties of the soil.

In general, composting is not allowed without a PADEP municipal waste permit. Leaf waste composting, however, is allowed as a “Permit By Rule”, provided the process is approved by PADEP. PADEP has developed guidelines for an acceptable leaf waste composting process under the Permit By Rule program.

The PADEP Guidelines for Yard Waste Composting Facilities (effective date September 1, 1997) apply to yard waste composting facilities of less than five acres that adhere to certain siting, design and operational requirements in the Guidelines. The Municipal Waste Management Regulations (Title 25 Pa Code, Section 271.103(h)) allow such yard waste composting facilities to operate under a “Permit By Rule”, if they comply with the Guidelines. Compost facilities between five and fifteen acres in size may be allowed to operate under an existing PADEP General Permit (GP) for composting facilities, provided the proposed activities are consistent with the existing GP and approved by PADEP. For the 5-15 acre compost sites, PADEP requires the submittal of Form 27, “Acceptance of General Permit Conditions”, as part of this process. PADEP then makes a “Determination of Applicability” based on the information provided by the applicant requesting approval to operate under the GP. In Adams County, most, or all, municipal yard waste composting facilities should be five acres or less.

The composting process recommended in the Guidelines is outlined in Section 4.8.3 (low-level technology), and a copy of the PADEP Guidelines for Yard Waste Composting, dated September 1997, is included in Appendix A of the Plan. This guidance document also addresses land application of yard waste. Typically, land application involves spreading leaves, or other yard waste material, on farm fields where it is tilled into the soil.

Grass clippings can make up one-third to one-half of all yard waste. Generally, grass clippings may not be composted without a PADEP permit. However, the PADEP has developed guidelines for yard waste composting which enable grass clippings to be processed with other

yard wastes at a Permit By Rule yard waste composting site as long as compliance is maintained with specified operating restrictions. The most significant of these restrictions is that grass cannot be processed at a rate of more than one-part grass to three-parts other yard waste.

Yard wastes can be composted with nearly any other organic waste including waste paper, sewage sludge, animal manures and food processing wastes. Yard wastes, particularly leaves, are a desirable complement to high-moisture, high-nitrogen wastes such as sludge and manure. It is assumed that much of the yard waste materials generated in Adams County are disposed of through burning and illegal dumping.

4.8.2 Yard Waste Collection

There are generally two basic methods used to collect leaves: loose collection or containerized collection. Loose collection is not appropriate for general yard wastes such as grass clippings.

Loose collection of leaf waste can be accomplished using a vacuum loader or front-end loader. Vacuum loaders can be purchased with a box to hold the collected leaves, or they can be used with dump trucks or boxes built by municipal workers. While a front-end loader with the standard bucket attachment is not particularly efficient at collecting leaves, it is commonly used because it is readily available in many municipalities. There are several types of special "pincer" type buckets that can be attached to a front-end loader to improve its suitability for yard waste collection. In many yard waste programs, front-end loaders are used in conjunction with dump trucks or garbage packers.

Containerized collection is the method used when yard waste is placed in a bag or plastic container by a resident, and placed at the curbside for collection. Standard, non-degradable 30-gallon plastic bags are commonly used by residents for containerized collection. Removal of the bags by hand at some point in the collection or composting process is a draw-back to the use of such a system. Use of biodegradable plastic bags or kraft paper bags eliminates the need to empty the bags (they can be composted with the leaves), but can add cost to the program.

Another option for containerized collection is the use of plastic bins. The use of reusable plastic bins is becoming a popular method of collecting yard waste.

Yard waste can be collected by municipal crews, or by a municipally-contracted private hauler. Municipalities, such as the Boroughs of McSherrystown and Gettysburg, as well a small number of townships, provide drop-off locations for other yard waste (e.g. brush, tree trimmings). The Washington Township Transfer Station (Franklin County) accepts yard waste materials (leaves are accepted free of charge) for a fee, as do some private contractors operating within the County.

4.8.3 Composting Process Options

The composting process requires organic matter (such as leaf waste or grass clippings), microorganisms (occurring naturally in the leaves), heat (naturally occurring), water and oxygen to proceed properly. The various approaches to composting can be ordered into the following four general categories:

No Technology **("sheet composting")** - The material is spread over a field, eventually plowed under, and allowed to decompose naturally without further intervention. The PADEP Permit By Rule program can be used with land application of leaf waste on farm fields.

Medium Technology **(Aerated Static Pile**) - The yard waste material is piled over perforated piping. The material is aerated by blowing air out of the pipe and into the pile, or by drawing air through the pile and into the pipe. This method produces compost in less than 12 months, but is moderately capital intensive.

High Technology **(In-Vessel Method**) - Material is composted in a fully enclosed, mechanical system. All of the environmental factors that affect the decomposition process can be controlled, allowing the first stage of composting to be completed in a very short period of time. In-vessel composting is generally applied to composting of more general municipal solid waste and sewage sludge, rather than yard waste alone. This is very capital intensive.

Low-Level Technology **(Windrow Method)** - This is the most common method of leaf composting, and the method specified in the PADEP Guidelines (described below). This method usually produces compost in approximately 12-18 months, and is low to moderately capital intensive.

The design and operating considerations for a low-technology leaf composting facility are discussed below. The discussion notes the PADEP guidelines, where applicable. Figures 4-2 to 4-3 illustrate the method, and Figure 4-4 presents a schematic of the process schedule. The process is also adaptable to leaf and grass co-composting. Grass clippings can be added to existing leaf compost piles from the previous autumn. This mixing benefits both the grass and the leaf composting process.

(a) Siting: Zoning, access roads, water supply, soil grade and drainage characteristics must be considered. A buffer zone, needed for odor control, should be sized according to the closest neighbor and PADEP guidelines on isolation buffer distances. The PADEP guidelines require a minimum of one acre of site for each 3,000 cubic yards of vegetative material being processed.

(b) Windrow Size: PADEP guidelines require the pile to be 6-8 feet high and 12-16 feet wide. The pile can be extended to as great a length as desired.

(c) Pile Building: Front-end loaders are used to build the piles. PADEP recommends that piles be built within two days of the delivery of material to the site. If grass clippings are being composted, to avoid odor problems they should be incorporated the day received, and at a leaf to grass ratio no lower than 3:1.

(d) Moisture: The moisture content should be maintained at approximately 50 percent. Water should be added, if needed, when the piles are being formed, and when they are being turned. The PADEP guidelines support this moisture level.

(e) Pile Turning: Piles are usually turned with a front-end loader or with specially-designed mixing equipment. Turning is necessary for wetting the outer edges, re-aerating the material and insuring that all material is exposed to the high temperatures characteristic of the center of the pile. Piles are turned at least every two months; however, more frequent turning will increase the rate of decomposition. The PADEP guidelines require a minimum of two turnings per year. With incorporation of grass, more frequent turning is required; during some periods, daily or semi-weekly turning may be necessary.

(f) Curing: In late summer the material is combined into large curing piles to make room for the next leaf deliveries. Curing allows for further decomposition, and can be for as little as one month to as much as one year. Curing piles usually do not emit any odor.

(g) Shredding and Screening: Shredding and screening are optional finishing steps that provide for a uniform end-product, thereby enhancing the market value of the material. Both processes, however, are labor-intensive and increase capital and operational costs.

4.8.4 Compost Distribution

Clean yard waste compost is a commonly marketed compost material that usually has many local end users. Finished compost can be made available to residents, nurseries, landscapers and farmers (it is often given away free to local residents). Compost can be used as a soil amendment. Municipal crews can use it for reseeding, to hold soil moisture and for landscaping projects. Municipal programs usually have to expend some effort and resources in notifying potential users of the compost's availability. Given the high transportation costs relative to the compost's value, the compost users generally will be located close to the compost source. Without advanced finishing steps such as screening and bagging, municipal market value for most composted material is minimal.

4.8.5 Composting Program Operation Alternatives

A simple yard waste compost program alternative is to deliver the yard waste material directly to a farm or nursery. Farmers can compost the material in static piles or windrows before use, or allow the material to compost on a fallow field. Alternately, raw yard waste material may be tilled directly into crop fields, and allowed to decompose in the soil mixture. If this is done, the yard waste decomposition process may use soil nutrients, such as nitrogen, that may need to be replenished through fertilization of the field.

Gettysburg Borough and Carroll Valley currently transport leaves to an area farmer who uses a low-level windrow process to produce compost that is utilized in the farming operations. Gettysburg Borough, in cooperation with Cumberland Township, and possibly Conewago Township, is exploring a potential joint yard waste composting project.

One disadvantage of direct delivery to an interested farmer or nursery, if one can be found, is that the farmer or nursery may abruptly discontinue acceptance of the material. Other disadvantages to this method are the potential limitations on the materials that can be collected, and on the collection methods. For example, clean, unbagged leaves are sometimes the only material that will be accepted by a farmer or nursery.

Yard waste composting, and compost product distribution, can be done privately, by municipalities acting individually or cooperatively, or by the County. The use of special composting equipment such as a turning machine, tub grinder and screening equipment is more cost-effective when the equipment is shared among several municipalities. When hauling costs are considered, it is generally more cost-effective to use several compost sites located strategically across the County. A strategic compost site location would likely be close to the major yard waste sources, close to transportation routes and end users, and be located where municipal cooperation allows for resource and equipment sharing. Two or more neighboring municipalities may find it advantageous to share both a site and equipment.

4.8.6 Adams County Initiatives in Yard Waste Management

Butler Township received recycling grant funding in 1995 for a wood chipper and thermometer, to establish a leaf and yard waste composting site for residents. Arendtsville and Biglerville Boroughs submitted letters of support, expressing an interest in participating in the project. Butler Township is currently operating a composting site, and accepts leaves, brush, Christmas trees, grass and trimmings from residents and produces mulch and compost for use by residents. Butler also chips Christmas trees for Biglerville Borough residents. DEP has been contacted to assist in bringing the township into compliance with the Permit-By-Rule Regulations governing composting sites.

Carroll Valley Borough received recycling grant funding in 1996 for a leaf vacuum truck to remove leaves from the Borough's streets. The Borough had planned to establish a composting site for leaves and yard waste for residents. Fairfield Borough submitted a letter of support expressing interest in participating in the project. The project never moved forward on a municipal level, however, the Borough did form a partnership with a local farmer, who takes the leaves and grass, composts and utilizes them in his farming operations. Carroll Valley allows residents to drop off leaves and grass at their Maintenance Building. Christmas trees are collected by the Borough’s waste hauler, under the terms of its waste collection contract. Carroll Valley has not, however, returned the grant-funded equipment, or reimbursed grant funds, to DEP, which were received to implement this project.

Conewago Township currently directs its residents to take yard waste materials to a privately operated drop-off site in Spring Grove (H&H), but is evaluating several alternatives: (1) contracting yard waste collection services with their hauler; (2) partnering with McSherrystown or Hanover Borough; (3) exploring a possible joint yard waste composting initiative with Gettysburg Borough and Cumberland Township. The Township’s waste collection contract includes collection of Christmas trees by the Township’s waste hauler.

Cumberland Township received recycling grant funding in 1993 for a wood chipper and thermometer to establish a leaf and yard waste composting site for Township residents. Gettysburg Borough and Highland Township submitted letters of support expressing interest in participating in the project. To date, no program has been established. Cumberland Township has not returned the grant-funded equipment, or reimbursed grant funds to DEP, which were received to implement this project. Cumberland does, however, accept Christmas trees from residents. The trees are chipped to produce mulch, which is made available to residents.

Cumberland Township is currently exploring a possible joint yard waste initiative with Gettysburg Borough, and possibly Conewago Township.

Fairfield Borough's waste collection contract includes the collection of Christmas trees.

Germany Township received recycling grant funding in 1997 for a wood chipper to assist with processing yard waste. Germany chips Christmas trees, and makes the mulch available to residents.

Gettysburg Borough is currently considering the use of a Solid Waste Association of North America (SWANA) Technical Assistance Program to evaluate yard waste management alternatives, and explore a possible joint composting project with Cumberland Township and Conewago Township. The SWANA recycling technical assistance program provides $7,500 in free technical consulting fees from one of three designated consultants in Pennsylvania. The program is available to any Pennsylvania municipality interested in achieving higher recycling rates. Currently Gettysburg Borough transports their leaves to an area farmer where they are composted. The Borough also maintains a drop-off site for Christmas trees and yard trimmings; this material is chipped by the Borough and made available to residents.

Littlestown Borough accepts Christmas trees and leaves from residents and provides the mulched materials to local farmers.

McSherrystown Borough received recycling grant funding in 1993 for a wood chipper and a thermometer, to establish a leaf and yard waste composting site for residents. East Berlin and Littlestown Boroughs entered into agreements with McSherrystown for the shared use of this equipment. McSherrystown established a yard waste composting site for its residents, and accepts leaves, brush, grass, Christmas trees and trimmings. The composted material is made available to local farmers. DEP has been contacted to assist in bringing the Borough into compliance with the Permit-By- Rule regulations governing composting sites.

Menallen Township received recycling grant funding in 1998 for a wood chipper and thermometer to establish a leaf and yard waste composting site for residents. Bendersville Borough and Tyrone Township submitted letters of support expressing an interest in participating in this project. Menallen Township is currently operating a composting site, and accepts Christmas trees, leaves, brush, grass and trimmings from residents to produce mulch and compost for use by residents. DEP has been contacted to assist in bringing the township into compliance with the Permit-By-Rule Regulations governing composting sites.

Mt. Joy Township accepts Christmas trees from residents, chips the material and makes the mulch available to residents.

Mt. Pleasant Township accepts Christmas trees from residents, chips the material and utilizes the mulch in Township operations.

New Oxford Borough's waste contract includes the collection of Christmas trees.

Oxford Township accepts Christmas trees from residents.

Reading Township accepts Christmas trees, leaves, brush, grass and trimmings from residents. These materials are then disposed of by the Township in a controlled burn operation. The County intends to work with the Township to change this practice.

Straban Township received recycling grant funding in 1999 for a wood chipper, to establish a leaf and yard waste composting site for residents. Mt. Joy and Mount Pleasant Townships submitted letters of support expressing interest in participating in this project. Straban Township is currently operating a composting site, and accepts Christmas trees, leaves, brush, grass and trimmings from residents to produce mulch and compost for use by residents. DEP has been contacted to assist in bringing the Township into compliance with the Permit-By-Rule Regulations governing composting sites

Tyrone Township accepts Christmas trees from residents, chips the material and makes the mulch available to residents.

There are drop-off sites located in Butler Township, Gettysburg Borough, McSherrystown Borough, Menallen Township, Straban Township and Reading Township that accept residential yard waste.

It is important to note that most of the municipality contracted waste collectors accept Christmas trees under the large item contract option.

4.8.7 Backyard Composting

Composting by individuals in their own yards is an activity that can be encouraged, regardless of whether the municipality has its own composting program. By reducing the amount of yard waste collected, backyard composting saves collection and composting costs, and provides the homeowner with his or her own supply of valuable compost. Backyard composting is most suitable for grass clippings and vegetative (not meat) food wastes. In addition to backyard composting, grass clippings can be left on the lawn as natural fertilization (using a mulching mower). Backyard composting bins are currently available, and being distributed to many residents, through the Penn State Cooperative Extension Master Gardener Program. To date, approximately 800 bins have been distributed to residents completing a very popular composting training workshop. Additional information on backyard composting is available through the County, Penn State Cooperative Extension and PADEP.

4.9 OPTIONS FOR ENCOURAGING PARTICIPATION IN RECYCLING PROGRAMS

Increasing participation in municipal recycling programs requires continuous educational efforts. Regardless of the specific program structure, getting the information about the program to residents on a continuous basis will improve its success and participation. Public education programs should convey the importance, yet ease, of the recycling program. Target children. Children get excited about recycling, and can have a large influence on their parents' recycling participation.

Social pressure can be very persuasive to certain individuals within the community. The perception that recycling has strong community support can help to motivate people to recycle. Recycling containers should be very visible and identifiable as for-recycling.

Keeping recycling requirements simple, distributing home storage containers with an instructional brochure enclosed, and publicizing the recycling program procedures through direct mail and the local media are several ways to overcome the informational barrier to participation. In addition, education should be reinforced, as needed, to ensure that participants are not only aware of the program, but also that they follow the correct procedures.

Incentives may be used to motivate people to recycle. In some cases, financial incentives like a pay-per-bag garbage fee may be successful. The system goes by the concept that people will receive a cost savings (per bag) if they minimize their waste generation. Conversely, mandatory recycling ordinances have also been used as a financial disincentive for those who fail to participate.

The responsibility for public education can be shared by both the County and municipalities. The County, through its Solid Waste and Recycling Department, currently provides a variety of recycling educational materials and presentations to municipalities, special interest groups, commercial and institutional establishments, and local school districts throughout the County. In addition, the County Solid Waste and Recycling Director assists municipalities in tailoring their educational materials to their specific programs. Community-specific promotional materials have the advantage of harnessing community pride to generate interest, and boost partiipation. Even for program-specific public education efforts, the County has, and will, provide assistance, such as model brochures, names of printers and cost information. Recycling education grants (up to 90%) are available from PADEP to help with the development of recycling education materials.

Costs of developing a recycling program, whether curbside or drop-off, or a mandatory or non-mandatory program, are specific to each municipality or group developing the program. The County can assist in providing recycling program cost analysis and guidance to any municipality or group that seeks assistance in developing a program.

The Adams Rescue Mission publishes a schedule of their Recycling Collection Program weekly in the local news publication in the County.

Other initiatives include distribution of a comprehensive recycling brochure by the County through various outlets, such as Community Welcome, the Gettysburg-Adams County Area Chamber of Commerce, all of the municipalities and through advertisement in a monthly news article written by Donna Barthle, a volunteer freelance writer dedicated to advancing the cause of recycling, and published in the Gettysburg Times newspaper.

4.10 RECOMMENDED RECYCLING STRATEGY AND IMPLEMENTATION SCHEDULE

4.10.1 Goals and Objectives

The guiding objectives used in developing the County's recycling plan are to attain the maximum economically feasible recovery of material through recycling, and yard waste processing and composting, and to do so with the full support of the local municipalities.

The County intends to follow Act 101 guidelines that state: 1) mandated municipalities (currently only the Borough of Gettysburg and Conewago Township in Adams County) must curbside-recycle at least three source-separated recyclable materials from the list of eight materials designated by Act 101; 2) citizens in mandated municipalities must separate "leaf waste" (as defined by Act 101) for special handling (such as composting or agricultural utilization); and, 3) businesses and institutions in mandated municipalities must recycle at least three types of materials, plus leaf waste.

The County's recycling goal is to have a comprehensive recycling program that allows for convenient recycling opportunities for County residents that will include curbside collection, drop-off collection, and potentially include additional recycling services to meet County recycling and disposal needs.

The following is a list of County recycling program goals/ initiatives to be considered:

- Adopt a County Recycling Ordinance in the near future (with assistance from PADEP.)
- Develop strategies to increase recycling in Adams County and, at the same time, reduce the County's reliance on landfilling (such as joint yard waste composting initiatives like the one under discussion with Gettysburg Borough, Cumberland and Conewago Townships.)
- Address ways to reduce the cost of recycling and increase the rate of recycling and its efficiency, thus reducing overall collection costs (such as making recycling a mandatory, instead of an optional component of waste collection contracts.)
- Encourage, maintain and potentially develop further curbside collection in feasible areas.
- Provide, maintain and expand drop-off collection services to be available to all County residents (working in partnership with the Adams Rescue Mission.)
- Develop recycling collection events (like the Apple Blossom and Apple Harvest events; working in partnership with the Adams Rescue Mission.)
- Continue existing yard waste efforts and expand yard waste collection.
- Consider developing waste processing technologies that are well suited to the highly degradable organic portion of the County's wastestream.
- Improve the effectiveness of the existing recycling programs through a comprehensive public information and education program that will be communicated to and coordinated with local municipalities.

- Work with municipalities and existing haulers to encourage recycling.
- Develop a system to better document and report to the County the recycling that is occurring in the residential, commercial and institutional sectors.
- Use recycling efforts and educational efforts related to recycling as a means to deter illegal dumping activities, and open burning, through identifying recycling as an alternative to dumping and burning.
- Promote use of a pay-per-bag program as a financial incentive to recycle more and dispose of less (during the next bidding process for waste collection contracts.)
- Identify funding sources to be used to help implement County recycling goals.

Some of these initiatives are already underway. For example, the County has requested the assistance of PADEP to develop a county-wide recycling ordinance. Also, the County, through its Department of Solid Waste and Recycling, has assisted, and will continue to assist, various municipalities with implementation of their waste collection contracts. These contracts contain curbside recycling and bulky waste service options. The Solid Waste Department is exploring the possible addition of electronics recycling to the collections contracts. The Solid Waste Department has also begun working with several municipalities on the possible establishment of a joint yard waste composting program. And lastly, the County has expanded its hauler-licensing program to include recyclers as a means of obtaining further information on recycling activities in the County. The County will continue to work on these issues and other goals/initiatives, starting over the course of the next three years, in conjunction with the possible implementation of a county-wide recycling ordinance.

4.10.2 Development of a County Drop-off Program

The County should continue to support drop-off efforts for diverting recyclable materials from the waste stream. The County continues to encourage and assist in the development of municipal and other drop-off programs for recyclables throughout the County. Special attention will be given to education for existing programs and the development of new programs in areas with limited recycling opportunities. Municipalities in the County should consider drop-off collection programs as a way to implement low-cost recycling opportunities for residents. Municipalities can develop one, centrally located drop-off center, provide multiple sites or use multiple locations for a roving drop-off program. Multi-municipal drop-off programs can also be developed. Strategically located drop-off sites will reduce inconvenience to residents that may have to drive long distances to a centrally-located drop-off site. The County can provide guidance and assistance to municipalities interested in siting drop-off centers and developing recycling drop-off programs.

Drop-off collection sites require a minimal amount of equipment and site preparation to develop. Equipment and site development costs are minimal, as compared to a curbside program. Site preparation costs are typically less than $10,000 per site, and often much less. Site preparation may include costs such as paving, fencing, lighting, security provisions and the purchase of collection bins. Equipment and site improvement costs are up to 90 percent reimbursable through Act 101-Section 902 recycling grants.

The County plans to continue to support the recyclable material drop-off program operated by the Adams Rescue Mission. All recycling activities undertaken by the County will continue to be performed in full compliance with applicable regulations.

4.10.3 Yard Waste Program Development

To maximize the amount of yard waste diverted from disposal, and to do so in the most efficient manner possible, the County plans to continue to assist, as requested, municipalities that wish to develop yard waste programs. The County assistance program (includes technical and grant writing assistance) is available to all municipalities that want to participate. Currently the County is providing assistance to Gettysburg Borough, Cumberland Township and Conewago Township.

4.10.4 Public Education Program

The County intends to continue to play a role in educating the public about recycling and yard waste management, as well as other aspects of solid waste management. The County public education program is designed to complement the activities of local municipalities in order to maximize the effectiveness and efficiency of all public education efforts. The County's educational and outreach program targets not only households, but schools and commercial and institutional establishments. The County's efforts include informational mailings, presentations, displays and workshops.

4.10.5 Consideration of Existing Recyclers and Coordination with Recycling in Mandated Municipalities

Act 101 requires that the County Plan describe what consideration has been accorded to persons engaged in the business of recycling (as of September 26, 1988), and explain how recycling under the County Plan will be coordinated with, and will not interfere with, recycling by mandated municipalities. The previous parts of this section pointed out how the County's current recycling strategy is based primarily upon continuation of the present municipal and other recycling programs in the County. The recycling strategy outlined in this Plan will be integrated with any newly added municipal recycling programs, and with all non-profit and/or for-profit recycling drop-off operations.

4.10.6 Recycling Program Implementation Tasks

The tasks involved in implementing this proposed recycling strategy in the County are outlined below with projected implementation schedules.

Recycling Program – Strategic Plan

Drop-Off Recycling Programs

- Evaluating drop-off programs options/opportunities (will occur on an ongoing basis).
- Development of commercial/industrial collection programs (will occur on an ongoing basis).

- Identify additional recycling markets through investigation (will occur on an ongoing basis)
- Acquire drop-off sites or agreements for use of sites when feasible (will occur on an ongoing basis, and may be contingent on a county-wide recycling ordinance).
- Promote municipal drop-off programs (will occur on an ongoing basis and may be contingent on a county-wide recycling ordinance).

Yard Waste Composting

- Continue existing programs and expand as feasible (will occur on an ongoing basis)
- Identify additional opportunities (will occur on an ongoing basis)
- Develop agreements between host municipalities and the County (will occur on an ongoing basis)
- Provide process design and equipment specification (will occur on an ongoing basis)

Assist with site preparation and operation by municipalities or other entities (will occur on an ongoing basis)**Public Education Program**

- Expand the County's educational program efforts with focus on schools and businesses (will occur on an ongoing basis)
- Investigatemunicipal needs (will occur on an ongoing basis)
- Continue to design/expand program structure (will occur on an ongoing basis)
- Design, produce, and distributeeducational materials (will occur on an ongoing basis)
- Research funding alternatives (will occur on an ongoing basis)

Recyclables Quantities Documentation

- Continue to hold the haulers accountable for data collection, as specified in the newly revised hauler-licensing program in the County, that requires the haulers to submit quarterly recycling data to the County (will occur on an ongoing basis)
- Establish a program to enhance the annual reporting of recyclables (types, quantities, and sources) collected (to commence with 2004 annual reporting)
- Incorporate this new data into the County’s Annual Act 101 Recycling Report (will occur on an ongoing basis)

CHAPTER 5
SELECTION OF WASTE MANAGEMENT SYSTEM

5.1 INTRODUCTION

The purpose of this chapter is to describe the process used to select or recommend components to the overall waste management system for Adams County, and to provide justification for the selections and recommendations. The County must ensure that the recommended system provides the required capacity needed to properly process/dispose of all municipal waste generated within its boundaries in accordance with Act 101 requirements. This chapter examines collection, transportation and processing/disposal alternatives, particularly for municipal waste and sewage sludge. Other fractions of the waste stream are also addressed, where appropriate.

Chapter 4 examined options for collecting and processing source-separated recyclable materials and yard wastes. Based on the recommended County recycling strategy, the quantity of waste expected to be diverted due to recycling and composting was estimated and deducted from gross waste generation estimates. Table 5-1 depicts gross and net (after recycling) waste quantities for the County, as shown in Table 1-7 in Chapter 1.

Section 5.2 discusses options for collecting municipal wastes. Section 5.3 discusses the alternatives for transporting wastes to processing or disposal facilities, and evaluates the costs of direct hauling and transfer hauling of wastes. Section 5.4 briefly describes the technologies that can be employed to process and/or dispose of this waste, and addresses the process used to secure waste disposal capacity for disposal of Adams County's wastes for the 10-year planning period to January 1, 2016. Section 5.5 evaluates future options for sewage sludge and septage disposal in Adams County, and Section 5.6 briefly addresses the handling of special wastes in the County. Section 5.7 concludes with recommending waste collection, transportation and processing/disposal strategies for the County. The summary description includes waste collection, waste reduction and recycling, transportation, disposal, construction and demolition waste, and special waste discussions. The selection of disposal facilities to be designated for disposal of Adams County municipal wastes is discussed, as well as a procedure to add additional facilities to the Plan in the future.

5.2 COLLECTION ALTERNATIVES

Act 101 divides the responsibilities for municipal waste management between counties and local municipalities. Counties have the power and duty to designate the processing and/or disposal site(s) for waste generated in the County. Municipalities have the power and duty to regulate the collection of waste generated within their boundaries. This section describes a municipality's three principal options for municipal solid waste collection. The discussion addresses the collection of household waste. The three options are differentiated according to the degree of municipal involvement and, conversely, the role of the private sector. A copy of the existing municipal solid waste ordinances in effect in Adams County are presented in Appendix G of this Plan.

TABLE 5-1

ADAMS COUNTY
PROJECTED GROSS AND NET GENERATIONS OF MSW[1]
(2000 - 2020)

Year	Population[2]	Gross Generation (tons)[3]	Diversion Rate[4]	NetGeneration (tons)[5]	Waste Diverted to Recycling (tons)[6]
2001	93,584	81,418	14% (as reported)	73,215	8,203 (as reported)
2002	95,875	83,411	10% (as reported)	75,741	7,670 (as reported)
2003	98,540	85,730	15%	72,870	12,860
2004	101,205	88,048	18%	72,199	15,849
2005	103,870	90,367	20%	72,294	18,073
2006	106,535	92,685	22%	72,294	20,391
2007	109,200	95,004	23%	73,153	21,851
2008	111,865	97,323	24%	73,965	23,358
2009	114,530	99,641	25%	74,731	24,910
2010	117,195	101,960	26%	75,450	26,510
2011	119,860	104,278	28%	75,080	29,198
2012	122,525	106,597	30%	74,618	31,979
2013	125,193	108,918	32%	74,064	34,854
2014	127,855	111,234	33%	74,527	36,707
2015	130,520	113,552	35%	73,809	39,743
2016	133,188	115,874	35%	75,318	40,556
2017	135,853	118,192	36%	75,643	42,549
2018	138,487	120,484	37%	75,905	44,579
2019	141,181	122,827	38%	76,153	46,674
2020	143,845	125,145	38%	77,590	47,555

(1) Year 2001: Gross Generation ÷ 2002 Population = 0.87 tons per capita. Assumed constant for projections.
(2) 2001 - 2020 Population Data/ Projections: Adams County Planning Department, 2003.
(3) Projected Waste Generation based on a per capita rate of 0.87 tons.
(4) 2001 -2002 diversion rates based on Adams County Annual Recycling Reports. 2003 through 2020 diversion rate estimated to achieve PADEP goal of 35 percent recycling rate by 2015.
(5) Net Generation = Gross Generation × (100% - Diversion Rate). Tonnages are approximate.
(6) Gross Generation - Net Generation = Waste Diverted to Recycling. Diversion Projections 2003-2020 based on achieving DEP recycling percentage (35%) requirement by Year 2015.

5.2.1 Private, Non-Contract Collection

Under private, non-contract collection, the municipality has little or no involvement in municipal waste collection. Individual residents and businesses subscribe with a private hauler for waste collection services. A municipality may have an ordinance regulating storage and collection practices. Private, non-contract collection can be satisfactory if: 1) the municipality assures that minimum standards of service quality are met; 2) there is sufficient competition; and 3)excessive numbers of haulers are not operating in any particular area. The municipality has no control over the disposal site used for waste disposal under a non-contract system. However, Adams County has established a hauler licensing program that requires municipal waste generated within the County to be disposed by haulers (including private, non-contracted haulers) at designated facilities under contract with the County.

With this system, competition may help protect the consumers from high, monopolistic prices. On the other hand, the existence of more than two or three haulers servicing a given area tends to result in inefficient routes and higher costs than necessary. As the number of haulers servicing an area increases, the likelihood increases of collection-day nuisances and increased truck traffic. Haulers may also use different days of the week to collect from an area, which may become confusing to both haulers and residents.

In non-contracted areas of Adams County, customers are generally paying higher costs for collection services than in areas with municipal collection contracts. Municipalities in Adams County that have begun to bid waste collection contracts (Section 5.2.2 below) to individual haulers (in most cases only for residential services) have generally seen a drop in the price customers pay for collection services, in comparison with prices they previously paid for non-contracted collection services. Whether this trend continues will most likely depend on whether competition between the waste collection companies remains under the municipal bid option.

In Adams County, nine of the thirty-four municipalities use private, non-contract (private subscription) waste collection services.

5.2.2 Private, Municipal-Contract Collection

A municipality can avoid some of the potential waste collection problems in a non-contracted collection system by awarding one, or more, competitively bid contracts for waste collection. Depending on the contract terms, this approach can often be both cost-competitive and cost-effective. Competition can be promoted through periodic re-bidding (usually on a three-year term). Contract terms should not be so stringent that only one or two very large firms are capable of bidding. A larger municipality can foster competition, without sacrificing collection scale and route economies, by awarding multiple contracts for different collection zones. In some cases, several municipalities combine in a single bid process, to obtain a better bid price by offering a larger number of customers in the bid. Municipal councils of governments are sometimes used for this purpose.

Municipal bidding of waste collection services also gives the municipality the opportunity to designate by contract, if it wishes, where the successful bidder will dispose of collected wastes. This can be an important factor in securing a waste stream for delivery to a specific disposal site.

In Adams County, twenty-four municipalities bid for waste collection services, either jointly or separately.

5.2.3 Municipal Collection

When feasible, municipalities may go a step further than contracting, to exercise greater control of municipal waste collection by owning trucks, and using municipal crews, to conduct household (and possibly also commercial) refuse collection. Municipal collection, if properly managed, has the potential to be cost-competitive, or even lower in cost than the private collection alternates. Municipal collection is generally most effectively implemented in municipalities that already provide relatively extensive public works services, such as in older, densely developed communities. Infrequently (e.g. Northern Tier Solid Waste Authority), a county purchases trucks and provides collection services to county residents.

5.3 TRANSPORTATION ALTERNATIVES

There are two basic options available for transporting municipal solid wastes to disposal sites: a direct haul system and a transfer haul system. In a direct haul system, municipal waste is conveyed by collection vehicles from the collection route directly to the final disposal site. In a transfer station, or transfer haul system, the collection vehicles convey the wastes from the collection routes to a transfer station facility. The waste from the smaller collection vehicles is then loaded, or transferred, into larger-capacity trucks that haul the waste to the final disposal site. A combination of direct haul for some routes and transfer haul for others may also be cost-effective.

5.3.1 Direct Haul

Direct haul systems are the simplest, most common and least expensive transportation systems, provided the distance from the collection route to the disposal site is not too great. As the haul distance increases, operating costs increase, and the efficiency of the direct haul system decreases. Nonproductive labor time, vehicle maintenance costs and overall operating costs increase because more time is being spent traveling to and from the disposal site, rather than on the daily collection route(s). At some point, the haul distance, or the time of travel, becomes too great for direct haul to be cost-effective, and a transfer station system becomes an economical alternative.

5.3.2 Transfer Haul

The primary benefit of a transfer station is improved access to the solid waste collector. The advantages of constructing a transfer facility can include the following:

- ***Economy of Haul*** - Transfer trailers can haul legal payloads of 18 to 25 tons compared to the 5 to 10 ton capacity of typical solid waste collection vehicles.
- ***Reduced Maintenance Costs*** - Since collection vehicles do not make the trip to the disposal facility, overall collection mileage and maintenance costs are reduced.

- ***Reduced Capital Cost for Collection Vehicles*** - One transfer trailer can replace several collection vehicles, and can keep collection vehicles on the collection route more hours of the day, thus reducing the required fleet size.
- ***Disposal Flexibility*** - The transfer and truck haul of solid waste allows for a transportation system that is highly flexible, and does not restrict the location of the solid waste disposal facility(ies) utilized. More distant disposal sites may still be practical options if the tipping fees there are reasonable.
- ***Increased Opportunities for Small Haulers*** – Access to a local transfer station provides an improved opportunity for smaller haulers to operate, and provide services, in the surrounding area. With access to a nearby facility, small haulers can be more competitive with the larger haulers that can sometimes monopolize the hauling industry.

The construction and operation of a transfer station requires additional capital and operating costs for the extra step in the solid waste management system. Whether or not the costs are economically justified depends on the details of the particular situation. The economically optimal transportation method largely depends upon the amount of waste involved, and the distance and travel time to the disposal site. Where short hauling distances are involved, transfer haul is usually not cost-effective or warranted.

5.3.3 Existing Transfer and Haul Facilities

Adams County has no in-county designated disposal facilities. Most of Adams County's municipal waste is currently hauled between 25 and 35 miles one way to out-of-county disposal sites. As reported by PADEP waste destination reports, in 2002 approximately 48,000 tons of Adams County municipal waste (about 90 percent of the total annual municipal waste) was hauled over 30 miles (one way) to Mountain View Reclamation Landfill, Modern Landfill, and the York Resource Recovery Facility.

There are no existing municipal waste transfer stations in Adams County. Consequently, there are no facilities located in a central location to the population and waste generation center of Adams County (i.e. near Gettysburg). However, there are several operating transfer stations located nearby in adjacent counties. The Hanover Area Transfer Station (in York County) and the Washington Township Transfer Station (in Franklin County) are two out-of-County transfer facilities that receive and transfer waste generated by Adams County residents. These facilities are described in more detail in Chapter 2. Adams County waste received by these facilities should be disposed at one of the designated facilities listed in this Plan.

5.4 PROCESSING AND DISPOSAL ALTERNATIVES

5.4.1 Introduction

This section presents an overview of municipal waste processing, as well as disposal alternatives and technologies available to Adams County. The section begins with a review of municipal waste flow control that has recently been impacted by important legal decisions, and has lead to the reevaluation of waste processing and disposal.

5.4.1.1 Flow Control

Significant legal decisions have had a great impact on entities that own, and operate, waste management facilities. The legal ramifications of recent decisions, particularly the U.S. Supreme Court case *C. & A. Carbone, Inc., et al. v. Town of Clarkstown, N.Y.* in 1994, have resulted in a general rethinking of both the feasibility of alternative waste handling projects, and the ways in which a waste stream can be secured and delivered to an existing or proposed waste processing/disposal facility. This concept of directing waste, commonly referred to as "flow control", and the corresponding legal implications has directly impacted the way Adams County has pursued securing disposal capacity during the Plan Update.

Generally, there are three types of municipal waste flow control. Each of these have been practiced with varying degrees of success in the United States, and are described as follows:

- ***Legislative flow control*** consists of laws and regulations that are enacted at a local level to mandate the destination of the waste delivery (e.g. to a landfill, transfer station, waste to energy facility etc.). This form of flow control, when it restricts the free flow of waste as a commodity under interstate commerce protections, was determined to be unconstitutional in the Carbone case.
- ***Economic flow control*** occurs when the waste management system is designed to provide the most economical means of waste management at the designated facility. For example, economic flow control is achieved when tipping fees at the designated facility can be reduced (generally through subsidies or fees collected from other revenue sources) to a point where it becomes more economical for haulers to take waste to the designated facility than to use other disposal options.
- ***Contractual flow control*** occurs when the waste management system secures the delivery of wastes to a designated disposal sitethrough contracts with waste haulers.

Contractual flow control is the most common method in the post-Carbone era of securing a long-term commitment for waste.

Over the past five years, Adams County has worked closely with over 24 of the County's municipalities to conduct bidding for waste collection services. Most of the bid contracts allow the municipalities to designate a County-sponsored waste processing site as the delivery point for the municipalities' wastes, in consideration of the possible future construction of a County waste processing project. Since the County has decided not to pursue the co-composting project at the present time, the waste haulers currently use designated disposal sites under contract to Adams County for waste disposal.

The following section briefly highlights Adams County's waste management system and planning history.

5.4.2 Background

Adams County developed an Act 101 County Municipal Waste Management Plan in 1989. This Plan designated disposal of all municipal wastes generated in the County at several out-of-county waste disposal facilities. Contracts for disposal of County wastes were subsequently negotiated

with four out-of-county waste disposal facilities, providing waste disposal capacity for the County. On January 19, 1994, the County Commissioners adopted a revision to the Adams County Municipal Solid Waste Management Plan, establishing an in-county composting facility as the designated long-term disposal option for all municipal refuse and a portion of the sewage sludge and septage generated in the County. The Plan was ratified by the County and received PADEP approval on June 15, 1994 (see Section 1.1.1, Overview of Planning Process.) It should be noted, however, that the Board of County Commissioners have decided to delay implementation of the composting project at this time.

Adams County is required to update the County Plan every ten years, or whenever less than three years of disposal capacity remains in its waste system. Adams County did not complete its Plan update within the required timeframe due to the extensive and exhaustive planning process conducted on the proposed composting facility. The County took additional time to engage the services of an experienced independent composting industry consultant to look at the feasibility, concept and cost of a county-owned, and operated, composting facility. However, Adams County is presently updating its Plan in accordance with this mandate, and has been involved with tasks related to the current Plan Update process for the past several years.

Adams County first issued an RFP and entered contracts with municipal waste disposal sites in 1992, to secure ten (10) years of disposal capacity as required by Pa. Act 101 and the Pennsylvania Department of Environmental Protection (PADEP) Rules and Regulations. Three landfills and one resource recovery (waste-to-energy) facility entered waste disposal contracts with Adams County. These contracts established maximum tipping fees as well as other terms and conditions for disposal of Adams County wastes at those sites. Adams County did not commit any minimum tonnage delivery to any site under the waste disposal contracts. Waste haulers were free to utilize a contracted waste disposal site or sites of their choice, unless directed to a specific disposal site by the waste generator, or in the case of a municipal bid contract, by the municipality.

With disposal contracts either at, or nearing, the end of their final contract extension periods (under the original contracts), Adams County issued an RFP in January 2002 to secure additional disposal capacity for the 10-year planning period to January 1, 2016. The RFP process, the respondents to the RFP and the disposal facilities that have entered long-term disposal contracts with Adams County are discussed in further detail in Sections 5.7.5.2 of this Plan.

The Mountain View Reclamation Landfill, operated by Waste Management, has continued to be the primary disposal facility for the majority of Adams County municipal waste.

The following sections briefly describe processing and disposal technologies available to Adams County.

5.4.3 Landfill

Sanitary landfilling is an engineered method of disposing of solid waste on land. State and federal environmental regulations, and advances in design technologies, have combined to minimize the impact of sanitary landfills on the surrounding environment. The PADEP Municipal Waste Regulations require all new and existing (operating) landfills to be designed with a double liner system with leachate collection and detection elements. In addition, after

closure of the landfill, the disposal area is required to be capped with a low-permeability liner system to restrict the downward flow of precipitation into the waste material.

A landfill can accept a broad variety of materials including sewage sludge, construction and demolition waste, and incinerator ash, as well as municipal and residual wastes. Handling of these materials as well as bulky items such as furniture, building materials and large appliances can be difficult. Further, special permit modifications are required for the disposal of sewage sludge and incinerator ash. For these reasons, not all landfills accept all of these materials.

The chief environmental concerns associated with landfilling waste are leachate contamination of groundwater, the danger of explosions caused by migrating methane gas, atmospheric and environmental health hazards from landfill gasses, truck traffic, odor, litter and the "eyesore" of the landfill site in general. Applications for new landfill permits in Pennsylvania must demonstrate that the “benefits” of the project clearly outweigh the “harms” or negative impacts. Development of a new sanitary landfill is also capital-intensive, with high permitting, land and site development costs. Typically, landfills are developed with throughput capacities of at least 500-1,000 tons per day, to take advantage of economies of scale, and to recoup capital cost investments. Some smaller (100-300 tpd), older landfills still exist in Pennsylvania, but many of these have either closed or are upgrading to larger operations.

5.4.4 Mass-Burn Resource Recovery (Waste-to-Energy)

In a typical mass-burn incineration facility, waste is unloaded into a receiving pit. An overhead crane feeds waste into the furnace hopper. The crane operator may pick out oversize items, such as large appliances, and will mix up the waste to insure a fairly homogeneous mix. Within the combustion chamber, the burning waste is transported along the moving grates of the stoker assembly or similar grate system. Heavy ash, called bottom ash, falls through the grates and is cooled with water. The hot combustion gasses pass through the combustion chamber and past boiler tubes to produce steam. Also, the walls of the furnace itself are typically fitted with a network of water-filled tubes that use heat to produce steam. The steam is often passed through a turbine to produce electricity. The steam may also be distributed to nearby establishments for heating and/or for use as a process steam.

A mass-burn incinerator can process approximately 98 percent, by weight, of the municipal solid waste stream. The quantity of ash residue requiring disposal will equal approximately 20-30 percent, by weight (by volume, approximately 10 percent) of the processed waste stream. The non-processibles (materials removed prior to combustion) and the unburned ash residues are usually handled through a combination of recycling and landfilling. The non-processibles, and especially the ash residue, involve special disposal considerations that cause their disposal costs to exceed that of uncombusted municipal solid waste.

The chief environmental concerns of mass-burn incineration are air emissions of acid gases, heavy metals (e.g., lead, mercury), certain organic compounds and contamination of air and water through improper handling and disposal of the ash residue.

State and federal emissions control requirements, which currently mandate that new facilities install scrubbers for acid gas control and electrostatic precipitators (ESPs) or fabric filters

(baghouses) for particulate removal, are aimed at minimizing the risk of harmful health effects from solid waste incineration.

In general, waste-to-energy projects are very capital-intensive due to extensive equipment and building needs. Larger mass-burn facilities are generally constructed similarly to power utility plants with field-erected combustion and boiler systems, and can be economically feasible at sizes of greater than 750-1,000 tons per day. Smaller mass-burn facilities, in the size range of 50-300 tpd, are usually constructed with pre-fabricated, modular furnaces. Such modular systems have a lower capital cost, but generally have a somewhat reduced operating performance.

5.4.5 Refuse-Derived Fuel (RDF)

At an RDF facility, mixed waste is processed mechanically (and perhaps manually) into a form rendering it more suitable for use as a fuel. Typical processing steps involve size reduction, removal of noncombustible materials and mixing.

The RDF product can be marketed to institutional or industrial facilities for use as a supplemental fuel in their existing boilers. Additional air pollution control measures may be required. If insufficient markets exist, the RDF can be burned at the RDF facility in a dedicated boiler. In Pennsylvania, PADEP requires a facility that burns RDF fuel to obtain a waste management permit, much the same way as a waste-to-energy facility does. This negatively impacts the prospects for developing an RDF project.

The fuel preparation process produces residuals requiring disposal; the quantity depends on the composition of the input waste and on the processing system. The process typically removes ferrous metal for recycling, and may separate other materials for recycling. If a dedicated boiler is used there will also be ash requiring disposal.

The potential environmental impacts of an RDF facility are similar to those of a mass-burn facility. There are additional concerns of worker health and safety due to the potential for explosions in the shredder, and exposure to airborne material such as bacteria and molds. RDF projects are very equipment, and capital-intensive. Finding a long-term user for the refuse-derived fuel material is critical to the financial feasibility of an RDF project.

5.4.6 Composting/Co-Composting

Composting is a biochemical process that breaks down the biodegradable organic material in waste into simpler, more stable compounds and carbon dioxide. The compost end-product is a humus, containing nutrients and minerals that can be used as a soil supplement. Although of lesser nutrient value than fertilizer or sewage sludge, the compost improves soil structure for root development, increases water retention in sandy soils, improves drainage in clay soils and increases the exchange capacity (nutrient-holding capability) of soils. A quality compost product appears much like peat and has similar uses. A typical municipal refuse composting operation consists of the following four basic steps:

- Pre-processing - Preliminary processing consists of sorting, shredding (sometimes), removal of non-processibles (large non-compostables, mattresses,

hoses, etc.) and preparation of a mixture suitable for composting. Some recyclable materials, particularly ferrous metals and glass, may be removed at this stage. The mixture of biodegradable materials is adjusted for moisture and nutrients, as well as particle size. A "dirty MRF" is often needed to properly pre-process the waste stream, and prepare a compost feedstock.

- Solid waste is often composted with sludge (co-composting). This provides the nutrients and moisture necessary for composting of refuse. Water can be added if needed. The solid waste also acts as a bulking agent for the sludge composting.
- Biochemical decomposition - This composting stage makes use of naturally occurring bacteria, and other microorganisms, to break down the organic portion of the waste.
- Curing - Curing is required to assure that the process is complete. After a 1-2 months final curing phase, the material is usually considered sufficiently stabilized for unrestricted use of the final product.
- Product Finishing - The product is prepared for use through screening, packaging (if needed) and marketing.

Solid waste composting affects only the organic portion of the solid waste. Material such as glass, plastic, metal, rubber, and textiles would be screened out, and either be recycled or landfilled.

A composting facility can divert approximately 60-70 percent of the municipal solid waste stream from the landfill. The quality of the final product benefits from the removal of household hazardous waste, household batteries and used motor oil. The residue sent to the landfill is largely inorganic in nature, and most of its soluble components have been removed.

A municipal waste composting project is moderately capital-intensive. The economic feasibility of MSW composting is highly dependent on the cost of other competing disposal alternatives (e.g. landfilling), and on the quality of local markets for the compost end-product produced.

5.4.7 Experimental and Emerging Technologies

Several new technologies are currently being developed and tested for the processing of solid waste. For example, the ORFA Company (a private waste management company conducting waste technology process research) has developed a proprietary process to convert solid waste into a cellulose fiber fluff. The fiber can be used in the manufacturing of paperboard, and as a carrier for fertilizers and hydromulch.

Another new technology is a process that converts paper and yard waste into ethyl alcohol and animal feed. This process could be useful if recovered waste paper is unmarketable. The process uses a low temperature acid hydrolysis procedure. The estimated process cost for this technology is extremely high in comparison to the more conventional solid waste processing and disposal options available to the County. A modified version of this process converts refuse to ethyl alcohol. A sterile sludge resulting from the process could be burned, releasing approximately 9,000 BTU per pound of material produced.

These processes are still in the development phase.

Vermicomposting is an innovative composting technology that uses worms to compost various waste types. Some aspects of this technology are still in the research phase but this composting method may potentially be used, particularly as a feasible method to process biosolids. Vermicomposting projects in the United States are typically limited to relatively small throughput facilities (under 10 tons per day). This method is described in more detail in Section 5.5.1.5.

5.4.8 Securing Waste Disposal Capacity For Adams County

5.4.8.1 Needs vs. Existing Capacity

Adams County's disposal need (municipal waste, before recycling) is approximately 1,295,337 tons over the period of 2003 through January 1, 2016. Because the original disposal contracts were either at, or near, the end of their final contract extension periods, Adams County issued a Request for Proposals (RFP) for disposal capacity in January 2002 (see next Section).Adams County now has approximately 1,529,337 tons of disposal capacity available (with the recent approval of the Cumberland County Landfill) under new waste disposal contracts for the current planning period (not including Adams County's agreement with Modern Landfill to 2012, and the York County Waste-to-Energy Facility to 2014.) See Table 5-2. Therefore, Adams County has secured the required long-term disposal capacity under the Plan. The County has met the requirements of Act 101.

5.4.8.2 Initial Solicitation for Additional Capacity

A Request for Proposals (RFP) was issued by the Adams County Solid Waste Department, with the assistance of Gannett Fleming, to solicit responses from interested parties to negotiate an agreement for providing disposal capacity, for municipal solid waste (MSW), including construction/demolition (C/D) waste, sewage sludge and residual waste generated in Adams County. This RFP process was conducted in accordance with the Adams County Municipal Waste Management Plan update process, and also in accordance with PADEP requirements for a fair, open and competitive solicitation.

Several potential transportation and disposal alternatives for Adams County were included in this solicitation. The first alternative was for disposal-only of MSW, including construction/demolition waste (C/D) waste and sewage sludge, as delivered to the gate of the proposer's disposal facility. The second alternative included both the disposal, and hauling, of MSW, including construction/demolition waste (C/D) waste and sewage sludge (if feasible), from a proposed central processing facility (such as the proposed Phase 1 CPF) near GettysburgPA. The second alternative included capital and operating costs of open-top transfer vehicles that would haul wastes from the central processing facility to the proposer's disposal site. The third alternative was similar to the second, but also included the construction and operation of the proposed central processing facility, by the proposer, in accordance with minimum standards and requirements outlined in the RFP. All three alternatives also included residual waste disposal services.

The RFP was released to prospective vendors on January 21, 2002. The availability of the RFP was advertised in Waste Age magazine, a national waste industry publication, and in the Pennsylvania Bulletin. Responses to the RFP were due March 12, 2002; however, interested Proposers requested an extension to April 23, 2002, in order to submit responses to the alternatives. Appendix C of this Plan contains the RFP advertisement, the RFP document and the direct advertisement mailing list. The RFP contained proposal instructions and information, a submittal form, a disposal facility questionnaire and a draft Municipal Waste Disposal Capacity Agreement. Adams County received responses from ten (10) facilities. Of these responses, there were ten (10) responses to Proposal 1, six (6) responses to Proposal 2 and two (2) responses to Proposal 3. The list of facilities that responded to the RFP is found in Section 5.7.5.2. In addition, the York County Resource Recovery Facility submitted a letter for consideration in lieu of a proposal submission. Figure 3-1 shows the locations of the RFP respondents (including the newly-added Cumberland County Landfill site.)

Evaluation of the proposals was based upon, but not limited to, a number of evaluation criteria (listed on page A-18 and A-19 of the RFP, Appendix C) that reflect the needs of Adams County. Proposal review criteria included the following considerations:

a. Completeness Review (forms that were required to be completed, and submitted, by Proposer)

- Submittal Form/ Proposed Tipping Fee Schedule
- Disposal Facility Questionnaire
- Executed Form Accepting Terms and Conditions of RFP
- Non-Collusion Affidavit
- Disclaimer Statement
- Insurance Coverage
- Proposal Bond/ Security
- Include all required Signatures/Corporate Seals

b. Evaluation of Proposals

Listed below are some considerations of Evaluation Criteria:

Disqualification Issues/Criteria

- Failure to submit a mandatory response to Disposal Option 1 (Base Proposal)
- Refusal to offer an initial contract term of 4 years with two, three year renewal options beginning in 2002.
- Put-or-pay and/or other punitive restrictions
- Failure to agree to collect a proposed County Administrative Fee
- Failure to demonstrate ability and willingness to satisfy any and all compliance problems/requirements

- Any substantial deviations from standard contract terms that the Proposer deems non-negotiable

Comparative Criteria:

- Responsiveness of Proposer to Base Proposal.
- Responsiveness of Proposer to Proposal 2.
- Responsiveness of Proposer to Proposal 3.
- The Not-to-Exceed processing/ disposal fee per ton for MSW in comparison with other Proposers.
- Appropriateness of the basis for processing/disposal fee escalation.
- The fee amounts proposed and required pursuant to Section 1301 of PA Act 101, or other applicable state or federal regulations.
- Ability to accept fees for processing/disposal of municipal sewage sludge in comparison with other Proposers.
- Ability to accept fees for processing/disposal of C&D waste in comparison with other Proposers.
- Ability to accept fees for processing/disposal of residual waste in comparison with other Proposers.
- Sufficiency of facility volume capacity, including degree of non-dependence on additional permit approvals for initial term of proposed contract.
- Willingness to specifically reserve air space or capacity at the facility for Adams County waste (non-guaranteed capacity for the County).
- Willingness to enter into contract for the term of service stipulated in the RFP.
- Willingness to permit flexibility in volume of waste deliveries for disposal (without put-or-pay or other punitive restrictions).
- Contingency plans for continued waste disposal in the event of reduction in facility daily processing/disposal rate.
- Regulatory compliance history.
- Extent of proposed deviations from Contract Specifications in RFP.
- Overall capabilities of the Proposer to provide the requested waste transportation and disposal services.
- Present compliance with state and federal laws and regulations, and with all applicable Adams County ordinances and regulations.
- In addition to the evaluation criteria listed above, the County considered such other factors that were deemed in the best interest of the County and its residents.

Other Criteria:

- Evaluation of transportation and hauling costs (Option 2).

- Analysis of transportation and hauling costs, and Phase I CPF construction (Option 3).

c. Results

Of the ten responding facilities, eight proposers substantially met all qualifying criteria established for the RFP review process. Two proposers did not provide the required proposal bond. The County executed Municipal Waste Disposal Capacity Agreements with five of the eight originally qualified RFP respondents. The remaining several qualified RFP respondents did not provide a performance bond as required by the RFP, and no agreements were negotiated or executed with these disposal sites. Appendix B contains summary information from the proposal reviews.

The County also extended the existing contract with the York County Solid Waste and Refuse Authority (YCSWA) to March 31, 2014. The YCSWA did not respond to the RFP, but provided a letter response that referred to the long-term Disposal Agreement with McSherrystown Borough and the Authority's contract with Adams County, dated January 20, 1993. The YCSWA will be listed in this Adams County Plan Update as a designated disposal facility, based on the existing disposal agreement with McSherrystown Borough.

McSherrystown Borough executed a separate 25-year disposal agreement with the YorkResource Recovery Facility in 1989, and pays an annual fee for capacity reservation. This agreement terminates at the end of 2014, or can be extended for a longer period of time. The Borough Tonnage Guarantee cannot exceed 1,300 tons per calendar year. The Borough's disposal fee for MSW exceeds $80 per ton.

As described above, Adams County executed disposal capacity agreements with the qualified RFP respondents, and has also recognized the existing long term disposal agreement between YCSWA and McSherrystown. Each of these facilities is listed in Chapter 6 of this Plan Update as a designated disposal facility. It is important to note that, as of March 2005, IESI PA Bethlehem Landfill terminated its agreement with the County, and Pine Grove Landfill reached capacity until it receives approval for a permitted expansion. The County, however, has extended its contracts with IESI Blue Ridge Landfill and Mountain View Reclamation Landfill to January 1, 2016, and has approved a new contract with Cumberland County Landfill.

5.5 SEWAGE SLUDGE PROCESSING AND DISPOSAL ALTERNATIVES

As indicated in Section 3.2, 22 municipal and approximately 12 non-municipal wastewater treatment plants currently operate in Adams County. An estimated 29% of the biosolids generated by those treatment plants is currently dewatered and landfilled (1.92 dry tons per day, five days per week basis). The remaining treatment plant biosolids, in liquid form, and all the County's septage (also liquid) are either land-applied or delivered to a wastewater treatment plant for processing. Approximately 3.7 million gallons per day of liquid septage are generated from these sources.

5.5.1 Description of Alternatives

Gannett Fleming identified and analyzed the following alternatives: land application, landfilling, and composting, including vermicomposting. Land application is typically used for disposal of liquid biosolids, and landfilling is typically used for dewatered sludge cake disposal. Transportation of dewatered cake to distant sites using shared equipment was also reviewed as part of the analysis.

5.5.1.1 Land Application

Sewage sludge can be disposed by spreading it on, or injecting it into, farmland, or by applying it to abandoned mining lands, for the purpose of reclamation. Land application is historically the simplest and least costly method of disposing of sludge. Land application provides a means to dispose of sludge, as well as providing a source of nutrients for the receiving soil. Land-applied biosolids are typically in liquid form, although dewatered cake can also be land-applied. In Adams County, land-applied biosolids are typically in liquid form. Table 2-2 indicates the municipal treatment plants that use land application as a current sludge disposal method.

As with other disposal methods, a PADEP permit is required to operate a land application site. Under relatively new Act 271 regulations, PADEP now permits a hauler or municipal operation and not the individual land application site (this is the new "General Permit" program"). Under Act 271 guidelines, the hauler or municipal operation is required to send a 30-day notification to PADEP for site inspection and site approval. In Adams County, the County Conservation District administers the initial site inspections, and approvals, for land application of sewage sludge under the General Permit program.

The new permit is issued for a particular sludge source, and states the maximum allowable rate of application of sludge. The application rate is based on characteristics of the sludge, the uptake rate of nitrogen by the crop grown on the site and soil, and other site characteristics of the site.

Environmental concerns associated with land application include possible nitrate contamination of underground drinking water sources, accumulation of heavy metals in the receiving soils and high nutrient loadings to surface waters that receive runoff from the site.

There are several limitations to the use of land application for sludge disposal. Increasingly stringent regulation by PADEP has been restricting the availability of sites, as well as the maximum allowable annual and lifetime loadings of sludge on sites. PADEP has been seriously considering going to a phosphorus-based nutrient management system for biosolids application (like many of our neighboring states)EPA is now instituting phosphorus-based nutrient management plans for the disposal of animal manures, from larger farms, on land (Spring 2004). Should PADEP implement phosphorus-based nutrient management plans for sludge application, land availability for land application may become more limited, and allowable application rates for sludge may be lower than under Pennsylvania's current nitrogen-based nutrient management system. Depending on background levels of phosphorus already in the soil, a phosphorus-based sludge application program in Pennsylvania could have a very significant impact on reducing allowable application rates. This could quickly create a sludge disposal crisis in Adams County, where nearly three-quarters of sludge generated in the County is currently land-applied.

The availability of land application sites has also been reduced in small proportions by the conversion of farmland into housing and commercial areas. A further limitation of land application is that having a permitted site does not insure a sludge generator of a constant disposal outlet. Weather conditions periodically limit the ability to apply sludge, such as when the ground is snow-covered or saturated. Also, unless the wastewater authority that generates the sludge owns the site, or has suitable provisions in its agreement with the landowner, the owner might choose to make a parcel unavailable for sludge application or the owner might choose to do business with the most competitive disposal payment offer (which may be from out-of-county sources).

5.5.1.2 Landfilling

Sewage sludge can be disposed in a landfill. PADEP requires that the sludge be dewatered to a minimum solids content of 20 percent and meet certain quality characteristics. Table 2-2 indicates the municipal treatment plants that currently utilize landfills for dewatered sludge disposal. Each of the designated landfill disposal sites that responded to the Request For Proposals indicated their willingness to accept dewatered sludge at their disposal sites.

As a special handling waste, sewage sludge cannot be landfilled without a landfill permit modification. Each sludge source must obtain a separate modification approval. The application for a permit modification must include an analysis of alternatives to landfilling, and an explanation of why disposal at a landfill is being proposed.

Acceptance of sewage sludge imposes additional costs upon the landfill, including the costs of administering the permit modifications and the extra handling effort on the part of the equipment operators. Landfills are limited by how much dewatered sewage sludge they can accept as a percentage of their daily intake of waste. For many Adams County wastewater treatment plants, landfilling would involve the added costs of installing and operating dewatering systems. Recent proposals received from landfills during the RFP process quoted ceiling tipping fees for landfill disposal of dewatered sludge ranging from $58 to $135 per ton over the time period of the contracts**.**

5.5.1.3 Incineration

Incineration of sludge is a two-step process, consisting of sludge drying followed by combustion. Incineration of sludge with refuse has not proven to be viable. Sludge incineration is an expensive process that requires a net energy input. A benefit of incinerating sludge is that the ash residue is organically stable and free of pathogens. Environmental concerns related to incineration, and the associated ash landfilling, include air emissions from the incinerator and potential contamination of groundwater with leachate produced by the ash residue in the landfill. The ash can contain high concentrations of heavy metals. No municipal wastewater treatment plant in Adams County is currently incinerating biosolids, and the costs and environmental considerations make this option unfeasible.

5.5.1.4 Composting

Wastewater sludge can be composted, alone or with other wastes, into an organically stable humus material that is useful as a soil amendment. Some essential factors for successful

composting are moisture content, material structure, energy (carbon) content, nutrient content and aeration. The moisture content can be modified, in part, by dewatering the sludge prior to composting. A "bulking agent" such as sawdust, woodchips, leaves, shredded paper, shredded tires, mixed municipal refuse, or finished compost, is added to provide porosity for aeration. Most of the bulking agents identified above reduce the moisture content, and some may be added for their energy content as well as for their moisture-reducing and bulking properties. Aeration is provided by one or both of the following methods: (1) agitation of the material by mixing and turning the pile, and (2) forced aeration by blowers connected to a network of perforated pipes.

Composting is a technologically proven method of biosolids handling. However, it is usually more costly than land application (and sometimes landfilling), and therefore is difficult to implement, unless a large quantity of biosolids is processed daily. This is not typically the case in Adams County.

Methods. The four general types of composting methods are agitated bed (agitated trough) in-vessel systems, non-agitated in-vessel systems, aerated static pile systems and windrow systems.

In the **windrow** method, the mixture is formed into long piles having a triangular cross section. The windrows are maintained in an aerobic condition by mixing and turning the piles. This method is not typically appropriate for sludge composting in this part of the country due to its cooler, wetter climate. Contaminated rainwater must be collected and treated, or the entire windrow area must be enclosed.

The **aerated static pile** method involves placing the sludge/bulking agent mixture over the perforated piping. The piping system is connected to an air blower that draws air through the pile, thus maintaining aerobic conditions, and removing excess heat and moisture. This system requires the more rigid types of bulking agent to provide the necessary porosity. Odors are controlled by treating the exhaust air. The aerated static pile method is a commonly used sludge composting method in the United States. However, it is difficult to maintain proper process control, and elevated temperatures with this method, to properly stabilize and compost the piles. For this reason, this method is not commonly employed in new sludge composting systems.

The **non-agitated in-vessel** system involves the non-agitated movement of the composting mixture within horizontal or vertical enclosed reactors. The material decomposes as it travels through the reactor. Aeration is provided by blower systems. This system is moderately capital-intensive.

The **agitated bed in-vessel** system involves turning the compost mixture daily or weekly using a rotomixer or other mechanical device. This approach allows for the use of a wide variety of bulking agents including leaf waste, shredded paper and shredded refuse. The agitated bed also enables more effective process control, and results in a more homogeneous compost product. This system is moderately capital-intensive.

5.5.1.5 Vermicomposting

Vermicomposting is a unique variation of composting, where worms are used to help decompose and stabilize biosolids. The process requires a pre-composting step, to stabilize the feedstock, and a homogenization step, to properly mix and size-reduce the feedstock for processing by the

worm colonies. The vermicomposting operation must be located in a climate-controlled building, and can be sensitive to minor environmental fluctuations in operating parameters. For this reason, the process requires a relatively large amount of operator control and attention. If properly operated, vermicomposting can produce a finished product with very high market value (some of the product can be worth up to $200-300 per ton).

5.5.1.6 Shared Sludge Equipment for Hauling to Distant Disposal Sites

Shared hauling of dewatered sludge cake to more distant disposal sites can potentially be done in one of two ways: 1) provide specialized pumping trucks to collect and transport biosolids to a central treatment plant for treatment and/or dewatering, with hauling to a disposal site, or; 2)place rolloff containers at each participating treatment plant for temporary storage of dewatered sludge, and use a common service/hook truck to pick up and haul the loads to a landfill when the rolloff is full. By locating a rolloff at each participating treatment plant, service can be geared to each treatment plant's own schedule and individual disposal needs. Treatment plants are also not restricted to emptying the rolloff at the end of the working day. Both of these options require facilities for dewatering sludge at the treatment plant or plants.

5.5.2 Evaluation of Biosolids Processing and Disposal Alternatives

Current sludge processing/disposal practices at municipal and non-municipal treatment plants, and with septage haulers, were identified in the 2000 Adams County Biosolids and Septage Management Study (see Appendix D), and the 2003 Update to that study. Surveys conducted in 1999 and 2003 were used to identify current and planned biosolids disposal practices for the treatment plants and septage haulers.

In general, the treatment plants that produce biosolids in liquid form land-apply that material, and intend to continue to do so for at least the next 5-15 years. Based on considerations of cost alone, land application is currently the most attractive sludge management alternative. However, as noted in Section 5.5.1.1, Pennsylvania may adopt a phosphorus-based nutrient management system. If this system is adopted in Pennsylvania, as is expected, Adams County will need to verify that sufficient land will still be available in the County to handle the continued and safe application of biosolids. For plants currently producing liquid biosolids, the current system of land application of liquid biosolids and septage is expected to be the continued preferred management method, unless land disposal is no longer an option.

Treatment plants that currently landfill dewatered biosolids also intend to continue these practices for the next 5-15 years. The County's designated landfill disposal sites indicated a willingness to accept dewatered sewage sludge for disposal at their sites. This is expected to continue to be an available disposal option for dewatered biosolids through the planning period.

Treatment plants that take their liquid biosolids to other wastewater treatment plants for treatment intend to continue these practices for the next 5-15 years, or until regulations change or a more efficient disposal method is available. However, plants may decide to no longer accept biosolids or septage from other plants, and this could create a disposal problem for these generators.

5.5.3 Management Alternatives

Local municipalities and authorities, as appropriate, maintain control over the wastewater treatment plant management, as well as transportation and disposal of sewage sludge. The County may be able to assist in public education, and also help provide for disposal of the sludge through provisions in disposal contracts with designated disposal facilities that accept this waste. Assistance can also be provided to the municipalities for septage management, primarily through education, and also in implementing sewage management programs and coordination of the utilization of municipal treatment plants.

5.6 SPECIAL RESIDENTIAL WASTE

All municipal waste streams contain materials that are undesirable at landfills, incinerators and composting facilities. These unwanted materials should be removed or reduced to the greatest extent possible to minimize the impact on a waste disposal or processing facility. This section describes household hazardous waste (HHW).

5.6.1 Household Hazardous Waste

Household hazardous waste (HHW) includes such items as paints, pesticides and herbicides, drain cleaners, pool chemicals, solvents and cleaning products, and similar items. While these products are exempted from regulation as hazardous wastes, and may be disposed with other municipal waste generated in the home, they can present hazards for homeowners and waste collectors, particularly if the materials leak from their packaging. Such wastes pose potential environmental risks after their disposal at waste processing facilities and landfills.
Pennsylvania encourages counties and municipalities to establish collection programs to manage this waste for recycling and/or disposal. Act 101 requires that resource recovery facilities develop a program for the removal "to the greatest extent practicable" of hazardous materials from the waste to be incinerated. McSherrystown Borough participates in York County's HHW program through its disposal contract with the York County Solid Waste Authority. Act 101 also created a HHW collection and disposal grant program. However, it only covers 50% of eligible costs, providing for reimbursement of program costs (municipalities must pay for the costs of the HHW upfront, and wait for reimbursement.) The PADEP has also developed guidelines for household hazardous waste collection programs.

Growing numbers of communities and counties in Pennsylvania, and beyond, are setting up household hazardous collection events. State grants can partially offset program costs. Waste Collection Drop-off Events, or curbside collections, can be organized (when sufficient funding is available) and scheduled with the assistance of PADEP and disposal companies, such as Safety Kleen.

Another HHW collection option is to set up a permanent collection facility. The benefit of this method of removing HHW from the waste stream is that, with the 90-day storage capacity allowed by PADEP, arrangements can be made for the materials to be reused or recycled. Much of the cost involved in HHW handling is due to the transportation of the material to an approved hazardous waste incinerator/landfill. By reducing the amount of HHW to be disposed of, the cost of managing the materials goes down. For example, usable paint can be separated out and used for graffiti removal, used by nonprofit organizations such as theater, art or neighborhood

betterment groups, and even bulked and reprocessed as primer paint. A permanent facility is probably more appropriate for an urbanized or more populated county, or where removing these materials from the waste stream yields a direct benefit by reducing air emissions, from a waste-to-energy plant, for example.
A first step in dealing with HHW is educating the public on proper handling and disposal of these products, as well as identifying non-toxic alternative products that can be used. Adams County will continue to play a role in assisting individuals or municipalities on HHW education and proper handling procedures.

Household hazardous waste collection events have been a successful method of HHW collection in many counties throughout Pennsylvania. It is recommended that the County consider annual HHW collection events to serve as a disposal option for this component of the waste stream. If annual collection events are held, they should be at a central location, such as the Borough of Gettysburg, or collected in a curbside program. Funding is available through Act 155 of 1994, The Household Hazardous Waste Funding Act, which reimburses municipalities for 50 percent of the eligible developmental and operational costs associated with HHW collection programs. One drawback to County participation under the HHW Act is: the requirement for a 50 percent match, the upfront payment for the costs of such a program and the wait for reimbursement.

5.7 SELECTED MUNICIPAL WASTE MANAGEMENT SYSTEM

5.7.1 Overview of Selected Waste Management System

This Plan recommends that Adams County municipal waste be delivered to any of the designated disposal facilities listed in this Plan. The Plan does not guarantee specific amounts of waste to any of the facilities. It is the intent of this Plan to maintain, and expand, on the concept of securing processing/disposal capacity with multiple facilities, and continuing to direct licensed haulers to the designated facilities for managing the municipal waste they collect. The County has elected to send municipal waste to disposal facilities designated in this Plan, while incorporating flexibility to facilitate the addition of new facilities when it is to the benefit of the County, individual municipalities, haulers, businesses and/or institutions in the County. The main reasons for maintaining a system of designated disposal sites are:

- The County is responsible for managing the safe disposal of its municipal waste. The system described in this Plan helps ensure that municipal waste generated in Adams County will be delivered to facilities that are legally permitted and contracted with Adams County.
- The County implements an Administrative Fee per ton (currently $2.50 per ton) of municipal waste disposed from Adams County sources. This fee can be used to support the Plan's waste planning, recycling and waste reduction efforts, as well as other County-wide services. The Plan must have agreements with the facilities and/or haulers that accept municipal waste from the County, in order to ensure that the fee is administered fairly.
- The disposal facility contracts are structured with no "put-or-pay" waste delivery guaranteed to any site. This structure allows haulers maximum flexibility in selecting a disposal site that best fits their needs and economics.

The process used to solicit interested disposal facilities ensures that all facilities anywhere in the United States have an opportunity to be included. The process used to solicit disposal sites was fair, open and competitive. Additional disposal sites can petition to be added to the Plan in the future.

The reasons for recommending implementation of the selected system of waste management are as follows:

- Meets Public Goals—This recommended system was selected on its technical, economical, environmental and long-term merits. It meets the requirements of Act 101 to provide for disposal capacity, to January 1, 2016; and to propose a system to target an ultimate, long-term goal of 35% recycling for Adams County.
- Cost-Effectiveness—Haulers can select from a list of designated disposal facilities. Haulers will have the option of selecting the designated processing/disposal facility that offers the best opportunity to meet their individual needs to deliver MSW collected from County sources.
- System Flexibility—The County has not committed specific amounts of waste to any of the disposal facilities designated in this Plan. Therefore, if a County hauler, municipality or business can secure a more competitive tipping fee at a facility other than those designated, additional facilities can be added as opportunities arise. Having a number of facilities available results in competition that helps minimize costs.
- Adequate Disposal Capacity—The system has more than adequate capacity to manage all municipal waste and recyclables generated in Adams County. There is no need to seek additional facilities, or consider other management options, unless a petition to add a disposal site is received by the County, or unless the County chooses to further pursue another waste management option.

5.7.2 Collection

Under Act 101, it is the responsibility of each municipality to ensure proper collection of municipal waste generated in their municipality. Section 5.2 of this Chapter discusses collection alternatives available to municipalities. Adams County currently uses a combination of municipally-contracted and private subscription waste collection services to serve residents and businesses throughout the County. The current system appears to provide adequate services to its customers. Often, municipal bidding for waste collection services results in a reduction of costs to the homeowner in comparison to private subscription service. Municipalities may want to consider this option, or further, multi-municipal bidding for waste collection services. In addition, bidding provides the opportunity for municipal control over the processing, transportation or disposal site used by the collector.

As of June 29, 2002, with the State's adoption of Act 90 (Waste Transportation Safety Program), implementation of new municipal, or residual, waste transportation licensing programs is prohibited on a county, or municipal, level. Adams County has a pre-existing hauler licensing program, and is grandfathered under Act 90. Under the County's licensing program, anyone collecting municipal wastes or recyclables that are generated in Adams County is required to obtain a license from the County and abide by the licensing rules and regulations, including

delivering all municipal wastes collected to any sites designated in the Plan, or an **out-of-state site.** A sample license application is included in Appendix C.

In addition, waste haulers are required to pay an Administrative Fee per ton of Adams County municipal waste disposed. This fee is currently utilized to cover solid waste administrative and enforcement services. In the future, the County may want to consider supporting other initiatives, such as enhanced recycling activities, household hazardous waste collection and open dumping abatement.

5.7.3 Transportation

Under Act 101, it is the responsibility of each municipality to ensure proper transportation of municipal waste generated in their municipality. Section 5.3 discussestransportation alternatives available to municipalities. Under this Plan, all municipal waste generated within the County must be transported to a County-contracted disposal facility by a licensed County solid waste hauler. This requirement applies only to municipal waste generated in the County that will be disposed in the Commonwealth of Pennsylvania.

5.7.4 Waste Reduction and Recycling

The County's recommended plan for increasing recycling, and supporting yard waste composting, can be found in Chapter 4. Chapter 4 and Appendix A of the Plan contain further details of recycling opportunities that are currently available to the residents and businesses of Adams County.

Clearly, the most preferable waste management method is waste reduction, also known as source reduction. Purchasing reusable rather than disposable products, purchasing items in bulk, and selling or donating unwanted items are ways that households can reduce the amount of material they discard. Offices can reduce the amount of waste generated by printing on both sides of the paper, and reusing paper as scrap paper and memo pads.

Waste reduction can be promoted by education, and encouraged by financial incentives. A good example of a financial incentive for waste reduction is quantity-based garbage collection fees (pay-as-you-throw).

The principle of a quantity-based fee is simple: when waste generators must pay more to throw away more, they have a financial incentive to recycle, and otherwise reduce the amount of waste generated. Another advantage of a quantity-based fee is its greater equity. Under a flat rate system, those who discard less than the average are, in effect, subsidizing those who discard more than the average.

Quantity-based fees can have unwanted side effects. Illegal dumping, increased burning of waste, disposing waste in private dumpsters, adding to the waste of a friend or relative in another municipality, and attempted disposal of non-recyclable material as recyclables are all likely to become more common under a quantity-based fee system. A fee schedule with a base number of containers, and an additional cost for each additional container, may mitigate some of these effects. It is important that a quantity-based fee is accompanied by opportunities to substantially

reduce the amount of trash disposed, supported by a thorough educational effort explaining the system and the available source reduction and recycling opportunities.

To encourage recycling, Gettysburg Borough and Conewago township limit the number of waste containers (three) their residents can place at the curb each week.

The waste reduction roles of the County include educating and providing informational assistance to municipal officials, residents, businesses and institutions, and minimizing the waste generated by the County's activities. The County has taken a leadership role in these areas.

5.7.5 Municipal Solid Waste Disposal Facilities

5.7.5.1 Overview

Current Adams County contracts with multiple designated landfill disposal sites, plus the York County Resource Recovery Facility, provide for long-term disposal capacity for Adams County wastes during the planning period.

Adams County's municipal waste will be permitted for delivery to designated facilities listed in Chapter 6 of this Plan (this list will be updated from time to time). Having multiple facilities available promotes competition that will help to keep the system cost-effective. Having several facilities should also promote efficiency by giving haulers the option of using the closest facility.

5.7.5.2 Selection of Designated Facilities

See Appendix C for listing of Designated Facilities.

5.7.5.2.1 Designated Facilities

Table 5-2 provides a synopsis of the Plan's designated facilities, along with the capacity that has been made available to Adams County's waste disposal needs. As Table 5-2 shows, the total capacity that will be available to Adams County through executed agreements with the designated landfills is sufficient for the projected capacity required for Adams County over the 10-year planning period, to January 1, 2016.

The York County Resource Recovery Facility has an agreement with Adams County (renewed by default) to accept MSW from municipalities without agreements on a spot-market basis to the extent of available capacity at the Facility. The spot-market disposal fees are established by the York County Solid Waste and Refuse Authority. In addition, the York facility has agreed to accept bypass waste and process residues from an Adams County Co-Composting Facility (if that project is implemented), to the extent of available processing capacity exists at the York County site.

Additional facilities may petition the County at any time to be added to the Plan as a designated disposal facility, in accordance with the *Procedure to Add Facilities to the Plan as Designated Facilities*, (See Section 5.7.5.3 of the Plan). Cumberland County Landfill recently submitted an application package, and has been accepted as a designated disposal facility in the County's Plan.

TABLE 5-2
ADAMS COUNTY DESIGNATED DISPOSAL SITES
WASTE DISPOSAL CAPACITY AVAILABLE TO ADAMS COUNTY

Disposal Sites	Min Accepted Cap. Per Day, Tons	Max Available Cap. Per Day, Tons	Max Available Cap. Per Year, Tons	Total Avail. Cap. Over 10-Year Planning Period, Tons[4]
IESI Blue Ridge LF, Franklin Co. [1]		70	18,200	182,000
Mountain View Reclamation LF, Franklin Co. [1] [2] [3]	All	All	All	1,295,337
Cumberland County Landfill [9]		20	5,200	52,000
Total Available Capacity to January 1, 2016 - Landfills				**1,529,337**
York Resource Recovery Facility, York Co. [5]	Depends on Avail. Processing Capacity	Depends on Avail. Processing Capacity	Depends on Avail. Processing Capacity	Depends on Avail. Processing Capacity
Modern Landfill, York Co. [1] [2] [6]	All	All	All	700,000
IESI PA Bethlehem, Northampton Co. [7]	20	40	10,400	
Pine Grove Landfill, Schuylkill Co. [1] [2] [8]	All	All	All	

[1] Accepts municipal waste, C/D waste, sewage sludge and residual waste
[2] Donated waste capacity for clean-ups
[3] Disposal sites showing "All" assumed to provide capacity (until closure of the disposal site) to accept up to 101,960 tons per year (needed capacity for Adams Co.)
[4] Adams County is estimated to require 1,529,403 tons (before recycling) of disposal capacity January 1, 2016.
[5] Adams County executed a disposal agreement with the York Resource Recovery Facility to accept MSW from municipalities without agreements on a spot-market basis to the extent of available capacity at the York Facility.
[6] Adams County's Agreement with Modern Landfill extends to 2013.
[7] IESI PA Bethlehem terminated its Agreement with Adams County in March 2005.
[8] Pine Grove is waiting for approval for a permitted expansion.
[9] Adams County approved an application in August 2005

5.7.5.3 Procedure to Add Facilities to the Plan as Designated Facilities

There are other landfills permitted for municipal waste and residual waste disposal that have the potential for serving Adams County. These facilities have the option of being designated in this Plan in the future, if they meet the conditions stated in the "Application Package" document included in Appendix C. This document is provided for the specific purpose of adding additional qualified facilities to the Plan. These facilities can petition the County at any time to be added to the Plan.

If a County-licensed hauler, municipality, business or a disposal facility desires to have a facility added to the Plan for processing or disposing of Adams County municipal waste, other than those currently under Agreement with the County and designated in this Plan, the procedure described below must be followed to obtain County authorization to include another facility.

This procedure can be initiated at any time. The County must be certain that any facility used for the deposition of the County's waste minimizes the County's risks by being in full compliance with state and federal rules and regulations. The following procedure will enable the County to be reasonably assured that County generated waste is being properly managed.

The procedure is as follows:

1. First, a County-licensed hauler, municipality, business or disposal facility must petition the County using the one-page form shown in Table 5-3 to have a facility considered for being added to this Plan.

2. After receiving the petition, the County will forward a copy of the Application Package to the facility being requested for inclusion in the Plan.

3. Upon receipt of the completed Application Package from the facility in question, the County will review and respond to the information in the Application Package. The facility requesting inclusion in the Plan may be asked to finance the cost of the Application Package review, as well as subsequent discussions and contract negotiations.

4. If all information is in order and the facility's submission is determined to meet the qualification criteria and the facility has paid all required fees, the County will negotiate with the intent of executing a Municipal Waste Disposal Capacity Agreement (MWDCA) with the facility.

5. At a convenient and practical time thereafter, the County will then follow the non-substantial plan revision process to add the facility to the Plan. At the County's discretion, the facility being added to the Plan may be asked to finance the cost of this non-substantial plan revision process. If the disposal facility in question refuses to finance this cost, the County may delay including this new facility in the Plan, until it can combine this activity with a plan revision undertaken for other reasons.

6. Once the plan revision is completed, adopted by Adams County and approved by PADEP, the MWDCA will be executed.

7. Once a plan revision has been made to include a new designated disposal site, and the MWDCA is executed for that site, thereafter any licensed hauler, municipality or business will be at liberty to use this new facility for disposal of Adams County generated municipal waste.

TABLE 5-3
ADAMS COUNTY PROCESSING/DISPOSAL FACILITY
PETITION FORM TO ADD A FACILITY

Purpose of Petitioning Process – Adams County has, through Municipal Waste Disposal Capacity Agreements, secured a sufficient amount of disposal capacity for all municipal waste generated from County sources. However, business opportunities may arise for County-licensed haulers or municipalities with processing/disposal facilities, other than those designated in the County's Municipal Waste Management Plan, that attract the interest of these parties to use another facility. Therefore, the County's Plan has defined a process by which additional facilities can be added to the Plan. This form is used to notify the County of a party's interest in using another processing or disposal facility, and provides the County with the necessary information to contact a facility representative to begin the process to qualify the facility as a designated facility in the Plan. Please complete this form and forward to the:

Adams County Solid Waste Department
670 Old Harrisburg Road
Gettysburg, PA 17325
Attention: Bicky Redman, Director

Petitioning Party's Name: _____
Address: _____
_____
Phone Number: _____

Name of Requested Facility: _____
Facility Contact Person: _____
Facility Address: _____
_____
Phone Number: _____
Fax Number: _____
E-Mail Address: _____

Explanation for requesting additional facility:

_____
_____
_____
_____
_____
_____
_____
_____

(Attach Additional Sheets if Necessary)

5.7.5.4 Open Dumping Considerations

Like in most counties in Pennsylvania, illegal dumping is prevalent in rural areas of Adams County. While most view illegal dumps as eyesores, they also create significant concerns for public health and safety, property values and the general quality of life. When they are ignored, these sites often become chronic dumping areas. Preventing illegal dumping will require the County to address factors that contribute to this problem. Cleaning up existing dumps will require cooperation from governmental entities, residents, businesses, haulers and disposal facilities in the area. In the past, the County has worked in partnership with various groups and volunteers to organize and facilitate the clean-up of illegal dump sites. The County will continue in this role in the future.

Pennsylvania, and counties like Adams, may have a more severe problem because of the large number of municipalities that manage residential waste through individual subscription systems. In these municipalities, some residents choose to dump their waste illegally, rather than pay for a hauler to collect their waste and dispose of it properly. However, there are other factors that contribute to the problem. Some haulers will not collect what might be considered construction and demolition waste generated at the residential level as a result of remodeling and similar activities—materials such as drywall, roofing shingles, siding, lumber, bricks and concrete, even though all designated facilities in this Plan are permitted to accept C&D wasteMany of the illegal dump sites located in Adams County contain such materials. Other difficult-to-dispose-of items such as tires, auto parts, appliances and furniture also often end up in illegal dumps. Proper disposal of these materials may require hauling them to a disposal facility during operating hours and paying to dispose of them, an inconvenience or expense that some wish to avoid. However, many of the municipal waste collection contracts contain a large item, curbside pick-up, which allows residents to dispose of these items.

The County should continue to investigate options for the safe disposal of small volumes of C&D waste such as those described above, including, but not limited to: requiring waste haulers to obtain hauler or small-hauler licenses; requiring haulers to pick up these materials and deliver them to a County-authorized disposal facility as a condition of licensing; educating citizens about the availability of safe and legal opportunities to dispose of these materials; educating residents about the option to rent dumpsters or rolloff containers for collection and disposal of wastes created during remodeling projects; arranging for acceptance of this material at one or more of the designated disposal facilities in the Plan Update; providing a drop-off site for these materials; and encouraging the enforcement of municipal waste ordinances, as they apply to illegal dumping. The County has begun looking at a possible C&D material reuse project. Discussions are currently underway with ReStor, York, PA, to develop a model for Adams County.

The County, in partnership with local municipalities, should consider sponsoring and supporting cleanup or drop-off days, or expanding the large item pick-up program, as a more cost-effective way to encourage proper waste disposal and discourage open dumping.

Appendix J of the Plan contains further information on open dumping issues, concerns and techniques for reducing the prevalence of open dumps.

5.7.6 Selected Sewage Sludge Management System

Section 5.5 concluded that the most common current method of liquid sludge disposal, land application, employed exclusively by 12 of Adams County's municipal treatment plants, and also by septage haulers, continues to be a preferred method by those plants and haulers. It is expected that this activity will continue, until regulatory changes in the land application programs for sewage sludge or septage (from a nitrogen-based to a phosphorus-based loading system) occur. It is difficult to gauge the impact of such a regulatory change at this point, but it is believed that this may create a significant reduction of the amount of biosolids that can be applied on some sites. This could substantially increase the competition and cost for biosolids disposal at land-application sites, cause a loss of disposal options for some biosolids, and create a regulatory or economic environment where alternatives to land application (such as the proposed dewatering and composting component of the County's co-composting project for biosolids) may become more imperative and cost-competitive. Reliance on land application will need to be further assessed, if and when, the State's land application regulations change to phosphorus-based nutrient management limits

For the dewatered sewage sludge generated in Adams County, this Plan Update proposes the continuance of landfill disposal. Adams County has executed disposal contracts with multiple designated landfill disposal sites that have indicated a willingness to accept dewatered sewage sludge cake.

5.7.7 Construction and Demolition Waste Management

Much of the construction and demolition (C&D) waste generated in Adams County is either recycled, or disposed of in the IESI Blue Ridge Landfill, Mountain View Reclamation Landfill, Modern Landfill or Cumberland County Landfill. According to PADEP Waste Destination reports, 12,299 tons of C&D waste originating in Adams County was disposed at state-permitted disposal facilities in 2002. Disposal options for C&D waste are recycling or disposal at permitted municipal and C&D waste landfills. Provision for the disposal of C&D waste will be included in the County's disposal capacity agreements, with all of the designated landfill disposal sites that are under contract with the County. Considerations regarding the open dumping of C&D wastes are discussed in Section 5.7.5.4 of this Chapter.

5.7.8 Household Hazardous Waste

The County will continue to monitor and evaluate the management of HHW, to determine its overall impact on future of the County's long-term Solid Waste Management Program.

5.7.9 Infectious and Chemotherapeutic Waste

The current system for managing infectious and chemotherapeutic waste generated in hospitals, nursing homes and other medical facilities, which is managed solely by the private sector, is adequate for handling this material. The County will continue to rely on this system, and is not considering other options for this 10-year planning period. The County will be open to any other cost-effective suggestions that become available.

CHAPTER 6
LOCATION OF FACILITIES AND PROGRAMS

6.1 INTRODUCTION

Chapter 4 examined the options for collecting, and processing, source separated recyclable materials and yard waste. Chapter 5 evaluated the various options available for the collection, transportation, processing and disposal of municipal waste. Chapter 6 identifies the physical location of these processing and disposal facilities.

6.2 WASTE DISPOSAL SITES

Municipal waste generated within Adams County will be disposed at the identified designated disposal facilities listed in this Plan for the planning period through January 1, 2016. The initial term of agreement for designated disposal facilities will be three (3) years, with an option to renew for an additional four (4) years, followed by an additional term of three (3) years.

Municipal waste generated in Adams County will be disposed of at the following designated facilities (2005):

- Community Refuse Service, Inc.
  Cumberland County Landfill
  135 Vaughn Road
  Shippensburg, PA 17257
  (Cumberland County)
  Note: Agreement extends until January 1, 2016 and was recently approved by the County

- IESI PA Bethlehem Landfill Corp.
  2335 Applebutter Rd.
  Bethlehem, Pa 18015
  (Northampton County)
  Note: Agreement with Adams County terminated in March 2005

- IESI Blue Ridge Landfill Corp.
  1660 Orchard Road
  P.O. Box 399
  Scotland, PA 17254
  (Franklin County)
  Note: Agreement extends until January 1, 1, 2016

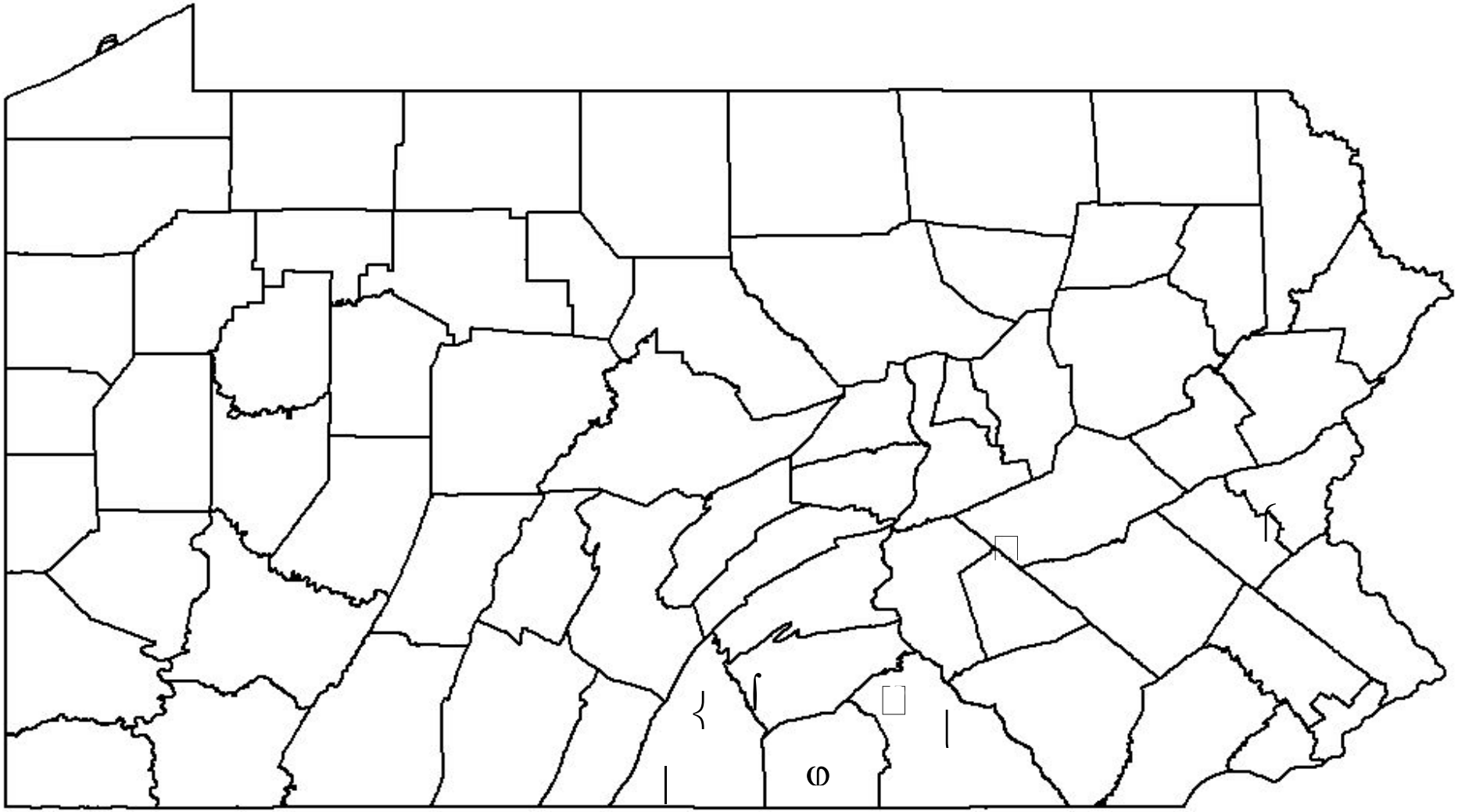
- Modern Landfill
  4400 Mt. Pisgah Road
  R.D. 9, Box 317
  York, PA 17402
  (York County)
  Note: Agreement extends to 2013

- Mountain View Reclamation Landfill, Inc.
  9446 Letzburg Road
  Greencastle, PA 17225
  (Franklin County)
  Note: Agreement extends until January 1, 2016

- Pine Grove Landfill, Inc.
  193 Schultz Road
  Pine Grove, PA 17963
  (Schuylkill County)
  Note: As of January 2004, Landfill has reached capacity and is waiting for approval for a permitted expansion

- York County Solid Waste & Refuse Authority
  Resource Recovery Facility
  2651 Black Bridge Rd.
  York, PA 17402
  (York County)
  Note: Agreement depends on available capacity

The location of the designated disposal facilities for municipal waste generated in Adams County are presented in Figure 6-1. The County does not guarantee municipal waste to any one of these facilities. It is the option of the municipality, or waste hauler, to dispose of municipal waste at any one of these designated facilities. The designated facilities provided the County with a not-to-exceed tipping fee for municipal solid waste (including C&D waste disposal). The draft disposal agreement between the County and the designated facilities are contained in Appendix C.



Legend

- Landfill
- Resource Recovery/ Waste-to-Energy
- φ Gettysburg, Adams County
- IESI PA Bethlehem Landfill (*Teminated its agreement as of March 2005)
- IESI Blue Ridge Landfill
- Modern Landfill
- Mountain View Reclamation Landfill
- Pine Grove Landfill (Awaiting approval for a permitted expansion as of January 2004)
- York County Resource Recovery Facility

Figure 6-1

Adams County Designated Municipal Waste Disposal Sites

Scale is 1 inch equals approximately 35 miles

Original Map Created by Gannett Fleming

The Hanover Area Transfer Station and Washington Township Transfer Station are two out-of-County transfer facilities that receive and transfer waste generated by Adams County residents. Adams County waste received by these facilities should be disposed at one of the designated facilities listed in this Plan.

The York County Solid Waste and Refuse Authority provided Adams County with a letter in response to the RFP, referring to the existing long-term Disposal Agreement with McSherrystown Borough. Through the continuance of the long-term Disposal Agreement, the YCSWRA is included in this Plan as a designated facility. Additionally, the YCSWRA also provides "spot-market" capacity to Adams County haulers, if disposal capacity is available.

Additional facilities may be added to the Plan, at any time, after completing the Application Package for disposal and processing of MSW, according to the procedures for adding facilities to the Plan as described in Chapter 5. The Application package is included in Appendix C. Facilities completing the Application Package must meet the same minimum qualifying criteria used for the designated facilities listed in this Plan.

Biosolids and Septage Processing/Disposal

WWTP Biosolids

Tables 1-9 and 1-10 list the municipal and non-municipal wastewater treatment plants (WWTP's) in the County that generate biosolids requiring disposal. Table 2-3 describes sludge disposal practices, and identifies the methods and locations of sludge disposal facilities for each municipal treatment facility. Current disposal methods include land application on approved farm fields (as depicted in Figures 3-2, 3-3 and 3-4) and disposal at Modern Landfill, IESI Blue Ridge Landfill, Mountain View Reclamation Landfill, Peck's Processing Plant, Dover Waste Treatment Plant, Harrisburg Authority Waste Treatment Plant, Springettsbury Wastewater Treatment Plant and White Run Regional Municipal Authority (Reed Beds). For the planning period, it is expected that facilities utilizing land application may continue this practice, in accordance with current regulatory requirements and siting criteria, unless competition with out-of-county biosolids sources and/or recently proposed regulatory requirements related to phosphorus and nitrogen loading make land application an unfeasible, or costly, disposal alternative.

Septage

A majority of the septage generated in the County is disposed of at out-of-county land application sites and wastewater treatment plants in Perry County, Lancaster County, Cumberland County, York County, Franklin County and Dauphin County. None of the in-County WWTP's reportedly accept, or process, septage from the County.

The following is a comprehensive list of Septage haulers, licensed with Adams County in 2005:

A C & T Company, Inc.
P.O. Box 4217
Hagerstown, MD 21741

Advanced Septic Service
65 Richard Lane
Landisburg, PA 17040

Associated Products Services
2 East Road
P.O. Box 231
Mechanicsburg, PA 17050

Busser Septic Cleaning
197 Hykes Mill Road
York Haven, PA 17370

Chamberlain & Wingert
535 Lurgan Avenue
Shippensburg, PA 17257

Christian Miller Septic Service
160 S. Vernon Street
York, PA 17402

D & D Septic Service
35 W. North Street
Carlisle, PA 17013

D. E. W. & Sons Septic Service
414 Roxbury Road
Newville, PA 17241

Donaldson Fruit Farm
780 Carroll's Tract Road
Gettysburg, PA 17325

Fast Rooter
232 Locust Street
Columbia, PA 17512

Fogle's Septic Clean, Inc.
580 Obrecht Road
Sykesville, MD 21784

Jacey, Inc. T/A Roto-Rooter
230 S. 10th Street
Lemoyne, PA 17043

Kline's Services, Inc.
5 Holland Street
Salunga, PA 17538

Knaper's Stop & Go
4105 Mt. Pisgah Road
York, PA 17402

Mathena Septic Services
P.O. Box 429
Manchester, MD 21102

Peck's Septic Service
68 Pine School Road
Gardners, PA 17324

Richard Weidner Paving & Excavation
P.O. Box 155
Gardners, PA 17324

Rosenberry's Septic Tank Service
8885 Pineville Road
Shippensburg, PA 17257

Saltzgiver Septic Cleaning
1612 Jefferson Road
Spring Grove, PA 17362

Shealer's Septic Service
510 Hunterstown Road
Gettysburg, PA 17325

Smith's Sanitary Septic Service
1234 Baltimore Street, Rear
Hanover, PA 17331

Sunday's Sanitary Septic
6460 Salem Run Road
Dover, PA 17315

Walters Services, Inc.
463 Manada Gap Road
Grantville, PA 17028

William F. Ault Paving
204 Musselman Road
Hanover, PA 17331

WeBrease Environmental
3335 Emory Road
Finksburg, MD 21048

Septage is reportedly accepted for processing at the following WWTP's and land application sites:

- Glen Rock Waste Water Treatment Plant
- RBA Septic Service, LLC
- Randall Chamberlain Field Land Application Site
- Advanced Septic Farm
- Harrisburg Authority Waste Treatment Plant
- Derry Township Wastewater Treatment Plant
- Lemoyne Sewage Treatment Plant
- Manheim Wastewater Treatment Plant
- Peck's Processing Plant
- Springettsbury Township Wastewater Treatment Plant
- Rigby Land Application Site
- Penn Township Sewage Authority
- Dover Waste Treatment Plant
- N. Middleton Township Waste Treatment Plant
- Hamiltonban Township Waste Treatment Plant
- Westminster Waste Treatment Plant
- York County Waste Treatment Plant
- Borough of Carroll Valley Waste Treatment Plant
- Cumberland Township Waste Treatment Plant
- Richard Farm Land Application Site

It is expected that Adams County septage haulers may continue to haul to the identified WWTP's and land application sites during the planning period, unless 1) treatment plants choose not to continue to accept septage, or 2) recently proposed regulatory requirements related to phosphorus and nitrogen loading make land application an unfeasible, or costly, disposal alternative.

6.3 LOCATION OF RECYCLABLES COLLECTION PROGRAMS

Municipalities that currently operate programs for collection of recyclable materials include:

Mandated Act 101 curbside collection

- The Borough of Gettysburg (contracted with private collector)
- Conewago Township (contracted with private collector)

Refer to Figure 4-1 for locations of mandatory curbside recycling programs in Adams County.

Optional Subscription Curbside Recycling Programs (part of municipal collection contract agreements)

- Arendtsville Borough
- Bendersville Borough
- Biglerville Borough
- Bonneauville Borough
- Butler Township
- Carroll Valley Borough
- Cumberland Township
- Franklin Township
- Freedom Township
- Highland Township
- Huntington Township
- Latimore Township
- Liberty Township
- Menallan Township
- Mount Joy Township
- Straban Township
- Tyrone Township
- York Springs Borough

Refer to Figure 4-1 for locations of Optional Subscription Curbside recycling programs in Adams County.

Adams Rescue Mission

The Adams Rescue Mission offers free curbside recycling services to Adams County residents. The Mission currently provides monthly curbside collection services for residents in the following 12 locations:

- Arendtsville Borough
- Bendersville Borough
- Biglerville Borough
- Bonneauville Borough
- Cashtown
- Cumberland Township
- East Berlin Borough
- McKnightown
- Mummasburg
- Orrtanna
- Twin Oaks
- York Springs Borough

The Mission also collects recyclables from over 150 area businesses, and accepts recyclables brought to the facility by community members.

Contracted Haulers with Recycling Services

Curbside collection for recyclables is offered as an additional service (for an additional cost) by Waste Management and IESI. Residents have the option to include recyclables services along with municipal waste collection.

Drop-off recycling sites

- Tyrone Township Building
- Cumberland Township Building
- Barlow Fire Hall, Mt. Joy Township
- New Oxford Borough Building
- Littlestown Dollar Store Parking Lot, Littlestown Borough
- Latimore Township Building
- Brethren Home, Oxford Township
- McSherrystown Borough Building
- Adams Rescue Mission, Straban Township

Locations of voluntary drop-off recycling sites are presented in Figure 4-1 of this Plan.

Yard Waste

Please refer to Section 4.8.6, Adams County Initiatives in Yard Waste Management.

CHAPTER 7
IMPLEMENTATION

7.1 IMPLEMENTING ENTITY

The County planning options and initiatives have been designed to provide Adams County the flexibility to assure the successful implementation of this Plan. This chapter identifies the agency responsible for the implementation of the Plan, and the essential tasks required to implement the Plan. This chapter lists the proposed planning initiatives for the County, methods of funding these initiatives and schedule for implementation. This chapter also discusses the public participation process used in developing the Plan.

7.1.1 Adams County As Implementing Agency For Plan

The Adams County Solid Waste Authority (Authority) was the original implementing agency for the 1989 Adams County Municipal Waste Management Plan. In 1994, the Adams County Solid Waste Authority was decommissioned and entered into inactive status. The Adams County Board of Commissioners, through the County Department of Solid Waste and Recycling, was identified as the implementing entity for the 1994 Plan Update. It is recommended that this current entity continue as the implementing entity for this Plan Update.

7.2 PLANNING INITIATIVES

The County may elect to pursue the following planning initiatives, as identified during the Plan Update process:

- The Administrative Fee, established for each ton of Adams County MSW collected in the County, should continue to be used to support administrative and enforcement services. If feasible, future services could include items such as recycling education, drop-off programs, yard waste composting, illegal dumping clean-up programs, household hazardous waste collections and other services that benefit County residents. This fee is critical in providing the necessary revenues to effectively support the Department of Solid Waste and Recycling.
- Recycling opportunities may be expanded to include, but not be limited to, additional drop-off recycling opportunities and optional curbside recyclables collection programs within the County, and/or development of new or expansion of existing special handling waste collections (e.g. bulky item collection).
- Evaluate the feasibility of developing a household hazardous waste program. This program may include an annual drop-off event, or curbside collection program, for County residents, at which time difficult items such as pesticides, paints and other household hazardous wastes could be collected for proper disposal. This type of program is common in many counties in Pennsylvania.
- Improve the public education component of recycling programs, and solid waste management programs/services, through various forms of media (e.g. newsletters, brochures, radio, news articles, etc.).

- Reduce open/illegal dumping by increasing public awareness of existing disposal alternatives and enforcement actions.
- Support school and other public education programs, and identify funding sources for these programs.
- Periodically track changes in landfill tipping fees that are being charged by disposal sites servicing Adams County wastes, and look for trends that may indicate improving economics for a County co-composting project.
- Periodically review the status of the proposed phosphorus-based land application limit implementation by PADEP, and assess, whether further measures by the County are necessary to deal with changes in the current economic or regulatory situation for land application of biosolids.
- Review the County Municipal Waste Management Plan annually to determine if planned programs for implementation have been addressed. This review could lead to future Plan updates/revisions.

7.3 PROPOSED METHOD OF FUNDING THE SYSTEM

7.3.1 Administrative Fees

The County collects an Administrative Fee for each ton (currently $2.50 per ton) of Adams County MSW collected in the County. This fee is used to support the administrative costs of the Department of Solid and Recycling, waste related enforcement and investigative activities, distribution of a comprehensive recycling informational pamphlet, Earth Day activities (including support of an annual Recycled Arts Contest), and other such services that are provided to Adams County and its residents. These services could be expanded in the future to include items such as recycling education and drop-off programs, yard waste composting, illegal dumping programs, household hazardous waste collection programs and other beneficial programs/services for County residents. If the County secures grant funding to implement some of this Plan's initiatives (such as recycling, HHW events, etc.),the administrative fee could possibly be used to fund the remaining "matching" portion of the cost for implementing each program. Typically, county administrative fees in Pennsylvania range from $2.00 to $5.00 per ton of municipal waste. The administrative fee can be periodically reviewed and revised, as services provided by the County change from year to year.

7.3.2 Grant Funding of Planning Initiatives

State funding, in the form of Act 101, Section 901 Planning Grants, is available and can be used to offset up to 80 percent of the cost for many of the planning initiatives, including development of education programs, recycling activities and feasibility studies for further consideration of each initiative. In addition, Section 902 of Act 101 provides up to 90 percent of the cost of implementing recycling and similar programs (includes engineering, procurement of equipment and materials, construction, etc.).

7.3.3 Hauler Licensing Program

Licensing fees may be used to cover costs of administering the hauler licensing program. Currently the licensing fees collected by the County are utilized to support the administrative, and enforcement costs, for the hauler licensing program.

7.4 PUBLIC FUNCTION, ORDERLY EXTENSION AND NON-INTERFERENCE

7.4.1 Public Function

Adams County has determined that it is in the public interest for municipal waste management to be a public function. Currently, Adams County does not own or operate any municipal waste disposal facilities. If the County elects to proceed with the construction of a County co-composting project, or one or more phases of that project, the facility(ies) could be owned and operated by the County or a County Authority as a public facility.

7.4.2 Orderly Extension

This Plan has been updated to provide for the orderly extension of municipal waste management programs in a manner that is consistent with the needs of Adams County. This Plan builds upon the County's existing waste management system, as previously described in the 1989 and 1994 Plans. This Plan has been developed in accordance with current federal, state and local laws and regulations.

7.4.3 Non-Interference with Facilities Developed Pursuant to Sub-County Plans

As required by Act 101, the Adams County Municipal Waste Management Plan will not affect the design, construction, operation, financing or contractual obligations of any municipal waste landfill, or resource recovery facility, located within the County. There are no landfills, transfer stations or resource recovery facilities within Adams County. This Plan meets the non-interference requirements established by Act 101.

There are no sub-county plans in Adams County, and therefore, there are no conflicting plans.

7.5 IMPLEMENTING DOCUMENTS

The institutional framework for implementing the County Plan is formed by the County Resolution (Appendix K), the PADEP approval of the Plan (Appendix M), the Municipalities' existing Municipal Waste Management Ordinances (Appendix G) and Other Plan Implementation Documents (Appendix H).

7.6 IMPLEMENTATION SCHEDULE

Table 7-1 presents the implementation schedule for the tasks/functions related to the implementation of this Municipal Solid Waste Management Plan Update.

7.7 PUBLIC PARTICIPATION

The County Municipal Waste Management Plan revision process was conducted in the appropriate public forum. Public notifications of the plan revision process were sent to PADEP, all County municipalities and the County Solid Waste Advisory Committee (SWAC). These notifications advised all parties of the intention of the County to conduct a Plan Update. The planning process has followed the requirement of 25 PA Code Chapter 272 of the PADEP Rules and Regulations.

In order to provide for public participation in the planning efforts related to this Plan, the Adams County Commissioners engaged the Solid Waste Advisory Committee (SWAC) in 2003. The SWAC assisted in preparing the Municipal Waste Management Plan for the County by providing input from the citizenry, waste management organizations, selected interest groups and municipal officials within Adams County. SWAC members met initially on July 25, 2003; and met again on February 23, 2004; March 25, 2004 and May 3, 2004, during the development of this Plan Update. Appendix O contains public participation information including meeting agendas, minutes and handouts.

TABLE 7-1
ADAMS COUNTY
MUNICIPAL WASTE MANAGEMENT SYSTEM
FUNCTIONS AND IMPLEMENTATION SCHEDULE

Task or Function	**DATES**
WASTE MANAGEMENT SYSTEM	
Executed initial Waste Disposal Facility Contract Agreements for Identified RFP and any Application Package (Qualified) Respondents	End of 2003
Plan Approval - PADEP	By end of 2005
PROVIDE FOR ADEQUATE DISPOSAL CAPACITY	BY 2005
Allow Qualified Facilities to be Added to the Plan	Continuing
Assess Recycling Initiatives/Goals for Possible Implementation	Continuing
Continued Monitoring, Documenting, and Reporting of Recycling Activities/performance	Continuing

(1) Refer to Section 7.31 for additional County planning initiatives established as part of this Plan Update process.