Municipal Waste Management Plan

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Prepared for:

Mifflin County Commissioners
and
Mifflin County Solid Waste Authority
Lewistown, Pennsylvania

Prepared by:

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Printed on Recycled Paper

MIFFLIN COUNTY
MUNICIPAL WASTE MANAGEMENT PLAN

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MIFFLIN COUNTY
MUNICIPAL WASTE MANAGEMENT PLAN
EXECUTIVE SUMMARY

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 waste management plans. A solid waste plan should propose the optimal complementary use of a variety of management technologies, including waste reduction, recycling, waste processing, landfilling and waste-to-energy. The Act specifically requires that the Plan provide for the maximum feasible development and implementation of recycling programs.

In order to provide for public participation in the planning efforts related to this Plan update, the Mifflin County Commissioners appointed the Solid Waste Advisory Committee (SWAC) in 2000 based on input from the Mifflin County Solid Waste Authority (MCSWA) and the Mifflin County Planning and Development Department. The SWAC assisted the MCSWA 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 Mifflin County. This 2002 Mifflin County Municipal Waste Management Plan (Plan) builds upon and updates information contained in the 1991 Mifflin County Municipal Waste Management Plan. The evaluations, findings, and recommendations contained in the Plan are outlined in the Chapter summaries below.

Chapter 1: Description of Waste

The population of Mifflin County for year 2000 was estimated to be 46,486 (U.S. Census) and is projected to grow moderately over the next 10 to 20 years. According to reports submitted by PADEP-permitted processing and disposal facilities, Mifflin County residents and establishments disposed of 33,861 tons of municipal solid waste (MSW), including construction and demolition (C&D) waste, in year 2000. The Mifflin County Year 2000 Act 101 Annual Report estimates that 11,650 tons of material was recycled in the County. This quantity of recycled materials (recycling and yard waste composting) represents approximately 26% of the gross quantity of municipal waste, including C/D waste and recyclables, generated in Mifflin County in 2000. The 26% waste diversion rate is projected to grow slowly over the planning period, to 35% by 2010, and then to stabilize at 35% through 2020.

Using year 2000 gross waste quantity estimates and the year 2000 county population, the gross municipal waste generation rate in Mifflin County has been calculated at 0.979 tons per capita per year. This generation rate excludes sewage sludge (i.e., biosolids) 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) discards can be estimated. These gross and net discard estimates are shown in Table ES-1.

TABLE ES - 1
MIFFLIN COUNTY
YEAR 2000 AND PROJECTED GROSS AND NET DISCARDS OF MSW
(2000, 2010, 2020)

Year	Population	Gross Discards (tons)	Diversion Rate	Net Discards (tons)	Waste Diverted to Recycling (tons)
2000	46,486	45,511	26%	33,861	11,650
2010	49,448	48,411	35%	31,467	16,944
2020	52,516	51,412	35%	33,418	17,994

Source: Table 1-5 of 2002 Mifflin County Municipal Waste Management Plan.

This Plan also estimates the quantity of biosolids and septage that will be generated and processed by municipal and non-municipal wastewater treatment plants in the County. Septage quantities were estimated based on population projections, housing units and number of persons per household, percentage of on-lot septage systems in the County and a septage generation rate of 91.6 gallons per capita per year. Year 2010 and 2020 biosolids and septage generation projections are provided in Table ES-2.

Smaller quantities of special handling waste are also managed within Mifflin County. Infectious and Chemotherapeutic waste constitutes a very small portion of the municipal waste generated in Mifflin County. The principal generator of infectious and chemotherapeutic waste is Lewistown Hospital. Lewistown Hospital and other County-related medical facilities generate the overwhelming majority of infectious and chemotherapeutic waste in the County. Household hazardous waste (HHW) constitutes a small fraction of the municipal waste stream (less than 0.5 percent according to the PADEP). PADEP requires that HHW is addressed in County solid waste plans. Currently, Mifflin County does not implement a household hazardous waste collection program.

TABLE ES – 2
MIFFLIN COUNTY
BIOSOLIDS AND SEPTAGE GENERATION QUANTITIES (2000-2020)

Biosolids Generation	**2000**	**2010**	**2020**
Wet tons per year (dewatered portion)	1,248	1,646	1,748
Gallons per year (liquid portion)	1,306,700	1,721,000	1,827,700
Septage Generation	**2000**	**2010**	**2020**
Gallons per year	1,565,800	1,666,000	1,769,400

Source: Table 1-8 of 2002 Mifflin County Municipal Waste Management Plan.

The management of waste tires, leaf and yard waste is done through the County's existing recycling programs. Proper disposal of waste tires is a particular planning concern for Mifflin County because of the large number of existing illegal dumpsites that continue to attract illegal dumping of tires and other waste. In 2000, 260 tons of waste tires were received at the MCSWA's Barner Landfill. Mifflin County collects leaf and yard waste through curbside collection and drop-off recycling sites. Combined, Lewistown Borough and Derry Township curbside programs collected 137 tons of leaf and yard waste in year 2000, based on Act 101 recycling reports. In addition, several other Mifflin County municipalities reportedly collect leaves (Burnham and McVeytown boroughs, Union and Brown townships), but the tonnages collected are unavailable. An additional 350 tons of leaf and yard waste was collected at the Barner Landfill and Lewistown drop-off sites. In total, 487 tons of leaf and yard waste was documented as collected in Mifflin County in 2000.

Although not regulated under Act 101, residual waste, defined as non-hazardous industrial waste, is both generated and disposed within the County. According to year 2000 PADEP County Waste Destination Report, 10,928 tons of residual waste generated within Mifflin County was disposed of at six disposal facilities (Barner Landfill, Lancaster County Resource Recovery Facility, Bradford County Landfill, Superior Greentree Landfill, Lycoming County Landfill, and the Lancaster County Landfill).

Chapter 2: Existing Waste Management System

Waste collection and hauling is primarily handled by five private hauling firms operating in 15 municipalities of the County and by municipal collection within the Borough of Lewistown. Within 14 of 16 municipalities, residents are responsible for arranging waste collection services with a private hauler subscription service. The Borough of Juniata Terrace contracts with a hauler (municipal bid contract) to provide collection to their residents. The Borough of Lewistown provides collection of waste as well as curbside recycling using municipal crews.

Most of the municipalities in the County have solid waste management ordinances governing municipal collection. Information on collection practices were obtained from a survey of municipalities related to waste management practices. This survey was performed in 2001 as part of the Plan update.

According to 2000 PADEP County Waste Destination Reports, MSW (including C&D waste) from Mifflin County was disposed at the following disposal facilities:

- Mifflin County Barner Landfill (20,465 tons - MSW and C&D)
- Laurel Highlands Landfill (98 tons – C/D only)
- Sandy Run Landfill (13,298 tons MSW and C&D)

In addition, 1,398 tons of biosolids generated in Mifflin County were disposed at the Barner Landfill. Other special handling waste and residual waste generated in Mifflin County was primarily disposed at the Barner Landfill; however, smaller quantities of these wastes were disposed at nine other disposal facilities located throughout the state.

The Barner Landfill is owned and operated by the MCSWA and is the only municipal waste landfill in the County. Currently, there are no transfer facilities within the County that accept municipal waste generated in Mifflin County for processing and transfer hauling to the Barner Landfill. The MCSWA currently holds a permit for a proposed transfer station to be located on the Barner Landfill site.

There are six municipal and three non-municipal wastewater treatment plants (WWTPs) operating in Mifflin County. Approximately 74% of the biosolids generated by these treatment plants is dewatered and landfilled. The remainder of the biosolids, in liquid form, is land-applied on agricultural sites under either a site-specific permit or a general permit by PADEP. Chapter 2 of the Plan provides a more detailed description of sludge disposal practices in the County.

Remote, rural and isolated regions like portions of Mifflin County are prone to illegal dumping. Over 80 dumpsites were mapped and documented in a dump study conducted by Don Baker of the Mifflin County Conservation District in 2000. A Residential Survey distributed to approximately 2,000 Mifflin County residents indicated that over 90% of respondents considered illegal dumping to be a problem in the County. This survey was performed in 2001 as part of the Plan update.

Some contributing factors to the widespread illegal dumping problem may be:

- Disposal and/or recycling options are unavailable, inconvenient, limited and/or unknown to residents.

- Disposal options are unaffordable for residents, or the perception exists that disposal costs are too high.

- Residents illegally dump out of habit.

Chapter 3: Disposal Capacity Needs

The primary municipal waste disposal facility for Mifflin County waste is the Barner Landfill. Based on the remaining disposal capacity and projected waste receipts, the landfill will reach permitted capacity in mid-2004. Expansion of the Barner Landfill, or the permitting and construction of a new disposal facility within Mifflin County, was determined to be infeasible, based on technical and economic considerations. The MCSWA is currently pursuing a permit modification that may extend the life of the facility by a minimum of one year beyond the current life, without increasing the permitted footprint. Therefore, in order to ensure additional municipal waste processing and disposal capacity for the County and its municipalities for the next 10 years, there is a need to reserve disposal capacity from other processing and disposal facilities located within the region.

Estimates of the total volume of Mifflin County municipal waste (excluding sewage sludge and after recycling) that will require disposal for the next 10 years is included in Chapter 3 of this plan. Table ES-3 presents the estimated tonnages of municipal waste requiring disposal (before and after recycling) for the 10-year planning period.

TABLE ES-3
MIFFLIN COUNTY
VOLUMES OF MSW REQUIRING DISPOSAL IN MIFFLIN COUNTY
(2002-2011)

Year	Waste Requiring Disposal (before recycling) (tons)	Waste Requiring Disposal (net discards after recycling) (tons)
2002	46,075	33,635
2003	46,360	33,379
2004	46,646	33,119
2005 - 2011	334,712	224,661
Total Tons	**473,793**	**324,794**

Source: Table 1-5 of 2002 Mifflin County Municipal Waste Management Plan.

As stipulated in Act 101, Mifflin County must provide sufficient disposal capacity for its waste. The MCSWA issued a Solicitation of Interest (SOI) on November 1, 2001 from qualified municipal waste disposal facilities to provide disposal capacity for Mifflin County's municipal waste for the 10-year planning period as required by PADEP. Seven proposals were received from various facilities offering landfill disposal services. These proposals were evaluated and all were determined to meet the minimum required qualifying criteria, as outlined in the SOI. The MCSWA intends to proceed with contract negotiations and execution on Municipal Waste Disposal Capacity agreements with each facility, following adoption of the Plan by the County and subsequent PADEP approval. Additional disposal facilities may be added to the Plan,

provided they complete the Application Package available from the Mifflin County Solid Waste Authority, and meet certain minimum qualifications. Additional information pertaining to the SOI and waste disposal system selection process is contained in Chapter 5 of this plan.

Chapter 4: Recycling Strategy

In Act 101 (incorporated as 25 Pa. Code Chapter 272), the State adopted an unprecedented level of support for the use of recycling as a waste management tool. Among other provisions, Act 101, mandates curbside recycling in communities with a population over 10,000 and in communities over 5,000 with a density of 300 persons per square mile. Chapter 4 of the Plan examines the County's existing recycling programs, recycling program options, and the County's recycling strategy and recycling initiatives.

Lewistown Borough is the only municipality mandated to recycle by Act 101 requirements within Mifflin County. The remaining 15 municipalities, based on total population and population densities, are not required to establish recycling programs under Act 101.

It is estimated that current recycling collection programs may divert as much as 26 percent or more of the County's waste stream from landfills. Realistically, Mifflin County may reach the statewide recycling goal of 35% in 2010. Critical elements associated with achieving this goal include improved documentation of recycling activities and the implementation of some additional recycling initiatives, as described in detail in Chapter 4 of the Plan.

The curbside collection of recyclables (including the municipal collection of yard waste) will remain the responsibility of Lewistown Borough, as required under Act 101. Currently, the Borough accepts aluminum cans (food and beverage cans), tin cans (food and beverage cans), glass (clear and brown), plastic (natural HDPE and PET) and newspaper. These materials, plus yard waste, are also accepted at the Borough's recycling drop-off site. The Borough plans to open its municipal drop-off site for recyclables and yard waste to County residents in the near future.

With only one municipality having 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, feasible alternative to implementing curbside collection programs. There are a number of private recyclers in Mifflin County that accept drop-off materials: the larger ones include Pheasant Valley Recycling and Joe Krentzman and Sons, Inc. Below are brief descriptions of the four public drop-off recycling programs that are operating in the County.

Borough of Lewistown: Municipal Yard

The Borough of Lewistown accepts recyclables drop-off by Borough residents at their municipal yard, which demonstrates a drop-off program may also compliment an ongoing curbside collection program.

Barner Landfill Drop-off

Materials collected at the Barner Landfill include: aluminum cans, scrap aluminum and metal, tin cans, tin and bi-metallic cans, glass (clear only), car batteries, and small and large appliances (white goods), mixed paper, magazines and catalogs, corrugated cardboard, tires and yard waste

Armagh Township Drop-off

The Armagh Township drop-off site located at the Township's municipal building accepts newspaper. This drop off site is managed by the MCSWA.

Union Township Drop-off

The Union Township drop-off site located at the Township's municipal building accepts newspaper, tin cans, and aluminum cans. This drop off site is managed by the MCSWA.

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 programs in areas with limited recycling opportunities.

The MCSWA plans to continue to operate its recyclable material drop-off program following closure of the Barner Landfill and transition to a waste transfer operation. All recycling activities undertaken by MCSWA will continue to be performed in full compliance with applicable regulations.

As municipalities indicate a clear need and interest, the County could assist the municipality to implement new or augment existing drop-off recycling opportunities. The details of the drop-off programs will depend on variables such as municipal interest, existing programs, economics, and the type of services that are available and their comparative costs.

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 following is a list of specific County recycling program goals:

- Encourage, maintain, and potentially develop curbside collection.
- Provide, maintain, and expand drop-off collection services to be available to all County residents.
- Develop recycling collection events.
- Continue existing yard waste efforts and expand in yard waste collection where possible.
- 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 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 through identifying recycling as an alternative to dumping.
- Identify funding sources to be used to help implement County recycling goals.

A detailed discussion of recycling program alternatives and implementation strategies are included in Chapters 4 and 7 of the Plan.

Chapter 5: Selection of Waste Management System

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 over the next 10 years. Chapter 5 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.

Collection

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.

A municipality's three principal options for municipal solid waste collection are:

- *Private, Non-Contract Collection* – Individual residents and businesses subscribe with a private hauler for waste collection services. The municipality has no control over the disposal site used for waste disposal under a non-contract system. In Mifflin County, 14 of the 16 municipalities use private non-contract, or subscription, waste collection services.

- *Private, Municipal-Contract Collection* – Municipal bidding of waste collection services gives the municipality contractual control of 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. Only Juniata Terrace Borough currently bids for waste collection service for its residents. Additional municipalities in Mifflin County may want to consider bidding for waste collection services. This might include multi-municipal or COG-sponsored bidding for waste collection services.

- *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 crews to conduct household (and possibly also commercial) refuse collection. Only Lewistown Borough provides municipal waste collection services (along with curbside recycling services) to its residents and businesses.

Transportation

There are two basic options available for transporting municipal solid wastes to disposal sites:

- *Direct haul system* – In a direct haul system, municipal waste is conveyed by collection vehicles from the collection route directly to the final disposal site. As the haul distance increases, operating costs increase and the efficiency of the direct haul system decreases.

- *Transfer haul system* – In a transfer station or transfer haul system, the collection vehicles convey the wastes from the collection routes to a transfer station facility that then transport the wastes to a disposal site.

Most municipal wastes are currently delivered to the Barner Landfill, located in the central portion of the County near Lewistown. Where short hauling distances are involved, as is the current case for the County, transfer haul is usually not cost-effective or warranted. However, in 2004, the Barner Landfill is expected to close. After this time, Mifflin County wastes may have to be hauled between 60 and 110 miles (one way) to out-of-county disposal sites. This Plan evaluated the projected direct haul versus transfer haul costs to various out-of-county disposal sites.

A computer spreadsheet model was used to estimate the direct-haul transportation costs to five actual out-of-county disposal sites, specific distances ranging from 61 to 107 miles from Lewistown. The estimated direct haul transportation costs to use these sites range from $61 to $88 per ton of waste hauled. The cost to construct and operate a transfer station (estimated capital cost of $650,000 and annual operating costs of $420,000), including the cost to transfer-haul wastes to the five sites, is estimated between $26 and $32 per ton of waste transferred.

The Mifflin County Solid Waste Authority should seriously consider pursuing the transfer station project at the Barner Landfill site for which the MCSWA has obtained a PADEP permit to construct. Prior to making financial or contractual commitments to this project, the MCSWA should first:

- Secure minimum waste delivery commitments to the transfer station project, either through contracts with waste haulers, or from municipalities that bid for waste collection services or collect their own wastes, or both, and;

- Solicit and secure firm disposal prices from waste disposal sites in the region, assuming a certain guaranteed quantity of waste deliveries to that site from the transfer station.

MSW Processing and Disposal

The 1991 Plan concluded with a recommendation to continue using the Authority's Barner Landfill to provide for the County's waste disposal (the 1991 Plan can be referenced for detailed processing and disposal technology descriptions and analyses). However, two factors

have created challenges to the continued long-term viability of the existing disposal site. First, a 1996 engineering study conducted for the MCSWA confirmed that long-term expansion options for the Barner Landfill were severely limited due to numerous site constraints. Second, the U.S. Supreme Court Carbone case (limiting use of waste flow control through legislation) has increased the difficulty in securing a steady delivery of wastes, which is critical in supporting the financial needs for expanding landfill operations. Consequently, the Carbone case decision has made it increasingly more difficult for a public entity to develop and finance a new, capital-intensive solid waste processing/disposal project.

Since the Barner Landfill is projected to be filled and closed by mid-2004, a new long-term source of disposal capacity must be found. As of January 2002, the Barner Landfill had only about 85,000 tons of disposal capacity remaining, as compared to a projected 10-year disposal need of approximately 325,000 tons in Mifflin County.

The MCSWA is currently pursuing a permit modification that may extend the life of the Barner Landfill by a minimum of one year beyond the current life, without increasing the permitted footprint. The maximization of capacity and associated life of the Barner Landfill is preferable as a short-term waste management option. This additional capacity will allow the MCSWA to continue to provide a cost-effective disposal option within the County, secure sufficient funds for closure and post closure care activities, and allow a smooth transition to a waste transfer operation for future disposal at an out-of-County facility. However, this will not provide the required disposal capacity for the ten-year planning period.

A Solicitation of Interest (SOI) was released in November 2001 to prospective vendors to negotiate an agreement for providing disposal capacity for municipal solid waste (MSW), including construction/demolition (C/D) waste and sewage sludge, and residual waste generated in Mifflin County. Responses to the SOI were received until December 3, 2001.

Seven facilities submitted responses to Proposal Option 1 (disposal only); one proposer also responded to Option 2 (hauling plus disposal), but the County has decided not to pursue Option 2 at this time. From the SOI, the Authority received proposals from the following facility representatives:

- Superior Greentree Landfill, LLC
  635 Toby Road
  Kersey, PA 15846
  (Elk County)

- Phoenix Resources, Inc.
  RR #1, Box 12A
  Wellsboro, PA 16901
  (Tioga County)
  C/D Waste Only

- Southern Alleghenies Landfill, Inc.
  843 Miller Picking Road
  Davidsville, PA 15928
  (Somerset County)

- Pine Grove Landfill, Inc.
  193 Schultz Road
  Pine Grove, PA 17963
  (Schuylkill County)

- Shade Landfill, Inc.
  1176 #1 Road
  Cairnbrook, PA 15924
  (Somerset County)

- Laurel Highlands Landfill
  260 Laurel Ridge Road
  Vintondale, PA 15909
  (Cambria County)

- Mountain View Reclamation
  9446 Letzburg Road
  Greencastle, PA 17225
  (Franklin County)

In September 2002, an additional facility petitioned the County 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*, Section 5.7.5.3. This facility is listed as follows:

- Wayne Township Landfill
  Clinton County Solid Waste Authority
  P.O. Box 209, 264 Landfill Lane
  McElhattan, PA 17748
  (Clinton County)

All eight facilities appear to be qualified, with one of the facilities qualified only for C/D waste disposal. As Table ES-4 shows, the total capacity that will be available to Mifflin County through these agreements and through the remaining capacity at the Barner Landfill is 1,950,000 tons (over five times the projected capacity required through 2011 for Mifflin County).

TABLE ES-4
MIFFLIN COUNTY DESIGNATED DISPOSAL SITES
WASTE DISPOSAL CAPACITY AVAILABLE TO MIFFLIN COUNTY

DISPOSAL SITE	Avail. Cap. Per Day, Tons	Avail. Cap. Per Year, Tons	Estimated Final Closure Date	Total Avail. Cap. Over 10-Year Planning Period, Tons
Barner LF, Mifflin Co. (1) (3)	390	38,000 +	3/2004	85,000 (1)
Superior Greentree LF, Elk Co. (2) (3) (4)	All	(50,000 Used)	2012	387,500 (2)
Southern Alleghenies LF, Somerset Co. (2) (3) (4)	150	40,000	9/2005	60,000 (2)
Shade LF, Somerset Co. (2) (3)	150	40,000	2012	320,000 (2)
Pine Grove LF, Schuylkill Co. (2) (3) (4)	300	93,000	5/2005	111,600 (2)
Mountain View Reclamation LF, Franklin Co. (2) (3)	300	93,000	9/2008	418,500 (2)
Laurel Highlands LF, Cambria Co. (2) (3) (4)	150	40,000	2029	320,000 (2)
Wayne Township LF, Clinton Co. (2) (3) (4)	90	28,000	2016	224,000 (2)
Sub-Total				**1,926,600**
Phoenix Resources LF, Tioga Co. (2) (5)	250	23,400	6/2004	23,400 (2)
Total				**1,950,000**

(1) January 2002 through closure (projected 3/2004)
(2) Starting 3/2004, through end of planning period, 2011
(3) Accepts municipal waste, C/D waste, sewage sludge and residual waste
(4) Also accepts asbestos
(5) Only accepts C/D waste

Once draft waste disposal agreements are executed, Mifflin County will have secured more than enough waste disposal capacity for the next 10 years. Through this SOI and planning process, the 2002 Plan meets the requirement for providing for a fair, open and competitive market for the management and disposal of municipal waste generated in the County and meets the requirements for securing waste disposal capacity for the 10-year planning period.

Biosolids

The Plan Update identified and analyzed the following biosolids disposal alternatives:

- *Land application* – 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 considering going to a phosphorus-based nutrient management system for biosolids application (like many of our neighboring states). Should this occur (and this is expected within the next 3-5 years), land availability for land application may be more limited, and allowable application rates for sludge may be lower than under the current nitrogen-based nutrient management system.

- *Landfilling* – Requires that the sludge be dewatered to a minimum solids content of 20 percent. Barner Landfill accepts dewatered sludge cake for disposal from three of the larger treatment plants in the County: Lewistown and Burnham Boroughs, and Granville Township.

- *Composting* – Composting is a technologically proven method of biosolids handling. However, it is usually more costly than land application or landfilling, and therefore is difficult to implement, unless a large quantity of biosolids is processed daily. Mifflin County may not produce enough biosolids to make composting an economically feasible option.

- *Vermicomposting* – Vermicomposting is a unique variation of composting, where worms are used to help decompose and stabilize biosolids. Wastewater treatment plant operators have demonstrated a strong interest in further investigating the feasibility of implementing a vermicomposting option with Granville Township.

  Granville Township has received a $100,000 Growing Greener grant from PADEP to help develop a small scale vermicomposting project. The township is currently seeking additional sources of funding for the project, and is dealing with PADEP permitting issues related to this relatively new technology. If a regional vermicomposting project were developed (serving the treatment plants currently using the Barner Landfill), and if the project could secure a $430,000 PennVest grant combined with a two percent PennVest loan to offset some construction costs, it is projected that this facility would cost approximately $50 per ton to the facility users (nearly identical to the current Barner Landfill tip fees).

Approximately 74% of the biosolids generated by County treatment plants is currently dewatered and landfilled. The remaining treatment plant biosolids, in liquid form, and all the County's septage (also liquid) are either land-applied or are delivered to a wastewater treatment plant for processing. All seven of the respondents to the Solicitation of Interest indicated a willingness to accept dewatered sludge at their disposal sites. The SOI responses quoted ceiling tipping fees for dewatered sludge disposal ranging from $38 to $77 per ton.

The three plants that currently landfill dewatered sludge cake at the Barner Landfill will see their preferred disposal method disappear when the landfill closes in 2004. Drop-off containers and a shared service/hook truck, appears to be a practical and cost-effective way to defray the longer haul cost to out-of-county disposal sites. Further, Lewistown Borough indicated that it is planning to retrofit one of its existing garbage trucks to service rolloff containers, and this could defray this cost further. By locating a rolloff at each participating treatment plant, service can be geared to each treatment plant's own schedule and individual disposal needs.

Most County treatment plants that produce biosolids in liquid form land apply that material, and intend to continue to do so for at least the next 5-10 years. Even if Pennsylvania adopts a phosphorus-based nutrient management system as is predicted, the Mifflin County Conservation District believes that sufficient land will still be available in the County to handle Mifflin County's continued and safe application of biosolids.

Other

The County should consider implementing a system of hauler licensing, administrative fee assessment, and other measures determined necessary to provide for the waste management needs of Mifflin County over the next 10 years. With the State's adoption of Act 90 (Waste Transportation Safety Program) in June 2002, implementation of new municipal or residual waste transportation licensing programs is prohibited on a county or municipal level. The County will support the state's program under Act 90; however, the County/MCSWA will evaluate whether a County hauler licensing program is preferable, should future regulations or legal challenges change the interpretation of this new Act. Chapter 5 contains further discussion of these possible Plan implementation tools.

Chapter 6: Location of Facilities and Programs

The Barner Landfill, currently operated by the MCSWA, is Mifflin County's only waste disposal facility. After the anticipated closure of the Barner landfill in 2004, disposal capacity agreements will be negotiated with each of the eight qualifying disposal facilities that responded to the SOI, or petitioned to be included in the Plan. The contract terms under each disposal option satisfy Act 101 requirements.

Chapter 7: Implementation

Chapter 7 discusses the various considerations associated with implementing this Plan, including implementing agency, implementation documents, method of funding the system, implementation schedule and public participation in the development of this Plan.

It is anticipated that the responsibility for implementing the Plan will be delegated to the MCSWA with this Plan Update (see Appendices G and H for the County's Resolution and Delegation of responsibility to the MCSWA). The implementing agency for the Plan should, at a minimum, either initiate or continue to do the following:

- Provide for adequate disposal capacity for the 10-year planning period for County generated municipal solid waste.

- Execute Municipal Waste Disposal Capacity Agreements with qualified facilities for municipal waste disposal services, and provide the administration of these agreements.
- Provide for qualified disposal facilities to be added to the Plan in the future.
- Continue to promote recycling activities, including the monitoring, documenting, and reporting of recycling activities to track County progress in meeting Pennsylvania's 35 percent recycling goal.
- Maintain and improve, as necessary, the County's existing municipal waste collection and disposal services. These services should be initiated to meet changing County needs and to provide a safe, reliable, effective and efficient solid waste management system.

Chapter 7 of this Plan identified the following planning initiatives to be considered and implemented (as feasible) by the designated Plan implementing agency:

- Establishment of a County administrative fee.
- Support the State's Waste Transportation Safety Program, as authorized under Act 90, to improve waste transportation safety within the County. Consider the establishment of a hauler licensing program for waste haulers, if such a program is not prohibited in the future.
- Expansion of recycling opportunities.
- Evaluation of the feasibility of developing a recycling program that could include additional drop-off sites, and/or Countywide "Green Box" trash collection and recyclables collection system.
- Evaluate the feasibility of developing a household hazardous waste program.
- Improvement of the public education for recycling and solid waste programs.
- Reduction of open/illegal dumping.
- Consideration of instituting a county-wide mandatory garbage collection ordinance.
- Support for schools and identification of funding sources for educational programs.
- Increased support of sludge and septage management activities. This may include continued evaluation for a regional sewage sludge processing and disposal facility/mechanism.
- Procurement and ownership of future waste management facilities (e.g. transfer station).
- Maximize the capacity and associated life of the Barner Landfill.
- Consider the use of the existing Council of Governments (COG) to assist with the implementation of the selected planning initiatives.
- Review of the County Plan annually to determine if planned programs for implementation have been addressed.

Funding of existing County Solid Waste Management programs (such as recycling) is primarily from revenues generated by the MCSWA at the Barner Landfill. Alternative sources of funding will be required for continuing these programs, as well as any additional waste management

initiatives, following the closure of the Barner Landfill in 2004. Funding sources could include any combination of a County administrative fee, revenues generated through a County-sponsored waste transfer station operation, and/or State Act 101 grant funding. Program funding should include the cost of administering the overall system.

Closure and post closure care for the Barner landfill will be afforded through funds that have been generated through Barner Landfill tip fees and reserved for this purpose.

Sludge generators pay for the disposal of their sludge as required by agreement between the contractor and disposal site owner.

If it is decided by the County/MCSWA entity to construct and operate a centrally located transfer station, the capital costs for the facility could be provided through a revenue bond or a form of short-term financing. Repayment and operation costs for the facility would be paid for through tip fees.

The institutional framework for implementing the County Plan is formed by the existing County Waste Management Ordinances and the Delegation Agreement between the County and MCSWA.

Table ES-5 shows the major waste management system functions and schedule for implementing the major tasks identified and proposed by this in this Plan.

TABLE ES-5
MIFFLIN COUNTY
MUNICIPAL WASTE MANAGEMENT SYSTEM
FUNCTIONS AND IMPLEMENTATION SCHEDULE

TASK OR FUNCTION	DATES
Waste Management System	
Plan Approval - PADEP	By end of 4th Quarter 2002
Execute Waste Disposal Facility Contract Agreements for Identified SOI and Application Package (Qualified) Respondents	By end of 1st Quarter 2003
Barner Landfill Post Closure Care	30 Year period expected to begin no sooner than mid-2004
Hauler Contracts	Continuing
Provide for Adequate Disposal Capacity	Continuing
Allow Qualified Facilities to be Added to the Plan	Continuing
Continued Monitoring, Documenting, and Reporting of Recycling Activities/performance	Continuing
Be the contracting party in the major waste disposal agreements	Continuing
Transfer Station (If Implemented)	
Decision Whether or Not to Proceed with County Transfer Station	By end of 3rd Quarter 2002
Start Final Design and Permitting	By end of 4th Quarter 2002
Secure Waste Commitments to Transfer Station	By end of 2nd Quarter 2003
Funding Commitment for Costs Associated with the Transfer Facility	By end of 2nd Quarter 2003
Bid Release	By end of 2nd Quarter 2003
Construction Notice to Proceed	By end of 3rd Quarter 2003
Start-up	Coincides with Barner closure – By end of 2nd Quarter 2004

(1) Refer to Section 7.1 for additional County planning initiatives established as part of this Plan Update process.

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 propose the optimal complementary use of a variety of management technologies, including waste reduction, recycling, waste processing, landfilling and waste-to-energy. The Act specifically requires that the county plan provide for the maximum feasible development and implementation of recycling programs.

This 2002 Mifflin County Municipal Waste Management Plan (Plan) builds upon and updates information contained in the 1991 Mifflin County Municipal Waste Management Plan. Beginning in 1997 and extending to the present, Mifflin County (County) and the Mifflin County Solid Waste Authority (MCSWA) have investigated several issues that will affect the long-term management of solid waste in Mifflin County. These investigations were included within the first two phases of a three-phase planning program, and provided the background necessary to develop future solid waste management strategies in Mifflin County. The third phase of the planning process included all the planning activities related to the development and completion of the Plan.

In the first phase of the three-phase planning process, the County and MCSWA worked to:

- Determine the viable capacity of the MCSWA's landfill.
- Evaluate the financial feasibility of establishing a municipal waste transfer station.
- Develop financial forecasts, including the overall financial obligations of the MCSWA.
- Negotiate with interested parties for the possible purchase of the MCSWA's facilities
- Negotiate with interested parties for the possible lease and operation of the MCSWA facilities

A more detailed description of Phase I planning activities is presented in the Phase I Planning Summary provided in Appendix N.

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

- Conducted a groundwater investigation in response to an environmental assessment of the MCSWA's landfill. This assessment was performed in conjunction with the possible sale/lease of the MCSWA's facilities.
- Performed financial analyses to determine an appropriate tip fee schedule, as required to meet long term financial obligations of the MCSWA
- Negotiated and executed waste hauler contracts with haulers using the MCSWA's landfill.
- Reassessed the MCSWA's financial position pertaining to landfill closure and post-closure care obligations and PADEP financial assurance requirements.
- Investigated various financial assurance scenarios, including the County's role in assisting the MCSWA, to meet closure and post closure care financial obligations.

A more detailed description of Phase II planning activities is presented in the Phase II Planning Summary provided in Appendix O.

In order to provide for public participation in the planning efforts related to this Plan, the Mifflin County Commissioners appointed the Solid Waste Advisory Committee (SWAC) in 2000 based on input from the MCSWA and the Mifflin County Planning and Development Department. The SWAC assisted the MCSWA 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 Mifflin County. SWAC members met initially in November 2000 and met periodically throughout all stages of the Plan update process. The current list of SWAC member is shown on the inside cover page of the Plan.

The purpose of this Chapter is to describe the types and quantity of municipal solid waste (MSW) generated in the Mifflin 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 Mifflin 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 - 1.11 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, and yard waste.

1.1.2 Description of the County

Mifflin County, located in the Appalachian Mountains of central Pennsylvania, was established as a County by a legislative act in 1789. The County is situated in the middle of the Susquehanna River Basin along the Juniata River as illustrated by the location map presented in Figure 1-1. The adjoining counties include Centre County to the north, Huntington County to the west, Juniata County to the south and Snyder and Union Counties to the east.

The County is 431.1 square miles in area and is located in the Valley and Ridge Physiographic Province of the Appalachian Mountains, characterized by northeast trending, parallel ridges and adjacent valleys. The bedrock consists primarily of sedimentary formations of limestone, dolomite, shale, and sandstone. There are twenty-two major geologic formations in Mifflin County, ranging in age from the Ordovician (500 to 440 million years ago) to Devonian (400 to 360 million years ago) Periods.

The topography of the County is characterized by parallel running mountain ridges that rise abruptly from the rolling hills of the valleys. Elevations above sea level range from 430 feet at the Juniata River to 2,430 feet on Jacks Mountain, which bisects the County northeasterly. The County is bordered by other prominent ridges, including Stone, Broad, Front and High Mountains to the northeast, and Blacklog, Blue and Shade on the southeast.

The County is made up of 16 municipalities: 10 townships and 6 boroughs. The north-south corridor, which parallels U.S. route 322 from Juniata County on the south to Centre County on the north, is the primary urbanization area and includes a number of inter-connected population centers and economic activities. Lewistown Borough, Granville Township, Burnham Borough, Derry Township, Armagh Township, Union Township, Menno Township and McVeytown Borough are the main economic activity centers, while the remaining townships and boroughs are rural in nature and contain only scattered commercial and industrial establishments. The Borough of Lewistown, in the center of the County, is the largest population center.

The estimated number of commercial, industrial, and occupied residential establishments is provided in Table 1-1.

TABLE 1-1
MIFFLIN COUNTY
ESTIMATED NUMBER OF ESTABLISHMENTS IN COUNTY

SECTOR	NUMBER
Commercial and Industrial [(1)]	931
Occupied Residential Housing Units[(2)]	18,413

[(1)] PA Department of Labor and Industry, ES-202 data file
[(2)] General Housing Characteristics, 2000 U.S. Census

1.2 POPULATION

The estimated population for year 2000 is 46,486 and is projected to grow moderately over the next 10 to 20 years. Table 1-2 presents the projected populations of each municipality. The 2000 populations are from the U.S. Census. The 2010 and 2020 population projections are from the Mifflin County Planning and Development Department.

Population projections indicate the County's population will increase from the year 2000 population of 46,486 to 49,448 by 2010 (6.4 percent growth rate from 2000 population) and to 52,516 by 2020 (13.0 percent growth from 2000 population). These figures indicate an annual growth rate of less than 1 percent.

1.3 DEFINITION OF WASTE TYPES

State law and regulations as well as the practical considerations of managing municipal waste necessitate that this Plan categorize municipal waste by type. Figure 1-2 depicts a classification scheme for the various waste types, based on definitions in State law and on standard usage of certain terms. The following subsections define the terms depicted in Figure 1-2.

TABLE 1-2
MIFFLIN COUNTY
COUNTY POPULATION PROJECTIONS

Mifflin County	2000[1]	2010[2]	2020[2]
Armagh Township	3,988	4,153	4,545
Bratton Township	1,259	1,474	1,520
Brown Township	3,852	3,927	4,363
Burnham Borough	2,144	2,046	2,008
Decatur Township	3,021	3,466	3,897
Derry Township	7,256	8,294	8,864
Granville Township	4,895	5,801	6,369
Juniata Terrace Borough	502	537	525
Kistler Borough	344	290	284
Lewistown Borough	8,998	8,847	8,820
McVeytown Borough	405	398	396
Menno Township	1,763	1,581	1,568
Newton Hamilton Borough	272	296	306
Oliver Township	2,060	2,190	2,538
Union Township	3,313	3,413	3,601
Wayne Township	2,414	2,735	2,912
Total Population	**46,486**	**49,448**	**52,516**

[1] 2000 U.S. Census.
[2] Projections from the Mifflin County Comprehensive Plan 2000 and Mifflin County Planning and Development Department. Projections were made prior to issuance of 2000 census data.

FIGURE 1-1

REGIONAL LOCATION MAP

MIFFLIN COUNTY, PA

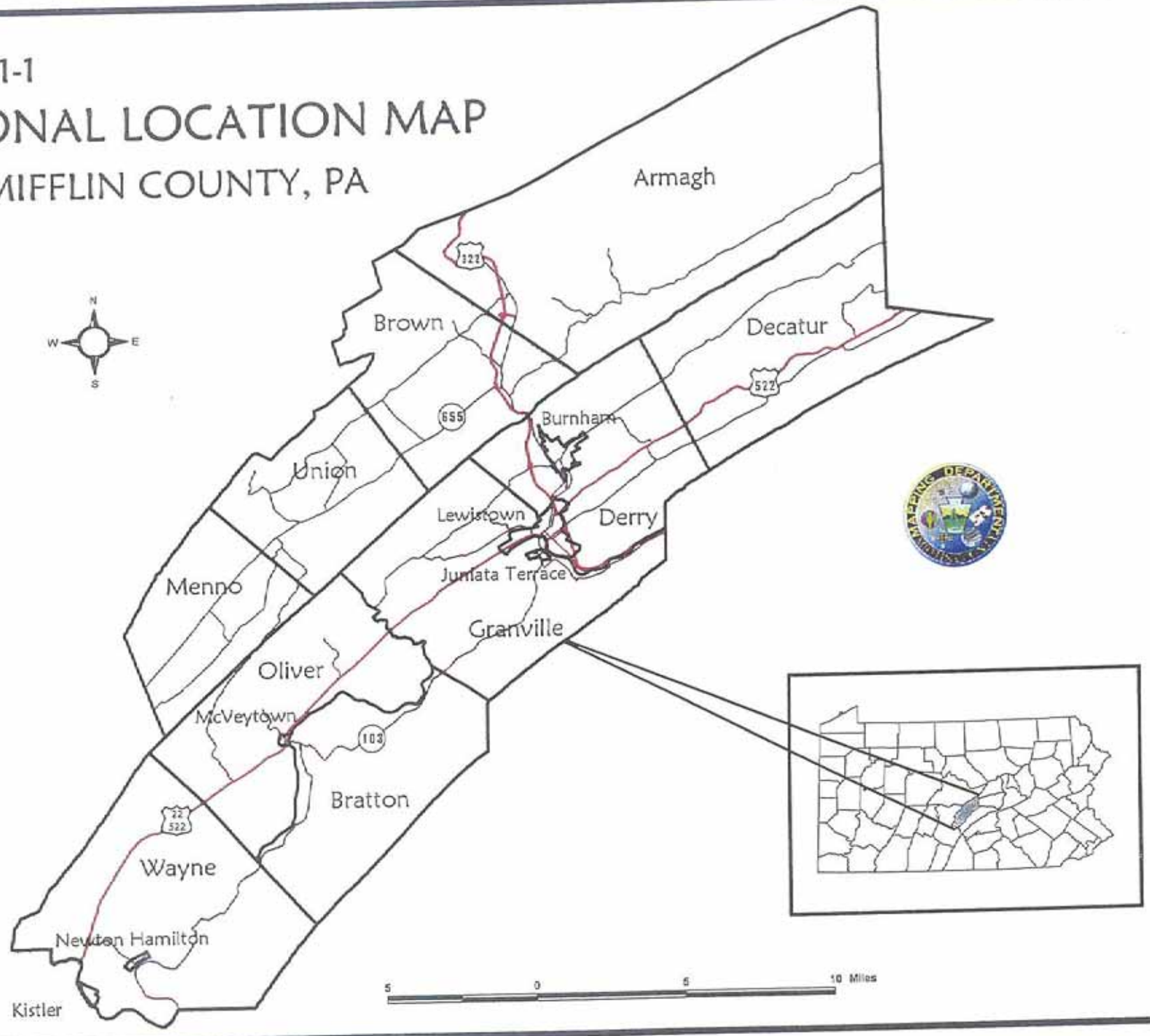
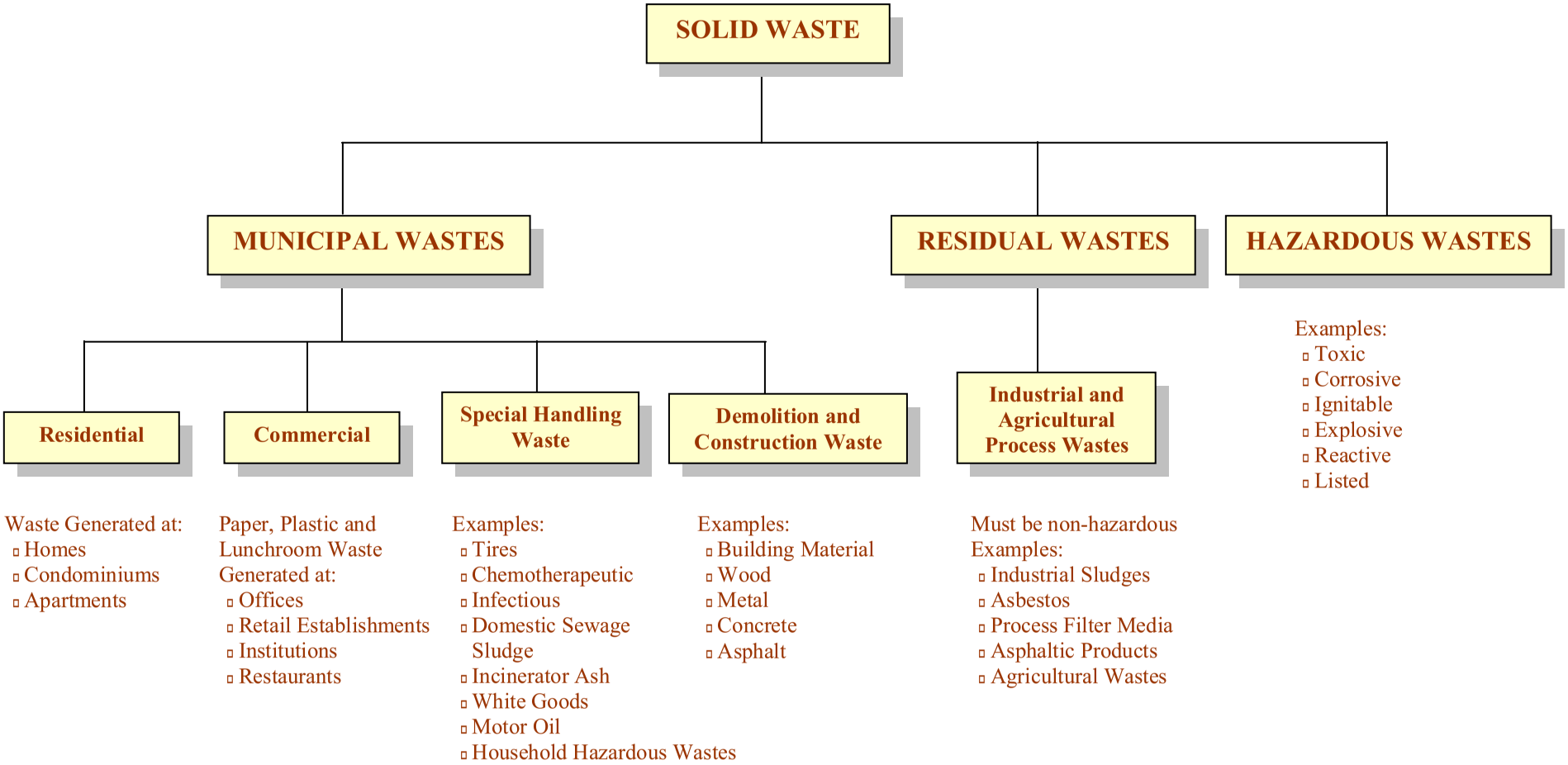


FIGURE 1-2
WASTE CATEGORIES
AS DEFINED BY THE PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION



1.3.1 Municipal Waste

1.3.1.1 Definition

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.

1.3.1.2 Municipal Waste Classification by Origin

Municipal waste can be classified according to the activity or by the sector where it is generated.

Residential waste, also referred to as household waste, is municipal waste that is generated in households.

Commercial waste is municipal waste that is generated in commercial establishments. A commercial establishment, under the regulations, is one that is engaged in non-manufacturing or non-processing business, including, but not limited to, stores, markets, office buildings, restaurants, shopping centers, and theaters. Commercial waste includes lunchroom and office waste generated at industrial establishments.

Institutional waste is municipal waste that is generated at institutional establishments, which are defined under the regulations as establishments which are engaged in service, including hospitals, nursing homes, orphanages, schools, and universities.

Waste that falls into one of the above three municipal waste categories is what is conventionally regarded as "municipal solid waste" or "municipal refuse". For instance, waste characterization studies, which describe the percent composition of various materials in the municipal waste stream, conventionally describe only this subset of the municipal waste stream. Further, the Commonwealth of Pennsylvania recycling goal of 25 percent (increasing to 35 percent in 2003) is interpreted to apply to these wastes (plus source-separated recyclable materials).

Sewage sludge is defined under 25 Pa. Code §271.1 of the Regulations as:

> "liquid or solid sludges and other residues from a municipal sewage collection or treatment system; and liquid or solid sludges and other residues from septic and holding tank pumpings from commercial, institutional or residential establishments.

> The term includes materials derived from sewage sludge. The term does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator, grit and screenings generated during preliminary treatment of sewage sludge at a municipal sewage collection and treatment system, or grit, screenings and nonorganic objects from septic and holding tank pumpings ."

Sewage sludge solids content can vary from very low (holding tank pumpings) to moderately high (air-dried sludge). Also, the nutrient value and heavy metals content vary, depending on factors such as the source of the wastewater and the treatment and stabilization processes employed.

The term ”biosolids” is commonly used to describe sewage sludge and is used interchangeably within this Plan.

Construction/demolition waste is defined in 25 Pa. Code §271.1 of the Regulations as:

> "solid waste resulting from the construction or demolition of buildings and other structures, including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, block and unsegregated concrete. The term does not include the following if they are separate from other waste and are used as clean fill:
>
> (i) Uncontaminated soil, rock, stone, gravel, brick and block, concrete and used asphalt.
>
> (ii) Waste from land clearing, grubbing and excavation, including trees, brush, stumps and vegetative material.

The term "construction/demolition waste" encompasses a broad variety of materials. It can include highly inert materials such as concrete; decomposable organic materials, such as wood; or, items with potentially harmful constituent materials such as a boiler. Municipal waste landfills may accept construction/demolition waste without any special modifications or other additional permit requirements. Also, a landfill may be permitted exclusively as a construction/demolition waste landfill. Design requirements for such facilities are nearly as stringent as for municipal waste landfills.

1.3.1.3 Special Handling Wastes

Within the above municipal waste classes 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.

1.3.3 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, and 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) or 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.

1.3.5 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, 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.

1.4 MUNICIPAL SOLID WASTE GENERATION

This section presents projected quantities of municipal solid waste from Mifflin 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 solid waste.

1.4.1 Overview of Estimating Method

The quantity of municipal waste generated in Mifflin County, as reported to PADEP in year 2000, and population projections from the Mifflin County Planning and Development Department were used to calculate the current per capita rate of municipal solid waste generation. Table 1-3 identifies the tons of waste received at disposal facilities from Mifflin County sources in 2000, based on PADEP Waste Destination Reports.

In projecting gross generated waste discards (i.e., before recycling and composting), the tons of material diverted through recycling and composting in year 2000 were added to the total

MSW tons disposed (including C&D waste), as shown in Table 1-3. The Mifflin County Year 2000 Act 101 Annual Report estimates that 11,650 tons of material were recycled in the County. This quantity of recycled materials (recycling and yard waste composting) represents approximately 26% of the gross quantity of municipal waste, including C/D waste and recyclables, generated in Mifflin County in 2000. The resulting quantities, the estimated year 2000 gross discards of municipal solid waste generated by each municipality, are presented in Table 1- 4. The resulting figure of 45,511 tons [26,657(MSW) + 7,204(C/D) + 11,650(recycling)] measures the *gross discards* of waste materials.

Using year 2000 gross waste quantity estimates and the year 2000 county population, the gross municipal waste generation rate in Mifflin County has been calculated at 0.979 tons per capita per year. This generation rate excludes sewage sludge (i.e., biosolids) 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) discards can be estimated. The year 2000 26% waste diversion rate is projected to grow slowly over the planning period, to 35% by 2010, and then to stabilize at 35% through 2020. Mifflin County's projected gross and net discard estimates are shown in Table 1-5.

Projected gross discards were calculated by applying the current per capita waste generation rate to population projections, assuming steady population growth between 2000 and 2020. While per capita waste generation has increased historically, it is assumed that this rate has peaked and will remain level. Table 1-5 presents projected gross and net discards between 2000 and 2020.

The projected net discards requiring disposal were calculated by projecting the County's gross discards over the next twenty years and then subtracting projected rates of diversion (estimated by percentage for 2000-2020) resulting from waste reduction and recycling.

TABLE 1-3
MIFFLIN COUNTY
MSW RECEIVED FROM MIFFLIN COUNTY
AT DISPOSAL FACILITIES (2000)[1]

Disposal Facility	Municipal Waste (tons)	C&D Waste (tons)	Sewage Sludge[2] (tons)	Other Special Handling Waste (tons)	Residual Waste (tons)	Total Waste Receipts (tons)
Cumberland County Landfill				33		33
Wayne Township Landfill (Clinton County)				31		31
Lycoming County Landfill					70	70
Barner Landfill (Mifflin County)	13,964	6,501	1,398		5,773	27,636
Bradford County Sanitary Landfill					95	95
Lancaster County Landfill (Frey Farm Landfill)					46	46
Superior Greentree Landfill					83	83
Laurel Highlands Landfill		98		26		124
Sandy Run Landfill	12,693	605				13,298
Lancaster County Resource Recovery Facility					4,861	4,861
Totals	**26,657**	**7,204**	**1,398**	**90**	**10,928**	**46,277**

(1) PADEP - County Waste Destination Reports - 2000.
(2) Only landfilled sewage sludge quantities are listed.

TABLE 1-4
MIFFLIN COUNTY
PROJECTED GROSS DISCARDS BY MUNICIPALITY
(MUNICIPAL WASTE TONS PER YEAR 2000)

Municipality	2000 Population[1]	Gross Discards[2] (tons per year)
Armagh Township	3,988	3,904
Bratton Township	1,259	1,233
Brown Township	3,852	3,771
Burnham Borough	2,144	2,099
Decatur Township	3,021	2,958
Derry Township	7,256	7,104
Granville Township	4,895	4,792
Juniata Terrace Borough	502	491
Kistler Borough	344	337
Lewistown Borough	8,998	8,809
McVeytown Borough	405	396
Menno Township	1,763	1,726
Newton Hamilton Borough	272	266
Oliver Township	2,060	2,017
Union Township	3,313	3,244
Wayne Township	2,414	2,364
Totals	**46,486**	**45,511**

[1] 2000 Population based on U.S. Census Data
[2] Based on 0.979 tons per capita waste generation rate using population projections (refer to Table 1-3). Numbers are rounded.

TABLE 1-5
MIFFLIN COUNTY
PROJECTED GROSS AND NET DISCARDS OF MSW
(2000 - 2020)

Year[1]	Population[2]	Gross Discards (tons)[3]	Diversion Rate[4]	Net Discards (tons)[5]	Waste Diverted to Recycling (tons)[6]
2000	46,486	45,511	26%	33,861	11,650
2001	46,773	45,791	26%	33,885	11,906
2002	47,063	46,075	27%	33,635	12,440
2003	47,354	46,360	28%	33,379	12,981
2004	47,647	46,646	29%	33,119	13,527
2005	47,942	46,935	30%	32,855	14,080
2006	48,239	47,226	31%	32,586	14,640
2007	48,537	47,518	32%	32,312	15,206
2008	48,838	47,812	33%	32,034	15,778
2009	49,140	48,108	34%	31,751	16,357
2010	49,449	48,411	35%	31,467	16,944
2020	52,515	51,412	35%	33,418	17,994

(1) Year 2000: Gross Discards ÷ 2000 Census Population = 0.979 tons per capita. Assumed constant for projections.
(2) 2000 population based on U.S. Census data. 2010 and 2020 Population Projections: Mifflin County Comprehensive Plan 2000 and Mifflin County Planning and Development Department.
(3) Projected Gross Discards based on a per capita generation rate of 0.979 tons.
(4) 2000 diversion rate based on Mifflin County Annual 2000 Recycling Report. 2001 through 2010 diversion rate estimated to achieve PADEP goal of 35 percent recycling rate by 2010. 2020 diversion rate estimated to remain at 35%.
(5) Net Discards = Gross Discards × (100% - Diversion Rate). Tonnages are approximate.
(6) Gross Discards - Net Discards = Waste Diverted to Recycling. Diversion Projections 2001-2020 based on achieving DEP recycling percentage requirements by Year 2010.

1.4.2 Municipal Waste Composition

Mifflin County's municipal waste stream, exclusive of construction/demolition waste and sewage sludge, is described using results from previously completed waste composition studies. A waste composition study identifies the percentage of the total waste stream comprised of various types of materials. The most often-cited waste characterization study was conducted by Franklin Associates, Ltd., for the U.S. Environmental Protection Agency (USEPA). Unlike most studies, this USEPA study is not based on sorted samples of actual waste streams. Rather, this study

used national production statistics in a materials flow model. In the near future, Mifflin County will be able to reference PADEP's Waste Composition Study and Recycled Materials Composition Study that is expected to be completed in 2002. The study will identify the types of materials in the typical Pennsylvania waste stream by volume and by weight. Until the PADEP study findings are available, the Franklin/USEPA Study provides the best and most widely referenced information on waste composition.

From 1986 to 1987, Gannett Fleming conducted a similar study of the waste streams of two communities in Montgomery County, Pennsylvania. This study was conducted over a period of 12 months and shows composition trends throughout the year. The results of the USEPA and Montgomery County studies are presented together in Table 1-6 for comparison. All numbers are the percent by weight of the material in the municipal waste stream. The values do not account for recycling. For the Montgomery County study, which was based on net discards received at their transfer stations, the percentages of gross discards were estimated by adding reported recycled quantities back in.

The Montgomery County study confirms that the USEPA/Franklin Associates, Ltd. composition study is representative of this area of the country and can be used in this plan for estimating purposes.

1.5 CONSTRUCTION AND DEMOLITION WASTE GENERATION

The total quantity of construction and demolition (C&D) waste disposed that was generated in Mifflin County in 2000 was 7,204 tons according to PADEP County Waste Destination Reports, or approximately 0.155 tons per capita per year. Construction and demolition waste was disposed at the following facilities in 2000: Barner Landfill, Laurel Highlands Landfill and the Sandy Run Landfill. C&D waste generation is expected to mirror Mifflin County's slow population growth. C&D generation is estimated to increase from approximately 7,204 tons in 2000 to approximately 8,140 tons in year 2020 (at 0.155 tons per capita per year).

It should be noted that C&D materials such as wood, bricks, concrete, and asphalt are potentially recyclable. An undetermined volume of C&D waste materials may also have been diverted from the County's wastestream through recycling and/or reuse.

1.6 SEWAGE SLUDGE GENERATION

Mifflin County has six operating municipal treatment/collection systems, one proposed municipal facility, and three non-municipal collection systems. Combined, these treatment and collection systems service 10 municipalities. Figure 1-3 shows the location of County pump stations and wastewater treatment facilities in Mifflin County and their respective service areas.

In order to obtain data on each source of sludge generation, municipal wastewater sludge surveys were sent to identified municipal and non-municipal wastewater treatment plants in the County. Wastewater survey results are presented in Table 1-7.

TABLE 1-6
MIFFLIN COUNTY
ESTIMATED COMPOSITION OF MSW (percent, by weight)

Material	U.S. EPA National Average 1997[1]	Study Performed for Montgomery County, PA[2] I	Study Performed for Montgomery County, PA[2] II	Mifflin County, PA[3]
Paper and Paperboard				
Newsprint	5.8	7.7	10.1	5.8
Corrugated	13.8	11.3	12.1	13.8
Office Paper	3.2	--	--	3.2
Other Paper	15.3	21.3	22.8	15.3
Paper Subtotal	**38.1**	**40.3**	**45.0**	**38.1**
Glass				
Containers	5.3	--	--	5.3
Other	0.6	--	--	0.6
Glass Subtotal	**5.9**	**4.6**	**5.7**	**5.9**
Ferrous				
White Goods	1.7	1.8	1.8	1.7
Containers	1.3	--	--	1.3
Other	2.6	3.8	3.6	2.6
Ferrous Subtotal	**5.6**	**5.6**	**5.4**	**5.6**
Non-Ferrous				
Aluminum Cans	0.8	--	--	0.8
Other Aluminum	0.6	0.8	0.7	0.6
Other Non-Ferrous	0.6	2.7	2.6	0.6
Non-Ferrous Subtotal	**2.0**	**3.5**	**3.3**	**2.0**
Plastic				
Containers	1.3	--	--	1.3
Packaging	2.6	--	--	2.6
Other Plastic	5.5	--	--	5.5
Plastic subtotals	**9.4**	**5.4**	**5.2**	**9.4**
Textiles	**3.7**	**1.5**	**1.8**	**3.7**
Wood	**5.2**	**5.7**	**5.1**	**5.2**
Food Waste	**10.4**	**7.1**	**8.4**	**10.4**
Yard Waste	**13.4**	**18.8**	**13.0**	**13.4**
Rubber & Leather	**3.0**	**1.1**	**1.1**	**3.0**
Other Waste	**3.3**	**6.4**	**6.0**	**3.3**
Total	**100.0**	**100.0**	**100.0**	**100.0**

(1) Source: USEPA/Franklin Associates, Ltd. Characterization of Municipal Solid Waste in the United States, 1997 Update. Does not include construction/demolition waste.
(2) Source: Gannett Fleming, Inc., 1989.
(3) The USEPA estimates are assumed to be a reasonable estimate of Mifflin County's waste composition, and are used for planning purposes in the Mifflin County Plan.

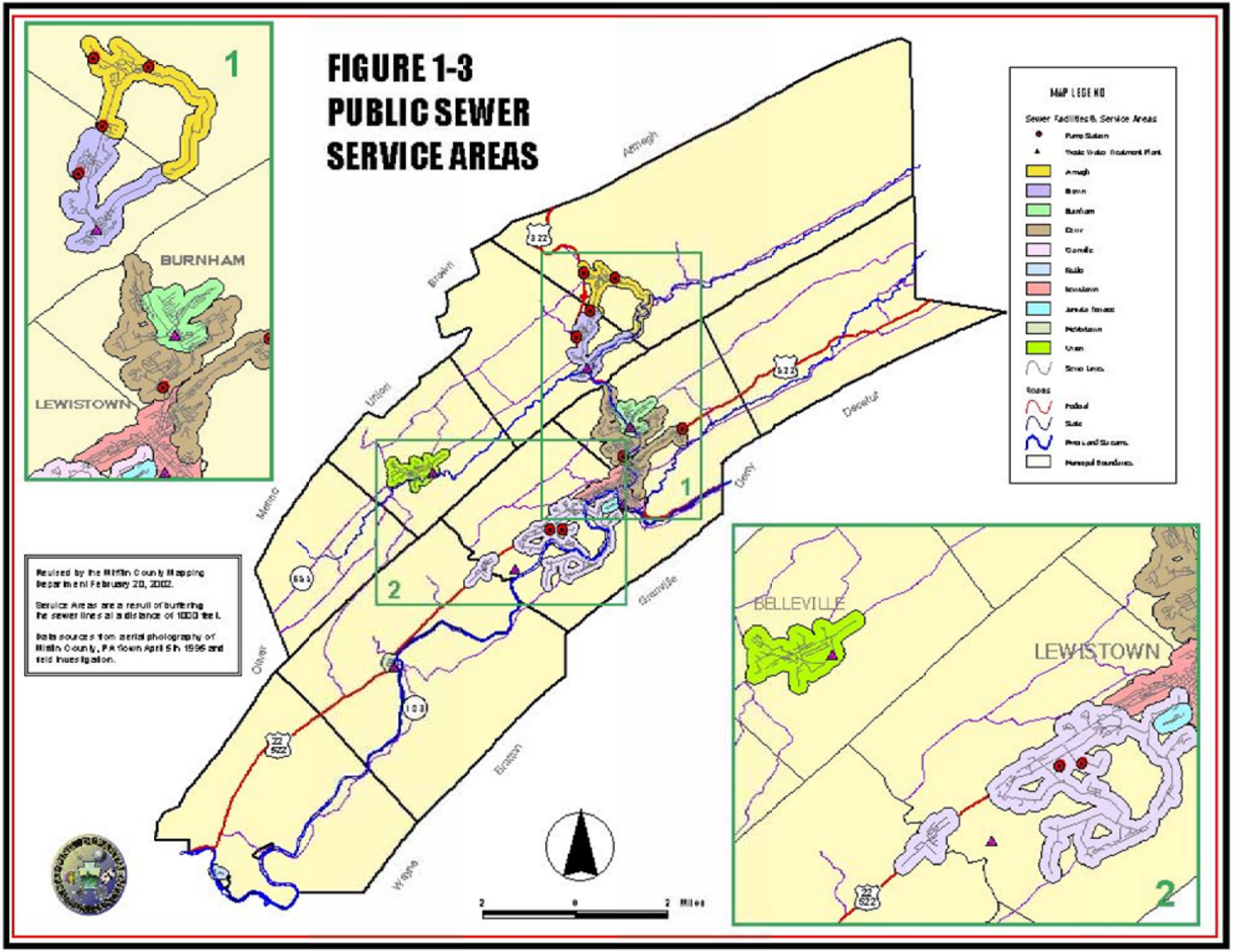


FIGURE 1-3
PUBLIC SEWER
SERVICE AREAS
1
BURNHAM
LEWISTOWN
2
BELLEVILLE
LEWISTOWN
Armagh
Brown
Union
Decatur
Derry
Granville
Bratton
Menno
Oliver
Wayne
MAP LEGEND
Sewer Facilities & Service Areas
Roads
Revised by the Mifflin County Mapping Department February 20, 2002.
Service Areas are a result of buffering the sewer lines at a distance of 1000 feet.
Data sources from aerial photography of Mifflin County, PA taken April 5th 1996 and field investigation.
2 0 2 Miles

TABLE 1-7
MIFFLIN COUNTY SLUDGE QUANTITIES AND CHARACTERISTICS
MUNICIPAL AND NON-MUNICIPAL WASTEWATER TREATMENT PLANTS

MUNICIPAL WWTP	Plant Capacity (MGD)	1999 Average Wastewater Flow (MGD)	2010 Projected Flow (MGD)	1999 Sludge Production[1]				
				Solids (DTPD-5)	Phase	Cake (WTPD-5)	Liquid (GPD)	Percent Solids
Brown Township	0.60	0.33	.450-.500	.224	Liquid	NA	2,000	1.9
Burnham Borough	0.64	0.35	0.48	.126	Dewatered	.154	NA	85.5
Granville Township	0.50	0.24	0.57	.252	Dewatered	1.64	NA	15.0
Lewistown Borough	2.82	1.72	2.00	.574	Dewatered	3.00	N/A	19.0
McVeytown Borough	0.09	0.03	NR (Assumed 0.03)	.028	Liquid	NA	363	1.2
				.014	Dewatered	.010	NA	92.0
Union Township	0.49	0.23	0.27	.098	Reed Beds	NA	1,157	1.5
Wayne Township (Proposed)	0.12	NA	0.01	NA	Liquid	NA	NA	NA
TOTALS	**5.26**	**2.90**	**3.84**	**1.193**				
NON-MUNICIPAL	Plant Capacity (MGD)	1999 Average Wastewater Flow (MGD)	2010 Projected Flow (MGD)	1999 Sludge Production[1]				
				Solids (DTPD-5)	Phase	Cake (WTPD-5)	Liquid (GPD)	Percent Solids
Beacon Lodge Camp[2]	0.02	0.003	0.003	.143	Liquid	NA	61	40.0
Reeds Gap State Park[3]	0.04	0.01	0.01	0.00	None	0.00	0.00	0.0
Mifflin County School District[4]	0.0065	0.0017	NR (Assumed 0.0017)	NA	Liquid (Pumped)	NR	NR	NR
TOTALS	**0.0665**	**0.0147**	**0.0417**	**.143**				

Source: 2000 WWTP Survey; 2002 Mifflin County Municipal Waste Management Plan.
NA = Not Applicable NR= Not Reported
(1) DTPD-5, dry tons per day, 5 days per week; WTPD-5, wet tons per day, 5 days per week; GPD, gallons per day, 30 days per month; percent solids, in wet sludge.
(2) Flow only present June through September.
(3) Has never generated enough sludge to require disposal.
(4) Sludge is pumped and disposed of at local treatment plant.

1.6.1 Municipal Wastewater Treatment Facilities

At present, Mifflin County has six operational and two proposed municipal wastewater treatment facilities. The locations of the operating facilities are presented in Figure 1-3. The two future facilities are proposed for Wayne Township and Bratton Township. Final site locations have not been determined for the proposed facilities and therefore are not presented in Figure 1-3. The total design capacity of the municipal facilities is 5.26 million gallons per day (MGD). Combined, the six operating facilities treat an average of approximately 2.90 MGD of wastewater, based on 1999 wastewater treatment plant survey data. These facilities are estimated to be at 55 percent of total design capacity.

The total quantity of sludge produced from the municipal treatment facilities in Mifflin County is 5.96 dry tons per week or 1.19 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 Mifflin County.

1.6.2 Non-municipal Wastewater Treatment Facilities

In addition to these municipal treatment/collection systems, there are also three non-municipal sewage treatment systems. These systems serve one school district and two recreational facilities. Approximately 0.14 DTPD-5 of sludge is produced by these three private and institutional facilities.

1.6.3 Septage

Septage generated in Mifflin County must be disposed of at a permitted disposal site. Disposal sites receiving septage from Mifflin County include: permitted agricultural fields and municipal wastewater treatment facilities. Municipal wastewater treatment plants currently accepting septage include: Granville Township; Lewistown Borough; and Union Township. To lessen the problem of locating septage disposal sites, municipal wastewater treatment plant operators are encouraged to accept septage from their municipal service areas.

Only one septage hauler of the five identified County haulers that were surveyed in 2000 responded to the survey. The Septage Hauler survey results are presented in Appendix A. Section 1.6.4 describes the estimating method used for projecting septage quantities in Mifflin County.

1.6.4 Septage Quantity Estimates

To determine the volume of septage produced in Mifflin 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 Engineering Fact Sheet – Septic Tank Pumping (SW-40), a 900-gallon tank is the average size required by municipal regulation. Based on this fact sheet, a 900-gallon septic tank servicing a household of three persons should be pumped every 3.3 years.

Using the 2000 Census information and data from Mifflin County, there are a total of 20,745 housing units in the County, 18,413 of which are occupied. The County estimates that a total of 11,628 housing units (occupied) are connected to public sewers and a total of 6,785 units are connected to on-lot septic systems. Based on the ratio information developed from occupied housing data listed above, it is estimated that 63% of the total housing units in Mifflin County (occupied and vacant) are connected to or have access to public sewer service. Therefore, an estimated 13,069 housing units have public sewer service and 7,676 housing units have on-lot sewer systems currently in Mifflin County.

The average number of people per occupied housing unit in the County is about 2.52 (46,486 Year 2000 census pop./18,413 occupied housing units). Using this information, it is estimated that 17,098 people in Mifflin County currently use on-lot sewer systems (6,785 occupied units x 2.52 people per occupied unit), which represent approximately 36.8% of the County population.

Using 2.52 people per occupied housing unit on septic systems in conjunction with the Agricultural Engineering Fact Sheet, a 900-gallon septic tank in Mifflin County should be pumped every 3.9 years. If this pumping frequency is applied to all septic systems in Mifflin County, it is estimated that an average of approximately 1,565,800 gallons of septage would be pumped annually from septic tanks in the County (6,785 septic systems x 900 gallons/3.9 years pumping frequency). This is equivalent to about 91.6 gallons of septage generated per capita for County residents served by septic systems.

1.6.5 Septage and Sludge Projections

Using the County population projections from Table 1-2, assuming a constant percentage of the County population served by septic systems in the future (36.8%), and assuming a constant per capita septage generation rate (91.6 gallons per capita per year), projections of septage quantities through 2020 can be computed. These are presented in Table 1-8.

Table 1-8 also presents projected wastewater treatment plant biosolids quantities through 2020. The Year 2000 values are from the 2000 WWTP Survey as presented in Table 1-7 (1999 values in Table 1-7 are assumed equal in 2000). Year 2010 values are based on projected Year 2010 wastewater flows from the 2000 WWTP survey. Year 2020 projections were developed by escalating the Year 2010 quantities by the projected percent increase in County population between 2010 and 2020.

TABLE 1-8

MIFFLIN COUNTY
BIOSOLIDS AND SEPTAGE GENERATION QUANTITIES (2000-2020)

Biosolids Generation	**2000**	**2010**	**2020**
Dry tons per day, 5-day basis	1.34	1.70	1.80
Wet tons per day, 5-day basis (dewatered portion)	4.80	6.33	6.72
Wet tons per year (dewatered portion)	1,248	1,646	1,748
Gallons per day (liquid portion)	3,580	4,715	5,007
Gallons per year (liquid portion)	1,306,700	1,721,000	1,827,700
Septage Generation	**2000**	**2010**	**2020**
Estimated population on septic systems	17,098	18,188	19,316
Gallons per day	4,290	4,564	4,848
Gallons per year	1,565,800	1,666,000	1,769,400

1.7 INFECTIOUS AND CHEMOTHERAPEUTIC WASTE

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

The principal generator of infectious and chemotherapeutic waste is Lewistown Hospital. Lewistown Hospital and other County-related medical facilities generate the overwhelming 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.

The 1989 Pennsylvania Infectious and Chemotherapeutic Waste Plan reported an estimated annual generation of 378 tons of infectious and chemotherapeutic waste in Mifflin County.

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 which regulate hazardous wastes, but the disposal of hazardous waste from households is exempt form these regulations. PADEP requires that HHW is addressed in County solid waste plans. Currently, Mifflin County does not implement a household hazardous waste collection program.

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.

Recently, PADEP and MSE Environmental, Inc. entered into contract authorizing MSE to be the licensed transporter of Hazardous Waste for the state, and to provide assistance for implementing Household Hazardous Waste programs for any municipality. Under this program, Mifflin County would be eligible for 50 percent reimbursement of all costs of the program. After the County specifies a location and date for the HHW collection event, MSE would handle organizing the event, advertising (flyers), and providing traffic control. MSE assumes liability under this agreement.

1.9 RESIDUAL WASTE

The quantity of residual waste generated in Mifflin County was determined by reviewing the PADEP County Waste Destinations Reports from area landfills. The total tonnage of residual waste disposed at approved disposal facilities in 2000 was 10,928 tons. Additional quantities of residual waste from Mifflin County may be disposed in captive facilities owned by private industry, or in other disposal sites located out-of-state.

1.10 WASTE TIRES

Proper disposal of waste tires is a particular planning concern for Mifflin County because of the large number of existing illegal dumpsites that continue to attract illegal dumping of tires and other waste. The Barner Landfill in Lewistown accepts car & light truck tires at $2.00 each off the rim and $3.00 each on the rim. Tires received in quantities of 10 or more are charged by weight at a cost of $140.00 per ton. Tractor-trailer tires are $140.00 per ton regardless of quantity but no industrial size tires are accepted by the landfill.

In 2000, 260 tons of waste tires were received by the Barner Landfill. The majority of these waste tires are processed by Mahantango Enterprises located in Liverpool, Pennsylvania. Mahantango operates two primary shredders to process the tires. After processing, the shredded material is sent to various manufacturers who melt and mold the rubber into playground rubber, fuel chips (burn), footings for horse arenas, crumb rubber moldings and a variety of other end products.

The MCSWA plans to continue to operate its recyclable material drop-off facility (including acceptance of waste tires) following closure of the Barner Landfill and transition to a waste transfer operation. All recycling activities undertaken by MCSWA will continue to be performed in full compliance with applicable regulations, including those authorized under Act 111 (Waste Tire Hauler Authorization Act).

1.11 LEAF AND YARD WASTE

Mifflin County collects leaf and yard waste through curbside collection and drop-off recycling sites. Combined, Lewistown Borough and Derry Township curbside programs collected 137 tons of leaf and yard waste in year 2000, based on Act 101 recycling reports. Generally, these materials are transported to the Barner Landfill site for mulching and/or composting. An additional 350 tons of leaf and yard waste was collected at the Barner Landfill and Lewistown drop-off sites. In total, 487 tons of leaf and yard waste was documented as collected in Mifflin County in 2000.

In addition, several other Mifflin County municipalities reportedly collect leaves (Burnham and McVeytown boroughs, Union and Brown townships), but the tonnages collected are unavailable. McVeytown Borough reported that collected leaves are given to a resident(s) for use in gardening. Burnham Borough reported that collected leaves are either spread on the ground at the "Jamboree Grounds" or given to a resident(s) for gardening. Brown Township reported that collected leaves are transported to a local farmer's field where they are tilled into the field. Union Township also reported that collected leaves are delivered to a farm field. Generally, these leaves are sent directly to farm fields where they are tilled into the soil, or given to residents for agricultural uses.

The MCSWA plans to continue to operate its recyclable material drop-off facility (including acceptance of leaf and yard waste) following closure of the Barner Landfill and transition to a waste transfer operation. All recycling activities undertaken by MCSWA will continue to be performed in full compliance with applicable regulations, including the Permit–by-Rule Guidelines for Yard Waste Composting Facilities.

CHAPTER 2
EXISTING WASTE MANAGEMENT SYSTEM

It is necessary to understand the existing waste management system in Mifflin 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

Table 2-1 presents information on waste collection practices of municipalities in Mifflin County. The table reveals that waste collection and hauling in Mifflin County is primarily handled by five private hauling firms operating in 15 municipalities of the County and by municipal collection within the Borough of Lewistown. Within 14 of the County's 16 municipalities, residents are responsible for arranging waste collection services with a private hauler “subscription service”. The Borough of Juniata Terrace contracts with a hauler (municipal bid contract) to provide collection to their residents. The Borough of Lewistown provides collection of waste as well as curbside recycling using municipal crews. Most of the municipalities in the County have solid waste management ordinances governing municipal collection.

Table 2-2 lists the large, full-service refuse haulers currently operating in Mifflin County. The five identified large private haulers disposed of 16,940 tons, and the Borough of Lewistown disposed of 5,700 tons of Mifflin County waste at the Barner Landfill in 2000. It is noted that approximately 18,600 additional tons of Mifflin County municipal and residual waste was 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. Mifflin County also has an additional 125(+/-) small haulers and individuals that provide disposal services to County residents, businesses, and institutions. Many of these haulers are very small private haulers that typically provide: general refuse hauling (i.e. residential or commercial); C&D waste collection, processing and disposal; and residual waste collection and disposal. Additionally, many individual County residents take refuse directly to the Landfill.

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 300 persons per square mile. Lewistown residents (the only mandated residents) currently pay, on average, approximately $36.00 per household per quarter for their waste collection and disposal and recycling program services. All other non-mandated municipalities, whose residents are responsible to contract for waste disposal services with a waste hauler, pay a range of approximately $40.00 - $50.00 per quarter per year for these services without recycling.

TABLE 2-1
MIFFLIN COUNTY
SUMMARY OF MUNICIPAL SURVEYS

	Municipality															
Item	Lewistown	Derry	Bratton	Juniata Terrace	Armagh	Kistler	Wayne	Oliver	Burnham	McVeytown	Union	Granville	Decatur	New Hamilton	Brown	Menno
Disposal Site	Barner	Barner	Barner	Barner	Barner	NP	Barner/ Bedford	Barner	Barner	Barner	Barner	Barner	Barner/ WSI site	Barner	Barner	Barner
Percent population and frequency (times/week) of regular refuse collection	100% / 1	85%/ 1	60% / 1	100% / 2	NP / 1	90%/1	NP / 1	NP/1	100% / NP	95%/1	NP/1	NP/1	<50%/1	NP/1	NP	NP
Average solid waste volume collected/week	112.75 tons	NP	8-10 lbs	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Residential refuse collection provided by (1)	M	S	S	C	NP	S	S	S	Private Carriers	S	S	S	S	S	NP	NP
License private municipal waste haulers	No	Yes	No	No	Yes	No	NP	Yes	No	No	Yes	Yes	No	No	NP	NP
Average annual cost per household for solid waste collection/disposal	$142	$162	$168	$122.40	$184	$180-$204	$150-$200	$180	Varies	$180	$188	NP	$144-$180	$180	NP	NP
Sponsor special handling waste collection	Yes	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	NP	NP
Support county wide ordinance requiring mandatory garbage collection	Maybe	Maybe	No comment	Yes	Yes	NP	No	NP	Yes	Yes	maybe	No	No	Yes	NP	NP
Describe recycling activities/programs	(2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	NP
Recyclable materials collected	(3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	cans, paper, glass	N/A	N/A	N/A	N/A	NP
Current Act 537 plan / date	Yes / early 1970's	Yes/1997	Yes/1996	Yes/1997	Yes/1998	Yes/ NP	Yes/1999	Yes/1993	Yes/NP	No/N/A	Yes/1997	Yes/2001	Yes/NP	No	in process	NP
Septage hauling registration program	No	in process	No	N/A	No	N/A	No	in process	N/A	N/A	No	Yes	No	No	NP	NP
Method/system to track disposal of septage	No	in process	No	N/A	Yes	N/A	No	No	N/A	N/A	No	No	Yes	No	NP	NP
Interest in County maintained tracking system	No	will have own	No comment	N/A	have own	N/A	No	No	N/A	N/A	No	No	have own	Yes	NP	NP
Ordinance that establishes septage disposal management program	No	Yes	No	N/A	Yes	N/A	No	in process	N/A	N/A	No	No	Yes	No	NP	NP
Program for monitoring restaurant grease traps and car wash grit traps	No	yes	No	No	No	No	No	No	No	No	No	No	No	No	NP	NP
Number of on-lot systems	3	600	600	0	1,000	0	1000	175	0	0	NP	1262	1000	90	NP	NP
Collect leaves,grass, yard waste/ annual amount	43.9 tons Grass - Unknown Other - 50	Leaves - 100 tons	No	No	No	No	No	No	Leaves - NP	Leaves, grass, and yard waste = 10 cubic yards	Leaves-NP	No	No	No	Leaves-NP	NP

Notes:

(1) M = Municipal Crew C = Contract S = Subscription

(2) Fully operational recycling program as required by Act 101 of 1988 began in 1991. Future plans to open a manned drop-off site to increase recyclable materials that can be eliminated for waste stream.

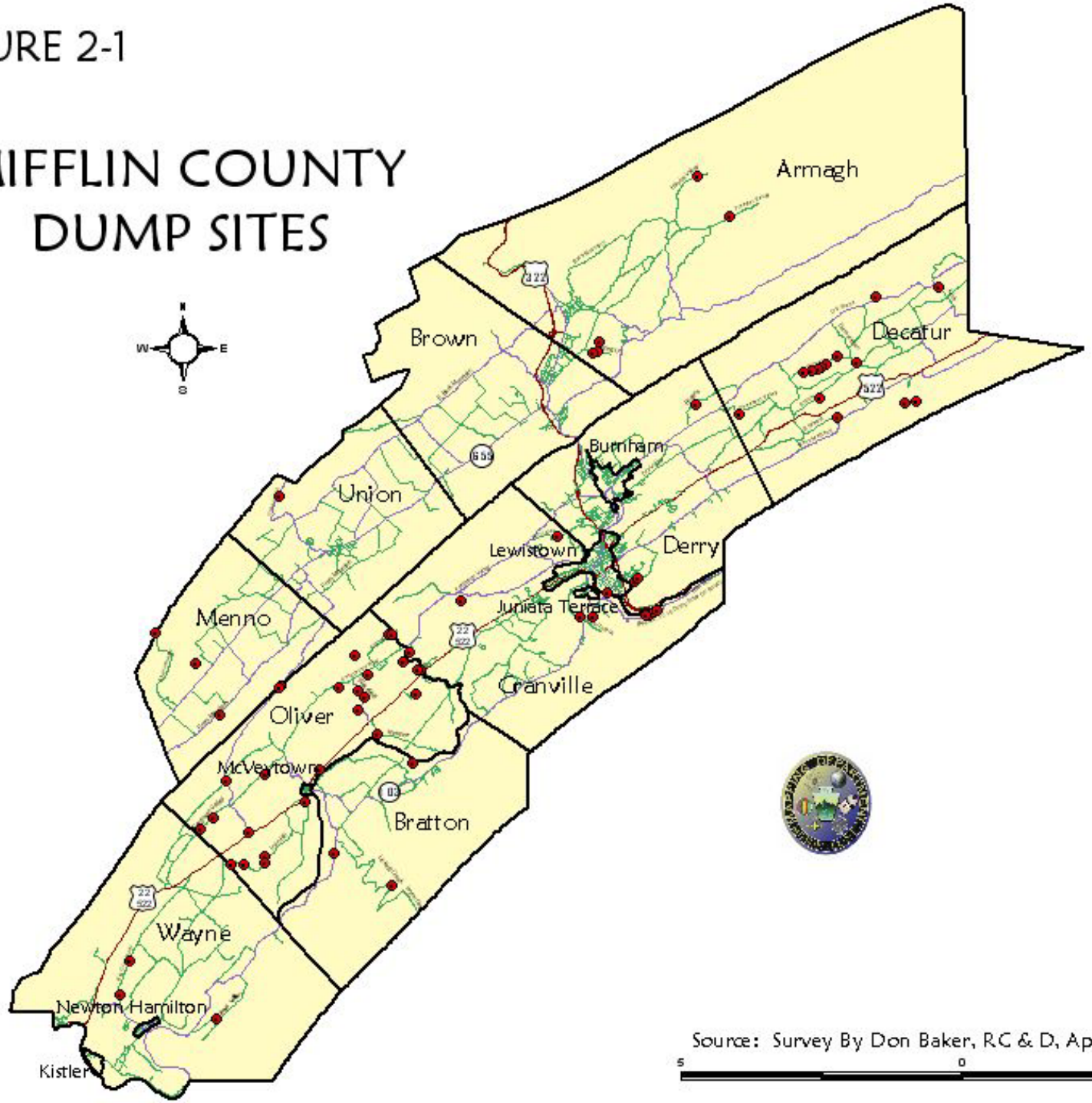
(3) Aluminum cans, steel and bi-metal cans, newspaper, clear and brown glass, plastic soda and milk containers, cardboard, high-grade office paper, leaves, yard waste

N/A - Not Applicable

NP - Not Provided

FIGURE 2-1

MIFFLIN COUNTY DUMP SITES



Number Of Sites In Each Municipality

Armagh-5
Union-1
Menno-3
Decatur-12
Derry-3
Lewistown-1
Granville-18
Oliver-24
Bratton-3
Wayne-3

LEGEND

Dumpsites

Roads

Federal

State

Municipal

Municipal boundary

Source: Survey By Don Baker, RC & D, April--May 2000

5 0 5 Miles

TABLE 2-2
MIFFLIN COUNTY
MAJOR MUNICIPAL WASTE HAULERS

Cocolamus Creek Disposal Service, Inc.
RR 1 Box 660
Mc Alisterville, PA 17049
Scotland, PA 17254
717-463-2381
FAX

Park's Garbage Service, Inc.
P.O. Box 218
Mt. Union, PA 17066
(814) 542-4751

D&M Grove Sanitation
RR#1 Box 953
Mount Union, PA 17066
(717) 463-2381

S&S Trash Service
P.O. Box 374
Burnham, PA 17009
(717) 248-7145

WSI Altoona Hauling
995 Landfill Road
Hopewell, PA 16650
(717) 248-8863

Borough of Lewistown
2 East 3rd Street
Lewistown, PA 17044

2.2 MUNICIPAL SOLID WASTE TRANSPORTATION, PROCESSING, AND DISPOSAL

2.2.1 Transportation and Transfer Facilities

Generally, Mifflin County waste is hauled directly to the disposal facility by contracted waste haulers or by homeowners. Currently, there are no transfer facilities within the County that accept municipal waste generated in Mifflin County for processing and transfer hauling to the Barner Landfill.

The Mifflin County Solid Waste Authority (MCSWA) was issued a PADEP Municipal Waste Management Permit No. 101668 on April 13, 2000 for a proposed transfer station to serve future needs of Mifflin County after Barner Landfill closure. The proposed transfer station will be located on 2.79 acres of the Barner site. Although both facilities (landfill and transfer station) are proposed for the same site, separate permit boundaries are identified for each facility. All administration, operations, and ancillary facilities will be common to both the landfill and transfer station. The facility is permitted to transfer an average of 300 tons per day, and a maximum of 390 tons per day, of municipal waste. These tonnages are the same as the permitted tonnages of the Barner Landfill.

As currently permitted, this facility will include an upper level for waste collection vehicle unloading (i.e., tipping floor) and a lower level for transfer trailer loading. The facility will be a dual bay, fully enclosed pre-engineered building. Waste disposal vehicles hauling into the site will use the existing scale for weighing, and transfer trailers will utilize scales at the destination facilities. Leachate generated from the facility, primarily wash down water, will be piped to the existing sanitary sewer system in the vicinity of the Barner landfill office complex. The leachate will be conveyed within the sewer system to the Derry Township Wastewater Treatment Plant for treatment and discharge.

From an operations standpoint, waste collection vehicles will enter the transfer station via the paved access roads, and either pull in or back in to the tipping floor, depending upon traffic load. Once inside, the waste load will be dumped onto the floor, where a “dump and pick” operation will recover any recyclable materials. The recyclable materials will be temporarily stored in a designated area for later recovery processing. The gleaned wastes will then be collected and loaded into the transfer trailers by a front-end loader. Once full, the loaded transfer trailer will be connected to a tractor for hauling to the destination facility. An empty transfer trailer will replace the loaded trailer on the trailer floor.

It is anticipated that the existing recyclable material drop-off facilities will continue to be managed by the MCSWA, in conjunction with the transfer station operation.

The final decision for actual construction of the transfer facility will only be made after a detailed cost analysis of Mifflin County’s disposal options.

2.2.2 Description of Disposal and Processing Facilities

2.2.2.1 Permitted Disposal and Processing Facilities

The MCSWA owns and operates the Barner Landfill, which is located off of U.S. Route 522 North in Derry Township, Mifflin County. The majority of the waste disposed at the Barner Landfill is from Mifflin County, although the facility also accepts municipal and permitted residual waste from Juniata, Huntington, Bedford, Fulton and Centre Counties.

The Barner facility also includes a recyclable material drop-off center for residents to drop off these items. Typical recyclables accepted at the landfill include yard waste (leaves, grass and brush), used tires, white goods (appliances), and scrap metals, batteries, clear glass, newspaper, magazines, office paper and cardboard.

The Barner Landfill is divided into 3 disposal areas: Barner No. 1; Barner No. 2; and, Barner No. 3.

Barner No. 1 is the closed Lewistown Borough landfill site. This unlined landfill was closed by the Borough prior to MCSWA's purchase of the landfill in 1988, and is owned and maintained by the Borough of Lewistown.

PADEP issued Solid Waste Disposal Permit No. 101165 to the Borough of Lewistown in May 1980, for landfilling in the Barner No. 2 disposal area. This disposal area includes a combination of a spray-asphalt liner under the initial Field 1 disposal area, and a combination spray asphalt liner overlain with a geomembrane liner in the Field 2 and 3 areas. In August 1988, the permit was modified and ownership of the landfill was transferred from the Borough of Lewistown to the MCSWA. This permit modification covered the Barner No. 2 disposal area. This area was utilized for municipal waste disposal until early 1993, when the Barner No. 3 disposal area became operational.

The Barner No. 3 disposal area was approved by PADEP in May 1992 through a permit modification to the original permit. This disposal area includes a double-geomembrane liner system, in accordance with current PADEP regulatory requirements. The Barner No. 3 disposal area is broken into 3 sub-areas: the Barner 3-1 area was constructed in 1992 and became operational in February 1993; the Barner 3-2a area was constructed in 1995 and became operational in May 1996; the Barner 3-2b area was constructed in 1998 and become operational in August 1999; the Cell 3-3 area was constructed in 2001 and became operational in February 2002.

Currently, landfilling is on-going in the Barner No. 3 disposal area. Based on projected waste receipts of approximately 38,000 tons per year, the Barner Landfill is expected to last until approximately mid-2004. In accordance with PADEP regulatory requirements, the landfill will be closed, capped and maintained for a 30-year post closure period after the landfill reaches its permitted capacity.

In anticipation of eventually reaching the permitted capacity of the landfill, the MCSWA investigated alternatives for expanding the capacity of the Barner landfill, beginning in 1996. Several options for expansion were investigated; however, it was determined that none of the options were feasible based on both technical and economic considerations. These expansion options are discussed in detail in Section 2.2.3.

2.2.2.2 Illegal Dumping Activities

Remote, rural, and isolated regions like portions of Mifflin County are prone to illegal dumping. This observed relationship between low-density demographics and a high frequency of dumping holds true for Mifflin County. Over 80 dumpsites were mapped and documented in a dump study conducted by Don Baker of the Mifflin County Conservation District in 2000 (refer to Figure 2-1). Some contributing factors to the widespread illegal dumping problem in the County may be:

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

A Residential Survey distributed to 2000 Mifflin County residents in September 2001 as part of this Plan Update included several questions related to illegal dumping. Ninety-two percent of respondents felt that illegal dumping was a problem in the County. Additionally, 27 percent of the respondents indicated that they were aware of actual dumpsite locations. The survey clearly showed that County residents were aware of and concerned about the dumping problem in Mifflin County. Some have suggested establishing a County-wide mandatory trash service as an alternative to enacting illegal dumping ordinances (supported by enforcement) to control this problem.

Currently, Mifflin County has waste disposal and recycling options available to residents. These disposal options serve as alternatives to illegal dumping and include:

- individual/private subscription hauling services between homeowner and hauler
- municipal bid contract hauling services (Juniata Terrace)
- municipal curbside refuse and recyclables collection (in the Borough of Lewistown)
- drop-off recycling sites
- white-goods and bulky item disposal (Barner Landfill)
- Spring/Fall pick-up or “clean-up” events

County recycling programs are discussed in detail in Chapter 4 – Recycling Strategy.

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".

In 1996 the Mifflin County Solid Waste Authority (MCSWA) hired Gershman, Brickner and Bratton (GBB), an engineering consultant, to investigate the remaining physical capacity and expansion capability of the Barner Landfill. The GBB Study evaluated four expansion alternatives:

1. Eastern expansion of the Barner 3 landfill area, into an area currently used to supply borrow material for landfill cover.
2. Reclamation of the Barner 2 landfill area, with mining, recycling, and placing the mined material over a new liner system.
3. Western expansion of the Barner 2 landfill area, beyond the current Barner 2 fill area.
4. Southern expansion into the Barner 1 landfill area, with mining of existing waste material, processing, replacing the material over a new liner system and vertically expanding the resulting landfill.

This engineering investigation determined the landfill could not be permitted for expansion beyond the existing permitted footprint, and that each of these options contained geologic, exclusionary setback, and environmental concerns that could potentially impact the ability to obtain a disposal permit for a landfill expansion without considerable financial investment.

With the option for expansion eliminated, the Barner Landfill is expected to reach permitted capacity in 2004. The MCSWA is currently pursuing a permit modification that may extend the the life of the facility by a minimum of one year beyond the current life, without increasing the permitted footprint. Due to the need for additional disposal capacity, and as required by PADEP and Act 101, a Solicitation of Interest (SOI) for securing long-term solid waste disposal capacity for Mifflin County was distributed as part of this Plan Update. The SOI is described in detail in Chapter 3, Section 3.1.2.

In Chapter 5 of this Plan, the selection procedure for disposal facilities is outlined. In order to minimize the effect on landfill capacity of reserving space for Mifflin County waste (once the Barner Landfill is closed), and to allow for flexibility for backup capacity, Mifflin County decided to utilize multiple disposal facilities. This action is also expected to help maintain competition in the area. Mifflin County's Plan was formulated and is intended not to 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, Mifflin County disposed of

7,204 tons of C&D waste in 2000. Based on reports from 1995 through 2000, Mifflin County C&D waste disposed of at permitted landfills has ranged between 15 and 20 percent of the total recorded waste landfilled. An undeterminable amount of C&D waste is recycled, reused, used as fill, and illegally disposed of at dumpsites. As shown on Table 1-3, approximately 90 percent of the County's C&D waste is disposed at the Barner Landfill.

2.4 SEWAGE SLUDGE DISPOSAL

Table 2-3 summarizes the sludge disposal practices of the municipal and non-municipal wastewater treatment facilities (WWTP) in the County. Information was collected through a WWTP survey distributed to municipal and non-municipal facilities in 2000. The large majority of facilities rely on land application or the Barner Landfill for the disposal of their sludge. Three municipal facilities rely exclusively on land application for sludge disposal. Landfilling is used for disposal by the Burnham Borough, Granville Township, and Lewistown Borough treatment facilities and the Beacon Lodge Camp. Except for Wayne Township and Beacon Lodge, all of the final disposal sites for the sludge are located within Mifflin County. Facilities using land application expressed they would continue to use this method indefinitely. Subject to upcoming closure, facilities landfilling at the Barner site appropriately indicated less than 5 years remaining for current disposal methods.

2.5 INFECTIOUS AND CHEMOTHERAPEUTIC WASTE COLLECTION AND DISPOSAL

The majority of infectious and chemotherapeutic waste in Mifflin County is generated at the Lewistown Hospital. When the Mifflin County Solid Waste Management Plan was completed in 1991, the Lewistown Hospital incinerated its medical waste with an onsite incinerator. For the past 8 years, however, the Lewistown Hospital incinerator has not been in operation and was removed from the hospital in 2001. The Lewistown Hospital has contracts for medical waste disposal services through Bridgeview Medical Waste Disposal located in Morgantown, Pennsylvania. Bridgeview operates an incinerator to dispose of all biohazard, chemotherapeutic, and pathology waste. In addition, Safety Kleen removes hazardous waste spills and other hazardous materials such as waste oil and batteries from the Lewistown Hospital, as needed.

Ash residue resulting from incinerated waste can be disposed of at any municipal waste landfill as long as the receiving and processing incineration facility is operating under an approved PADEP permit modification.

A smaller portion of infectious and chemotherapeutic waste is generated from various veterinary offices, dentist offices, and many other small local medical clinics located in the County. Most of these small waste generators have collection contractors to handle waste disposal for their special handling wastes.

TABLE 2-3
MIFFLIN COUNTY
SLUDGE DISPOSAL PRACTICES AND PLANS
MUNICIPAL AND NON-MUNICIPAL TREATMENT PLANTS

Source	Method of Sludge Disposal	Location of Sludge Disposal	Accepts Septage	Interested in Regional Composting (1)	Planning to Use Current Disposal Method (Years)	Plans for Alternative Disposal Method
MUNICIPAL						
Brown Township	Land Application (Liquid)	BTMA Fields 1, 2, & 3, Reedsville, Mifflin Co.	No	Yes	15+	None
Burnham Borough	Landfill (Dewatered)	Mifflin County (Barner)	No	Yes	<5	None
Granville Township	Landfill (Dewatered)	Mifflin County Landfill (Barner)	Yes	Yes	<5	Researching Alternatives
Lewistown Borough	Landfill (Dewatered)	Mifflin County Landfill (Barner)	Yes	Yes	<5	Landfilling or Composting
McVeytown Borough	Land Application (Liquid)	Plank Farm, Bratton Township, Mifflin Co.	No	Yes	15+	Landfilling or Composting
Union Township	Reed Beds/Sludge Bagger	Union Township, Mifflin Co.	Yes	Yes	10+	Sludge Bagger
Wayne Township (proposed)	Land Application (Liquid)	Shade Gap WWTP, Huntington Co.	No	Yes	15+	NR
NON-MUNICIPAL						
Beacon Lodge Camp	Landfill (Liquid)	Greencastle, Franklin Co.	No	Yes	15+	None
Reeds Gap State Park	None required	Provided to Brown Township	No	Yes	15+	Use Municipal Facility
Mifflin County School District	Pumped	McVeytown Borough WWTP, Mifflin Co.	No	NR	5+	NR

(1) Regional composting received a favorable review during biosolids meetings in 2001 and 2002 among WWTP facilities.
NR = No Response

2.6 HOUSEHOLD HAZARDOUS WASTE

PADEP studies indicate that less than one (1) percent of the municipal solid waste generated is household hazardous waste.

The MCSWA provides an information service to citizens on the proper preparation and disposal of household hazardous waste. This includes the following items: paint use, solidification and donation; solvent preparation; pesticide disposal and unmarked container preparation and disposal. Additionally, citizens are advised of the proper disposal of automotive batteries.

At this time, Mifflin County does not hold annual or semi-annual collection events for HHW.

2.7 USED OIL/AUTOMOTIVE BATTERIES

The Department 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 all County municipalities. Currently PADEP recognizes two oil recycling sites in Lewistown:

- **Lake Chevrolet, Olds, Geo Saab**
  433 South Main Street
  Lewistown PA 17044
  (717) 248-7848

- **Lake Ford, Lincoln, Mercury**
  371 South Main Street
  Lewistown PA 17044
  (717) 248-0151

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).

It should be noted that both used oil and intact automotive batteries from households are not considered to be hazardous wastes in Pennsylvania. However, they are frequently generated in households and are thus often grouped in the household hazardous waste category. They are also frequently included in HHW collection programs.

2.8 RESIDUAL WASTE

In 2000, over half of the documented residual waste generated in Mifflin County was disposed of at the Barner Landfill. According to 2000 PADEP County Waste Destination Report Disposal Tonnages, 10,928 tons of residual waste generated in Mifflin County were disposed at the following six facilities (tonnages in parenthesis):

- Mifflin County Barner Landfill (5,773 tons)
- Lancaster County Resource Recovery Facility (4,861 tons)

- Bradford County Sanitary Landfill (95 tons)
- Lycoming County Solid Waste Department (70 tons)
- Lancaster County Solid Waste Management Authority Landfill (46 tons)
- Superior Greentree Landfill (83 tons)

PADEP requires that solid waste disposal facilities obtain the necessary permit approvals for each generator. Disposal agreements are individually arranged between facility and generator.

CHAPTER 3
DISPOSAL CAPACITY NEEDS

3.1 MUNICIPALWASTE DISPOSAL NEEDS

According to PADEP County Waste Destination tonnage records, Mifflin County disposed of 33,861 tons of MSW (including C&D waste) in 2000. Countywide recycling programs diverted an estimated 11,650 tons of recyclable materials in 2000, according to municipal recycling records and the annual Act 101 Recycling Report. In the future, these waste generation quantities will change to reflect County growth. Changes in recycling activities will be reflected as the percentage of waste diversion. The purpose of this chapter is to consider possible waste management system changes over the next 10 years, and to estimate municipal waste disposal capacity needs for Mifflin County over the 10-year planning period as mandated by PADEP.

Table 3-1 lists the quantity of waste requiring disposal in Mifflin County from 2002 through 2011 (10 year planning period) before and after recycling. The estimated quantity of municipal waste (including C&D waste) requiring disposal, after recycling certain waste materials, for 2002 through 2011 is approximately 325,000 tons, or an average of 89 tons per day based on 7 days per week. This figure does not include sewage sludge or residual waste.

The method and assumptions used to determine these capacity requirements are described in detail in Chapter 1 - Description of Waste. The analysis in Chapter 1, Table 1-5 shows a waste reduction rate of 26 percent in 2000. This waste reduction rate is projected to increase to about 30 percent by 2005, and to 35 percent by 2010 and thereafter.

The estimated waste reduction rates should be considered as waste reduction goals by the County. Act 101 originally set a recycling goal of 25 percent for 1997; the current County recycling rate (26 percent) exceeds this goal. A new goal of 35 percent recycling (by 2003) was established in 1998 when Act 101 was reauthorized by the Pennsylvania Legislature. Mifflin County's projections anticipate attaining this recycling goal by 2010.

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 will slightly decrease from 2002 through 2011 due to the estimated increased recycling. Population (and thus gross waste generation) will continue to increase very gradually over this 10-year planning period.

TABLE 3-1
MIFFLIN COUNTY
VOLUMES OF MSW REQUIRING DISPOSAL IN MIFFLIN COUNTY
(2002-2011)

Year	Waste Requiring Disposal[1] (before recycling) (tons)	Waste Requiring Disposal (net discards after recycling) (tons)
2002	46,075	33,635
2003	46,360	33,379
2004	46,646	33,119
2005	46,935	32,855
2006	47,226	32,586
2007	47,518	32,312
2008	47,812	32,034
2009	48,108	31,751
2010	48,411	31,467
2011	48,702	31,656
Total Tons	**473,793**	**324,794**

Source: Table 1-5.
[1] Waste tonnages include C&D waste.

3.1.1 Available Barner Landfill Disposal Capacity vs. Disposal Need

The current estimated remaining disposal capacity in the Barner Landfill, as of January 2002, is approximately 85,000 tons of waste. Based on current waste receipts at the Barner Landfill of about 38,000 tons per year, the landfill will reach permitted capacity in early to mid-2004. Expansion of the Barner Landfill was determined to be infeasible, based on technical and economic considerations. The permitting and construction of a new landfill within Mifflin County was also deemed infeasible, due to the difficulties associated with permitting a facility, as well as the economics of operating a landfill at such relatively low waste intake rates. Therefore, in order to ensure additional municipal waste processing and disposal capacity for the County and its municipalities for the next 10 years, there is a need to reserve disposal capacity from other processing and disposal facilities located within the region.

3.1.2 Solicitation Of Interest (SOI) For Disposal Capacity

The MCSWA issued a Solicitation of Interest (SOI) on November 1, 2001 from qualified municipal waste disposal facilities to provide disposal capacity for Mifflin County's municipal waste for the 10-year planning period. A copy of the Solicitation of Interest document is included in Appendix D. Seven proposals were received from various facilities offering landfill disposal services. These proposals were evaluated and all were determined to meet the minimum

required qualifying criteria, as outlined in the SOI. The Authority intends to proceed with contract negotiations and execution on Municipal Waste Disposal Capacity agreements with each facility, following adoption of the Plan by the County and subsequent PADEP approval. Additional facilities may be added to the Plan, provided they complete the Application Package available from the Mifflin County Solid Waste Authority, and meet certain minimum qualifications.

The locations of facilities that responded to the SOI, or petitioned the County to be included in the Plan, are presented in Figure 3-1. Other landfills and waste-to-energy facilities that are active in the region are also shown on Figure 3-1. Additional information pertaining to the SOI and waste disposal system selection process is contained in Chapters 5 and 6of this plan.

3.2 SEWAGE SLUDGE CONSIDERATIONS

Table 1-7 of Chapter 1 presented information on the wet and dry tonnages of sewage sludge that are currently generated by the six municipal and three non-municipal wastewater treatment plants (WWTPs) operating in Mifflin County. Using data reported in the 2000 WWTP Survey, approximately 74% of the biosolids generated by those treatment plants is currently dewatered and landfilled (0.986 dry tons per day, DTPD-5 basis, of a total of 1.336 DTPD-5). The remainder of the biosolids, in liquid form, are land-applied on agricultural sites under either a site-specific permit or a general permit by PADEP. In addition to WWTP biosolids, it is estimated that all septage pumped out of Mifflin County's on-lot disposal septic tanks (nearly 10,000 of them) is in liquid form and is either land-applied on agricultural lands in the area or is taken to a wastewater treatment plant for processing and disposal.

Table 1-8 provides projections of WWTP biosolids and on-lot septic tank septage generated in Mifflin County. Liquid WWTP biosolids and septic tank pumpings are estimated to total approximately 2.9 million gallons in 2000; this is projected to grow to about 3.4 million gallons by 2010. Current practices of land application and/or WWTP treatment of liquid sewage sludge are expected to continue throughout the 10-year 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 over the next 10 years, is discussed in Chapter 5 of this plan.

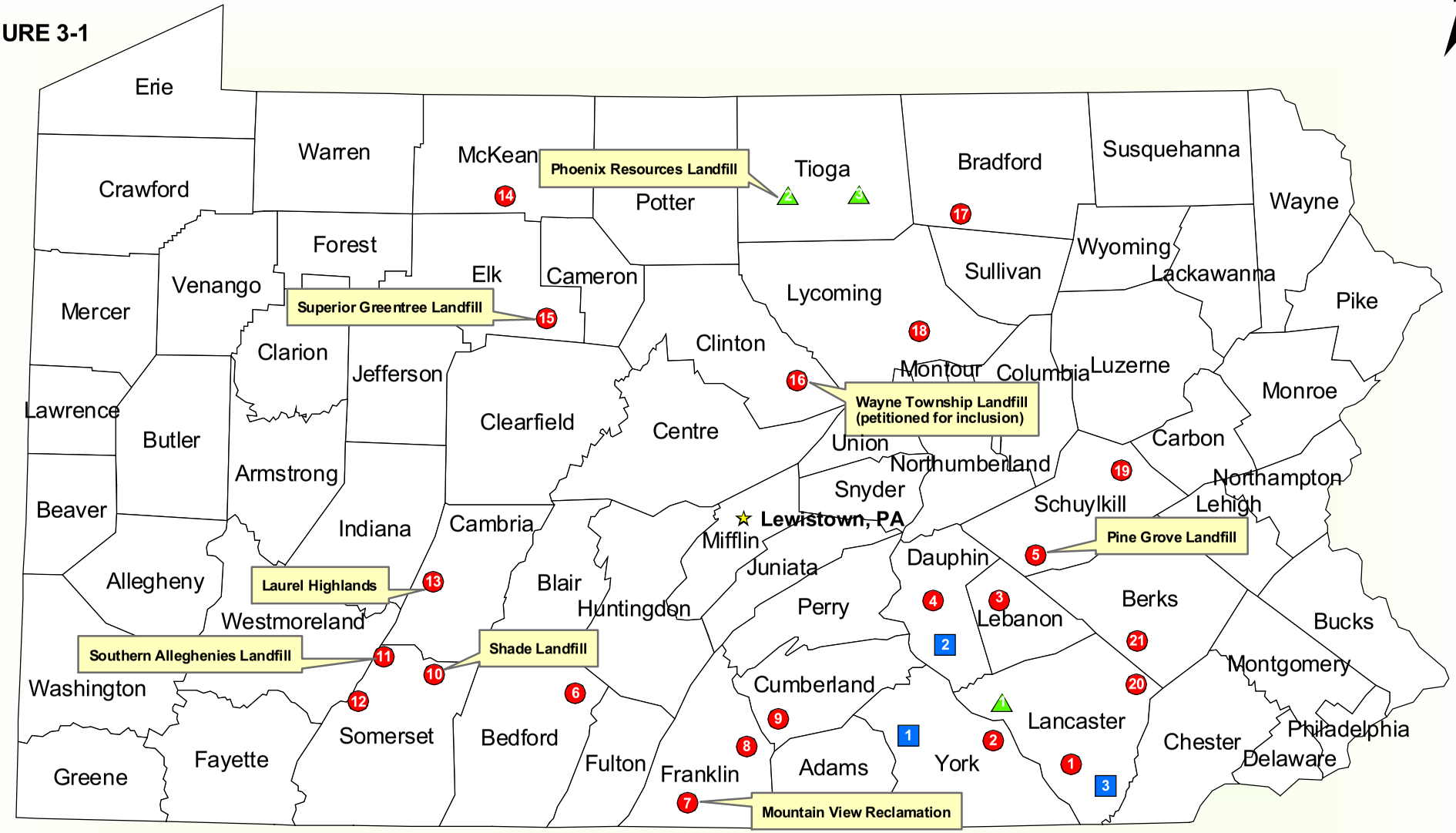
Table 1-3 and Table1-8 indicate that 1,250-1,400 tons of dewatered cake from WWTPs in the County are currently being landfilled annually. This quantity is projected to increase to 1,650 tons of cake by 2010. Virtually all of this dewatered cake is currently disposed at the Barner Landfill. With the projected closure of the Barner Landfill in 2004, this dewatered cake will need to be disposed of elsewhere within the 10-year planning period of this plan. Chapter 5 of this plan examines available options for future disposal of dewatered cake from Mifflin County's WWTPs.

3.3 RESIDUAL WASTE CONSIDERATIONS

Residual waste generated in the County was disposed of at six disposal facilities in 2000. The breakdown of residual waste quantities by facility is presented in Section 2.7. The County does not regulate nor is it required to manage residual waste disposal. According to the PADEP County Waste Destination Report, 10,928 tons of Mifflin County generated residual waste was disposed in 2000.

As part of this Plan Update, the County Solicitation of Interest (SOI) 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.

FIGURE 3-1



1 Milton Grove Landfill
2 Phoenix Resources Landfill
3 Tioga County C/D Landfill
1 Frey Farm Landfill
2 Modern Landfill
3 Greater Lebanon Refuse Authority
4 Dauphin Meadows Landfill
5 Pine Grove Landfill
6 Sandy Run Landfill
7 Mountain View Reclamation
8 Blue Ridge Landfill
9 Cumberland County Landfill
10 Shade Landfill
11 Southern Alleghenies Landfill
12 Mostoller Landfill
13 Laurel Highlands
14 McKean Kness Landfill
15 Superior Greentree Landfill
16 Wayne Township Landfill
17 Bradford County Landfill
18 Lycoming County Landfill
19 CES Landfill
20 Lanchester Landfill
21 Western Berks Landfill
1 York Waste-to-Energy Facility
2 Harrisburg Waste-to-Energy Facility
3 Lancaster Waste-to-Energy Facility

Mifflin County Regional Municipal Waste Disposal Sites: Solicitation of Interest (SOI) Respondents

0 5 10 20 30
Miles

Projection: Stateplane
Datum: NAD 83

Date: June, 2002
Map created using ArcGIS by JLS

LEGEND

TEXT Responded to Solicitation

Type

Construction / Demolition Waste Landfill
Municipal Waste Landfill
Waste - to - Energy Facility

Gannett Fleming

GeoDecisions

CHAPTER 4
RECYCLING STRATEGY

4.1 INTRODUCTION

In the Municipal Waste Planning, Recycling and Waste Reduction Act (i.e., Act 101, as incorporated into regulation under 25 Pa. Code Chapter 272), the State adopted an unprecedented level of support for the use of recycling as a waste management tool. Besides setting a goal of 35 percent reduction in the municipal waste stream through recycling by 2003, the regulation includes a variety of recycling provisions.

Act 101 requires counties to prepare a municipal waste management plan outlining the recycling strategy for the county. County plans must provide for "the maximum feasible development and implementation of recycling programs."

Act 101 supports recycling by setting up grant programs for municipal recycling program development and implementation (Section 902 of the Act), for partial reimbursement of County Recycling Coordinator costs (Section 903), and for performance-based reimbursement for municipal recycling programs (Section 904).

This regulation requires landfills and resource recovery facilities to develop a program for the removal of recyclable materials to the greatest extent possible; and, prohibits landfills and resource recovery facilities from accepting for disposal, truckloads composed primarily of leaf waste.

Finally, Act 101 mandates curbside recycling in communities with a population over 10,000 and in communities over 5,000 with a density of 300 persons per square mile.

As required under Act 101 (recycling requirements for landfills), the Mifflin County Solid Waste Authority operates a recycling drop-off center at the Barner Landfill for residents. The Barner Landfill also uses on-site windrows (i.e., long piles of leaves approximately 6-8 feet high and 15-20 feet wide) for composting leaf waste generated in the County and complies with the regulatory requirement prohibiting the “disposal of truckloads composed primarily of leaf waste.”

Lewistown Borough is the only municipality mandated to recycle by Act 101 requirements (population total and population density) within Mifflin County. Table 4-1 lists Lewistown Borough’s 2000 population and the 2000 populations for all Mifflin County townships and boroughs. Lewistown’s 8,998 residents represent approximately 20 percent of the County's total population and are the only persons affected by a mandated municipal curbside recycling program. Although Derry Township now has a population of over 5,000 (7,256 according to the 2000 US Census), it lacks the 300 persons per square mile density for mandated recycling under Act 101.

There are four (4) drop-off sites in operation within the County. The locations of drop-off sites and Lewistown’s curbside program are presented on the map in Figure 4-1.

TABLE 4-1
MIFFLIN COUNTY
2000 MUNICIPALITY POPULATIONS

Municipality	2000 Population[1]
Townships	
Armagh Township	3,988
Bratton Township	1,259
Brown Township	3,852
Decatur Township	3,021
Derry Township	7,256
Granville Township	4,895
Oliver Township	2,060
Menno Township	1,763
Union Township	3,313
Wayne Township	2,414
Boroughs	
Burnham Borough	2,144
Kistler Borough	304
Lewistown Borough	8,998
Juniata Terrace Borough	502
Mcveytown Borough	405
Newton Hamilton Borough	272
TOTAL	**46,486**

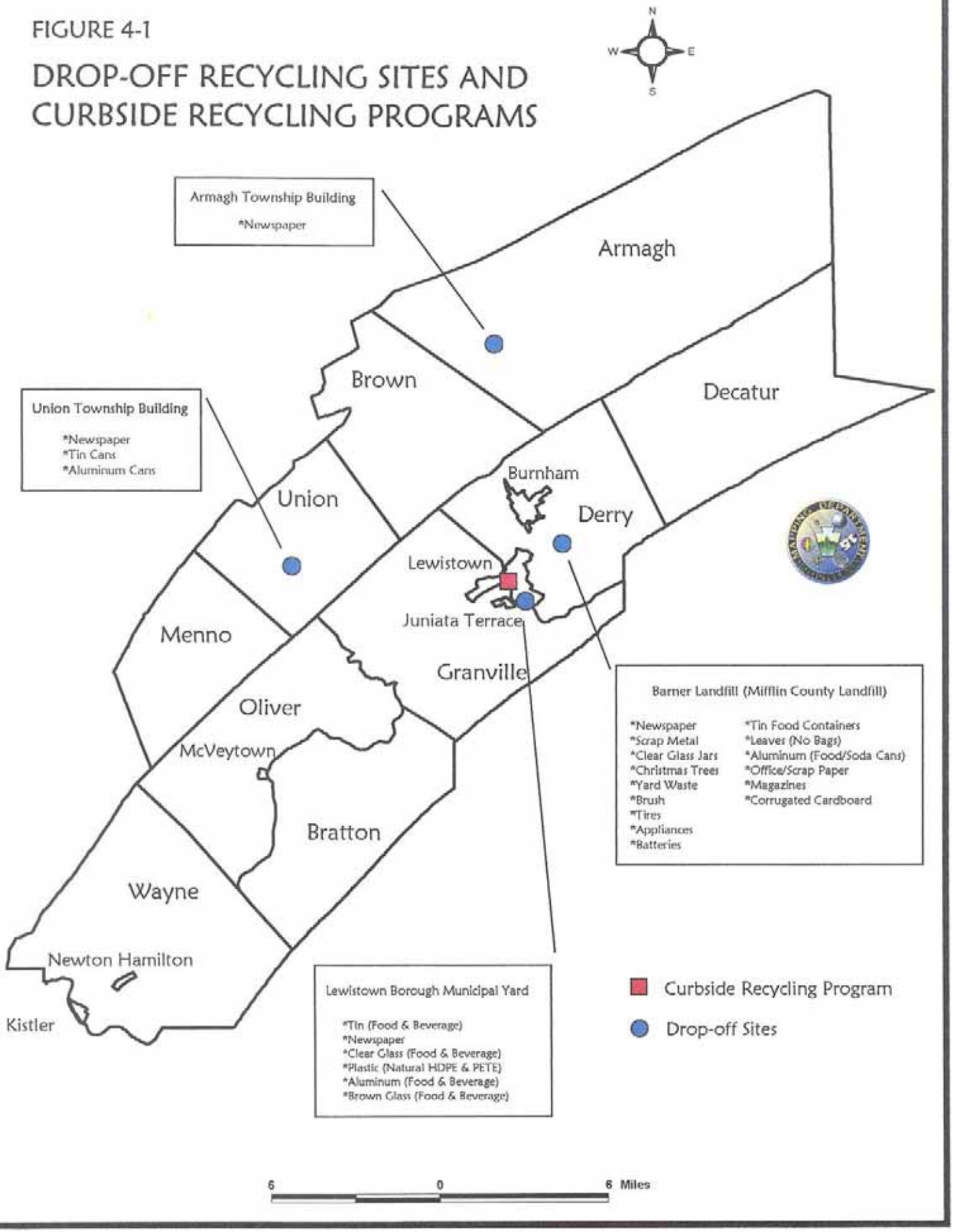
[1]Reference Table 1-4.

Mandated municipalities must do the following under Act 101 guidelines:

- Persons must separate at least three of the following materials from their household waste for collection in a recycling program: clear glass, colored glass, aluminum, steel and bi-metal cans, high grade office paper, newsprint, corrugated paper, plastics.
- Persons are required to separate leaf waste from their household waste for on-site composting or for separate collection and handling.
- Persons should separate high-grade office paper, aluminum, corrugated paper, and leaf waste and other materials the municipality deems appropriate from waste generated by commercial, municipal and institutional establishments and from community activities.
- A system must be provided to collect the separated material, at least once per month, from the curbside or similar location.

FIGURE 4-1

DROP-OFF RECYCLING SITES AND CURBSIDE RECYCLING PROGRAMS



- The municipality must enact an ordinance or regulations to achieve the above, and must make provisions to ensure compliance with the ordinance.
- The municipality must provide for the recycling of the collected materials, and establish a comprehensive and sustained public information and education program concerning recycling program features and requirements.

Act 101 accords certain powers to counties and municipalities regarding recycling. Municipalities and counties may adopt ordinances, resolutions, regulations, and standards for the recycling of municipal waste or source-separated recyclable material. At the county level, the ordinances or resolutions should be included, either in draft or final form, in the approved Plan, and may not interfere with the implementation of the recycling program of a mandated municipality.

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 Mifflin County municipal recycling programs. Table 4-2 presents the estimated percent of recyclable materials in Mifflin County's municipal solid waste stream based on the national average. The composition is based on the Franklin Associates/USEPA Study composition estimate presented in Chapter 1 of this plan and does not account for construction and demolition (C&D) waste. Table 4-2 tonnage estimates exclude the 7,204 tons of C&D waste reported by year 2000 PADEP waste destination records.

The various recyclable materials that are currently managed in Mifflin 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. Often newspaper is reused for animal bedding or mulch, or recycled into low-grade computer printout paper and cardboard.

Newspapers are collected in the Borough of Lewistown's municipal curbside recycling program. Mifflin County also collects newsprint at four drop-off locations: The Barner Landfill, Lewistown, Armagh Township Building, and Union Township Building. Pheasant Valley Recycling also accepts newspaper.

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 in Mifflin

County is primarily conducted through the Lewistown Borough recycling program. The Borough of Lewistown stages roll-off collection bins at five local stores for OCC collection.

Office Paper

Office paper and high-grade paper include fine papers, computer printout, office papers, and ledger. Office paper is typically three to seven percent of a municipality's total waste stream, and generates relatively high revenue per volume. Mifflin County has a relatively small number of industries that produce office paper.

Currently, Pheasant Valley Recycling collects office paper. No municipal recycling programs in Mifflin 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, and 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 collected at the drop-off site at the Barner Landfill and at the Pheasant Valley Recycling facility.

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. Based on national averages, glass (all three colors) makes up approximately six percent of the County's waste stream. The majority of glass is generated in the residential sector.

Lewistown Borough's curbside recycling program and drop-off site accept clear and brown glass. The drop-off collection at Barner landfill accepts clear container glass only.

Steel and Bi-metal Cans

There are two types of steel cans: tin-coated 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.

Collection of steel and bi-metallic cans occurs in Lewistown's municipal curbside recycling program and at the Union Township, Lewistown, and Barner Landfill drop-off locations.

Aluminum Cans

Aluminum cans or used beverage cans (UBC) are among the most readily recoverable aluminum products. Aluminum cans comprise roughly 0.8 percent of the waste stream based on national averages provided by the USEPA/Franklin Associates, Ltd waste characterization update completed in 1997.

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 far less stable.

Aluminum cans are collected in the Borough of Lewistown's municipal curbside recycling program and at the Union Township, Lewistown, and Barner Landfill drop-off locations in Mifflin County. Mifflin County Recycling, Pheasant Valley Recycling, Paul's Recycling, Jim's Scrap Metals, and Joe Krentzman and Sons, Inc. all accept aluminum cans.

Plastics

The two most common recyclable types of plastic 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.

Lewistown Borough's curbside recycling program and drop-off site both collect #1 and #2 plastics.

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, 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. The examples mentioned potentially pose disposal problems in both landfills and incinerators, and potentially 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).

The Mifflin County Barner Landfill currently accepts white goods. Pheasant Valley Recycling, Millers Recycling, Paul's Recycling, and Joe Krentzmans and Sons Inc. are other local outlets for white goods in Mifflin County. All identified locations accepting white goods in the County only accept non-freon containing appliances and do not have on-site staff for freon removal.

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 Mifflin County Barner Landfill. These tires are primarily processed by Mohantango Enterprises in Liverpool, Pennsylvania.

Textiles

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

Used Motor Oil

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

Pheasant Valley accepts used motor oil and lubricants as a source of heating fuel for their recycling facility. Additional information for disposal of used motor oil is provided in Chapter 2, Section 2.7.

Batteries

The metal in automotive batteries and the polypropylene plastic case are recyclable.

The Mifflin County Barner Landfill and Paul's Recycling accept used batteries. 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 benefit of recycling is the avoided cost of disposal.

TABLE 4-2
MIFFLIN COUNTY
RECYCLABLE MATERIALS COMPOSITION OF THE COUNTY'S MUNICIPAL SOLID WASTE STREAM (2000)

Material	U.S. EPA National Average 1997[1]	Tons in Waste Stream[2]
Paper and Paperboard		
Newsprint	5.8	2221.8 tons
Corrugated	13.8	5286.4 tons
Office Paper	3.2	1225.8 tons
Other Paper	15.3	5861.0 tons
Paper Subtotal	**38.1**	**14595.0 tons**
Glass		
Containers	5.3	2030 tons
Other	0.6	230 tons
Glass Subtotal	**5.9**	**2,260 tons**
Ferrous		
White Goods	1.7	651 tons
Containers	1.3	498 tons
Other	2.6	996 tons
Ferrous Subtotal	**5.6**	**2145 tons**
Non-Ferrous		
Aluminum Cans	0.8	307 tons
Other Aluminum	0.6	230 tons
Other Non-Ferrous	0.6	230 tons
Non-Ferrous Subtotal	**2.0**	**766 tons**
Plastic		
Containers	1.3	498 tons
Packaging	2.6	996 tons
Other Plastic	5.5	2107 tons
Plastic Subtotal	**9.4**	**3600 tons**
Textiles	**3.7**	**1417 tons**
Wood	**5.2**	**1992 tons**
Food Waste	**10.4**	**3984 tons**
Yard Waste	**13.4**	**5133 tons**
Rubber & Leather	**3.0**	**1149 tons**
Other Waste	**3.3**	**1264 tons**
Totals	**100.0**	**38,307 tons**

[1] Source: USEPA/Franklin Associates, Ltd. Characterization of Municipal Solid Waste in the United States, 1997 update. Does not include construction/demolition waste. All values shown in this table are estimates.
[2] 38,307 tons [45,511 (Total Gross Discards) – 7,204 (C/D)] for year 2000 was used to estimate recyclable materials quantities. Refer to Table 1-4.

As indicated on Table 1-5, with an estimated MSW generation of 45,511 tons of gross discards in 2000, a 26 percent recycling rate as reported in the Act 101 annual report would divert 11,650 tons of municipal solid waste from disposal. With increased recycling activities and with increased recycling reporting, annual tonnage diverted through recycling efforts is estimated to increase to almost 17,000 tons by 2010 and almost 18,000 tons by 2020 (Table 1-5).

In Mifflin County, the benefits of recycling go beyond the economic reasons identified above. A 1999 independent study by Mr. Don Baker of the Mifflin County Conservation District on illegal dumping in Mifflin County revealed over 80 illegal dumpsites throughout the County. As surveys and research by the Professional Recyclers of Pennsyslvania (PROP) have indicated, a major reason for illegal dumping is limited access by residents for disposal of white goods, tires, furniture and other bulk items frequently found in illegal dumpsites. Consequently, improving the recycling opportunities for these bulky items (and any other materials) may reduce the illegal dumping problem in Mifflin County.

4.4 EXISTING RECYCLING ACTIVITIES

Table 2-1, presented earlier in Chapter 2 summarizes some of the waste collection activities in the County including recycling and yard waste collection. In addition, Lewistown Borough is the only municipality in Mifflin County required by Act 101 to implement a mandatory recycling and yard waste collection program. The remaining 15 municipalities in the County, based on low total populations or low population densities, are not required to establish recycling programs under Act 101. As of 2000, none of the 15 non-mandated municipalities have voluntarily instituted curbside collection programs. At this time, four recyclable drop-off locations are operated in the County.

4.4.1 The Borough of Lewistown Curbside Recycling Program

As the only municipality mandated to recycle in Mifflin County, The Borough of Lewistown's recycling effort is a significant portion of the recycling effort within the County. The Borough uses a source-separated curbside collection program for recyclable materials. This method has helped the Borough eliminate most "residue waste" that can result from commingled collection. Limiting residue minimizes re-sorting/double-handling and lowers costs. Further, decreasing the overall volume taken to the Barner Landfill for disposal directly reduces the cost to the Borough by reducing money paid out to the landfill in waste disposal tipping fees.

Lewistown's source separation operation uses compartmentalized curbside collection vehicles. Operators leave items on the curbside when residents attempt to recycle items not accepted by Lewistown's mandated recycling program. As a result, the residents get immediate feedback on materials that are not accepted for recycling.

Currently Lewistown Borough accepts the following materials for curbside collection:

- tin (food and beverage cans)
- newspaper
- clear glass (food and beverage containers)
- plastic (natural HDPE and PET)
- aluminum (food and beverage cans)
- brown glass (food and beverage containers)

Residents use 18-gallon recycling barrels, six-gallon recycling containers, and bags to separate recyclables for curbside pick-up. Recycling containers are supplied by the Borough. Collection crew operators only stop for recyclables where a blue recycling container is set on along the curb. Not every resident has recyclables for collection each day. The blue containers are used as the flag for the collection crew.

Based on information reported by the MCSWA in the 2000 Act 101 Annual Recycling Report, it is estimated that Mifflin County recycled 11,650 tons of materials, or 26% of the total County waste stream.

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, 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 furnace, 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 Lancaster County Resource Recovery Facility received and processed over 4,800 tons of Mifflin County residual waste in 2000 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, source separation benefits the process by removing non-compostable materials such as glass and metal.

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. 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), 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. Collection workers can then either place the contents in a single bin on the collection vehicle or sort the materials at the curb into separate 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 3 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 bins. Section 4.4.1 describes the Borough of Lewistown's segregated (source-separation) curbside recycling program.

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.

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 containers' 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 and also serves as a recurring reminder to neighbors to recycle.

The Borough of Lewistown provides weekly collection of materials through their municipal curbside recycling program. Consistent weekly collection is easy for residents to remember and 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.

The Borough of Lewistown is the only municipality in the County with a curbside collection program, and the Borough uses its own vehicles and staff to collect recyclables.

4.6.2 Recycling Collection at Multi-family Housing

Multi-family residential housing units (4 or more units) are not required under Act 101 to recycle as part of a municipal mandatory curbside recycling program. Multi-family housing units typically provide recycling as part of an independent commercial waste collection and recycling program. However, Act 101 provides 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 MCSWA will assist municipalities and owners of multi-family units develop recycling programs.

4.6.3 Drop-Off Centers

With only one municipality having 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, feasible alternative to implementing curbside collection programs. There are a number of private recyclers in Mifflin County that accept drop-off materials: the larger ones include Pheasant Valley Recycling and Joe Krentzman and Sons, Inc. Below are brief descriptions of the four public drop-off recycling programs that are operating in the County. Drop-off locations are depicted in Figure 4-1.

Borough of Lewistown: Municipal Yard

The Borough of Lewistown accepts recyclables drop-off by Borough residents at their municipal yard, which demonstrates a drop-off program may also compliment an ongoing curbside collection program.

Currently Lewistown Borough accepts the following materials at the municipal yard drop-off (and also through curbside collection):

- tin (food and beverage cans)
- newspaper
- clear glass (food and beverage containers)
- plastic (natural HDPE and PET)
- aluminum (food and beverage cans)
- brown glass (food and beverage containers)

The Borough of Lewistown recycling drop-off program also accepts yard waste. Residents bring leaves, tree limbs, and Christmas trees (seasonal) to the municipal yard drop-off location during normal business hours. Christmas trees are taken to the Barner Landfill where they are chipped and made into mulch. The Borough of Lewistown plans to open its municipal drop-off site for recyclables and yard waste to County residents in the near future.

Barner Landfill Drop-off

Materials collected at the Barner Landfill include: aluminum cans, scrap aluminum and metal, tin cans, tin and bi-metallic cans, glass (clear only), car batteries, and small and large appliances (white goods), mixed paper, magazines and catalogs, corrugated cardboard, tires and yard waste.

Armagh Township Drop-off

The Armagh Township drop-off site located at the Township's municipal building accepts newspaper. This drop off site is managed by the MCSWA.

Union Township Drop-off

The Union Township drop-off site located at the Township's municipal building accepts newspaper, tin cans, and aluminum cans. This drop off site is managed by the MCSWA.

4.6.4 Commercial and Institutional Recycling

Act 101 instructs mandated municipalities to require persons at commercial, institutional, and 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.

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 mandate.

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

Commercial customers serviced by the Borough of Lewistown's recycling program are required to recycle the same 6 items (listed above) as the residents. In addition, commercial establishments are required to recycle corrugated cardboard, office paper, and pallets. On Tuesdays and Fridays, the Borough collects corrugated cardboard from commercial accounts. Lewistown Borough stages roll-off containers for cardboard at the following five stores:

- Dollar General
- Family Dollar
- Manage Tool
- Goss Candy
- Overhead Door of Nittany

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 business and the public and preparing it for sale to manufacturers. 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: 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.

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 comprises 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 process is outlined in Section 4.8.3, and a copy of the PADEP Guidelines for Yard Waste Composting, dated September 1997, is included in Appendix B 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.

The County has developed a yard waste management equipment program to assist municipal programs. This system is described in Section 4.8.6.

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 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.

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 Borough of Lewistown, may provide drop-off locations for other yard waste (e.g. brush, tree trimmings).

4.8.3 Composting Process Options

The composting process requires heat, 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 and allowed to decompose naturally without further intervention. The PADEP has given verbal consent to a number of previously existing yard waste collection programs that deposit their leaves on farm fields or at nurseries that use this method.

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.

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.

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.

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 4-4 illustrate the method and Figure 4-5 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 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.

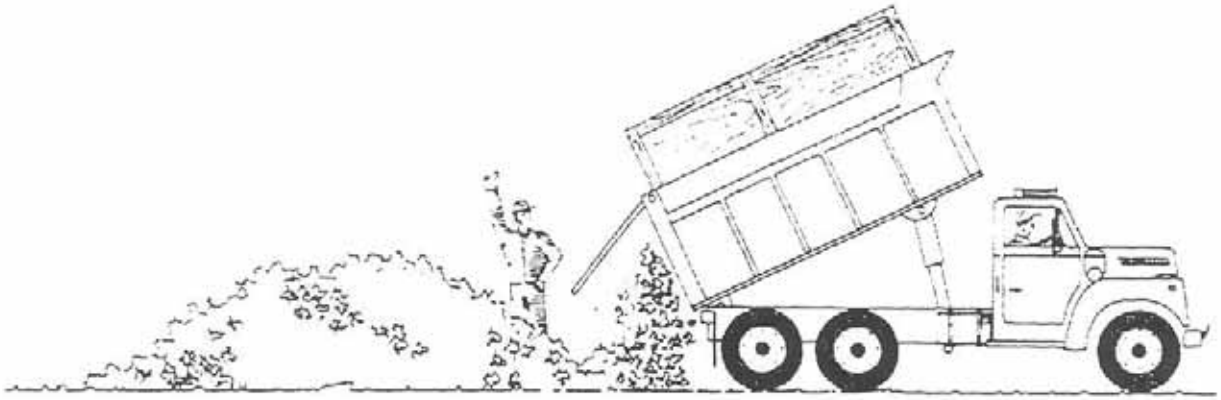
(g) Shredding and Screening: Shredding and screening are optional finishing steps that provide for a uniform end-product, thereby enhancing the market value of the material. Both processes, however, are labor-intensive and increase capital and operational costs.

4.8.4 Compost Distribution

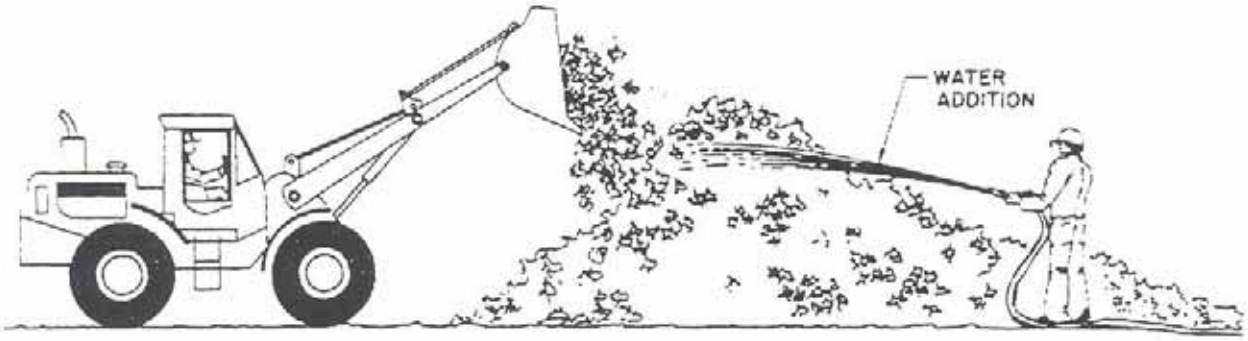
Clean yard waste compost is a commonly marketed compost material that usually has many local end users. Finished compost can be made available to residents, nurseries, landscapers, and farmers. Compost can be used as a soil amendment. Municipal crews can use it for reseeding, to hold soil moisture, and 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.

FIGURE 4-2

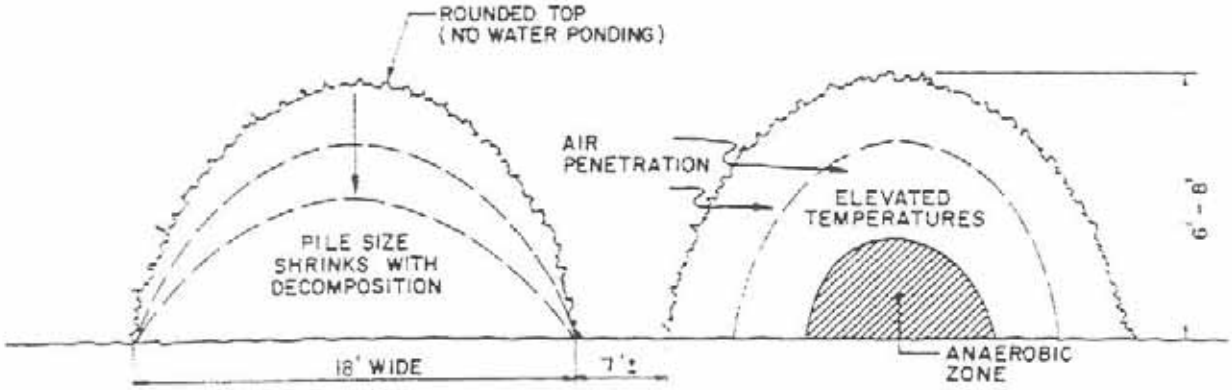
COMPOST SITE PROCEDURES



STEP I. LEAF DELIVERY



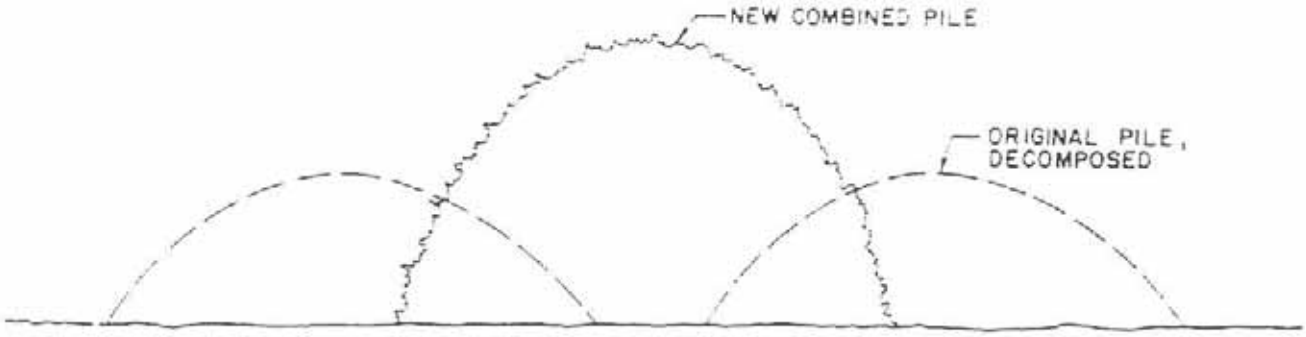
STEP 2. PILE CONSTRUCTION



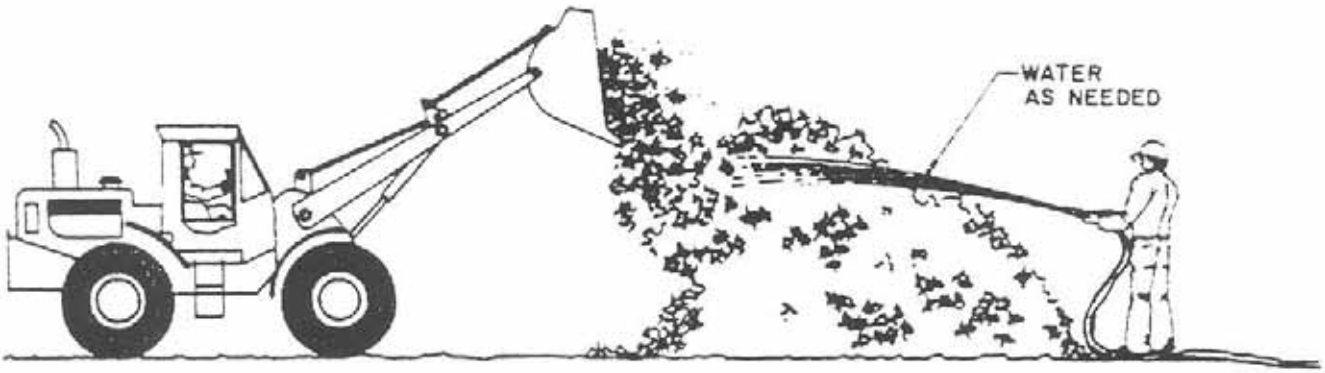
STEP 3. COMPLETED PAIR OF WINDROW PILES

FIGURE 4-3

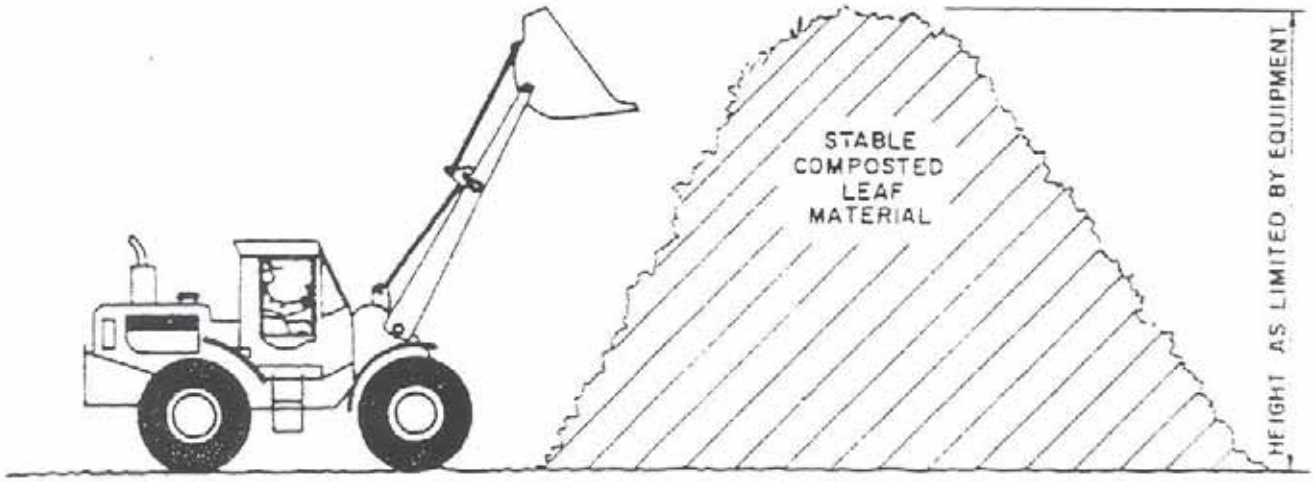
SITE PROCEDURES-CONTINUED



STEP 4. COMBINING PILES



STEP 5. TURNING PILE IN PLACE



STEP 6. COMBINE AND RESTACK MATERIAL FOR FINAL CURING

FIGURE 4-4

LEAF COMPOSTING PROCESS

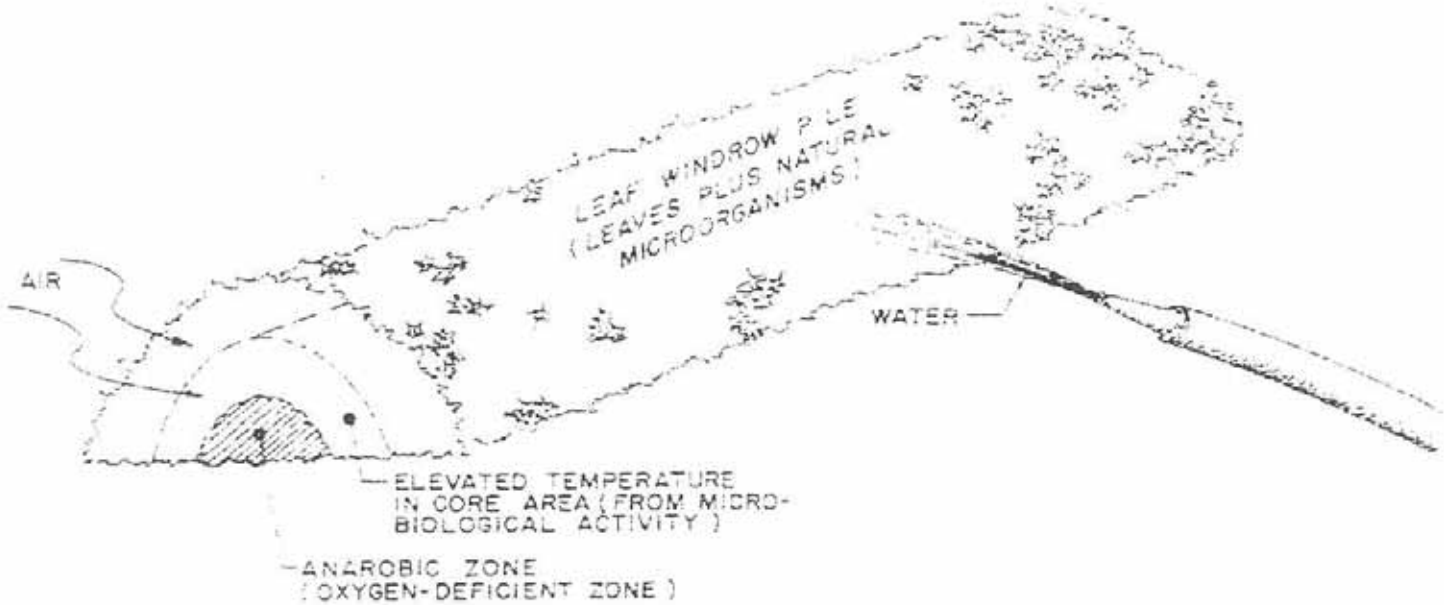
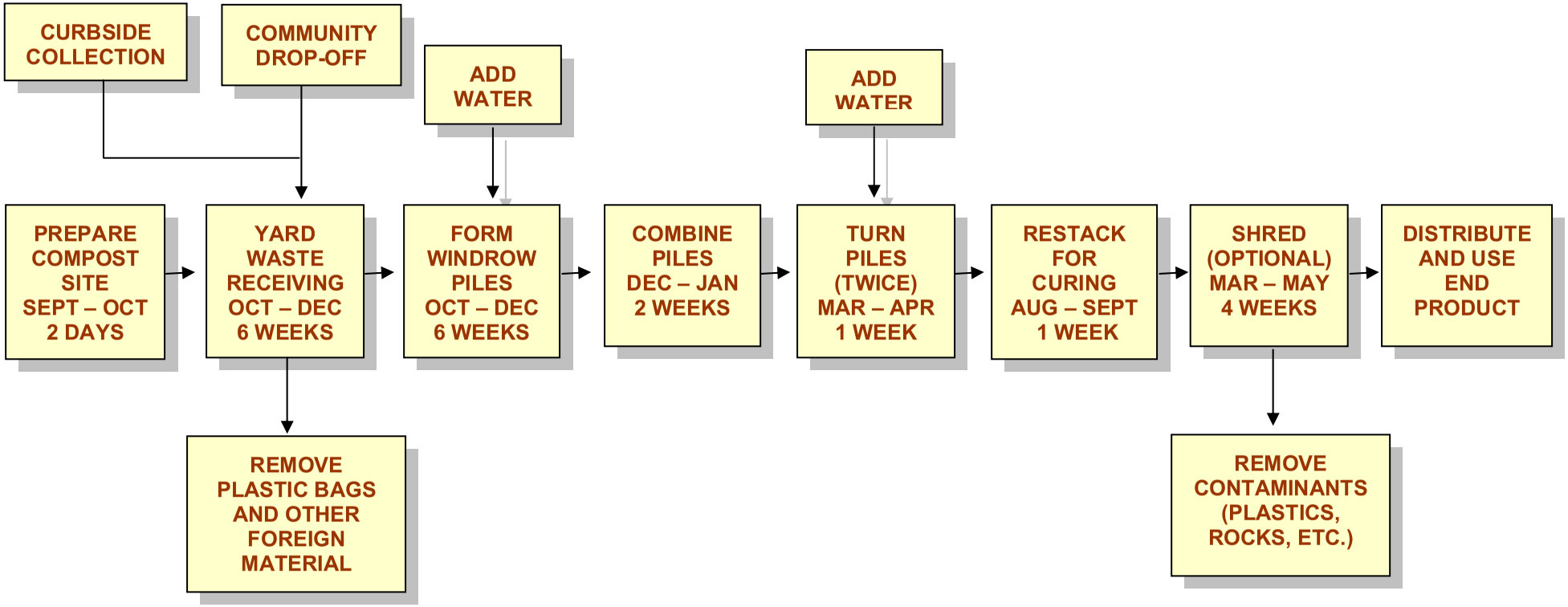


FIGURE 4 - 5
SCHEMATIC OF LEAF
PROCESS OPERATION
LOW-LEVEL TECHNOLOGY (12-18 MONTH PROCESS)



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.

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.

The Barner Landfill uses a tub grinder on an as-needed basis that is provided and operated by Clinton County.

4.8.6 County Initiatives in Yard Waste Management

Currently, the Borough of Lewistown municipal crews collect leaves from residents using municipal garbage trucks. Borough residents may also dispose of Christmas trees (seasonal) at Lewistown's municipal yard drop-off site. The Borough takes Christmas trees to the Barner Landfill for shredding. The Barner Landfill accepts leaves, pre-shredded materials and brush. The shredded material and composted material at the Barner Landfill is available for use by residents.

The MCSWA plans to continue to operate its yard waste composting operation following closure of the Barner Landfill and transition to a waste transfer operation. This operation will continue to be performed in full compliance with applicable regulations, including the Permit–by-Rule Guidelines for Yard Waste Composting Facilities. The MCSWA will continue to look for ways to improve yard waste collection and processing.

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 back yard composting, grass clippings can be left on the lawn as natural fertilization (using a mulching mower). Back yard vermicomposting (worm bins) are now available and being distributed to many communities. Additional information on backyard composting and vermicomposting is available through the MCSWA 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 may provide a variety of recycling educational materials to municipalities, special interest groups, commercial and institutional establishments and local school districts throughout the County. The County Solid Waste/Recycling Coordinator can assist 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 participation. 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's 1991 Municipal Waste Management Plan outlined, in detail, recycling program costs and benefits. A review of this information can be used as a reference for municipal officials considering development of a recycling program. The MCSWA can assist in providing additional recycling program cost analysis and guidance to any municipality or group that seeks assistance in developing a program.

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 Lewistown in Mifflin 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 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 specific County recycling program goals to be considered:

- Encourage, maintain, and potentially develop curbside collection.
- Provide, maintain, and expand drop-off collection services to be available to all County residents.
- Develop recycling collection events.
- Continue existing yard waste efforts and expand in yard waste collection where possible.
- 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 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 through identifying recycling as an alternative to dumping.
- Identify funding sources to be used to help implement County recycling goals.

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 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 MCSWA 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, and the purchase of collection bins. Equipment and site improvement costs are 90 percent reimbursable through Action 101-Section 902 recycling grants.

The MCSWA plans to continue to operate its recyclable material drop-off program following closure of the Barner Landfill and transition to a waste transfer operation. All recycling activities undertaken by MCSWA will continue to be performed in full compliance with applicable regulations.

In accordance with the approved PADEP permit for the transfer station, the future transfer operations include a "dump and pick" operation to recover any obvious recyclable materials. Obvious recyclable materials will include large items (primarily scrap metal, white goods, tires, etc.) included in the MCSWA's current recycling program. In addition, the MCSWA intends to remove cardboard, if it can be easily segregated when dumped on the transfer station floor. This activity is in accordance with Section 279.271 of the regulations, which requires the salvaging and recycling of waste materials received at a transfer facility, if the recycling is cost effective.

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 is available to all municipalities that want to participate.

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 program targets not only households, but schools and commercial and institutional establishments.

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.

Recycling Program – Strategic Plan

Drop-Off Recycling Programs

- Evaluating drop-off programs options/opportunities.
- Development of commercial/industrial collection programs.
- Identify additional recycling markets through investigation.
- Acquire drop-off sites or agreements for use of sites when feasible.
- Promote municipal drop-off programs.

County-wide or Regionally Mandated Trash Collection and Recycling Services

- Evaluate a “Green-box” residential trash collection system that would use staged garbage collection “boxes” in identified locations throughout the County: this trash collection service option may include recycling opportunities.
- Evaluate costs and feasibility of a mandated, County-wide trash collection service that may include recyclables collection.

Yard Waste Composting

- Continue existing programs and expand as feasible.
- Identify additional opportunities.
- Agreements between host municipalities and the County.
- Process design and equipment specification.
- Site preparation and operation by municipalities.

Public Education Program

- Expansion of County's educational program efforts with focus on the County's school system.
- Investigation of municipal needs.
- Continue to design/expand program structure.
- Design, production, and distribution of educational materials.
- Research funding alternatives.

Recyclables Quantities Documentation

- Consider establishing a hauler-licensing program in the County, if such a program is not prohibited in the future.
- Establish a program to enhance the annual reporting of recyclables collected (types, quantities, and sources).
- Incorporate this new data into the County's Annual Act 101 Recycling Report.

The schedule for implementation of this schedule is addressed in Chapter 7.

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 Mifflin 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 over the next 10 years. 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 was shown in Table 1-5 in Chapter 1. The table reveals that in 2003, approximately 46,400 tons (about 160 tons per day, 5 1/2 days per week basis) of municipal solid waste (including construction and demolition waste) will require disposal.

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 Mifflin County's wastes over the next 10 years. Section 5.5 evaluates future options for sewage sludge and septage disposal in Mifflin 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. A listing of the disposal facilities to be designated for disposal of Mifflin County municipal wastes is presented, 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 Mifflin County are presented in Appendix J of this Plan.

TABLE 5-1
MIFFLIN COUNTY
PROJECTED GROSS AND NET DISCARDS OF MSW
(2000 - 2020)

Year[1]	Population[2]	Gross Discards (tons)[3]	Diversion Rate[4]	Net Discards (tons)[5]	Waste Diverted to Recycling (tons)[6]
2000	46,486	45,511	26%	33,861	11,650
2001	46,773	45,791	26%	33,885	11,906
2002	47,063	46,075	27%	33,635	12,440
2003	47,354	46,360	28%	33,379	12,981
2004	47,647	46,646	29%	33,119	13,527
2005	47,942	46,935	30%	32,855	14,080
2006	48,239	47,226	31%	32,586	14,640
2007	48,537	47,518	32%	32,312	15,206
2008	48,838	47,812	33%	32,034	15,778
2009	49,140	48,108	34%	31,751	16,357
2010	49,449	48,411	35%	31,467	16,944
2020	52,515	51,412	35%	33,418	17,994

(1) Year 2000: Gross Discards ÷ 2000 Census Population = .979 tons per capita. Assumed constant for projections.
(2) 2000 population based on U.S. Census data. 2010 and 2020 Population Projections: Mifflin County Comprehensive Plan 2000 and Mifflin County Planning and Development Department.
(3) Projected Gross Discards based on a per capita generation rate of .979 tons.
(4) 2000 diversion rate based on Mifflin County Annual 2000 Recycling Report. 2001 through 2010 diversion rate estimated to achieve PADEP goal of 35 percent recycling rate by 2010. 2020 diversion rate estimated to remain at 35%.
(5) Net Discards = Gross Discards × (100% - Diversion Rate). Tonnages are approximate.
(6) Gross Discards - Net Discards = Waste Diverted to Recycling. Diversion Projections 2001-2020 based on achieving DEP recycling percentage requirements by Year 2010.

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 that may include a system for licensing collectors. 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. However, the municipality has no control over the disposal site used for waste disposal under a non-contract system.

With this system, competition helps 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 Mifflin County, 14 of the 16 municipalities use private non-contract, or subscription, waste collection services.

5.2.2 Private, Municipal-Contract Collection

A municipality can avoid some of the potential waste collection problems 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 contractual control of where the successful bidder will dispose of collected wastes. This can be an important factor in securing a waste stream for delivery to specific disposal site.

In Mifflin County, only Juniata Terrace Borough currently bids for waste collection service for its residents.

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 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 alternate.

Municipal collection is generally most effectively implemented in municipalities that already provide relatively extensive public works services, such as older, densely developed communities. Infrequently (e.g. Northern Tier Solid Waste Authority), a county purchases trucks and provides collection services to county residents.

In Mifflin County, Lewistown Borough provides municipal waste collection services along with curbside recycling services to its residents and businesses.

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.

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.

In Mifflin County, most municipal wastes are currently delivered to the Barner Landfill, located centrally in the County near Lewistown. Where short hauling distances are involved, as is the current case, transfer haul is usually not cost-effective or warranted. However, in 2004, the Barner Landfill is expected to close. After this time, Mifflin County wastes may have to be hauled between 60 and 110 miles (one way) to out-of-county disposal sites. For this reason, the MCSWA has been considering opening a transfer station at the Barner Landfill site to help lower the transportation cost of waste hauling for its residents. This planning study includes an analysis of projected direct haul versus transfer haul costs to various out-of-county disposal sites. In addition, the Borough of Lewistown is evaluating an on-site transfer station. This evaluation is only being done for the purpose of a backup plan for the Borough of Lewistown in case the MCSWA elects not to construct and operate the proposed County transfer station.

5.3.3 Existing Transfer and Haul Facilities

As stated in Section 2.2.1, there are no existing municipal waste transfer stations in Mifflin County. Parks Garbage Service operates a transfer station to the west of Mifflin County in Huntingdon County, and the Centre County Solid Waste Authority operates a waste transfer station to the north near State College. Neither one is located centrally to the population and waste generation center of Mifflin County, near Lewistown.

5.3.4 Evaluation of Transfer Station Economics vs. Direct Haul

Gannett Fleming performed an economic evaluation of direct hauling versus transfer hauling of Mifflin County wastes to out-of-county disposal sites. The complete hauling evaluation is included in Appendix C of the Plan . The procedures and findings are summarized here.

Direct haul costs were estimated using a computer spreadsheet model developed by Gannett Fleming, using data inputs suitable for Mifflin County, and further calibrated to reflect typical costs being charged to County residents as reported in the Mifflin County municipality surveys (summarized in Table 2-1 of this Plan). Once calibrated, the model was used to estimate the direct-haul transportation costs to five actual out-of-county disposal sites, varying in distance from 61 to 107 miles from Lewistown. The estimated direct haul transportation costs to use these sites range from $61 to $88 per ton of waste hauled.

Gannett Fleming also estimated transfer haul costs, using another computer spreadsheet model developed for this purpose. Again, data inputs were established to reflect local experience, and the model was calibrated against actual transfer hauling bid prices obtained through this planning process. A description of the proposed transfer station that was used for this analysis, the Authority's permitted waste transfer station proposed for the Barner Landfill site, is further described in Section 2.2.1 of the Plan. Using this computer cost model, the cost to construct and operate a transfer station (estimated capital cost of $650,000 and annual operating costs of $420,000), including the cost to transfer-haul wastes to these same five sites noted above, is estimated between $26 and $32 per ton of waste transferred. The economic advantage of transfer-hauling wastes to out-of-county disposal sites is significant for Mifflin County, approximately a 60% savings over the direct hauling of wastes.

5.4 PROCESSING AND DISPOSAL ALTERNATIVES

5.4.1 Introduction

A detailed evaluation of solid waste processing and disposal alternatives was included in the County's 1991 Municipal Waste Management Plan. At that time, the County plan looked at the environmental, regulatory, economic, and harms/benefits aspects of a number of waste management options.

Since then, 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 Mifflin County has pursued securing disposal capacity during the Plan Update. LeBoeuf, Lamb, Greene and MacRea provided expert legal consultation on flow control during the planning process and a handout and related memos are provided in Appendix L.

Generally, there are three types of municipal waste flow control which have been practiced, with varying degrees of success, in the United States. ***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. As an example, if tipping fees at the designated facility can be reduced (generally through subsidies from other revenue sources) to a point where it is more economical for haulers to take waste to the designated facility, then economic flow control has been achieved. ***Contractual flow control*** occurs when the waste management system secures waste disposal services through 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.

Currently, the MCSWA has secured contractual commitments from the majority of its major waste haulers to use the Barner facility for a minimum period of 5 years. This is a legal method and provides for contractual flow control. Another form of contractual flow control being considered by the County includes bidding of waste collection services, either through the County, a local municipality (as Juniata Terrace Borough now does), or a COG. The long-term commitment of waste to a County-backed transfer or disposal facility is a significant element in the development and implementation of a municipal waste management plan.

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

5.4.2 Background

The current Mifflin County Municipal Waste Management Plan was adopted on January 10, 1991 pursuant to PA Act 101. The Plan has not been amended or updated since 1991. Mifflin 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. Mifflin County is currently updating its plan in accordance with both of these mandates, and has been involved with the current plan update process for the past several years.

In the 1991 Plan, the following long-term processing and disposal options were considered:

- Two-County Waste-to-Energy Facility
- Publicly Owned and Operated Landfill Option
- Refuse Derived Fuel (RDF) / Composting Processing Option
- Out-of-County Disposal Options

The 1991 Plan concluded with a recommendation to continue using the MCSWA's Barner Landfill to provide for the County's waste disposal needs over the 10-year planning period. The Barner Landfill has continued to be the primary waste disposal means for Mifflin County residents since 1987. However, two factors have created challenges to the long-term viability of this disposal system. First, a 1996 engineering study conducted for the MCSWA confirmed that long-term expansion options for the Barner Landfill were severely limited due to numerous site constraints. Second, the Carbone case has increased the difficulty in securing a steady delivery of wastes to the landfill (that is needed to support the landfill's cash flow needs). The MCSWA has dealt with the latter problem through the execution of five-year waste delivery contracts with most of the County's major municipal waste haulers, and with the use of a public education program promoting the use of the MCSWA's waste disposal system. Having taken these important and necessary steps, and backed by the financial assurance guarantees of Mifflin County, the MCSWA's Barner Landfill is expected to meet all of its technical and financial requirements for closure and post-closure care at the Barner site.

Since the Barner Landfill is projected to be filled and closed by early to mid-2004, a new long-term source of disposal capacity must be found.

The following section briefly describes processing and disposal technologies available to Mifflin County. The 1991 Mifflin County Municipal Waste Management Plan contains a detailed evaluation of these technologies that included process description, system components and implementation, potential environmental impacts, system economics, and risks and benefits. These technologies have not substantially changed technically or economically within the past five years. Further, the 1994 Carbone decision has made it even more difficult than it was in 1991 for a public entity to develop and finance a new, capital-intensive solid waste processing/disposal project. For the purposes of this Plan revision, the 1991 Plan should be referenced for the detailed processing and disposal technology descriptions and analyses.

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.

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 gases 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), and 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. These can be economically feasible at sizes as low as 300 tpd. Below 300 tpd, most mass burn facilities are constructed with pre-fabricated, modular furnaces. Such modular systems have a lower capital cost and, generally, 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 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, water retention in sandy soils, drainage in clayey soils and the cation exchange capacity 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, 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.

- 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 curing phase, the material is considered completely stabilized.

- 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 disposal alternatives (e.g. landfilling) and on the quality and local markets of 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 9000 BTU per pound.

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. This method is described in more detail in Section 5.5.1.5.

5.4.8 Securing Waste Disposal Capacity For Mifflin County

Court decisions at the federal and state level, and a change in the state policy on flow-control, have put counties in a position where enforcement of county waste flow control requirements directing waste to a single facility is nearly impossible. This 2002 Plan must provide for a fair, open and competitive market for the management and disposal of municipal waste generated in the County. The system defined in this Plan must ensure that the County meets its legislative mandate of securing disposal capacity for all municipal waste generated in the County while at the same time creating the fair, open and competitive market place required by the state's policy on the content of County Municipal Waste Management Plans. This plan meets these plan requirements.

5.4.8.1 <u>Needs vs. Existing Capacity in Barner Landfill</u>

As noted in Section 3.1.1, as of January 2002, the Barner Landfill had only about 85,000 tons of disposal capacity remaining, as compared to a disposal need (municipal waste, including C/D waste but net of recycling) of approximately 325,000 tons over the 10-year planning period. The Barner Landfill is expected to be filled by early to mid-2004. Therefore, additional disposal

capacity for municipal wastes generated by Mifflin County is needed to provide the required 10 years of disposal capacity under the Plan. To meet this disposal capacity shortfall, Mifflin County has chosen to solicit for additional disposal capacity.

5.4.8.2 Solicitation for Additional Capacity

A Solicitation of Interest (SOI) was issued by the Mifflin County Planning and Development Department (MCPDD) and Mifflin County Solid Waste Authority (MCSWA), 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 and sewage sludge, and residual waste generated in Mifflin County. This SOI process was in accordance with the Mifflin County Municipal Waste Management Plan update process and also in accordance with PADEP requirements for a fair, open, and competitive solicitation. Disposal capacity from year three (2004, when the Barner Landfill is scheduled to close) through year 10 of the planning period was solicited.

Two disposal options were solicited. Option 1 involves disposal services only. Option 2 includes transportation from a proposed in-county transfer station to the disposal site, plus disposal. Under Option 1 of the SOI, the Municipal Waste Disposal Capacity Agreements would be for an initial term of four (4) years (starting with initial deliveries in 2004) with a 4-year renewal option. Under Option 2, the Municipal Waste Disposal Capacity Agreement would be for a term of up to eight (8) years starting with initial deliveries in 2004.

The SOI was released to prospective vendors in November 2001. The availability of the SOI was advertised in Waste Age magazine, a national waste industry publication, and in the Pennsylvania Bulletin. In addition, the SOI advertisement was directly mailed to approximately 25 disposal facilities in central Pennsylvania in November of 2001. Responses to the SOI were received until December 3, 2001. Appendix D of this Plan contains the SOI advertisement, the SOI document, and the direct advertisement mailing list. The SOI contained proposal instructions and information, a submittal form, a disposal facility questionnaire, and a draft Municipal Waste Disposal Capacity Agreement. The list of facilities that responded to the SOI is found in Section 5.7.5.2.

Evaluation of the proposals was based upon, but not limited to, a number of evaluation criteria (listed on page A-5 of the SOI, Appendix D) that reflect the needs of Mifflin County. Proposal review criteria included the following considerations:

a. Completeness Review (forms that were required to completed by Proposer)

- Disclaimer Statement
- Submittal Form and Facility Questionnaire
- Option 1 Ceiling Price Tipping Fee Schedule
- Terms and Conditions Form
- Non-Collusion Affidavit
- Include all required Signatures/Corporate Seals

b. Evaluation of Proposals

Listed below are some considerations of Evaluation Criteria:

Disqualification Issues/Criteria

- Refusal to offer an initial contract term of 4 years, or 8 years total
- Put-or-pay and/or other punitive restrictions
- Demonstration of 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:

- The cost of disposal per ton for MSW in comparison with other Proposers
- Appropriateness of the basis for tipping fee escalation

Other Criteria:

The length of the proposed disposal commitment, the relationship between the proposals and the Authority's long-term municipal solid waste disposal needs and goals, permitted disposal capacity of the facility, and the initial and life-cycle costs of waste disposal.

c. Results

All seven proposers were determined to be qualified respondents to the SOI. One of the seven (Phoenix Resources) is qualified for C/D waste receipt only. Appendix D contains summary information and a completeness review checklist from the proposal reviews.

Once the Plan update is finalized and approved by PADEP, Mifflin County intends to finalize and execute the draft Municipal Waste Disposal Capacity Agreements with each of the seven disposal sites.

5.5 SEWAGE SLUDGE PROCESSING AND DISPOSAL ALTERNATIVES

As indicated in Section 3.2, six municipal and three non-municipal wastewater treatment plants currently operate in Mifflin County. Approximately 74% of the biosolids generated by those treatment plants is currently dewatered and landfilled (0.986 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 are delivered to a wastewater treatment plant for processing. Approximately 9,000 gallons per day of liquid sewage sludge and septage are generated from these sources.

Sewage sludge processing and disposal alternatives were reviewed as part of this Plan. Two workshop meetings were held with representatives of the treatment plants and septage haulers in Mifflin County, in October of 2001 and in January of 2002. Evaluations of various biosolids handling and disposal options were conducted, and summary findings from these evaluations were shared with the workshop group in the form of handouts. Appendix E of this Plan contains the handouts and minutes from each of those meetings, and presents the details of the biosolids evaluations and findings for this Plan. The alternatives considered and findings are briefly summarized below. Further details of this analysis are contained in Appendix E.

5.5.1 Description of Alternatives

For this analysis, Gannett Fleming identified and analyzed the following alternatives: land application, landfilling, and composting, particularly 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 was evaluated as part of the landfill option analysis. Granville Township is evaluating hosting the development of a small-scale vermicomposting facility, and has indicated a willingness to expand the scope of this project to a regional vermicomposting facility. These study alternatives were identified in the workshop sessions with the treatment plant representatives as options worthy of analysis.

5.5.1.1 Land Application

Sewage sludge can be disposed by spreading it on or injecting it into farmland, or by applying onto abandoned mining lands for purposes of reclamation. Land application is typically the simplest and least costly method of disposing of sludge. Land application provides a means to dispose of sludge as well as 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 Mifflin County, land-applied biosolids are typically in liquid form.

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. The Mifflin County Conservation District reviews applications for Chapter 271 permits, and conducts site reviews and assists with nutrient management plans for the biosolids receiving sites. Most permits are in the process of converting from the old site-specific Chapter 275 permits to the new Chapter 271 General Permits.

The new permit is issued for a particular sludge source, and states the maximum allowable rate of application of sludge. The 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 considering going to a phosphorus-based nutrient management system for biosolids application (like many of our neighboring states). Should this occur (and this is expected within the next 3-5 years), land availability for land application may be more limited, and allowable application rates for sludge may be lower than under the current nitrogen-based nutrient management system.

The availability of sites has 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, due to adverse neighbor reactions or other reasons.

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. The MCSWA's Barner Landfill accepts dewatered sludge cake for disposal from three of the larger treatment plants in the County: Lewistown Borough, Burnham Borough, and Granville Township. In addition to the Barner Landfill, all seven of the respondents to the Solicitation of Interest indicated a 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 several Mifflin County wastewater authorities, landfilling would involve the added costs of installing and operating dewatering systems. Recent proposals received from landfills during the SOI process quoted ceiling tipping fees ranging from $38 to $77 per ton.

5.5.1.3 Incineration

Incineration of sludge is a two-step process consisting of 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

contamination of groundwater with leachate produced by the ash residue in the landfill. The ash can contain high concentrations of heavy metals. No wastewater treatment plant in Mifflin 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: (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 or landfilling, and therefore is difficult to implement, unless a large quantity of biosolids is processed daily. This is not typically the case in Mifflin County.

Methods. The four general types of composting method 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 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 traditionally the most 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.

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.

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 equipment needs to 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).

Granville Township has received a $100,000 Growing Greener grant from PADEP to help develop a small scale vermicomposting project. The township is currently seeking additional sources of funding for the project, and is dealing with PADEP permitting issues related to this relatively new technology. Granville Township has indicated a willingness to expand this project to a more regional facility, and is willing to host and operate the larger facility. A regional facility, large enough to serve biosolids needs of Lewistown Borough, Derry Township and Burnham Borough, in addition to Granville, would cost approximately $2,200,000 to construct. With a $430,000 PennVest grant combined with a two percent PennVest loan to offset some construction costs, it is projected to cost approximately $50 per ton to the facility users. This charge is almost identical to the fee at the Barner Landfill to dispose of dewatered sludge cake. Without the construction grant, the operating cost per ton could be significantly higher.

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 special equipment at the proposed MCSWA transfer station to receive and transport biosolids, or; 2) place rolloff containers at each participating treatment plant, and use a common service/hook truck to pick up and haul the load 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, full or not. In contrast, a sludge handling system at the proposed transfer station would have to be removed from the site within 24 hours. For the small amount of dewatered cake being handled, this would be a very inefficient way to operate the sludge hauling operation.

Appendix E contains a description of these alternatives, the pros and cons of each, and cost estimates.

5.5.2 Evaluation of Biosolids Processing and Disposal Alternatives

The sludge processing/disposal alternatives were evaluated and discussed during meetings with municipal representatives during the 2001 Municipal Waste Management Plan development process.

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 5-10 years. Based on considerations of cost alone, land application is the most attractive sludge management alternative. Even if Pennsylvania adopts a phosphorus-based nutrient management system as is predicted, Mr. Dan Dunmire of the Mifflin County Conservation District believes that sufficient land will still be available in the County to handle Mifflin County's continued and safe application of biosolids. Therefore, for plants currently producing liquid biosolids, the current system of land application of liquid biosolids and septage is expected to be their continued preferred management method over the next 10 years.

The three plants that currently landfill dewatered sludge cake at the Barner Landfill will see their preferred disposal method disappear when the landfill closes in 2004. Each of these plants has a metals content issue that would make it difficult to obtain approval to land apply the material on agricultural lands. Therefore, the identified options for these plants are disposal at another, more distant landfill, and vermicomposting. At the workshop meetings, the consensus of the group was that incorporating sludge transfer and hauling at the MCSWA's transfer station was impractical, primarily due to regulatory constraints. The second hauling option, involving drop-off containers and a shared service/hook truck, appears to be a practical and cost-effective way to defray the longer haul cost to out-of-county disposal sites. Further, Lewistown Borough indicated that it is planning to retrofit one of its existing garbage trucks to service rolloff containers, and this could defray this cost further. Lewistown is willing to "sponsor" and operate this program in conjunction with the other plants, and charge a fair price for the service rendered to the other plants.

As a result of the workshop meetings with wastewater treatment plant operators conducted in conjunction with the Plan, interest in further investigating the vermicomposting option with Granville Township is strong with those treatment plant representatives attending the workshop. There are some important issues regarding facility permitting and financing that Granville Township is pursuing with PADEP. These questions need to be resolved before this project can proceed. It was stated that followup investigations on the vermicomposting option are the responsibility of Granville Township and the other treatment plants. This followup work is beyond the scope of the Plan, and should be handled directly among the municipal plant representatives.

5.5.3 Management Alternatives

Local municipalities maintain authority over the plant management and transportation and disposal of sewage sludge. The County may be able to assist in public education and may also be able to provide for disposal of the sludge through provisions in disposal contracts with disposal facilities that accept this waste. Assistance can also be provided to the municipalities for septage management primarily through education 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 of a waste disposal or processing facility. This section describes household hazardous waste (HHW).

5.6.1 Household Hazardous Waste

Household hazardous waste includes such items as paints, pesticides and herbicides, drain cleaners, pool chemicals, solvents, and cleaning products. 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. Act 101 also created a HHW collection and disposal grant program. However, it only covers 50% of eligible costs. 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. The state grants can partially offset program costs. Waste Collection Drop-off Events can be organized and scheduled with the assistance of PADEP and disposal companies such as Safety Kleen.

Another 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. By reducing the amount to be disposed of, the cost of managing HHW goes down. Much of the cost involved is due to the transportation of the material to an approved hazardous waste landfill. 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 non-toxic alternative products that can be used. The Mifflin County Solid Waste Authority can play a role by assisting individuals or municipalities on HHW education and proper handling procedures. PADEP steps to HHW management have been summarized and are presented below:

- Minimize Household Hazardous Waste (HHW) generation
- If the material is still useable (i.e. has not been damaged/shelf life expired, etc.) check with friends, neighbors, and community groups before disposing
- If the material is not useable and/or outlets are not available, it should be taken to your community's HHW collection program, if available
- Used motor oil should be taken to used oil collection sites
- Spent lead acid (automotive) batteries can be returned to sellers. In Pennsylvania, dealers are required to take old batteries when new ones are purchased and may not be discarded in landfills
- If your community does not have such a collection program or you must discard the materials prior to the next scheduled event, you may legally discard them in your regular trash pick up, provided:
    - You have looked at the label for any disposal directions and have complied with them
    - Liquids have either been allowed to evaporate (if water based) or absorbed (if non-water based) on some material such as vermiculite, cat litter, or sawdust, so that there are no freestanding liquids)
    - The remaining residue has been carefully packaged to prevent leakage while the material is being transported to the disposal facility
    - The material is placed out in small quantities, over several collection periods

5.7 SELECTED MUNICIPAL WASTE MANAGEMENT SYSTEM

5.7.1 Overview of Selected Waste Management System

This Plan recommends that Mifflin County municipal waste be delivered to the Barner Landfill, until filled, and thereafter to a list of designated disposal sites, though 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, or businesses and 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 Mifflin County will be delivered to facilities that are legally permitted and contracted with Mifflin County or the Mifflin County Solid Waste Authority.

- The Plan proposes to implement an Administrative Fee per ton of municipal waste disposed from Mifflin County sources. This fee is 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. Appendix K contains a draft ordinance dealing with the proposed administrative fee.

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 to provide for 10 years of disposal capacity and to propose a system to attain an ultimate goal of 35% recycling.

- Cost-Effectiveness—Haulers can select from a list of designated disposal facilities in accordance with the closure schedule for the Barner Landfill. 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 Mifflin County. There is no need to seek additional facilities or consider other management options unless a petition to add a site is received by the County.

- Logical Extension of Existing System---The Mifflin County Solid Waste Authority has a professional staff that currently engages in waste handling, recycling, yard waste composting, public education and financial management activities. Should the MCSWA be chosen to implement the Plan, the MCSWA's management system, staffing and knowledge base can be easily modified as needed to meet the new program requirements of the Plan. Post-closure care of the Barner Landfill will require on-site management, regardless of any other future activities at the site.

5.7.2 Collection

Mifflin County currently uses a combination of public and private 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. Municipalities may want to consider this option, or further, multi-municipal or COG-level bidding for waste collection services. In addition, bidding provides municipal control over the processing, transportation, or disposal site used by the collector. This can be beneficial, especially if Mifflin County elects to continue to provide waste handling facilities for the County's benefit.

With the State's adoption of Act 90 (Waste Transportation Safety Program) in June 2002, implementation of new municipal or residual waste transportation licensing programs is prohibited on a county or municipal level. The County will support the state's program under Act 90; however, the County/MCSWA will evaluate whether a County hauler licensing program is preferable, should future regulations or legal challenges change the interpretation of this new Act. Under such a program, anyone collecting municipal wastes that are generated in Mifflin County may be required to obtain a license from Mifflin County and abide by the licensing rules and regulations in effect, including delivering all municipal wastes collected to a site designated in the plan. A sample license application is included in Appendix K.

In June 2002, Pennsylvania approved amendments to the existing solid waste management statutes (e.g., House Bill 2044, adopted as Act 90) that, among other provisions, establish a state-wide waste transportation safety program, including a registration program for all waste haulers doing business in Pennsylvania. This program is to be administered by the state and prohibits counties or municipalities from implementing new municipal waste or residual waste transportation authorizations or licensing programs. This legislation will affect the ability of Mifflin County to implement a new hauler-licensing program (the impact of this new legislation will be considered as part of the final plan). Based on the new legislation, all haulers doing business in Mifflin County will need to meet the new requirements of the state program, and hauler data collected from the state program will most likely be available to individual counties to monitor waste hauling and disposal activities.

In addition, waste haulers may be required to pay an administrative fee per ton of Mifflin County municipal waste collected. This fee is intended to cover solid waste services and programs that benefit County residents, and may support such programs as enhanced recycling activities and open dumping abatement.

Appendix K contains draft ordinances pertaining to the proposed license program and administrative fees.

5.7.3 Transportation

All municipal waste generated within the County must be transported to a County-contracted disposal facility by a County solid waste hauler. Under Act 101, it is the responsibility of each municipality for collection and transportation of municipal waste generated in their municipality. Sections 5.2 and 5.3 discuss collection and transportation alternatives available to municipalities.

As part of the current planning process, the County has conducted a hauling cost analysis to determine the most cost-effective method for transporting wastes to designated disposal sites in the Plan. This study, entitled Hauler-Cost Analysis for Mifflin County Update, is presented in Appendix C and summarized in Section 5.3.4. As this analysis demonstrates, there are clear economic benefits to developing a waste transfer station project in Mifflin County. Both the residents of Mifflin County and local waste haulers will benefit from development of a transfer station, the residents through lower waste handling costs (charged to them by their hauler), and the waste haulers through a more convenient, cheaper local drop-off site for garbage. For this reason, it is recommended that the MCSWA should seriously consider pursuing the transfer station project at the Barner Landfill site for which the MCSWA has obtained a PADEP permit to construct. Prior to making financial or contractual commitments to this project, the MCSWA should first:

- Secure minimum waste delivery commitments to the transfer station project, either through contracts with waste haulers, or from municipalities that bid for waste collection services or collect their own wastes, or both, and;
- Solicit and secure firm disposal prices from waste disposal sites in the region, assuming a certain guaranteed quantity of waste deliveries to that site from the transfer station.

If the MCSWA elects to develop the transfer station project, it should secure waste commitments and disposal prices by the end of 2002, to provide adequate time for final design, bidding, construction, and startup by March-April of 2004 (the approximate projected closure date for the Barner Landfill).

If the MCSWA elects not to pursue the transfer station project, waste hauling will default to direct hauling by waste collectors to disposal sites, and possible use of out-of-county transfer stations. It is also possible that another public or private entity may choose to develop an in-county transfer station if Mifflin County does not elect to do so.

5.7.4 Waste Reduction and Recycling

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.

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.

The waste reduction roles available to the County are limited to educating and providing informational assistance to municipal officials, residents, businesses, and institutions, and minimizing the waste generated by the County's activities. The County can take a leadership role in these areas.

The County's plan for source separation recycling and yard waste composting can be found in Chapter 4. Appendix B of the Plan contains further details of recycling activities and recommendations for Mifflin County.

5.7.5 Municipal Solid Waste Disposal Facilities

5.7.5.1 Overview

Mifflin County's 1991 Municipal Waste Management Plan required that all municipal waste generated in Mifflin County must be delivered to the MCSWA's Barner Landfill. Due to recent developments in Federal and State case law pertaining to interstate commerce and other constitutional issues, mandatory flow control is unlikely to continue to be enforceable. However, current MCSWA contracts with most of the major private haulers of municipal waste will help provide a secure delivery commitment to the Barner Landfill until it closes.

The Barner Landfill is expected to reach permitted capacity in 2004. The MCSWA is currently pursuing a permit modification that may extend the life of the facility by a minimum of one year beyond the current life, without increasing the permitted footprint. The maximization of capacity and associated life of the Barner Landfill is preferable as a short-term waste management option. This additional capacity will allow the MCSWA to continue to provide provide a cost-effective disposal option within the County, secure sufficient funds for closure and post closure care activities, and allow a smooth transition to a waste transfer operation for future disposal at an out-of-County facility.

After the Barner Landfill closes, Mifflin County's municipal waste will only be permitted for delivery to designated facilities listed in Section 5.7.5.2 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. Should the County pursue the development of a waste transfer station at the Barner Landfill site, this will help make the waste management system even more efficient and cost-effective. As noted above, the disposal system is more than sufficient to meet the disposal needs of the County and the County is not exploring further waste processing/disposal options for this 10-year planning period.

5.7.5.2 <u>Designated Facilities</u>

As noted in Section 5.4.8.2, the County and MCSWA collectively issued a Solicitation of Interest (SOI) for waste disposal services in November 2001. The Authority received proposals from the following seven facility representatives:

- Superior Greentree Landfill, LLC
  635 Toby Road
  Kersey, PA 15846
  (Elk County)

- Phoenix Resources, Inc.,
  RR #1, Box 12A
  Wellsboro, PA 16901
  (Tioga County)
  C/D Waste Only

- Southern Alleghenies Landfill, Inc.
  843 Miller Picking Road
  Davidsville, PA 15928
  (Somerset County)

- Pine Grove Landfill, Inc.
  193 Schultz Road
  Pine Grove, PA 17963
  (Schuylkill County)

- Mountain View Reclamation
  9446 Letzburg Road
  Greencastle, PA 17225
  (Franklin County)

- Shade Landfill, Inc.
  1176 #1 Road
  Cairnbrook, PA 15924
  (Somerset County)

- Laurel Highlands Landfill
  260 Laurel Ridge Road
  Vintondale, PA 15909
  (Cambria County)

In September 2002, an additional facility petitioned the County 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). This facility is listed as follows:

- Wayne Township Landfill
  Clinton County Solid Waste Authority
  P.O. Box 209, 264 Landfill Lane
  McElhattan , PA 17748
  (Clinton County)

Based on the evaluation of information submitted in the proposals, all eight facilities that responded to the SOI, or petitioned to be included in the Plan, appear to be qualified, with one of the facilities qualified only for C/D waste disposal. Mifflin County intends to have agreements in effect in 2004 with each designated facility, to accept municipal and other identified wastes on and after that time. In addition, the MCSWA's Barner Landfill is a primary designated disposal site for municipal wastes from Mifflin County until the site is filled and closes.

Table 5-2 provides a synopsis of the Plan's designated facilities, along with the capacity that has been committed to Mifflin County's waste disposal needs. As Table 5-2 shows, the total capacity that will be available to Mifflin County through these agreements and through the remaining capacity at the Barner Landfill is 1,950,000 tons (an average of about 195,000 tons per year), over five times the projected capacity required for Mifflin County over the 10-year planning period, through 2011.

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

Disposal Site	Avail. Cap. Per Day, Tons	Avail. Cap. Per Year, Tons	Estimated Final Closure Date	Total Avail. Cap. Over 10-Year Planning Period, Tons
Barner LF, Mifflin Co. (1) (3)	390	38,000 +	3/2004	85,000(1)
Superior Greentree LF, Elk Co (2) (3) (4)	All	All (50,000 used)	2012	387,500(2)
Southern Alleghenies LF, Somerset Co. (2) (3) (4)	150	40,000	9/2005	60,000(2)
Shade LF, Somerset Co. (2) (3)	150	40,000	2012	320,000(2)
Pine Grove LF, Schuylkill Co. (2) (3) (4)	300	93,000	5/2005	111,600(2)
Mountain View Reclamation LF, Franklin County (2) (3)	300	93,000	9/2008	418,500(2)
Laurel Highlands LF, Cambria County(2) (3) (4)	150	40,000	2029	320,000(2)
Wayne Twp. LF, Clinton Co. (2) (3) (4)	90	28,000	2016	224,000(2)
Sub-Total				**1,926,600**
Phoenix Resources LF, Tioga Co. (2) (5)	250	23,400	6/2004	23,400(2)
Total				**1,950,000**

(1) January 2002 through closure (projected 3/2004)
(2) Starting 3/2004, through end of planning period, 2011
(3) Accepts municipal waste, C/D waste, sewage sludge and residual waste
(4) Also accepts asbestos
(5) Only accepts C/D waste

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 Mifflin 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 D. This document is provided for the specific purpose of adding additional qualified facilities 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 Mifflin 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. 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 adding 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.

4. If all information is in order and the facility's submission is determined to meet the qualification criteria, 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 Mifflin County and approved by PADEP, the MWDCA will be executed.

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

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

Purpose of Petitioning Process – Mifflin 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:

Mifflin County Solid Waste Authority
P.O. Box 390
87 Landfill Road
Lewistown, PA 17044
Attention: Kerry Tyson, Acting 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 most counties in Pennsylvania, illegal dumping is prevalent in rural areas of Mifflin County. While most would 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 residents, businesses, haulers, and disposal facilities in the area.

Pennsylvania, and counties like Mifflin, 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. 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.

C&D waste generated during remodeling, roof or shingle/siding replacement, home additions, flooring replacement, etc. often ends up in illegal dumps in an effort to avoid the cost of disposal. Some haulers will not accept this material when placed at the curb, even though all designated facilities in this Plan are permitted to accept C&D waste. Some homeowners in municipalities with individual subscription services may have chosen not to have waste collection service. When it is a burden for homeowners to haul this material to a disposal facility, or when a contractor who has agreed to dispose of the material decides to avoid the cost of disposal, some of this waste may be dumped illegally.

The County should consider investigating options for the safe disposal of small volumes of C&D waste such as those described above, including, but not limited to: requiring haulers to pick up these materials and deliver them to a County-designated 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.

Additional action is needed, however, to address the clean-up and safe disposal of materials in existing dumps and to prevent further dumping. Mifflin County has initiated a local chapter of PA CleanWays, a non-profit organization dedicated to cleaning up dumps and ending illegal dumping. This organization, through a network of local volunteers, works with municipalities, businesses, law enforcement personnel and disposal facilities to clean up existing dumps,

identify and punish those who dump illegally, and monitor problem areas to help prevent future dumping.

The County should consider sponsoring and supporting cleanup or drop-off days as a more cost-effective way to encourage proper waste disposal and discourage open dumping.

Appendix F 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

The evaluation in Section 5.5, as supported by the information presented in Appendix E, concluded that the current method of liquid sludge disposal, land application, employed for one-quarter of Mifflin County's treatment plant biosolids and much of the septage, continues to be a preferred method by those plants and haulers. It is expected that this activity will continue throughout the planning period, unless regulatory changes in the land application programs for sewage sludge or septage change substantially. It may be several years before such a change happens, so it is difficult to gauge the impact of such a regulatory change at this point. This reliance on land application may need to be reassessed if and when the land application regulations change to phosphorus-based nutrient management limits, as is currently proposed.

For the other three-quarters (dry basis) of sewage sludge generated in Mifflin County, the inevitable will happen in 2004 (likely date) with the loss of the Barner Landfill as a disposal site for dewatered biosolids cake. The use of rolloffs for biosolids storage at each participating treatment, with a common service truck, appears to be a practical and cost-effective means of reducing the cost of hauling biosolids to distant landfill sites. Even if a regional vermicomposting project is implemented by Granville Township, it will probably not be available for some period of time after the Barner Landfill closes. Therefore, the shared haul system can also be used as an interim measure until a longer-term vermicomposting project is implemented. And if the vermicomposting project does not proceed, Mifflin County will have disposal contracts with at least seven designated 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 Mifflin County is either recycled, disposed in the Barner Landfill, or handled otherwise. According to Table 1-3, 7,204 tons of C&D waste originating in Mifflin County was disposed at state-permitted disposal facilities in 2000. 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 the eight facilities presented in Table 5-2.

5.7.8 Household Hazardous Waste

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 events to serve as a disposal option for this component of the waste stream. Annual collection events should be held at central location such as the Borough of Lewistown. It not recommended that the County take an active role in infectious waste management activities beyond hosting collection events. The County should continue to monitor and evaluate HHW to determine its overall success and future in 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 in Mifflin County.

6.2 WASTE DISPOSAL SITES

Municipal waste generated within Mifflin County will continue to be disposed within the County at the Barner Landfill for the initial two years of the planning period, until the facility reaches final closure elevations (estimated to occur in mid-2004). Following closure of the Barner Landfill, municipal waste will be disposed at alternative disposal facilities for the remaining eight years (and beyond) of the 10-year planning period. The initial term of agreement for designated disposal facilities will be four years. The Authority shall have the option to renew all agreements for an additional term of four years.

Following closure of the Barner Landfill, municipal waste generated in Mifflin County will be disposed of at the following eight designated facilities:

Municipal Solid Waste

- Superior Greentree Landfill, LLC
  635 Toby Road
  Kersey, PA 15846
  (Elk County)

- Southern Alleghenies Landfill, Inc.
  843 Miller Picking Road
  Davidsville, PA 15928
  (Somerset County)

- Pine Grove Landfill, Inc.
  193 Schultz Road
  Pine Grove, PA 17963
  (Schuylkill County)

- Wayne Township Landfill
  Clinton County Solid Waste Authority
  P.O. Box 209, 264 Landfill Lane
  McElhattan , PA 17748
  (Clinton County)

- Mountain View Reclamation
  9446 Letzburg Road
  Greencastle, PA 17225
  (Franklin County)

- Shade Landfill, Inc.
  1176 #1 Road
  Cairnbrook, PA 15924
  (Somerset County)

- Laurel Highlands Landfill
  260 Laurel Ridge Road
  Vintondale, PA 15909
  (Cambria County)

Construction and Demolition Waste Only

- Phoenix Resources, Inc.,
  RR #1, Box 12A
  Wellsboro, PA 16901
  (Tioga County)

The location of the Barner Landfill and the eight designated disposal facilities for municipal waste generated in Mifflin 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. Seven of the designated facilities provided the County with a not-to-exceed tipping fee for municipal solid waste (including C&D waste disposal). One facility (Phoenix Resources, Inc.) provided a not-to-exceed tipping fee for C&D waste disposal only. Draft disposal agreements between the County and the designated facilities are contained in Appendix D.

Additional facilities may be added to the Plan after completing the Application Package for disposal and processing of MSW. This Application package is also included in Appendix D. Facilities completing the Application Package must meet the same minimum qualifying criteria used for the eight designated facilities in this Plan.

Biosolids and Septage Processing/Disposal

Table 1-7 of Chapter 1 lists the municipal and non-municipal wastewater treatment plants in the County that generate biosolids requiring disposal.

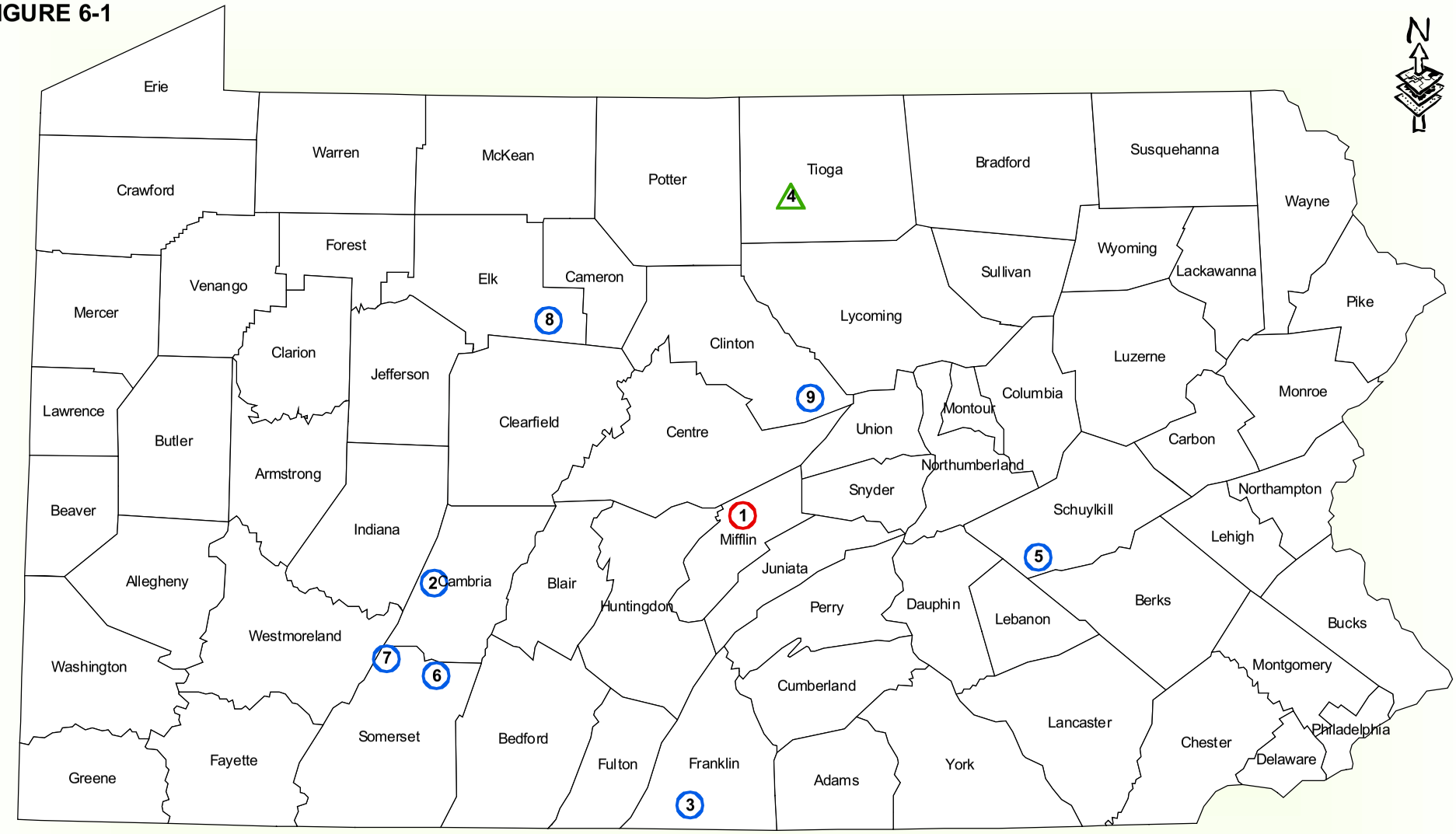
Septage is accepted for processing at the following facilities:

- Granville Township WWTP
- Lewistown Borough WWTP
- Union Township WWTP

Table 2-3 of Chapter 2 describes sludge disposal practices and identifies the methods and locations of sludge disposal facilities for each municipal and non-municipal treatment facility. Current disposal methods include land application on approved farm fields and disposal at the Barner landfill. For the planning period, facilities utilizing land application will continue this practice in accordance with current regulatory requirements and siting criteria. Following closure of the Barner Landfill, facilities currently using this facility will need to haul to one of the designated disposal facilities.

As an alternative, a regional composting facility may be developed within the County to manage biosolids from the various wastewater treatment facilities.

FIGURE 6-1



1. Barner Landfill (In County)
2. Laurel Highlands Landfill, Inc.
3. Mountain View Reclamation Landfill
4. Phoenix Resources, Inc.
5. Pine Grove Landfill, Inc.
6. Shade Landfill, Inc.
7. Southern Alleghenies Landfill, Inc.
8. Superior Greentree Landfill, LLC
9. Wayne Township Landfill

Mifflin County Designated Municipal Waste Disposal Sites

Legend

Type

- Construction/Demolition Waste Landfill
- Municipal Waste Landfill

Projection: Stateplane
Datum: NAD83

Date: December, 2002
Map created using ArcGIS by JLS

GeoDecisions
A Division of Gannett Fleming

Gannett Fleming

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 Lewistown

Drop-off recycling sites

- Derry Township
  (Barner Landfill)
- Armagh Township
  (Municipal Building)
- The Borough of Lewistown
  (Municipal Yard)
- Union Township
  (Municipal Building)

Locations and materials collected from municipal recycling programs are presented in Figure 4-1, Chapter 4 of this Plan.

Yard Waste

Municipalities with yard waste and leaf collection programs are identified in Table 2-1 of Chapter 2 (Summary of Municipal Surveys).

CHAPTER 7
IMPLEMENTATION

7.1 IMPLEMENTING ENTITY

The County planning options and initiatives have been designed to provide Mifflin 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 Mifflin County Solid Waste Authority as Implementing Agency for Plan

Historically, the Mifflin County Solid Waste Authority (MCSWA) has been the implementing agency for the Mifflin County Municipal Waste Management Plan. Therefore, it is recommended that the MCSWA remain the implementing agency for the Plan, through the County's delegation of implementation and enforcement powers under Act 101. This delegation of planning authority can be completed through the execution of a new Delegation Agreement, as provided in Appendix H. If a Delegation Agreement is executed, the MCSWA will remain the agency responsible for implementing the Plan and for conducting all future municipal waste planning and Plan revision activities for Mifflin County. As the acting implementing agency, the MCSWA will have all the powers provided for under the Municipality Authorities Act of 1945, as amended, including the powers to take any and all actions and to exercise all such powers as are necessary or appropriate to design, develop, finance, construct, own, operate and manage a safe, reliable, effective and efficient solid waste management system.

7.1.2 Mifflin County as Implementing Agency for Plan

If a Delegation Agreement is not executed between the County and the MCSWA, the County would become the agency responsible for implementing the Plan. This scenario would require that the County provide for the staffing needs and resources for conducting all necessary day-to-day activities associated with implementation of the Plan.

7.2 ESSENTIAL PLANNING TASKS

Regardless of whether the County or the MCSWA is the implementing agency for the Plan, Mifflin County should continue its commitment to provide a safe, reliable, effective and efficient solid waste management system for the County. The bulleted section below lists the essential planning tasks that have been identified through the planning process. At a minimum, the selected implementing agency should perform the following tasks as part of the overall Plan implementation for Mifflin County:

- Provide for adequate disposal capacity for the 10-year planning period for County generated municipal solid waste.

- Execute Municipal Waste Disposal Capacity Agreements with qualified facilities for municipal waste disposal services, and provide the administration of these agreements.
- Provide for qualified disposal facilities to be added to the Plan in the future.
- Continue to promote recycling activities, including the monitoring, documenting, and reporting of recycling activities to track County progress in meeting Pennsylvania's 35 percent recycling goal.
- Maintain and improve, as necessary, the County's existing municipal waste collection and disposal services. These services should be initiated to meet changing County needs and to provide a safe, reliable, effective and efficient solid waste management system.

7.3 PLANNING INITIATIVES

The selected implementing entity may elect to pursue the following planning initiatives, as identified during the Plan revision process:

- An Administrative Fee may be established for each ton of Mifflin County MSW collected in the County, based on services (other than landfill disposal services) that the County/MCSWA provides to Mifflin County residents. These services may include items such as recycling education and drop-off programs, yard waste composting, illegal dumping programs, and other services that benefit County residents. This fee will be critical in providing the necessary revenues to continue these services after the MCSWA's Barner landfill closes.

- A hauler licensing program may be established for major waste haulers collecting waste generated in Mifflin County, if such a program is not prohibited in the future. This program would require a County ordinance enacted by the Mifflin County Commissioners that establishes the hauler licensing program. The ordinance may also include requirements for collecting the County Administrative Fee. The licensing program would establish minimum insurance requirements, operating regulations (in accordance with PADEP and PaDOT regulations.), and reporting requirements. Three key requirements for obtaining and holding a hauler license are: 1) anyone, other than small haulers (as defined in the ordinance and licensing program) collecting Mifflin County MSW must have a hauler license; 2) all Mifflin County MSW must be disposed of at a designated disposal facility, as listed in the County Plan, and; 3) the waste hauler is responsible for collecting an Administrative Fee from its Mifflin County customers, and conveying the fees to the designated disposal facilities it uses for each ton of MSW it delivers for disposal.

- Recycling opportunities may be expanded to include, but not limited to, additional drop-off recycling opportunities within the County and/or development of new or expansion of existing special handling waste collections (e.g. bulky item collection). From the data obtained in the residential survey, over one-half (57%) of the respondents indicated their support for some form of recycling program.

- Evaluate the feasibility of developing a recycling program that could include additional drop-off sites, or be incorporated into a "Green Box" trash collection system.

- Evaluate the feasibility of developing a household hazardous waste program. This program may include an annual drop-off event 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 may 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. This could be achieved by working with the Mifflin County PA CleanWays Chapter, and by expanding existing and/or developing new waste disposal services/alternatives.

- Consider the feasibility and institution of a County-wide mandatory garbage collection ordinance. From the data obtained in the residential survey, nearly two-thirds (62%) of the respondents indicated their support for a mandatory garbage collection program.

- Support schools and other public education programs and identify funding sources for these programs.

- For the major wastewater treatment facilities, sludge management activities will change with the closure of the Barner Landfill. Future sludge management planning activities may include the continued evaluation of a regional sewage sludge processing and disposal facility.

- Undertake the role of procuring and owning facilities (e.g. transfer station), if determined to be in the best interest of the County. This will require securing a guaranteed waste stream to the proposed transfer station, preferably through long-term contracts with major waste haulers, and securing a cost-effective tipping fee at a designated disposal site. Project funding will also need to be secured prior to proceeding with a proposed transfer station project.

- Maximize the capacity and associated life of the Barner Landfill. This additional capacity will allow the MCSWA to continue to provide a cost-effective disposal option within the County, secure sufficient funds for closure and post closure care activities, and allow a smooth transition to a waste transfer operation for future disposal at an out-of-County facility.

- Following approval of the Plan, consider the use of the existing Council of Governments (COG) to assist with the implementation of the selected planning initiatives. The COG can be an important link between the County/MCSWA and

local municipalities to secure their support and cooperation. The COG may also be able to provide a cost-effective method for waste collection and disposal through multi-municipal bidding of these services.

- 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.

7.4 PROPOSED METHOD OF FUNDING THE SYSTEM

7.4.1 Closure And Post Closure Funding

The Barner Landfill is expected to close in 2004. Closure and post closure care for the Barner Landfill will be afforded through funds that have been generated through Barner Landfill tip fees and reserved for this purpose. The reserved funds should be sufficient to cover all anticipated closure and post closure costs.

7.4.2 Transfer Station

If it is decided by the County/MCSWA to construct and operate a centrally located transfer station, the capital costs for the facility could be provided through a revenue bond or a form of short-term financing. Bond repayment and operation costs for the facility would be paid for through tip fees. Tipping fees should be set so these costs are self-liquidating. Table 7-1 presents the dates for key decisions to be made related to the implementation and construction of a transfer station (if implemented).

7.4.3 Funding of Planning Initiatives

State funding, in the form of Act 101, Section 901 Planning Grants, are 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.).

The County/MCSWA may establish an Administrative Fee for each ton of Mifflin County MSW collected in the County, based on services (other than landfill disposal services) that it provides to Mifflin County. These services can include items such as recycling education and drop-off programs, yard waste composting, illegal dumping programs, and other beneficial programs/services for County residents. If the County/MCSWA secures grant funding, as discussed above, the administrative fee can be used to fund the remaining "matching" portion of 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 that the County provides change from year to year.

7.4.4 Hauler Licensing Program

Licensing fees may be established to cover costs of implementing and administering a hauler licensing program, if such a program is not prohibited in the future.

7.5 PUBLIC FUNCTION, ORDERLY EXTENSION AND NON-INTERFERENCE

7.5.1 Public Function

Mifflin County has determined that it is in the public interest for municipal waste management to be a public function. Currently the MCSWA owns and operates the Barner Landfill. If the MCSWA elects to proceed with the construction of a County transfer station, the facility will be operated as a public facility.

7.5.2 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 Mifflin County. This Plan builds upon the County's existing waste management system, as previously described in the 1991 Plan. This Plan has been developed in accordance with current federal, state and local laws and regulations.

7.5.3 Non-Interference With Facilities Developed Pursuant To Sub-County Plans

As required by Act 101, the Mifflin 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. The only landfill within Mifflin County is the Barner Landfill located in Derry Township. The Barner Landfill is owned and operated by the MCSWA and is currently being utilized for disposal of the majority of Mifflin County municipal waste. Since no resource recovery facilities exist or are proposed within Mifflin County, this Plan meets the non-interference requirements established by Act 101.

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

7.6 IMPLEMENTING DOCUMENTS

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

7.7 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.

7.8 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 and MCSWA 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 Mifflin County Commissioners appointed the Solid Waste Advisory Committee (SWAC) in 2000 based on input from the Mifflin County Solid Waste Authority and the Mifflin County Planning and Development Department. The SWAC assisted the MCSWA 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 Mifflin County. SWAC members met initially in November 2000 and met periodically throughout all stages of the Plan Update process. Appendix M contains public participation information including meeting agendas, minutes and handouts.

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

TASK OR FUNCTION	DATES
Waste Management System	
Plan Approval - PADEP	By end of 4th Quarter 2002
Execute Waste Disposal Facility Contract Agreements for Identified SOI and Application Package (Qualified) Respondents	By end of 1st Quarter 2003
Post Closure Care	30 Year period expected to begin no sooner than mid-2004
Hauler Contracts	Continuing
Provide for Adequate Disposal Capacity	Continuing
Allow Qualified Facilities to be Added to the Plan	Continuing
Continued Monitoring, Documenting, and Reporting of Recycling Activities/performance	Continuing
Be the contracting party in the major waste disposal agreements	Continuing
Transfer Station (If Implemented)	
Decision Whether or Not to Proceed with County Transfer Station	By end of 3rd Quarter 2002
Start Final Design and Permitting	By end of 4th Quarter 2002
Secure Waste Commitments to Transfer Station	By end of 2nd Quarter 2003
Funding Commitment for Costs Associated with the Transfer Facility	By end of 2nd Quarter 2003
Bid Release	By end of 2rd Quarter 2003
Construction Notice to Proceed	By end of 3rd Quarter 2003
Start-up	Coincides with Barner closure – By end of 2nd Quarter 2004

(1) Refer to Section 7.1 for additional County planning initiatives established as part of this Plan Update process.