

RECYCLING TECHNICAL ASSISTANCE

Project #562

FINAL REPORT

**BOROUGH OF LEWISTOWN
MIFFLIN COUNTY, PENNSYLVANIA**

**PRELIMINARY RATE EVALUATION
CURBSIDE REFUSE AND RECYCLABLES COLLECTION
AND DISPOSAL PROGRAM**



FEBRUARY 2015

**Sponsored by the Pennsylvania Department of Environmental Protection through the
Pennsylvania State Association of Township Supervisors**

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CURBSIDE REFUSE AND RECYCLABLES COLLECTION
AND DISPOSAL PROGRAM**

Project Completed By:



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1.0 STATEMENT OF PROBLEM

This study was conducted for the Borough of Lewistown (Borough), Mifflin County, Pennsylvania, under the Recycling Technical Assistance program. The program is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The Borough is interested in streamlining the rate structure for the refuse and recyclables collection program so it is simple and equitably distributed to residential and commercial customers.

2.0 SUMMARY OF WORK

2.1 Existing Solid Waste and Recyclables Collection Program

The Borough's Public Works Department provides trash and recyclables collection services to approximately 3,280 residential units and over 200 commercial units. The program is a hybrid Pay-As-You-Throw (PAYT) program that uses tags. Each residential unit receives a bill and all residential establishments are required by ordinance to participate in the curbside waste collection program. Customers may choose either the Tier II (13 tags per quarter) or Tier I (26 tags per quarter) program. Residents pick up issued tags at the Borough office or pay an additional fee to have them delivered by mail.



Waste is collected once per week Monday through Friday from residential units. Bi-weekly residential curbside recycling includes the collection of steel and bi-metallic cans, plastic #1 and #2 bottles, clear and brown bottles and jars, and newspaper. Recyclables routes are shown on the Residential Refuse & Recycling Map (**Appendix A**). Residential recyclables are sorted at the curbside by crews into compartmentalized recycling trucks (Photo above). Customers separate recyclables by type using plastic grocery bags that must be removed during curbside sorting.

The Borough also operates a public drop-off for recyclables at the Borough's Public Works yard located at 2 East 3rd Street. The drop-off is open to residents during normal business hours and accepts the container recyclables and yard waste. The distribution and annual tonnages of curbside recyclable materials collected in 2012 and 2013 is presented in **Table 1**. The recyclable material data includes grant-eligible materials as reported under Act 101, Section 904 Performance Grants. Steel and bi-metallic cans are not reported.

<i>Table 1. Tons/Year of Recyclable Materials Collected</i>		
<u>Recyclable Material</u>	<u>2012</u>	<u>2013</u>
Aluminum cans	2.63	2.01
Amber Glass	54.20	57.49
Clear Glass	37.31	46.85
Other Plastics	39.43	43.53
Steel/Bi-metal cans	0	0
Newspaper	48.66	45.87
Total	182.23	195.75

All commercial businesses that register with the Borough receive waste collection and/or recycling service that is provided by the Borough Public Works Department. The type of waste service, frequency of service, and billing of commercial establishments are extremely variable (refer to **Table 4**). Commercial and residential routes are combined and waste is commingled for delivery to the Mifflin County Solid Waste Authority (MCSWA) Transfer Station. The disposal tip fee is about \$70 per ton.

2.2 Refuse and Recycling Program Rate Structure

All residential customers pay a refuse bill and receive tags. Customer bills are variable depending on the amount of disposal capacity or number of tags provided. Customers may purchase additional tags for \$1.72 each. A very small number of customers dispose of ashes in metal cans and pay an extra \$4.77 per quarter. Quarterly residential rates are:

\$45.75 - Tier II service includes 13 tags per quarter

\$52.52 - Tier I service includes 26 tags per quarter

Commercial customer rates are based on several components associated with the level and type of service provided. Service components used in calculating commercial customer rates include container size or volume (e.g. 2, 3, or 6 cubic yards), rental fee for container (e.g. dumpster, roll-off container, or 90-gallon cart), collection frequency (i.e. stops per week), and the time spent at each collection stop (i.e. number of minutes). Not all commercial accounts are billed using a time charge per stop. Residential and commercial quarterly rates are included in **Appendix B**.

2.3 Summary of Findings

- Generally, the residential tiered rate structure applied to most single family households is equitable. Additional disposal capacity is available to customers who pay more for additional tags under Tier I. Households that generate less waste are billed less under Tier II for less tags or disposal capacity.
- The annual customer bill for Tier II (\$183.00) and Tier I (\$210.08) weekly collection and processing for waste and bi-weekly recycling is slightly lower to moderately lower than many Pennsylvania residential units that are charged \$250 to \$350 per year for similar services. Per-household curbside waste collection and recycling rates are commonly as low as \$200 per year in areas like western Pennsylvania where landfill tip fees range from \$30 to \$50 per ton. Municipal waste disposal at the MCSWA is nearly \$70 per ton, which is consistent with regional transfer station disposal fees.
- Based on Borough tag sales and assuming trash bags contain 25 pounds of waste, Borough households generate about one ton per year. This waste generation rate is slightly lower than average. Lower than typical waste generation in the Borough may be influenced by the PAYT financial incentive to reduce the amount of waste set out at the curb for collection.
- Although the PAYT financial structure gives customers the ability to control their trash bill through increased recycling participation, the Borough's recycling rate is well below successful mandated recycling communities in Pennsylvania. **Table 2** presents the estimated residential waste diversion using estimated disposal quantities and reported residential recycling figures. The current residential recycling rate, excluding organics, is 5 percent. **Table 3** projects the Borough's potential diversion from recycling using diversion rates achieved in successful curbside recycling programs in Pennsylvania.

Compared to a diversion rate of 7.5 pounds per household per week, the Borough collects less than one third of the potential material available through curbside efforts. This is equivalent to an additional 450 tons of curbside recyclables annually. Low curbside recyclables diversion is attributed to:

- Inconvenience. Customers are required to separate each material by type into small plastic bags or separate containers. Bi-weekly collection service is inconvenient to some customers with limited space to store recyclables for two weeks or for a month if they miss a collection day.
- The financial incentive to reduce waste generation and trash disposal is not very strong in the hybrid PAYT structure. For example, a customer throwing out one bag a week does not pay half the amount of a two-bag per week customer.
- The Borough does not implement a comprehensive recycling education program or actively provide curbside enforcement to encourage recycling participation.
- Scavenging of curbside set outs, particularly of aluminum and steel cans, occurs and reduces reported recycling totals.
- Some residential recyclable materials are not collected at the curbside including mixed paper, cardboard, and green glass.

<i>Table 2. Borough of Lewistown Annual Residential Baseline Material Quantities</i>		
Material	Tons	Percent of Total
MSW Disposed ¹	3,345	95%
Residential Recycling (non-organics) ²	189	5%
Total Materials	3,534	100%

Notes: 1.) Estimated municipal solid waste generation excluding C&D based on bags sold to 3,279 households (67,119 bags at 25 pounds each).

2.) The average of year 2011, 2012, 2013 reported curbside recyclables.

<i>Table 3. Borough of Lewistown Annual Potential Residential Curbside Diversion ¹</i>		
Material	Tons	Percent of Total
MSW Disposed	2,894	82%
Residential Recycling (non-organics)	640	18%
Total Materials	3,534	100%

Notes: 1.) Potential diversion based on achievable diversion rates of 7.5 pounds per household per week from Pennsylvania curbside programs.

- Despite the opportunity to divert recyclables from the waste stream, the operational ability to expand curbside recycling efforts using existing methods and equipment is not practical. The compartmentalized recycling trucks have limited carrying capacity and require frequent unloading. The curbside sorting process is manually intensive and time consuming. At each stop, laborers remove recyclables from plastic bags and sort materials into their respective compartments. It is not feasible for the Borough to continue its current recycling methods and handle an expanded curbside recycling effort recovering 3 to 4 times the current amount of material.
- In the next couple of years, single stream recycling markets and recyclables transfer stations or networks may emerge in Lycoming County and in other locations in the

region. As new markets emerge, it may become feasible to restructure the Borough's recycling program.

- Tier II customers paying for 1 bag of trash per week represent 43 percent of the residential customers.
- Residential tags account for 70 percent of fee revenue and non-residential service charges represent the remaining 30 percent of revenue. Residential waste generation is estimated to represent approximately 80 percent of all municipal solid waste collected by the Borough for disposal. If costs are allocated proportional to waste disposal, then residential revenues are not covering the residential share of costs.
- The number of tag customers (3,279) is lower than the number of occupied households in the 2010 US Census (3,683). Due to this disparity, it is unclear if all households are being billed, or if other billing irregularities exist.
- The commercial rate structure is complex and confusing. The basis and methodology of cost allocations to some commercial customers is not clear and could not be determined in this preliminary evaluation.
- **Table 4** presents the variability of commercial waste services based on an analysis of the Borough's year 2014 route sheets. The count provided for 2-yard, 3-yard, and 6-yard dumpsters and 90-gallon carts represents the reported number of containers serviced, not the total number of commercial customers (estimated as slightly more than 200 customers). White Tag customers are small commercial customers that generate residential-like quantities of waste and participate in the tiered PAYT tag program. Black Tag customers are small commercial customers that typically set out waste using their own containers. Cardboard is picked up in a dedicated packer truck on Tuesday and Friday afternoons. There are 27 White Tag commercial customers and 129 Black Tag commercial customers. White Tag and Black Tag accounts are primarily smaller businesses that appear to generate residential-like quantities of waste. However, White Tag customers are billed as PAYT tag customers and Black Tag customers pay a flat rate plus time charges multiplied by the stops per week. The basis for the flat rate assessment is unknown. As shown in **Table 4**, the vast majority of commercial customers that have dumpster service use 2 or 3 cubic yard dumpsters and these are typically serviced more than once per week.

<i>Table 4. Borough of Lewistown Commercial Route Sheet - Service Summary (2014)</i>								
<i>Year 2014</i>	<i>2yd</i>	<i>3yd</i>	<i>6yd</i>	<i>90-gallon Cart</i>	<i>White Tag</i>	<i>Black Tag</i>	<i>Cardboard</i>	<i>Total</i>
Monday	8	37	4	6	5	21	7	88
Tuesday	7	32	4	1	15	57	3	119
Wednesday	5	19	5	6	2	14	2	53
Thursday	6	30	3	8	2	17	5	71
Friday	5	29	3	7	3	20	8	75
Total	31	147	19	28	27	129	25	406

- Under this preliminary evaluation, Gannett Fleming did not derive sufficient information to determine if commercial rates are fairly and accurately allocated to commercial customers, or if revenues from commercial customers cover the Borough's commercial service costs. Cost allocation problems were identified with dumpster rental fees and time-based charges and the basis and accuracy of cost allocation to some customers remains unclear. Some identified rate allocation issues include:
 - Dumpster rental fees increase according to size as follows: 2-yd - \$44.85, 3-yd - \$57.54, 6yd - \$82.38. This tiered rate according to dumpster size accounts for variation in disposal charges, and this is consistent with industry billing for waste collection and disposal services. However, the cost allocation for the number of stops per week does not increase proportional to the level of service provided. For example, one stop per week for dumpster service is \$58.35 and two stops per week is \$96.45, which is less than twice the cost.
 - Commercial customer charges often, but not always, include a charge based on the minutes per stop (\$3.00 per minute). Applying time-based charges is cumbersome, difficult to validate, and is rarely used in the waste industry. Time charges can introduce billing variability for the customer and present a small amount of revenue uncertainty for the Borough. The time charges are unnecessary because the cost per stop can be set to account for time-based costs.
 - Within large commercial multi-family establishments, individual residential units are each billed separately similar to billing for single-family homes. Billing individual units in large multi-family units is administratively inefficient and inconsistent with the common industry method of directly billing the property owner of large multi-unit establishments. Because waste generation per unit from multi-unit buildings is less than single-family homes and there are efficiencies in collecting many units at one location, there is a lower per-unit cost that is typically reflected as lower rates charged to multi-unit residences.
 - The collection procedures or requirements for multi-family residential properties are variable. Tenants and/or property owners place trash bags outside at the curb for collection, place bags in dumpsters, and some may place bags on the curb and also use dumpsters.
- Typically, commercial customers, including commercial multifamily units (over 4 units), are billed by private sector contractors based on collection and disposal costs plus a fuel surcharge sometimes called a fuel adjustment. The fuel adjustment is calculated based on the average price of diesel each month as posted on the U.S. Department of Energy (DOE) website or a similar index. The link below posts average diesel prices for the Central Atlantic region.

http://www.eia.gov/dnav/pet/hist/LeaffHandler.ashx?n=PET&s=EMD_EPD2D_PTE_R1Y_DPG&f=W.

3.0 SOLUTIONS

3.1 Recommended Solutions

The following recommendations are based on a preliminary analysis of the Borough of Lewistown's residential and commercial rate structure and municipal waste and recyclables collection program.

The Borough should implement the following strategies to improve curbside recycling efficiency and increase recyclables recovery in order to reduce disposal tip fees, increase Act 101 Section 904 Performance Grants, and increase revenues from the sale of recyclable materials:

- Implement a comprehensive and ongoing recycling campaign that includes emphasis on increased participation in the Borough's drop-off program.
- Due to the potential to increase recovery of recyclables while decreasing collection costs by commingling recyclables, the Borough should investigate the transition to a single-stream or dual-stream program including commingled container recyclables and separated paper as these markets emerge. Commingled collection would allow the Borough to use high-capacity collection vehicles and improve the efficiency of its curbside recycling program.

At this time, it is not recommended the Borough eliminate its tiered residential PAYT rate structure. However, because preliminary analysis indicates that the residential and commercial rates and revenue may not reflect their true share of the cost, the residential and commercial rates and costs should be evaluated in detail including an examination of operations and billing unit details.

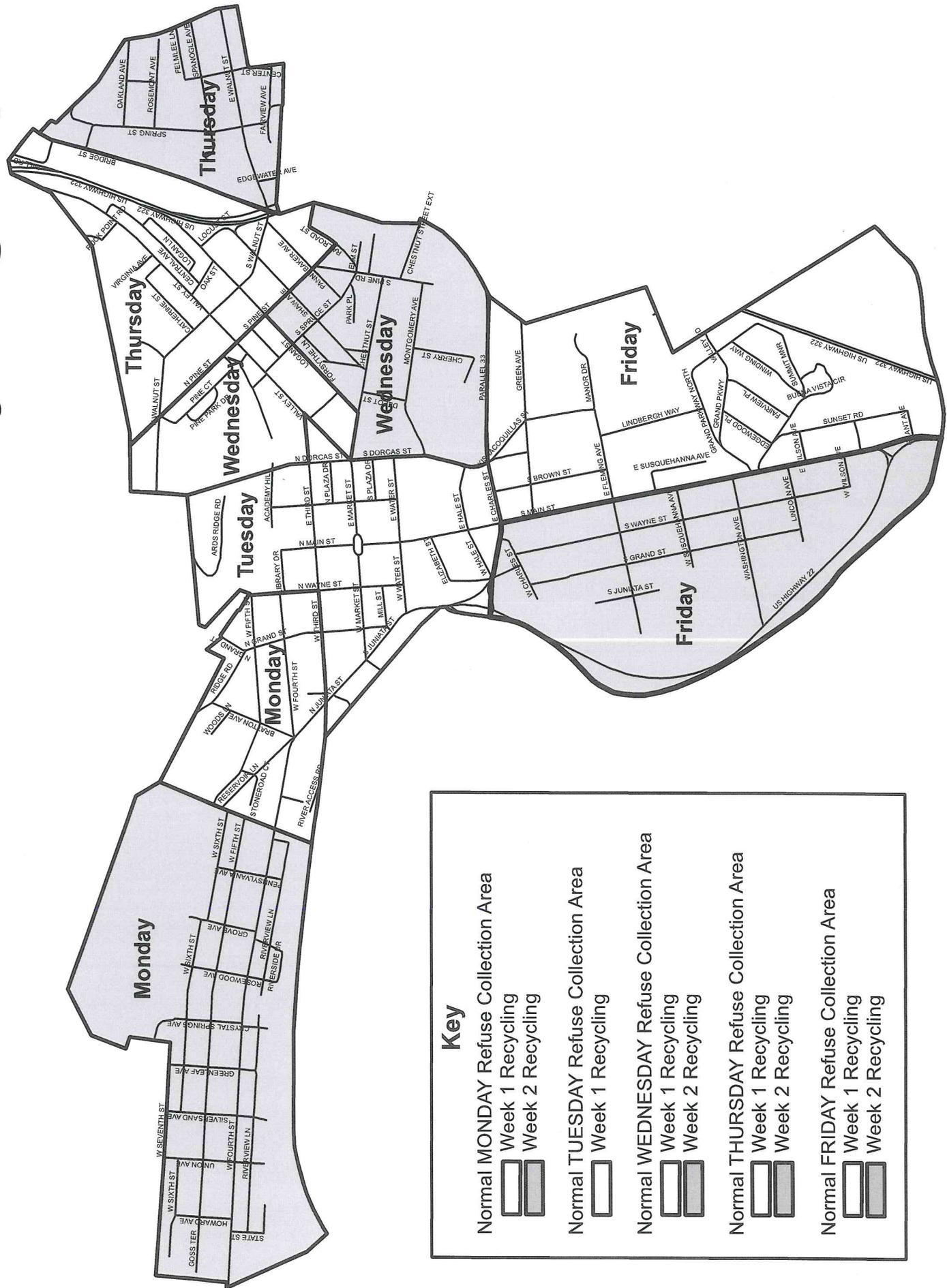
- The commercial rate structure should be simplified and rationalized, with preliminary recommendations including:
 - Streamline commercial rate setting to include collection and disposal cost allocations aligned with the actual distribution of these costs.
 - Eliminate time-based charges by adjusting the cost per stop to account for time-based costs.
 - The incremental cost allocation for the number of stops per week (1 stop per week, 2 stops per week, etc.) should be revised to reflect actual costs that are proportional to the level of service provided.
 - Revise the commercial multi-unit rate structure that currently bills individual units within these establishments under the residential PAYT rate structure. This could include issuing bills directly to the property owner of these establishments. Billing property owners gives the Borough leverage to recover payment, streamlines administration through reducing the number of bills, and shifts the responsibility of passing waste management costs to the property owner. Additional analysis is required to develop a rate structure that is equitable and reflects the actual costs for the level of service provided.
 - It is recommended that the service to commercial multi-family units be standardized to require the landlords and tenants to place all municipal waste into dumpsters. It is recommended the Borough use 8-cubic-yard dumpsters to service all large commercial multi-unit establishments.
- Because so many commercial customers use 2-yard or 3-yard dumpsters that are collected two or more times per week, the Borough should consider transitioning a portion of these customers to larger dumpsters (6-yard or 8-yard). These customers will be serviced fewer times per week and this should improve the efficiency of the collection program, reduce operational costs, and reduce costs for affected customers.

- It is recommended the Borough finalize this preliminary analysis with a detailed rate analysis to determine the following:
 - **Revenue Requirements.** Looking beyond the approved budget into future years, determine the revenue the Borough needs to raise to cover costs including capital funding for collection equipment.
 - **Cost Allocation.** Determine how much each type of service costs, based on time allocated to each service provided. Improve estimate accuracy pertaining to the distribution of residential versus commercial waste quantities.
 - **Billing Unit Analysis.** Determine the actual units under each type of service.
 - **Rate Design.** Use results of revenue requirements, cost allocation, and bill analysis to design two or three rate alternatives.
 - **Bill Impact Analysis.** Apply the rate alternatives to the different billing units to understand how different types of customers at different levels of service would be impacted by the rate structure. This analysis will be particularly important for commercial customers.
 - **Revenue Sensitivity Analysis.** Construct alternative scenarios of customer usage response to each rate structure alternative. For example, increasing dumpster service fees for multi-stop per week pickups may lead some customers to shift to larger dumpsters and fewer pickups. Calculate cost impacts and total Borough revenues of each scenario.
 - **Rate Structure Evaluation.** Create an evaluation matrix and draft text discussing the advantages and disadvantages of each alternative rate structure in terms of consideration including resident acceptance, commercial user acceptance, revenue uncertainty and revenue risk, incentives created, ease or difficulty of administration, long term flexibility/adaptability of the structure to changing conditions, and fairness.

APPENDIX

Appendix A - Residential Refuse & Recycling Map
Appendix B - Residential and Commercial Quarterly Rates

Residential Refuse & Recycling Map



Key

- Normal MONDAY Refuse Collection Area
- Week 1 Recycling
- Week 2 Recycling
- Normal TUESDAY Refuse Collection Area
- Week 1 Recycling
- Normal WEDNESDAY Refuse Collection Area
- Week 1 Recycling
- Week 2 Recycling
- Normal THURSDAY Refuse Collection Area
- Week 1 Recycling
- Week 2 Recycling
- Normal FRIDAY Refuse Collection Area
- Week 1 Recycling
- Week 2 Recycling



Borough of Lewistown

2 East Third Street · Lewistown, PA 17044

Phone: 717-248-1361 · Fax: 717-248-0794

www.lewistownborough.com

9/5/2014

LEWISTOWN BOROUGH REFUSE QUARTERLY RATES

Quarterly Residential Rates

- 13 tags - \$45.75
- 26 tags - \$52.52
- Individual tag - \$1.72

When paying the bill, if customer wants 13 more tags, add \$6.77 to the cost of the bill. Only down at this time, otherwise 13 tags are \$22.36. (13 x \$1.72 = \$22.36).

Quarterly Commercial Rates

- Ashes - \$4.77
- Roll Off Rental - \$297.30
- Dumpster Rental
 - 2yd - \$44.76
 - 3yd - \$57.54
 - 6 yd - \$82.38
- Containers 2 Stops 1 - \$115.29
- Containers 5 Stops 1 - \$192.93
- Stops Per Week For Garbage Pickup
 - 1 - \$58.35
 - 2 - \$96.45
 - 3 - \$134.55
 - 4 - \$172.65
 - 5 - \$210.75
- 90 Gallon Recycling Carts - \$7.35
- Manual Labor Timed Cost Per Minute - \$3.00
- Manual - Various

Roll Offs and Dumpsters available for construction & remodeling . Contact Refuse Office at 717-248-1331.



Borough of Lewistown

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10/30/2014

LEWISTOWN BOROUGH BILLING UNITS DATA

<u>Description</u>	<u>Units</u>
!3 Tags	1395
26 Tags	1884
26 Tags & Ashes	6
Dumpster Rental 2 yd	16
Dumpster Rental 3 yd	74
Dumpster Rental 6 yd	4
Cardboard Dumpster Rental 2 yd	1
Cardboard Dumpster Rental 3 yd	8
Cardboard Dumpster Rental 6 yd	1
Manual Labor Timed Cost Per Minute	163
90 Gallon Recycling Carts	20
Containers 2 Stops 1	5
Containers 5 Stops 1	1
Roll Off Rental	1
Stops Per Week For Garbage Pickup	169
Manual **	6
** Set up years ago, basis unknown	
* Mifflin County Housing Authority	\$4,064.22
* Mifflin County Housing Authority	\$4,024.25
* Mifflin County Housing Authority	\$2,798.32
* Mifflin County Housing Authority	\$2,145.38
PA Department of Transportation	\$533.04
JAVA Inc	\$1,081.68

* Represents \$14,640 + --- QUARTERLY
AND HAVE NO CLUE AS TO WHY THIS AMT. IS BILLED