Chapter 1
Overview of Greene County
Demographics, Waste Types, Quantities & Sources

Chapter 1 presents a profile of Greene County that focuses on the features that can shape waste management policies and programs. It describes the geography, the size and characteristics of the population, and the government structure. Chapter 1 also provides a brief definition of municipal, its makeup, and common sources. Finally, this chapter establishes the per capita waste generation, disposal and recycling rate for Greene County, which will be used to identify trends and project future needs.

CORNERSTONE OF THE KEYSTONE STATE

Greene County is located in the most southwestern corner of Pennsylvania.

Washington County is situated to the north. On the east is the Monogahela River, which marks the border of Fayette County. Its southern and western borders include West Virginia and its "Panhandle."

These boundaries are part of the famous Mason-Dixon line, once considered the demarcation between the North and South during the Civil War. One of the original survey markers sits along a trail at Dunkard's Creek near Mount Morris.

There a person can stand with one foot in Pennsylvania and one in West Virginia. Residents of Greene County have a similar experience on a daily basis.

Although for many the Mason-Dixon line symbolizes a cultural boundary, in reality, there are a number of socio-economic similarities shared by Greene County and Monogolia and Wetzel counties in West Virginia.

Figure 1-1 shows Greene County in relationship to the states of west Virginia and Pennsylvanai.

ROADWAYS

The Interstate Highway System provides easy access to the County. Via Interestate 79, the City of Pittsburgh is approximately one hour north and the City of Morgantown, West Virginia is only 30 minutes south.

State Route 19, which runs north and south, and Route 21 heading east and west are important local roadways.

Greene County is 89 percent rural. Narrow two-lane roads are common. The only access to some

Figure 1-1 Greene County, Pennsylvania

Source – Greene County

homes may be on long unpaved country lanes. In fact, according to the Pennsylvania Department of Transportation, 20% of the roads in Greene County are dirt or gravel. These conditions can be difficult for large waste and recycling collection vehicles.

When such circumstances are prevalent alternative collection systems can be implemented to deter illegal dumping and promote public health and safety.

Local Government Organization

In 1953, the Pennsylvania state government passed a law that established nine county subgroupings, called 'classes', for the purpose of legislating and regulating county affairs. The implication is that counties of differing sizes do not share the same resources, tax base, economic development, and services. By grouping counties together that do share similarities, starting with population as the main criteria, the state legislature could establish more reasonable guidelines that reflect the ability of a county to manage more efficiently and meet the expectations.

Under Pennsylvania Commonwealth Law, Greene County is classified as a sixth class county despite having a slightly lower population than the classification criteria which falls within the range of 45,000 to 89,999 people. Greene County is amongst those whose elected officials opted to pass a resolution or ordinace declaring it a sixth class county.

A three member Board of Commissioners represent the highest level of elected position in Greene County government. A number of County departments and agencies have specific duties and responsibilities.

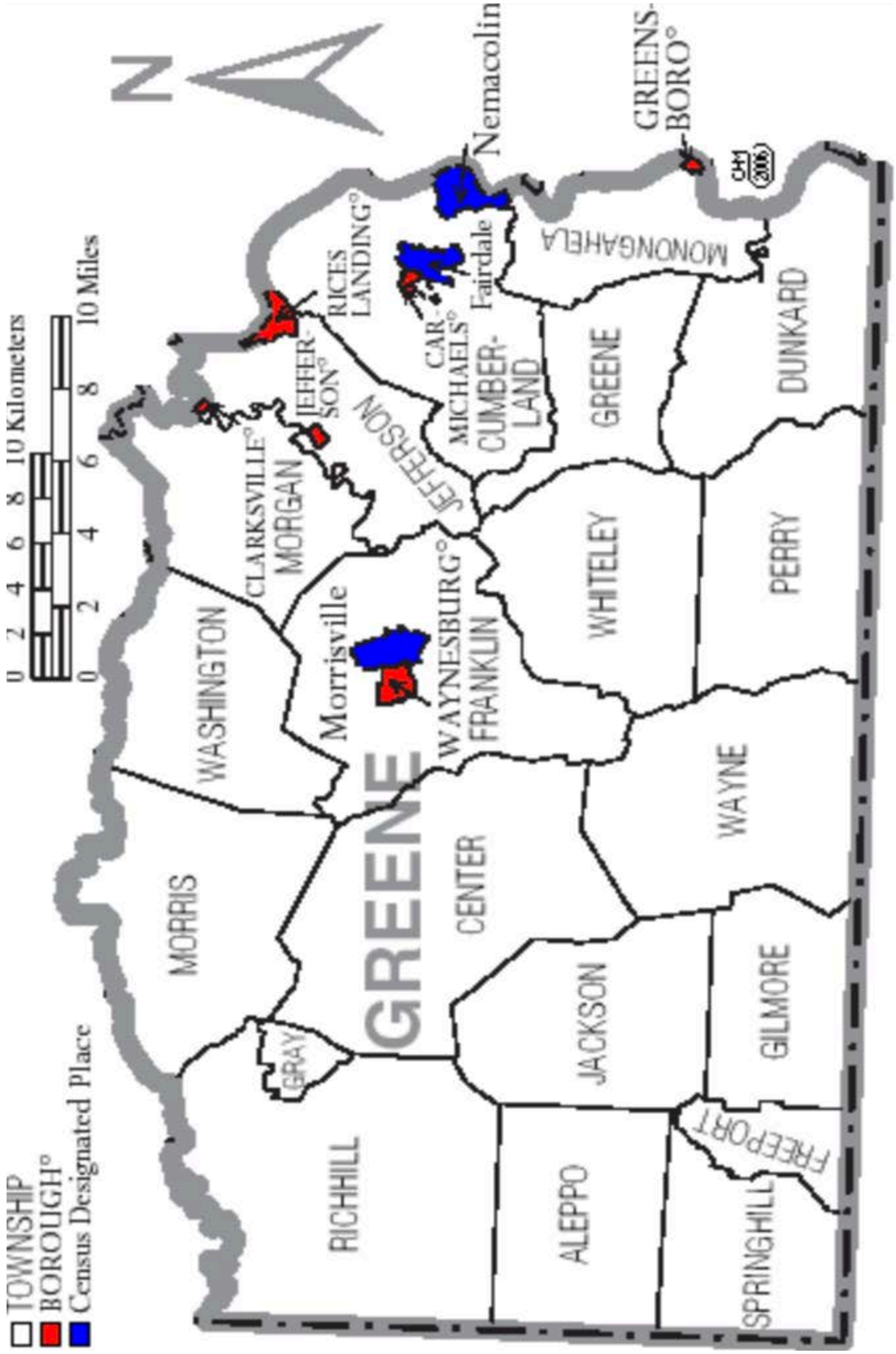
There are twenty six municipalities in Greene County. In Pennsylvania these forms of government are also classified. The municipalities in Greene County have the following classifications - six boroughs, and twenty townships.

Each is governed by its own section of Pennsylvania Municipal Code and local ordinances. Elected officials include mayors, council members, and township supervisors depending on the class of municipality.

Census-designated places are geographical areas designated by the U.S. Census Bureau for the purposes of compiling demographic data. They are not actual jurisdictions under Pennsylvania law. Other unincorporated communities, such as villages, may be listed here as well. Greene County has 14 census-designated areas.

Figurew 1-2 show Greene County, the boroughs, townships, and the census designated areas.

Figure 1-2 Greene County Municipalities and Census-designated Areas



Population and Housing

Like most rural Pennsylvania counties, Greene County's population has been in decline. At the time the previous Plan Update was being developed, Greene County's population was projected to grow at the rate of 1.8%. In reality, the population decreased by approximately 7%. Economic conditions and age, or natural loss, factor into the loss. In 2021, the County's population was 36,248 and it had 13,957 occupied housing units, commonly referred to as households.

Greene County also has very low population and housing density. With a land area of 577 square miles, there are less than 63 people per square miles and approximately 24 households per square miles.

In Pennsylvania, a municipality is rural when the number of people per square mile in the municipality is fewer than 291 or the municipality is in a rural county and has fewer than 2,500 residents. All other municipalities are considered urban.

Only six municipalities have densities that might qualidfy them as urban. However, since Greene County falls well below the urban designation all 26 municipalities, as well as the County, are considered rural.

Table 1-1 lists the municipalities with their population, housing units, and densities. Figure 1-3 shows the distribution of the population.

Measuring People and Waste

Because it is people who generate waste, population is the most important factor in projecting the future waste management needs of an area. Using traditional methods, First and Second class counties normally rank higher when weight and volume-related metrics are used, simply because more people produce more waste. However, when all things are considered, that is far from an accurate indicator that their programs actually perform better.

The greatest equalizer when measuring waste and recycling performance is unit based. The USEPA has issued unit based metrics and trends on a regular basis since 1960. When the methods and opportunities to manage the waste are considered, a per capita or per home measurement can provide a more realistic perspective of the results.

Smaller populations generate significantly less total waste than more populated areas. This is also true on a per capita basis. However, these less populated areas will often have a much higher rate of disposal on a per person

basis, or when a per household metric is used. In essence, because the per capita recovery rate will be very low due to the absence of recycling opportunities, the disposal rate and the generation rate are nearly the same. These differences are important to remember when planning for waste management in a rural county.

Impact of Density

Moving materials from point A to point B is costly. Collection and transportation can represent the greatest portion of the cost of providing residential and commercial waste and recycling services. When a vehicle regularly travels the same roadway there is a fixed cost to drive those miles. For waste management, those costs are passed on to the residents serviced by dividing the fixed costs by the number of homes. Consequently, when more homes on the same roadway participate in the program, the cost per each home is lower than when the price is divided amongst fewer stops. In places where homes are located closely together the savings can be significant.

In rural areas there are far fewer homes along the roadways than there are in urban communities. Therefore, the price for waste and recycling collection is typically higher than in communities where people and houses are clustered together.

Rural communities can still attain savings by collectively contracting for services via a competitive bidding process. The volume of homes helps to somewhat offset the lack of routing density.

In areas where density is exceptionally low, curbside collection may simply be cost prohibitive and other options must be considered. Centralized drop-off collection points or convenience centers that accept waste and recycling are another alternative, which will be discussed in more detail in Chapters 4 and 5. When run correctly, these centers can generate enough revenue to sustain the operation.

Collection and transportation can represent the greatest portion of the cost of providing residential and commercial waste and recycling services.

Table 1-1 Greene County 2021 Estimated Population and Housing Density by Municipality

Geography	Population	Occupied Housing units	Area in Square Miles	Population per Square Mile	Occupied Housing Units per Square Mile
Greene County	36,248	13,957	577.95	62.72	24.15
Aleppo Township	563	214	27.27	20.65	7.85
Carmichaels Borough	459	199	0.19	2,415.79	1,047.37
Center Township	1,176	436	48.65	24.17	8.96
Clarksville Borough	169	46	0.1	1,690.00	460.00
Cumberland Township	6,418	2,711	38.92	164.90	69.66
Dunkard Township	2,099	816	31.96	65.68	25.53
Franklin Township	7,038	2,169	40.92	171.99	53.01
Freeport Township	203	100	8.66	23.44	11.55
Gilmore Township	240	108	21.69	11.07	4.98
Gray Township	129	56	3.3	39.09	16.97
Greene Township	593	183	18.62	31.85	9.83
Greensboro Borough	381	161	0.15	2,540.00	1,073.33
Jackson Township	623	237	29.43	21.17	8.05
Jefferson Borough	278	127	0.19	1,463.16	668.42
Jefferson Township	2,188	1,002	21.76	100.55	46.05
Monongahela Township	1,600	566	17.83	89.74	31.74
Morgan Township	2,019	850	24.55	82.24	34.62
Morris Township	695	304	35.82	19.40	8.49
Perry Township	1,306	556	30.29	43.12	18.36
Rices Landing Borough	560	200	0.89	629.21	224.72
Richhill Township	809	356	56.07	14.43	6.35
Springhill Township	226	110	22.1	10.23	4.98
Washington Township	918	392	27.02	33.97	14.51
Wayne Township	1,056	477	39.48	26.75	12.08
Waynesburg Borough	4,007	1,383	0.83	4,827.71	1,666.27
Whiteley Township	495	198	31.26	15.83	6.33
	Source US Census Bureau American Community Survey				

Figure **1-3 Map of Greene County Population Distribution 2021**

Total

	4,008—7,038	*2*
	2,189—4,007	*1*
	1,307—2,188	*4*
	696—1,306	*5*
	129—695	*14*

Year: 2021 *Geographies: 26*

Styles

State
County
County Subdivision

Types of Housing

When it comes to curbside collection, single family detached homes are the easiest to service. Generally, these homes have an easily identifiable spot near the street, alley or roadway where their waste and recycling containers can be placed for collection. Mobile homes. Duplexes, and structures with up to four attached units typically share these same conditions.

Single family detached housing units and mobile homes are the most prevalent forms of housing in Greene County communities. When coupled with a higher housing density, these communities become favorable for curbside waste and recycling collection.

Table 1-2 compares the housing density in each municipality to the types of housing conducive to waste and recycling collection service. Each column of housing unit types is shaded gradiently to represent the percentage of those units in the municipality. The housing density column shows communities with more than 50 homes per square mile. These are shaded in green. Although this level of density doesn't represent optimal conditions, like most rural areas, it does signify the best local scenario possible.

Based on the percentage of single family detached homes and housing density Greene County's boroughs offer the best local conditions for curbside collection.

That's not to say that other municipalities couldn't benefit from curbside collection, too. However, the distance between homes could increase the cost. To make this service more affordble, communities in close proximity to one another could partner in securing these services for their residents. The number of participating homes would make the area more desirable for competing service providers.

For the most remote areas of the County, centralized manned collection points, or convenience centers, could offer a cost effective and sustainable alternative. They also could expand recycling opportunities within the County. This type of system will be discussed in more detail in Chapters 4 and 5.

Table 1-2 Communities Favorable to Curbside Collection Services

Greene County Communities With Conditions Favorable for Curbside Collection											
	Occupied Housing Units	Housing Density	1-unit, detached	1-unit, attached	2 units	3 or 4 units	5 to 9 units	10 to 19 units	20 or more units	Mobile home	Boat, RV, Van, etc.
Aleppo Township	214	7.85	81.80%	1.70%	0.00%	0.00%	0.00%	0.00%	0.00%	16.50%	0.00%
Carmichaels Borough	199	1,047.37	84.40%	0.00%	5.80%	5.30%	0.00%	0.00%	0.00%	4.40%	0.00%
Center Township	436	8.96	76.80%	0.00%	0.00%	1.80%	0.00%	0.00%	0.00%	21.30%	0.00%
Clarksville Borough	46	460.00	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cumberland Township	2,711	69.66	67.80%	8.00%	2.70%	0.80%	1.50%	0.00%	0.80%	18.40%	0.00%
Dunkard Township	816	25.53	67.70%	0.60%	0.30%	0.00%	0.00%	0.00%	0.00%	31.40%	0.00%
Franklin Township	2,169	53.01	64.20%	1.50%	0.40%	5.00%	4.60%	6.50%	3.70%	14.10%	0.00%
Freeport Township	100	11.55	71.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.90%	5.70%
Gilmore Township	108	4.98	82.40%	2.20%	0.00%	0.00%	0.00%	0.00%	0.00%	15.40%	0.00%
Gray Township	56	16.97	66.20%	0.00%	0.00%	17.60%	0.00%	0.00%	0.00%	16.20%	0.00%
Greene Township	183	9.83	84.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.50%	0.00%
Greensboro Borough	161	1,073.33	94.80%	0.00%	1.20%	0.00%	0.00%	0.00%	0.00%	4.00%	0.00%
Jackson Township	237	8.05	85.90%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	13.70%	0.00%
Jefferson Borough	127	668.42	73.50%	0.00%	0.00%	2.50%	2.50%	2.50%	0.00%	19.10%	0.00%
Jefferson Township	1,002	46.05	78.20%	0.00%	1.30%	0.00%	0.00%	0.00%	0.00%	20.40%	0.00%
Monongahela Township	566	31.74	65.30%	3.60%	0.00%	0.00%	0.00%	0.70%	0.00%	30.40%	0.00%
Morgan Township	850	34.62	70.60%	0.00%	0.00%	1.90%	1.10%	0.00%	0.00%	26.40%	0.00%
Morris Township	304	8.49	84.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.10%	0.00%
Perry Township	556	18.36	78.20%	2.60%	0.00%	0.00%	0.00%	0.00%	0.00%	18.80%	0.40%
Rices Landing Borough	200	224.72	91.70%	0.00%	0.80%	0.00%	0.00%	0.00%	0.00%	7.40%	0.00%
Richhill Township	356	6.35	78.90%	0.60%	0.40%	0.80%	0.00%	0.00%	0.00%	19.20%	0.00%
Springhill Township	110	4.98	62.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	37.40%	0.00%
Washington Township	392	14.51	88.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.40%	0.00%
Wayne Township	477	12.08	62.20%	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	37.40%	0.00%
Waynesburg Borough	1,383	1,666.27	58.90%	0.50%	17.90%	8.60%	0.90%	2.40%	8.80%	2.10%	0.00%
Whiteley Township	198	6.33	71.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	28.10%	0.00%

Economy in Transition

Arguably, Greene County's economic heritage is rooted in the extraction of coal. For nearly 150 years, both large and small coal mining operations have dotted the landscape. It wasn't until the years leading up to World War I and particularly in the World War II era that coal and Greene County became synonymous. Since 1986, local mines have produced more coal than any other county in Pennsylvania.

Most recently, however, the County is witnessing a dramatic transition away from the nation's reliance on coal as a major source of energy. This comes in part from regulatory initiatives related to carbon emmissions from fossil fuels, and international attention to the impact of globalwarming. Accelerating the transition, was the rush to tap into the vast Marcellus and Utica Natural Gas Fields in Pennsylvania, and prevalent in Greene County. Consequently, for all of these reasons, coal fired power plants such as the facility previously operating at Hatsfield Ferry have been closed, demolished, or converted to burn naturual gas.

It should be noted that even in the absence of these factors, Greene County would be facing the end of its coal based economy. Probably not today, but in the near future.

The Pittsburgh Coal Seam was the catalyst for the region's mining activity. Characteristically favorable to making coke, and subsequently steel, the Pittsburgh Seam was mined agressively. Both industry and environmental experts predict that if mined at the current rate, the useable portion of the Pittsburgh Coal Seam in Greene and Washington counties will be depeleted within approximately 30 years signaling the conclusion of its economic dynasty.

The importance of coal extraction to the economy in Greene County cannot be overstated. On the surface, regardless of which company, their collective role has been that of the major employer. Also notable, for every employed miner, tens of others were employed by suppliers and services companies that existed solely to meet the needs of mining operations. The loss of employment and opportunity is evidenced in the emigration rate and population decline.

Employees are not alone in losing their dominant source of income. A research project conducted by the Massachusetts Institute of Technology outlines in detail how the decline of the coal industry also reduces the fiscal stability of the jurisdictions in which coal mines and coal plants operate.

In Greene County, PA, a decrease in tax revenue has a direct impact on county, school district, and township budgets. The shortfalls from the decline of coal mining can have a profound effect on activities and programs provided by County and local governments. This is particularly true for those which are not core services. These include waste management and recycling programs.

MIT's study suggests that the recent activities in the Marcellus and Utica Gas Fields cannot compensate for the revenue generated by coal. This is due to how each type of operation is taxed.

The shortfalls from the decline of coal interests will have a profound effect on activities and programs provided by County and local governments.

This is particularly true for non-core services. like waste management and recycling programs.

Gas drilling and processing operations tend to have a smaller physical footprint, which means that gas companies pay less property and improvement taxes.

An additional factor is how the commodities are taxed. Coal companies pay mineral value taxes. This represents a considerable portion of real estate value for coal companies. In lieu of a mineral value tax, the gas industry pays an impact fee for each well drilled under Pennsylvania's Unconventional Gas Well Impact Fee Act, or Act 13. Although Greene County receives these fees, they will be shortlived as that is the nature of the industry. The current Board of Commissioners is the first to agressively manage the impact fees to sustain the future operations of the County.

Based on the current economic conditions, the planning process evaluated current waste and recycling programs. Additionally, it reviewed options ensure that the services provide the greatest benefit to Greene County and its residents. Likewise, it evaluated services that involve direct user fees could be structured to be efficient and affordable.

Age and Gender

Research has shown that individuals of different ages hold different attitudes and to varying degrees display behaviors of different kinds . In fact, researchers have defined generational groups based on their different life experiences which influence who they are and the foundation of their philosophical, religious, and political leanings.

In the U.S. a name has been coined for each of these groups. In real life, the delineation isn't as clear. To make it easier to understand the perspective of people within the various age ranges, it's important to look at relevant and memorable historical events. In addition, recognizing when and how the introduction of new technologies changed the way people live.

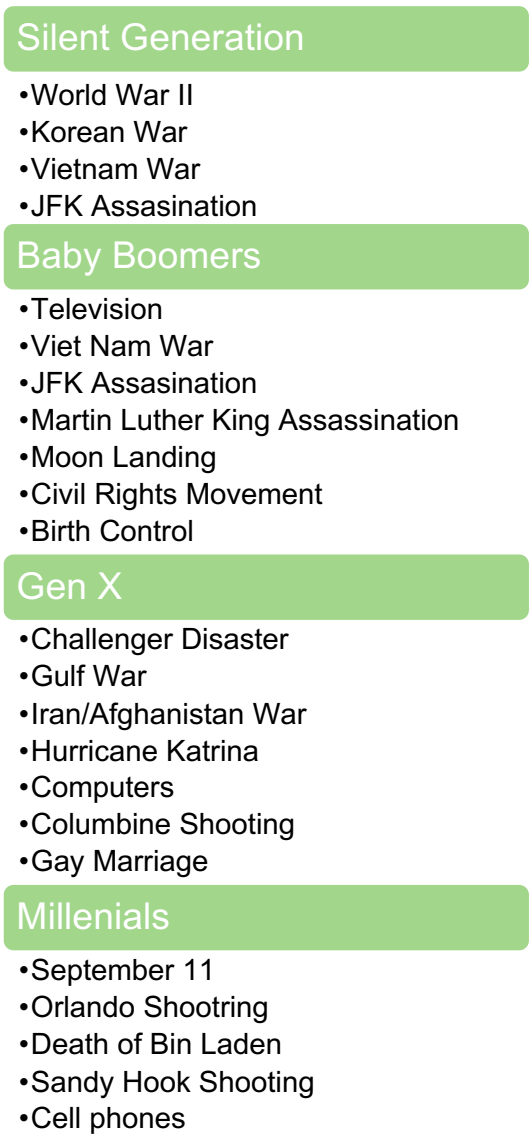
Table 1-3 lists the seven generational categories, the range of the years in which they were born, and their ages in 2023.

TABLE 1-3 GENERATIONAL CATEGORIES

CATEGORY	Birth Years	Age in 2023	
GREATEST GENERATION	<1924		99>
SILENT GENERATION	1925-1945	98	78
BABY BOOMERS	1946-1964	77	59
GEN X	1965-1980	58	43
MILLENNIALS	1981-1996	42	27
GEN Z	1997-2009	26	14
GEN ALPHA	2010-present	13	<1

Figure 1-4 illustrates world events that have occurred during the life span of the various generations currently in the workforce and therefore able to influence marketers, businesses, government policies, and entertainment. Gen Z or Gen Alpha have no associated events yet. However, researchers predict that the following likely will be among them; the election and indictment of Donald Trump, COVID 19, increase in domestic terrorism, overturn of Roe v. Wade, and climate change.

Figure 1-4 Key Events Shaping Generational Perspectives



Age Distribution

In 2021, the median age of the population in Greene County was 44, which falls into the category Gen X with ages between 43 and 58. Baby Boomers that begin at the age of 59 and run through 77, still represent nearly 30% of the population.

Although the residents of Greene County have a strong sense of roots, the shifting economy may be driving young families to better opportunities and lifestyles full of conveniences not available in rural areas.

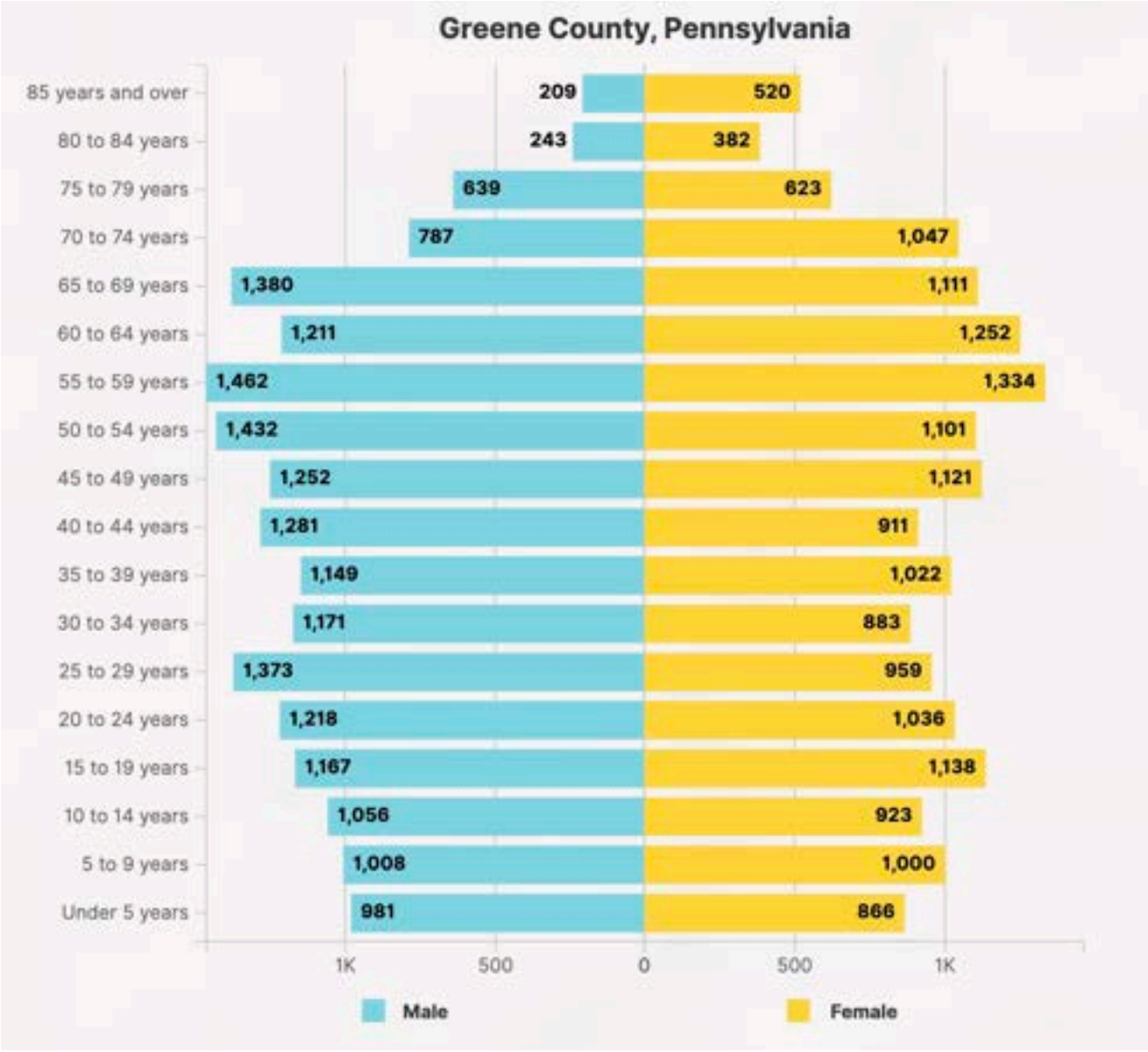
Aging populations are common in rural Pennsylvania. Older individuals have different priorities than their younger counterparts. They favor different methods of communication. These preferences have to be considered when developing waste management and recycling programs.

Gender Influences

Gender differences can influence behaviors and attitudes as well. This could be attributed to personality differences, socialization, and the persistent portrayal of each gender in stereotypical roles.

Figure 1-5 shows the distribution of population by age and gender

Figure1-5 Population Distribution by Age and Gender



MUNICIPAL WASTE FUNDAMENTALS

We are a consumer society. Acquiring the things we need or desire is convenient and often instantaneous provided we have the purchasing resources. At some point, we tire of the things we purchase or acquire. In some instances they no longer function, become damaged, or in the case of food, may be undesirable or unsafe to eat. Once discarded, all of these things become municipal solid waste.

For a variety of reasons, the items we purchase often come packaged. In some instances packaging is the only viable way a product can be sold (i.e beverages, liquid detergents, shampoos, etc.) Packaging may be used to deter theft of small items, to protect an item from breakage, or to slow deterioration. Of course, packaging is essential when items are purchased remotely and must be shipped. Packaging is generally discarded and thus becomes municipal solid waste. Packaging like corrugated cardboard has a high rate of recovery in commercial establishments. However, local goverrnment programs are often ill-equipped or unprepared to deal with cardboard from residences.

Each discarded item and its packaging proportionately affects the overall composition of the total municipal waste stream. Municipal solid waste is relatively consistent across the nation. From region to region, a number of factors may cause the content of municipal solid waste to fluctuate slightly. Income, education, geography, weather, and other demographics influence the types and number of items people purchase and ultimately discard. Those differences are becoming lessened compared to the past.

With the growth of big box retailers like Walmart our purchasing habits are more homogenous than ever before. There is no longer lag time for trends to make it from the coasts to the heartland. New products and goods can be introduced online and arrive on retail shelves in Los Angeles, Phoenix, Detroit, and New York City, etc. on the same day.

The advancements in product distribution affect the make-up of our discards as well. As consumerism evolves, the types and amounts of packaging in the municipal solid waste stream shifts accordingly. Unfortunately, material recovery facilities can be ill-equipped to collect, process and market the continually changing types and volumes of resulting material.

Basic Composition Of Municipal Solid Waste

Understanding what is in the waste stream is the first step in determining the best methods for handling and processing various materials, and targeting those that can be recovered for recycling, composting, or energy production. Knowing the components of the waste stream also serves to identify how waste might be minimized through product and packaging design, purchasing habits, and greater consideration for reuse and repurposing.

The United States Environmental Protection Agency (USEPA) collects and analyzes data on waste generation, disposal, and diversion. Its database of information dates from 1960 through the present. The Franklin Associates of Kansas conducts this ongoing study and issues a series of publications on behalf of USEPA.

This wealth of accumulated information establishes historic trends and changes. It is a useful tool to make initial assumptions and to reveal significant differences and/or anomalies in local programs based on national behaviors and performance. Because USEPA also documents detailed findings for each year, it is possible to compare local data from specific years to actual performance at the national level.

For instance, we all have windows, mirrors, and decorative glassware in our homes. Yet when we talk about recycling "glass" in municipal programs, we mean glass bottles and jars. Similarly, when "aluminum" is mentioned in the context of municipal recycling programs, we mean aluminum cans and foil, not siding and scrap metal.

Using the product categories clearly illustrates the relationship between product design, purchasing habits, and waste generation. With the emergence and growth of product stewardship and extended producer responsibility legislation and regulations, there is increasing demand for sustainable design that allows for remanufacturing, reuse, and recycling.

There are a number of categorized subsets of "solid waste." In general, USEPA considers discards from residential, commercial, and institutional establishments to be the "municipal" subset of solid waste. It is commonly referred to as municipal solid waste or "MSW."

Municipal solid waste consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, and batteries. In addition to identifying specific groups of materials like metals, glass, paper, or plastic, broad categories of products are also used in analyses of municipal solid waste. These include durable goods, non-durable goods, containers and packaging, organic wastes such as food and yard trimmings, and miscellaneous inorganic wastes. Although each may consist of one or more recyclable materials, categorizing them by product is a more accurate way of describing what we purchase, discard, and recycle. Figure 1-6 shows the proportionate distribution of materials in the total amount of municipal waste generated in the United States 2018.

Figure 1-6 USA Municipal Waste Composition 2018

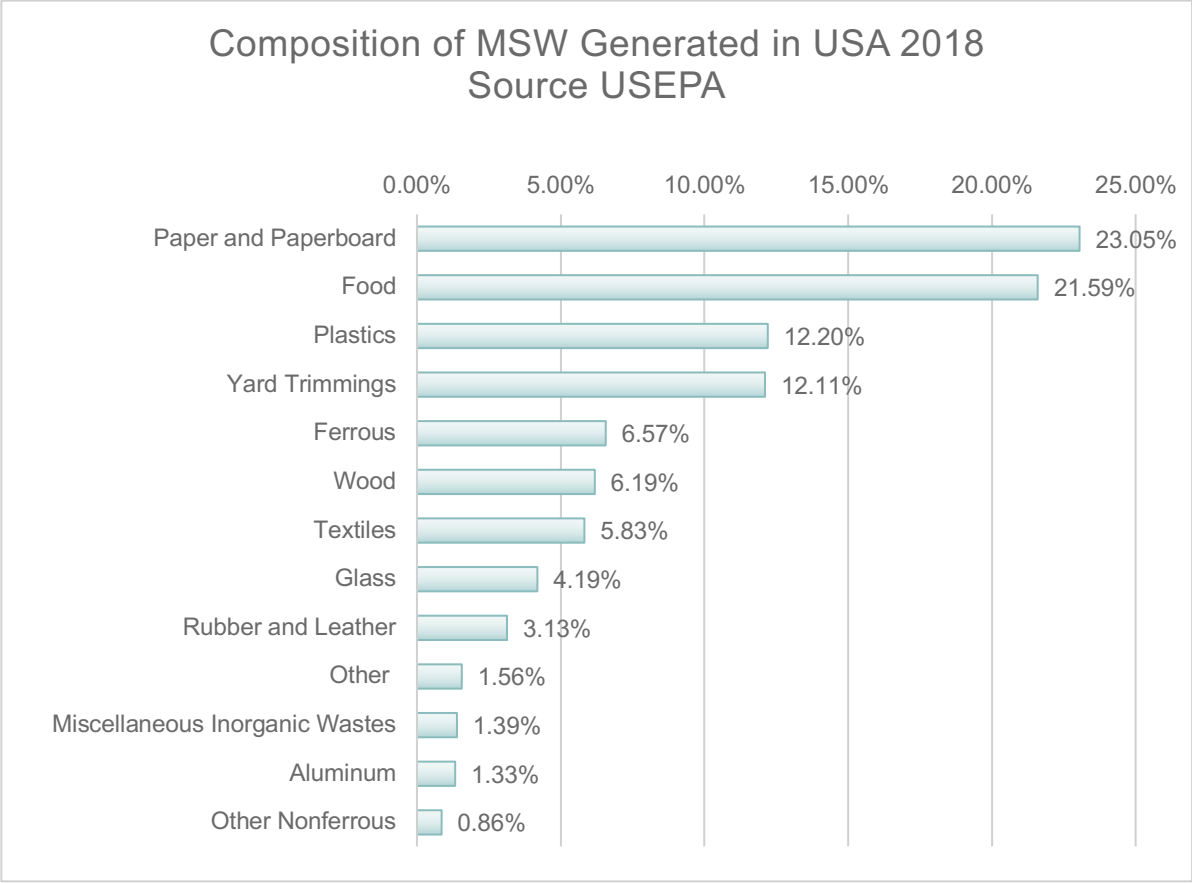


Table 1-4 shows the changing composition of the municipal solid waste stream from the point of generation to recovery and finally disposal. The impact of recycling is clearly demonstrated as the proportion of each material shifts once they are recovered and diverted from disposal.

Table 1-4 2018 USA Municipal Waste Composition and Management

	Percentage of Total Generated	Percentage of Total Recovered	Percentage of Total Landfilled	Percentage of Total Combusted
Paper and Paperboard	23.10%	41.16%	11.80%	12.20%
Glass	4.20%	2.74%	5.20%	4.80%
Total Metals	8.80%	7.81%	9.50%	8.50%
Plastics	12.20%	2.77%	18.50%	16.30%
Rubber and Leather	3.10%	1.50%	3.40%	7.20%
Textiles	5.80%	2.25%	7.70%	9.30%
Wood	6,2%	2.78%	8.30%	8.20%
Other	1.50%	0.87%	2.00%	1.90%
Food	21.60%	2.76%	24.10%	21.90%
Yard Trimmings	12.10%	23.73%	7.20%	7.40%
Miscellaneous Inorganic Wastes	1.40%	15.86%	2.30%	2.30%
Major Appliances	1.80%	2.81%	1.40%	0.00%
Small Appliances	0.70%	0.11%	1.10%	1.20%
Furniture and Furnishings	4.10%	0.04%	6.60%	6.80%
Carpets and Rugs	1.20%	0.28%	1.70%	1.70%
Rubber Tires	2.20%	2.34%	0.70%	7.80%
Batteries, Lead-Acid	1.00%	2.57%	neg	0.00%
Selected Consumer Electronics	0.90%	0.93%	neg	neg
Other Miscellaneous Durables	7.60%	0.39%	neg	neg

NATIONAL WASTE TRENDS

In 2018, the United States generated approximately 292.4 million tons of municipal solid waste. Based on an estimated population of 326.6 million people, that is the equivalent of 4.9 pounds per person per day. That's an increase from the 4.74 pounds per person per day seen in recent years. The increase is mainly the result of EPA's inclusion of additional wasted food management pathways.

In general. more municipal waste is generated than is disposed. Due to the implementation of recycling and composting programs, as well as other diversion mechanisms such as reuse and manufacturer take back programs, a significant amount of waste is diverted from landfills and incinerators. In areas where recycling programs are minimal or nonexistent, the generation rate and the disposal rate mirror one another because nothing or very little is being removed from the waste stream.

In general. more municipal waste is generated than is disposed, except in areas where recycling programs are minimal or nonexistent.

There the generation rate and the disposal rate are the same or nearly the same.

Of the municipal solid waste generated, approximately 94 million tons, or 1.58 pounds per person per day, were recycled or composted. 69 million tons were recycled at 1.16 pounds per person per day, and 24.9 million tons of organic waste were composted at 0.42 pounds per person per day. An additional 17.7 million tons of food waste was diverted from disposal by other management methods at 0.30 pounds per person per day. Combined, this represents a 32.1 percent combined recovery rate, which is a decrease from the previous 34.7 percent

National Averages

MSW Pounds per Capita per Day

- Generated
  4.9 pounds

- Recovered All Methods
- 1.16 pounds recycled
- 0.42 pounds organics composted
- 0.30 pounds food waste

- Disposed
  3.02 pounds

In addition, more than 34.5 million tons of municipal solid waste were combusted with energy recovery, and more than 146 million tons of municipal solid waste were landfilled for a combined total of 180.5 million tons, or 3.02 pounds per person per day of municipal solid waste disposed.

The daily waste generation rate of 4.9 pounds per person is higher than the previous peak of 4.74 pounds per person per day seen in 2000, and the 4.57 pounds per person per day rate in 1990 at the height of a thirty-year escalation in consumerism. The increase is due mainly because EPA enhanced its food measurement methodology to more fully account for all the ways wasted food is managed throughout the food system.

What differs is the amount of material recovered which in 1990 was only 0.69 pounds per person per day. So, while due to increases in population and methodology overall we generate more waste, we also recover a greater portion of it than in the past.

IMPACT OF COVID-19

The growing popularity of online shopping sites like Amazon, increased beyond expectations during the COVID 19 pandemic. Market studies show that the decline in traditional retail sales and the already anticipated closure of the brick and mortar stores accelerated by at least five years. This change in consumer buying habits had a profound influence on the sources and composition of waste generated, disposed and recovered.

The Environmental Research & Education Foundation (EREF) and the National Waste & Recycling Association (NWRA) initiated a survey during the midst of the pandemic to learn the affects on waste management stakeholders and how they dealt with the new challenges. The survey was sent to a database of waste industry operators, municipal governments, state agencies, consultants, and commercial institutions. Although the survey addressed things like staffing, employee exposure and protection, waste volumes and revenue were the most industry specific. The survey revealed that 81% of the respondents experienced an increase in residential waste. This was offset however by 67% of the respondents seeing a decrease in commercial waste, 9% reporting decreases in construction demolition waste, and 10% seeing general planttrash decrease as well.

During this same period, Waste 360, an industry trade publication reported thast according to industry reports and quarterly earnings calls with investors the publicly-traded waste companies claimed they faced overall volume declines, but residential volume increases coupled with revenue declines due to fixed prices on municipal contracts where the volume increases had occured. The conclusion was that overall the impacts were not as bad as initially feared.

Similarly, the *Pennsylvania Municipal Waste Characterization Report*, which was conducted during the peak of the pandemic in 2020, stated that the "waste allocations were different than in normal times, but not dramatically." In fact the study shows that when compared to Pennsylvania's 2001 waste characterization study, residential waste disposal decreased in all but urban areas. The Annual Waste Facility Disposal Reports also confirms this trend in rural areas.

Conclusion

Although the total volume of residential waste increased in urban areas, it was offset to some degree by the decrease in commercial and construction demolition waste. The most significant outcome of the COVID-19 pandemic was the redistribution of materials from the commercial to the residential sector. The mix of materials in household wastes from the loss of commercial retail stores and the growth of work from home offices, changed the dynamics of recovering recycling staples such as corrugated cardboard and high grade office paper.

The 2020 Pennsylvania Municipal Waste Characterization Report, was conducted during the peak of the pandemic.

It shows that residential waste disposal decreased in all but urban areas when compared to a similar study in 2001.

Defining Solid Waste By Its Source

It is natural to assume that wastes are regulated by their chemical and physical characteristics or their potential harm to the environment, instead, regulatory agencies define a waste by who generates it or by where it was generated. Basing laws and regulations on the sources of the waste makes it easier to monitor and enforce proper waste management practices. Establishing waste management requirements into common groups, rather than applying individual criteria per waste, equally simplifies compliance for the generator. As a result, there are items commonly found in industries and households alike that are regulated differently and require different disposal methods for each source.

Even within the municipal solid waste stream different sources of generators are categorized. While the overall contents of the waste stream remain the same, the proportion of the materials differs depending on which source generated it. The ability to identify the specific sources of the municipal waste generated is of major importance in the planning process. Knowing not only the overall quantities of a material, but also the amounts generated from various sources, enables jurisdictions to target education and recovery programs where they will get the best return on their efforts

It is important to understand the regulatory and practical basis for categorizing the sources of municipal waste because, while the overall contents of the waste stream remain the same, the proportion of the materials differs in each category. This becomes a major consideration in developing recycling and other waste management technologies and diversion programs.

The USEPA definition of municipal solid waste encompasses the materials discarded by residents, commercial businesses, offices, and institutions. It excludes materials generated by manufacturing processes and industrial activities. A further distinction is made in planning for and managing municipal waste based on whether the source is commercial, residential or institutional activities.

WHO PRODUCES MUNICIPAL SOLID WASTE?

Municipal waste is generated where we live and where we work. Essentially, municipal waste in some form is produced in every household, business and activity within Greene County. A variety of sources can be identified as generators of the type of municipal waste with which most of us are familiar. They include residences, commercial establishments, government buildings, institutions, and community events.

Single Family Homes And Multi Family Dwellings

Residential sources of municipal solid waste include nearly all of the traditional places that people call home. Not limited to single family detached structures, residential sources also include duplexes, apartments, condominiums, town houses, and trailers.

According to the USEPA individuals who reside within a community are the source of at least 54 percent of municipal solid waste is generated. The proportion of wastes from residential sources in primarily rural areas like Greene County tends to be higher. In Pennsylvania's rural areas, however, it's been shown that residents generated as much as 72 percent of the municipal solid waste.

Businesses, Institutions, And Government Locations

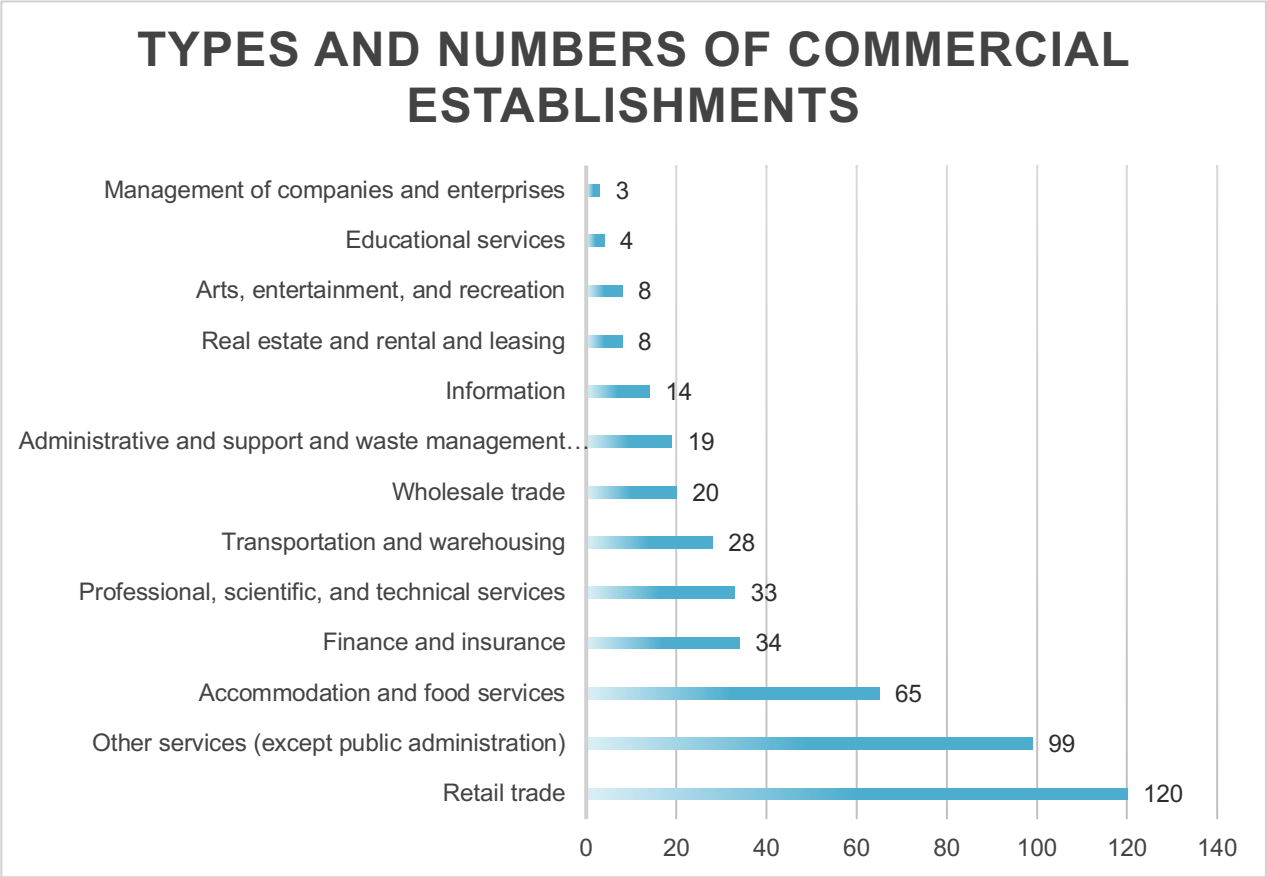
Based on national trends, commercial establishments typically generate 46 percent of the municipal waste stream. Not surprisingly, with fewer businesses in Pennsylvania's rural areas, it can be as low as 28 percent.

Figure 1-8 shows the types and numbers of commercial establishments operating in Greene County.

At first glance it may seem that these establishments have little in common, however, the manner in which their waste is stored and collected for disposal has strong similarities. The same types of material are found within the waste streams generated by these operations. They may be produced in different quantities and proportions but nevertheless they have a similar composition. Therefore, quantifying these wastes as commercial for the purpose of planning and discussion is a logical approach.

Aside from retailers, office buildings, and other service-oriented businesses, Act 101 specifically mentions three commercial municipal solid waste generators. Following is a brief description of each. Following is a brief synopsis of each category considered to be a generator of commercial municipal waste.

Figure 1-8 Commercial Establishments



Facilities Of Federal, State, And Local Government

Government functions, whether they be at the federal, state, or local level operate in a variety of locations throughout Greene County. The County, along with the cities, townships, and boroughs own and occupy office buildings used for daily government operations. Police and fire departments, municipal authorities, libraries, and even the prison are included. Federal and State government operations are located in Greene County too. Table 1-5 lists the various categories of government offices found in Greene County.

Table 1-5 Federal State and Local Government Offices

Federal

- United States Post Offices
- Congressional Representatives

State

- Department of Agriculture
- Department Of Labor & Industry
- Department of Health
- Department of Public Welfare
- Driver's License Center
- State Department of Highways
- State Correctional Institution
- PA National Guard Company C 110th Infantry
- Pennsylvania State Police
- Parks and Recreation
- State Congressional Representatives
- State Liquor Stores

County and Local

- Greene County Government Agencies
- Greene County Courthouse
- Greene County Jail
- Greene County Industrial Development Authority
- County Fairgrounds
- Greene County Tourist Bureau
- District Magistrates and Justices
- Township and Borough Offices
- Municipal Authority Offices
- Police and Fire Departments
- Public Libraries

Educational Institutions

Five major public school districts, with student enrollments from primary through secondary, represent the largest segment of educational institutions in Greene County. Table

Table 1-6 Public and Private Elementary and Secondary Schools

Central Greene	Waynesburg Central Elementary
	Perry Elementary
	Waynesburg Central High School
Southeastern Greene	Bobtown Elementary
	Mapletown Junior Senior High School
Jefferson Morgan	Jefferson-Morgan Elementary
	Jefferson-Morgan Middle School
	Jefferson-Morgan High School
West Greene	Aleppo Elementary
	Graysville Elementary
	Spring-Freemont Elementary
	West Greene Middle School
	West Greene High School
Carmichaels Greene	Carmichaels Area Elementary
	Carmichaels Area Junior High School
	Carmichaels Area Senior High School
Private Schools	Open Door Christian School
	Rightway Academy

Other learning centers also exist. These include a college, technical and vocational schools, and private schools.

These schools are listed in Table 1-7

Schools are important in promoting positive waste management behaviors that can last a lifetime. They are also a source of easily recoverable material that can be recycled. School recycling programs set a positive example and provide an opportunity for extended conversations with studen ts about the environment.

Table 1-7 College and Trade Schools

Universities & Colleges	Waynesburg University of Pennsylvania
	Westmoreland County Community College
Vocational & Technical	Greene County Vocational Technical
	Greene County Career Center

Community Events

Communities commonly come together to socialize and celebrate long standing traditions. These occasions may occur in conjunction with holidays of national importance or those of local cultural heritage. Sometimes the events are focused on the activities of local sports teams. Greene County hosts several fairs, festivals, and other events during the year. Each draws a large volume of people that can tax the capabilities of local services and significantly increases the amount of waste and recyclable materials generated.

In spite of their seeming similarities, in reality, each event is unique in character. Exactness is virtually impossible when predicting the volume of waste expected from any given event.

Recently, Nestor Resources, Inc. prepared a special event manual for the Butler County Department of Recycling and Waste Management. As part of that project, a search of reported results from events in Pennsylvania and the nation found the current average rate of event waste generation is approximately 0.66 pounds per attendee. Much of the event waste is organic and a considerable portion of the materials generated can be recycled or composted. Informational flyers, food scraps, packaging, beverage containers, etc. are some of the potential discarded materials. Leaves and manure are also common at fairs and other events that include livestock and other animals.

The Greene County Fair is one of the largest community events held in the County.

UNIQUE TYPES OF MUNICIPAL WASTE

Although an important part of municipal solid waste management, construction & demolition wastes are considered apart from general municipal waste for planning and management purposes. Other types of municipal waste require special handling and processing methods. These wastes are generated by select operations and include sewage sludge and regulated medical waste.

It is important to noe that the data for these waste streams are analyzed and discussed in separate narratives. Therefore, they are not factored into the residential or commercial totals analyzed in the Plan.

Industrial, mining, and manufacturing activities are also excluded from the definition of municipal solid waste and are not part of the County's scope of authority under Act 101.

SOLID WASTE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES

Construction and Demolition (C&D) waste is a perfect example of a waste stream defined and regulated as a sub-set category of municipal waste in Pennsylvania but viewed differently by USEPA and in other states. Because it is generated under specific circumstances, has unique components, and is collected and managed differently than regular residential or commercial municipal waste, it warrants individual attention in the Plan.

Construction and demolition activities can differ dramatically depending on the specific project or job site. Work may include construction, renovation, and/or demolition and any or all of a number of related activities. The mix and physical characteristics of materials in this waste stream can vary in residential, commercial, or industrial settings, and even on a load-by-load basis.

During new construction projects discards tend to include trimmings from dry wall, framing, carpet remnants, etc. Packaging materials such as cardboard boxes, Styrofoam, nylon or plastic strapping, pallets, etc. are among the other materials which are often bound for disposal from new construction activities. Demolition projects tend to generate asphalt, concrete, earth, sand, trees, steel, brick, lumber, roofing materials, flooring, plaster, dry wall, and other similar

materials. Typically, demolition loads contain larger quantities of these materials since essentially entire structures are being discarded.

Projecting C&D quantities for the long term is challenging. The amounts of C&D waste from month to month and year to year are less consistent than municipal waste. Construction and demolition projects are vulnerable to weather conditions and the economy. Either can foster or interfere with new development and construction. Two studies were recently conducted in the Northeastern United States, for the purpose of characterizing the C&D waste stream and calculating a generation rate. The first study was conducted by the Northeast Waste Management Officials' Association (NEWMOA). The Massachusetts Department of Environmental Protection commissioned the second study.

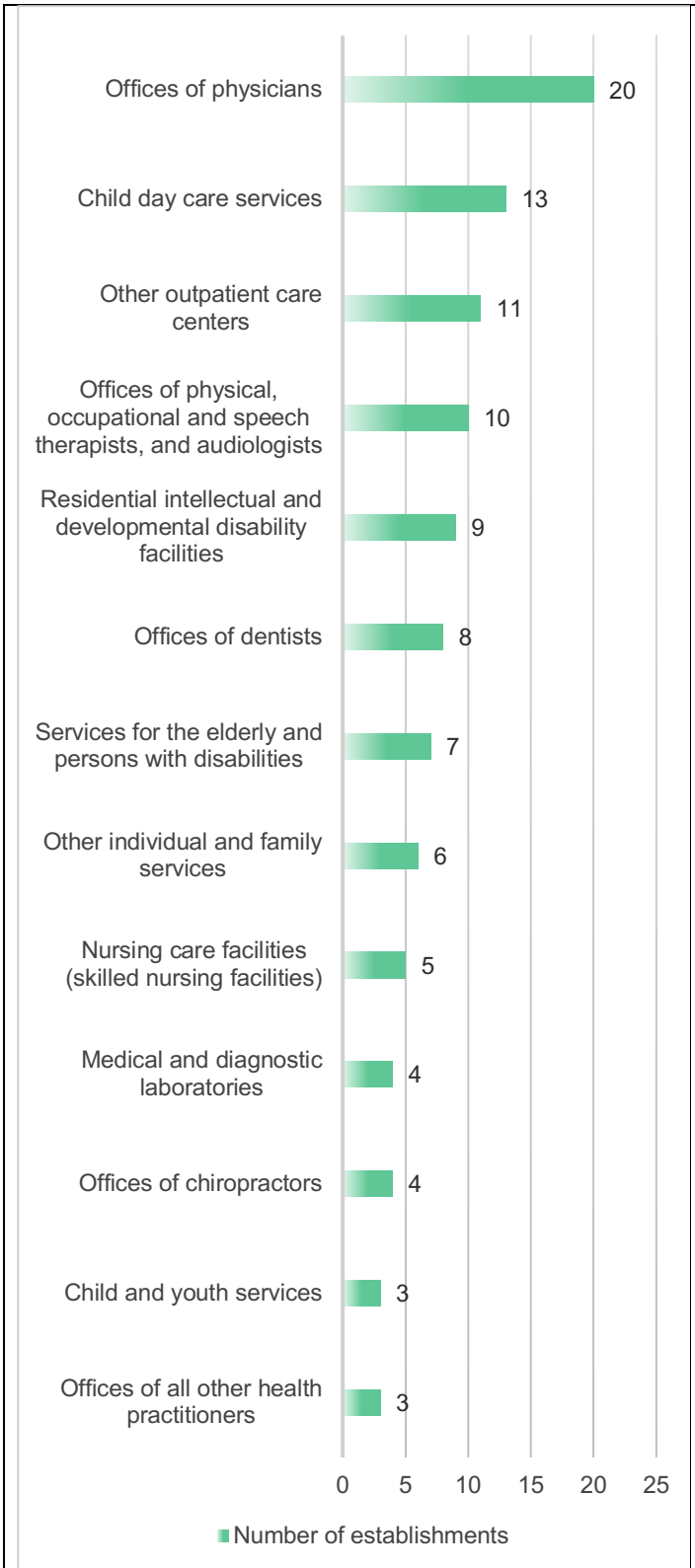
The studies revealed a wide difference in C&D disposal rates from the survey's participating states. These ranged from 0.19 tons per person per year to 0.42 tons per person per year, when variables such as definitions of C&D and materials included were filtered, the generation rate of 0.31 tons per person per year seemed to reflect a reasonable median.

Asphalt, brick, and concrete (ABC) wastes generated from road and bridge projects were not included in their generation rate calculations. These wastes are disproportionately heavier than many of the other C&D components. In addition, much of the material from road and bridge projects is used as clean fill on site. Trees and rocks from land clearing and grubbing were also excluded. In addition, loads from residential accounts, which contained a mixture of regular household municipal waste, and also materials from renovation and remodeling projects, were not factored into the total generation rate either.

Both studies estimate that approximately 75 percent of the total construction and demolition waste generated arrives at a landfill, with approximately 60 percent of the total waste disposed and the other 15 percent put to beneficial use as alternative daily cover for the landfill. The remaining 25 percent of the construction and demolition waste generated is either recycled (12 percent) or combusted for energy recovery (13 percent).

A discussion of the amounts and the C&D manner in which C&D waste is managed in Greene County is provided in Chapter 2

Figure 1-9 Other Sources of Regulated Medical Waste	**Medical Facilities** Hospitals and resident care facilities generate significant quantities of municipal waste. One of the most basic functions of these institutions is to temporarily house and feed people in their care. Therefore, much of the waste which is generated resembles that found in the hospitality industry. Obviously, hospitals and other health care facilities offer more complex services than food and board. These medical procedures produce waste, which is required by federal and state regulations to be treated and handled separately from other materials. This waste is identified in Pennsylvania "regulated medical waste," which is a direct result of medical procedures, treatments, and other activities. Regulated medical waste generated is typically transported to commercial treatment facilities. Greene County has one acute care hospital. Located in Waynesburg, Washington Health System (WHS) Greene is a 23-bed inpatient unit hospital with a range of diagnostic



emergency and specialty care. Figure 1-9 Lists other types and numbers of medical facilities in the County.

Wastewater Treatment Plants in Greene County dispose of roughly 1400 tons of sewage sludge annually.

Sewage and Septage

Wastewater generated in our homes and businesses is known as sewage or septage depending upon how it is managed. Sewage typically flows through a network of pipelines to wastewater treatment plants (WWTP). These facilities and the infrastructure which connects the source of the wastewater to the treatment plant can be costly to construct. Therefore, facilities are typically built to service households in more densely populated municipalities to reduce the cost per mile of the extensive network of pipelines.

Tablw 1-8 shows the public wastewater treatment facilities operating in Greene County.

Wastewater that is treated at WWTP's located in Greene County is dewatered sufficiently to become sewage sludge, which is typically disposed in landfills. From 2011 through 2021 Greene County WWTP's disposed of between 3500 and 1350 tons of sewage sludge per year. The variations are the result of normal operations. Smaller facilities produce low volumes of sludge that accumulate at a slower pace. Therefore, in some years there is carry-over which artificially increases the amount disposed in one year while lowering the amount in another.

Where the cost of connecting wastewater pipelines is prohibitive, on-lot treatment systems must be installed by private homeowners. This wastewater is referred to as septage. Septic systems must be periodically pumped by special service companies. The septage is either land applied or transported to a WWTP for treatment.

Multi-family dwellings, such as mobile home parks and residential care facilities, as well as industrial operations may operate private pre-treatment systems, with the sewage being transported for final treatment.

Table 1-9 shows the private wastewater treatment facilities operating in Greene County.

TABLE 1-8 Public Wastewater Treatment Facilities

PERMIT	FACILITY	**MUNICIPALITY**	**PERMIT EXPIRATION DATE**	Physical **ADDRESS**
PA0092266	Brave Water & Sewer Authority	Wayne Twp	07/31/2026	Orchard Ave Brave, Pa 15316
PA0046230	Carmichael Cumberland Joint Sewer Authority	Carmichaels Boro	03/31/2024	103 Municipal Rd Carmichaels, Pa 15320-1050
PA0093408	Cumberland Township	Cumberland Twp	06/30/2024	Sr 1017 Crucible Rd Carmichaels, Pa 15320
PA0097811	Dry Tavern Sewer Authority	Jefferson Twp	06/30/2025	859 N Eighty Eight Rd Rices Landing, Pa 15357
PA0028452	Dunkard Township & Bobtown Municipal Authority	Dunkard Twp	07/31/2024	455 Plant Rd Dilliner, Pa 15327
PA0046426	Franklin Township Sewer Authority	Franklin Twp	05/31/2027	Pa Route 188, Jefferson Rd Waynesburg, Pa 15370
PA0205257	Greensboro Boro & Monongahela Township Joint Sewer Authority	Monongahela Twp	06/30/2025	Stony Hill Road Greensboro, Pa 15338-0342
PA0096598	Lower Ten Mile Joint Sewer Authority	Morgan Twp	12/31/2024	144 Chartiers Rd Jefferson, Pa 15344-4115
PA0096512	Mount Morris Water & Sewer Authority	Perry Twp	02/29/2028	Davistown Rd Mt Morris, Pa 15349-0304
PA0254681	Morris Township	Morris Twp	05/31/2024	Sr 18, Browns Crk Rd Graysville, Pa 15337
PA0217727	Rices Landing Boro	Rices Landing Boro	04/30/2024	Main St Rices Landing, Pa 15357
PA0252590	Center Township	Center Twp	04/30/2025	1oo Municipal Road Rogersville, Pa 15359
PA0020613	Waynesburg Boro	Franklin Twp	02/28/2018	Meadowlark Lane Waynesburg, Pa 15370

Table 1-9 Private Wastewater Treatment Facilities

FACILITY NAME	PERMIT	CLIENT NAME	MUNICIPALITY	PERMIT EXPIRATION DATE	PHYSICAL LOCATION
4 W Deep Mine Portal	PA0252921	Dana Mining Co Of Pa Inc	Dunkard Twp	01/31/2028	Bald Hill Rd Sr2021 Bobtown, Pa 15315
Bailey Deep Mine Main Portal	PA0092894	CONSOL Pa Coal Co LLC	Richhill Twp	05/31/2024	332 Enon Church Rd West Finley, Pa 15377-2119
Blacksville 2 Mine Kuhntown Portal	PA0216925	Monongalia County Coal Resources Inc	Wayne Twp	08/31/2027	701 Oak Forest Rd Kuhntown, Pa 15366
Comport Sr	PAG046370	Comport John	Franklin Twp		211 Salter Path Ln Waynesburg, Pa 15370-6302
Crabapple Portal	PA0217620	CONSOL PA Coal Co LLC	Richhill Twp	05/31/2025	192 Crabapple Rd Wind Ridge, Pa 15380-1282
Cumberland Mine Portal No 9	PA0254614	Iron Cumberland LLC	Center Twp	08/31/2023	576 Maple Run Rd Waynesburg, Pa 15370-6311
Dunkard Valley Commons	PA0254339	Shuppe Alexander	Dunkard Twp	05/31/2021	Sr 2011 Dunkard Twp, Pa 15327
Graysville Elementary School	PA0033642	Burns Drilling & Excavating Co	Gray Twp	08/31/2026	1029 W Roy Furman Hwy Graysville, Pa 15337-3062
Iron Cumberland - Mine Harbor	PA3076405	Iron Cumberland LLC	Monongahela Twp	10/25/2005	299 Alicia Rd Greensboro, Pa 15338
Mannion Prop	PA0254886	Barbara & Thomas Mannion	Aleppo Twp	04/30/2027	1986 Aleppo Rd Wind Ridge, Pa 15380-1324

Table 1-9 Private Wastewater Treatment Facilities (continued)

FACILITY NAME	PERMIT	CLIENT NAME	MUNICIPALITY	PERMIT EXPIRATION DATE	PHYSICAL LOCATION
Mining Tech & Training Center	PA0216186	United Mine Workers Of America Career Centers Inc	Washington Twp	06/30/2026	197 Dunn Station Rd Prosperity, Pa 15329-1625
Nangeroni Sr	PAG046316	Peter M Nangeroni	Franklin Twp		Wayne Rd Waynesburg, Pa 15370
Nemacolin	PA0096130	Nemacolin Inc	Cumberland Twp	07/31/2022	803 Pershing Blvd Nemacolin, Pa 15351
Prep Plant	PA0216666	Iron Cumberland LLC	Whiteley Twp	04/30/2028	855 Kirby Rd Waynesburg, Pa 15370-3592
Ryerson State Park	PA0217841	PA DCNR	Richhill Twp	08/31/2024	361 Bristonia Rd Wind Ridge, Pa 15308-1258
Shuppe Rentals Trailer Park	PA0252476	Alexander Shuppe & Assoc Inc	Dunkard Twp	11/30/2025	Sr 2010 - 380 Budapest Rd Dillner, Pa 15327
W Greene Middle- Senior High School	PA0033626	West Greene School District	Center Twp	11/30/2026	1352 Hargus Creek Rd Waynesburg, Pa 15370-3814
Welcome Center Site D	PA0098434	Pa Dot Bureau Of Project Delivery	Whiteley Twp	06/30/2027	I 79 Whiteley Twp, Pa 15370
Yoders Prop	PA0255769	Yoders Carolyn	Aleppo Twp	11/30/2026	1953 Aleppo Rd Wind Ridge, Pa 15380-1323

WASTE REPORTS AND STUDIES

When documented quantities for generation, disposal and recovery for an area are known, population is used to determine how much each person contributes to each category.

If only population is known, by assuming a commonly accepted per capita rate one can also estimate total generation, recovery, and disposal.

When an in-depth inventory of local municipal solid waste is necessary, a physical sort of the local waste stream is conducted. However, the time and cost to initiate that process is rarely justifiable during the normal planning process.

PENNSYLVANIA DATA

Like other Pennsylvania counties, Greene County has access to PADEP's database of reported disposal and recycling activities. The disposal data is reported by Pennsylvania landfills and resource recovery facilities who record the origin, type and weights for all waste disposed at their facilities. This information is submitted in an annual report to PADEP. The recycling data is self-reported by Pennsylvania counties and municipalities who gather the information from processors, transporters, and businesses who recycle.

The reports have some flaws. They do not represent waste disposed out-of-state or do not capture all of the recycling occuring within a county or over report it. Often waste from one county is misidentified when handled through a transfer station. Because these known conditions remain consistent, the data is still valuable in reasonably determining the amount of waste that must be managed into the future.

NATIONAL DATA

To examine the current conditions in Greene County, understanding what is common or normal in the majority of communities across the nation, or in other parts of the state provides a sufficient benchmark for evaluating local data.

Comparing the USEPA or another county's information to a jurisdiction's reported data can prompt a thorough investigation of previously held assumptions used to develop local programs. Finally, it provides insight into prevailing trends and evolving conditions that could affect future solid waste management capacity needs and the development of treatment and processing methodologies.

Beyond the Numbers

It's important to remember that the data in a report doesn't present the full scenario of how waste is managed within a jurisdiction Sometimes the reported data will reveal what appear to be anomalies, or it could show a trend. Both warrant further investigation.

It would be easy to attempt to normalize the data via a mathematical equation. That is a practice that seeks to correct the data on paper, but fails to understand or address what caused the disparity.

Doing so misses the point of the entire planning process, which is to uncover the root of problems or abnormalities.

This requires insight into the day to day handling of municipal solid waste and recycling within a jurisdiction.

Additionally, it requires an understanding of the behaviors or conditions that contribute to the local circumstances. Solid Waste Advisory Committee meetings are valuable sources of clues that otherwise could escape a planner's research.

It is only when the reported data is not verifiable, explainable or it deviates so grossly from the norm that presumptive modifcations are impossible that nationally accepted assumptions override the locally reported results. When and if this is necessary the assumptions will be clarified in the exercises and analyses performed during the planning process.

Seeking to normalize data with a mathematical equation fails to understand or address what caused the disparity.

Doing so misses the entire point of the planning process.

ESTABLISHING GREENE COUNTY'S GENERATION, RECOVERY, AND DISPOSAL RATES

According to the U.S. Census Bureau American Community Survey, Greene County's' estimated population in 2021 was 36,248. In 2021, Pennsylvania landfills reported the disposal of 39,109.2 tons of municipal solid waste originating in Greene County. Another 582 tons were recovered in local recycling programs according to the County's reports. Thus, based on the reported data, the estimated amount of municipal waste generated in Greene County in 2021 was 39,691 tons.

Both reports, however, show sudden changes that require investigation. An analysis of the disposal reports and a detailed explanation for modifications made to the reported data are provided Chapter 2. A more detailed evaluation of the recycling efforts is provided in Chapter 4.

The generation, recycling, composting, food recovery and disposal rates were calculated for Greene County using the 2021 population and a modification made to the reported data. Based on known anomalies and factual evidence presented in Chapter 2, 2021 is representative of the current and expected future performance of the County.

The reported data and the 2021 population, when compared to the national rates show that Greene County's generation rate is well within the normal range. The disposal rate is higher than national average. However, because there are minimal recycling, and no composting or food waste recovery programs. The higher disposal number is perfectly normal and to be expected.

Similar findings are seen in other Sixth Class Counties that are absent a variety of recycling opportunities.

Table 1-10 shows Greene County's expected generation, recovery and disposal if the County perfomed the same rates as the national trends. Table 1-11 shows Greene County's reported tonnages and the local generation, recovery and disposal rates.

Table 1-10 Greene County's Expected Generation, Recovery and Disposal

Greene County Expected Performance Based on USEPA National Averages	Recycling 7,674 tons @ 1.16 pounds per person per day
	Yard/Leaf Waste Composting 2,778 tons @0.42 pounds per person per day
	Food Waste Recovery 1,985 tons @0.30 pounds per person per day
	Disposal 19,978 tons @3.02 pounds per person per day
	Generation 32,415 tons @4.9 pounds per person per day

Table 1-11 Greene County Reported Generation, Recovery and Disposal

Greene County Repoprted Performance	Recycling 582 tons @ 0.09 pounds per person per day
	Yard/Leaf Waste Composting 0 tons @0 pounds per person per day
	Food Waste Recovery 0 tons @0.0 pounds per person per day
	Disposal 32,624 tons @4.93 pounds per person per day
	Generation 33,206 tons @5.02 pounds per person per day

Reported disposal was modified to address a known anomaly. Detailed explanation in Chapter 2

COMMENTS

Greene County is in a transitional phase. The pending loss of its largest employer and single greatest source of tax revenue will have far reaching effects. The County is actively engaging the municipalities and school districts who face a similar fate.

As the exit strategy develops, consideration should be given to improvements that could be made to enhance the management of municipal solid waste and expand recycling opportunities throughout the County.

Abandoned mine lands can rapidly become illegal dumping grounds. This is particularly true when economic conditions could reduce the willingness to pay for waste disposal. These same lands could be repurposed to prevent the incidents of illegal dumping instead.

Convenient, sustainable, and affordable outlets could be positioned throughout the County for small volumes of municipal waste and recycling. In addition, these locations could accept hard to manage items on a weekly basis instead of the periodical collection events. These convenience centers could offer residents in areas where curbside collection is difficult or cost prohibitive a new viable option.

These outlets are often owned by local governments and serviced by a commercial hauler. Alternatively, private waste companies may seek to operate one or more centers independently.

Details on the features and benefits of these outlets are presented in Chapter 4 along with the regulatory requirements.

Where curbside collection is difficult or cost prohibitive, portions of abandoned mine lands could be repurposed into small convenience centers to offer affordable alternatives for waste and recycling.

Chapter 2

Municipal Solid Waste Trends

Transporters, Facilities, Policies, Practices

Securing adequate disposal capacity for the municipal waste generated within its boundaries is the primary responsibility for each county in the planning process. Additionally, proper practices for the storage and collection of municipal waste are of equal importance to protect the health and safety of Greene County's citizens. This chapter outlines how each type of municipal solid waste generated in Greene County is currently collected, transported, and where it is ultimately processed and disposed.

DISPOSAL DESTINATIONS

Greene County's municipal solid waste has been disposed or processed in the same facilities for decades. There are slight variations in annual tonnage from facility to facility. Over a ten-year period, a minimal number of random loads appear to have been misdirected to non-designated sites, or simply misreported.

Generally, when counties allow for a wide variety of disposal options, as is the case with Greene County, competitive market conditions dictate the ultimate destination of the waste. The requirement for transporters to utilize a disposal facility that executed a capacity agreement to accept waste originating from Greene County has not been a deterrent to the normal flow of waste.

Whether through lower tipping fees, convenience, or internalization of disposal by corporations with both disposal and hauling capabilities, some facilities seem to dominate the local market while others receive little or no Greene County municipal waste.

It is suspected that a negligible amount of Greene County's municipal waste goes unreported by out-of-state landfills, which may or may not have capacity contracts with Greene County. Early reports indicate that the convenience of a newly permitted transfer station within the County may be redirecting waste back into Pennsylvania which otherwise would have been disposed in West Virginia or Ohio.

These five landfills are used more frequently than others for the disposal of Greene County's municipal solid waste streams.

Arden

Chestnut Valley

Westmoreland Sanitary

Imperial

Kelly Run

Five landfills regularly dispose of municipal solid waste streams originating in Greene County. Chestnut Valley Landfill, located on 1184 McClellandtown Road, McClellandtown, PA 15458 and Arden Landfill, Arden Station Road, Washington, PA 15301 consistently top this list. Arden is a Waste Management site. Chestnut Valley is currently owned and operated by Noble Environmental.

The third landfill which receives a smaller but steady flow of Greene County's municipal waste is Noble Environmental's Westmoreland Sanitary Landfill, 111 Conner Ln, Belle Vernon, PA 15012. These three landfills executed disposal capacity agreements and were officially designated to receive municipal waste from the County in the 2008 Greene County Municipal Solid Waste Management Plan.

Another designated site that occasionally reports small amounts of the County's waste since the last Plan was adopted is Imperial Landfill, owned by Republic Services and located at 11 Boggs Road, Imperial, PA 1512.

Kelly Run Landfill, another Waste Management facility, located on 500 Hayden Blvd, Elizabeth, PA 15037, on a regular basis reports approximately 500 tons of municipal waste per year from Greene County. Kelly Run was not listed in the 2008 Plan as a designated disposal site. It may have executed a contract with the County as part of a process to add more sites during the time between when Plan updates are required.

The remainder of the designated sites from the 2008 Plan Update reported negligible to no municipal solid waste streams from Greene County. Those sites include

- J.P. Mascaro's Brooke County and Wetzel County Landfills both located in West Virginia,
- Vogel Holdings Seneca Landfill in Butler County,
- Republic Services Greenridge Reclamation Landfill

DISPOSAL REPORTS

Municipal solid waste landfills in Pennsylvania are required to submit quarterly and annual reports to PADEP. The Department maintains a database of this information which includes the types of waste, the tons of each, and the origin of the waste. The information can be searched by facility, by the state or the Pennsylvania county of origin.

The database contains reports dating back to 1989. Therefore, it is a good tool for investigating historical trends, market conditions, assess the effectiveness of the flow control of waste. The major shortfall of the data is that it does not include the amount of waste that is transported beyond Pennsylvania's borders and disposed in other states. Nevertheless, it still provides enough data for planning purposes which don't need to be exact but reasonably representative.

Pennsylvania landfills also submit an annual operations report to PADEP. This report gives a better picture of the available permitted airspace that each site can actually guarantee to counties seeking capacity assurances.

Information from both of these sources is used in this 2023 Plan Update. One is to certify that newly designated landfills have and will continue to have sufficient capacity for the ten years of the Plan. The other is to establish disposal needs for the future based on patterns established in the recent past.

GREENE COUNTY'S HISTORICAL DATA

During the planning process, landfill reports from 2011 through 2021 were reviewed to determine commonalities or anomalies that might be present in the reported figures. Data in each odd year was used for comparison. In addition, to investigating the raw disposal numbers, other factors were considered that commonly influence disposal patterns. These include but are not limited to population fluctuations, major economic upheavals, catastrophic events, shifts in market conditions and participants, and the evolution of consumer goods, packaging, and behaviors.

The County has little if any control of these circumstances. However, understanding their impact on local waste management practices provides better insight when planning for the future. More importantly is to recognize whether a sudden inconsistency in the data is a mistake, a short-term event, or an indicator of transitioning and longer lasting conditions. The Plan needs to avoid the mistake of addressing the oddity by immediately attempting to normalize it through consolidation with data from an extended range of time and creating a median, when in fact, the anomaly may actually be the new norm upon which future projections should be based.

Making this determination requires a knowledge of the local market and an ability to tie these conditions to seemingly unrelated regional, national, and global activity that can affect how we live, how and where we work, our purchasing habits ,and in turn, the types and amounts of items we discard. It is a reason why the County should regularly communicate with industry service providers and become familiar with the trends they monitor.

Table 2-1 shows Greene County's historical disposal data for the types and quantities of Greene County waste reportedly disposed in Pennsylvania Landfills. Excluded from the table are waste streams with zero amounts reported .The table show the figures in two year increments since 2011. Table 2-1 indicates that despite the steady decrease in population, the amount of municipal waste disposed overall doesn't fluctuate much over time. The range is between 18,000 tons and 20,000 tons per year through 2019. The same is true for construction demolition waste. On the other hand, because the total amount of reported

disposal remains flat, the amount disposed per person increases as the waste is disbursed among fewer and fewer people.

Table 2-1 Greene County Reported Disposal Activity

Greene County Reported Waste Disposal 2011 thru 2021

	Population	MSW	Sewage Sludge	Construction Demolition	Residual
2011	38,363	22,070	3,345.7	12,087	110,779
2013	37,856	19,308	1,942.6	7,595	136,272
2015	37,402	21,363	1,928.5	11,303	149,913
2017	36,846	18,283	1,640.9	10,985	182,327
2019	36,233	20,103	1,452.5	11,834	141,958
2021	36,248	39,199	1,320.5	5,356	83,338

Annual Disposal Rate

Greene County's municipal solid waste disposal rate per person continually remains above the national average. This isn't abnormal for a rural county with limited recycling opportunities. In 2021, an unexpected spike in municipal waste can be noted. Simultaneously, the population shows a steep decline. This is a key indicator that the increase is not directly related to the common driver of waste generation, more people.

Consequently, with fewer residents, and higher tonnage the disposal rate increases from 1.03 ton per person per year in 2011 to 1.08 tons per person per year in 2021. This change is a perfect example of being able to relate market activity with the disposal reports. At face value, absent other considerations, the dramatic 2021 increase in municipal waste disposal might seem implausible. However, there is a reasonable explanation.

Competitive Influence

Mountain State Waste, based in Morgantown, West Virginia, is a waste transporter servicing residential and commercial customers. It also transports construction demolition waste. Their service area includes Greene and Washington County in Pennsylvania and numerous counties in North Central West Virginia and its panhandle.

Impact of a Transfer Station

In 2020, Mountain State Waste was issued a permit by PADEP to operate a transfer station in Mount Morris, Greene County. The transfer station initially served Mountain State Waste's own fleet of vehicles. Eventually it was opened to other transporters. In April 2022, the facility opened its gates to the public.

Based on Mountain State Waste's service area it's reasonable to assume that waste which they previously transported to West Virginia disposal facilities is now managed at the Mount Morris transfer station. Because Greene County's disposal rate has always been greater than the national average, it is likely that there are additional factors for this increase in Greene County's reported municipal waste disposal tonnage.

Mountain State Waste operates collection routes in nearby counties and directly across the West Virginia border. The collection vehicles could be taken to the transfer station, the waste consolidated and shipped to a landfill more cost effectively than driving multiple smaller vehicles that same remote distance. So, it's likely that some portion of the increased tonnage actually comes from outside of the County.

But there's more.

Upon closer inspection, of Greene County's historic disposal data, one can see that construction demolition waste, which was traditionally reported at approximately 10,000 tons per year suddenly drops to just over 5,000 tons in 2021. Mountain State Waste services construction and demolition sites as well

as homeowners with roofing or remodeling projects. Additionally, homeowners and small contractors can deliver waste from their own projects.

Without the transfer station, those individual loads would be readily identified as construction demolition waste at the landfill scale house. However, those same loads now tip at the transfer station. There, the construction demolition waste is consolidated and loaded into a larger trailer where it is integrated with municipal waste. When the transfer trailer arrives at the scale house, the mixed load is recognized as municipal waste.

Arguably, the transfer station is a valuable asset to the community. The convenience incentivizes residents and small operators to manage waste responsibly. However, those activities do not offer enough conclusive evidence to claim that the increase in reported municipal solid waste disposal tonnages is strictly a surge of waste from within Greene County. Rather, the increase appears to be a redistribution of construction demolition waste, an influx of out of county waste, and smaller amounts of Greene County municipal waste previously disposed elsewhere. The trend continues into 2022.

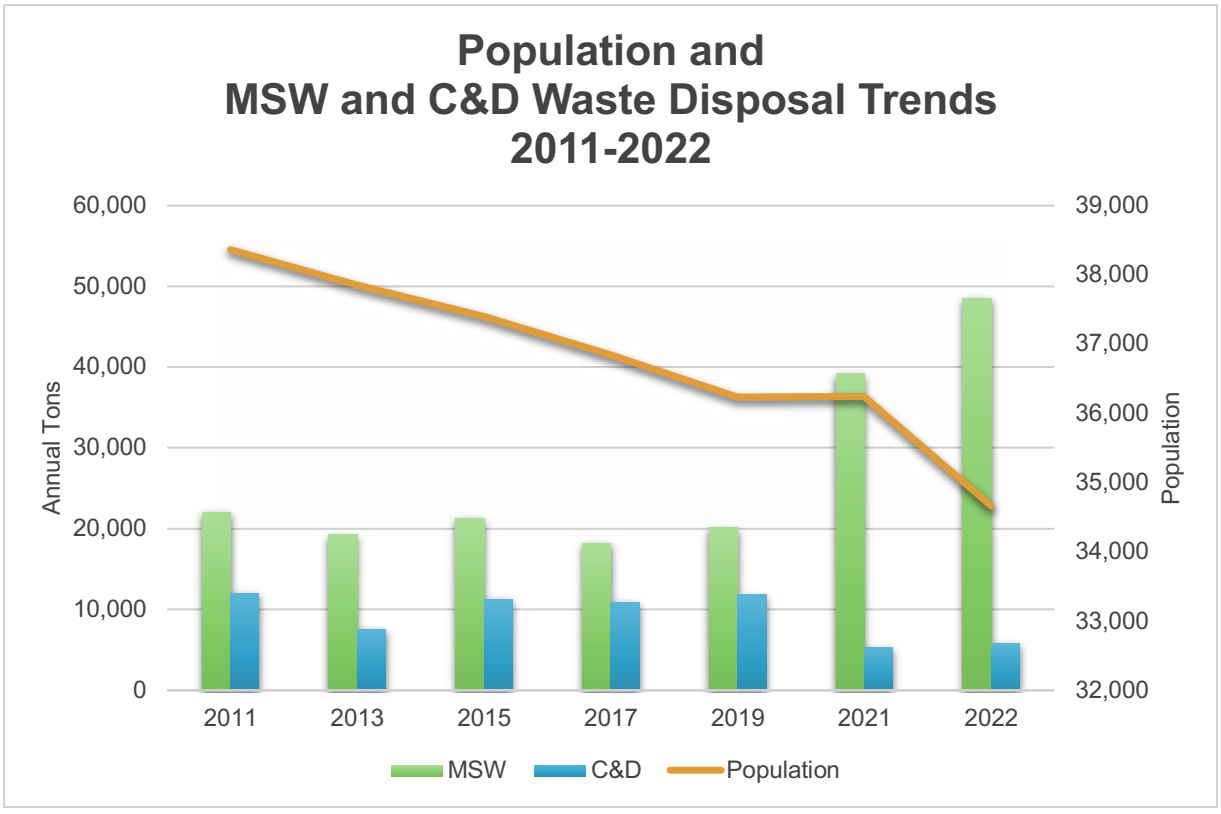
Table 2-3 shows the changes in tonnage and in the disposal rate per person.

Figure 2-1 shows the shifts in municipal waste and construction waste. It also demonstrates the decline in population happening during the same timeframe.

Table 2-3 Shifts in Municipal and Construction Demolition Waste Disposal Quantities

	Population	MSW Total Tons Per Year	MSW Tons Per Person/Year	C&D Total Tons Per year	C&D Tons Per Person/Year
2011	38,363	22,070	1.02	12,087.4	0.32
2013	37,856	19,308	1.03	7,594.8	0.32
2015	37,402	21,363	1.05	11,302.8	0.32
2017	36,846	18,283	1.06	10,985.0	0.33
2019	36,233	20,103	1.08	11,834.1	0.33
2021	36,248	39,199	1.08	5356	0.33
2022	34,663	48,540	1.13	5,795.0	0.35

Figure 2-1 Municipal and Construction Demolition Waste trends



Industrial Needs

Act 101 does not provide counties with the statutory authority to plan for and manage the residues of manufactoring and other industrial processes. These residual wastes are managed under a separate set of regulations enforced by PADEP. It's impotant to be aware of the types of residual waste that are disposed annually in Pennsylvania landfills, particularly tghose generated within the County. During the planning process it is eye opening to see what extent they compete directly with municipal solid waste for the avaiable permitted space within a landfill.

Although rural in appearance, Greene County is host to heavy industrial operations. Approximately 70 to 75 percent of the total waste generated in Greene County and disposed in Pennsylvania landfills is residual waste.

Coal mining has always played a major role in the local economy. Regional coal mines helped to feed the coal fired Hatfield Ferry Power Plant. Ash from the plant represented the largest amount of residual waste generated in the County. However, the plant managed its waste by methods other than disposal in a municipal waste landfill. The plant was demolished early in 2023.

Prior to the decline and eventual destruction of the power plant, another energy related industry had already established itself as one of the largest volume generators of residual waste in the County. Unlike ash from the power plant, the residuals from these operations are disposed in municipal waste landfills.

Drilling within the Marcellus Shale Gas Play generates significant quantities of waste

Natural Gas Exploration And Production Wastes

Greene County is reliant on disposal facilities owned and operated by the private sector. These operations represent profit centers for the owners and in many cases, the shareholders.

Without disposal tonnage, profits decrease. Therefore, it is safe to assume that these facilities must and will seek out new sources of waste.

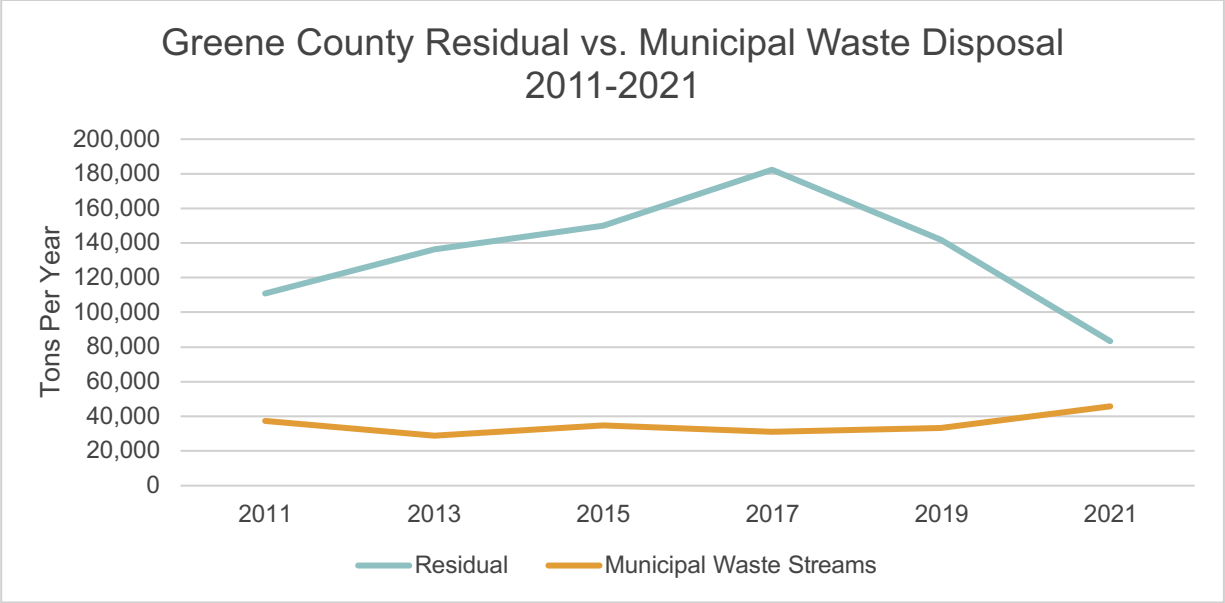
The acceptance of drill cuttings generated from exploration in the Marcellus Shale Gas Formation has proven to be a lucrative market for Pennsylvcania landfills. The amount of waste generated at each drill site differs somewhat and is dependent on the depth and horizontal distance of the drilling activity.

It is difficult to predict accurately the impact on any given landfill. It is however safe to say that the during periods of high drilling activity the results are significant when the number of drill sites projected is considered along with the average drill cuttings generated per well site. With the advent of newly constructed pipelines being opened, drilling operations have resumed after a brief hiatus in many areas.

Acceptance of this material accelerates consumption of the excess disposal capacity currently thought to exist. The landfills which dispose of Greene County municipal solid waste also report disposal of residual waste generated in the County. In many cases the quantities of residual waste have been significant.

Figure 2-2 illustrates the differences in the quantities of residual and municipal waste disposed. The municipl waste shown also includes construction demolition and sewage sludge. The graph highlights the peak of drilling activity and the change as the industry tapered its operations back temporarily. It's an indicator of what could occur again.

Figure 2-2 Residual and Municipal Waste Disposal Comparison



PERSONAL DISPOSAL PRACTICES

Although Greene County's diposal rate exceeds the national averages, not all of the waste which is generated is disposed at landfills. Because of the rural characteristics of the County, it's safe to assume that gardeners make their own compost from food scraps and other suitable items. It's doubtful, however, that backyard composting has much impact on the total waste generation rate.

Some of the material is recycled. Exactly how much is unknown. Much like the reported disposal data, Greene County's recycling figures do not accurately portray the recycling opportunities and efforts that occur. Knowing the full extent of materials that are recovered for recycling by commercial businesses and scrap yards would reveal more about the amount of waste that is generated and can be recovered. Chapter 4 provides a detailed discussion of recycling in the County.

In addition to landfill disposal, composting and recycling, there are other methods of managing municipal waste, which are used by residents and commercial businesses . These alternatives have an undesirable effect on public health and safety and cause environmental pollution.

Illegal Dumping

Throughout Pennsylvania occurences of illegal dumping are well documented. Keep Pennsylvania Beautiful conducted extensive surveys in every county of the state. The results were staggering. Every county regardless of being urban or rural was plagued by this issue.

A follow-up study, *Illegal Dumping in Pennsylvania. A Decade of Discovery* analyzed the findings of the surveys. Nestor Resources, Inc. conducted the analysis and prepared the report for Keep Pennsylvania Beautiful. The final results offered solutions and actions that could be taken by the state, the counties and by local governments throughout Pennsylvania. Many of those recommendations which could be put to practical use in Greene County will be discussed in Chapter 5.

The research concluded that four types of illegal dumping are common.

- Legacy Dumps are those which have been in existence for myears and are well known to local residents. The majority are not actively used, but due to the amount of wasten that remains at them, they require remediation.
- Active Commercial Sites are based on the nature of the materials catalogued during the surveys and confirmed in many of the cleanups. These might include roofing materials, tires, auto-parts, or other construction materials related to commercial businesses.
- Active Residential Dumping includes two types of behavior. First are bags of waste that show up along the roadsides, on vacant lots, or any other convenient outlet Another form includes large bulky household items and large volumes of bagged waste that would require an in divdual to purposefully load into a vehicle and transport to a know destination to dispose.
- Theft of Service occurs when people who don't pay for service place their waste into commercial dumpsters, drop-off recycling bins,at their neighbors' curbs or in other communities.

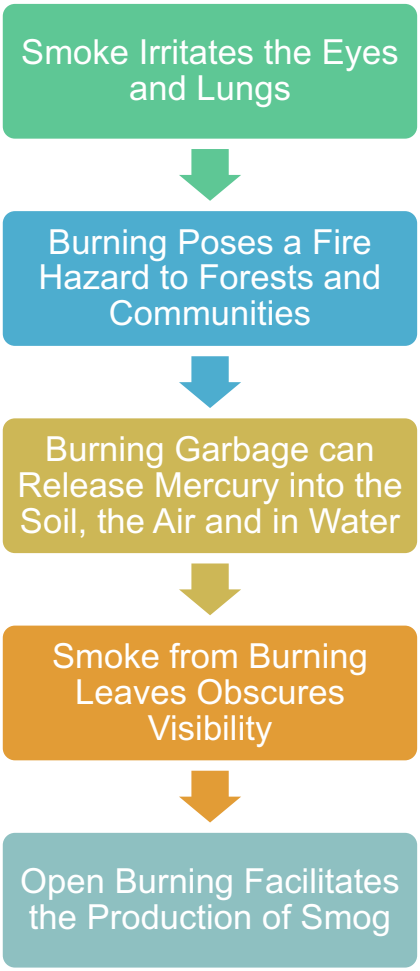
Open Burning

Many materials in the municipal solid waste stream are combustible. A considerable portion of these items have the potential to be recycled. That's the primary reason resource recovery facilities, commonly called incinerators, are a preferred method of waste management in many areas. The controlled burning of waste in a regulated operation where emmissions must be captured and monitored is relatively safe. However, the type of burning that happens in our backyards is more toxic and dnagerous than most of us realize.

The volume of plastics in municipal solid waste has continually increased over the past two decades. When burned the chemicals used in the manufacturing of plastics are released into the environment. Studies have shown that emmissions from backyard burning alone are greater than all other sources of dioxins and furans combined.

Open burning is a public health and safety issue. Smoke from fires can jeopardize the lives of those with chronic medical conditions such as asthma, heart, and other respiratory illnesses. Flying sparks and embers of backyard fires are commonly attributed as the cause of wildfires and house fires.Ordiances which prevent the burning of certain types of materials can significantly improve the quality nof life in communities. Controlling the types of fires and the materials which can be burned also serves to incentivize people to recycle paper, cardboard, and plastic. Figure 2-3 shows the reasons to prevent open burning.

Figure 2-3 Dangers of Open Burning



Transporting Special Handling Municipal Waste

A certain portion of the municipal solid waste generated within Greene County requires specialized methods of transporting, processing, and disposal. These wastes are not typically hauled directly to landfills. Often customized equipment is used to deliver these wastes to treatment or pretreatment facilities specifically designed for their management. In some instances, wastes are actually conveyed directly to the facility via pipelines and pumping stations. Special handling wastes include: biosolids, septage, and regulated medical wastes. In Pennsylvania, transporters of special handling wastes are licensed and regulated separately from the Act 90 Waste Transporter Authorization Program.

Septage Transporters

Transporters of residential septage in Pennsylvania must register with the PADEP. The transporter keeps detailed records information for each load of septage that is collected and transported. Required information includes, at a minimum: the county and state where the waste was collected; the name and address of the hauler transporting the septage; the name and location of the transfer, processing, or disposal facility where the septage has been or will be delivered; the weight or volume of the septage; and a description of any handling problems or emergency disposal activities. Although a report is not filed, the information must be made available upon request to PADEP inspectors. Septage cleanouts are done on a periodic as needed basis. Therefore, homeowners contact the transporter of choice.

There is no searchable database of septage transporters in Pennsylvania. It is common for transporters to cross county lines to provide such services.

Table 2-4 lists those septage haulers located within or in close proximity to Greene County that advertise the County as part of their service area.

Table 2-4 Septage Haulers Operating Within Greene County

Greene County Septage Haulers			
Company	**County**	**Address**	**Owner**
Teslovich Sanitation Service	Fayette	219 Craft Moore Road Brownsville, PA 15417	John R. Teslovich
Top Septic Service	Fayette	Moccasin Hollow Road Mount Pleasant, PA 15610	Don Zelmore
R & D Watters Septic	Greene	1564 East Roy Furman Hwy Carmichaels, PA 15320	Ronald Watters
Shipman Sanitary Service	Greene	285 S East St, Waynesburg, PA 15370	Robert L. Shipman
Allan's WasteWater Service	Greene	1487 Toms Run Road Holbrook, PA 15341	R. Allan Shipman
Hapchuk, Inc.	Washington	220 Rankin Road Washington, PA 15301	David P. Hapchuk
M & G Enterprises, Inc.	Westmoreland	1357 Ridge Road Belle Vernon, PA 15012	Stephen J. Manack
A Affordable Sanitation	Westmoreland	Charles Street. Brownsville, PA 15417	Adam J. Skokut
Hapchuk Sanitation Company	Westmoreland	Rostraver Road. Belle Vernon, PA 15012	George Hapchuk

Land Application of Biosolids

There are essentially two acceptable methods of managing residential septage. The first option is to transport the septage to a municipal or private wastewater treatment facility or a septage treatment facility where it can be properly treated prior to final disposal. Because facilities within a reasonable driving distance may not be permitted to accept septage, this is not always a viable option. An alternative then is to beneficially use the septage by land application at an agricultural or reclamation site. Table 2-4 shows the known land application sites in Greene County

Table 2-4 Sites for Land Application of Biosolids and Residential Septage

Operator	**Permit**	**Site ID**	**Location**
Burkey Lilly Farm	573152 Biosolids	558070	Dunkard Township
Operator	**Permit**	**Site ID**	**Location**
Watters Septic Service	PAG096101 Beneficial Use	531023	Whitely Township

Regulated Medical Waste Transporters

Transporters of processed regulated medical waste fall within the

Classifiation of haulers regulated by the Waste Transportation Safety Act, Thewxe transporters would be collecting medical waste processed onsite at hospitals or large medical facilities that operate their own treatment systems. This waste is transported to landfills for disposal. Fewer hospitals process their own medical waste in 2023. There is no Greene County processed regulated medical waste reported by Pennsylvania landfills.

Unprocessed regulated medical waste (formerly known as infectious chemotherapeutic waste) must be transported offsite to a specialized treatment facility designed to manage medical waste. These medical waste transporters fall within the ranks of those requiring a license in Pennsylvania. A stipulation of the license is that each transporter must report the origin and ultimate destination of the waste to PADEP.

The County does not have any regulatory powers related to medical waste. Most companies operate within a wide service area, if not the entire state; therefore, due to contractual arrangements that continually change, it is impossible to accurately show which companies operate within Greene County.

DISPOSAL SYSTEM ASSESSMENT AND RECOMMENDATIONS

Overall the majority of Greene County's citizens and businesses act to manage municipal waste in an environmentally responsible fashion. Disposal capacity has been secured for all forms of municipal waste generated without interfering with waste industry competition that exists for disposal outlets operating in close proximity. Residents and businesses have access to waste collection opportunities. Still, there is room for improvement.

Since the development and implementation of the original Municipal Waste Management Plan in 1990, Greene County has promoted pollution prevention as well as the protection of the health and safety of the community. Lingering needs of underserved areas of the County and the growing demands for new services cannot be resolved solely by the County. A lack of financial and political support by the municipalities have often constrained the County's ability to resolve these issues.

To enhance the waste management program, it is recommended that the County promote and potentially expand opportunities to provide convenient and affordable disposal outlets for not only regular household waste, but bulky items and white goods as well. Collection mechanisms for household hazardous waste and electronic waste should also be developed. The County should also explore methods of enforcement.

To accomplish these tasks, it is suggested that the municipalities should be engaged and organized in a joint partnership with the County. Additionally, the County should increase support and promotion of the volunteer organizations active in litter prevention and cleaning up illegal dumps. Many of these recommendations, along with potential methods of implementation, are discussed in Chapter 5.

Chapter 3
Future Projections
Securing Sufficient Disposal Capacity

Chapter 3 presents the estimated future ten year disposal capacity required for Greene County. It is based on current reported disposal quantities, possible future changes in the rate of municipal waste generated per capita and projected changes in population. The Chapter also provides an overview of other disposal and processing options for a county with relatively low volumes of waste.

WASTE MANAGEMENT METHODOLOGIES

During the last three decades, those responsible for waste management policies have embraced the social, economic and environmental aspects of sustainability. In relation to waste management, the goal of sustainability has created a greater focus on integrated waste management systems in which a broad spectrum of applications and services are utilized to create a comprehensive system of waste management and resource recovery.

Landfills

As evidenced in Chapter 2, landfills that could potentially receive municipal waste from Greene County are abundant. Many are situated in or within close proximity to the County. The high level of competition that exists between facilities, coupled with the existing infrastructure of intercompany transporters, landfill disposal rates remain highly cost effective. Based on these factors, landfills will more than likely continue to play a prominent role in the management of waste from Greene County into the foreseeable future.

Advances in technology offer greater assurances that landfills can operate in an environmentally responsible fashion. Professionally engineered state of the art landfills are designed with surface and groundwater quality protection and

monitoring; leachate treatment systems; air quality protection and monitoring; as well as other operational practices that lessen the environmental impact of the operation.

The development of landfill gas to energy systems offers a benefit from land disposal not previously considered. Landfill gas combustion produces some CO2, but the impact of these emissions on global climate change is offset many times over by the methane emission reductions.

The advent of bioreactor technology, which allows landfills to accelerate the degradation and stabilization of organic waste through the addition of liquid and air to enhance microbial processes can extend the life of a facility by as much as 20 years. If the practice of such efficiencies becomes more common, it could reduce the land consumption typical in most landfilling situations.

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The development of landfill gas to energy systems offers a benefit from land disposal not previously considered.

When the original disposal capacity agreements were secured, landfills and were considered the most economically feasible method for managing Greene County's waste. Based solely on tipping fees, it is possible that the same argument could be made in 2023. However, during a request for disposal capacity county's often receive proposals for options other than landfilling. Jurisdictions across the nation are exploring emerging processes as legitimate waste management options.

Composting

When solid waste professionals mention composting, they are likely referring to a controlled process of biological degradation and transformation of organic solid waste. A very important term in the definition of composting is "controlled." It is the application of control that distinguishes composting from the natural breakdown or decomposition, which takes place in any open environment, in engineered landfills, or in manure piles.

Composting using the windrows of open systems.

Applications exist for both enclosed as well as open composting systems. People tend to be most familiar with composting using the windrows of open systems. In-vessel systems are an enclosed and highly controlled environment and thus can often provide the best composting process.

Composting systems receive and process the organic portion of municipal waste. Food waste, yard trimmings, garden residues, woody material, paper, and other organics are all good candidates for composting. In the broadest sense, nearly 60% of all municipal waste could be compatible feedstock for solid waste composting.

Large scale commercial municipal waste composting operations that can handle unsegregated municipal waste are more prevalent globally than they are throughout the United States and Pennsylvania.

Facilities that accept only source-separated organics are more common in Pennsylvania with leaf and yard waste management sites being the most prevalent.

There is a growing movement to accept source separated pre-consumer food waste at existing operations. An expedited permitting process with fewer restrictions, particularly for on-farm composting has advanced the acceptance of this practice.

Development of Alternative Technology

Following is a discussion of management technologies that are sometimes presented for consideration in proposals for secured disposal capacity. Some methods are often proposed as business opportunities or public/private partnerships.

Cost, convenience, public acceptance, and environmental concerns ultimately dictate the components of an integrated system. Future demands for disposal capacity from drilling and exploration wastes, premature landfill closures, potential regulatory initiatives and shifts in funding strategies create a need for the County to explore all options that could be presented.

By exploring the short and long term availability of possibilities, the County could discover the potential for an alternative source of capacity with potential reductions in operational costs or environmental risks. Added benefits could include energy production and revenue generation. Following is an outline of the types of waste processes that are often presented for consideration.

The development of integrated waste management systems often breeds hybrid solutions to previously overlooked, but nevertheless important issues. Recycling programs have advanced in recent years to accept a broader spectrum of materials than ever before. This is particularly true with the growth of single stream recycling. Although, the convenience of these systems has increased participation and the recovery of materials, they have also presented operators with another dilemma.

Consider the volume of contaminated and low grade papers that is collected and delivered to material recovery facilities, but yet has no marketable value. Also take into account the tons of wood scraps, brush and other yard waste that are rejected for composting, or for whatever reason remain in the waste stream. Today, residual materials from the very processes designed for waste diversion end up in landfills. Yet, these unwanted and discarded materials might have value when converted to energy.

Conversion technologies refer to a wide array of biological, chemical, thermal and mechanical technologies such as hydrolysis, gasification, and anaerobic digestion. These systems have the potential to transform the recovery and composting residuals into clean, renewable energy like electricity, as well as green fuels including hydrogen, natural gas, ethanol and biodiesel. The difference between conversion technologies and incineration and traditional biomass-to-energy approaches is that they do not involve combustion.

ANAEROBIC DIGESTION

Anaerobic digestion is a process that lends itself to organic materials such as sewage sludge and other relatively wet organic materials. Source separated garden and food waste usually enter the process with little or no extra handling. When mixed municipal waste is delivered to an anaerobic digester, it must be mechanically sorted to remove materials that are not biodegradable.

Anaerobic digestion is a simple process. Essentially, in a series of steps, microorganisms break down biodegradable material in the absence of oxygen. While the process produces a high quality compost–like product, a desired by-product of anaerobic digestion is methane gas, which is a source of energy. Such systems can potentially produce 55 to 75 percent pure methane. In a well maintained system, these gases are not released into the atmosphere and therefore reduce greenhouse gas emissions.

In general, anaerobic digesters are not predicted to be stand-alone solutions to municipal waste management. The start-up and operational costs are significant and cannot be supported by the net energy. However, as part of an integrated system, the reduction in waste landfilled coupled with the bonus of several end products could make a digester a viable option for select applications.

Numerous challenges exist for the development of conversion technologies. Relatively high operational costs versus relatively inexpensive cost of landfill disposal provide an economic disincentive. Distrust and misconceptions about emerging technologies thwart development of a straightforward and manageable permitting process. A lack of grants, loans, credits or other funding mechanisms provides no incentive for development.

Benefits include a reduction in pollution such as greenhouse gas emissions, reduced dependence on fossil fuels, conservation of landfill capacity, and the beneficial use of waste. Development of such facilities could provide a source of revenue from tipping fees, the production of energy, and the marketing of by-products.

PROJECTED LANDFILL CAPACITY REQUIREMENTS

For the County to explore its capacity options it is important to identify the volume of material, which is likely to be delivered for disposal after recovery for recycling has occurred. This section presents the estimated future disposal capacity required for Greene County. It is based on current reported disposal quantities. The projections assume a constant rate of MSW generated per capita with projected decreases in population.

Published Population Data

The Pennsylvania Center for Rural Pennsylvania in 2014 published State and county population projections for the Commonwealth of Pennsylvania. Presented below are county totals from the 2010 and 2020 Census and the published projections for 2010 to 2040.

Table 3-1 Greene County Population Projections: 2010-2040

County	July 1, 2010 Estimate	July 1, 2020 Projection	July 1, 2030 Projection	July 1, 2040 Projection	Percent Change 2010-2020	Percent Change 2010-2030	Percent Change 2010-2040
Pennsylvania	12,711,308	13,230,170	13,759,594	14,132,588	4.10%	8.20%	11.20%
Greene (Projected)	38,623	40,031	40,706	39,990	3.60%	5.40%	3.50%
Greene (Actual)	38,686	35,954			-7.06%		
US Census Bureau Estimated Greene		Population 2021 = 35,369			Change 2020-2021 = -8.57%		

Estimated Future Generation Rate for MSW.

The USEPA reports on national MSW generation and disposal rates. In recent years, the generation rate per capita has been about 0.85 tons/person/year with little variation. The discard rate has also been relatively constant at about 0.52 tons/person/year. Thus, for projection purposes, it was assumed that per capita disposal rates calculated for Greene County will remain unchanged.

Table 3-2 presents projected disposal capacity requirements for the years 2023 through 2032. The figures are based on a constant per capita disposal rate with adjustments due to projected population changes. The 2021 Greene County population estimate of 35,369 from the US Census Bureau was significantly less than the previously projected gains for 2020 and 2030 population. Therefore, decreases were estimated for 2023 to 2032 rather than the growth indicated by the Center for Rural Pennsylvania..

Table 3-2 Projected Landfill Capacity Requirements Greene County
2023 through 2032 in Tons

Year	*Population*	*MSW*	*Sludge*	*C&D*	*Total*
2023	34,819	38,475	1,393	5,223	*45,091*
2024	34,547	38,174	1,382	5,182	*44,738*
2025	34,278	37,877	1,371	5,142	*44,390*
2026	34,011	37,582	1,360	5,102	*44,044*
2027	33,746	37,289	1,350	5,062	*43,701*
2028	33,483	36,999	1,339	5,022	*43,360*
2029	33,222	36,710	1,329	4,983	*43,022*
2030	32,963	36,424	1,319	4,944	*42,687*
2031	32,706	36,140	1,308	4,906	*42,354*
2032	32,451	35,858	1,298	4,868	*42,024*

In examining the volume of airspace permitted at the landfills designated within the current Greene County Municipal Solid Waste Management Plan, one might conclude that available capacity is more than sufficient to meet the existing and future needs.

At face value, a comparison of the projected municipal waste generation would suggest that the available capacity is greater than the generated volume. This conclusion is easy to reach when one thinks merely in terms of annual or multiyear capacity needs.

However, the immediacy of need for most waste transporters and generators is experienced on a daily basis. In addition, disposal facilities have daily gate volume restraints built into their permits. Therefore, other factors with influence on the daily availability of disposal capacity should be considered in a more comprehensive evaluation of secured capacity needs.

Request for Future Disposal Or Processing Capacity

From discussion and analyses of conditions, it was determined that the County should advertise and accept proposal's from facilities for processing or disposal capacity.

The PADEP was notified of the County's determination and proposals were solicited. A formal request was advertised nationally in the industry trade journal, Waste Advantage as well as the Pennsylvania Bulletin.

The Public Solicitation for Disposal capacity is included in Appendix A. The Request for Capacity Proposals is provided in Appendix B.

Chapter 4
Recycling Efforts
Programs and Participants

Chapter 4 offers an overview of the collective recycling efforts of the stakeholders in Greene County. It includes descriptions of various programs designed to target specific materials. Finally, it paints a realistic picture of the hurdles faced by rural counties attempting to collect and market recyclable materials.

COUNTY RESPONSIBILITIES UNDER ACT 101 Counties play a different role than municipalities under the provisions of Act 101. Counties are largely responsible for ensuring that proper waste management policies and practices are developed and implemented. The development of a municipal solid waste management plan is focused on this endeavor. The most critical task in the planning process is for counties to provide for sufficient disposal capacity for the municipal solid waste generated in their jurisdiction.	There are no directives in the Act for counties to implement recycling programs. Collection and processing operations conducted by counties are done so on a purely voluntary basis. Counties, however, do have administrative assignments for reporting recycling activities. Additionally, counties are to assess the available recycling opportunities to determine if and how the county will attain the state's recycling goal or justify why it cannot. Act 101 provides counties with grant funding to support in part the salary and expenses of an individual to perform these duties and to facilitate the growth of recycling through the collective efforts of public and private sector stakeholders.

Coordination Of Stakeholder Efforts

Although municipalities and commercial establishments have more direct responsibility for attaining recycling goals, Act 101 recognizes the need for a central force to facilitate these efforts. It includes funding to support such a position. The Director of the Greene County Department of Planning and Community Development serves as the County Recycling Coordinator and is the primary contact for County related recycling issues. The Recycling Coordinator can provide support to municipalities interested in implementing their own recycling collection programs. Additionally, the Coordiantor ensures that information is available to the public on the sources engaged in collecting and processing, the locations, and the materials accepted.

Administrative Duties

Data management is both necessary and time consuming. The PADEP relies on Counties to collect and provide annual reports regarding recycling activities. The Recycling Coordinator is responsible for these duties in Greene County. Reporting is actually a requirement of the law. Information helps track performance and identifies accomplishments. Collecting and organizing this information can be a year-round task. In a county where waste and recycling collection is almost entirely voluntary, service providers and businesses are reluctant to take the time and effort to report their activities and results. Complicating the matter, rural counties can rarely police waste and recycling operations to ensure they

Education and Community Outreach

The County uses a variety of outlets and mechanisms to help inform and educate the public about recycling. The County website serves as the primary source of public information. Aside from publicizing collection opportunities, it also provides instructive information on the types of materials that can be recycled and the proper methods. Of course, responding to citizen inquiries, whether via email or phone, remains the most frequent and demanding method of informing the public.

Support for Recycling Programs

Greene County is not obliged by Act 101 to provide recycling services. However, as funds and resources permit, the County has long sought to offer to residents the opportunity to recycle or properly discard difficult to manage materials. Some of these programs are implmented directly by the County. Additional programs include the efforts of municipalities and other organizations. The County has no direct role in the operations. However, as feasible, it supports these efforts through financial donations. It also assists in applying for Act 101, Section 902 grants for equipment purchases and building enhanements.

With no mandate under Act 101 for the County to offer recycling services, whether alone or through the efforts of others, the programs are always vulnerable to shifting priorities and diminishing resources in the County's budget. To ensure the programs in which the county has a financial interest are operating cost effectively it is crucial for the Department of Planning and Community Development to monitor the programs and make appropriate changes when necessary. It is equally important for the County to direct its funds to programs providing the most benefit to the greatest amount of the population.

County Implemented Programs

The Recycling Coordinator orchestrates many of the County level programs. Greene County currently offers a variety of services to local municipalities, businesses, and residents. These collection programs are all dependent on the availability of grants, user fees, and local taxes. The uncertainty in funding can make the ability to plan for and sustain such services difficult. Nevertheless, in the past five years, Greene County has managed to increase the types of events it hosts. In 2023, Greene County hosted two electronics recycling events. Both were held at the Greene County Fairgrounds. With limited exceptions, residents were able to manage their electronic discards free of charge.

County Assisted Programs

Greene County does not physically operate a recycling collection or processing system for the materials commonly generated in residential and commercial daily activities. However, through a contractual agreement with the County, Greene ARC provides t hese services via a series of drop-off collection points and a sorting operation located in Prosperity, PA. In return, the County contributes funds to assist with operational expenditures.

Greene ARC, Inc. is a private, nonprofit corporation providing residential, vocational, day support, job support, job opportunities, advocacy and mental health/recovery services to citizens with disabilities of Greene and surrounding counties. The overall purpose of Greene ARC is to foster independence and employment of individuals with disabilities.

The drop-off sites are shown in Table 4-1.

Table 4-1 Location of Drop-off Collection Sites

	PHYSICAL LOCATION
Aleppo Township	Slag Pile across from Brethren Church
Carmichaels School District	Carmichaels Area High School
Center Township	Township Building in Rogersville
Cumberland Township	Township Building on Municipal Road
Freeport Township	Township Building
Friends of Dunkard Creek	Across from Bobtown Store
Greene Township	Township Building
Jackson Township	Township Building on PA Rt. 18 South Holbrook
Jefferson Borough	Jefferson Hotel
Jefferson Township	Township Building on Goslin Road
Monongahela Township	Monview Park
Morgan Township	Township Building
Morris Township	Township Building on PA Rt. 18 North near Nineveh
Perry Township	Township Building
Richhill Township	Township Gravel Site, west of Wind Ridge
Washington Township	Greene ARC Recycling Facility , Dunns Station Road, at Ruff Creek
Wayne Township	Across from Township Building in Spraggs
Waynesburg Borough	Impound lot on First Street across from Agway
West Greene School District	West Greene Middle/High School Complex

Background and Economics of the Greene ARC Recycling Center

Greene ARC's recycling program was launched prior to the first Greene County Municipal Solid Waste Management Plan adopted in 1995. While operation of the recycling program has been of great benefit to the clients of Greene ARC, financially it has often been a struggle for the organization. As in all material recovery operations, the sale of materials does not provide sufficient revenue to cover the cost of the operation. In Greene ARC's case, extenuating circumstances create a greater disparity in the cost/revenue ratio.

Operational Background

It's important to note that the recycling program was created primarily to fulfill Greene ARC's purpose to provide programming for challenged adults. This was not a case where Greene ARC's clients were employed to fill labor vacancies for an existing operation. Understanding that premise explains why there is less opportunity or incentive to institute standard cost cutting measures. This situation is not unique to Greene ARC.

Studies have shown that recycling programs implemented for additional purposes than increasing the quality and quantities of material collected tend to perform poorer than when recycling alone is the primary objective. We know that the initial goal of this program was to engage more clients in one of Greene ARC's programs. In turn, that increased number of clients resulted in the need for more staff positions to supervise the program.

Due to the physical and mental challenges faced by the clients, more time and labor is devoted to sorting the material collected than would be utilized in public or private operations processing similar material volumes. Individuals with similar challenges are employed by for-profit recovery facilities on a regular basis and perform at the same standards as orther employees. Therefore,it's easy to question the number of clients and staff involved in the local program.

Notable Funding Issues

Greene ARC receives allocations from Mental Health/Mental Retardation funding to support the staff positions and other aspects of the program. These funds represent one of the most significant sources of funding for the program. MH/MR does not take into account any recycling efficiency measures in their funding criteria. MH/MR monies are calculated on head counts and perceived personnel

There may be discrepancies in the volumes of materials recovered for recycling noted in this section and those shown from the PADEP database elsewhere in the Plan.

The County's recycling reports often show tons of material from other sources which are not processed at the recycling center.

needs. In scenarios like this, it is tempting to over assign workers and forego common sense streamlining. The MH/MR funds dedicated to recycling have always been suspected by some to be disproportioinate when compared to those used to sustain their other programs. At one point in 2008, Greene ARC employed at least 11 clients and three staff members in the recycling operation to process an average of approximately 475 tons of material per year. To put that in perspectrive, that's enough material to fill up four trash bags per worker per day.

Historical Operational Costs

The very nature of the operation and the convoluted formulas for dedicating MH/MR program funds makes it difficult to determine the true costs. However, research conducted during the development of the 2009 Greene County Municipal Solid Waste Plan Update provided a reasonable assumption of the sources of revenue and expenditures. Based on inflation, a summary of that data has been converted to represent similar costs in 2023.

In 2008, the operating costs of the Recycling Center were estimated to be $210,030. In 2023, these same operating costs would be the equivalent of $297,059, or approximately $625 per ton. Revenue sources in 2008 included material sales of $50,538. Based on the average market rate of $125 commodity sales remain flat. In addition to material sales, the MH/MR funds are estimated at $92,160. This represents wages based on prescribed supervisor to client ratio per Greene ARC. It does not include fringes and benefits. In-kind services from the municipalities were valued at $33,800. The result was an operating deficit of ($33,532.) The operating deficit does not include monies planned to be reserved for unforeseen repairs and capital expenditures. The

recommended annual allocation to the reserve fund based on depreciation of the equipment inventory and buildings at the time was $82,000 per year. Needless to say, the recycling program does not have the resources to make such a commitment.

Inflationary Effect

In 2023, it is estimated that material sales would remain the same, because the recycling commodities market has been flat for several years. The average combined rate for commodities in 2023 was approximately $125. In some markets, depending on what was collected and the condition of the material, the average rate was as low as $70 per ton. The Recycling Center has discontinued some materials previously collected.Therefore, it could actrually be on the lower price scale.

Assuming wages kept pace with inflation, the current labor cost would be $137,000. If MH/MR funding follows other state and federal subsidies, it is unlikely that the current allocations meet the anticipated wage increases. The in-kind municipal contribution in 2023 dollars would be the equivalent of $47,805. Fuel and labor being the contributing factors.

With so many variables, it has always been impossible to give an accurate portrayal of the Recycling Center's finances. Based on items that can be identified, however, it is suspected that the operating deficit is likely higher in 2023 than the ($33,532) estimated in 2008.

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Based on items that can be identified, however, it is suspected that the operating deficit is likely higher in 2023 than estimated in 2008.

The age of the equipment and building alone, with no reserves to deal with repairs and replacement should be of concern as these are not factored into the annual deficit. Additionally, there does not appear to be a contingency plan in the event of equipment failure or catastrophic damage to the buildings.

Avoided Cost of Disposal

One way to look at the cost of recycling collection and processinfg is to consider monies saved by diverting the material from landfill disposal. For Greene County, the cost resulting from diverting 475 tons of material from the landfill actually exceeds the cost of collection, transportation, and disposal. Using a conservative assumption of $60 per ton for disposal, and $20 per ton for transportation, the combined cost for the 475 tons would be $80 per ton or $38,000 annually. Using the same 475 tons, Greene ARC's current gross cost would be $625 per ton for transportation and processing. Generously speaking, it realizes approximately $125 per ton in material sales making the net cost for the program $500 per ton. Because the municipalities assume the cost of transporting the materials, at $126 per ton, Greene ARC's direct costs are $374 per ton.

County Assistance

In 2007, the Greene County Board of Commissioners entered into a five-year agreement with Greene ARC to subsidize specific operational costs of the program. The contract allowed for an assumed renewal on a year to year basis unless otherwise terminated. The terms and conditions of the contract stipulated the amounts and limitations of financial support provided by the County. It also outlined certain costs and legal responsibilities borne solely by Greene ARC. The contract caps the County's obligation for variable operational costs at $50,000 annually with a firm commitment of $5,000 per year deposited in an emergency fund for immediate needs.

In addition, the contract defines lease/ownership criteria for land, building and equipment acquired by the County through Act 101 Section 902 grants administered by the PADEP.

Finally, the agreement describes how, upon contract expiration, the physical assets would be transferred to Greene ARC via direct purchase or through an abandonment clause. As per the Section 902 grant conditions, the purchase price of the equipment or

building is determined by a professional appraisal.When the equipment is considered scrap or property improvements have outlived their useful value or function, the price is generally determined by mutual agreement of the purchaser and PADEP. Conspicuously absent from the agreement is the issue of the grant funded buildings being constructed on property not owned by the County.

Observations

From a third party perspective, the contract is overly favorable to the operator. Because Greene ARC bears no liability for the costs of maintaining, repairing, or replacing the equipment or making necessary improvements to the building or grounds, there is zero incentive for the operator to ensure proper upkeep and prevent abuse of these assets. Additionally, there are no incentives for the operator to increase the quantity, but more importantly the quality of the materials processed and therefore the sale price. Finallyt, there is no penalty if Greene ARC would decide to abandon their operatiobnal duties. This is important because of the contractual commitments between the County and PADEP associated with grant funding

for equipment. The next section discusses this in more detail.

A sign that the program's deficit is greater than assumed is the annual stipend provided by the County. The information provided indicates that the County does provide Greene ARC with $50,000 every year. What accountability measures, if any, are implemented to justify those disbursements is unknown.The 2007 agreement is provided in Appendix F. Any revisions or changes to the status of this agreement resulting from the planning process will also be included in Appendix F.

Other County Facilitated Funding Mechanisms

The Greene ARC program also benefits from monies provided through Act 101 Section 902 grants. On a reimbursable basis, these funds cover a variety of capital costs for collection and processing equipoment, as well as property improvements. No operational expenditures are eligible fo grant funding. Because Act 101 offers these grants to counties and other quasi-governmental organizations, Greene County facilitates the application submission and serves as the owner of

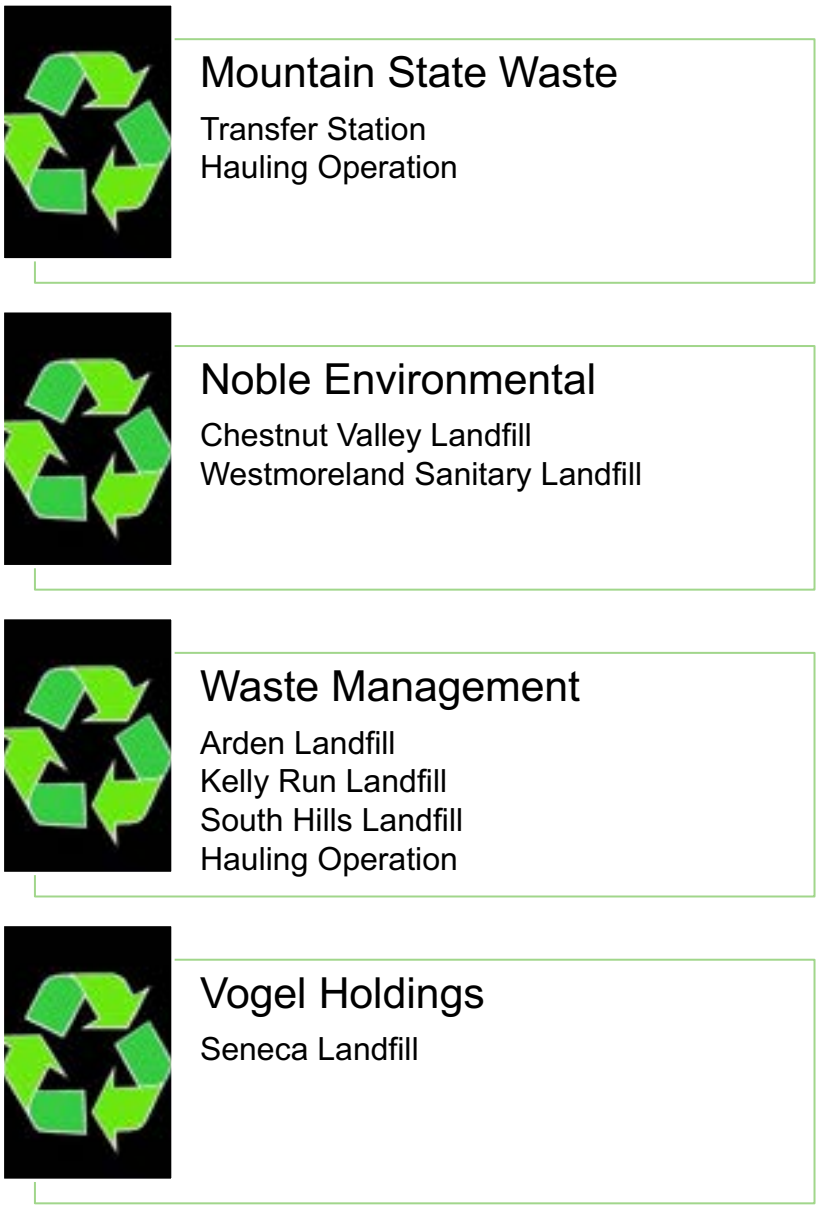
the equipment subsequently purchased.

Because of the role and responsibilitry for these purchases, the County has more than a subtle vested interest in the operation. For one, the County assumes financial contractual responsibilities to reimburse the PADEP if and when the equipment or buildings are no longer used for their original intended purpose. For this reason, the County has a right to demand that any recycling program which it supports directly or through facilitating equipment purchases, implements operational and cost efficiencies. Additionally, there should be a process that includes notification and a timely transition should Greene ARC be unable to fulfill its operational commitments.

Private Sector Recycling Operations

In addition to the Greene ARC Recycling Center, other recycling opportunities exist for residents and businesses. Although there are a number of salvage yards, these operations limit the materials they accept to auto parts and large pieces of scrap metal. Commercial businessess use waste brokers and commercial haulers to collect and process their materials, primarily cardboard for resale. Private waste companies that service Greene County also accptept recyclables at their sites. Generally these locations accept commingled cans, plastics, and cardboard.

Figure 4-1 Private Sector Recyclers



OVERALL PERFORMANCE

Reported data from 2004 through 2022 was reviewed during the planning process to assess the health and performance of the recycling activities in Greene County. Using two year increments, the review compared the total tons reported for similar materials each year. The data analysis shows that through the years for most materials the amount collected fluctuates considerably.

The type of operation run by Greene ARC and the low volume of materials processed there may be the cause of some of these fluctuations. Because material commodities brokers typically require a full trailer load Greene ARC probably needs to hold materials for prolonged periods of time before there is a sufficient amount for transport.

Greene ARC collects a limited array of materials. These include paper and paperboard (Newspaper, Office Papers, Cardboard), bi-metal food containers, and plastic bottles and jugs #1 & #2. Therefore, the Recycling Center is the source for at least some portion of the reported amounts of those materials. Other materials, primarily cardboard, are reported by large commercial businesses. Special collection programs and specialty services contribute to the volume of organics, E-Waste, and lead acid batteries.

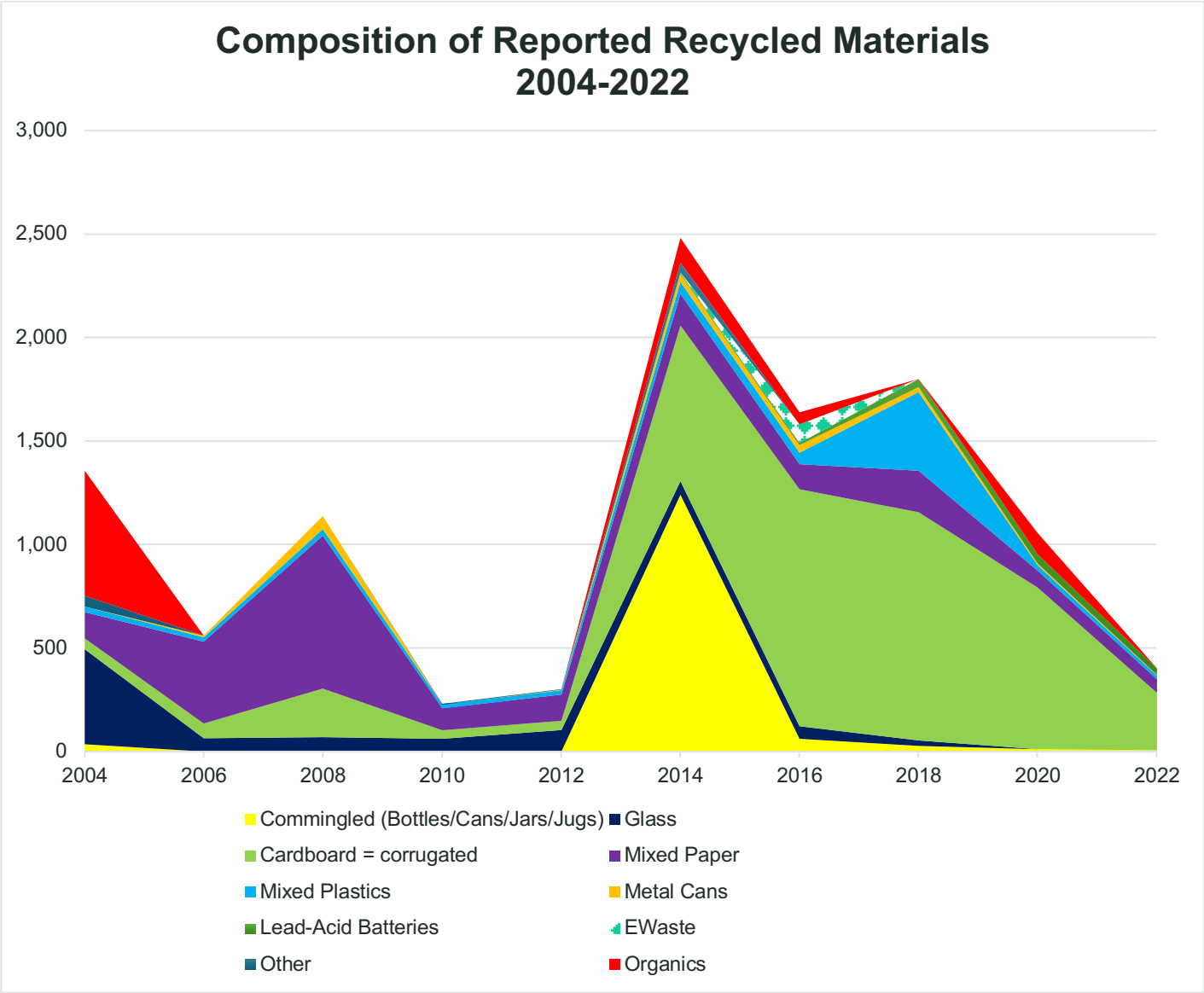
Table 4-2 shows the materials and tons recycled by year. Figurew 4-1 illustrates how the composition of the reported materials varies from year to year.

Table 4-2 Recycling Performance

Total Tons Recycled by Material (Residential & Commercial Combined)

Material Tons Per Year	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
Commingled (Bottles/Cans/Jars/Jugs)	36	0	0		0	1,241	62	27	11	6
Glass	459	64	68	62	104	65	60	27	0	0
Cardboard = corrugated	52	72	236	41	45	753	1,145	1,102	782	278
Mixed Paper	127	395	740	105	126	153	122	201	80	65
Mixed Plastics	26	21	30	19	23	57	54	379	28	18
Metal Cans	0	9	64		0	38	38	23	7	3
Lead-Acid Batteries	0	0	0	0	0	6	9	39	44	32
E-waste	0	0	0	0	0	0	91	0	0	0
Other	52	0	0	5	3	48	0	0	0	0
Organics	603	0	0	0	0	120	56	0	103	0
Grand Total	1,356	**561**	**1,138**	**232**	**301**	**2,481**	**1,638**	**1,799**	**1,055**	**402**

Figure 4-1 Changing Composition of Recycled materials



REACHING PA'S RECYCLING GOAL

In 2021, the baseline year for much of the data in the Plan, Greene County generated 33, 206 tons of municipal waste. The County also reported 582 tons of recycled material or less than 2% of the waste generated. Therefore, it would take some extraordinary measures for the County to attain the 35% recycling goal established for the state. One thing is for certain. Based on the explanations given earlier regarding the conception and purpose of the Greene ARC program, it is likely operating at its limits. Therefore, current recycling rate will not improve without change and public acceptance. It may be necessary to add ways for individuals to recycle rather than introducing major modifications into existing programs. Having multiple prpgrams work in conjunction with one another would offer the greatest benefits to all.

That change could require rethinking how the County supports or provides recycling services. It could lead to multiple outlets and participants operating collection and processing points throughout the County. To make programs more sustainable, services may need to be more comprehensive. Private sector investment and contributions could facilitate these opportunities.

Suggestions and options for implementing improvements are discussed in greater detail in Chapter 5.

Chapter 6
Disposal Guarantees
Facilities Executing Capacity Agreements

Chapter 6 describes the process used by Greene County to procure disposal and processing capacity. It discusses the factors impacting waste flow control and the County's decision regarding this policy. It identifies those facilities designated to contract with Greene County for future capacity.

FLOW CONTROL

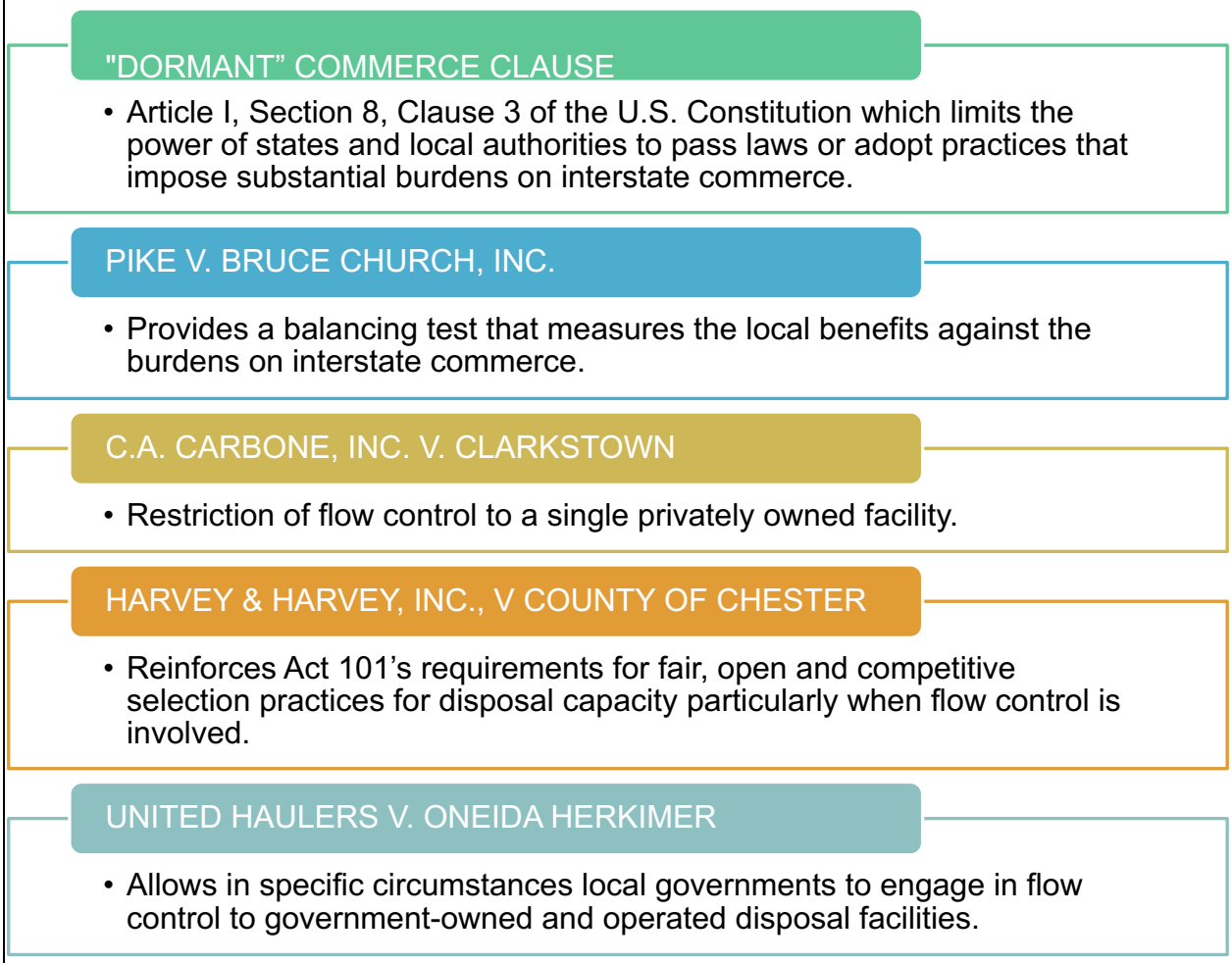
The term "flow control" refers to governmental laws or policies that require or encourage waste materials to be disposed at designated disposal facilities (landfills, transfer stations or incinerators). Waste flow control is one of the most widely debated issues in municipal waste management. Opponents claim it interferes with free trade and interstate commerce. Supporters view it as a simple tool to ensure proper management and funding of their overall solid waste programs.

Flow control was a component of the original Greene County Municipal Solid Waste Management Plan developed under Act 101. It has been incorporated into its subsequent revisions, including the 2023 Update. A County ordinance directed waste transporters to designated landfills that had signed contractual agreements guaranteeing capacity for the disposal of municipal waste generated within Greene County's boundaries.

Related Court Cases and Decisions

As part of the plan revision process, the economic and environmental impact of waste flow control was reevaluated. Such factors as feasible daily access to capacity, the natural market conditions and practices impacting the flow of waste were taken into consideration. The request for disposal capacity and related contract were drafted with consideration given to the rulings in a series of interrelated court cases that have defined if, when, and how flow control can be implemented. Figure 6-1 shows a list of those decisions and a brief description of their findings.

Figure 6-1 Flow Control Court Cases and Rulings



Effects on the planning process

These cases illustrate that the process for selecting the County's waste disposal options must be taken seriously. Attempts to exclude certain options or facilities must be grounded in sound legal precedents. Likewise, to partner with another public facility must be evaluated based on sound economics and the direct benefits to the citizens of Greener County.

Market Impact of Flow Control

Although government controls of any kind are rarely welcomed by businesses, tolerance for the menu system continues in Greene County because it has yet to conflict with the natural choices made by local transporters. Flow control to a sole facility, exclusive of all others, dictates the destination and the cost of disposal. In contrast, numerous disposal options allow for normal market conditions to prevail in Greene County.

Factors such as price, proximity, convenience, access, and site conditions all influence the flow of waste. In the menu plan, haulers can opt to use some of the facilities for economic reasons and others for convenience.

In addition, vertical integration of collection and disposal operations, creation of new ventures, and expansion of business relationships can develop.

Waste management is an industry in constant change. Mergers and acquisitions are common for hauling operations and disposal facilities. Just as some companies disappear, other small independent operations enter the market. The desire of companies with an investment in both collection and disposal operations to direct waste to their own facilities is understandable. Equally within reason, is for an independent transporter to seek out the disposal option that provides the best competitive advantage. Therefore, at any given time a noticeable, but explainable shift in waste flow can occur. In the menu system, as companies grow, there is freedom to redistribute and redirect routes to new disposal sites.

Greene County continues to favor a modified flow control scheme. The reasons to maintain the system seem equally justifiable in 2023, as in 1990.
An ordinance is utilized to ensure compliance. Disposal options will be limited, to those qualified facilities that have accepted the terms and conditions of the disposal capacity agreement. An adequate array of disposal destinations is within reach by direct and long haul transport. To accommodate future needs, provisions and mechanisms were devised to add more facilities when appropriate during implementation of the Plan.

CAPACITY PROCUREMENT PROCESS

A number of steps were taken to determine how and where Greene County's municipal solid waste was currently managed. It started with a thorough review of Greene County's transportation and disposal infrastructure. Historic disposal trends were reviewed to determine how local transporters utilized the facilities designated in the 2011 Plan The process identified the types and quantities of waste delivered to each site from Greene County. This data is included in Chapter 2.

Population, demographic, and market conditions that impact waste disposal practices were also explored. The results factored into calculating the future disposal needs of the County. Those estimates and assumptions are shown in Chapter 3.

Act 101 requires counties to conduct a fair, open, and competitive process to secure disposal capacity guarantees. Based on guidance from PADEP and references from numerous court rulings, efforts were taken to ensure that all facilities and disposal processes were given equal consideration and opportunity.

Facilities were expected to adhere to clearly defined proposal submission guidelines, which specified the format and content required for administrative completeness and technical merit review. Allowances for the County/Authority to request supplemental documentation or further clarifications as needed were built into the technical review process.

The criteria used to evaluate the proposals submitted from disposal and processing facilities and the outcome of that evaluation is provided in Appendix C.

It lists the qualifications of each facility and identifies the quantities of waste each facility is willing to guarantee to Greene County. Additionally, it shows the maximum tipping fees

Three organizations submitted proposals for seven landfills, which they own and/or operate. The solicitation for capacity was publicized nationally, and three out-of state facility responded to the request.

DESIGNATED FACILITIES

Of the seven facilities that submitted proposals, only one failed to meet all of the required criteria to enter agreements with Greene County. Waste Management's Meadowfill Landfill located in West Virginia was unable to meet the most essential element of the solicitation – a guarantee or reservation of capacity.

The facilities that met the criteria will officially enter capacity agreements with Greene County. Additionally, they will be designated in the Greene County Municipal Solid Waste Management Plan as sites where Greene County municipal solid waste must be disposed. The designated facilities are shown in Figure 6-2.

Figure 6-2 Facilities Designated to Dispose of Greene County Municipal Waste 2022-2031

J.P. Mascaro	Brooke County Landfill
	Wetzel Landfill
Waste Management	Arden Landfill
	Kelly Run Landfill
	South Hills Landfill
Vogel Holdings	Seneca Landfill

DESIGNATING ADDITIONAL FACILITIES

The basic concept of a Plan is to provide for known and anticipated needs while remaining flexible enough to allow and adjust for unpredictable changes and events. Greene County currently has secured sufficient disposal capacity. However, it is not beyond reason to consider a future need to utilize a disposal or processing facility that is not presently included in the Plan.

New opportunities and/or technologies could result in the development of facilities that did not exist during Plan development. The dynamics of consolidation and acquisition cause shifts in disposal facility utilization. The waste industry attracts a breed of entrepreneurs who are known to periodically enter and exit the business. This influences the number and identities of local market participants. It is prudent to consider that landfills, transfer stations, and hauling companies currently identified in the revised Plan may cease to exist either by reaching capacity or from unforeseen market conditions.

The Greene County Department of Planning and Development will manage the process of incorporating any additional disposal/processing facilities into the Plan. A simple and direct process will expedite the processing and determination of approval for facility inclusion requests. Adding one or more facility(ies) to a plan is not considered a substantial Plan revision. Therefore, it does not require review and ratification by each of the municipalities. This allows the County to respond to requests quickly and with lower costs than if a full-scale revision of the overall Plan was necessary.

To maintain the same fair, open and competitive process used to select the initial disposal sites, all facilities must meet the same criteria as those responding to the initial Request for Proposals for Disposal Capacity. Without exception, these include the technical qualifications, compliance history, managerial experience, and permitted status.

A copy of the Request for Proposals is shown in Appendix B. It includes the contractual agreement, for the facility to review and execute.
Haulers, transfer stations, disposal facilities, and municipalities may initiate the petitioning process.

Requests must be submitted on official forms made available by the Greene County Department of Planning and Development. The Processing/Disposal Facility Petition for Designation in the Greene County. Municipal Solid Waste Management Plan can be found in Appendix D.

Once the petitioner submits the form, the Authority will notify the PADEP that a Plan revision may be forthcoming. The County will then send to the facility an information packet, which outlines the requirements for designation as a disposal facility.

It will be the responsibility of the Petitioner or the Facility to cover any and all costs associated with the Plan revision. The costs shall be established by the County based on but not limited to the following expenses: staff, legal and consulting time; reproduction; postage; distribution to municipalities; and other related items.

The basic concept of a Plan is to provide for known and anticipated needs while remaining flexible enough to allow and adjust for unpredictable changes and events.

Chapter 7
Oversight and Administration
Responsibility and Authority to Implement the Plan

Chapter 7 discusses how Greene County manages the programmatic, administrative and enforcement duties associated with the Plan. It outlines many of the regulatory expectations and the importance of compliance.

DELEGATED AUTHORITY

The oversight and enforcement of the policies and programs resulting from the Greene County Municipal Solid Waste Management Plan by default is the responsibility of the governing body of the County. Act 101, however, allows it to be delegated to another individual, agency, department or similar entity. Most top level county officials do shift this responsibility to a designee, because considerable effort and focus is required to comply with state regulatory and reporting requirements, and implement the programs designed to attain the goals and objectives of the Plan. In Greene County, these powers and responsibilities have been delegated to the Department of Planning and Community Development. In this way, solid waste management decision making remains as an integral part of county government.

Expectations

Assuming the duties of Plan administration and implementation is a full time job. Within the Department of Planning and Community Development an individual is assigned to fulfill the role of Recycling Coordinator, a position referenced in Act 101. Currently, the Recycling coordinator is the Department Director.

The Coordinator has varied responsibilities. Ultimately, ensuring that the County is compliant with the provisions of Act 101, is a priority. This includes development, implementation, and enforcement of the components of the Greene County Municipal Solid Waste Plan. In addition, the Coordinator must obtain, and compile the data necessary for the submission of the County's Annual Report to PADEP.

Because data from all who provide or contract for recycling services is vital to the overall Annual Report, the Coordinator requires cooperation from Greene ARC and local businesses in gathering the necessary information. Greene County is also reliant on then efforts nof the Professional Recyclers of Pennsylvania who compile data from chain stores like Dolloar general and WalMart and distribute it to the counties.

The Coordinator also monitors all reporting activities associated with the disposal capacity agreements, as well as fees that may be related to the reported tons.

Programs And Services

Outreach programs, seminars, special collection events, planning and other studies are originated and supervised by the Recycling Coordinator, who serves as an important resource to the community. Public education, enforcement, and County sponsored press releases are also designed and produced in this office. In most cases, the Coordinator is also expected to implement these services or arrange for the procurement of outsides service providers. An ability to identify, predict and control program related costs is expected. Therefore, the Coordinator takes part in the budgetary planning process and is held accountable for all associated expenses and revenues.

Funding

Programs, services, administration, enforcement, and education can be costly. Local taxes cannot support all of the needs and demands of Greene County's municipal waste generators. It is crucial for the Coordinator to be informed and knowledgeable regarding the availability of federal and state

grant funding as well as opportunities to obtain sponsorships and financial support from corporate programs.

Awareness And Communication

The Recycling Coordinator serves as the portal through which information filters through to the County Commissioners and the municipalities. This may include pending regulatory changes that could impact the County's programs.Therefore, it is important for the Coordinator to establish an open line of communication with the Pennsylvania Department of Environmental Protection. Another source of current issues and professional development are the number of nonprofit trade organizations related to municipal waste management and recycling. Membership and participation in these organizations can help to provide continuing education opportunities and up to date information on solid waste, composting and recycling. It also establishes a vital peer to peer network for the Coordinator to seek advice and feedback on relevant issues.

Coordination

Although the County is responsible for implementing the Plan, many of the basic principles and components of responsible waste management are actually municipal functions. Issues, such as waste and recycling collection, remain a responsibility of local municipalities and business owners. As the name implies, the purpose of the County position is to coordinate and facilitate the efforts of Greene County's communities.

Chapter 8
Public Sector Operations
County and Local Government Contributions

In this chapter, the waste and recycling equipment and services owned and operated by Greene County and or the municipalities are defined. Any anticipated future changes are also discussed.

LOCAL ROLES AND INTERESTS

The responsibility for and the decisions about municipal solid waste management have always been considered to be best at the local level. Municipal governments have the statutory authority to determine how waste and recyclables generated within their jurisdictions.are collected, processed and disposed. For some, taking ownership of the entire process is the preferred choice. Public works crews are enlisted to perform the services using equipment owned by the local government. In others, the private sector invests in the tools and labor to offer these services for a profit. It's common for both scenarios to function side-by-side.

Waste Collection And Disposal Services

The private sector is the dominant provider of waste collection services in Greene County. In general, residents and commercial establishments subscribe to services with the provider of their choice. In some instances the municipality may contract for servic es via a competitive bidding process. Exceptions to these scenarios include those who self-haul their waste and roofing and construction contractors.

Currently, no public or mprivate municipal solid waste disposal facilities operate in Greene County. However, in Mount Morris, Mountain State Waste owns and operates a transfer station that accepts municipal solid waste from other transporters, contractors, and self-haulers.

Recycling Collection And Processing Services

The collection of recyclable materials is shared by the private and public sectors. Each offers a different approach, but the goal of material recovery is the same.

Although there is currently no curbside recycling collection, public sector drop-off collection sites are provided in a number of municipalities. The materials collected are transported by municipal workers to the public sector Greene ARC Recycling Center to be sorted.

Greene ARC also services commercial businesses who contact Greene ARC when they have enough material for Greene ARC to transport to their facility for processing.

Public Facilities and Equipment

The County owns the building, which houses a material recovery facility operated by Greene ARC. Equipment used in this program includes balers, vehicles, trailers, sorting bins, etc. It was purchased through grants provided by the Pennsylvania Department of Environmental Protection.

Future Options

Recommendations in the Plan include opportunities for operations that could be public, private, or partnerships. These include full service recycling collection points that offer drop-off waste collection to assist those in remote locations where curbside collection is prohibitive.The ability to collect waste for a free provides a sustainable platform of operation unlike recycling only drop-off sites

No other public endeavors are proposed.

Chapter 9

Laws, Agreements, Procedures

Legal Mechanisms for Implementation

The Greene County Municipal Waste Management Plan outlines the roles, and guidelines of residents, municipalities, businesses and service providers. Ordinances, contracts and other procedures clarify the County's power to implement the Plan. These documents also serve as a direct means of enforcement. Chapter 9 provides a brief description of each document . Copies areb provided in the Appndices.

ENABLING IMPLEMENTATION OF THE PLAN

Although Act 101 provides counties with broad powers to develop their municipal solid waste management plans, it is prudent to have local mechanisms designed to enable those charged with implementating the plans to do so with full authority. Greene County has a series of legal mechanisms that deal with specific aspects of the Plan. Each document is described individually in this chapter and provided in a separate section of the Appendices, with its specific location noted below.

New documents may be developed over time and others abandoned to simplify and improve the procedures associated with implementation. However, these changes will not alter the legal or contractual content of the Plan. Solid Waste and Recycling

Municipal Waste Disposal Capacity Agreement

The Municipal Waste Disposal Capacity Agreement (Appendix B) is the contract, which assures that disposal capacity is available throughout the period of the Plan for municipal waste generated in Greene County. The agreement establishes the types and volumes of waste; the maximum tipping fees; and the reporting requirements for each site. Each and every facility currently included in the Plan, as well as any in the future, must agree to the provisions of this Agreement. This ensures consistent and non-discriminatory terms, conditions and standards among all facilities that are to be used for disposal/processing of Greene County municipal waste.

Petition to Add Facilities to the Plan

The County recognizes that new facilities or technical processing opportunities may become available. To accommodate such opportunities, the Plan provides a mechanism to add facilities in the future. Appendix Dincludes the Petition to add a Processing/Disposal Facility in the Plan. The requirements for completing that process are also described. Each facility petitioning the County will be subject to the same criteria set forth in the original Request for Proposals met by the currently designated facilities. The inclusion of the facility must be approved by PADEP as a non-substantial plan revision.

Greene County Solid Waste Transporters Ordinance

The County is required to report to the PADEP each year the destination of all municipal waste collected and disposed at landfills, as well as the tons of material recycled from residential and commercial sources. Municipal licensing has always been the sole method of recording collection and disposal activity in the County.

On June 29, 2002, the Waste Transportation and Safety Act (Act 90) was signed into law. The law requires vehicles transporting municipal or residual waste to waste processing or disposal facilities in Pennsylvania to have a valid Waste Transporter Authorization issued by the Department of Environmental Protection (DEP). Act 90 preempts the ability of local governments to license waste haulers and PADEP does not condone this practice. Nevertheless, the PADEP still requires the County to monitor and report the collection, disposal and recycling information. As municipal licensing was the one way the County was able to

demonstrate to PADEP the source of information on waste and recycling activities, the new law presented some challenges at the County level.

In response to the enactment of Act 90 and to enable the County to fulfill the PADEP annual reporting requirements the County drafted the Solid Waste and Recycling Transporters Ordinance in 2009. This ordinance ensures that those engaged in the activity of collecting and transporting municipal waste and recyclables in Greene County must register with and report their activities to the County. It reinforc es the flow control elements of the Plan. The ordinance does not interfere with decision making at the municipal level regarding waste collection. It is simply a mechanism for Greene County to obtain the data it needs to comply with state laws and regulations. A copy of the ordinace adopted in 2008/2009 is included in Appendix E.

Agreement to Operate Recycling Center

In 2007, Greene County entered an agreement with Greene ARC to operate a Recycling Center. The buildings and the equipment utilized in the operation were purchased through grants and in part with County funds. The agreement stipulated the roles and responsibilities of both parties. It also outlines the criteria for an eventual expiration of the agreement and transition of nproperty. A copy of the agreement is provided in Appendix F.

Resolution To Adopt The Plan Revisions

Upon completion of this Plan revision, the Greene County Board of Commissioners adopted the revised Plan in the form of a resolution contained in Appendix H.

Chapter 10
Impact of Recommendations
Transition Management

Chapter 10 explains the intent of the County to implement any of the suggestions made during thenplanning process in an orderly and nondisruptive manner.

EVALUATION OF ALTERNATIVES

The planning process for the 2023 Greene County Municipal Solid Waste Management Plan included a review of previous decisions and philosophies. The goals, objectives and recommendations were scrutinized to determine if they remained appropriate based on current circumstances, anticipated resources, and future expectations. Although past efforts were applauded, there was consensus that *current conditions* and circumstances warrant change.

County leadership supports an initiative to explore the potential to expand the solid waste and recycling infrastructure beyond its current capacity. The catalyst for such an inquiry stems from the low recycling performance of the existing infrastructure.

An investigation to examine the types of service offerings needed and the feasibility of making each available is recommended. The findings should demonstrate the funds required, and the possible sources of revenue to support such operations. The results could replace the existing County program. Alternatively, County financial support could be modified to allow for co-existence of various programs and services.

IMPLEMENTATION

Beginning with the investigation, a phased approach is recommended to implement any of the anticipated improvements. It suggests a smooth transition for all stakeholders in each of the recommended phases.

Two developments that are suggested for consideration would increase the volume and quality of recycled materials. One of those would also provide much needed outlets for waste collection in the more remote areas of the County. Since these options would provide choices that are not currently available for residents no disruption of service is anticpated.

Chapter 11
Working with Private Facilities
Protecting the Freedom to Operate

Chapter 11 discusses the relationship between the provisions of Act 101, the needs of Greene County and the impact on other counties and the private sector. It establishes the County's commitment to refrain from unduly interfering in the normal operations of waste disposal, processing and recycling facilities.

SHARING RESOURCES

The need to secure disposal capacity is not unique to Pennsylvania. Local jurisdictions throughout the nation share the same requirements for developing municipal solid waste management plans. *Act 101 and similar laws throughout the nation were enacted in part to address the concerns of* government agencies *that* disposal needs of *local governments* were in jeopardy.

Rural counties often lack a sufficient and sustainable volume of waste needed to justify the considerable investment *required*

to meet the stricter operating regulations and design criteria of current state of the art facilities. *Consequently, m*any *counties* closed their former operations. *The investment in new facilities was beyond the scope of most local government budgetary capabilities.*

Private sector investors face those same constraints. They opt for fewer but much larger capacity facilities to reduce development costs but are reliant on the economies of scale to cover the total expenditures. Unless they are designed to serve highly concentrated population areas, the intent of the operation is to draw the necessary volumes of waste from a regional waste shed. In extreme circumstances, where a facility is necessary to address the needs of surrounding rural counties, it is often necessary to attract waste from remote counties and other states to maintain a financially sustainable operation.

Because favorable market conditions are dependent on the cooperation of all participants, it is prudent for Greene County to protect its need for municipal solid waste capacity, without interfering with the needs of other counties. In keeping with the premise of Act 101, it is also advisable to use the resources of the private sector to the greatest extent possible in the development of recycling programs.

These same issues apply to the processing and marketing of recyclable commodities. Material volumes and optimal logistics influence finances. Whether through intergovernmental efforts or private sector investments, promoting the cooperative growth of recycling collection throughout the County and region is imperative for programs to be successful.

Regional Resources

Currently, there are no municipal waste disposal facilities located within Greene County. There is a permitted and operating transfer station that manages significant volumes of Greene County's waste. To meet its disposal capacity needs, the County, and in turn the local transfer station, is reliant on the availability of facilities in other jurisdictions.

As part of the process to develop the Greene County Municipal Solid Waste Management Plan, a variety of facilities made contractual commitments guaranteeing disposal capacity to the County. These facilities are located in the Greater Pittsburgh area, and in West Virginia.

Other Pennsylvania counties experience these same circumstances. Therefore, many forms of waste flow naturally through a network of transporters and facilities with no local, state, or national boundaries. Each facility has entered into long term agreements, which share a secured portion of their capacity with one or more counties or businesses. The scenario is similar for privately operated material recovery facilities that process and market recyclable commodities currently collected or that potentially could be collected within the County. Recyclables from other counties and states are also transported to the facilities that Greene County, its municipalities, and its commercial businesses could utilize for processing. **MUTUAL RESPECT FOR RESOURCES AND COMMITTMENTS** The lack of interference by other counties and states in the normal operation of disposal facilities located within their jurisdictions is vital to the disposal needs of Greene County. Likewise, it is important for Greene County to understand and respect that these facilities must honor their contractual obligations with other parties.	Therefore, the County supports the need for facility operators to design, finance, and construct reasonable expansions to meet these various capacity commitments. The County will not interfere with the normal operational and regulatory process involved with such expansions, nor prevent it from generating the necessary profits to support those projects, provided the facility complies with the provisions of the Greene County Municipal Solid Waste Management Plan. Likewise, the County encourages intergovernmental and private sector expansion of recycling related services within its jurisdiction.

Chapter 12
Stakeholder Perspectives
Community Involvement in the Planning Process

Chapter 12 summarizes the stakeholder experience in the development of the *Greene* County Municipal Solid Waste Management Plan. It outlines the criteria for advisory committee member selection and highlights the agenda topics, the information presented, and the comments and suggestions offered

PURPOSE OF THE ADVISORY COMMITTEE

We all generate and need to dispose of municipal waste. Our familiarity with the issue fuels strong opinions regarding municipal waste management. Our viewpoints reflect personal perspectives based on environmental, economic, political, and social influences.

Most individuals and businesses believe the way they manage municipal waste is the norm. Frequently grounded in local culture and long-standing tradition, when people perceive these practices are threatened, the result is often public outcry.

Without public acceptance, the likelihood that a municipal waste plan will fail increases, regardless of whether or not its visions and recommendations are legitimately good or appropriate.

To avoid miscalculating the public's tolerance for change, experience teaches us that bringing the various interest groups together during the planning process is a vital step in building consensus for future policies and programs. Allowing for this exchange and interaction ultimately leads to better understanding and cooperation when new practices are implemented.

Formation of the Solid Waste Advisory Committee

To develop a Plan that would meet the needs of the local community, the Greene County Board of Commissioners sought the feedback of local stakeholders. To facilitate this valued interaction, they established the Solid Waste Advisory Committee (SWAC) The Board of Commissioners appointed individuals to the Committee, who represent a balance of civic and business interests within the County. Local government representatives were selected from specific classes of the political jurisdictions, including the County. In addition to public sector representation, individuals from private waste and recycling industry companies, and local industry all served as members on the committee. Figure 12-1 lists the members and their affiliations.

Figure 12-1 SWAC Members and Representation

INFORMATIONAL EXCHANGE AND INPUT The planning process was launched with an introductory meeting with the Greene County Board of Commissioners. This was followed by a meeting of SWAC appointees and other municipal officials. The Project Consultant outlined the responsibilities of the County under the provisions of Act 101. In addition, the Project Consultant explained the role of the committee and the stepwise process that would ultimately lead to a plan adopted by the County and approved by PADEP. The meetings were facilitated by the Director of the Greene County Department of Planning and Community Development and the Project Consultant. Roundtable discussions allowed committee members to express their views and opinions. Comments were offered on infrastructure strengths and weaknesses, the increasing cost of waste collection and disposal, the instability of the recycling collection system, and the lack of funding to resolve some of the issues. Many of these items became the focus for final recommendations in the Plan.	Due to on and off-again resurgences of the COVID-19 virus, future in-person meetings were avoided. Instead, throughout the process the draft chapters were systematically distributed to committee members for review and comment. Although not the preferred approach, it still provided the County with a valid assessment of the topic from the public perspective. A copy of the initial presentations,meeting minutes, and any written are provided in Appendix G.