



An Examination of Recycling Programs in Rural Pennsylvania, 2010-2019

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EXECUTIVE SUMMARY

This study examined the status of recycling programs in rural Pennsylvania to better understand the geographic extent and availability of recycling programs and services, and to identify areas for improving policies that govern municipal solid waste and recycling in Pennsylvania.

Key findings:

- Local recycling programs are impacted by global markets and constraints;
- Contamination of recyclable materials has decreased the value of materials collected;
- Recycling programs rely on state funding to operate;
- Recycling provides environmental and economic benefits to Pennsylvania; and
- Declining recycling program revenues and rising recycling program costs are affecting the sustainability of recycling programs in Pennsylvania.

Key policy considerations:

- Make recycling a state priority and replenish the Pennsylvania Department of Environmental Protection's managed Recycling Fund, established by Act 101;
- Restructure how funds may be used under Section 902 - Grants for Development and Implementation of Municipal Recycling Programs;
- Provide financial resources needed to invest in educational campaigns and websites that promote recycling services, particularly in rural communities that are not mandated to provide recycling programs;
- Provide incentives for the establishment and growth of local markets for recyclable materials by encouraging processors and end-users of Pennsylvania recyclables to locate and expand business in the state;

- Address restrictions imposed by the Covered Device Recycling Act (CDRA) of 2010 and increase access to electronics recycling, particularly for rural residents; and
- Address problems with offering consistent, unrestricted access to household hazardous waste recycling collection in rural locations.

Background and Findings

The Municipal Waste Planning, Recycling, and Waste Reduction Act of 1988 (Act 101) currently mandates recycling in 475 municipalities, accounting for 68 percent of Pennsylvania's residents. More than 586 other municipalities have voluntarily executed recycling collection programs. In total, more than 94 percent of Pennsylvania residents have access to public recycling programs. However, in the last several years, increasing costs associated with collection, and decreasing revenues associated with a decrease in the prices received for materials collected in recycling programs, have led to a number of non-mandated Pennsylvania municipalities to cancel and/or strongly consider suspending their recycling programs.

This study examined the status of recycling programs in rural Pennsylvania to better understand the geographic extent and availability of recycling programs and services. It looked to fully capture the economic and environmental benefits of the recycling industry, particularly in rural Pennsylvania, to develop a better understanding of the challenges posed by recent changes and associated impacts on residential programs in rural counties. The research addressed four primary goals: (1) to better understand the geographic extent and availability of recycling programs and services offered to residents in rural Pennsylvania counties, using the Center for Rural Pennsylvania's rural definition; (2) to describe modifications to recycling programs and services to rural residents over time and the factors responsible for such changes; (3) to document changes in residential municipal solid waste (MSW) generation by weight (total tons)

and recyclable materials, respectively, in rural counties compared to urban counties; and (4) to identify important demographic characteristics of rural counties compared to urban counties that may influence the geographic extent and availability of recycling programs and services.

The research used quantitative and qualitative data to better understand the status of recycling services and programs offered to county residents and the specific challenges for the recycling industry in rural Pennsylvania. The study period was 2010 to 2019. Primary data were collected from a web-based survey conducted in 2020 of all Pennsylvania counties that were both mandated and non-mandated to recycle. Secondary data were collected from: the Pennsylvania Department of Environmental Protection's (DEP) County Recycling Program, which includes both county and municipal data; DEP Bureau of Waste Management's *County Waste Destinations In Tons of Waste* quarterly reports for the years 2010-2019; and the U.S. Census Bureau's (2018) American Community Survey (ACS) for the years 2014-2018.

The research also compiled in-depth case studies detailing the development and implementation of successful waste management and recycling programs in rural Pennsylvania counties.

Overall, the research found recycling programs to be very diverse across the state, with significant differences identified between rural and urban Pennsylvania communities. In addition, both the survey data and secondary data indicated significant variations in programs within a DEP region, within counties, and from municipality to municipality. The research found that recycling collections are not standardized, with some excluding glass, and others refusing mixed paper, and that collection methods are also very diverse, ranging from source separation to single-stream.

The research found that local recycling programs are impacted by global markets and constraints, and that the contamination of recyclable materials has decreased the value of materials collected.

In short, while recycling provides environmental and economic benefits to Pennsylvania, the research indicated that declining recycling program revenues and rising recycling program costs are impacting the sustainability of recycling programs statewide.

As recycling programs continue to rely on state funding, it is essential to make recycling a state priority and replenish the DEP-managed Recycling Fund, established by Act 101, to sustain operations. Further, survey respondents noted that financial resources are needed to invest in educational campaigns and websites promoting recycling services, particularly in non-mandated rural communities.

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INTRODUCTION

The Municipal Waste Planning, Recycling, and Waste Reduction Act of 1988 (Act 101) currently mandates recycling in 475 municipalities, accounting for 68 percent of Pennsylvania's residents, and more than 586 other municipalities have voluntarily executed recycling collection programs. In total, more than 94 percent of Pennsylvania residents have access to public recycling programs (Brennan 2020; Commonwealth of Pennsylvania 2017; Pennsylvania Recycling Markets Center 2019; Pennsylvania General Assembly 1988). However, in the last several years, increasing costs associated with collection, and decreasing revenues associated in large part with a decrease in the prices received for materials collected in recycling programs, have led to several non-mandated Pennsylvania municipalities cancelling, and/or strongly considering suspending, their recycling programs (Bobb 2018; Crable 2018; Cruden and Rosengren 2020; Lester 2019; Maile 2019; Mataloni 2019; Richards and Kendron 2019).

Residential recycling requires the individual homeowner to act by separating recyclable items from household trash and either setting a bin out at the curb or driving to a local drop-off center. The material is then collected by either a municipal, county, or private hauler to be delivered to a Material Recovery Facility (MRF). The MRF prepares the materials for shipment to a processing mill where the material is the feedstock for new product creation. The MRF must prepare the baled product to the standards of the mill buyers' (end-users) specifications on quality. These specifications are the basis for acceptability of feedstock to produce new products, thus completing the recycling loop from the consumer to the industry.

Increasingly, mill buyers and other end-users are requiring photos of baled recyclables before making an offer to purchase the recycled materials. Baled product that does not meet the

standards set by the purchasing mill (e.g., too much contamination) are refused and/or rejected after delivery.

Municipal recycling programs, particularly those that are non-mandated, have perhaps been most affected by the declining market prices for many post-consumer recyclable materials, particularly those with single-stream collections that incur higher relative rates of contamination, (Rogoff 2014; Schlesinger 2014; Venesky 2019a). As China was the major market and destination for recyclable materials, particularly plastics collected in single-stream recycling programs (O'Neill 2018), many recycling programs across the nation are struggling to adjust to restrictions on imports and contamination set forth by China's changing waste regulations (Calfas 2019; Chaudhuri 2019; O'Neill 2018). As a direct result of China's decision to close its doors to foreign waste, other Southeast Asian countries like Thailand, Malaysia, Indonesia, and Vietnam, as well as African countries have rapidly become the newly established destinations for plastic waste exports from the West (Clarke and Howard 2018; Hook and Reed 2018; Lerner 2020; O'Neill 2019b; Parker 2018; Staub 2018). These geographic locations, now referred to as "dumpsites for the developed world," simply do not have the infrastructure to manage a substantial increase in the volume of material coming in, and governments are responding to this lack of capacity in myriad ways. Countries are introducing bans on imports, taxing plastics, and employing more rigorous standards for inspection of waste facilities (Clarke and Howard 2018; Rosengren and Pyzyk 2018; Staub 2018). The most recent additions to an increasing list of countries banning imports of plastics and reducing use of single-use plastics are: Canada, Kenya, Zimbabwe, the United Kingdom, European Union (EU) member countries, and India. Although there is no federal ban, New York, California, and Hawaii are among those in the U.S. that are instituting plastic bag bans and other restrictions on single-use plastics. Overall, 170 nations have

pledged to “significantly reduce” their use of plastics by 2030 (Masterson 2020). These announcements are sending shockwaves throughout global recycling markets and are forcing Americans to address their consumption of single-use items like plastic and aluminum (Dondero 2019; O’Neill 2019b; O’Neill 2018; Siegle 2018; Szak 2019; Vergheese et al. 2012).

Although this trend of exporting waste abroad is nothing new, as developed countries have been shipping their trash overseas to developing countries in Asia for decades, recent reports suggest that local counties and municipalities are being hit the hardest, with many required to send items directly to incinerators, or other disposal facilities, or cut down on the types of materials they will accept (Bobb 2018; Brooks et al. 2018; Crable 2018; Kummer 2019; O’Neill 2019a; Tita 2018; Venesky 2019a; Venesky 2019b). Others are taking a different approach, targeting educational efforts at residents to reduce contamination rates. In part, the popular method of single-stream recycling or “co-mingling is to blame for the crisis many counties currently face (Javorsky 2019; O’Connell 2018).

Single-stream collection programs are those that “instruct residents to put all recyclables into the same cart or bin for collectors to load into a single compartment on their truck and haul these materials to a processor. This processor is then expected to sort all the recyclables back into clean, high quality feedstock streams appropriate to each type of manufacturer so that the materials can be used to manufacture new products” (Kinsella and Gertman 2007: 12). Although this is a convenient approach to recycling that encourages higher rates of participation, many argue that it increases the rate of contamination, which can render materials economically useless and ultimately divert them to a landfill (Egosi and Weitzman 2010; Farrell 2003; Fickes 2006; Jamelske and Kipperberg 2006; Kinsella and Gleason 2003; Lakhan 2015; Miranda et al. 2013; Morawski 2009; O’Malley 2002). Some studies also suggest that, compared to other collection

systems, single-stream results in residents throwing more non-recyclable items into their bins (Gesell 2006; Lakhan 2015; O’Connell 2003; Tonjes et al. 2018).

To improve public health, safety, and the environment, China implemented the National Sword Policy in 2018, effectively banning the imports of 24 categories of solid waste, including plastics, unsorted scrap paper, and other waste materials (O’Neill 2018). This comes as no surprise, as it follows China’s Green Fence Policy enacted 5 years ago, which set initial standards for lower contamination rates for recycling, thus improving the quality of materials the country was willing to accept (Waste360 2019). These restrictions are rapidly decreasing markets for items, like mixed papers and mixed plastics, in the U.S. because China has been accepting an enormous quantity of recyclable waste from the U.S. and other nations for the past two decades (RSE USA 2019). In 2016 alone China imported 45 million tons of scrap metal, paper waste, and plastic, collectively valued at over \$18 billion; U.S. exports accounted for 16 million tons of those materials, worth nearly \$6 billion (The Economist 2017). The 2018 announcement, in conjunction with imposing strict limits on contamination of materials that will be accepted, has created a crisis for recycling and waste collection programs as waste piles grow to epic proportions and a volatile market reduced incentives for other countries’ willingness to accept items that were once valued (Mosbergen 2018; O’Neill 2018).

News coverage suggests that rural counties in Pennsylvania with recycling collection programs are increasingly vulnerable to this national disruption, which can create long-term issues for collectors, processors, and local governments. Particularly, National Sword forces recycling processors to spend more money to clean, monitor, and improve the quality of their incoming materials, while at the same time trying to adjust to lower commodity values. However, when the operating costs are exceeded by the sale of the materials, the cost of

recycling is typically passed along to the resident. A 2018 newsletter from Westmoreland Cleanways and Recycling highlights the burden being placed on Pennsylvania recycling programs: “In communities with contracted recycling services through a hauler, recycling programs that used to bring in some revenue or were even revenue-neutral saw marked increases in the cost of the program. Pennsylvania’s mandated municipalities have no choice but to absorb the extra cost or, in many instances, pass the increase along to the resident. In non-mandated communities where curbside recycling is voluntary or the community is served with a drop-off bin, curbside programs are being eliminated or the drop-off bins pulled” (Westmoreland Cleanways and Recycling 2018: 3). Similarly, Brennan (2020) reports that an increase in “wish-cycling,” when people place an unacceptable item into the recycling bin with the wishful thinking that it gets recycled, has become an increasingly serious contamination problem, particularly with plastics. Brennan (2020) notes: “When a batch of recyclables is contaminated, there’s a good chance it’ll be rejected and end up in a landfill. Contamination drives up costs, limits the ability to market recyclables, and decreases the value of what is recycled (Brennan 2020: 31).”

Overall, three general factors drive the underlying economic sustainability of recycling collection programs: (1) the prevailing price of virgin materials (e.g., price of oil and natural gas used as feedstocks in plastics production); (2) the prevailing cost of waste disposal (e.g., incineration and/or landfill tipping fees); and (3) the prevailing market price received for materials collected in recycling programs (e.g., market price of recyclable materials collected such as aluminum, steel, newsprint, plastics, etc.). In general, if the prevailing price paid for virgin materials by producers is significantly less than the costs associated with using recycled materials, there is an economic disincentive to purchase and use post-consumer recycled

materials. Likewise, if the fees associated with landfill disposal and/or incineration are significantly less than the costs associated with recycling and waste diversion, there is an economic disincentive to incur the costs associated with recycling. Finally, if the market price received for the post-consumer materials collected in recycling programs (e.g., price of recycled aluminum cans, cardboard, etc.) is significantly less than the costs associated with collecting, sorting, baling, brokering, and/or outright disposing of the materials, then if not mandated by law, there is an economic disincentive to continue “costly” recycling programs (Cullen 2015; Curlee 1986; Jørgensen 2019; Jørgensen 2011; Kinnaman 1999; Rogoff 2014; Strong 1997; Tzortzakis 2017; Vaughn 2009).

Generally, the price of virgin materials, such as the price for oil and/or natural gas used in plastics production, continues to be relatively low by historic standards and has continued to trend downward over the last several years, with oil in particular reaching a historic low in April 2020 (Dezember 2020). While many factors contribute to the general downward trends in oil and natural gas prices, the low relative price signals supply abundance, and the economic incentive is to increase production of plastics, particularly relatively cheap-to-produce, single-use packaging, not easily recyclable, and to decrease the purchase and use of post-consumer plastics collected in recycling programs. Not only are virgin materials preferable and easier to use as feedstock from an industry perspective, but manufacturing issues associated with quality control and waste production are minimized relative to using post-consumer recyclables. In short, the relatively low prices for virgin materials create an economic disincentive to use materials like the many post-consumer plastics collected in recycling programs, particularly those accumulated in single-stream programs with relatively high levels of contamination (Gesell 2006; Hegberg 1992; Hubert 2019; Kinsella 2007; Kinsella and Gleason 2003; O’Connell 2018; O’Malley 2002).

Likewise, the relatively low costs associated with landfilling and incineration in Pennsylvania versus those in a number of surrounding northeastern states, such as Connecticut, New Jersey and New York, create an economic disincentive to divert waste from landfills and/or incinerators into relatively more costly recycling programs if not mandated to do so, particularly if the cost of disposal is significantly less than the savings associated with the diversion of potential recyclables into recycling collection programs (Connett 2013; Kummer 2019; Tita 2018; Venesky 2019b). In general, unless the cost of disposal and/or incineration rises relative to the costs associated with diversion and recycling, there will continue to be an economic disincentive to continue recycling programs in nonmandated municipalities, particularly for recyclables with relatively high levels of contamination usually associated with single-stream collection (Ludwig et al. 2003; Morawski 2010; Tonjes et al. 2018).

Rural counties often have limited budgets and resources to work with, and when combined with higher rates of contamination and volatile international and local markets for recyclables, respectively, consequences can be quite disruptive. For example, Lawrence and Mercer counties recently limited their collection to only cardboard and paper products, while Penn Township in Carbon County terminated its recycling program in March 2019 providing little explanation to its residents (Mataloni 2019; Wachter 2018). Aside from the obvious environmental impacts of these trends, this is a particularly vital issue for Pennsylvania given the economic importance of the recycling industry. According to the Pennsylvania Recycling Markets Center, Inc. (RMC) and IHS Markit (2017: 6), in 2015 the state recycling industry or the recycling marketplace “directly employed over 66,000 people, while stimulating almost 110,000 indirect and induced jobs. For every direct job within the Recycling Marketplace, an additional 1.7 jobs are supported in Pennsylvania.” Unless the disincentives to recycle are addressed,

potentially significant Recycling Marketplace job losses can be expected, particularly in rural Pennsylvania where recyclable collection systems are most vulnerable. Overriding questions, therefore, include the following: what, if any, adjustments have been made to rural county residential recycling operations and/or collections since the National Sword Policy¹ took effect? Specifically, what items are becoming more or less valuable with current trends in market volatility? What effects are these trends having on resident participation? What options remain available to residents? How are local counties managing the cost of residential recycling?

To underscore the crucial role of the recycling industry and the widespread environmental and economic benefits it provides to the state, Pennsylvania Department of Environmental Protection Deputy Secretary for Waste, Air, Radiation and Remediation George Hartenstein provided information at a public hearing of the Joint Legislative Conservation Committee in June 2017. The hearing was on the Municipal Waste Planning, Recycling, and Waste Reduction Act, and Dep. Sec. Hartenstein recommended the review of current state recycling and waste management initiatives and to update the requirements. More specifically, Hartenstein argued that to improve Pennsylvania's waste management and recycling collection programs and capitalize on the resulting environmental and economic benefits, the following options should be considered: "A Statewide Waste Composition Study can be completed to identify and focus resources on what the waste stream looks like now; Expand the mandatory recycling requirements; Modify the list of materials communities are required to recycle; Expand the role and utility of county plans to reflect integrated waste management principles (identify

¹ The National Sword Policy took effect in 2018, banning the imports of 24 categories of solid waste, including plastics, unsorted scrap paper, and waste materials. For additional information on how these restrictions are rapidly decreasing markets for items in the United States, please see reports available from RSE USA 2019 and Waste 360 2019.

disposal points and recycling and reuse outlets; Evaluate the potential for private contracts that effect integrated waste management plans and actions); Expand and support the responsibilities of county recycling coordinators to include functions that facilitate integrated waste management programs; Incentivize private sector investment in designing recyclable containers and products; Provide incentives for manufacturing and commercial entities who implement their own recycling programs in the Commonwealth to facilitate the capture of more materials; and Renew focus on waste reduction programs” (Commonwealth of Pennsylvania 2017: 5).

At this time state government should prioritize efforts to maximize residential access to waste disposal and recycling opportunities and reexamine the revenue generated by the Recycling Fund and ways to increase funding for county and local governments. An emphasis on recycling programs in rural counties across Pennsylvania is of particular concern for two reasons. First, studies demonstrate that illegal dumping and littering is concentrated in rural counties in Pennsylvania compared to urban counties, which highlights the need for expansion of trash collection and curbside recycling collection services in these areas (Nestor Resources 2014; The Center for Rural Pennsylvania 2009). Second, unlike their urban counterparts where funding from the private sector is often targeted, rural counties have had to modify their collection of recyclable items or eliminate their recycling programs altogether due to financial limitations (Commonwealth of Pennsylvania 2017). In many rural communities, the decision to maintain a recycling program is often a matter of budgetary constraints. The municipality is forced to weigh the costs of providing recycling or other services, such as snow removal and road maintenance. Only those communities that are mandated to recycle by Act 101 must continue to offer curbside recycling, while others are free to do away with their recycling programs.

To fully capture the economic benefits of the recycling industry in Pennsylvania, a better understanding of the challenges posed by the recent changes and associated impacts on residential programs in rural counties is needed. Despite the increased interest and coverage of the problems recycling collection centers are experiencing due to National Sword and other market factors, little information is available from the counties themselves aside from an occasional news article. If efforts to sustain the recycling industry and the jobs it provides in Pennsylvania are to be successful, not only is research needed on these topics but also results must be clearly communicated to both public and private decision makers as well as local residents.

GOALS AND OBJECTIVES

This research project had five primary goals and objectives as follows.

Goal 1: Better understand the geographic extent and availability of recycling programs and services offered to residents in rural Pennsylvania counties using the definition of “rural” as designated by the Center for Rural Pennsylvania.

- **Objective 1:** Examine the characteristics of county recycling programs in rural counties compared to urban counties. Specific items of interest that will be identified include the type of program (e.g. mandated, voluntary), type of collection services offered to residents (e.g. curbside, drop-off, both), collection technique used (e.g. single- stream, dual-stream, source separated), types of items that are collected (e.g. glass, paper, plastics), provider of services (e.g. municipality, contract hauler), who pays for services (e.g. municipality, resident), and other related attributes deemed worthy of consideration by the researchers.

Goal 2: Describe modifications to recycling programs and services to rural residents over time and the factors responsible for such changes.

- **Objective 2a:** Determine how long these programs have been in existence and specify how they have changed over time in response to variations in market demand and international policies restricting the import of recyclable materials.
- **Objective 2b:** Compare the types of recyclable items collected by programs offered to rural residents in counties in Pennsylvania to those collected in urban counties. Item(s) that are the most valuable and least valuable, respectively, given current trends in volatility in the international and local markets for commodities will be documented.
- **Objective 2c:** Explore and compare the effect(s) of China's National Sword Policy on recycling services offered to rural residents in counties in Pennsylvania to those in urban counties and outline what adjustments have been made to recycling programs in rural locations in Pennsylvania in response to these restrictions.

Goal 3: Document changes in residential municipal solid waste (MSW) generation by weight (total tons) and recyclable materials, respectively, in rural counties compared to urban counties in Pennsylvania.

- **Objective 3a:** Evaluate changes in residential MSW generation and recyclable materials, respectively, in rural Pennsylvania counties compared to those in urban counties using secondary data sources.

Goal 4: Identify important demographic characteristics of rural counties compared to urban counties that may influence the geographic extent and availability of recycling programs and services.

- **Objective 4a:** Evaluate population attributes and associated changes by rural counties compared to urban counties in Pennsylvania using secondary data sources. Particularly, the role of factors like age, education, and income may serve to affect recycling practices in rural counties and when examined concurrently with waste generation data (see Goal 3), can tell an important and interesting story.

Goal 5: Identify changes that need to be made to Pennsylvania laws and regulations governing municipal waste management and recycling that consider the special needs of rural counties compared to their urban counterparts.

- **Objective 5a:** Identify areas for improving policies governing municipal solid waste and recycling in Pennsylvania to adequately address the current challenges faced by rural counties.
- **Objective 5b:** Develop detailed case studies of successful waste management and recycling programs serving residents in rural Pennsylvania counties to highlight the geographic considerations and diversity in recycling collection programs and services offered to residents throughout the state (Creswell 2009).

METHODOLOGY

This research involved the collection and analysis of both quantitative and qualitative data to better understand the status of recycling services and programs offered to county residents and addressed the specific challenges for the recycling industry in rural Pennsylvania. The time period for data collection and analysis spanned 2010 to 2019.

Data Sources and Collection Procedures

To accomplish Goals 1 and 2 and their respective objectives, and to establish a baseline and draw comparisons, the researchers collected primary data from a web-based survey of all

Pennsylvania counties that were both mandated and non-mandated to recycle. The target audience for the survey was the 67 county recycling coordinators in Pennsylvania, since they serve as the conduits for waste management and recycling activities in their local communities. Researchers opted to use a survey because much of the existing data on the status of recycling services and programs offered to residents in rural counties and the challenges they face related to export restrictions and market factors could be obtained directly from the recycling coordinators.

The use of web-based surveys is rapidly growing and was attractive because they could be conducted at a low cost compared to other data collection methods (Dillman et al. 2014). Researchers followed the guidelines set forth by Dillman and colleagues (2014) for designing and implementing the survey as well as increasing response rates.² The survey was pilot tested among a small population to obtain feedback and ensure questions made sense to respondents. The researchers then reviewed results obtained during the pilot test and modified survey questions as needed for successful deployment. It should be noted that the researchers anticipated a high response rate given the potential for long-term benefits to the county recycling coordinators: improving the operation of recycling programs and access to services for residents in rural Pennsylvania.

Prior to survey design and implementation, the researchers obtained approval of the Institutional Review Board (IRB) at Bloomsburg University. The researchers used the Qualtrics software, freely available to Bloomsburg University faculty, for the creation and delivery of the

² Dillman, Smyth, and Christian (2014) provide a holistic framework for designing and implementing surveys based on social exchange theory, or the idea that establishing trust between the researchers and respondents will result in higher response rates. A complete list of guidelines for survey design and implementation based on this framework is provided in Chapter 2 and will be used by the researchers in the proposed study.

survey. The names and email addresses of the county recycling coordinators were obtained through Re-TRAC Connect, a web-based platform that allows government agencies and organizations to increase efficiency of the management and monitoring of their solid waste and recycling programs (Emerge Knowledge Design Inc. 2019). Re-TRAC Connect provided access to Pennsylvania Department of Environmental Protection (DEP) County Recycling program data which were available in variety of formats including tables, charts, and raw data. These data were reported directly by Pennsylvania counties and municipalities to assess and improve recycling performance. The time for the data spanned 2010-2019, ensuring that contact information for county recycling coordinators were current. In addition to providing data at the county level, Re-TRAC Connect also enabled the user to examine data for individual municipalities.³ The data that were particularly useful for this project at the county-level included the following: mandated and non-mandated analysis, recycled materials grouped by material categories, recycled residential tons by material category, curbside and drop-off analysis, diversion rates, and total recycled tons. Demographic data were also available for each county and municipality, which summarized population characteristics of residents. The researchers obtained permission to access this database from Charles Fritz, Director of Governmental Services/Recycling Coordinator for the Town of Bloomsburg for over 15 years.

To accomplish Goals 3 and 4 and their respective objectives, the researchers collected secondary data. In order for the researchers to assess changes in residential MSW generation collected in counties throughout Pennsylvania, data were obtained from DEP Bureau of Waste Management's *County Waste Destinations In Tons of Waste* quarterly reports for the years 2010-

³ Both the county and municipality web-based surveys included questions on mandated and non-mandated recycling programs. Re-TRAC Connect also allows both counties and municipalities to self-report this information and update it annually in their database.

2019. In addition to other types of waste, municipal waste was tabulated for each disposal facility per county. Municipal waste by ton was then summed for each quarter to represent all years of coverage for the research project. These reports were freely available to the public on the DEP website located at <https://www.dep.pa.gov/Business/Land/Waste/SolidWaste/MunicipalWaste/Pages/MW-Disposal-Info.aspx>.

To assess changes in recyclable materials collected in counties throughout Pennsylvania, the researchers obtained data from the Re-TRAC Connect database. Data were aggregated by year, county, and municipality and reports were freely available in both Microsoft Excel and Portable Document Format (PDF) files. Detailed data that assisted the researchers in accomplishing their objectives included the types of recycling programs and services offered to residents, the amount of recycled materials grouped by material categories, and total recycled residential materials in tons.

Demographic characteristics including but not limited to population, education, age, and income were obtained from the U.S. Census Bureau's (2018) American Community Survey (ACS) for the years 2014-2018. These data were helpful in identifying specific factors that may serve to influence participation in recycling programs and better understand trends in waste management over time.

Analysis

After the primary data were collected from the survey, the researchers tabulated and coded the results for in-depth analysis in accordance with established procedures identified in the literature. After the secondary data were obtained, tabulated, and organized, they were imported to Geographic Information Systems (GIS) for mapping and visualization. GIS is a powerful tool for managing, organizing, displaying, and analyzing spatial data to gain deeper insights and

identify existing patterns and relationships that aid in decision-making. Bloomsburg University had a license for the ArcGIS⁴ program, and it was freely available to the researchers.

Geographic shapefiles for all counties in Pennsylvania were obtained from the U.S. Census Bureau and joined with the datasets detailing MSW generation, recycling services, and other demographic information. By displaying spatial information in thematic layers, the researchers were able to identify patterns and relationships that existed among geographic features.

To accomplish Goal 5 and its corresponding objectives, the researchers interpreted and summarized the results from the survey responses and compared them to the secondary data collected to determine opportunities for improving municipal solid waste and recycling regulations in Pennsylvania. In-depth case studies detailing the development and implementation of successful waste management and recycling programs in rural counties in Pennsylvania also helped to inform advancements in similar communities. A total of seven counties were selected for inclusion in the case studies based on their participation in the web-based survey. County recycling coordinators in the selected counties were contacted by the researchers and provided with a list of questions that were answered via email or by phone. Questions expanded on information collected in the web-based survey and addressed the following: population served with recycling collection services, staff employed at the recycling facility, major challenges and opportunities encountered in the past 10 years and those anticipated over the next 5 years, key areas for improving policies governing waste in recycling in the state, and educational outreach and information on their recycling collection programs.

⁴ Please see ESRI (2019) for a detailed description of this software and its wide variety of capabilities related to spatial analysis, mapping, data management, and visualization.

The researchers aimed to include a variety of recycling collection programs in the detailed case studies to demonstrate that there is not a “one-size-fits-all” approach to recycling in Pennsylvania and emphasize the importance of geographic location. For example, Centre County Recycling and Refuse Authority located in the northcentral region is often viewed by professional recyclers as a successful model of integrated waste management and recycling collection in Pennsylvania for two reasons: (1) the geographic scale and efficiency of its collection program and (2) year-round residential access to household hazardous waste (HHW) and electronics recycling. Centre County provides recycling collection services to more than 25,000 curbside residents, 125 drop-off recycling bins, and over 1,000 commercial establishments throughout the county, along with the Pennsylvania State University. In addition to recycling the materials required by Act 101, Centre County provides a yearly Household Hazardous Waste Collection event and year-round electronics recycling to residents. As a result, Centre County's recycling rate has increased to over 50 percent and continues to climb, an impressive feat for a rural county.

RESULTS

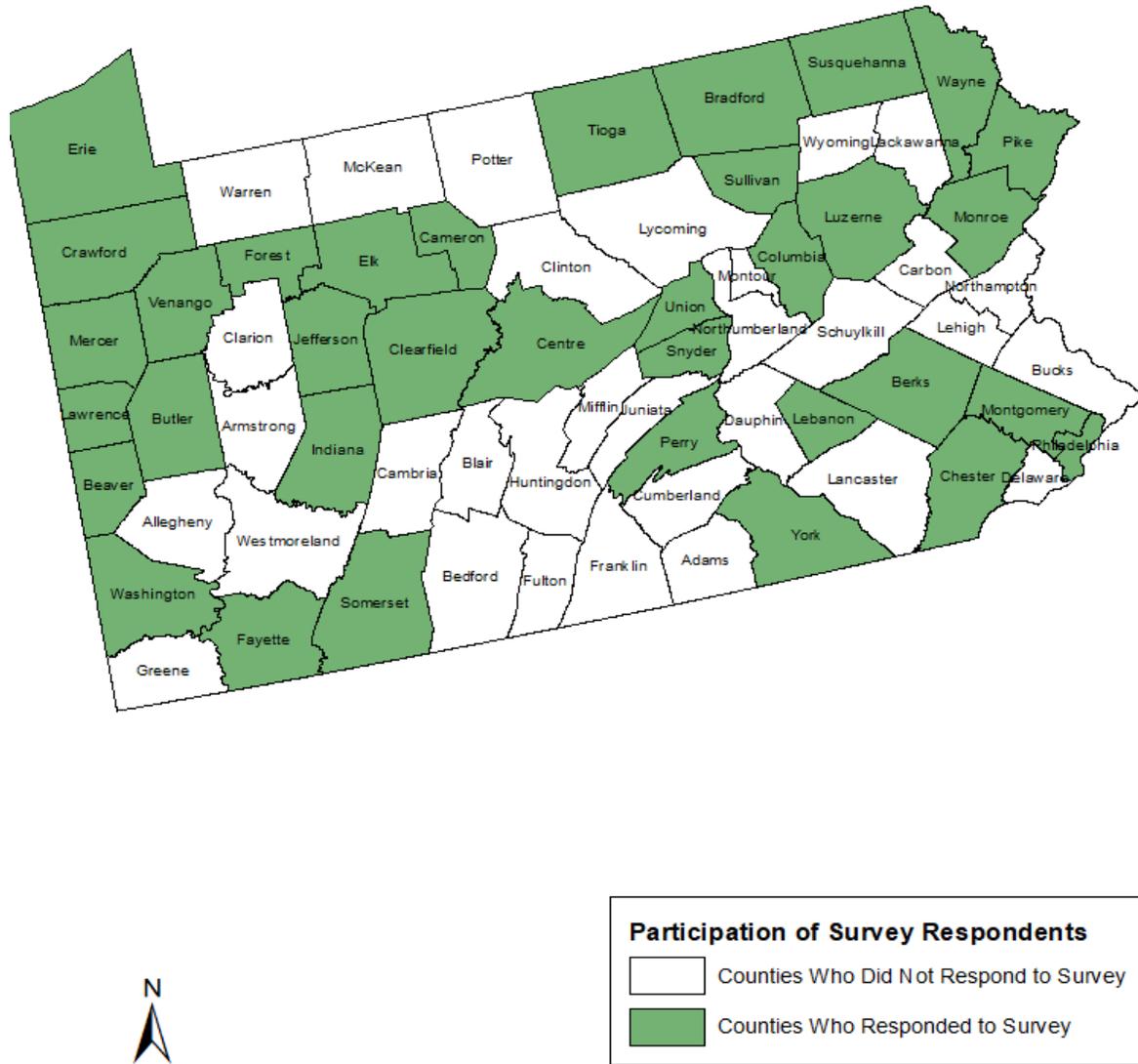
County Recycling Survey Response Rates

The county survey was deployed via Qualtrics Online Survey Platform and responses were collected between June 1 and July 10, 2020. In accordance with Dillman and colleagues' (2014) method for web-based surveys, the initial survey invitations were sent out via email to all respondents on June 1. Reminders were also sent out via email to all county survey respondents on June 4, June 10, June 29, and July 7. In addition to the initial survey invitation and reminders sent via email to all respondents, the Professional Recyclers of Pennsylvania (PROP) Program

Manager, Doug Orner, sent out information to all members requesting counties' participation in the survey. Doug sent out an email on the day the survey was deployed and just prior to the survey closing.

Despite the efforts listed above to increase survey response rates, as well as the project director's personalized communications with individual county recycling coordinators throughout the deployment period, the response rate was not as high as expected. The final county dataset included responses from 35 of 67 counties resulting in a 52 percent response rate: a total of 26 rural counties and nine urban counties responded to the survey (see Figure 1). The margin of error for the survey was ± 12 percent, with a desired 95 percent confidence level. In other words, if the same survey was taken 100 times, the results would be within 12 percentage points of the true population 95 times.

Figure 1: County Survey Participation



County Recycling Survey Results

The survey asked county recycling coordinators questions about mandated and voluntary recycling in their municipalities, collection techniques for curbside and drop-off locations, types of recyclable materials collected by counties, including electronics and household hazardous waste (HHW), and the provider of residential recycling collection. The results for each question are first compared across rural and urban counties. When possible, these results are also compared across regions for county recycling coordinators as designated by the Pennsylvania

Department of Environmental Protection (DEP).⁵See Appendix 3 for all Figures and Tables associated with data in this section.

Over 60 percent of urban municipalities, compared to 37 percent of rural municipalities, are required to establish recycling programs under Act 101 due to population criteria set forth for waste reduction efforts. The counties that responded to the survey spanning the six DEP regions represent 52 percent of Pennsylvania's population in 2019. A single region, the southeast, accounts for over 40 percent of the population for all participating counties and nearly 30 percent of all counties in the state whose municipalities are mandated by Act 101 to recycle. Not surprisingly, it is also comprised of some of the state's most populous urban counties. The southcentral region, mostly made up of urban counties, accounts for 16 percent of the population surveyed and 20 percent of counties required to implement municipal recycling programs. Interestingly, the northwest region, comprised of almost all rural counties, contains 16 percent of the population for all counties responding, and represents nearly 15 percent of counties whose municipalities are mandated to recycle. Collectively, these three regions account for 64 percent of the population surveyed and almost 62 percent of the municipalities mandated by Act 101 to implement municipal recycling programs for residents.

There are also urban and rural differences in the type of collection methods for recyclable materials in municipalities that are mandated by Act 101 to recycle. County respondents had four

⁵ The PA DEP has six designated Recycling Regions: southeast, northeast, southcentral, northcentral, southwest, and northwest. The Southeast Region includes Bucks, Chester, Delaware, Montgomery, and Philadelphia counties. The northeast region includes Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming counties. The southcentral region includes Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York counties. The northcentral region includes Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, and Union counties. The southwest region includes Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, and Westmoreland counties. The northwest region includes Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren counties.

options to select for curbside recycling collection programs: single-stream, dual stream, source separated, and curb sort. Single-stream collection was defined as a system in which all unsorted materials are placed in a single bin for recycling, collected by a single truck, and taken to a Materials Recovery Facility (MRF) to be sorted. Mandated municipalities in 80 percent of urban counties surveyed, compared to only 20 percent in rural locations, use single-stream collection compared to the other three methods mentioned. This is likely due to convenience, cost, and ease of collection. Dual stream, or a system where the resident sorts materials into two categories, paper/cardboard and metals/glass/plastic containers, before they are picked up by truck, proved to be more popular among urban municipalities (almost 70 percent) compared to rural municipalities (just over 30 percent). Source separated collection, defined as a system where all materials accepted for collection are separated by the resident and placed at the curb by item type with no mixing, was more common in rural municipalities (75 percent) mandated to recycle compared to urban municipalities (25 percent). Curb sort collection, or a system where the resident neatly places all materials accepted for collection in a single bin at the curb and the driver sorts it into the truck, was not a service offered to residents in mandated urban municipalities, with 15 rural mandated municipalities opting to use this type of collection program.

Geographic differences also exist in mandated municipalities offering curbside collection programs. Single-stream collection proved popular in the northeast and southeast regions, accounting for nearly 60 percent of county survey respondents. These regions represented an equal proportion of urban and rural counties. Dual stream was common in the southeast, due to a single county's reliance on this method of collection: Montgomery. Counties in the southwest region, mostly rural, accounted for over 33 percent of mandated municipalities using dual

stream, and like single-stream, only one county used this system: Washington. Compared to other geographic regions, source separated collection was most popular among counties with municipalities comprising the northcentral region, with Bradford, Columbia, Snyder, and Union counties accounting for 75 percent of all county respondents. Counties with mandated municipalities in the northcentral region also favored curb sort collection representing almost 70 percent of all respondents. Three rural counties relied on this method of curbside collection: Centre, Clearfield, and Union. It should also be noted that all geographic regions used at least two systems for curbside collection of recyclables. The northeast region featured rural and urban counties that offered all four systems in their mandated municipalities.

With the exception of curb sort, mandated municipalities had the option of selecting from the same curbside collection methods for their drop-off recycling locations. Both rural and urban trends documented for drop-off locations mirrored those described in curbside collection programs: single-stream and dual stream drop-off locations were most popular in urban mandated counties, accounting for 80 percent and 83 percent of respondents, respectively. Rural, mandated counties favored source-separated collection for their drop-off locations accounting for almost 60 percent of respondents. Unlike with curbside collection, however, there was only a slight difference in the number of total drop-off locations offered in rural and urban counties.

Distinct geographic differences were observed in counties with drop-locations in mandated municipalities. Compared to single-stream curbside collection, nearly 75 percent of respondents offering this method for drop-locations were in urban counties within the southcentral and northeast regions. Similarly, the same trend was observed for dual stream drop-off locations, which were most common in the southcentral and northeast accounting for over 83 percent of respondents. Nearly 64 percent of respondents in the southwest and northcentral

regions used source separated collection in their municipal drop-off locations; this was overwhelmingly the popular choice in rural counties within these two regions. Similar to trends observed for mandated municipalities offering curbside collections, every geographic region offered a minimum of two systems for their mandated municipal drop-off locations and the Northeast region provided all three systems of collection for their mandated drop-off locations.

Given the population requirements set forth in Act 101, it is not surprising that over half of rural municipalities compared to urban municipalities are not mandated to establish recycling programs and instead choose to do so voluntarily. These findings also correspond with trends in voluntary municipal recycling programs observed in geographic regions across the state of Pennsylvania. Over 42 percent of respondents from counties located in the northwest and northcentral regions are not mandated to implement municipal recycling collection programs. With the exception of a single urban county (Erie), these programs are located in rural counties.

There are urban and rural differences in the type of curbside collection methods for recyclable materials in municipalities that are not mandated by Act 101 to recycle. Like mandated municipalities, survey respondents were offered the same four choices for voluntary programs. As in urban municipalities mandated to recycle, single-stream proves to be the popular choice for voluntarily implemented municipal curbside collection programs. In fact, urban counties do not rely on any other system of collection. While the majority of rural counties responding also rely on single-stream curbside collection, municipalities rely on source-separated (26 percent), curb sort (3 percent), and dual stream (1 percent) techniques for recycling in voluntary programs.

Nearly 80 percent of respondents located in both urban and rural counties in the northwest, southcentral, and southeast prefer single-stream collection for municipalities offering

voluntary recycling. Washington County, a rural county located in the southwest region, accounted for the only use of dual stream in voluntary municipal recycling programs. Over 83 percent of respondents in the northeast and northcentral regions favored source separated collection for municipalities that offer voluntary recycling. Again, this method of collection was prominent in only rural counties: Wayne, Bradford, Snyder, Sullivan, Tioga, and Union. Centre County, also rural and located in the northcentral region, accounted for the only municipalities offering voluntary curb sort collection. With the exception of the southeast, which relied solely on single-stream, all geographic regions reported using at least two systems for curbside collection in municipalities that were not mandated to recycle by Act 101.

Compared to urban counties, rural counties account for over 60 percent of total drop-off locations for voluntary recycling programs implemented in municipalities with the majority relying on a single collection technique: source separated. Single-stream drop-off locations do not demonstrate a rural-urban distinction. Unlike voluntary curbside collection in urban counties, there is more diversity among techniques in drop-off locations with source-separated and dual-stream options available to residents.

Almost 87 percent of respondents located in rural and urban counties in the northeast, southcentral, and southwest preferred single-stream collection for voluntary municipal drop-off programs. Over 77 percent of respondents in the southwest opted for dual stream collection; interestingly this was in the only urban county located in this geographic region: Beaver. Over half of all respondents favored source separated collection for their voluntary municipal drop-off locations in the northcentral region, all of which are located in rural counties. Like voluntary municipal curbside collection, similar trends were observed when accounting for diversity in systems used in drop-off locations among geographic regions. Excluding the southeast which

only used source-separated collection in municipalities not mandated to recycle, all geographic regions relied on two of the three systems for their drop-off sites. Further, voluntary municipal programs offered in counties located in the southcentral, southwest, and northwest regions offered all three systems for drop-off collection.

There are some notable geographic differences in the parties responsible for overseeing municipal drop-off locations in Pennsylvania. With the exception of volunteer groups, rural counties overwhelmingly outnumber their urban counterparts in terms of those providing oversight for municipal drop-off locations in every category. Both rural and urban counties, including Butler, Chester, and Jefferson, reported landfills and solid waste authorities among the ‘other’ party responsible for oversight of municipal drop-off locations.

Almost 70 percent of respondents accounted for county managed drop-off locations and were predominantly located in two regions comprised of mostly rural counties: northwest and northcentral. Nearly half of all respondents indicated that municipalities located in the southcentral and northcentral regions provided oversight for their own drop-off locations. Respondents noting that private hauler(s) were responsible for overseeing municipal drop-off locations were common in every geographic region, with the southeast alone (comprised of all urban counties) accounting for almost 30 percent. Volunteer groups provided oversight for municipal drop-off locations in the northcentral, southcentral, and southwest regions. All geographic regions reported a combination of parties responsible for overseeing their municipal drop-off sites.

Compared to their rural counterparts, which offer a range of recycling collection providers, urban counties in Pennsylvania opt for a combination of individual municipalities and private hauler(s) to provide recycling collection services to their residents. Rural counties also

offer more providers (70 percent) in general compared to urban counties. Further, only rural counties offer ‘Other’ recycling collection providers to residents, which include Indiana County’s Solid Waste Authority and Perry County’s Individuals Buy-A-Bag Recycling Program.

Over 85 percent of respondents providing countywide recycling collection residents are located in just two regions: northcentral and northwest. More than 44 percent of respondents providing collection services run directly by individual municipalities are located in a combination of urban and rural counties in the southcentral and northcentral regions. Almost 56 percent of respondents providing collection services through private hauler(s) are found within the northwest and northcentral regions. No counties in any geographic region reported volunteer groups as the provider for recycling collection services offered to residents. Only respondents in the southcentral and northwest regions relied on other providers for recycling collection services. Respondents from all geographic regions reported using a minimum of two different providers for county residential recycling collection. The northwest was the only region that relied on four types of recycling collection providers for its predominately rural counties: countywide programs, individual municipalities, private haulers, and other providers.

Payment for residential recycling collection services varied widely in rural and urban counties throughout the state. Rural counties offered 71 percent of all collection services compared to 29 percent in urban counties. While over half of rural counties said individual municipalities and private haulers billed the customer, they also reported that the county, residents, or other parties provide payment for recycling collection services. Only rural counties offered recycling collections paid for directly by the counties themselves. In 70 percent of urban counties, individual municipalities and private haulers are responsible for the payment of

recycling collection services; however, it should be noted that these payment providers in rural counties are nearly double that of urban counties.

Almost 90 percent of respondents where the county provides payment for residential recycling collection services are in the northwest and northcentral regions. Similarly, 54 percent of respondents where the individual municipality pays for recycling collection are found within the northwest and northcentral regions. Nearly 70 percent of respondents located in counties within the northwest, northcentral, and northeast require payment for recycling collection from private haulers. Over half of respondents pay for recycling collection through a fee or tax to county residents in predominantly rural counties located in the northwest and southcentral regions, while 80 percent of counties in the northcentral region rely on other parties for payment of their county recycling collection services. Geographic regions offered a variety of sources for funding their recycling collection programs, with all reporting at least four different types of payment providers. The northcentral region comprised of all rural counties used all five sources for funding their recycling collection programs.

The system used for acceptance of county recycling at the Materials Recovery Facility (MRF) differed in rural and urban counties. There were more than double the options available for rural counties compared to urban counties in terms of systems used for acceptance of materials. While single-stream collection at MRFs were fairly consistent between rural and urban counties, this system accounted for over 72 percent of all available options in urban counties compared to just 44 percent in rural counties. The MRFs accepting single-stream recyclables that were commonly reported among respondents included Waste Management, Republic, and Cogle's Recycling. Dual stream, also comparable between rural and urban counties, and Cogle's Recycling was cited among respondents for accepting this type of material. However,

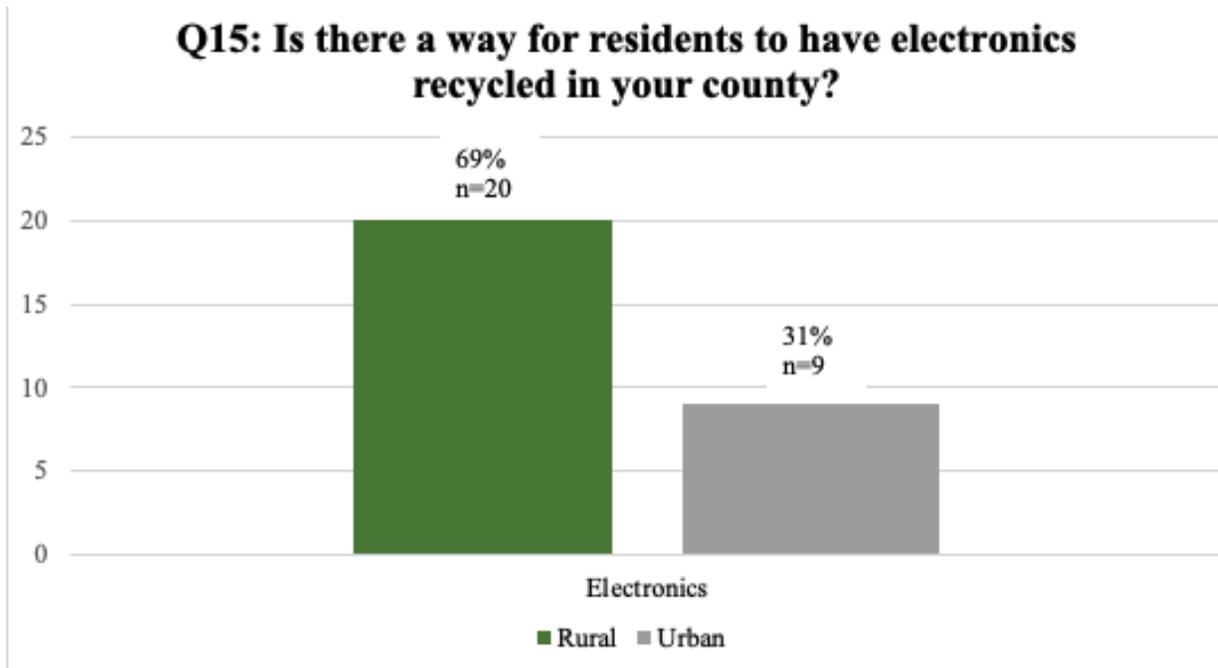
MRFs accepting source-separated recyclables were overwhelmingly located in rural counties (93 percent). The most popular source separated MRFS reported by respondents included Advanced Disposal, Lycoming County Resource Management Services (LCRMS), and Indiana County Solid Waste Authority (ICSWA).

Over 68 percent of respondents from counties located in the northwest, southcentral, and southeast use MRFs that accept single-stream materials. Counties that rely on MRFs that accept dual stream recyclables are located in just the southcentral and northwest regions. Almost 80 percent of respondents using MRFs that accept source-separated materials are found in the northwest and northcentral regions. Urban and rural counties located within the southeast and southwest regions reportedly accepted only one method of collection for processing of county recyclables: single-stream.

In addition to county residential recycling collection, special materials, like electronics and household hazardous waste (HHW), are also of interest to this study. Interestingly, residents in rural counties have increased access to electronics recycling (almost 70 percent) compared to their urban counterparts (see Figure 2). One could argue that electronics recycling would be more accessible to residents in urban counties given the higher populations and likely, increased demand for this special type of collection. However, our findings do not support this argument and will be investigated further in later questions.

Over half of all respondents reported residential access to electronics recycling in predominately rural counties located in the northwest and northcentral regions.

Figure 2 Access to Electronics Recycling in your County (Yes Response)

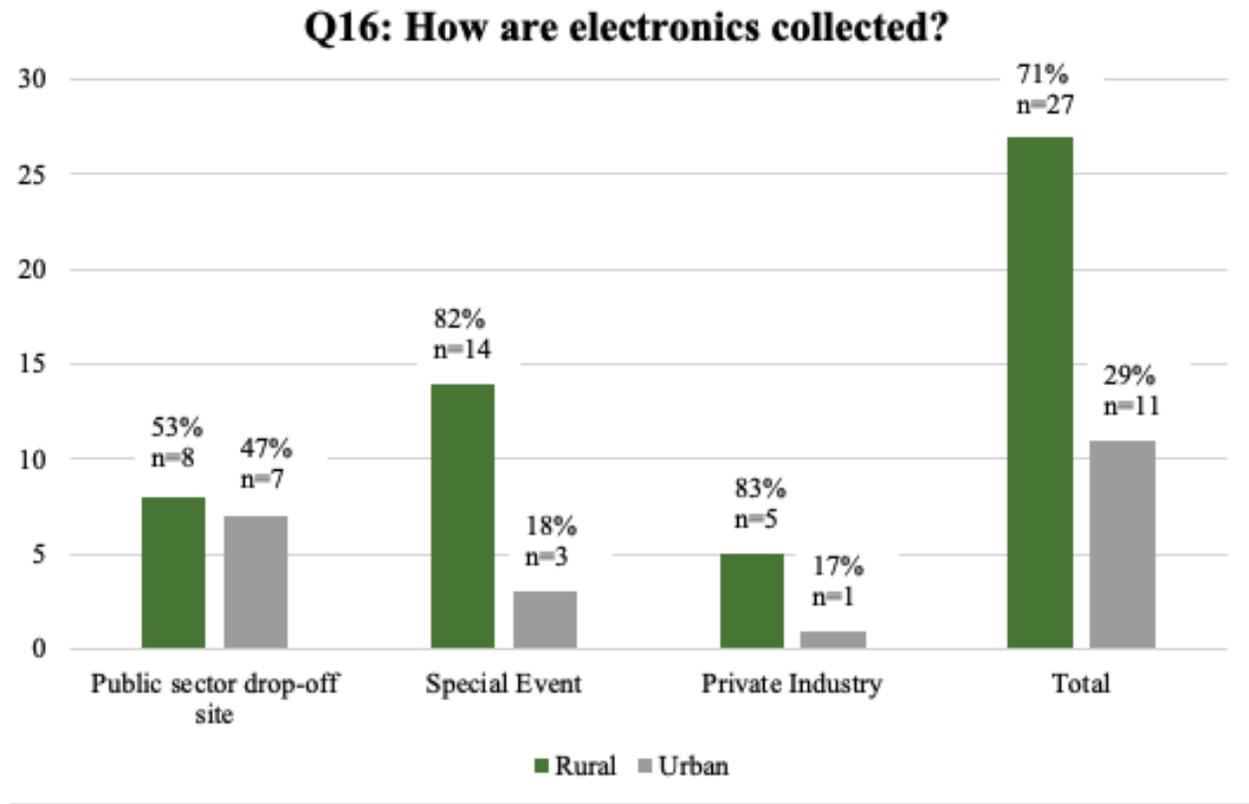


Collection of electronics recycling also differed in rural and urban counties with more techniques available to rural residents than urban residents (see Figure 3). Overall, 64 percent of respondents from urban counties provided electronics recycling through public sector drop-off sites. The remainder of urban counties also relied on special events and private industry to assist with the collection of electronic devices. Over half of rural counties offered residents the opportunity to recycle electronic items at a special event. Public sector drop-off sites and private industry also played a considerable role in electronics recycling collection in the remainder of rural counties responding.

Nearly 54 percent of respondents provided access to electronics recycling for both rural and urban county residents located in the northwest and southcentral regions. Over 70 percent of respondents residing in predominately rural counties in the northwest and northcentral regions were able to recycle electronic devices at a special event. Except for residents in the northeast

and southcentral regions, urban and county residents had access to electronics recycling with assistance from private industry. Over half of respondents where this service was provided were in the northwest. All geographic regions offered at least two methods of collection for electronics recycling with half providing all three methods of electronics collection for urban and rural county residents in the southeast, northcentral, and northwest regions.

Figure 3 Electronics Collection Techniques by County

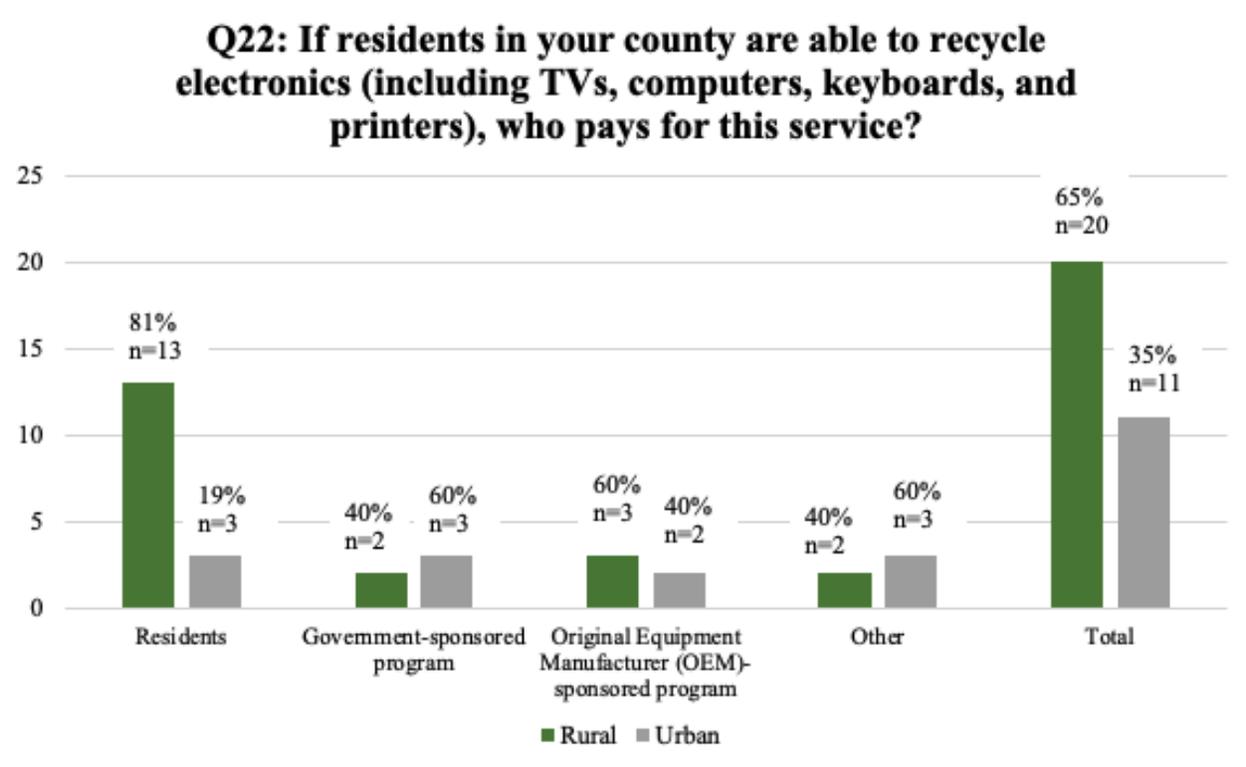


There is more variety in the parties responsible for the payment of electronics collection in rural counties (65 percent) compared to urban counties (35 percent) (see Figure 4). Excluding residents, payment for electronics recycling collection trends are generally consistent across urban and rural counties in the state. In over 80 percent of rural counties that offer recycling of electronic devices, the costs fall on the shoulders of county residents. While more government-sponsored programs commonly footed the bill for electronics recycling in urban counties

compared to rural counties, the opposite was true for Original Equipment Manufacturer (OEM)-sponsored programs. Due to the growing global electronic waste (e-waste) problem there is an increased emphasis on the need for creators of electronic devices and appliances to accept accountability for their items when it comes to their ultimate disposal. OEM-sponsored programs take back their products from the consumer for safe and sustainable disposal. Other parties providing payment for the collection of electronics recycling in urban and rural counties included the following: DEP grant funds, municipalities, landfills, and a combination of payment sources.

Over 75 percent of respondents primarily residing in rural counties in the northwest and northcentral regions charge a fee to residents to provide access to electronics recycling collection. With the exception of counties located in the northeast and northcentral regions, government-sponsored programs pay for the recycling of electronic devices for rural and urban residents across the state; compared to other regions, residents in the northwest have more opportunities for electronics recycling funded by these programs. OEM-sponsored programs were equally common in all geographic regions excluding urban counties in the southeast. At least one county in every geographic region provided electronics recycling collection to urban and rural residents funded by other means. All geographic regions reported a minimum of three funding sources for electronics recycling collection in their counties. Urban and rural counties in the southcentral and northwest regions used all four funding sources for payment of electronics recycling.

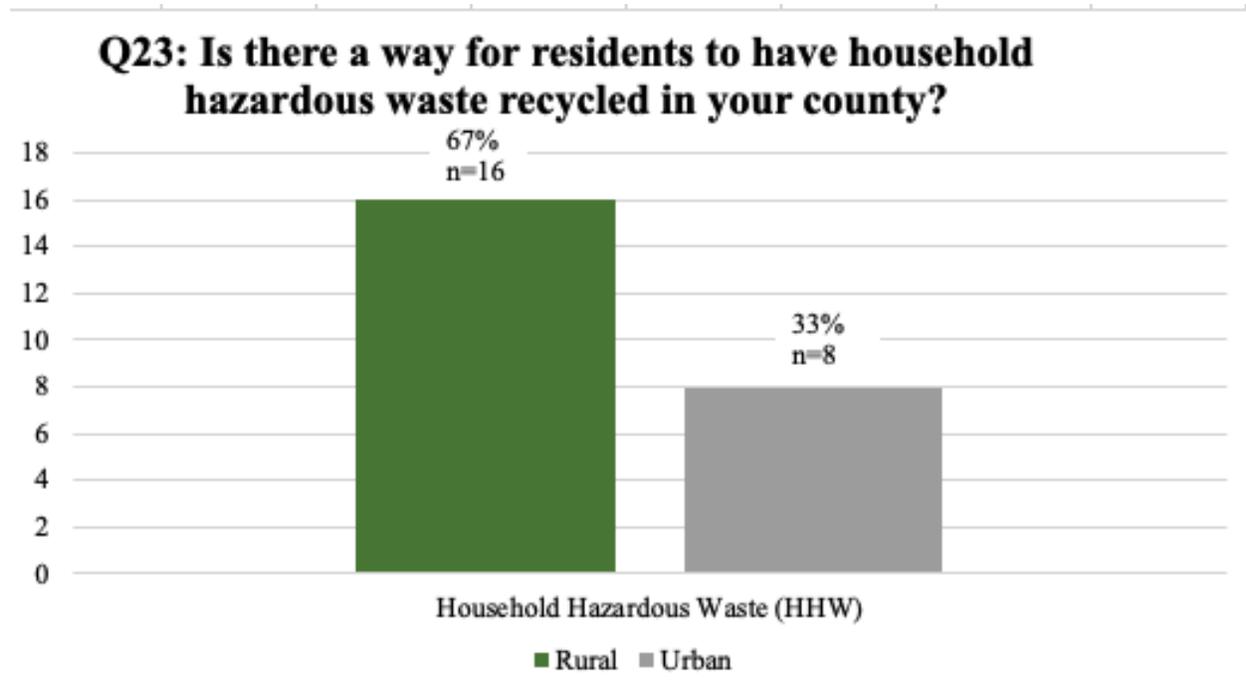
Figure 4 Payment for Electronics Recycling in your County



Mirroring trends observed with counties offering the collection of electronics recycling, rural counties (nearly 70 percent) reported increased access to household hazardous waste (HHW) recycling opportunities for residents compared to their urban counterparts (see Figure 5). According to DEP (1999), HHW may include products that are flammable, chemically reactive, or otherwise toxic when improperly disposed of in the environment. Every Pennsylvania resident creates an average of four pounds of HHW annually. Common household items that may comprise HHW waste are gasoline, motor oil, pesticides, batteries, paint, and chlorinated pool chemicals.

Except for respondents located in the northeast, all geographic regions reported residential access to HHW recycling in rural and urban counties. More than 62 percent of respondents with access to HHW recycling collection were found in the northwest and northcentral regions.

Figure 5: Access to Household Hazardous Waste (HHW) Recycling in your County (Yes Responses)

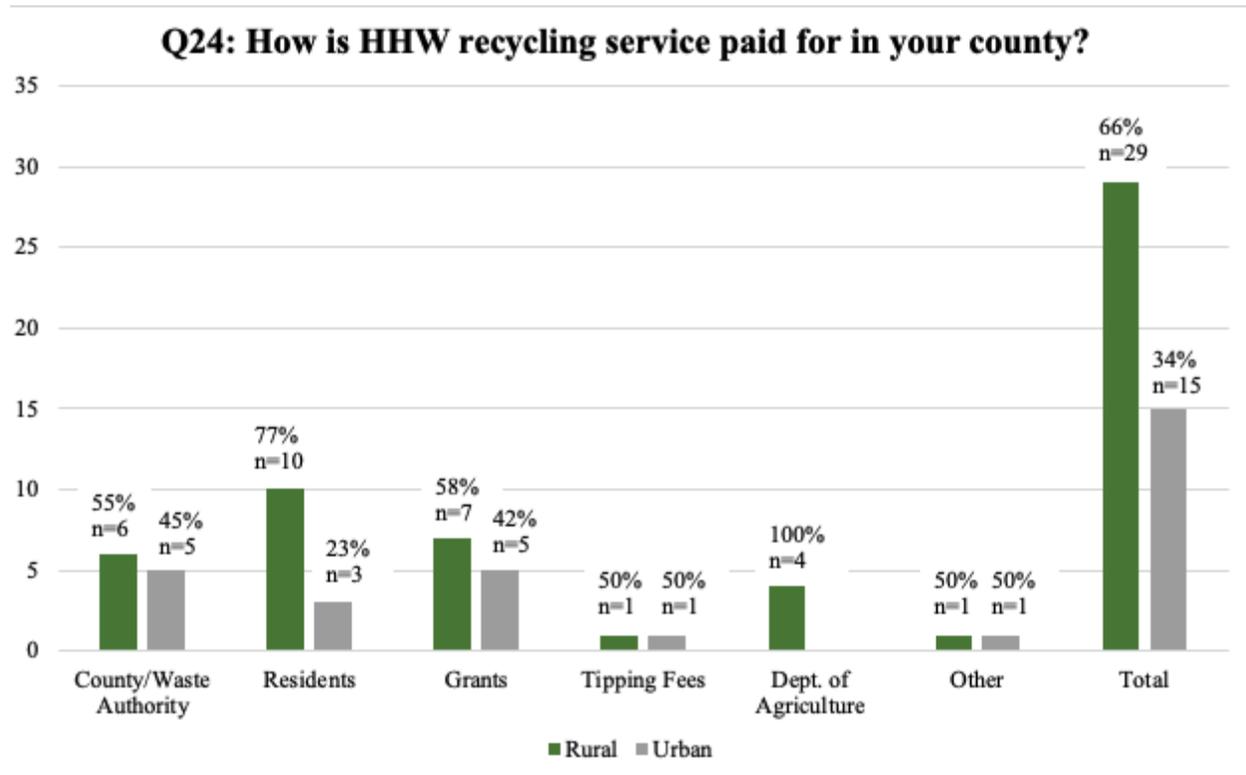


There is more diversity in the parties responsible for the payment of HHW recycling collection services in rural counties (nearly 70 percent) compared to urban counties (just over 30 percent) (see Figure 6). Over 86 percent of all rural counties relied on the county/waste authority, grants, and county residents to fund the collection of HHW recyclables, compared to about 80 percent of their urban counterparts. However, rural counties were increasingly reliant on DEP grants to fund HHW recycling collections for their residents. Act 190, Chapter Two of the Household Hazardous Waste Collection Grant offers reimbursement to sponsors of collection programs for not only HHW but also electronic devices and tires (Pennsylvania General Assembly 1996). Counties or other registered sponsors of collection are eligible for reimbursement of up to 50 percent of the costs incurred for HHW recycling. It should be noted however that every county (rural and urban) reporting DEP Act 190 grants as a funding

mechanism for the collection of HHW recycling (excluding Chester County) required other additional sources to pay for these collection expenses. Other supplementary funding sources for HHW recycling commonly cited included the following: county/waste authority, residents, the Pennsylvania Department of Agriculture CHEMSWEEP Program, and other sources. Bradford, Perry, Sullivan, and Tioga counties (all rural) were eligible for and received CHEMSWEEP grants to assist with the disposal of unwanted pesticide products. Other funding sources for HHW recycling collection were cited in Washington County (rural) and Chester County (urban). Washington County relied on the Pennsylvania Resources Council, a non-profit grassroots environmental organization, to assist with the collection of HHW items in addition to the county and its participating residents through a fee. Chester County reported that its municipalities paid for the HHW recycling in combination with unspecified grants.

All geographic regions provided residential access to HHW recycling collection paid for by the county/solid waste authority; over a quarter of respondents were located in rural counties in the northcentral region. More than 61 percent of respondents located in predominantly rural counties within the northwest reported that residents provided the necessary funding for the HHW recycling collection. Nearly 70 percent of respondents in the northcentral and northwest regions relied on grant funding from the state to pay for HHW recycling; most of these were located in rural counties. Tipping fees and grant funding from the Department of Agriculture's CHEMSWEEP program, respectively, paid for all counties (largely rural) located within the southcentral and northcentral regions. All respondents within both rural and urban counties located in the southwest and southeast used other funding mechanisms to provide HHW recycling collection services to the residents. Urban and rural counties in all geographic regions provided at least three different funding sources for collection of their HHW recyclables.

Figure 6 Payment for Household Hazardous Waste (HHW) Recycling in your County



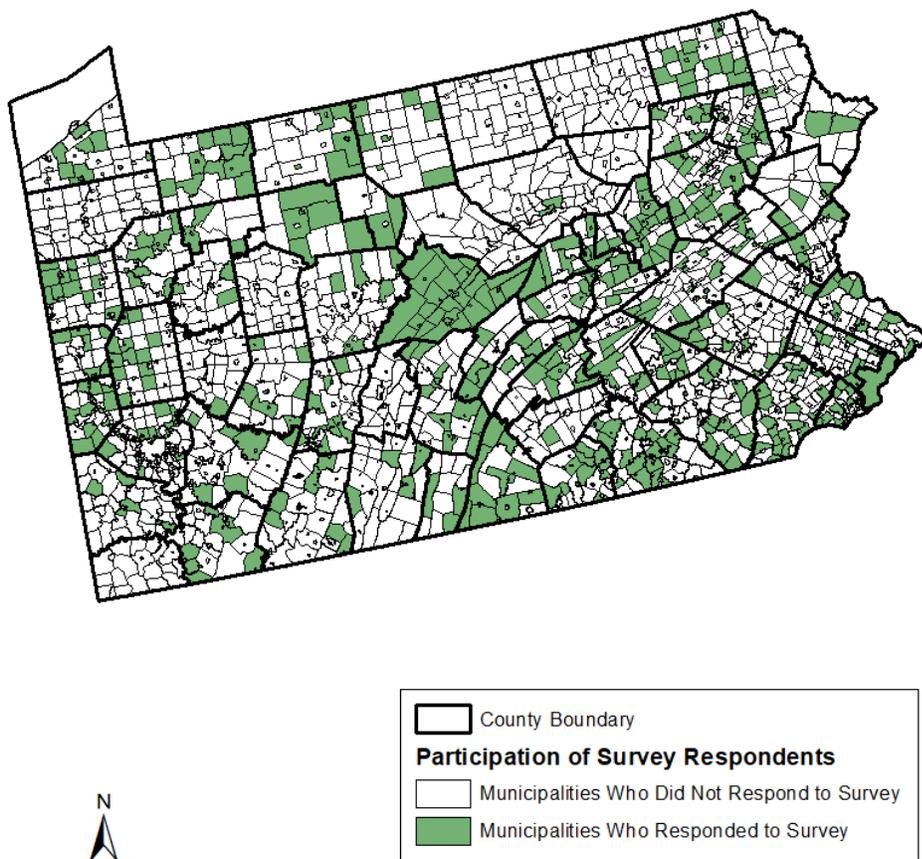
Over 70 percent of rural counties reported knowing the processing location for their county’s recyclables compared to 29 percent of urban counties. Rural counties were equally distributed across processing their recyclables in public sector MRFs and private sector MRFs, compared to 77 percent of urban counties that reported using private sector MRFs for processing.

Almost 70 percent of respondents located in rural counties in the northcentral and northwest regions reported sending their recyclables to a public sector MRF for processing compared to the same percentage in urban and rural counties located within the northwest, southcentral, and the southeast utilizing a private sector MRF. With the exception of the southeast, all geographic regions used a combination of public sector and private sector MRFs for processing their recyclables.

Municipality Recycling Survey Response Rates

The municipal surveys followed the same methodology as the county surveys in terms of deployment, collection of responses, and email reminders. The final municipality dataset includes responses from 702 of Pennsylvania's 2,552 municipalities, resulting in a 27 percent response rate; a total of 427 rural municipalities and 275 urban municipalities responded to the survey (see Figure 7). The margin of error for this survey was +/- 3 percent, with a desired 95 percent confidence level. It should be noted that while 32 counties did not respond to the county survey, municipalities from 30 of those counties responded to the municipal survey. The only counties without responses from either survey were Clinton and Greene counties.

Figure 7 Municipality Survey Participation



Municipality Recycling Survey Results

The survey asked municipal recycling coordinators questions about recycling education in their municipalities, collection techniques and types of recyclable materials for both curbside and drop-off location collections, frequency of collection in their municipalities, determinants of recycling materials collected, problems associated with illegal dumping, negative impacts on collection, and much more. The results for each question are first compared across rural and urban municipalities and then counties, when possible. See Appendix 4 for all Figures and Tables associated with data in this section.

Almost 80 percent of urban municipalities, compared to just over 20 percent of rural municipalities, are required to establish recycling programs under Act 101. As discussed in the county survey, this finding is not surprising due to criteria set forth for both total population and population density that guide municipal waste reduction efforts and recycling programs.

Of the municipalities responding to the survey, 15 percent or a total of 10 counties reported that at least half of their municipalities were mandated by Act 101 to recycle. Forty percent of these counties were rural, including Bradford, Lycoming, Monroe and Pike counties. Further, these counties' mandated municipalities accounted for seven urban municipalities and four rural municipalities. A total of 15 counties on behalf of 109 municipalities reported that none of their municipalities were mandated to recycle. In addition to all 15 counties being rural, 95 percent of the municipalities that indicated they were not mandated to recycle were also rural. Again, this finding highlights the greater participation in urban areas due to satisfying the population requirements for establishment of a municipal recycling program compared to rural municipalities where populations are smaller and/or more geographically dispersed throughout the physical landscape.

Rural and urban distinctions were observed with the types of collection programs offered by municipalities in the state. Overall urban municipalities offered slightly more collection services (54 percent) than their rural counterparts (46 percent), likely due to having more municipalities that are mandated to recycle under Act 101. Rural municipalities reported a strong preference for drop-off locations (53 percent) compared to urban municipalities who favored curbside collection (55 percent). Over 70 percent of urban municipalities offered both curbside collection and drop-off sites thus providing increased access to recycling to urban residents, compared to just less than 30 percent in rural municipalities.

In terms of municipal access to a collection program, almost 60 percent of counties have municipalities that provide access to both curbside collection and drop-off locations to residents. Further 67 percent of counties offer residential access to both types of municipal recycling collection. Centre County provides the highest total number (33) of municipal recycling opportunities to residents, preferring drop-off sites and both types of collection. Allegheny, York, and Luzerne counties also offer more than 20 municipal recycling collections to their residents, respectively. While Allegheny and Luzerne counties reported municipalities that offer all three types of collection, York County municipalities indicated a strong preference for curbside collection and both compared to drop-off locations.

In addition to including questions on municipal recycling collection programs, the municipality survey fielded questions related to illegal dumping which may underscore issues related to residential access to waste collection and associated disparities between rural and urban municipalities. In 2009, the Center for Rural Pennsylvania conducted a study of illegal dumpsites in the state using data from PA CleanWays, an environmental nonprofit, and found that 72 percent of illegal dumpsites were located in a rural municipality compared to 28 percent

found in urban municipalities. Interestingly, illegal dumpsites found in rural municipalities contained more waste (11,219 tons or 77 percent of the total) compared to those located in urban municipalities (3,275 tons or 23 percent of the total) (Center for Rural Pennsylvania 2009). Given that the Center for Rural Pennsylvania study analyzed data on illegal dumping from 2005 to 2009, the researchers felt it would be useful to provide an update on this growing problem in Pennsylvania and determine if trends persist regarding rural and urban disparities in illegal dumping and access to municipal waste collection.

A total of 399 rural municipalities (62 percent of the total) responded to the question on illegal dumping compared to 244 (38 percent of the total) of urban municipalities. Interestingly, there was no rural-urban distinction in municipalities reporting that illegal dumping was not a problem at all. Over 50 percent of urban municipalities indicated that illegal dumping was not a very big problem compared to 44 percent in rural municipalities, which is quite comparable. However, rural municipalities collectively reported that illegal dumping was somewhat of a problem (35 percent) or a very big problem (8 percent). Thirty percent of urban municipalities indicated that illegal dumping was somewhat of a problem and 5 percent reported it to be a very big problem. Our findings suggest that rural municipalities continue to have problems with illegal dumping, with 43 percent reporting it to be a problem compared to 35 percent of urban municipalities. However, it should be noted that this survey question relied on the municipal recycling coordinator's perceptions of illegal dumping in their municipalities rather than quantitative data on known dumpsites, such as those used by the Center for Rural Pennsylvania study. These findings do, however, warrant further investigation because rural counties and municipalities continue to report incidents of increased illegal dumping. For example, a recent news article brought attention to this growing problem in Monroe County (Nark 2020). Members

of the county's own Waste Authority Police Department have documented an increase in reports of illegal dumping, which some believe are linked to the pandemic; with many residents out of work, money for things like waste disposal and collection in rural locations can present a challenge for families who may instead choose to illegally dump or burn their trash. As a result, items from tires to used diapers were reported to litter the rural landscape in Monroe County.

When examining trends of illegal dumping in Pennsylvania counties, a collective total of 40 percent of municipalities reported that this was somewhat of a problem (33 percent) or a very big problem (7 percent). The 57 counties with municipalities reporting that illegal dumping was somewhat of a problem included 72 percent of rural municipalities and 28 percent of urban municipalities. Of the counties reporting that illegal dumping was a very big problem, 79 percent were rural compared to 21 percent of urban municipalities. However, this is complicated because more than 47 percent of responding municipalities reported that illegal dumping was not a very big problem. These disproportionate findings highlight the need for this problem to be further investigated, paying particular attention to the role of geography in influencing residential accessibility to waste disposal and recycling collection programs.

Studies have found that targeting environmental education efforts to populations may promote environmental awareness and encourage pro-environmental behaviors. Providing individuals with accurate information on waste management and recycling and its associated environmental and economic benefits may result in increased recycling behavior (Vining and Ebreo 1989; Smith et al. 1997; Sidique et al 2010). Vining and Ebreo (1989) conducted a study that assessed the impacts of a recycling education campaign on knowledge of recycling issues, motivation to recycle, and recycling participation. Community residents were surveyed prior to and after the implementation of a three-year recycling education program. Their findings

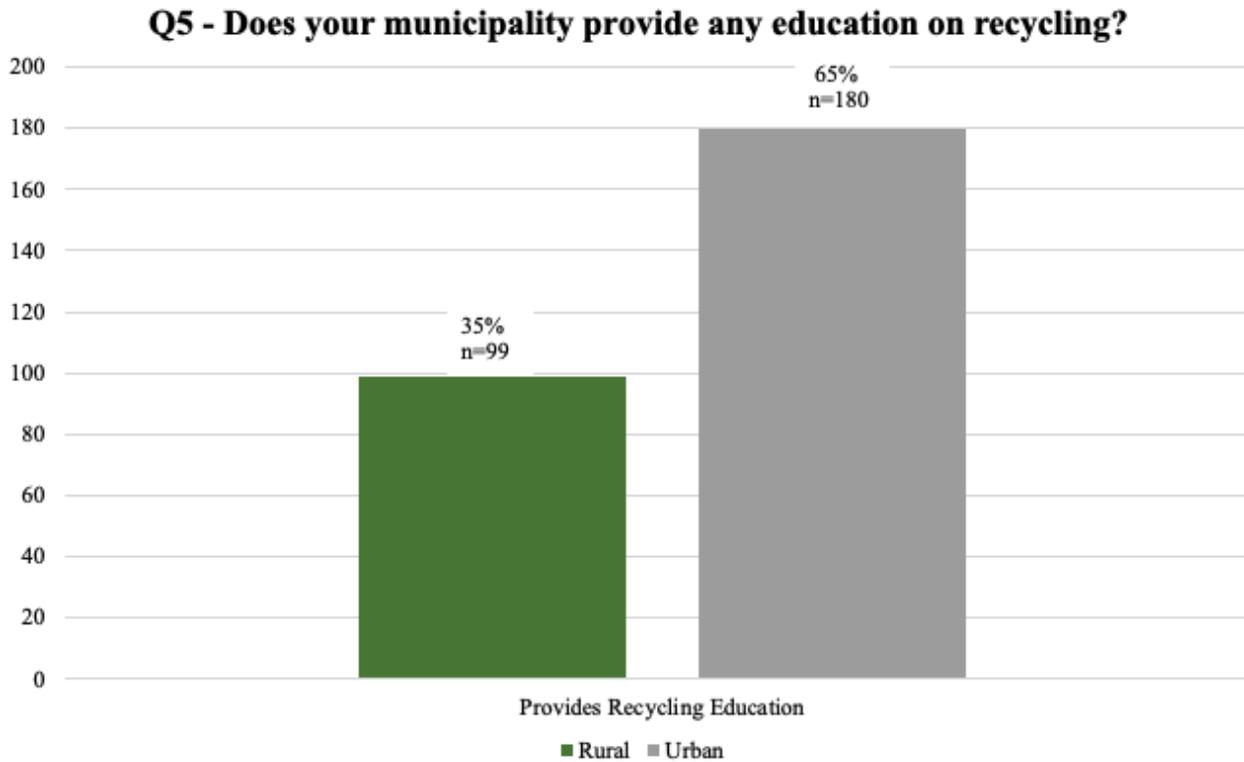
suggested that after the education program, both individuals' knowledge of recycling issues increased in accuracy and their recycling participation increased. Sidique et al. (2010) also reported similar findings related to financial investment in educational programs in Minnesota counties and their associated success with increased recycling behaviors among residents. Smith et al. (1997) also found that implementing an educational campaign on paper recycling for grade school children resulted in enhanced knowledge of recycling, produced more positive attitudes toward recycling, and increased participation in paper recycling.

The value of educational campaigns to recycling programs cannot be overstated. The survey posed numerous questions to municipal recycling coordinators to learn more about how educational efforts are conducted in Pennsylvania municipalities and how they may differ based on geography. Clear urban and rural distinctions were observed in municipalities that offer any kind of recycling education to residents, with urban municipalities reporting nearly double the number of educational efforts compared to rural municipalities (see Figure 8). This finding may be partly explained by the fact that, unlike their rural counterparts, larger, urban municipalities may have more resources, staff, and funds in which to target recycling education to their residents. As this study has demonstrated, compared to urban municipalities, rural municipalities are less likely to be mandated by Act 101 to recycle and as a result have limited financial resources and limited recycling education campaigns. This can make it even more challenging to encourage high rates of recycling in these areas.

Analyzing recycling education efforts at the county level also yields some interesting findings. Of those seven (rural) counties reporting that none of their 46 municipalities provide recycling education to their residents, 93 percent are rural municipalities. However, upon close examination of the predominately five rural counties reporting that all 42 municipalities provide

recycling education to their residents, 69 percent are comprised of rural municipalities compared to just 13 percent of urban municipalities. This suggests that there are other complex factors at work that can help us understand the role of recycling education in Pennsylvania municipalities.

Figure 8: Recycling Education in Municipalities (Yes Response)

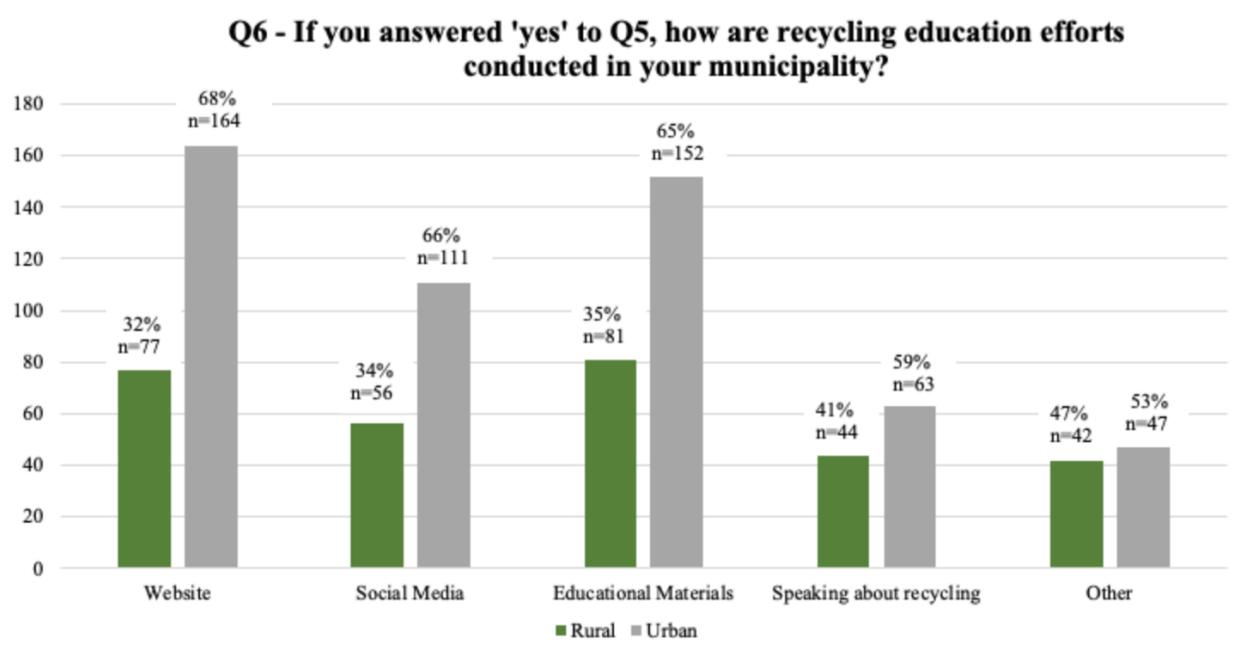


The types of recycling educational efforts implemented in municipalities vary widely among rural and urban locations, with 64 percent of educational initiatives applied in urban municipalities compared to 36 percent of rural municipalities (see Figure 9). Urban municipalities consistently use municipal websites, social media technologies like Facebook, and educational materials to inform residents about recycling more frequently than rural municipalities. Compared to rural municipalities, urban municipalities are also more likely to give presentations about recycling to schools and their communities. Other educational efforts commonly cited by over half of urban municipalities include sending out newsletters, recycling

calendars, and using TV and radio to promote recycling behavior. Rural municipalities are not as dependent on websites (32 percent) and social media (34 percent) to encourage recycling compared to urban municipalities, which may be related to access to computers and related technology and Internet connections. The most popular educational efforts implemented by rural municipalities include other activities (47 percent) and giving talks on recycling (41 percent). Other recycling education activities reported by rural municipalities are similar to those used by urban municipalities, with mailers, township newsletters, and advertisements in local newspapers all being used to inform the public about their recycling programs.

Trends in the kinds of educational initiatives also emerge when analyzing counties. Overall, 56 percent of municipalities throughout the state prefer to use their own websites or educational materials to promote recycling among residents and communicate collection events and important updates to the public. Clear geographic patterns appear among those counties that report no municipalities using websites, social media, educational materials, public speaking engagements, and other efforts. In each of these five categories, 80 percent or more of those reporting no participation from municipalities are located in rural counties compared to urban. Similar trends were observed when examining those counties with the highest participation among their municipalities; with the exception of Centre County, in each of the five education categories urban counties led the state. Urban counties with large populations including Allegheny, Montgomery, Bucks, Delaware, and Chester counties also account for some of the most diverse educational campaigns, with their municipalities incorporating a combination of resources to inform the public about recycling.

Figure 9: Types of Recycling Education in Municipalities



Question seven allowed municipalities to share even more detailed information on how they conduct their recycling education programs and responses emphasized specific kinds of educational literature used, events hosted or attended, and partnerships created to promote recycling in their communities. A total of 186 municipalities responded to this question, including 36 percent of rural municipalities and 64 percent of urban municipalities. Open-ended responses were analyzed and coded to generate the following categories: newsletters, guides/brochures/calendars, website, social media, community events, partnerships with schools, and other activities. Results suggest that the majority of these educational resources and activities are consistent among both rural and urban municipalities, with the most common including posting information and updates on social media platforms like Facebook and Twitter and participation in community events like National Night Out and public meetings as well as holding annual special event recycling collections. Municipalities also distinguished between quarterly newsletters that provide information to their residents on issues related to recycling

collection materials and related events; both electronic and mailed newsletters were identified by municipalities. Similarly, informational literature on accepted municipal collection materials and frequency of collection, calendars of events with contact information and hours of operation, if applicable, were also reported by both rural and urban municipalities. Like newsletters, these items were made available to residents electronically via the municipal website or via email, or as printed materials mailed to residents, posted on municipal bulletin boards, or otherwise accessible to residents in the primary recycling office. Compared to urban municipalities, rural municipalities reported more frequent involvement with schools as part of their educational campaigns, including K-12 and universities where recycling coordinators give presentations, hold workshops on the importance of recycling, as well as offer field trips to local recycling facilities. Other activities that did not fit the previously mentioned categories included advertisements in newspapers and on TV, radio, and transit, signage at recycling facilities, educational seminars and workshops provided through the contracted hauler, and providing recycling containers, bags, or other supplies to residents to encourage recycling behavior. Urban municipalities (56 percent) used these other opportunities more than their rural counterparts (44 percent) to inform the public about recycling.

More than half of all municipalities responding relied on websites, guides/brochures/calendars and other activities to target their recycling education efforts to community residents. Of the 25 rural counties with municipalities reporting information about their educational efforts, only 8 percent indicated using 10 or more educational resources or activities to promote recycling in their communities. Centre County reported the highest numbers (254) regarding educational efforts implemented in their municipalities, all of which are led by the Centre County Recycling and Refuse Authority (CCRRA). Columbia County came in second

with municipalities reporting a total of 12 educational initiatives. Compared to rural counties, a total of 14 urban counties or 74 percent were comprised of municipalities that incorporated at least 10 educational resources or activities to encourage recycling. Allegheny and York counties reported the highest numbers with municipalities indicating 29 and 22, respectively.

A combination of recycling collection techniques was used in municipalities with single stream being the most common for both rural municipalities and urban municipalities, accounting for 59 percent and 81 percent of recycling collection, respectively. Rural municipalities (18 percent) were also more likely to use source separated collection compared to urban municipalities (7 percent). Both dual stream and curb sort collection techniques were not as popular, accounting for just over 20 percent of recycling collection in rural municipalities compared to a little more than 10 percent in urban municipalities. However, dual stream, source separated, and curb sort recycling proved to be more typical of rural municipalities, where urban municipalities relied heavily on one technique: single-stream collection.

Overwhelmingly, single-stream was the most common system for recycling collection in municipalities accounting for over 70 percent compared to dual stream, the second most popular system with more than 12 percent. Interestingly, Centre County's 32 municipalities did not opt for single-stream collection and instead chose to rely on a combination of source separated and curb sort recycling collection. In fact, a recent study from MSW Consulting (2016) found that converting from Centre County's current collection to a single stream method would not only cost more but would be less effective in terms of the volume of recycling processed at its facility. This finding conflicts with other trends identified in counties throughout the state. The top 13 counties accounting for over 64 percent of municipal collection were comprised of 10 urban

counties and all relied on single-stream recycling for the bulk of their collection. Further, both Lancaster and Northampton counties did not use any other type of collection.

Frequency of curbside recycling collection was consistent in municipalities throughout Pennsylvania, with recyclable materials picked up on weekly in more than half of locations, including rural (58 percent) and urban (64 percent) municipalities. Similar trends were observed with recycling collection picked up every other week in more than a quarter of municipalities, both rural and urban. Rural municipalities, however, were more likely than urban municipalities to have recyclables picked up monthly. Less frequent collection may lend support to the argument that illegal dumping is more prevalent in rural locations versus urban locations in Pennsylvania.

Over 60 percent of municipalities were in counties that had the most frequent recycling collection, on a weekly basis, compared to every other week (28 percent) or monthly (9 percent). Of those 13 counties with municipalities reporting no weekly pickup of recycling, 93 percent were rural compared to urban counties. Similarly, of those five municipalities that reported a total of two or more locations with monthly recyclable collection, 80 percent were in rural counties. Further, monthly collection in those counties accounted for 80 percent or more of all collections in three: Columbia, Snyder, and Lycoming counties.

The providers of curbside recycling collection services in municipalities were consistent across municipalities. In both rural and urban municipalities, there was a strong preference toward private subscription providers, with 48 percent in rural locations compared to 38 percent in urban locations. Urban municipalities were more than four times as likely as rural municipalities to provide curbside recycling collection to their residents. Multiple hauler systems were more commonly used as curbside collection providers in rural municipalities (22 percent)

compared to urban municipalities (16 percent). Rural and urban municipalities were comparable in terms of the county providing curbside recycling collection. Volunteer groups were rarely used in municipalities accounting for less than 2 percent of total providers in both rural and urban locations.

Almost 75 percent of municipalities indicated a strong preference for just two providers: private subscription and municipalities. A total of 45 percent of all counties with municipalities responding reported having five or more providers for curbside recycling collection and were more common in urban counties (62 percent) compared to rural counties (38 percent). In 38 percent of counties with municipalities reporting two or fewer providers of curbside recycling, 91 percent are in rural counties compared to just 9 percent in urban counties. This finding suggests that rural counties may have more difficulty finding providers of curbside collection due to affordability and geographic location. Rural counties, although containing smaller populations may result in more expensive pickup for residents due to greater distance between collection locations across the landscape compared to urban counties. Of those 31 municipalities with the fewest options in curbside collection, municipalities, counties, and private subscription providers were the most common collection providers.

Nearly half of municipalities reported that the individual homeowner is responsible for recycling collection service, with 48 percent in rural municipalities and 49 percent in urban municipalities. This could be problematic for residents in rural municipalities if they cannot afford the cost of recycling collection, which may increase the likelihood of illegal dumping and burning of waste in those locations. More than 37 percent of municipalities cited that the municipality pays for recycling collection services in their areas, accounting for 31 percent of rural municipalities and 41 percent of urban municipalities. Other parties, though not nearly as

popular, were also reported by municipalities as paying for recycling collection, with 21 percent of rural municipalities selecting this option compared to just 10 percent of urban municipalities. Other frequently reported options by municipalities for payment of recycling collection services included the following: counties, private haulers, and a cost sharing mechanism among residents, counties, and/or municipalities.

More than 85 percent of municipalities in counties reported that individual homeowners and municipalities were responsible for footing the bill for recycling collection services. Of those 18 counties with 10 or more municipalities responding, 72 percent were urban municipalities compared to 28 percent of rural municipalities. In the 32 counties with municipalities reporting one or more other options for payment of recycling collection services, rural counties accounted for 63 percent of responses compared to 37 percent of urban counties.

Overall the collector was reported to be the most common, however major differences were observed in rural and urban municipalities in terms of who determines the kinds of recyclable items that will be collected. Overwhelmingly, 90 percent of rural municipalities reported that the collector made that decision compared to 45 percent of urban municipalities. This is likely due to more rural municipalities not being mandated to recycle under Act 101, and thus having more flexibility in terms of what is accepted for recycling collection in their locations. Urban municipalities many of which are mandated to implement recycling programs must have an ordinance identifying at least three materials for recycling collection.

Almost 70 percent of municipalities reported that the collector made the determination of the items for recyclable collection. Of the 24 municipalities reporting two or more ordinances that determine recycling collection, 67 percent are in urban counties compared to 33 percent of rural counties.

Over 90 percent of all municipalities reporting the ordinance number and year are in urban areas compared to rural areas. For those municipalities reporting that an ordinance determines the type of recyclable items for collection, almost half indicated that they were passed in the 1990s, with 26 percent indicating that ordinances were passed in the 2010s. One could argue that with an increase in population in urban municipalities in the 2000s and 2010s, more locations satisfied the requirements for a mandated recycling program thus helping to explain the uptick in ordinances during these decades.

Almost 50 percent of municipalities reported that ordinances determining items for recycling collection were passed in the 1990s compared to other decades. Of the five counties with municipalities citing the creation of five or more ordinances, all were urban and accounted for more than 30 percent of all ordinances passed since the 1980s. This includes Berks, Chester, Delaware, Montgomery, and York counties with a total population of nearly 2.8 million, or roughly 22 percent of Pennsylvania's population.

Question 16 was open-ended and asked municipal coordinators to identify the processing/selling location of their collected recyclable materials. A total of 207 responses were then coded based on trends that emerged in the data. For visualization purposes, 10 specific categories were created with the remaining responses placed into the "other" category. It should also be mentioned that municipalities often reported more than one processing/selling location in their responses, which is reflected in the total. Almost half of urban municipalities indicated that other processing/selling locations were used compared to 36 percent of rural municipalities. Nearly 40 percent of rural municipalities sent their collected recyclable materials to Centre County Recycling and Refuse Authority (CCRRA) for processing, compared to only 5 percent of urban municipalities. In rural municipalities, the remaining responses were evenly distributed

across Advanced Disposal, County Waste, Lycoming County Resource Management Service (LCRMS), Penn Waste, and York County Solid Waste Authority (YCSWA). Waste Management did account for almost 10 percent of recyclable processing locations in rural municipalities. Similar to rural municipalities, urban municipalities were fairly consistent across processing locations, including Advanced Disposal, CCRRA, Cogle's Recycling, County Waste, LCRMS, Republic Services, and YCSWA. Penn Waste, Waste Management, and J.P. Mascaro & Sons accounted for slightly more at 8 percent each. Urban municipalities also reported using recyclable materials processing locations like Cogle's Recycling, J.P. Mascaro & Sons, and Republic Services, which were absent from the responses of rural municipalities.

Almost 80 percent of municipalities identified municipalities or counties as being responsible for operating the drop-off center. There was little variation between rural municipalities and urban municipalities. Private industry was reported as the third most common operator of drop-off centers accounting for 16 percent in both rural and urban municipalities. Other drop-off center operators cited by both rural and urban municipalities included local boy scout troops, solid waste authorities, and social organizations like the Lion's Club. Other operators were more frequently reported by urban municipalities (7 percent) compared to rural municipalities (5 percent).

Over 86 percent of counties with municipalities responding reported two or more operators of drop-off centers. Of the remaining 14 percent, seven counties were rural compared to one urban county. Counties with more than 10 drop-off centers identified were overwhelmingly urban. Municipalities reporting other drop-off center operators were evenly distributed between rural and urban counties, while private industry was more frequently identified by rural counties compared to urban counties.

Question 19 was open-ended and requested that municipal recycling coordinators indicate the days and hours of operation in the space provided on the survey. A total of 217 responses were then coded based on trends that emerged in the data. For visualization purposes, five specific categories were created with the remaining responses placed into the other category. More than 34 percent of all municipalities reported that their drop-off centers were open 24/7 providing convenient access to residents, with rural municipalities more frequently indicating these hours of operation compared to urban municipalities. In addition to drop-centers operating around the clock, municipalities also indicated that locations open daily were popular with 32 percent reported in urban municipalities compared to just 12 percent in rural municipalities. Other hours of operation included drop-off centers with less frequent access to residents. For example, many municipalities cited annual events or those that happen a few times per year, some of which may only accept certain recyclables. These drop-off centers were evenly distributed among rural and urban municipalities. Drop-off locations with weekend hours were more likely to be found in rural municipalities (19 percent) compared to urban municipalities (10 percent). This was likely the case because there were fewer drop-off centers open daily in rural municipalities compared to urban municipalities. It could also be argued that weekend hours are more convenient to residents as opposed to centers operating daily because typically people work during the day and drop-centers may close prior to being able to drop off recyclables. Drop-off centers open monthly were more commonly reported by rural municipalities (almost 70 percent) compared to urban municipalities. Overall these findings suggest that drop-off centers operating 24/7, daily, and on weekends are just slightly more likely to be located in urban municipalities (74 percent) compared to rural municipalities (68 percent).

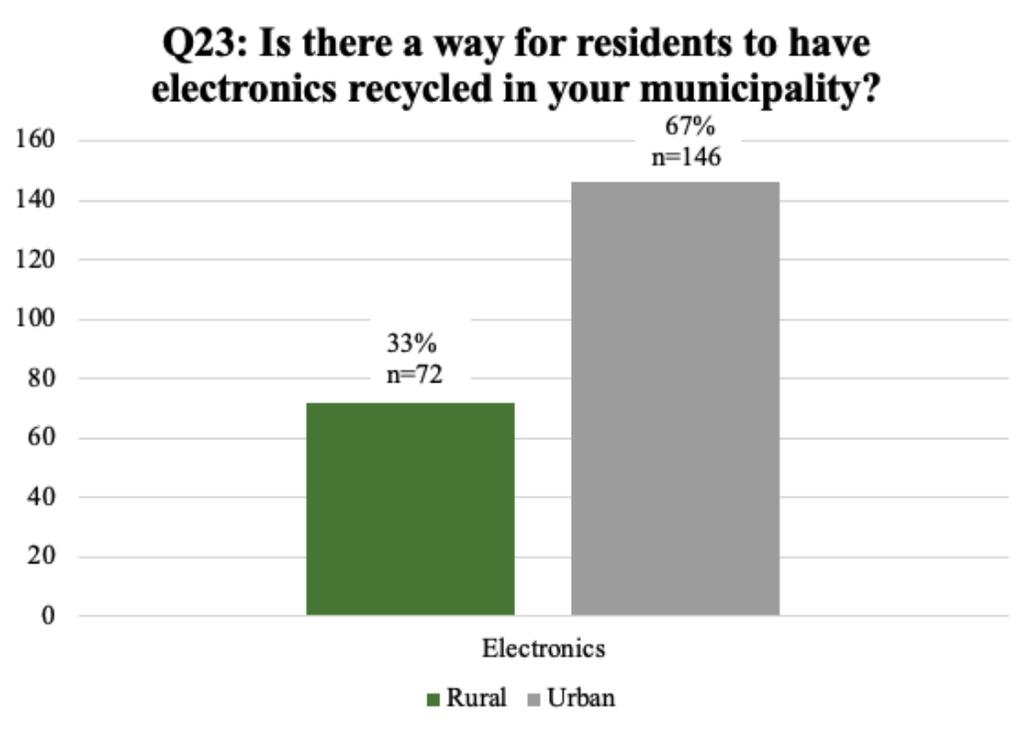
Nearly 60 percent of municipalities report providing residential access to drop-off locations operating 24/7 or daily. The top 10 counties with municipalities reporting the most variety in their drop-off sites' hours of operation are predominately in urban counties (70 percent). Similarly, the top 10 counties with the fewest options in terms of drop-off center hours are in rural counties which could discourage residents from recycling altogether (80 percent).

Geographic disparities exist in terms of access to electronics recycling with residents in rural municipalities less likely to find this service compared to those in urban municipalities (see Figure 10). Further urban municipalities reporting access to electronics recycling are more than double that of rural municipalities. As stated previously, rural locations with limited access to recycling and waste collection can increase the likelihood of illegal dumping, particularly in less populated areas with little to no enforcement. Further, improper disposal of electronic devices like televisions, computers, cellphones, and printers which contain toxic substances like lead, mercury, and cadmium can have adverse effects on human health and the environment.

The geographic barrier that exists with access to electronics recycling services is also apparent when examining county patterns. Of the 15 municipalities reporting five or more electronics recycling options for residents, 86 percent are found in urban counties compared to 14 percent in rural counties.

These findings highlight the need for improving access to electronics recycling among Pennsylvania residents, which could serve to minimize opportunities for illegal dumping of electronic waste in rural areas.

Figure 10: Access to Electronics Recycling in Municipalities (Yes Responses)

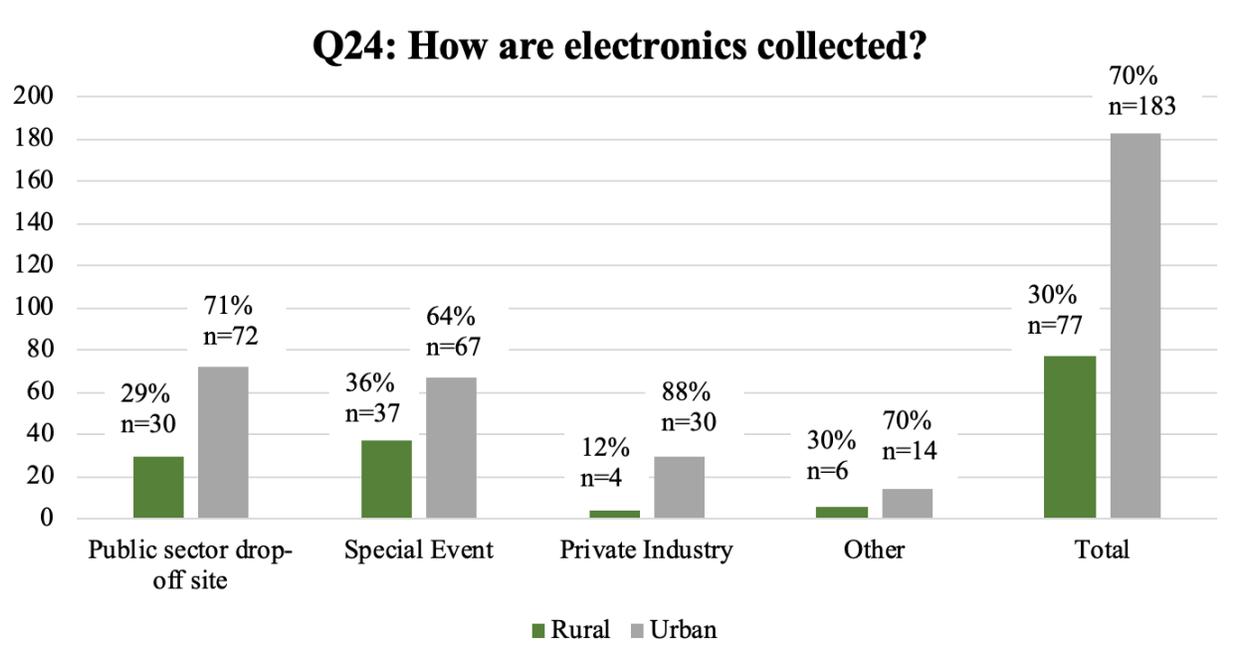


For municipalities where residents have access to electronics recycling almost 80 percent are offered through special event collections or public sector-drop off sites (Figure 11).

Interestingly rural municipalities report more of these opportunities for residents (87 percent) compared to urban municipalities (76 percent). Private industry was more likely to sponsor electronics recycling collection in urban municipalities (16 percent) compared to rural municipalities (5 percent). Municipalities reporting other entities responsible for providing access to electronics recycling were also more common in urban municipalities.

Public sector drop-off locations and special event collections are the most commonly reported among municipalities found in urban counties compared to rural counties. Eighty percent of public sector drop-off sites and 90 percent of special event collections occur in urban counties. Not surprisingly, all 12 counties with municipalities reporting only one electronics recycling collector are located in rural counties.

Figure 11: Electronics Collection Techniques in Municipalities



Despite posing risks to public health and the environment, in some locations throughout the state it is permissible to burn residential waste or domestic refuse. Residential waste can include things like plastics, synthetic fabrics, and metals which contain many harmful chemicals that are released into the air when burned. Numerous municipalities have authorized total bans on open burning, while others have enacted ordinances that outline restrictions on the location, time, and conditions for open burning. More than 80 percent of rural municipalities allow this compared to 19 percent of urban municipalities. This is not surprising considering that urban municipalities are likely to be more densely populated than their rural counterparts and as a result, open burning may not be permitted.

Similar trends emerge when examining permission for burning trash in counties. In total, 70 percent of municipalities reported permission for open burning and were located in rural counties compared to 30 percent of municipalities found in urban counties.

For those municipalities that allow the burning of trash, rural municipalities are more than four times as likely to place restrictions on the kind of materials that may be burned compared to urban municipalities. Prohibited items commonly reported among municipalities include: hazardous waste (including electronics), plastics, paints, solvents, construction debris, metals, appliances, treated wood, shingles, mattresses, carpet, rubber (including tires), food, and recyclables.

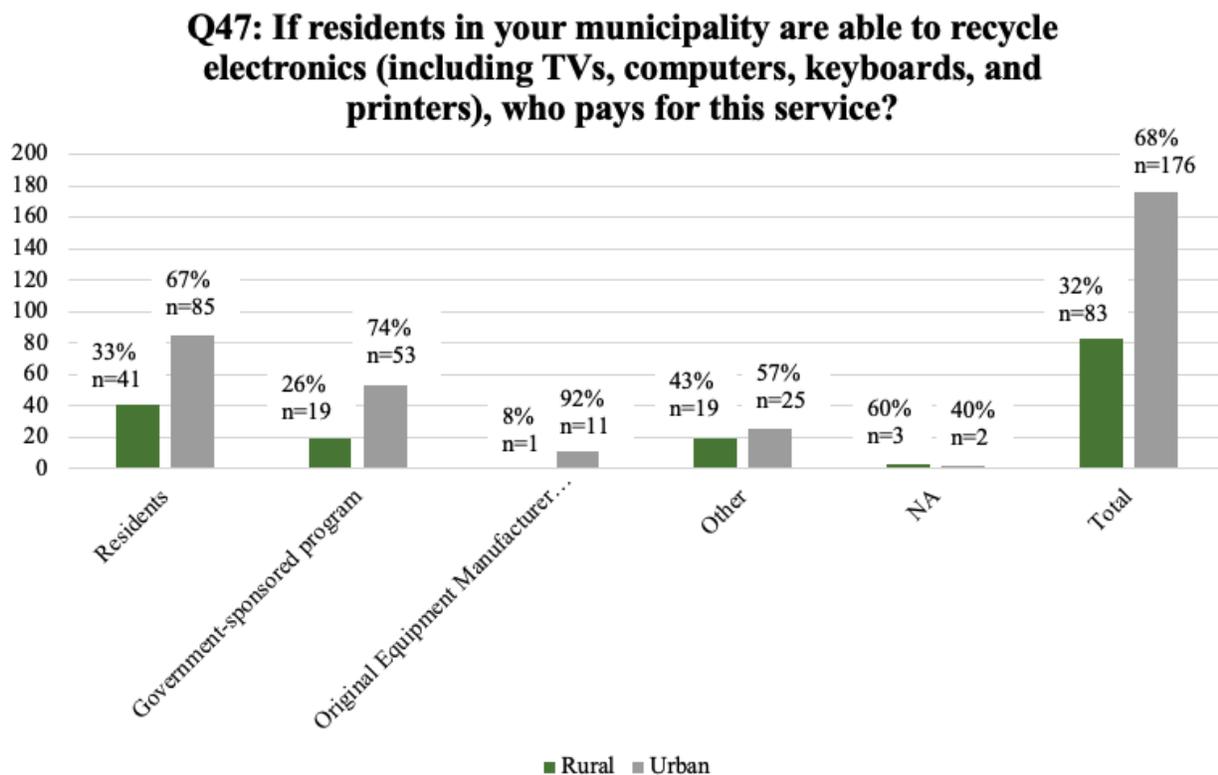
Comparable patterns are observed when examining burning restrictions in counties. In total, 70 percent of municipalities that place restrictions on the types of materials that may be burned are in rural counties compared to 30 percent of municipalities found in urban counties.

In those municipalities where residents have access to electronics recycling, more than 75 percent of collections are funded by the residents and government-sponsored programs (see Figure 12). Residents are more than twice as likely to be responsible for electronics recycling collection in urban municipalities compared to their rural counterparts. Other entities that were reported to provide funding for electronics recycling collection in municipalities include private haulers, solid waste authorities, landfills, counties, municipalities, and the state via grants. These providers are more common in rural municipalities (23 percent) than urban municipalities (15 percent). OEM-sponsored programs are among the least common to provide funding for electronics recycling collection in municipalities (less than 5 percent) and are primarily found in urban municipalities.

Analyzing results at the county level yields similar findings for payment of electronics recycling collection services. Of the 11 counties with municipalities responding to this question, 91 percent are located in urban counties. Butler County is the sole rural county with municipalities that offer a range of payment options for electronics recycling. Collectively these

11 counties account for over 52 percent of all municipalities responding to how they fund electronics recycling collection. Government-sponsored programs (61 percent), OEM-sponsored programs (58 percent), and residents (51 percent) were the most commonly reported among the municipalities located in these 11 primarily urban counties. It should also be noted that of the 12 counties containing municipalities that offer a single funding mechanism for electronics recycling collection all are rural (92 percent), with the exception of Lehigh County.

Figure 12: Payment for Electronics Recycling in Municipalities



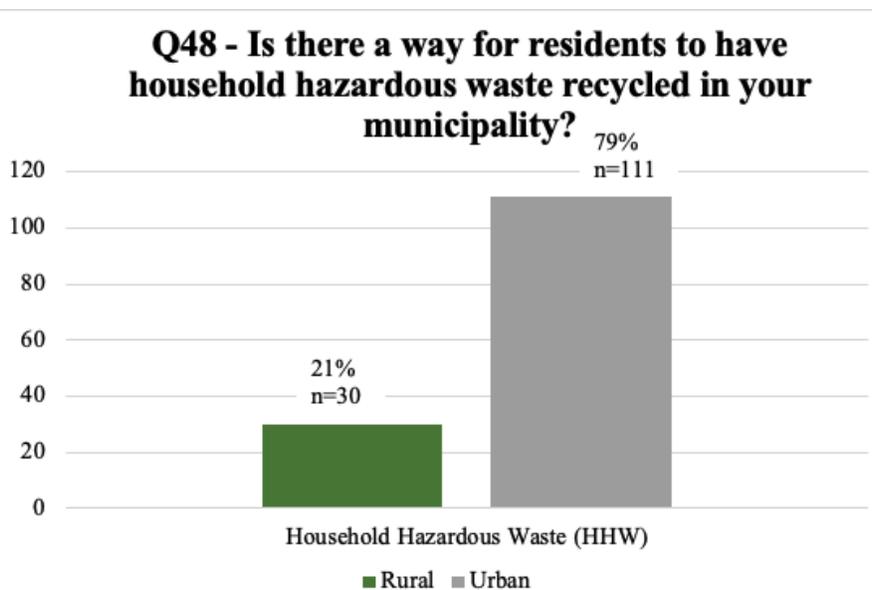
As observed with electronics recycling collection, residents located in urban municipalities are over three times as likely to have access to household hazardous waste recycling collection compared to those found in rural municipalities (see Figure 13).

Determinants of household hazardous waste recycling collections may be related to larger total

populations and/or high population density, which are more characteristic of urban municipalities compared to rural municipalities, thus suggesting more of a need for this special kind of recycling collection event.

A geographic pattern also emerges when examining access to household hazardous waste recycling by county. Of the 26 counties containing municipalities that do not provide residential access to this type of collection, 96 percent are found in rural counties compared to urban counties. Similarly, the top 10 counties with the largest number of municipalities providing access to household hazardous waste recycling collection, mirror this rural versus urban trend, with 90 percent found in urban counties. Further, a total of 93 municipalities within those 10 counties represent 66 percent of all respondents.

Figure 13: Access to Household Hazardous Waste (HHW) Recycling in Municipalities (Yes Responses)



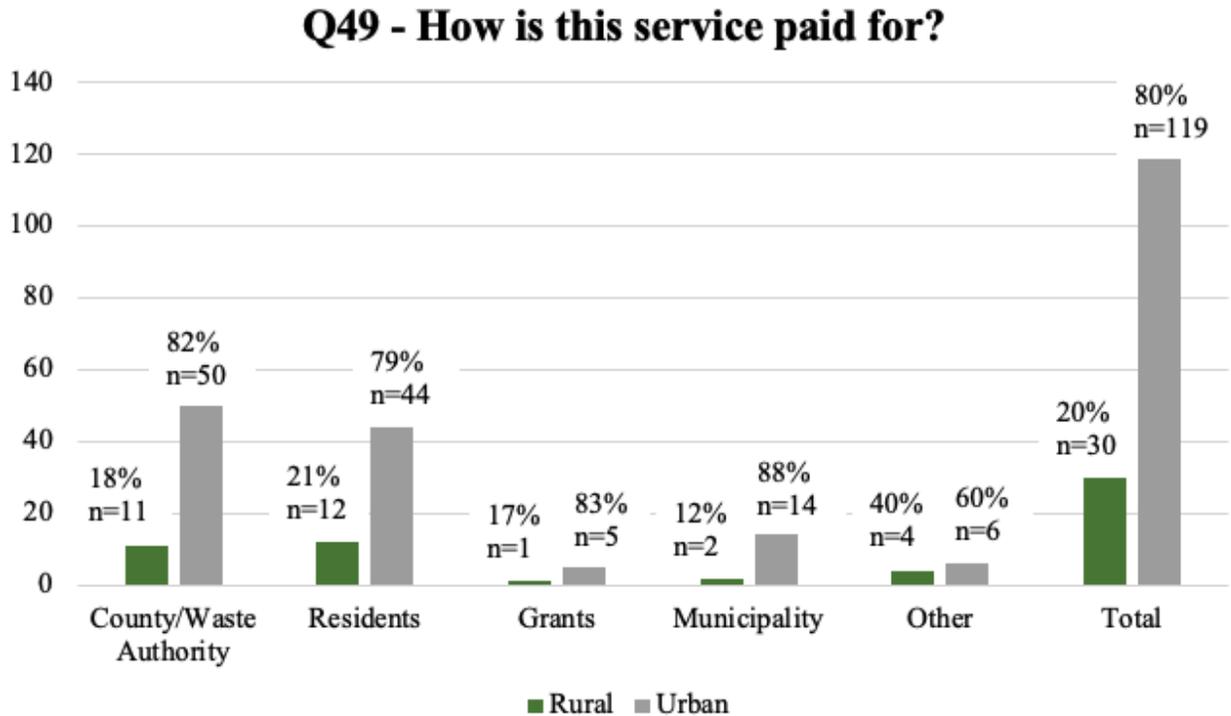
Question 49 was open-ended and requested that municipal recycling coordinators indicate how HHW recycling collection was paid for in the space provided on the survey. A total of 149 responses were then coded based on trends that emerged in the data. For visualization purposes,

five specific categories were created with the remaining responses placed into the other category (see Figure 14). Often municipalities reported more than one funding mechanism for HHW recycling collection. Almost 80 percent of municipalities reported that a county/waste authority or residents were responsible for funding household hazardous waste recycling collection. These results were comparable among rural and urban municipalities. Grants and other providers were among the least common accounting for 4 percent and 7 percent of funders, respectively. Other providers include individual recyclers, contract with private hauler, and included in transfer station tipping fees. Urban municipalities were more likely to fund HHW recycling collection than rural municipalities, which may be indicative of larger budgets and larger populations that demand this service.

Not surprisingly, urban counties are more likely to report a range of funding mechanisms for HHW recycling collection services and more opportunities for collection compared to rural counties. Of the 14 counties containing municipalities reporting five or more providers, 93 percent are urban counties. The exception is rural Butler County with municipalities reporting a total of eight HHW recycling collection service providers. Similar results were found among counties with municipalities that offer the fewest funding mechanisms for HHW recycling. Of the nine counties with municipalities reporting only one funding provider for HHW recycling collection, 89 percent are rural counties.

These findings suggest a need to further explore both HHW recycling collection and electronics recycling collection services available to residents in rural and urban counties and municipalities, respectively.

Figure 14: Payment for Household Hazardous Waste (HHW) Recycling in Municipalities



Impacts on Recycling Collection Services in Counties

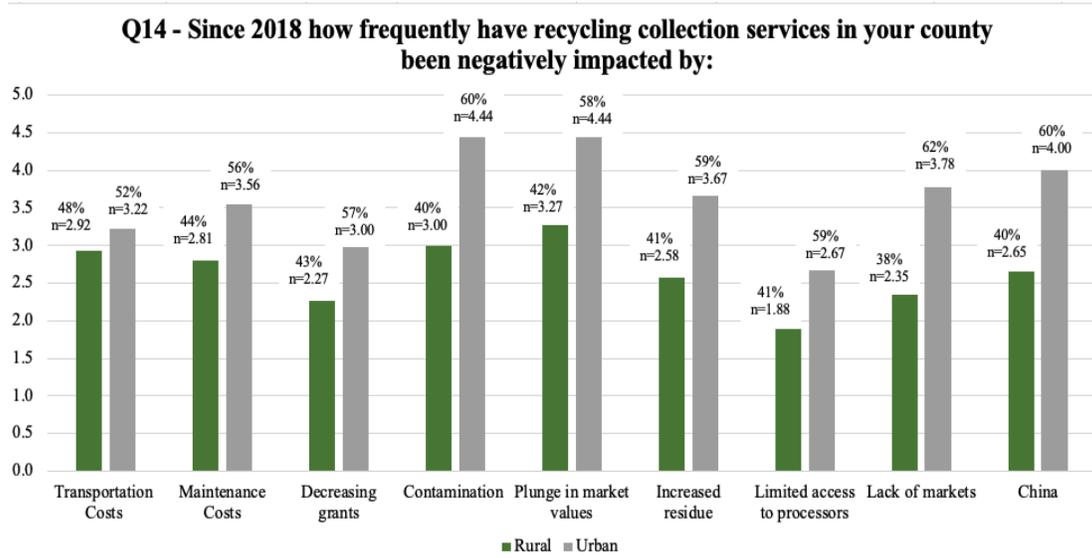
To be able to determine how Pennsylvania counties have been affected, if at all, by changes in market trends and international policies like China’s Green Fence and National Sword, a survey question was included that asked respondents to select from a range of options in terms of frequency of negative impacts on collection services. A Likert Scale was used with the following items: almost never, occasionally, about half the time, often, and almost always. Responses were coded numerically based on responses ranging from 1 (almost never) to 5 (almost always). For visualization purposes, averages were calculated for each category to display differences between rural and urban counties (see Figure 15). See Appendix 3 for all Figures and Tables associated with data discussed in this section.

A total of 32 counties responded to this question, with 63 percent reporting that the following were most frequently impacting their collection services: plunge in the market values

of recyclable materials (14 percent), contamination of recyclable materials (13 percent), costs of transportation (12 percent), costs associated with maintenance of your program (12 percent), and China Green Fence or National Sword policies (12 percent). Generally speaking, both rural and urban counties commonly reported being negatively impacted by these issues occasionally (2) to often (4). However, in every category urban counties reported more frequent negative impacts on collection services compared to their rural counterparts. Interestingly, rural counties consistently reported being less frequently affected (almost never to about half the time) by limited access to recyclable materials processors, lack of domestic markets for recyclable materials, contamination, and Chinese policies compared to urban counties (occasionally to often). Perhaps these negative impacts were magnified in urban counties due to state requirements for mandatory recycling collection services, increased populations, and an increased surplus of recyclable materials that were difficult to offload given volatile markets compared to rural counties.

Regional differences are also observed in terms of frequency of negative impacts on recycling services in counties. southwestern and southcentral counties indicated being more frequently impacted by a plunge in market values, increased volume of residue in recyclable materials, contamination of recyclable materials, and Chinese policies, ranging from often to almost always. Strikingly, the southcentral region is 75 percent urban compared to the southwestern region which is 75 percent rural. Compared to the southwest and southcentral regions, remaining regions, including the southeast, northeast, northcentral, and northwest, reported being less frequently impacted (about half the time to often) by dropping market values, contamination of recyclable materials, and Chinese policies.

Figure 15: Frequency of Negative Impacts on Recycling Collection in Counties

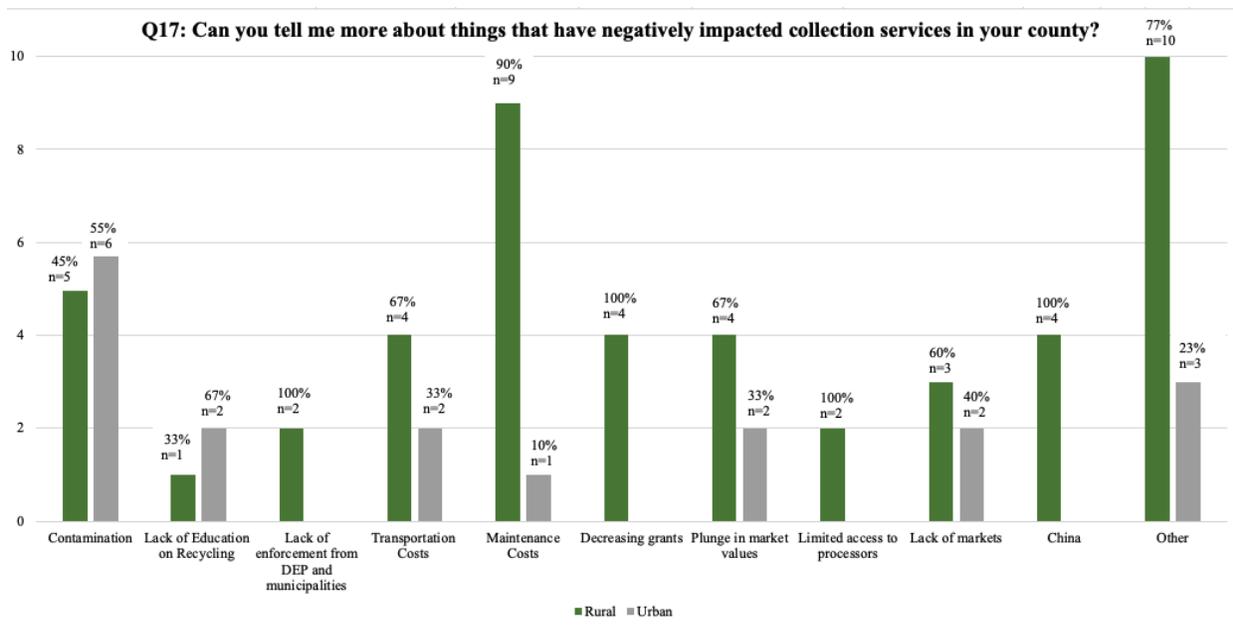


To find out more about the kinds of negative impacts frequently affecting collection services in counties, question 17 asked respondents to provide a detailed description of these things in the space provided on the survey. A total of 28 counties responded to this question, 71 percent of which were rural counties and 29 percent urban counties. Open-ended responses were analyzed and coded to generate the following categories: contamination of recyclable materials, lack of recycling education, lack of enforcement from DEP and municipalities, transportation costs, maintenance costs, decreasing grants, decreasing market values, limited access to processors, lack of markets, China’s restrictive policies, and other impacts (see Figure 16). Over half of all counties responding indicated that other impacts (20 percent), contamination of recyclable materials (17 percent), and costs of maintaining their programs (15 percent) were adversely affecting their recycling collection programs. Rural counties reported more disproportionate impacts stemming from the lack of state and local enforcement of recycling, diminishing grants, limited access to domestic recyclable materials processors, and Chinese policies compared to their urban counterparts, where these effects were distinctly absent from reports. Similarly, transportation and maintenance costs, a decline in market values of recyclable

materials, a lack of markets, and other impacts were more frequently reported by rural counties compared to urban counties. Urban counties did report slightly more frequent negative impacts on their recycling collection services due to lack of recycling education among residents and contamination of recyclable materials compared to rural counties.

Geographic distinctions also emerge when examining regional patterns in negative impacts on recycling collection in counties. The northwest, northcentral, and northeast regions account for nearly half of all respondents and commonly reported maintenance costs and other impacts to be the most problematic to their recycling programs. In addition, northcentral counties also mentioned decreasing grants while northeastern counties indicated contamination of recyclable materials to be particularly challenging. It should also be noted that these three geographic regions are comprised of over 80 percent rural counties, respectively. These findings suggest the importance of spatial considerations of rural counties in the northern parts of the state when it comes to lessening negative impacts on recycling collection services.

Figure 16: Description of Negative Impacts on Recycling Collection Services in Counties



In addition to asking county recycling coordinators about negative impacts on recycling collection services, it was important to get an understanding of the kinds of solutions that could be undertaken to improve residential access to recycling. A total of 25 counties responded to this question, including 68 percent of rural counties and 31 percent of urban counties. Open-ended responses were analyzed and coded to generate a number of categories. While the majority of responses will be discussed in a later section as it relates to policy implications, it was important to include a brief discussion of those solutions strictly pertaining to China's National Sword policy here. Given the frequency of negative impacts of recycling collection services reported by counties, consideration of related solutions is critical for the survival of these programs.

A total of seven counties, 86 percent rural and 14 percent urban, reported solutions for increasing residential access to recycling that is related to National Sword. Many of these solutions are in direct response to the difficulties outlined in the previous questions. For example, state investment in the creation of local or domestic markets for and processors of recyclable materials can make it easier for counties to identify partners, expand and perhaps, even diversify their collection programs, and attract economic activity to the state in the way of job creation and revenue from collection and processing of recyclable materials. Counties also referenced a need for high quality recyclable materials which could be improved by involvement from the state related to the establishment of clear, consistent guidelines for collection materials and strict enforcement of these rules. Further, this could increase residential participation in recycling which many county recycling coordinators reported is declining given the volatility in markets for recyclable materials and increasing costs of collection. A statewide mandate for recycling could also improve recycling participation and is worthy of consideration. Environmental benefits like the increased value of recyclable materials given the establishment of local markets

and processors could serve as an impetus for recycling behavior and could also lead to a decrease in illegal dumping of waste in rural parts of the state.

Another solution that was reported pertains to electronics and HHW recycling materials, which are cited by many county recycling coordinators as being difficult to collect due to a lack of consistent funding mechanisms and providers, as well as restrictions imposed by the Covered Device Recycling Act. Compared to urban counties, rural counties are at a disadvantage when it comes to disposing of electronics and HHW recyclables, which can help to explain the increase in illegal dumping in those areas and decline in drop-off locations due to frequent abuse. As a result, it is vital to examine ways in which access to electronics and HHW recyclables can be increased for county residents, especially in rural locations. This could provide a wealth of economic and environmental benefits to Pennsylvania and improve the sustainability of recycling collection programs.

Although many of the solutions reported by counties did present an opportunity for state involvement in waste reduction and recycling collection services, one urban county also highlighted the role of federal legislation. To increase the nation's ability to absorb the enormous amount of municipal solid waste (MSW) being generated on an annual basis and improve capabilities to divert as much as possible from landfills, there needs to be some responsibility placed on the shoulders of the manufacturers of these materials. To date, there is no federal policy or incentive that requires the creators of items like plastics and other "difficult-to-recycle" materials to be held accountable for the safe and responsible disposal of these items. Business and corporations instead choose to place the onus on consumers of their products to do the right thing, and in the meantime, we see oceans bear the disproportionate impact of this decision as they become increasingly overwhelmed with plastic pollution. The 1976 federal Resource

Conservation and Recovery Act (RCRA) established a framework for the regulation of hazardous waste from “cradle to grave” which could be adapted for this very problem. Not only would a policy governing the manufacturers of materials result in clear environmental benefits, but it could also serve to develop national markets for new, high-quality materials, generate revenue from processing, and change consumer behavior. Overall these findings suggest a great need for state and federal involvement in decision-making related to solid waste reduction and recycling collection if recycling as an industry is to survive.

In response to international policies and market trends, 57 percent of counties indicated that they are anticipating making changes to their recycling programs in the next year compared to 43 percent that reported no plans to do so. Not surprisingly, the majority of counties reporting plans to implement changes to their collection programs were located in rural counties (65 percent) compared to urban counties (35 percent). These results suggest that rural counties are not as resilient to the rapidly changing conditions associated with rising costs of collection and declining recyclable materials’ markets and processors compared to their urban counterparts. This trend is magnified when observing geographic regions, with 65 percent of counties located in the northcentral, northwest, and northeast indicating their plans to make changes to their recycling collections in the next year. Further the counties comprising all three of these regions are 80 percent or more rural thus highlighting the spatial divide in responses.

The 17 counties that plan to make changes to their recycling programs next year were asked to provide a detailed description of those anticipated changes in the space provided on the survey. Open-ended responses were analyzed and coded to generate the following categories: type of recyclable materials collected, hours of operation, fees, collection technique, equipment, and other changes. The most commonly reported changes counties plan to implement include

increasing fees for collection (32 percent), type of recyclable materials collected (18 percent), and equipment (16 percent). Counties cited expanding their recycling collections to include items such as film and electronics. Some counties also reported their intention to make changes to the type of trucks and number of trucks used for recycling collections services on certain routes as well as adding a gate to restrict access to the recycling center if necessary. With the exception of the type of recyclable materials collected, rural counties more frequently reported their plans to make changes in all previously mentioned categories compared to urban counties.

Geographically, the northcentral region comprised of nine rural counties accounted for more than 36 percent of anticipated changes to recycling programs, including increased fees, equipment modifications, and hours of operation. The northeast region which consists of 80 percent rural counties, accounted for over 18 percent of expected changes related to the type of materials collected, increased fees, collection technique, and other changes. In contrast, the southeast and southcentral regions comprised of 75 percent or more urban counties were the least likely to report plans for changes to their recycling collection programs (about 18 percent). These findings suggest that compared to urban counties, rural counties face more challenges related to maintenance costs for their recycling programs and shrinking budgets which force decisions to close sites or stop recycling collection services altogether.

In addition to volatile market trends and international policies restricting the export of recyclable materials, COVID-19 has impacted county recycling collection programs in a number of ways. A total of 32 counties responded to this question, including 72 percent of rural counties and 28 percent of urban counties. Open-ended responses were analyzed and coded to generate nine categories: no impact, increased tonnages of recyclable materials, closures of recycling collection facilities, loss of revenue, modification of recycling technique, modification of

recyclable materials collection, event cancellations, hours of operation, and other impacts. Counties reported other impacts, modification of recyclable materials collected, and increased tonnages of recyclable materials to be among the most common ways their recycling programs were impacted by the pandemic, accounting for more than 52 percent of respondents. Other impacts counties reported included the following: increased collection costs due to personal protective equipment (PPE) for staff and implementation of necessary sanitation and social distancing measures, increased contamination of curbside collected recyclable materials, increased education expenses related to COVID-19, increased dumping of non-recyclable materials, and problems with staffing due to illness and related impacts. Many counties indicated that they were forced to discontinue the collection of certain materials like electronics, bulk waste, HHW, cans, and bottles. Not surprisingly, several counties reported an increase in the volume of residential recyclables collected due to more people staying at home and disposing of more items. Rural counties consistently reported more frequent COVID-19-related impacts, accounting for over 63 percent in each category, compared to urban counties. Interestingly, some impacts were also unique to rural counties, including modification of the recycling facility or collection hours of operation, loss of revenue, and those with no known impacts from the pandemic.

Geographically, counties with recycling programs in the northcentral and northwestern regions were the most affected by COVID-19, accounting for almost 70 percent of respondents. As in previous questions, a clear rural-urban divide emerges with over 90 percent of counties in these two regions found in rural locations compared to urban locations. These findings suggest that in addition to facing challenges from declining markets for recyclable materials, lack of processors for recyclable materials, and China's restrictive policies, recycling collection services

in rural counties have been hit harder than their urban counterparts. Rural counties have responded to the pandemic in a number of ways including the temporary suspension of collection programs in order to comply with Centers for Disease Control and Prevention (CDC) protocols and removal (at least temporary) of recyclable materials from their collection programs.

Impacts on Recycling Collection Services in Municipalities

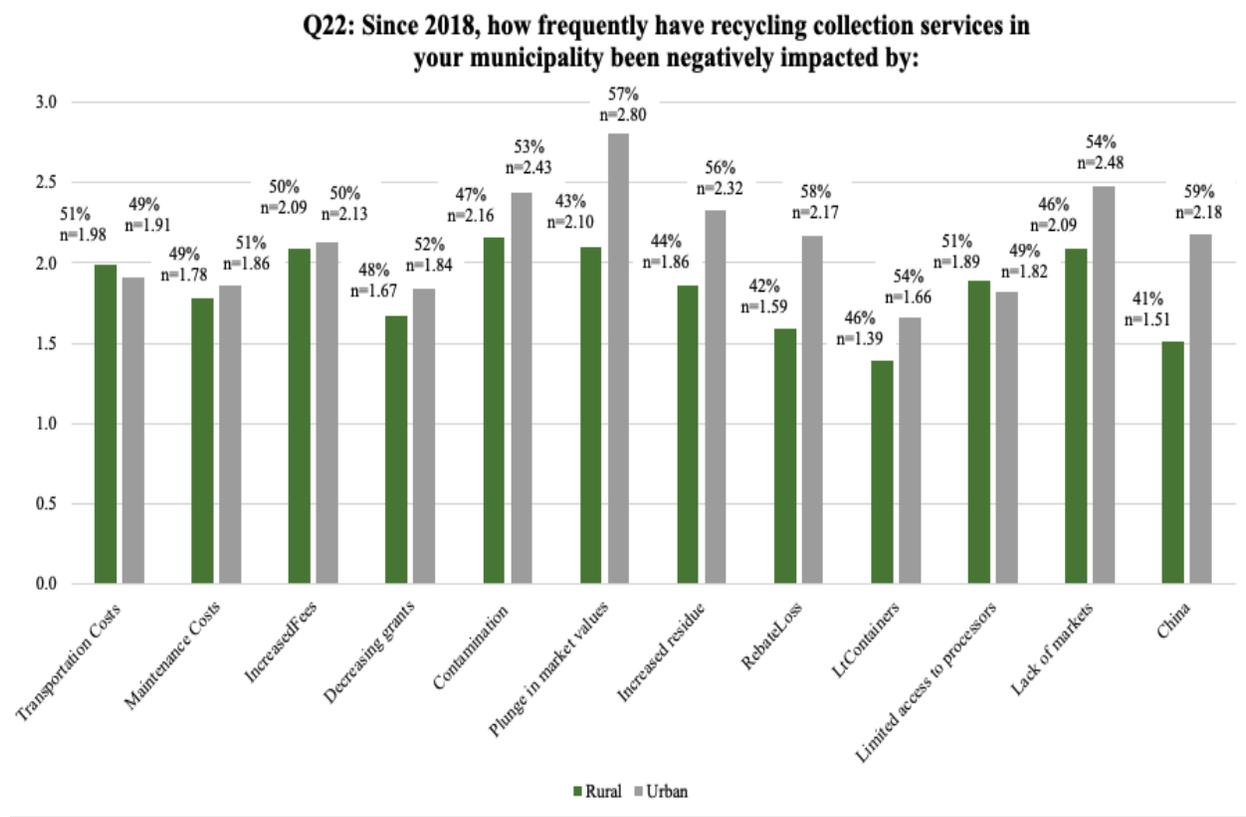
Researchers applied the same methods used for analysis of the counties to determine how Pennsylvania municipalities have been affected, if at all, by changes in market trends and international policies. Question 22 which asked respondents to select from a range of options in terms of frequency of negative impacts on collection services, used a Likert Scale with the following items: almost never, occasionally, about half the time, often, and almost always. Responses were coded numerically based on responses ranging from 1 (almost never) to 5 (almost always). For visualization purposes, averages were calculated for each category to display differences between rural and urban counties (see Figure 17). See Appendix 4 for all Figures and Tables associated with data discussed in this section. A total of 302 municipalities responded to this question, including 43 percent rural municipalities and 57 percent urban municipalities.

Nearly half reported that the following were most frequently impacting their collection services: plunge in the market values of recyclable materials (10 percent), contamination of recyclable materials (10 percent), lack of domestic markets for recyclable materials (10 percent), increased volume of residue in recycling materials (9 percent), and increase in recycling collection contract fee (9 percent). Generally speaking, both rural and urban municipalities commonly reported being negatively impacted by these issues almost never (1) to about half the time (3). However, with the exception of transportation costs and limited access to domestic

processors, urban municipalities reported more frequent negative impacts on collection services in every category compared to their rural counterparts. Overall, trends for frequency of negative impacts on collection services were consistent with what was reported by county recycling coordinators.

Geographic trends by county also confirm these initial findings with respect to urban-rural distinctions. Municipalities located in rural counties reported more frequent negative impacts on recycling collection services related to increased transportation costs, increased costs associated with maintenance of their program, such as labor and equipment, and the lighter weight of recyclables requiring larger volumes per ton. However, municipalities located in urban counties reported more frequent negative impacts on recycling collection in all other categories.

Figure 17: Frequency of Negative Impacts on Recycling Collection Services in Municipalities

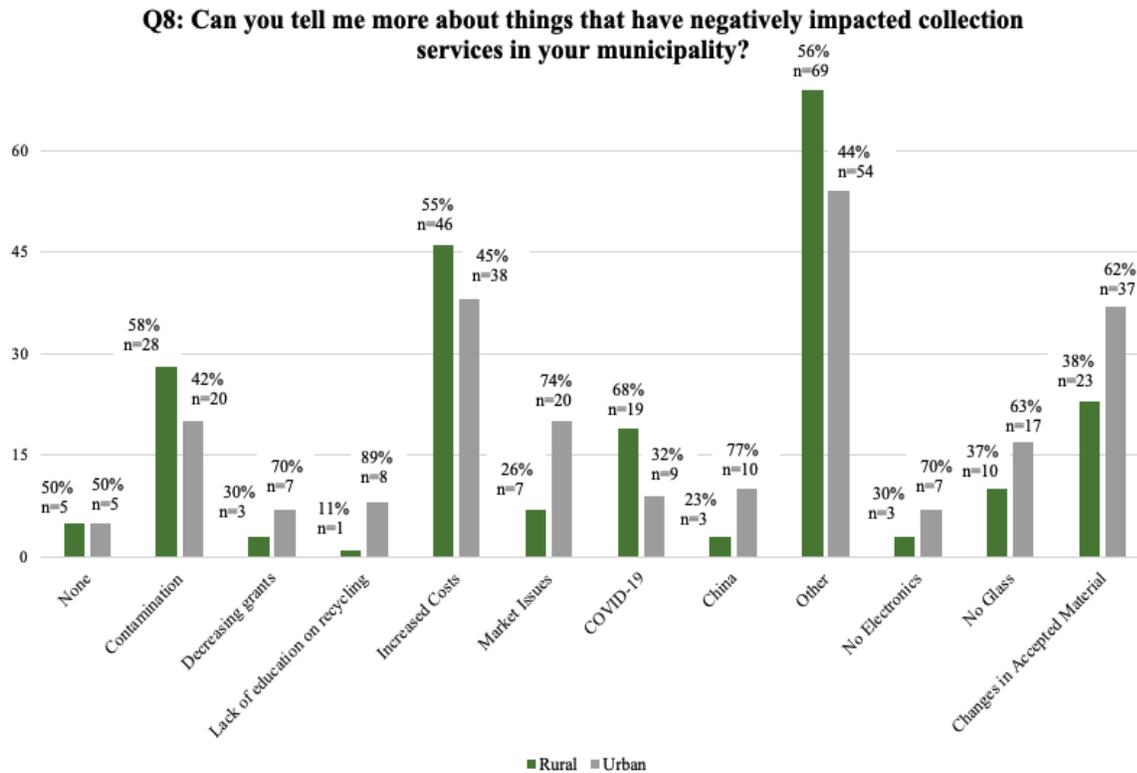


To find out more about the kinds of negative impacts frequently impacting collection services in counties, Question 8 asked respondents to provide a detailed description of these things in the space provided on the survey. A total of 279 municipalities responded to this question, including 52 percent of rural counties and 48 percent of urban counties. Open-ended responses were analyzed and coded to generate the 12 following categories: no negative impacts, contamination of recyclable materials, decreasing grants, lack of education of recycling, increased costs associated with running a recycling program, market-related issues, COVID-19, Chinese policies, other impacts, removal of electronics from collection, and removal of glass from collection (see Figure 18). Overall, the most commonly reported negative impacts cited by municipalities included other impacts, increased costs, and changes in accepted recycling materials for collection, accounting for nearly 60 percent of responses. Rural municipalities reported more frequent impacts associated with increased costs of their recycling programs, including transportation, labor, and equipment, contamination of recyclable materials, and COVID-19-related effects compared to urban municipalities. Urban municipalities, in contrast, cited more frequent challenges related to diminishing grants, lack of recycling education, declining markets, Chinese policies, and changes in items accepted for recycling collection, including the removal of both glass and electronics.

Trends in negative impacts on recycling collection by county is also consistent with these initial findings. Of the 12 counties with municipalities reporting more than 49 percent of negative impacts, 83 percent were located in urban counties compared to rural counties. Similarly, the 10 counties with municipalities reporting two or fewer negative impacts, 90 percent are located in rural counties. Of the 38 rural counties with municipalities responding, over 33 percent indicated their most frequent negative impacts to be related to increased costs

and contamination of recyclable materials. This is in contrast to the 19 urban counties with municipalities reporting increased frequency (56 percent) of other negative impacts, changes in accepted recycling materials for collection, and contamination of recyclable materials.

Figure 18: Description of Negative Impacts on Recycling Collection Services in Municipalities



Given the ever-changing multitude of international and national factors influencing recycling collection programs across Pennsylvania, the researchers wanted to get a sense of just how difficult things are for municipalities, and determine what role, if any, geographic location plays. Question 20 asked respondents to select their level of concern over temporary suspension of recycling collection services in 2021 from options ranging from not at all concerned to very concerned. There was also an option to capture municipal recycling collection programs that have already been temporarily suspended. A total of 355 municipalities responded to this question (44 percent rural municipalities and 56 percent urban municipalities). Results varied

substantially among respondents, with 30 percent of municipalities reporting they were not at all concerned about the temporary suspension of collection services in 2021, and another 26 percent reporting they were very concerned about temporary suspension of recycling. Compared to urban municipalities, rural municipalities more frequently expressed that they were very concerned about temporary suspension of collection. Urban municipalities however exceeded rural municipalities in all other categories, including recycling collection services that have already been temporarily suspended, accounting for more than double of what was reported by rural municipalities.

A total of 60 counties with municipalities responded to question 20. The top 10 counties with municipalities accounting for 36 percent of all responses were primarily located in urban counties (80 percent) compared to rural counties. Rural and urban counties were however consistent with their responses for ‘not at all concerned’ and ‘very concerned’ about collection services being temporarily suspended by 2021, accounting for nearly 60 percent of responses, respectively. Interestingly, when examining counties with three or more municipalities reporting for each concern category, 63 percent or more were found in urban counties compared to rural counties.

Question 21 asked municipal recycling coordinators to consider the long-term effects of hardships discussed in previous questions as they relate to the operation of and sustainability of their recycling collection programs. Results were similar to those referenced for Question 20 above, with 35 percent of respondents indicating they were not at all concerned about the permanent loss of recycling collection services and 32 percent indicating they were very concerned. Compared to urban municipalities, rural municipalities reported being slightly more concerned in the first category (very concerned). However, urban municipalities rated higher in

their level of concern than their rural counterparts in all remaining categories. Further, in terms of municipalities stating they were not at all concerned about the permanent loss of recycling collection services, twice as many urban municipalities reported this compared to rural municipalities. Perhaps this is due to more diverse funding opportunities, materials collection, larger populations, and mandated recycling compared to collection programs found in rural locations.

A total of 60 counties were comprised of municipalities that responded to Question 21 and results mirrored those obtained for Question 20 above. The top 10 counties with municipalities accounting for 42 percent of all responses were primarily located in urban counties (80 percent) compared to rural counties. Rural and urban counties were again consistent with their responses for ‘not at all concerned’ and ‘very concerned’ about collection services being permanently shut down by 2021, accounting for over 64 percent of responses, respectively. The polarizing results reported for municipalities expressing very concerned and not at all concerned for both the temporarily suspension and permanent loss of recycling collection requires further research, paying particular attention to the distinctions between rural and urban municipalities that could help explain these differences in perception.

Because researchers asked county recycling coordinators to consider the kinds of solutions that could be undertaken to improve residential access to recycling as they strictly relate to China’s National Sword policy, it was also important to understand how these solutions compare to those reported by municipal recycling coordinators. A total of 243 municipalities, 57 percent rural and 43 percent urban, responded to this question. However, only those responses related to National Sword were included here: a total of 37 municipalities located in 22 counties responded, 38 percent rural and 62 percent urban. The responses collected from municipalities

echo those obtained from counties suggesting similar shared challenges and the opportunity for solutions that could be beneficial to both county and municipal recycling collection programs. Overwhelming, municipalities reported the critical need for electronics recycling collection to be reexamined in Pennsylvania and called for increased access for residents where disposal generates a profit rather than imposes fees to dispose of items like televisions and computers. This in turn would provide an economic incentive for both residents and collectors as well as reduce the likelihood of illegal dumping. For example, state investment in the creation of local or domestic markets for and processors of recyclable materials can make it easier for counties to identify partners, expand, and perhaps, even diversify their collection programs, and attract economic activity to the state through job creation and revenue from collection and processing of recyclable materials. The difficulty of finding HHW recycling collection services in their locations were also cited by municipalities. The lack of glass collection and solutions for reestablishing programs was specifically emphasized by urban and rural municipalities located in western Pennsylvania, including Allegheny, Butler, Cambria, and Clarion counties. Similarly, municipalities indicated the need for establishing local markets as well as collection and processing facilities for recyclable materials, so their programs are not reliant on foreign processors, which ultimately drive down the market value of collected materials. Benefits to the state, including job creation and establishment of new products and markets for recycled materials, were frequently cited as ways to provide a much-needed incentive for residents to recycle. As reported by county recycling coordinators, municipalities argued that federal responsibility was crucial for recycling collection services to thrive. Particularly, they stressed the need for manufacturers of difficult-to-recycle materials, like plastics, to have a mandate requiring them to redesign packaging of their products in favor of materials that are easily

recyclable, or take financial responsibility for their disposal rather than imposing it on the consumers, and ultimately county and municipal recycling collectors and processors. Overall, these findings suggest that re-evaluation of the state's current recycling laws including Act 101 and the CDRA could dramatically improve the sustainability of recycling collection programs in both counties and municipalities, thus removing additional burdens from rural programs in particular.

Compared to counties, only 24 percent of municipalities indicated that they are anticipating making changes to their recycling programs in the next year, compared to 76 percent that reported no plans to do so. Interestingly, the majority of municipalities reporting plans to implement changes to their collection programs were located in urban municipalities (64 percent) compared to rural counties (36 percent). These results are in sharp contrast to responses collected from county recycling coordinators (Question 19). Possible explanations for these trends may include urban locations having more financial resources allocated to recycling collection services compared to rural locations, thus suggesting more flexibility to make changes to improve the day-to-day operations of their collection programs. The population requirement for mandated collection could also place additional pressure on urban municipalities to improve the efficiency of collection services in their areas.

This trend is also observed when analyzing the geographic distinction in counties, with almost half of all municipalities responding located in just 10 counties, 60 percent of which are urban. Also, when examining the rural-urban divide in counties with municipalities responding to this question, all urban counties reported at least one municipality with plans to make changes to their recycling collections in the next year compared to just 55 percent of municipalities located in rural counties.

Of the 91 responding municipalities anticipating changes, over half reported modifications related to the type of recyclable materials collected and an increase in fees associated with collection. There was also a spatial distinction in responses with urban municipalities more frequently reporting changes in all six categories, with the exception of hours of operation, which were equal to those reported by rural municipalities. Municipalities considering changes to their collection materials included the addition or removal of items such as glass, plastics, newspapers, electronics, and appliances, while others reported the modification of their existing collection techniques to include switching to or adding commingled collection, drop-off locations, source separation of recyclables, and removal of single-stream collection due to increased contamination. Municipalities also mentioned the need to purchase equipment like new recycling trucks and recyclable materials collection receptacles such as bins or totes to provide to residents to encourage recycling.

Aside from there being fewer rural counties with municipalities reporting no anticipated changes in recycling collection services for next year compared to urban counties, no clear patterns emerge when studying changes at the county level. Closer examination of the highest values for each category reveals a mix of urban and rural counties with municipalities reporting anticipated changes to their recycling programs.

COVID-19 has also impacted recycling collection programs in municipalities throughout the state. A total of 383 municipalities responded to this question, including 54 percent of rural municipalities and 46 percent of urban municipalities. Open-ended responses were analyzed and coded to generate nine categories: no impact, increased tonnages of recyclable materials, closures of recycling collection facilities, loss of revenue, modification of recycling collection technique, modification of recyclable materials collected, event cancellations, hours of operation,

and other impacts. Interestingly, nearly 40 percent of municipalities reported no known impacts on recycling collection. Further, rural municipalities more frequently reported no impacts associated with COVID-19 compared to urban municipalities. Rural municipalities were also more likely than their urban counterparts to report closures to their recycling collection facilities or drop-off locations and special event collection cancellations. More urban municipalities reported an increase in the residential volumes of both trash and recyclable materials collected due to people staying at home due to the pandemic as well as temporary changes to the kinds of recyclable items collected and collection techniques compared to rural municipalities. Urban municipalities were also more likely than rural municipalities to report changes to their facilities hours of operation, most of which were a reduction in hours available for drop-off collection at their facilities.

Interesting patterns were observed when considering the counties where municipalities were reporting and their corresponding impacts from COVID-19. Of the 10 counties with municipalities reporting 15 or more effects related to the pandemic (accounting for almost 40 percent of responses), 80 percent were located in urban counties compared to rural counties. However, there were differences across categories. For example, of the 14 counties with two or more municipalities reporting closures to their collection facilities, 64 percent were in rural counties. Similar trends emerged with special event collection cancellations, with 67 percent of counties reporting two or more municipalities found in rural versus urban locations. However other categories including the modification of collection techniques, increased volumes of recyclable materials, and hours of operation were equal in terms of urban and rural counties comprised of the highest number of municipalities reporting. For example, of the 12 counties

with three or more municipalities indicating a COVID-19-related change to their recycling collection technique, half were in rural counties and half in urban counties.

To determine if differences exist in the types of recyclable materials collected in municipalities, respondents were asked to select from a list of provided materials for both their curbside collection programs and drop-off locations. For visualization purposes, responses were placed into four categories including recyclable paper products, can and glass products, plastics, and other recyclable materials and were distinguished by urban and rural municipalities. For materials accepted in curbside collection programs, a total of 282 municipalities responded, including 30 percent rural municipalities and 70 percent urban municipalities. Together recyclable paper products accounted for almost 40 percent of all materials collected curbside in municipalities: newspaper (8 percent), cardboard (8 percent), magazines (7 percent), mixed paper (7 percent), office paper (6 percent), and other paper fiber (2 percent). According to the EPA (2020), paper and paperboard accounted for the largest component of the 292 million tons of MSW generated at 23 percent, with nearly 46 million tons of paper and paperboard or 67 percent recycled in 2018. Except for other paper fiber, urban locations reported more than twice as many municipalities collecting recyclable paper products compared to rural municipalities. Other paper fiber included items such as manila folders, cereal boxes, aseptic containers, and cartons.

Over 44 percent of municipalities indicated newspaper and cardboard as the most commonly collected curbside recyclable paper products, with other paper fiber proving less popular among collection programs (less than 6 percent). Interestingly, of the top 10 counties with municipalities reporting curbside collection of recyclable paper products by category, while 70 percent or more are in urban counties, two rural counties commonly appear to have increased capacity for curbside paper collection: Adams and Centre. This trend was observed with every

type of recyclable paper product examined. Impressively, Centre County alone accounted for the highest total number of municipalities reporting curbside collection of all paper products.

Otherwise, the majority of urban counties located in the southeast accounted for the highest number of municipalities reporting curbside collection of paper products, with 49 or more.

Together recyclable can and glass products accounted for over 39 percent of all materials collected curbside in municipalities: aluminum cans (9 percent), steel cans (8 percent), clear glass (8 percent), green glass (7 percent), and brown glass (7 percent). Similar to trends in recyclable paper products, urban municipalities reported more than twice as many municipalities collecting recyclable can and glass products compared to rural municipalities. Urban municipalities are likely to be mandated to recycle and have higher populations that demand expanded collection of recyclable materials curbside compared to those programs found in rural locations.

More than 60 percent of municipalities reported aluminum cans, steels cans, and clear glass to be the most popular among recyclable can and glass products collected curbside. As discussed with curbside collection of recyclable paper products above, urban counties accounted for the highest number of municipalities reporting can and glass products in their curbside collection programs in every category. For rural municipalities, both Adams and Centre counties frequently appeared among the top 10 counties for every category except brown glass, which was only reported by municipalities located in Centre County. In terms of the highest total number of municipalities reporting the collection of can and glass recyclable programs, 90 percent were in urban counties, with the exception of Centre County. Further those urban counties were primarily located in the southeastern part of the state, as identified for curbside collection of recyclable paper products.

Compared to recyclable paper, can, and glass products, plastic products account for only 15 percent of materials collected curbside by municipalities: polyethylene terephthalate (PET) plastic (6 percent), high-density polyethylene (HDPE) plastic (6 percent), and other plastics (3 percent). This is not surprising given recent trends in plastic generation and recycling. According to the American Chemistry Council and the Association of Plastic Recyclers (2019), of the nearly 36 million tons of plastics generated in the United States in 2018, only 3 million tons (roughly 8 percent) were recycled. What's more alarming, however, is that over 27 million tons of those plastics were buried in landfills, where they will not break down in our lifetimes.

Analyzing trends over time also yield some interesting findings. The EPA, with data obtained from both the American Chemistry Council and the National Association for PET Container Resources, studied trends in plastics generation and recycling from 1960 to 2018, and while plastics generated steadily climbed from 390,000 tons in 1960 to over 31 million tons in 2010, recycling lags behind and did not even occur until 1980 (likely because the capacity was not developed and there were no markets for materials at that time) with only 20,000 tons recycled of the 6.8 million tons generated that year alone. While the recycling of plastics is slowly increasing, the amount of plastics simply disposed of in landfills far exceeds what is actually recovered suggesting a critical need to reevaluate how our items are designed and packaged.

More than three times the number of urban municipalities reported plastics recyclables in their curbside collection programs compared to rural municipalities. This may be due to collection techniques and/or the capability of the materials processing facilities in those locations. PET plastics, also known as PETE or #1 plastics, include beverage containers (soda, water, sports drinks), peanut butter jars, and salad dressing and other condiment containers. HDPE or #2 plastics, include beverage jugs (milk, water, juice), laundry and dish detergent

containers, and household cleaners. Collectively PET and HDPE plastics account for over 97 percent of the plastic bottle market in the United States and of all plastics recycled in 2018, over 98 percent were PET and HDPE containers (American Chemistry Council and Association of Plastic Recyclers 2019). Other plastics were less frequently reported by municipalities as a recyclable item collected in their curbside programs. These types of plastics include #3 through #7 plastics: polyvinyl chloride (PVC), low-density polyethylene (LDPE), polypropylene (PP), polystyrene (PS), and other plastics (OTHER).

Mirroring industry trends, PET and HDPE plastics accounted for almost 80 percent of all plastics reported to be included among municipal curbside collection programs. Plastics trends are also consistent with other recyclable products reported in municipal curbside collections, including paper and can and glass items. The top 10 counties with the highest number of municipalities reporting PET, HDPE, and other plastics were 70 percent or more urban compared to rural counties. However, rural Centre County was also included in every category. Butler County was also found among rural counties with the highest number of municipalities reporting HDPE, other plastics, and total plastics. In addition to Centre and Butler counties, Fayette County was also included in municipalities collecting other plastics curbside.

Other recyclable products collected curbside in municipalities accounted for less than nine percent of all materials reported: tree trimmings/Christmas trees (3 percent), grass (2 percent), used motor oil (less than 1 percent), food waste (less than 1 percent), appliances/scrap metal (less than 1 percent), and electronics (less than 1 percent). Urban municipalities continued to greatly exceed rural municipalities in terms of the number of other recyclable products included in curbside collection programs. It is particularly important to note the disparities in municipal curbside collection of appliances/scrap metal and electronics with rural residents

greatly lacking access to these services compared to urban residents. In general, rural municipalities offer far fewer other recyclables items in their curbside collection programs compared to their urban counterparts which may be partly explained by population numbers and distribution within their municipalities. For example, haulers may not consider collection of certain items if there is not a demand for them, and unlike in urban locations, populations tend to be dispersed geographically which could result in more frequent trips for collection across farther distances. In other words, it would not be profitable for collection in rural municipalities.

There was a lack of curbside collection of food waste, grass, and tree trimmings/Christmas tree in rural municipalities. The researchers expected these numbers to be higher given the likelihood of suitable land for composting sites that would be relatively isolated from populations unlike in more densely populated urban municipalities. Providing opportunities for rural municipalities to compost materials could result in an increase in residential recycling.

Tree trimmings/Christmas trees and grass accounted for nearly 70 percent of all other recyclable materials reported to be included among municipal curbside collection programs. While the majority of municipalities reporting high numbers of grass and tree trimmings/Christmas trees among recycling materials collected in their curbside programs were located in urban counties, there were also some interesting trends with rural counties. Used motor oil was collected in municipalities located in only six counties, 67 percent of which were rural counties primarily located in the southwestern portion of the state. The urban counties collecting used motor oil were also located in the west suggesting a possible regional trend associated with curbside collection of this particular item. The highest numbers of food waste as a collection item was reported by municipalities located in a combination of rural (50 percent) and urban counties (50 percent). While rural counties collecting food waste were found primarily

in the west and central regions of the state, the majority of urban counties were located in the southeast. Appliances/scrap metal and electronics were also most frequently reported by urban counties, however Adams, Centre, and Monroe counties accounted for the only rural counties reporting food waste in their curbside collection.

For materials accepted in municipal drop-off facilities, a total of 279 municipalities responded, including 50 percent rural municipalities and 50 percent urban municipalities. Recyclable paper products accounted for 43 percent of all materials collected in drop-off locations in municipalities: newspaper (9 percent), cardboard (9 percent), magazines (8 percent), mixed paper (7 percent), office paper (7 percent), and other paper fiber (3 percent). Recyclable paper products are slightly more popular items to include in collections at drop-off facilities compared to curbside collections in municipalities. Researchers also observed a new trend with drop-off facilities: rural municipalities outnumbered urban municipalities in every category of recyclable paper products. This is in sharp contrast to those findings for paper included in municipal curbside collection programs. This may be explained by the increased flexibility that drop-off locations provide to rural residents compared to curbside collection. Rural municipalities would be more likely to offer drop-offs to residents because they are convenient and are often open longer and more frequently compared to centralized collection facilities, and do not necessarily require staffing, which would likely have to be paid. However, because the responsibility for taking one's recycling to a drop-facility falls on the shoulders of the resident rather than the municipality, it will not necessarily result in increased recycling behavior.

Newspaper and cardboard products account for 42 percent of all recyclable paper products reported to be included by municipalities in their drop-off facilities. Counties with the highest numbers of municipalities reporting the inclusion of magazines, mixed paper, and total

paper products in their drop-off facilities were overwhelmingly located in urban counties (more than 70 percent) compared to rural counties. However, among those counties with the highest numbers of municipalities reporting newspaper, office paper, and cardboard in the drop-off collections, more than 40 percent were found in rural counties compared to urban counties. These rural counties included Perry, Potter, Warren, Union, and Centre, which span Pennsylvania. Other paper fiber was equally reported by municipalities located in urban and rural counties, but, with the exception of Centre County, the rural counties differed from those previously mentioned in other paper product categories: Mercer, Franklin, and Northumberland counties.

Collectively recyclable can and glass products accounted for approximately 35 percent of all materials collected at municipal drop-off locations: aluminum cans (8 percent), steel cans (7 percent), clear glass (7 percent), green glass (7 percent), and brown glass (6 percent). This was slightly less than what was reported for municipal curbside collection of can and glass products. Like recyclable paper products collected at drop-off facilities, more rural municipalities reported collection of these items compared to urban municipalities likely for the same reasons mentioned above regarding accessibility.

The most commonly reported recyclable can and glass products included in municipal drop-off collections were aluminum cans and clear glass, accounting for over 43 percent. Counties with municipalities reporting the collection of can and glass items at drop-locations were consistent in terms of geography. Municipalities reporting the highest numbers of these items were located in a combination of rural and urban counties, about half and half. Rural counties comprised of high numbers of municipalities reporting aluminum, steel, and glass commonly included the following: Centre, Potter, Perry, Lycoming, Snyder, Union, and Warren

counties. Further, those counties with the largest number of municipalities reporting recycling can and glass products in their drop-off collection facilities, 50 percent were found in rural counties and 50 percent were found in urban counties. The urban counties represented here are primarily located in the southeastern part of the state and are home to the largest populations which are mandated by Act 101 to recycle.

Compared to recyclable paper, can, and glass products, plastic products account for only 12 percent of materials collected at municipal drop-off locations: PET plastic (4 percent), HDPE plastic (5 percent), and other plastics (3 percent). This is also less than what was reported for plastics included in municipal curbside collection programs suggesting a lower demand for and/or capacity for processing these recyclable materials compared to other items. Interestingly, rural municipalities still exceed their urban counterparts in terms of plastic items collected in drop-off facilities.

HDPE and PET plastics account for more than 76 percent of plastic items cited by municipalities for inclusion in their drop-off facilities, which is in line with industry trends. Of the counties with four or more municipalities reporting drop-off collection of HDPE plastics, 71 percent were located in rural counties, including Franklin, Perry, Lycoming, Centre, and Warren, compared to urban counties. Of the counties with four or more municipalities reporting collection of PET plastics, half were found in rural counties and half were found in urban counties. In terms of the counties with eight or more municipalities reporting total recyclable plastics included in their drop-off facilities, 56 percent were located in urban counties compared to 44 percent in rural counties.

Other recyclable products collected curbside in municipalities accounted for less than 13 percent of all materials reported: tree trimmings/Christmas trees (4 percent), electronics (3

percent), appliances/scrap metal (2 percent), grass (2 percent), used motor oil (less than 1 percent), and food waste (less than 1 percent). However, other recyclable products were more commonly included in municipal drop-off locations compared to curbside collection. Unlike recyclable paper, can and glass, and plastics more frequently accepted for collection at rural municipal drop-off facilities, urban municipalities exceed rural municipalities in every category excluding food waste. These results suggest the need for more research as to why drop-off locations in rural municipalities are less likely to accept these materials compared to urban municipalities. It is not surprising that both appliances/scrap metal and electronics are more frequently accepted for recycling collection in urban municipalities compared to rural municipalities, as this trend was evident in other responses.

Tree trimmings/Christmas trees and electronics account for the largest proportion of the other recyclable items collected at municipal drop-off facilities at over 58 percent. While patterns observed with tree trimmings were consistent with those in municipal curbside collection, electronics were in sharp contrast to trends in grass trimmings reported for curbside. For all other recyclable materials included in municipal drop-off collection facilities, the highest numbers of municipalities reporting were overwhelmingly located in urban counties. However, Of the municipalities reporting one or more drop-off collections accepting food waste 40 percent were found in rural counties, including Adams and Warren counties. Similarly, of the counties with two or more municipalities accepting appliances and scrap metal at their drop-off locations, 43 percent were in rural counties.

Recyclable Materials Market Trends

As noted previously, three general factors drive the underlying economic sustainability of recycling programs: (1) the prevailing price of virgin materials; (2) the prevailing cost of waste

disposal; and (3) the prevailing market price received for materials collected in recycling programs (e.g., market price of recyclable materials collected such as aluminum, steel, newsprint, plastics, etc.). In general, if the market price received for the post-consumer materials collected in recycling programs (e.g., spot price of recycled aluminum cans, cardboard, etc.) is significantly less than the costs associated with collecting, sorting, baling, brokering, and/or outright disposing of the materials, then if not mandated by law, there is an economic disincentive to continue “costly” recycling programs (Jørgensen 2019; Tzortzakis 2017; Cullen 2015; Rogoff 2014; Vaughn 2009; Jørgensen 2011; Kinnaman 1999; Strong 1997; Curlee 1986).

Commodities pricing trends for the most common materials collected in recycling programs nationally and regionally are included in Appendix 5 by commodity for the years 2010-2019. Data were not always available across all 10 years for each commodity. The commodities examined include recycled aluminum cans, steel cans, glass (clear, amber, and green), plastic PET #1, plastic HDPE #2 (natural, colored), commingled plastics 3-7, corrugated cardboard, newspaper, mixed paper, and sorted office paper. It should be noted that most of the mills that purchase recyclable materials require photos to assure quality and have deductions for levels of contaminants and prohibitive materials on their respective specification sheets. A quoted price, therefore, may be lowered based upon the actual quality of the recyclable materials received. Thus, “quality” matters, and clean/dry materials received higher prices. Bales of recyclable materials are checked for both moisture and contaminants upon delivery at the mill purchasing the materials. Transportation costs are also incorporated into the quoted purchase prices based upon regional territory pricing indexes for the national market, and thus, the cost of transportation to the mill is factored into the reported pricing.

Overall, the pricing of the recyclable materials examined tended to be fairly volatile over

the study period 2010-2019, both nationally and by region. Recycled aluminum cans, typically one of the most valuable commodities collected in recycling programs, have steadily declined in value from a national average high price of \$1,926.20 per ton in May of 2011, to a low price of \$1,021.20 per ton in December of 2019. Likewise, the national average price of steel cans was down to \$100.31 in December 2019, from a national average high price of \$217.50 in February of 2018. While the price of both metal commodities did vary a bit regionally, the overall trends included significantly lower prices for both commodities over the study period.

Likewise, corrugated cardboard, has also steadily declined in value from a national average high price of \$179.25 per ton in February of 2011, to a low price of \$24.69 per ton in December of 2019. Similarly, the national average price of recycled newspaper was down to \$10.00 in December 2019, from a national average high price of \$149.94 per ton in October of 2011. Also, sorted office paper declined in value from a national average price of \$297.19 per ton in August of 2011, to a low price of \$86.88 per ton in December of 2019. Mixed paper also experienced a significant decline, from a national average high price of \$137.50 to -\$1.88 in December of 2019. In other words, by December of 2019 brokers were charging an average national price of \$1.88 per ton to haul away recycled mixed paper. Like the prices of metal commodities, the prices of recycled cardboard and paper did vary regionally, but overall trends included significantly lower prices over the study period.

Likewise, plastic PET #1, has also steadily declined in value from a national average high price of \$716.80 per ton in May of 2011, to a price of \$210.20 per ton in December of 2019. Likewise, the national average price of plastic HDPE #2, colored was down to \$14.09 in December 2019, from a national average high price of \$27.66 per ton in May of 2011. Similarly, commingled plastics #3-7 declined in value from a national average price of \$32.60 per ton in

August of 2015, to a low national average price of \$5.00 per ton in December of 2019. One significant exception to the decline in prices for recycled plastic commodities is the national average price of plastic HDPE #2, natural. While extremely volatile in price over the study period, average prices nationally went from a low of \$406.80 in July of 2019, to an all-time high price of \$1,186.80 by December of 2019, making HDPE #2 natural the most valuable commodity collected in recycling programs in terms of the national average price per ton. Brokers indicate that markets for HDPE #2 natural are growing due to improved sorting technologies, the ease of uniform coloring, and an increasing number of products designed to utilize HDPE #2 natural in the production process. However, aside from this exception, overall the trends for recycled plastics prices were moving significantly lower over the 2010-2019 study period.

Similar to the other commodities examined, mixed glass, has also steadily declined in value from a national average high price of \$179.25 per ton in February of 2011, to a low price of \$24.69 per ton in December of 2019. Interestingly, however, glass sorted by color has generally increased in value over the study period. Amber glass experienced an increase in the national average price from a low price of \$12.31 in January of 2010, to a high price of \$27.19 per ton in December of 2019. Similarly, clear glass realized an increase in the national average price from a low of \$24.31 in January of 2010, to a high price of \$33.00 per ton in December of 2019. Likewise, green glass realized an increase in the national average price from a low of \$6.69 in January of 2010, to a high price of \$10.63 per ton in December of 2019. In short, glass sorted by color has experienced an overall increase in the national average price per ton over the study period, while mixed glass, like the majority of other commodities examined, has experienced a significant price decline over the study period.

County Trends in MSW Generation

Data were obtained from the Pennsylvania DEP Bureau of Waste Management *County Waste Destinations In Tons of Waste* quarterly reports for the years 2010-2019. Municipal solid waste (MSW) by ton were summed by county for each quarter to represent all years of coverage. See Appendix 6 for all Figures and Tables associated with data discussed in this section.

Excluding a significant decline of approximately 364,000 tons of MSW generated from 2011 to 2012, trends generally show a steady increase over the 10-year period. From 2014 onward, MSW production increased more than two to three times the previous year's record. Largest increases in MSW occurred from 2010 to 2011 and 2017 to 2018, with net gains of 155,805 tons and 433,366 tons respectively. Interestingly, while MSW generation continued to increase from 2018 to 2019, it revealed a sharp drop compared to trends observed in previous years.

Changes can also be observed when comparing MSW generation in rural counties and urban counties for the time period. With the exception of 2014 to 2015 which marked a decrease in over 1,500 tons of MSW for rural counties compared to an increase of nearly 34,000 tons in urban counties, trends in both rural and urban counties are consistent with those referenced above. However, it should be noted that rural counties do not produce anywhere near as much MSW as urban counties. Urban counties generate more than three times the amount of MSW annually compared to their rural counterparts. This is hardly surprising given the overall size of populations and population density in urban locations versus rural locations. In other words, larger populations consume more resources and in turn, generate larger amounts of waste compared to smaller populations. Interestingly, rural counties did experience more of an increase in MSW produced from 2018 to 2019, with a net gain of over 40,000 tons, compared to urban counties' net increase of nearly 15,000 tons of MSW. However, MSW generated in urban

counties consistently accounts for more than 76 percent of all waste annually, including 2018 and 2019. Similar patterns emerge when comparing the total amount of MSW generated from 2010 to 2019 in rural counties to urban counties. Rural counties account for less than a quarter of all MSW generated for the time period, compared to more than 76 percent in urban counties.

Spatial patterns also emerge when examining the total amount of MSW generated by DEP region over time. The southeast region comprised of five urban counties accounts for almost 34 percent of all MSW produced for the 10-year period. These counties have larger and denser populations with increased access to resources in both Pennsylvania and neighboring states compared to more rural locations. The geographic trends persist with the southcentral and southwest regions, comprised of a combination of rural and urban counties, accounting for nearly 20 percent and more than 19 percent of all MSW generated, respectively. Collectively, these three regions produce over 73 percent of all MSW for the time period. Together the northwest and northcentral regions, comprised of almost all rural counties, account for the least amount of MSW produced with less than 12 percent. Findings suggest a strong relationship between population size and density and MSW generation.

Examining the percent of MSW generated by county over the 10-year period as well as by individual years, reveals similar spatial patterns. Allegheny County and Philadelphia County consistently produced the largest percentage of the state's waste. This is also true for individual years in the time period, with Montgomery County joining the ranks of top producers in 2011. Over the years, a clear urban-rural divide emerges with the urban counties producing the largest percentage of waste including those in the southeast and southwest regions, as well as Erie and Lackawanna counties.

In addition to assessing trends in percent of MSW by county over the 10-year period, researchers examined per capita MSW generated by county to account for different population sizes and determine if spatial patterns exist. For each year, the total MSW generated by county was divided by the total population for that year. Per capita MSW generated by county for the 10-year period was also calculated.

Trends in per capita MSW by county for the 10-year period yielded some interesting results. Three counties account for the highest per capita MSW generation over time: Clarion, Lackawanna, and Mercer. Both Clarion and Mercer counties located in the northwestern portion of the state are rural compared to urban Lackawanna in the northeast. Of those eight counties with the lowest per capita MSW generated over time, all are rural counties located in the northwest, northcentral, and southcentral parts of the state.

When examining geographic trends in per capita MSW generated by county by year, Clarion, Mercer, and Lackawanna counties are consistently among the highest rates generated while Crawford, Forest, Lawrence, Potter, and Venango counties rank among the lowest for MSW per capita. However, there is some spatial variation among per capita waste production in counties for individual years. Three urban counties, including Beaver, Northampton, and Philadelphia, were among those with the highest per capita MSW production over time. Beaver County was most consistent, appearing in the top counties with highest per capita MSW for six years, including 2013, 2014, and 2016 through 2019. Northampton County had some of the highest rates of per capita MSW for the years, 2014, 2015, and 2017. Interestingly, Philadelphia County was only among the counties with the highest per capita MSW for 2014. Six rural counties spanning the northeast, northcentral, northwestern, and southcentral portions of the state were also among the ranks of those counties with the highest per capita MSW over time.

Schuylkill County showed increased per capita MSW production from 2016 to 2019.

Neighboring Montour and Northumberland counties had the same 3 years where they were among the counties with the highest per capita MSW, including 2013, 2014, and 2015. However, Warren County, located in the northwest, exhibited the highest increases in per capita MSW generation for the latter part of the time period: 2017, 2018, and 2018. Compared to other years in the time period, where there was consistent variation, Mifflin County experienced increased per capita MSW for both 2012 and 2014. Similarly, Sullivan County ranked among the top per capita producers of MSW in a single year: 2019. Findings reveal some interesting trends with respect to rural and urban counties and their per capita MSW generation over the 10-year period, some of which may or may not be related to variation in the patterns of recycling collection.

County Trends in Recycling

After examining trends in total MSW generation by county and per capita MSW by county, it is important to analyze patterns in residential recycling by county to determine what, if any, relationship exists between these two things. Total residential recycling in tons will be discussed first, followed by the individual categories that make up total residential recycling, including single-stream, commingled, glass, paper, plastic, metal, HHW, other, and organics recyclables. Trends will be discussed by county, by year, distinguishing between rural and urban counties to determine if and how geography influences residential recycling rates in counties. All data were obtained from Re-TRAC for counties from 2010- 2019. See Appendix 7 for all Figures and Tables associated with data discussed in this section.

With the exception of 2010, rural counties account for less than a quarter of all residential recycling generated for the years 2011 through 2014. This trend persists from 2015 to 2019, with a year of slight decreases followed by slight increases in total tons of residential recycling. The

year 2012 proved difficult for rural counties in terms of the least amount of total residential recycling collected for the 10-year period, accounting for only 16 percent of all residential recycling. In sharp contrast, urban counties accounted for the bulk of total residential recycling collected for the years 2010 to 2019. The percent of residential recycling that was collected from urban counties fell just below 75 percent in only a single year: 2010. The remaining years in the study period saw urban county residential recycling percentages range from 77 percent to over 83 percent. Interestingly, China's National Sword policy took effect in February 2018, and both rural and urban counties showed slight increases in total tons of residential recycling from 2018 to 2019. It is quite possible that it was too early for these impacts to be realized by counties in terms of markets and commodity pricing. County residential recycling data for 2020 will be critical for further analyzing this trend.

When exploring the total tons of residential recycling collected by county for 2010 through 2019 notable patterns emerge for both rural and urban counties. Centre, Schuylkill, Monroe, Butler, and Franklin counties accounted for more than 44 percent of all residential recyclables collected in rural counties for the 10-year period, with the largest contributions concentrated in the northeast, northcentral, northwest, and southcentral parts of the state. Despite being rural counties, they are home to cities and boroughs like State College, Pottsville, and East Stroudsburg, with populations ranging from 9,000 to 42,000, as well as colleges and universities, like the Pennsylvania State University (main campus as well as branch campuses), East Stroudsburg University, Alvernia University, and Slippery Rock University. These factors could serve to influence rates of residential recycling for rural counties over time. Compared to rural counties, urban counties contributing the largest concentrations of total tons of residential recyclables for the years 2010 to 2019 were primarily concentrated in the southeast, with

Montgomery, Chester, Philadelphia, and Bucks, and Allegheny counties comprising over 51 percent of all urban residential recyclables. The southwestern part of the state was also represented among the largest amounts of residential recycling with Allegheny County. Overall, it is not at all surprising that the counties associated with the largest populations around the Philadelphia-Wilmington and Pittsburgh metropolitan regions were responsible for the largest total tons of residential recycling for the 10-year period.

Studying trends in total tons of residential recycling by region confirms some of these initial findings. For example, the southeast region comprised of four of the five top urban counties contributing the largest amount of residential recycling, accounts for almost 40 percent of all residential recyclables for the 10-year period. The southcentral and northeast regions, containing three of the five top rural counties contributing the largest amount of residential recycling, also account for more than 35 percent of total tons of residential recycling. The southwest, northcentral, and northwest regions each contain the remaining counties that round out the top five for both rural and urban counties producing the largest amounts of residential recycling tonnage from 2010-2019.

The nine categories comprising the total tons of residential recycling are listed in the following tables and will be analyzed by year and by type of county (rural or urban). In 2010, 54 percent of rural counties did not report any single-stream recyclables collection, and compared to other categories of recyclable materials collected, accounted for less than 7 percent of all residential recycling for that year. However, the five counties reporting the largest total tonnage of single-stream recyclables, including Butler, Wayne, Washington, Pike, and Franklin counties, did account for 61 percent of all single-stream recyclables collection in rural counties for 2010. This is in sharp contrast to single-stream collection in urban counties for 2010, which accounted for

more than 93 percent of all residential recycling. All urban counties reported a minimum of 49 tons of single-stream collection compared to more than half of rural counties lacking this type of collection. Philadelphia, Montgomery, Allegheny, Delaware, and York counties accounted for over 64 percent of all single-stream recyclables materials collected in 2010.

Compared to other categories of recyclable materials, commingled recyclables proved less popular among rural counties in 2010, with almost half not reporting any collection and accounting for less than 30 percent of all residential recyclables collection in that year. In addition to Franklin County, one of the few rural counties with single-stream recyclables collection in 2010, Tioga, Schuylkill, Blair, and Mercer counties accounted for over 75 percent of commingled recyclable materials in that year. With the exception of Philadelphia County, all urban counties collected commingled recyclables in 2010, accounting for over 70 percent of the total commingled materials. Bucks, Montgomery, Berks, Luzerne, and Lehigh counties comprised over 70 percent of commingled collection in urban counties, showing a strong southeastern and northeastern concentration.

Compared to urban counties, glass was a popular recyclable material for rural counties in 2010 accounting for over 67 percent of the total glass collected for that year. Demonstrating a strong northcentral and northeastern concentration, Centre, Lycoming, Schuylkill, Franklin, and Monroe counties generated more than 52 percent of glass collection in rural counties in 2010. It should also be mentioned that 19 percent of rural counties did not report any glass collection for that year, compared to 26 percent of urban counties. Allegheny, Montgomery, Berks, Beaver, and Northampton counties were responsible for almost 80 percent of all glass recyclables collected in urban counties in 2010, showing a strong southeastern, southcentral, and southwestern trend.

Compared to their rural counterparts, urban counties collected the bulk of paper recyclables in 2010, accounting for over 65 percent of total paper materials. Spanning the southeast and southcentral portions of the state, nearly 60 percent of total paper recyclables were collected by Bucks, Montgomery, Chester, Berks, and Lehigh counties. Similar to commingled collection, Philadelphia was the sole urban county not reporting collection of paper materials in 2010 compared to 4 percent of rural counties. Interestingly, the rural counties accounting for the largest percent of glass collection in 2010 mirror the paper recyclables, with a northcentral and northeastern stronghold and accounting for nearly 60 percent of paper collection in rural counties.

Rural counties collected over 71 percent of total plastic recyclables in 2010, with 15 percent of rural counties not reporting any plastic collection. The trend persists with the counties accounting for the largest percentage of glass and paper recyclables generating more than 55 percent of plastic recyclable collection in rural counties in 2010. Similar to rural counties, almost all the urban counties generating the largest percentage of glass recyclables in 2010 accounted for 80 percent of total plastics collection in urban counties, illustrating a strong southeastern and southwestern concentration. Compared to rural counties, 16 percent of urban counties reported no plastic collection in 2010.

Urban counties accounted for 60 percent of all metal recyclables collected in 2010, with Philadelphia County being the only one not reporting collection. Five counties accounted for more than 98 percent of metals collection in urban counties: Erie, Beaver, Delaware, Berks, and Allegheny counties. Metal recyclables also proved popular in rural counties, with every county reporting at least 14 tons. Primarily spanning the northeastern, and northwestern parts of the

state, Schuylkill, Crawford, Clearfield, Blair, and Lawrence counties produced almost 75 percent of rural metal recyclables collected.

Urban counties accounted for almost 70 percent of total HHW recyclables collection in 2010 compared to rural counties. Unlike 8 percent of rural counties not reporting any HHW recyclable materials collection, all urban counties participated in this type of collection generating a minimum of 41 tons. Over 64 percent of urban HHW recyclables were collected by Delaware, Allegheny, Luzerne, Chester, and Cumberland counties continuing the southeastern and southcentral spatial trends observed for paper recyclables and other materials. Rural counties exhibited a southcentral and northwestern spatial concentration for HHW recyclable materials, with almost half of all rural HHW collection occurring in Centre, Blair, Lawrence, Butler, and Adams counties.

Collection of other recyclable materials proved more common among urban counties (4 percent) compared to rural counties in 2010. With the exception of Lancaster County, all urban counties accounting for 94 percent of other recyclable materials collection were located in the southeastern portion of the state. Southcentral Cumberland County was the sole urban county not reporting any other recyclables collection for 2010. Not surprisingly, given discussion of the difficulty of providing HHW recyclable collection, 15 percent of rural counties did not generate any HHW materials in 2010. However, a strong spatial pattern of HHW collection emerges with Centre, Jefferson, Mercer, Northumberland, and Lawrence counties accounting for 84 percent of rural HHW recyclables collection in 2010.

Compared to rural locations, organic recyclables demonstrated a strong urban concentration in 2010, with urban counties accounting for over 77 percent of total organics. Almost half of all urban organic recyclables were collected in Montgomery, Bucks, Allegheny,

Lehigh, and Northampton counties, primarily spanning the eastern part of the state. Compared to all urban counties generating at least 1,069 tons of organics in 2010, 8 percent of rural counties did not report any collection of this material. Organics did prove popular among northcentral and northeastern counties, however, with Centre, Lycoming, Monroe, Fayette, and Columbia counties responsible for more than 56 percent of rural collection.

It was also important to observe trends in regularly collected residential recyclables compared to special collection categories including HHW, other, and organic recyclables. As defined by DEP in Section 1501 of Act 101 “source separated recyclable materials are materials separated from municipal waste at the point of origin (home, business, institution) for the purpose of recycling. These include commingled recyclables and single stream recyclables (recyclables collected together), but do not include materials recovered from collected loads of municipal solid waste, residual waste or hazardous waste (Pennsylvania General Assembly 1988: 2).” For this reason, total tons of single-stream through metal recyclables were summed for each county for each year and a percentage of total residential recyclables was generated for both rural and urban counties. These sums, as defined by DEP (Section 1501 of Act 101), will be noted as source-separated recyclable material in this report. Compared to rural counties, source-separated recyclable material in urban counties accounted for more than 73 percent of total tons of residential recyclables. Almost half of all rural counties accounted for 75 percent or more of their residential recyclables for 2010 to consist of source-separated recyclable material. Further, five counties reported this to account for 93 percent or more of their collection: Greene, Pike, Wayne, Perry, and Juniata counties. This is in sharp contrast to just 21 percent of urban counties reporting 75 percent of their total residential recycling to include source-separated recyclable material. Philadelphia County was the sole county reporting more than 90 percent of total

residential recycling in this category, with an impressive 97 percent of recyclables source-separated recyclable material.

Single-stream recyclable materials collection dropped from 2010 to 2011 in rural counties accounting for less than 5 percent of all total residential recyclables, compared to the increase in this type of collection in urban counties. Over half of the counties responsible for more than 57 percent of all rural single-stream collection in 2011 were those with the highest collections of this material the previous year: Butler, Washington, and Pike counties. This pattern is consistent with the spatial concentration in northern counties observed for single-stream recyclables in 2010. Interestingly, 56 percent of rural counties in 2011 did not report any single-stream collection, an increase from 2010. Similar trends were observed for single-stream recyclables collected in urban counties in 2011, with more than half of counties accounting for 70 percent of single-stream items the previous year: Philadelphia, Montgomery, and Allegheny counties. The southeastern concentration observed in urban counties with single-stream recyclables in 2010 continued in 2011. Lackawanna County however did not report any single-stream recyclables for 2011, a change from the previous year.

Like single-stream recyclables, commingled recyclables increased in urban counties and declined in rural counties in 2011. Half of all rural counties did not report any collection of commingled recyclables compared to just 5 percent of urban counties. Excluding Chester County, the four remaining counties responsible for more than 57 percent of commingled materials collection in 2011 matched those from the previous year. In addition to newcomers Monroe and Lycoming counties, Blair, Franklin, and Mercer counties reprised their roles from 2010 together accounting for 46 percent of all rural commingled recyclables collected.

In 2011, glass recyclables collection increased in rural counties (68 percent of total residential recycling) with the number of counties not reporting collection of this material remaining consistent with the previous year. Excluding Butler County, the same counties responsible for half of glass recyclables collection carried over to 2011. Trends in glass recyclables collection in urban counties in 2011 differed from the previous year, with 21 percent of urban counties not reporting any glass collection. Westmoreland, York, and Dauphin counties joined Allegheny and Northampton counties accounting for more than 81 percent of urban glass recyclables collection in 2011. This modified the geographic concentration of urban glass recyclables to southcentral and southwestern portions of the state for 2011.

In terms of the percentage of total residential recycling for 2011, paper recyclables remained consistent with trends observed in 2010 for both rural and urban counties. All urban counties reported collection of paper recyclables in 2011 compared to 6 percent of rural counties who did not. Paper collection for rural counties mirrored 2010 trends with Centre, Schuylkill, Monroe, and Lycoming counties among the top producers of this material. Butler County replaced Franklin County rounding out the five counties accounting for more than 56 percent of rural paper recyclables collection in 2011. Urban counties including Montgomery, Chester, and Lehigh remained among the top collectors of paper recyclables in 2011, with the addition of Delaware and Luzerne counties accounting for almost half of all urban paper recyclables collection.

While rural counties witnessed a decline in plastic recyclables in 2011, they still accounted for 57 percent of the total tons of plastic materials collected despite the increase in urban counties (43 percent). Patterns in counties not reporting plastics collection also remained consistent with the previous year, with 15 percent of rural counties compared to 11 percent of

urban counties. In rural counties, Butler and Northumberland counties were among the top plastics collectors in 2011 along with those from the previous year accounting for more than 57 percent of rural plastic recyclables, allowing the northcentral and northeastern spatial concentration to persist. Urban counties also experienced a slight shift in counties responsible for the most plastic recyclables collection in 2011, with the addition of Lackawanna and Dauphin counties. Together with Allegheny, Northampton, and Beaver counties, they accounted for over 83 percent of urban plastics recycled in 2011.

Although collection of metal recyclables increased in rural counties and dropped in urban counties in 2011, urban counties accounted for 53 percent of all metal recyclables for that year. Unlike 2010, all urban and rural counties reported collection of metal recyclables for 2011. Trends from the previous year persisted in rural counties in 2011 with all counties reclaiming their spots as the top metal recyclable materials collectors, with Jefferson County replacing Blair County. Collectively, these five counties account for 83 percent of all rural metal recyclables in 2011. Chester and Lackawanna counties joined the top collectors of urban metal recyclables in 2011, including Delaware, Beaver, and Erie counties, consist with 2010 trends. Over 96 percent of all urban metal recyclables were collected by these five counties in 2011.

Trends in HHW recyclables in both urban and rural counties in 2011 remained consistent with the previous year, with urban counties accounting for almost 70 percent of all HHW recyclables collected. Similarly, 8 percent of rural counties did not report collection of HHW recyclables compared to all participating urban counties. Jefferson County replaced Adams County in 2011 joining the top HHW materials collectors from the previous year; these counties accounted for 65 percent of all rural HHW recyclables. Urban counties witnessed a similar shift with Lancaster County pushing Cumberland County from the top five HHW recyclable

collectors from 2010. The southern spatial concentration persisted with these five counties responsible for 70 percent of urban HHW recyclables collection in 2011.

Compared to the previous year, urban counties increased their collection of other recyclable materials (76 percent) while rural counties experienced a decline in 2011. While all urban counties reported collection of other recyclable materials in 2011, 25 percent of rural counties did not, an increase from the previous year. Otherwise, geographic trends remained relatively consistent for other recyclables in both rural and urban counties in 2011. Lawrence County joined Centre and Jefferson, where the largest concentrations continued to span the northcentral and northwestern parts of the state. Montgomery, Bucks, and Delaware counties saw the addition of Chester and Lehigh counties in 2011, responsible for 94 percent of urban other recyclable materials collected, thus allowing for the southeastern concentration of other recyclables in urban counties to endure.

In 2011, organic recyclables increased in urban counties (79 percent) and declined in rural counties from the previous year. Compared to 2010, rural counties also saw an increase (15 percent) in those reporting no collection of organics. Spatial trends however remained consistent in both urban and rural counties. In 2011, Franklin County joined the same rural counties generating the most organics the previous year (primarily located in the northern part of the state) accounting for 54 percent of rural organic recyclables. Although Luzerne County replaced Northampton County in 2011, organic recyclables collected in urban counties remained in the same locations spanning the eastern portion of the state and accounting for more than half of urban organics recyclables.

Compared to rural counties, source-separated recyclable material collection in urban counties accounted for more than 77 percent of total tons of residential recyclables, resulting in

an increase from 2010. Almost 40 percent of all rural counties accounted for 75 percent or more of their residential recyclables for 2011 to include source-separated recyclable material. Further, five counties reported this to account for 94 percent or more of their collection: Greene, Wayne, Crawford, Schuylkill, and Clearfield counties. This is in sharp contrast to just 26 percent of urban counties reporting 75 percent of their total residential recycling to include source-separated recyclable material. Philadelphia County also increased its percent of recyclables including source-separated recyclable material in 2011, with more than 98 percent.

Although rural counties experienced a slight increase in collection of single-stream recyclables in 2012 compared to the previous year, urban counties are still responsible for more than 92 percent of total single-stream recyclables despite the slight drop from 2011.

Interestingly, 2012 also marked a change in single-stream collection for rural counties with the number of counties participating in this type of collection increasing from 48 percent to 64 percent. Top rural counties collecting single-stream recyclables in 2012 were the same as the previous year, with Schuylkill replacing Adams County, and accounting for almost 60 percent of rural single-stream collection. The northeastern and northwestern concentration of rural single-stream recyclables persisted in 2012. Trends for single-stream recyclables observed in urban counties mirrored the previous years with the southeastern spatial concentration remaining the same, despite Delaware County taking over Chester County's spot as a top collector of this material. Interestingly, these five counties experienced a decrease in single-stream collection from 2011 to 2012, accounting for 61 percent of all urban single-stream recyclables in 2012.

Collection of commingled recyclables continued to increase in popularity among urban counties in 2012 accounting for almost 80 percent of all commingled recyclables. There was however a slight increase in total commingled recyclables collected in rural counties in 2012

compared to the previous year as well as an increase in the number of participating counties. Excluding Schuylkill County, there was no change in the top collectors of commingled recyclables in rural counties, accounting for 56 percent of rural commingled recyclables in 2012. The same can be said for the leading urban counties accounting for almost 60 percent of commingled collection in 2012, with the exception of Northampton County.

Glass recyclables continued to gain momentum in rural counties in 2012 accounting for 80 percent of all glass recyclables collected for the year, compared to urban counties. The top five counties responsible for the largest collection of these materials were consistent with the previous year and accounted for 66 percent of rural glass recyclables in 2012. Urban counties experienced a decline in collection of glass recyclables in 2012, with Beaver and Erie counties taking over the top spots occupied by Northampton and York counties the previous year. The geographic concentrations of glass recycling in urban counties remained the same with a stronghold in the southwestern and southcentral portions of the state.

Compared to rural counties, urban counties continued to favor paper recyclables in 2012 accounting for 64 percent of total paper recycling collected for the year, notwithstanding the slight decrease from 2011. The top five rural counties accounting for the largest collection of paper recyclables in 2012 reflected the previous year, yet they saw an increase (61 percent) in the total rural paper recyclables collected. Northampton and Allegheny counties joined the top paper collectors from 2012: Montgomery, Chester, and Lehigh. Further, the top five urban counties increased their collection of paper recyclables in 2012, accounting for over 59 percent of urban paper recycling compared to 48 percent in 2011.

In 2012, plastic recyclables increased by 15 percent in rural counties and accounted for more than 70 percent of total plastic recyclables collected for the year. Similar to trends observed

for glass and paper recyclables in rural counties for the past 2 years, the top collectors of plastic recycling remained the same excluding Clinton County and accounted for 60 percent of rural plastic materials collected in 2012. The predominantly northwestern regional concentration of plastics recycling collection persisted in rural counties for that year. Interestingly, urban counties witnessed an increase in the number of counties not collecting plastics in 2012. The top five counties responsible for the largest plastic recyclables collection also changed, with Montgomery, Chester, and Erie counties, joining Allegheny and Northampton from the previous year, accounting for almost 80 percent of urban plastic recyclables.

Compared to their urban counterparts, rural counties were responsible for 54 percent of all metal recyclables collected in 2012, up from the previous year. Aside from Mifflin County replacing Crawford County, the top five collectors of metal recyclables remained consistent with 2011 denoting a strong northern spatial concentration and accounting for 86 percent of rural metal recyclables collected in 2012. Changes in metal recyclables collection varied in urban counties from 2011 to 2012, with the top collectors including Delaware, Erie, Lebanon, Berks, Allegheny counties spanning the southern part of the state and accounting for 93 percent of urban metal recyclables collected for that year.

Urban counties accounted for 95 percent of HHW recyclables collected in 2012 jumping more than 26 percent from the previous year. A strong southeastern, southcentral, and southwestern spatial concentration endured in 2012 for HHW recycling in urban counties. Luzerne County dropped out of the top collectors in 2012 only to be replaced by Philadelphia County further intensifying the southern regional trend for this type of recyclable material. These five counties accounted for 97 percent of all urban HHW recyclables collected. Rural collection

of HHW recyclables remained the same as the previous year perpetuating the northern regional trends with the top five collectors accounting for 63 percent of rural HHW recyclables in 2012.

Although urban counties were responsible for 60 percent of other recyclables collected in 2012, they did experience a drop of more than 15 percent from the previous year. With the addition of Northampton and Philadelphia counties for 2012, the top five counties accounted for 92 percent of urban other recyclable materials collected. Collection of other recyclable materials in rural counties, however, remained the same in 2012, with the top five collectors seeing the addition of Bradford County. Together these counties were responsible for almost 90 percent of rural other recyclables collection in 2012.

Urban counties continued to dominate the collection of organics recycling in 2012, jumping 8 percent from the previous year to account for 87 percent of organic recyclables collected. Despite Northampton County replacing Luzerne County among the top collectors of organics in 2012, the spatial pattern remains the same. Together these five counties account for 77 percent of urban organic recyclables collected for that year. Collection of organic recyclables in rural counties continued to drop in 2012, with Union and Butler counties joining Centre, Monroe, and Lycoming to account for more than half of rural organics recycling collected. As in previous years, organics recycling in rural counties illustrated a persistent northern spatial trend.

Compared to rural counties, source-separated recyclable material collection in urban counties accounted for more than 75 percent of the total tons of residential recyclables. Interestingly 35 percent of all rural counties accounted for 75 percent or more of their residential recyclables for 2012 including source-separated recyclable material. Further, five counties reported this to account for 95 percent or more of their collection: Montour, Greene, Pike, Schuylkill, and Perry counties. In fact, all of Montour County's recyclables for 2012 were

comprised of source-separated recyclable material. This is in sharp contrast to just 16 percent of urban counties reporting 75 percent or more of their total residential recycling to include source-separated recyclable material. Philadelphia County remained at the top of the list for collection of source-separated recyclable material in 2012 with these items accounting for more than 93 percent of their total residential recycling collection, a slight decrease from the previous year.

Collection of single-stream recyclables remained more popular among urban counties than their rural counterparts, with 92 percent of all single-stream recycling collected in urban counties in 2013, despite a minor dip from 2011. With Delaware losing its spot to Chester County in 2013, the top collectors of single-stream recyclables in urban counties remained consistent, strongly concentrated in the southeastern portion of the state and accounting for 63 percent of urban single-stream recyclables for that year. Trends in the collection of single-stream recyclables in rural counties in 2013 are identical to the previous year, with the top five counties responsible for 61 percent of rural single-stream recycling, up from 2012. The number of rural counties not reporting single-stream collection continues to decrease (27 percent), suggesting that this is becoming more popular among rural counties compared to previous years.

Interestingly, collection of commingled recyclables in 2013 declined in both urban and rural counties compared to the previous year. However, urban counties accounted for the bulk of all commingled recyclables collected (81 percent). With the exception of Chester County, the top five collectors of commingled recyclables in urban counties were consistent with 2012 and accounted for nearly 60 percent of urban commingled recyclables. Almost half of rural counties did not report collection of any commingled recyclables for 2013, an increase from the previous year. Lawrence and Clinton counties replaced Schuylkill and Franklin counties among the top

five commingled collectors in 2013, and together were responsible for almost half of rural commingled recyclables concentrated in the northern part of the state.

Compared to urban counties, collection of glass recyclables continued to increase in rural counties in 2013, accounting for 81 percent of total glass collected. Northumberland County replaced Butler County joining the top glass collectors from the previous year which accounted for 57 percent of rural glass collection in 2013 further intensifying the northcentral and northeastern spatial concentration of this type of recyclable material. It should also be noted that from 2012 to 2013, there was an increase (21 percent) in rural counties reporting no glass collection. Trends in urban collection of glass recyclables in 2013 differed from the previous year. Along with Allegheny and Westmoreland counties, Lackawanna, York, and Montgomery counties joined the top five counties responsible for the most urban glass recyclables in 2013, accounting for 72 percent of glass recycling collected in urban counties. The spatial pattern of urban glass collection shifted from a western pattern in 2012 to a more pronounced southern regional concentration.

Despite a decrease from the previous year, the collection of paper recyclables continued to be more popular among urban counties than rural counties accounting for 60 percent of the total paper recyclables collected in 2013. Allegheny County dropped out of the top five paper collectors in 2013 only to be replaced by Delaware County, and together responsible for 55 percent of urban paper recyclables. Urban paper recycling collectors spanned the eastern part of the state. In 2013, rural counties experienced an increase in paper recyclables collected from the previous year as well as increased participation in paper recycling collection. Geographic trends were also consistent in terms of the top five counties responsible for rural paper recycling

collection, excluding Washington County where collectively, these top five counties comprised 57 percent of rural paper recyclables collected in 2013.

Collection of plastic recyclables continued to soar in rural counties in 2013, resulting in an increase of 11 percent from the previous year, and accounting for 83 percent of total plastic recyclables collected. Spatial patterns observed in plastics collection in rural counties 2012 persisted, with Northumberland County taking Butler County's spot in the top five plastic collectors for 2013. Accounting for almost 60 percent of rural plastic recycling, these counties spanned the northcentral and northeastern parts of the state. Urban counties, in sharp contrast, experienced a drop of more than 10 percent in their plastic recyclables from 2012 to 2013. Dauphin and Delaware counties occupied spots in the top five urban plastics collectors for 2013 along with those from the previous year and were responsible for 65 percent of all urban plastic recyclables collected in 2013. The year 2013 also marked a spatial shift in urban plastic recyclables collected, with a strong concentration in southern Pennsylvania.

Rural counties continued to overshadow urban counties in terms of collection of metal recyclables in 2013, accounting for 55 percent of metal recyclables, up from the previous year. While Schuylkill and Clearfield counties remained, three new rural counties claimed spots among the top five metal collectors in 2013: Blair, Cambria, and Mercer counties and together accounted for nearly 75 percent of rural metal recyclables collection in 2013. This also revealed a geographic shift in metal recycling in rural counties, moving from a more pronounced northern concentration in 2012 to a more dispersed pattern spanning northern and southern portions of the state the following year. Metal collection in urban counties in 2013 remained relatively steady with the previous year's trends, seeing the addition of Lackawanna and Chester counties among

the top five metal collectors. The top five counties located in eastern and central Pennsylvania, were responsible for 90 percent of urban metal recyclables collected in 2013.

Urban counties gained momentum with HHW recycling in 2013 accounting for 96 percent of HHW recyclables collected, up slightly from the previous year. Interestingly, excluding Chester County, counties comprising the top five urban HHW collectors changed dramatically from 2012, and included Montgomery, Northampton, Berks, and Lackawanna counties. Collectively these counties located in the southeast and northeast, were responsible for 96 percent of urban HHW recycling collection for 2013. Rural counties experienced a slight decline in collection of HHW recyclables in 2013. Although the top five counties responsible for the bulk of rural HHW recycling remained concentrated in northwestern Pennsylvania, Mercer, Adams, and Elk counties were now among the primary HHW collectors in 2013 and together accounted for almost 6 percent of rural HHW recycling collection. It should also be noted that there was increase in rural counties reporting no collection of HHW recyclables in 2013 (15 percent), up from just 6 percent in 2012.

Compared to their rural counterparts, urban counties experienced an increase in other recyclable materials in 2013 accounting for more than 60 percent of other recyclables collected, up slightly from the previous year. Berks, Lackawanna, and Chester counties were among the top five collectors of urban other recyclables in 2013, in addition to Montgomery and Bucks counties, which altogether were responsible for 92 percent of all urban other recyclable materials collected for that year. Primarily the highest concentration of other recyclables in urban counties spanned the southeast and northeast. Rural counties witnessed a slight drop in other recyclable materials collected in 2013 in addition to 27 percent of counties not reporting any collection of other recyclables, up 8 percent from the previous year. Interestingly, there was also a spatial shift

in the rural counties accounting for the bulk of other recyclable materials collection in 2013. The addition of Cambria, Blair, and Adams counties to the top five rural collectors of other recyclables resulted in a predominant southcentral and southwestern concentration compared to the northcentral and northwestern patterns observed in 2012.

Despite a 10 percent drop from the previous year, the collection of organic recyclables continued to be more popular among urban counties than rural counties accounting for 77 percent of the total organic recyclables collected in 2013. Excluding Allegheny County, the top five collectors of organic recyclables remained the same from 2012 and were responsible for 54 percent of urban organic recycling collected. A strong southeast and northeast trend was observed in urban counties accounting for the highest concentrations of organics. In 2013, organics recycling in rural counties jumped 10 percent from the previous year, however similar trends from 2012 persisted, excluding Blair County among the top organic collectors. Responsible for 53 percent of all rural organic recyclable materials collected in 2013, these five counties were primarily located in northcentral and northwestern Pennsylvania.

Compared to rural counties, source-separated recyclable material collection in urban counties accounted for 76 percent of total tons of residential recyclables in 2013, resulting in a slight increase from 2012. Rural counties experienced a slight decline in collection of source-separated recyclable material in 2013, however more than 33 percent of all rural counties accounted for 75 percent or more of their residential recyclables for 2013 including source-separated recyclable material. Further, three counties reported this to account for 100 percent of their collection, including Montour, Pike, and Perry counties. As shown in previous years, this is in sharp contrast to just 16 percent of urban counties reporting 75 percent or more of their total residential recycling to include source-separated recyclable material. Philadelphia County stayed

at the top of the list for collection of source-separated recyclable material in 2013 with these items accounting for more than 98 percent of their total residential recycling collection, a 5 percent increase from the previous year.

Collection of single-stream recyclables in both urban and rural counties in 2014 remained consistent with trends observed in the previous year, with urban counties responsible for 92 percent of total single-stream recyclables. Further spatial patterns of single-stream recyclables in both urban and rural counties in 2014 mirrored 2013. There was however a drop in single-stream recyclables collected from 2013 to 2014 in both urban and rural counties among the top five collectors.

In 2014, collection of commingled recyclables steadily increased in urban counties, up 6 percent from the previous year, and accounted for 87 percent of total commingled recyclables. Despite Lackawanna County replacing Luzerne County among the top five collectors in 2014, the highest concentrations of commingled recyclables in urban counties continued to be found in southeastern and northeastern Pennsylvania and accounted for 65 percent of urban commingled recyclables. Commingled recyclables collection varied among rural counties in 2014 compared to 2013 and witnessed a 6 percent decline in this type of collection. Spatial patterns of the top collectors of commingled recyclables in rural counties also changed, with Franklin, Schuylkill, and Wyoming counties joining Monroe and Clinton counties from the previous year to account for 61 percent of all rural commingled recyclables. The highest concentrations of rural commingled recyclables were found in the northeast and northcentral parts of the state. Interestingly, rural counties also saw an increase in the number of counties reporting collection of commingled materials in 2014.

In 2014, glass recyclables remained highest in rural counties compared to their urban counterparts, accounting for 80 percent of total glass recyclables collected despite a slight drop from 2013. The top five collectors of glass recyclables in rural counties were also consistent with 2013 trends and accounted for 61 percent of rural glass recyclables collected in 2014, a slight increase from the previous year. A minor increase in glass recyclables occurred in urban counties in 2014, yet the top collectors of glass items remained consistent with 2013 trends and were primarily located in the southeast, southcentral, and southwest regions, excluding Erie County. Altogether these five counties accounted for 75 percent of urban glass recyclables collected in 2014. An increase in urban counties collecting glass recyclables also occurred in 2014, suggesting expansion of glass collection in urban locations.

Paper recyclables continued to increase in popularity among urban counties in 2014 compared to rural counties, accounting for 67 percent of total paper recyclables collected, a 7 percent increase from the previous year. The top five paper collectors in urban counties differed from 2013, with the addition of Lackawanna, Dauphin, and Berks counties accounting for almost 70 percent of urban paper recyclables. The bulk of urban paper collection occurred in southeastern and southcentral Pennsylvania. Despite the drop in paper recycling collection in rural counties in 2014, the top collectors of paper recyclables remained consistent with the previous year, with the exception of Blair County. The top five collectors of paper recyclables primarily located in northeastern and northcentral Pennsylvania accounted for 61 percent of rural paper recycling in 2014.

Although collection of plastic recyclables in rural counties experienced a decline from 2013 to 2014, these items accounted for 77 percent of total plastic recyclables collected. Further the top five plastic collectors in rural counties primarily concentrated in northcentral

Pennsylvania, mirrored 2013 trends and were responsible for 55 percent of rural plastics collection in 2014. It should be noted however that there was a slight increase in rural counties reporting no collection of plastics recyclables. In 2014, urban counties experienced a 6 percent increase in the collection of plastics recycling as well as an increase in urban counties offering this type of collection compared to 2013. While the top five collectors of plastics in urban counties in 2013 were found in the southern portion of the state, the addition of Lackawanna and Erie counties in 2014 resulted in a more geographically dispersed pattern of plastics recyclables collection. Along with Allegheny, Dauphin, and Delaware counties these locations were responsible for 71 percent of urban plastic recycling in 2014.

In 2014, trends in collection of metal recyclables were consistent with the previous year for both rural and urban counties, with rural counties responsible for 55 percent of total metal recyclables collected. In 2014, Centre and Mifflin counties replaced Cambria and Blair counties among the top five metal collectors in rural counties and accounted for 87 percent of rural metal recyclables collected. These counties were primarily concentrated in northcentral, northeastern, and northwestern Pennsylvania. Collection of metal recyclables in urban counties in 2014 remained consistent with 2013 trends. The same top five counties responsible for 90 percent of urban metal recyclables were found in the southeastern and northeastern portions of the state.

While urban counties experienced an almost 20 percent drop in HHW recyclables collected in 2014, they still accounted for 77 percent of total HHW recyclables. The top collectors of HHW recyclables in urban counties differed in 2014, with only Chester and Montgomery counties remaining, and the addition of south centrally located Dauphin, Lancaster, and York counties. Together these five counties were responsible for almost 70 percent of urban HHW recyclables collected in 2014. Although rural counties experienced an almost six-fold

increase in collection of HHW recyclables in 2014, there was also a notable increase (27 percent) in rural counties reporting no HHW collection, suggesting a decline in access to this type of recycling collection among rural residents. Monroe, Blair, and Schuylkill counties joined Centre and Adams counties accounting for 52 percent of rural HHW recyclables collected in 2014. The top five counties responsible for rural HHW collection were primarily concentrated in southcentral and northeastern Pennsylvania.

Despite the slight decline in collection of other recyclable materials in 2014, urban counties still accounted for 59 percent of the total other recyclables collected. Interestingly, the top five collectors of other recyclables in urban counties, responsible for 92 percent of urban other recycling, are all located in the southeastern portion of the state denoting a slight change from the previous year. Rural counties saw an increase in collection of other recyclables in 2014, and trends remained consistent among the top five collectors of these materials excluding Northumberland County. Located predominately in southcentral and northcentral Pennsylvania, these counties accounted for 87 percent of rural other recyclables materials collected in 2014. However, as observed with HHW recycling collection in rural counties in 2014, there was an increase in rural counties reporting no collection of other recyclable items (29 percent).

Collection of organic recyclables remained popular among urban counties in 2014, showing a slight increase from the previous year, and accounting for 78 percent of total organics recycling. With the exception of Bucks County, the top collectors of organic recyclables in urban counties remained consistent with 2013 trends, accounting for more than half of urban organic recyclables collected. These counties were primarily concentrated in southeastern and northeastern Pennsylvania. Collection of organic recyclables in rural counties experienced a slight drop in 2014 with an increase in rural counties reporting no organics collection (19

percent). However, the top collectors of organic recyclables remained consistent with the previous year, excluding Monroe County. Together these five counties spanning the greater portion of northern Pennsylvania were responsible for 57 percent of rural organics recycling in 2014.

Compared to their rural counterparts, source-separated recyclable material collection in urban counties accounted for 79 percent of total tons of residential recyclables in 2014, resulting in a 3 percent increase from the previous year. In contrast, rural counties experienced a 3 percent decrease in collection of source-separated recyclable material in 2014. However more than half of all rural counties accounted for 75 percent or more of their residential recyclables for 2014 including source-separated recyclable material. Further, four counties reported this to account for 100 percent of their collections, including Juniata, Pike, Montour, and McKean counties. As shown in previous years, this is in sharp contrast to just 16 percent of urban counties reporting 75 percent or more of their total residential recycling to include source-separated recyclable material. Philadelphia County remained at the top of the list for collection of source-separated recyclable material in 2014 with these items accounting for more than 97 percent of their total residential recycling collection, a slight decrease from the previous year.

Collection of single-stream recyclables in 2015 remained consistent with trends from the previous year, with urban counties accounting for 92 percent of total single-stream recyclables compared to rural counties. The top five collectors of single-stream recyclables stayed the same and were responsible for 59 percent of urban single-stream recyclables in 2015. Similar trends were observed for rural counties, with the top collectors of single-stream recyclables remaining consistent with 2014 trends and accounted for 51 percent of rural single-stream recyclables. It

should be noted that 29 percent of rural counties did not report any collection of single-stream recyclables in 2015, compared to 21 percent in 2014.

In 2015, collection of commingled recyclables remained popular among urban counties compared to rural counties despite a slight drop, accounting for 86 percent of total commingled recyclable materials for the year. As observed with single-stream recyclables, patterns in urban counties stayed consistent with the previous year, including the top collectors of commingled materials. However, these five counties now accounted for nearly 70 percent of urban commingled recyclables, up from the previous year. While commingled collection in rural counties increased slightly from 2014, there was also an increase in rural counties reporting no collection of commingled recyclables (46 percent), suggesting this type of collection is not favored among rural residents. In 2015, the top collectors of rural commingled materials included Washington, Franklin, Pike, Clinton, and Lawrence counties, a change from the previous year, accounting for 55 percent of rural commingled recyclables. This marked a change in the spatial patterns of commingled recyclables for rural counties, with a more dispersed distribution for this type of recyclable material compared to a more pronounced northeastern concentration in 2014.

Glass recyclables remained a favorite among rural counties in 2015, accounting for 82 percent of total glass recyclables, an increase of 2 percent from 2014. Except for Franklin County, top collectors of glass recyclables in rural counties remained consistent with the previous year, now accounting for 54 percent of rural glass recyclables in 2015. Urban counties experienced a slight decline in collection of glass recyclables compared to rural counties in 2015. Lackawanna and Dauphin counties occupied spots among the top five glass collectors in urban counties, joining those from 2014, to account for 72 percent of urban glass recyclables in 2015.

Urban counties with the highest concentrations of glass recyclables were primarily located in southwestern and southcentral Pennsylvania.

Compared to rural counties, collection of paper recyclables was more common in urban counties in 2015, and despite a short drop from the previous year accounted for 62 percent of paper recyclables. Excluding Beaver County, the top collectors remained consistent with 2014, accounting for 64 percent of urban paper recyclables in 2015. Interestingly, urban counties reporting no collection of paper recyclables increased from 8 percent in 2014 to 11 percent in 2015. In rural counties collection of paper recyclables experienced a 5 percent increase in 2015, with the top paper collectors mirroring those from 2014, and accounting for 58 percent of rural paper recycling in 2015. There was however an increase in rural counties reporting no collection of paper recyclables in 2015 (8 percent).

In 2015, collection of plastic recyclables continued to rise in rural counties accounting for 82 percent of total plastic recyclables. The top collectors of plastic in rural counties remained consistent with 2014, accounting for 65 percent of rural plastic recycling. Collection of plastic recyclables experienced a 5 percent decline in urban counties in 2015, in addition to an increase (16 percent) in urban counties reporting no plastics collection for that year. Chester and Lehigh counties joined the top five plastics collectors in urban counties in 2015, and along with Eire, Allegheny, and Dauphin counties were responsible for 81 percent of urban plastic recyclables. These counties with the highest concentrations of plastic recyclables were dispersed across the state.

Collection of metal recyclables in urban counties experienced a steady increase in 2015, accounting for 56 percent of total metal recyclables compared to the previous year's 45 percent. The top collectors of metals in urban counties remained consistent with 2014 trends, with the

addition of Lehigh and Lancaster counties, responsible for 86 percent of urban metal recyclables in 2015. Cumberland County was the only urban county reporting no collection of metals in 2015. Rural counties witnessed a drop in collection of metal recyclables in 2015, however all counties reported collection of at least .06 tons of metals. The top metal collectors in rural counties were consistent with 2014 trends and saw the addition of Jefferson County, which were responsible for 77 percent of rural metal recyclables collection in 2015.

Collection of HHW recyclables was down in urban counties in 2015, however they were still responsible for 61 percent of total HHW recyclables compared to 77 percent the previous year. All urban counties reported collection of HHW recycling in 2015, a change from 2014. Top collectors of HHW recycling in urban counties remained consistent with 2014 trends, with Allegheny and Berks counties joining the others and accounting for 56 percent of urban HHW recyclables in 2015. Rural counties experienced an increase in collection of HHW recyclables, jumping from 23 percent in 2014 to 39 percent in 2015. In terms of rural county participation in HHW recycling, an increase was observed with 69 percent reporting collection of these items. Centre, Monroe, and Schuylkill counties remained among the top collectors of HHW recycling in rural counties in 2015, and, with the addition of Union and Carbon counties, were responsible for 57 percent of rural HHW recycling. These counties with the highest concentration of HHW recyclables collection were found primarily in northeastern and northcentral Pennsylvania.

Compared to rural counties, urban counties accounted for 59 percent of total other recyclables collected in 2015, an 11 percent increase from 2014. Lackawanna County moved into the top collectors of other recyclables in urban counties in 2015, showing the largest concentration of these items in the southeastern portion of the state, and accounting for 94 percent of urban other recycling. Rural counties experienced a decrease in collection of other

recyclables, dropping from 41 percent in 2014 to 30 percent in 2015. There was also an increase in rural counties (31 percent) not reporting any collection of other recyclables in 2015. The top collectors of other recyclables in rural counties varied from 2014, with Bradford, Butler, and Clinton counties joining Centre and Jefferson counties, located in northwestern and northcentral Pennsylvania, accounting for 92 percent of rural other recyclables in 2015.

Collection of organic recyclables was a favorite among urban counties compared to rural counties, accounting for 79 percent of total organic recyclables in 2015 up from the previous year. With the exception of Northampton County, the top collectors of organic materials remained consistent with 2014 and accounted for 52 percent of urban organics recyclables in 2015. These counties were primarily found in northeastern and southeastern portions of the state. In 2015, collection of organic recyclables in rural counties dropped slightly and 21 percent of rural counties reported no collection of these materials, up from 2014. However, top collectors of organics recycling remained consistent with the previous year's trends and saw the addition of Fayette County, accounting for 60 percent of rural organic recyclables collection in 2015.

Source-separated recyclable material collection in urban counties soared in 2015, accounting for 81 percent of total tons of residential recyclables, while rural counties experienced a two percent decrease in collection of these items. However almost half of all rural counties accounted for 75 percent or more of their residential recyclables for 2015 including source-separated recyclable material. Further, three counties reported this to account for 100 percent of their collections, including Fayette, Northumberland, and Fulton counties. As shown in previous years, this is in sharp contrast to just 16 percent of urban counties reporting 75 percent or more of their total residential recycling to include source-separated recyclable material. Philadelphia County remained at the top of the list for collection of source-separated

recyclable material in 2015 with these items accounting for more than 96 percent of their total residential recycling collection, a slight decrease from the previous year.

Collection of single-stream recyclables in urban counties continued to climb in 2016, accounting for 93 percent of total single-stream recyclables, with the top collectors mirroring trends from 2015. In 2016, these southeastern counties were responsible for 57 percent of urban single-stream recyclables. Collection of single-stream recyclables in rural counties, however, continued to decline and 31 percent of counties reported no single-stream collection for 2016, up from the previous year. The top collectors of single-stream recyclables in rural counties remained consistent with 2015 and saw the addition of Franklin County, accounting for half of all rural single-stream recyclables in 2016.

Similar trends emerged with collection of commingled recyclables in 2016. Urban counties accounted for 82 percent of total comingled recyclables collected that year, despite a slight drop from 2015. Top collectors of commingled materials were consistent with 2015, with Erie County moving into the mix, and accounting for 73 percent of urban commingled recyclables in 2016. Interestingly, rural counties experienced an increase in collection of commingled recyclables in 2016, however, almost half of rural counties reported no collection of these items that year, an increase from 2015. The top producers of commingled recyclables in 2016 included Crawford, Franklin, Blair, Lawrence, and Fayette counties, primarily located in southcentral and northwestern Pennsylvania, accounting for 62 percent of rural commingled recyclables.

Compared to previous years, a dramatic shift occurred in collection of glass recyclables in 2016. In the past, rural counties have consistently accounted for 67 percent or more of glass recyclables annually in Pennsylvania, one of the few materials proving more popular among

rural residents compared to urban residents. In 2016, urban counties were responsible for 76 percent of total glass recyclables jumping from just 18 percent in 2015. In 2016, Northampton and Erie counties claimed spots among the top collectors of glass in urban counties along with Allegheny, Lackawanna, and York counties, accounting for 97 percent of urban glass recyclables. In sharp contrast, collection of glass recyclables dropped to its lowest on record, and 25 percent of rural counties reported no glass collection in 2016 up from the previous year. Excluding Indiana County, the top collectors of glass remained consistent with 2015 trends and accounted for 62 percent of rural glass recyclables collection in 2016. These counties were found in northcentral, northeastern, and northwestern Pennsylvania.

Urban counties experienced an increase in collection of paper recyclables in 2016, up from 2015, accounting for 64 percent of total paper recycling in Pennsylvania. Northampton County replaced Beaver County for a place in the top five paper collectors in urban counties and were responsible for almost 70 percent of urban paper collection in 2016. Urban counties with the highest concentration of paper recycling were found in northeastern and southeastern portions of the state. It should also be noted that all urban counties reported collection of paper recyclables in 2016 compared to the previous year. Collection of paper recyclables in rural counties continued to drop in 2016, however top paper collectors were consistent with 2015 trends, with the addition of Northumberland County. Together these counties primarily located in northcentral and northeastern Pennsylvania were responsible for 64 percent of rural paper recyclables collected in 2016.

Although rural counties took a hit with their glass recyclables collection in 2016, plastic recyclables still proved popular among residents despite a 2 percent decline, accounting for 78 percent of total plastic recyclables collected for that year. Interestingly, 23 percent of rural

counties reported no collection of plastic recyclables in 2016, up from 2015. Top collectors of plastic recyclables in 2016 were consistent with 2015 trends and saw the addition of Blair and Monroe counties, accounting for 56 percent of rural plastic recyclables. In urban counties collection of plastic recyclables experienced a slight increase from the previous year but changed dramatically in terms of the top collectors. In 2016, Dauphin County was the only county to occupy a top spot for plastics recycling, and was joined by Lackawanna, Beaver, Northampton, and Bucks counties, responsible for 73 percent of urban plastic recyclables that year. Urban counties accounting for the highest concentration of plastic recyclables in 2016 spanned the state in terms of geographic distribution.

Collection of metal recyclables remained popular among urban counties, accounting for 54 percent of total metal recyclables in 2016, despite a slight drop from 2015. Unlike the previous year, all urban counties reported collection of metal recyclables in 2016. Lackawanna, Lancaster, and Erie counties moved into the top collectors of metals in urban counties in 2016 and with Delaware and Montgomery counties accounted for 86 percent of urban metal recyclables in 2016. Urban counties with the highest concentrations of metal recyclables were found in southeast, northeast, southcentral, and northwest. Collection of metal recyclables in rural counties remained relatively consistent with 2015 trends, despite a slight drop in 2016. Top collectors of metals in rural counties remained the same with the exception of Lawrence County and were responsible for almost 80 percent of rural metal recyclable in 2016. Rural counties accounting for the highest rates of metal recycling spanned northern Pennsylvania.

Urban counties continued to lead rural counties in HHW recycling in 2016, accounting for 52 percent of total HHW recyclables. In 2016, Lehigh and Philadelphia counties were added to the top collectors of HHW recycling in urban counties and with the three remaining counties

from 2015, accounted for 65 percent of urban HHW recyclables. Interestingly, rural counties experienced an increase in HHW recycling, jumping from 39 percent in 2015 to 48 percent in 2016. However, Centre County was the only county that remained among top collectors from 2015, and along with Washington, Pike, Blair and Indiana counties, accounted for 83 percent of rural HHW recyclables in 2016. Rural counties with the highest concentrations of HHW recyclables were dispersed throughout the northern and southern portions of state.

Like previous years, collection of other recyclable materials increased in urban counties, accounting for 73 percent of total other recyclable materials in 2016, up 3 percent from 2015. While many of the top collectors of other recyclables in urban counties changed from the previous year, the spatial patterns remained consistent with highest concentrations in southeastern Pennsylvania. Delaware, Lancaster, and Allegheny counties joined Montgomery and Bucks Counties and were responsible for 92 percent of urban other recyclables collected in 2016. Other recyclables proved less popular among rural counties, dropping by 3 percent from 2015, with 33 percent of rural counties reporting no collection of these items in 2016, an increase from the previous year. Excluding Adams County, the top collectors of other recyclables in rural counties, primarily located in northwestern and northcentral Pennsylvania, were consistent with 2015 trends, and accounted for 93 percent of rural other recyclables collected in 2016.

Compared to rural counties, urban counties continued to experience an increase in organic recyclables, accounting for 80 percent of total organic recyclables in 2016. Lancaster County joined the top collectors of organic materials from the previous year primarily found in southeastern, southcentral, and southwestern Pennsylvania, to account for 52 percent of urban organic recyclables in 2016. In contrast, rural counties witnessed a slight drop in collection of organic recyclables in 2016, however 85 percent of rural counties reported collection of organic

recyclables, an increase from 2015. In 2016, Columbia County replaced Lycoming County among the top collectors of organic recyclables in rural counties in 2016, and with the other counties found in northern Pennsylvania were responsible for 53 percent of rural organic materials collected that year.

Source-separated recyclable material collection in urban counties increased in 2016, accounting for 82 percent of total tons of residential recyclables, while rural counties experienced a slight decrease in collection of these items. However, 44 percent of rural counties accounted for 75 percent or more of their residential recyclables for 2016 including source-separated recyclable material. Further, two counties including Montour and Forest reported this to account for 100 percent of their collections. In contrast, 21 percent of urban counties reported 75 percent or more of their total residential recycling to include source-separated recyclable material in 2016. Consistently remaining at the top of the list for collection of source-separated recyclable material, Philadelphia County reported these items to account for more than 95 percent of its total residential recycling collection in 2016, a slight decrease from the previous year.

Although collection of single-stream recyclables in urban counties experienced a slight drop in 2017, these locations accounted for 92 percent of total single-stream recyclables, with the top collectors reflecting trends from 2016. In 2017, these southeastern counties were responsible for 56 percent of urban single-stream recyclables. Collection of single-stream recyclables in rural counties increased slightly from 2016 with 29 percent of counties reporting no single-stream collection for 2016, a decrease from the previous year. The top collectors of single-stream recyclables in rural counties remained consistent with 2016 and saw the addition of Carbon County, accounting for 53 percent of rural single-stream recyclables in 2017.

Urban counties accounted for 84 percent of total commingled recyclables collected in 2017, a 2 percent increase from 2016. Top collectors of commingled materials were consistent with 2015, with Northampton County moving into the mix, and accounting for 71 percent of urban commingled recyclables in 2017. In contrast, rural counties experienced a slight decline in collection of commingled recyclables in 2017, however, half of rural counties reported no collection of these items that year, an increase from 2016. The top producers of commingled recyclables in 2017 were consistent with the previous year and saw the addition of Columbia and Wyoming counties, accounting for 52 percent of rural commingled recyclables.

Collection of glass recyclables in rural counties returned to normal in 2017 shattering previous records and accounting for 84 percent of total glass recyclables in Pennsylvania. Excluding Schuylkill County, top collectors of glass in rural counties were consistent with 2015 trends and accounted for 58 percent of rural glass recyclables in 2017. Rural counties with the highest concentrations of glass recyclables were found in northcentral and northeastern Pennsylvania. For urban counties 2017 was the worst year on record for collection of glass recyclables, dropping to just 16 percent, with 32 percent of urban counties reporting no glass recycling collection, double that of the previous year. In 2017, top collectors of glass in urban counties were located in the southwest and northwest and included the following: Lackawanna, Allegheny, Beaver, Erie, and Westmoreland counties. Together they were responsible for 75 percent of urban glass recyclables in 2017.

Collection of paper recyclables in both rural and urban counties remained consistent in 2017, with urban counties accounting for 64 percent of total paper recyclables. The top five paper collectors in urban counties remained the same and were responsible for 78 percent of urban paper collection in 2017. Collection of paper recyclables in rural counties mirrored 2016

trends with top paper collectors and accounted for almost 70 percent of rural paper recyclables collected in 2017. It should be noted that 10 percent of rural counties reported no collection of paper recyclables in 2017, rising from the previous year.

Rural counties continued to lead the state in plastic recyclables in 2017 accounting for 78 percent of total plastic recyclables collected. Interestingly, 27 percent of rural counties reported no collection of plastic recyclables in 2017, up from 2016. Top collectors of plastic recyclables in 2017 were consistent with 2016 trends and saw the addition of Schuylkill and Clinton counties, accounting for 59 percent of rural plastic recyclables. Rural counties with the highest concentrations of plastic recyclables were primarily located in northcentral and northeastern Pennsylvania. In 2017, collection of plastic recyclables in urban counties experienced a 10 percent drop from the previous year with 26 percent of urban counties reporting no plastic recycling, a jump from 2016. Collection of plastic recyclables in urban counties also changed dramatically in terms of the top collectors. In 2017, Dauphin County was the only county to occupy a top spot for plastics recycling, and was joined by Erie, Allegheny, Lebanon, and Berks counties, responsible for 71 percent of urban plastic recyclables that year. Urban counties accounting for the highest concentration of plastic recyclables were found in southcentral, northeastern, and northcentral Pennsylvania.

In 2017 trends in the collection of metal recyclables changed dramatically from previous years where historically urban counties accounted for the largest collections of these materials, rural counties were responsible for 66 percent of metal recyclables collected, increasing by 20 percent from 2016. Interestingly, there was also an increase in rural counties reporting no collection of metal recyclables in 2017. The top collectors of metal recyclables in rural counties were located in northern Pennsylvania and remained consistent with 2016 trends and saw the

addition of Franklin County, accounting for 84 percent of rural metal recyclables in 2017. In contrast, urban counties experienced a major drop in metal recycling in 2017, and with the exception of Dauphin and Lebanon counties, the top collectors of these materials were consistent with the previous year's trends. Found primarily in the southcentral portion of the state, these counties were responsible for 89 percent of urban metal recyclables in 2017.

Collection of HHW recyclables in 2017 rose among urban counties, accounting for 82 percent of total HHW recyclables in Pennsylvania, an increase of nearly 20 percent from the previous year. The top collectors of HHW recyclables remained the same for urban counties in 2017, accounting for 71 percent of urban HHW recyclables. Rural counties experienced a slight decline in HHW recyclables with 25 percent of counties reporting no collection of HHW materials in 2017, a 6 percent increase from 2016. Top collectors of HHW recyclables in rural counties also varied from 2016 trends, with Centre, Blair, Monroe, Franklin, and Lawrence counties responsible for half of all rural HHW recyclables collected in 2017. The highest concentrations of rural HHW recyclables were found in the north and southcentral parts of the state.

Despite a 10 percent decline, other recyclable materials remained popular among urban counties accounting for 63 percent of total other recyclables collected in 2017. Unlike the previous year, all urban counties reported collection of other recyclables in 2017. Excluding Philadelphia and Chester counties, the top collectors of other recyclables in urban counties remained consistent with 2016 trends, accounting for 95 percent of urban other recyclables in 2017. The highest concentrations of urban other recyclables were located in southeastern Pennsylvania. Collection of other recyclable materials in rural counties experienced an increase in 2017, and with the exception of Blair County, the top collectors of other recyclables remained

consistent with the previous year accounting for 92 percent of rural other recyclables. It should also be noted that 38 percent of rural counties reported no collection of other recyclables in 2017, an increase from 2016.

As observed in previous years, urban counties favored the collection organic recyclables which accounted for 76 percent of total organic recyclables in 2017, a slight drop from 2016. The top collectors of organic materials in urban counties were consistent with 2016 trends, and saw the addition go Cumberland County, which were responsible for 51 percent of urban organic recyclables collected in 2017. There was an increase in organics recycling among rural counties in 2017, however 23 percent of counties reported no collection of these materials in 2017, up from the previous year. Similar to urban counties, the top rural collectors of organics remained consistent with 2016 trends, with Lycoming County replacing Monroe County, and accounting for 52 percent of rural organic recyclables collected in 2017. These counties with the highest concentrations of organic recyclables could be found in northcentral, northwest, and southwest portions of the state.

Compared to previous years, source-separated recyclable material collection varied in both rural and urban counties in 2017. While urban counties continued to lead collection of source-separated recyclable material and accounted for 79 percent of total tons in 2017, this year marked a decrease in collection of these materials; the only other decline in these recyclables in urban counties occurred in 2012. The opposite trend occurred in rural counties, with a 3 percent increase in source-separated recyclable material, which has not occurred since 2012. However, 46 percent of rural counties accounted for 75 percent or more of their residential recyclables for 2017 including source-separated recyclable material. Further, a record five counties reported this to account for 100 percent of their collections, including Armstrong, Greene, Montour, Forest,

and Perry counties. In contrast, 21 percent of urban counties reported 75 percent or more of their total residential recycling to include source-separated recyclable material in 2017. Steadily remaining at the top of the list for collection of source-separated recyclable material, Philadelphia County reported these items to account for more than 95 percent of its total residential recycling collection in 2017, consistent with the previous year.

In 2018, collection of single-stream recyclables remained consistent in both rural and urban counties, with urban counties accounting for 92 percent of total single-stream recyclables compared to rural counties. With the exception of Delaware County, the top five collectors of single-stream recyclables stayed the same and were responsible for 60 percent of urban single-stream recyclables in 2018. Similar trends were observed for rural counties, with the top collectors of single-stream recyclables remaining consistent with 2017 trends excluding Pike County, accounting for 53 percent of rural single-stream recyclables. The rural counties with the highest concentrations of single-stream recyclables were in northeastern Pennsylvania. It should also be noted that 29 percent of rural counties did not report any collection of single-stream recyclables in 2018, no change from 2017.

In 2018, collection of commingled recyclables increased among urban counties compared to rural counties, accounting for 85 percent of total commingled recyclable materials for the year. Trends in urban counties stayed consistent with the previous year, including the top collectors of commingled materials. However, these five counties now accounted for nearly 79 percent of urban commingled recyclables, up 8 percent from the previous year. However, 11 percent of urban counties reported no collection of commingled recyclables, compared to 2017 when all counties participated in this type of recycling. While commingled collection in rural counties decreased slightly from 2017, there was also an increase in rural counties reporting no collection

of commingled recyclables (54 percent). In 2018, the top collectors of rural commingled materials included Franklin, Fayette, Adams, Blair, and Cambria counties, a change from the previous year, accounting for 55 percent of rural commingled recyclables. This marked a change in the spatial patterns of commingled recyclables for rural counties, with a much more prominent concentration in southeastern and southcentral Pennsylvania.

Collection of glass recyclables continued to climb in rural counties and accounted for 89 percent of total glass recyclables in the state in 2018, a 5 percent increase from 2017. Excluding Indiana County, the top glass collectors remained consistent with 2017 trends, and were responsible for 62 percent of rural glass recyclables in 2018. Counties with the highest concentrations of rural glass recyclables were found in northcentral, northeastern, and northwestern Pennsylvania. Interestingly there was an increase in rural counties reporting no glass collection, jumping from 29 percent in 2017 to 33 percent in 2018. Urban counties experienced a decline in collection of glass recyclables as well as changes in the top collectors of glass in 2018. While Beaver and Westmoreland counties remained among the top urban glass collectors, Dauphin, York, and Delaware moved ahead and were responsible for 68 percent of urban glass recyclable collection in 2018. Urban counties with the highest concentrations of glass recyclables were found in the southcentral, southwest, and southeast.

Despite a minor decrease in the collection of paper recyclables in urban counties, they were responsible for 60 percent of total paper recyclables in 2018. The top five paper collectors in urban counties were consistent with 2017 trends and were responsible for 78 percent of urban paper collection in 2018. Collection of paper recyclables in rural counties experienced a slight increase in 2018 and excluding Washington County the top paper collectors remained consistent with 2017 trends, accounting for 65 percent of rural paper recyclables in 2018. It should be noted

that 13 percent of rural counties reported no collection of paper recyclables in 2018, an increase from the previous year.

Collection of plastic recyclables remained high in rural counties in 2018 accounting for 80 percent of Pennsylvania's total plastic recyclables, although they experienced an 8 percent drop from the previous year. Top collectors of plastic recyclables were unchanged from 2017, accounting for 60 percent of rural plastic recyclables. Interestingly, 29 percent of rural counties reported no collection of plastic recyclables in 2018, an increase from 2017. In 2018, collection of plastic recyclables in urban counties experienced an 8 percent increase from the previous year. Collection of plastic recyclables in urban counties also changed dramatically in terms of the top collectors. In 2018, Dauphin and Erie counties continued to occupy a top spot for plastics recycling, and were joined by Chester, Westmoreland, and York counties, accounting for 79 percent of urban plastic recyclables that year. Urban counties accounting for the highest concentration of plastic recyclables were primarily located in the southcentral, southeastern, and southcentral portions of the state.

Collection of metal recyclables remained high in rural counties, despite a drop from the previous year, and accounted for 56 percent of total metal recyclables in 2018. Top collectors of metal recyclables remained consistent with 2017 trends, accounting for 86 percent of rural metal recyclables in 2018. Urban counties experienced an increase in collection of metal recyclables, jumping from 34 percent in 2017 to 44 percent in 2018. Erie and Lebanon counties remained among the top collectors of metal recyclables in 2018 and saw the addition of Philadelphia, Bucks, and Delaware counties, responsible for 94 percent of urban metal recyclables. Urban counties with the highest concentrations of metal recyclables were primarily located in southeastern and southcentral Pennsylvania.

Compared to rural counties, there was a rise in the collection of HHW recyclable materials in urban counties in 2018, accounting for 85 percent of total HHW recyclables in Pennsylvania. Top collectors of HHW recyclables included Lehigh, York, Lancaster, Westmoreland, and Delaware counties, responsible for 71 percent of urban HHW recyclables in 2018. Urban counties with the highest concentrations of HHW recyclables were found in the southcentral, southeast, and southwest. Rural counties experienced a drop in HHW recyclables collected in 2018, accompanied by a decrease (23 percent) in counties reporting no collection of HHW recyclables. With the exception of Lycoming and Mercer counties, the top collectors of HHW recyclables remained the same, accounting for 45 percent of rural HHW recyclables in 2018. Nearly all of these counties were found in northwestern and northcentral Pennsylvania.

The collection of other recyclable materials increased in urban counties from the previous year, accounting for 70 percent of total other recyclables in 2018. Compared to 2017 when all urban counties participated, 15 percent of urban counties reported no collection of other recyclables in 2018. Excluding Berks and Northampton counties, the top collectors of other recyclables in urban counties were consistent with 2017 trends, responsible for 98 percent of all urban other recyclables in 2018. These counties were primarily located in the southeast and southcentral parts of the state. Rural counties, however, experienced a decline in collection of other recyclables in 2018, with 40 percent of rural counties reporting no collection of other recyclables, up from 2017. Rural counties also saw a shift in the top collectors of other recyclables, with Centre, Jefferson, Lawrence, Franklin, and Mercer counties responsible for 93 percent of rural other recyclables in 2018. Almost all rural counties with the highest concentrations of other recyclables were found in northwestern and northcentral Pennsylvania.

Urban counties continued to lead in collection of organic recyclables compared to rural counties, accounting for 78 percent of total organic recyclables in 2018, an increase from the previous year. Excluding Lehigh County, top collectors of organic recyclables in urban counties were consistent with 2017 trends and were responsible for half of all urban organic recyclables in 2018. In rural counties, collection of organic recyclables continued to fall, with 21 percent of rural counties reporting no collection of organic recycling in 2018, a decrease from the previous year. Top collectors of rural organics changed dramatically from 2017 with Centre, Monroe, Pike, Fayette, and Elk counties, spanning the northern part of the state, accounting for 57 percent of rural organic materials in 2018.

Trends in source-separated recyclable material collection in both rural and urban counties remained steady in 2018, with urban counties accounting for nearly 80 percent of total residential tons of source-separated recyclable material. However, 44 percent of rural counties accounted for 75 percent or more of their residential recyclables for 2018 including source-separated recyclable material. Further, three counties reported this to account for 100 percent their collection, including Armstrong, Greene, and Forest counties. As shown in previous years, this is in sharp contrast to 21 percent of urban counties reporting 75 percent or more of their total residential recycling to include source-separated recyclable material. Although Philadelphia County topped the list for collection of source-separated recyclable material in 2018, these items accounted for more than 82 percent of their total residential recycling collection, a 13 percent drop from the previous year.

Like previous years, collection of single-stream recyclables was highest in urban counties compared to rural counties accounting for 89 percent of total tons of single-stream recyclables in 2019, a slight decrease from 2018. With the exception of Bucks and York counties, top collectors

of single-stream recyclables were consistent with 2018 trends accounting for 53 percent of urban single-stream recyclables in 2019. These counties were found in southeastern, southcentral, and southwestern Pennsylvania. Rural counties experienced a rise in collection of single-stream recyclables in 2019, accounting for 11 percent, the highest on record for the 10-year period. It should also be noted that 19 percent of rural counties reported no collection of single-stream recyclables in 2019, a drop from the previous year. The top collectors of single-stream recyclables were consistent with 2018 trends, excluding Fulton and Pike counties, and were responsible for 59 percent of rural single-stream recyclables in 2019. Rural counties with the highest concentrations of single-stream recyclables were primarily located in the northeast and northwest.

Collection of commingled recyclables remained popular among urban counties, accounting for 86 percent of total tons of commingled recyclables in 2019, a jump from 2018. However, 21 percent of urban counties reported no collection of commingled recyclables in 2019, compared to just 11 percent in 2018. Aside from Luzerne County replacing Bucks County the top collectors of commingled materials remained consistent with 2018, accounting for 78 percent of urban commingled recyclables. Concentrations of urban commingled recyclables were highest in northeastern and southeastern Pennsylvania. Collection of commingled recyclables continued their decline in rural counties in 2019, with 46 percent of counties reporting no collection of commingled recyclables, a drop from 2018. A shift in the top collectors of commingled recyclables also occurred in rural counties, with Franklin, Adams, Butler, Wyoming, and Clinton counties responsible for 66 percent of rural commingled recyclables collection in 2019. The spatial patterns denoting the highest concentrations of rural commingled

recyclables also changed, moving from the southcentral and southwest to the northern portions of the state.

Similar to previous years, rural counties remained the top collector of glass recyclables in 2019, accounting for 88 percent of total tons of glass recycling in Pennsylvania. Interestingly, 35 percent of rural counties reported no collection of glass recyclables in 2019, an increase from 2018. With the exception of Monroe County, the top glass collections remained the same, and were responsible for 75 percent of rural glass recyclables in 2019. These counties were found in the northern portions of the state. In 2019, urban counties witnessed a slight increase in collection of glass recyclables, however 42 percent of counties reported no glass recycling for 2019, up from 32 percent the previous year. Lackawanna and Northampton counties joined the top collectors of glass recycling from 2018 and were responsible for 87 percent of urban glass recyclables in 2019.

Despite a slight drop from the previous year, collection of paper recyclables remained high in urban counties, accounting for 56 percent of total tons of paper recyclables in 2019. Top collectors of paper recycling were consistent with 2018 trends and saw the addition of Delaware County, responsible for 68 percent of urban paper recyclables in 2019. The highest concentrations of paper recycling were found in northeastern and southeastern Pennsylvania. Rural counties experienced a slight increase in collection of paper recyclables in 2019. Excluding Schuylkill and Cambria counties, top paper collectors remained consistent with 2018, accounting for 74 percent of rural paper recyclables in 2019. Highest concentrations were found in rural counties in northcentral and northeastern Pennsylvania.

Rural counties remained the top collector of plastic recyclables in 2019, accounting for 76 percent of total tons of plastic recyclables in the state. Top plastic collectors were consistent

with 2018 trends and saw Cambria County replace Clinton County, accounting for 73 percent of rural plastic recyclables in 2019. These counties were concentrated in northcentral Pennsylvania. Collection of plastic recyclables in urban counties experienced an increase in 2019, however 32 percent of urban counties reporting no plastic recycling was up from the previous year. The top collectors of plastic recyclables also shifted, with Lackawanna, Dauphin, Northampton, Montgomery, and York counties responsible for 85 percent of urban plastic recyclables in 2019. Urban counties with the highest concentrations of plastics recycling were found in northeastern, southcentral, and southeastern Pennsylvania.

Compared to urban counties, collection of metal recyclables continued to climb in rural counties accounting for 59 percent of total tons of metal recyclables in 2019. The top collectors remained the same as the previous year, responsible for 87 percent of rural metal recyclables in 2019. Rural counties reporting no collection of metal recyclables, however, increased from 8 percent in 2018 to 10 percent in 2019. Urban counties experienced a slight drop in collection of metal recyclables, with 5 percent of urban counties reporting no metal collection in 2019. Philadelphia, Lebanon, and Delaware counties remained among the top collectors of metal recyclables and saw the addition of Montgomery and Lancaster counties, responsible for 96 percent of metal recyclable in 2019.

Collection of HHW recyclables jumped to its highest on record for urban counties accounting for more than 98 percent of total tons of HHW recyclables in 2019. With the exception of Bucks and Allegheny counties, the top collectors of HHW recyclables were consistent with 2018 trends, responsible for 97 percent of urban HHW recyclables in 2019. Highest concentrations of HHW recycling were found in urban counties in the southeast, southwest, southcentral, and northeast. Collection of HHW recyclables in rural counties reached

a record low in 2019, accounting for less than 2 percent of total tons of HHW recyclables. Rural counties reporting no collection of HHW recyclables also climbed from 23 percent in 2018 to 29 percent in 2019. Except for Mifflin County, top collectors of HHW recyclables remained consistent with 2018, accounting for 56 percent of rural HHW recyclables in 2019.

Collection of other recyclable materials reached a record high in urban counties, accounting for 81 percent of total tons of other recyclables in 2019. Unlike the previous year, all urban counties reported collection of other recyclables in 2019. Top collectors of other recyclables included Beaver, Dauphin, Montgomery, Allegheny, and Philadelphia counties, responsible for 98 percent of urban other recyclables in 2019. Urban counties with the highest concentrations of other recyclables were in southeastern, southcentral, and southwestern Pennsylvania. Collection of other recyclables dropped by more than 10 percent in rural counties in 2019, however 33 percent of counties reported no collection of other recycling, a decrease from 2018. Excluding Adams and Butler counties, top collectors of other recyclables were consistent with 2018 trends, accounting for 97 percent of rural other recyclables in 2019. These counties were found in the northwest, northcentral, and southcentral portions of the state.

Compared to rural counties, urban counties continued to lead in the collection of organic recyclables accounting for 75 percent of total tons of organic recyclables in 2019. Top collectors of organic recyclables were consistent with 2018 trends, excluding Allegheny and Berks counties, and were responsible for 47 percent of urban organic recyclables in 2019. Rural counties witnessed a slight increase in collection of organic recyclables in 2019. The top collectors of rural organics recyclables were consistent with 2018, excluding Union County, and accounted for 63 percent of rural organics recycling. It should be noted that 15 percent of rural counties reported no collection of organic recyclables in 2019, compared to 21 percent in 2018.

Trends in source-separated recyclable material collection in urban counties remained high in 2019, accounting 75 percent of total residential tons of source-separated recyclable material. However, rural counties experienced a record high with 25 percent of residential recyclables for 2019 including source-separated recyclable material. Unlike previous years, only 33 percent of rural counties reported 75 percent or more of total residential recycling to include source-separated recyclable material. Further, just two reported this to account for 100 percent their collection, including Montour and Fulton counties. In contrast, 22 percent of urban counties reported 75 percent or more of their total residential recycling to include source-separated recyclable material in 2019. Philadelphia County remained at the top of the list for collection of source-separated recyclable material in 2019, with these items accounting for more than 95 percent of total residential recycling collection, a 13 percent increase from 2018.

County Trends in Single-Stream Collection

Given the growing popularity of single-stream recycling collection around the nation, this trend will be examined in more detail in Pennsylvania to better understand what factors could influence county participation in this type of recyclable collection. This is particularly important due to the disparities that were identified in rural and urban counties with respect to participation in this recycling collection technique and could help us understand if single-stream is in fact sustainable over the long-term for Pennsylvania. For each year and county in the dataset, the total tons of single-stream recycling were divided by the total tons of residential recycling to determine the percent of residential recycling that is single-stream. These were then mapped in a GIS to analyze spatial patterns in this type of collection. See Appendix 8 for all Figures and Tables associated with data discussed in this section.

In 2010, single-stream collection proved to be most popular in urban counties compared to rural counties, and was highest in Fulton, Philadelphia, and Pike counties, with minimal participation in much of the northcentral and northwest. Single-stream collection in urban counties was concentrated in the southeast and southcentral regions, compared to rural counties, which showed a more dispersed spatial distribution. Counties south and west of Pittsburgh, respectively, including Greene, Fayette, Somerset, and Beaver also showed single-stream collection accounting for 2.5 percent or less of their residential recycling.

Trends in county participation in single-stream collection remained consistent in 2011, with 58-97 percent of residential recycling in Fulton, Philadelphia, and Pike counties to be single-stream recyclables. Interestingly rural Perry County, jumped from single-stream recycling accounting from just 0 to 2.5 percent of its residential recycling in 2010 to 36-56 percent in 2011, suggesting rapid changes in collection processes.

In 2012, single-stream collection continued to expand in Pennsylvania with new counties establishing this type of collection in their communities, as well as growth in single-stream in those counties that had been using this technique. Rural McKean County joined Fulton, Pike, and Philadelphia counties, with single-stream accounting for 60-93 percent of their residential recycling. Counties that expanded single-stream collection in 2012 included Beaver, Crawford, Washington, Huntingdon, Lehigh, and Westmoreland (equally rural and urban), while Luzerne, Carbon, Wayne, Montgomery, and Chester counties (60 percent rural) experienced a decrease in single-stream recyclables.

In 2013, many counties with single-stream making up the bulk of residential recycling remained consistent with the previous year. Interestingly, rural Montour County jumped from single-stream accounting for just 0 to 7 percent of their residential recycling in 2012 to 70-100

percent of their collection in 2013, suggesting that rapid changes can occur in a short time for those counties adopting this type of collection. Carbon, Monroe, Bucks, and Montgomery counties increased the percentage of their residential recycling that was single-stream in 2013, while Wayne, Fulton, Lehigh, McKean, Mercer, Bedford, Dauphin, and Lancaster counties experienced a decrease. Interestingly, rural McKean County, among those counties reporting single-stream to account for the highest percentage of their recycling in 2012, declined to just 0 to 8 percent in 2013, suggesting that single-stream collection can be adopted and dropped quite rapidly.

Rapid expansion of single-stream collection occurred in Pennsylvania in 2014, with counties in the northcentral, northeast, southeast, southcentral experience major growth. In Huntingdon, Fulton, Philadelphia, and Pike counties single-stream accounted for 67-97 percent of their residential recycling in 2014, suggesting faster growth in rural counties versus urban counties. Further, McKean County experienced a major surge in single-stream from 2013 to 2014. Counties located in the northcentral, northeast, southeast, and southcentral slowly began to increase their single-stream capacity between 2013 and 2014, including Lackawanna, Bradford, Wyoming, Columbia, Union, Cambria, Lawrence, Venango. Interestingly, almost all of these are rural counties. Monroe County was one of the few counties who experienced a decrease in single-stream.

In 2015, single-stream collection varied among counties, with some experiencing increases and others experiencing decreases in the percent of their residential recycling comprised of these materials. Rural McKean County joined Huntingdon, Pike, and Philadelphia counties with single-stream accounting for 62-96 percent of their residential recycling. Steady increases in single-stream occurred in Blair, Northumberland, Snyder, Schuylkill, Luzerne, and

Monroe counties, primarily rural counties, from the previous year. However, decreases in single-stream occurred in the following counties: Fulton, Lancaster, Berks, Lehigh, Northampton, Wayne, Bradford, and Montour counties (equally rural and urban).

Trends in single-stream recyclables collection in 2016 remained relatively consistent with the previous year. There were however some notable changes. Westmoreland, Carbon, and Montour counties were among those counties reporting single-stream to account for the highest percentage of their recycling in 2016, an increase from the previous year. Other counties experiencing growth in single-stream in 2016 included Mercer, Butler, Luzerne, Fulton, York, Montgomery, Chester, and Dauphin counties; 55 percent of these counties are urban. Potter and Pike counties, in contrast, experienced dramatic changes in single-stream collection in 2016, dropping from single-stream accounting for 62-96 percent of their residential recycling in 2015 to 0 to 9 percent in 2016. Single-stream also declined in Monroe, Northumberland, Schuylkill, Cambria, Blair, Wayne, and McKean counties in 2016. Interestingly, all counties experiencing a decrease in single-stream recyclables in 2016 were rural.

Trends in single-stream recyclables collection in 2017 persisted from the previous year. Both rural Crawford and Potter counties dramatically increased their single-stream recyclables, with them accounting for 63-98 percent of their residential total in 2017. Boosts in single-stream also occurred in Venango, Washington, Susquehanna, Cambria, Somerset, and Schuylkill counties; all rural counties. Decreases in single-stream collection in 2017 were observed in Fulton, Columbia, Huntingdon, York, Chester, Perry, Franklin, Mercer, Lawrence, and Luzerne counties. More than 60 percent of these changes occurred in rural counties.

Trends in single-stream recyclables collection in 2018 continued from the previous year, with some notable changes. While single-stream collection remained highest in Crawford and

Montour counties in 2018, Fulton County also experienced a major increase from 2017. Steady increases were also seen in the primarily rural Perry, Butler, Lancaster, Columbia, Clarion, Armstrong, and Pike counties. Single-stream collection sharply dropped in Potter, Carbon, Westmoreland, and Philadelphia counties in 2018 (equally rural and urban). Other declines occurred in Adams, McKean, and Huntingdon counties.

Trends in single-stream recyclables collection in 2019 are somewhat difficult to assess given the lack of data on this material in 12 percent of counties. Crawford and McKean counties in particular exhibited considerable variation in single-stream recycling over the 10-year period while others such as Greene, Tioga, and Sullivan counties remained consistently low. Interestingly, Forest County in the northwest, lacked single-stream collection data from 2010 to 2014, remained low from 2015 to 2018, and experienced a surge in single-stream recyclables, accounting for 63-100 percent of their residential recycling in 2019. Numerous counties witnessed dramatic increases in single-stream recyclable collection in 2019 including Huntingdon, Potter, Carbon, Pike, Fulton, and Perry counties, while Montour County's single-stream remained high. Slight increases in single-stream collection also occurred in Northumberland, Snyder, Cambria, Clarion, Lycoming, Washington, Wyoming, Lackawanna, Monroe, and Lebanon counties. With the exception of Lackawanna County, all increases occurred in rural counties. However, there was a decline in single-stream collection in Beaver, Bedford, Bucks, and Chester counties in 2019, suggesting an urban trend.

Given the variation from year to year as well as expected future national growth of single-stream recycling, these results suggest a need for further research on single-stream recyclable collection in Pennsylvania to determine if it is both economically and environmentally sustainable, compared to other types of recycling collection. In particular, it is critical to better

understand specific factors related to rural and urban geographies that may influence this type of collection in Pennsylvania.

County Trends in Total Residential Recycling Collection

For each year and county in the dataset, the total tons of residential recycling were divided by the total tons of residential recycling for the entire state of Pennsylvania to determine the percent of residential recycling or contribution from each county. These were then mapped in a GIS to analyze spatial patterns. See Appendix 9 for all Figures and Tables associated with data discussed in this section.

Trends in percent of residential recyclables collection in 2010 are not surprising, with urban counties accounting for 4 to 10 percent of residential recycling including Erie, Allegheny, Delaware, Montgomery, Philadelphia, and Bucks counties. These concentrations in the northwest, southwest, and southeast, respectively, correspond with larger populations and cities and increased consumption and waste generation and disposal. In contrast, all counties with the exception of Lackawanna that were responsible for 0-0.24 percent of the state's residential recycling in 2010 were rural. It should be noted however that several rural counties accounted for 1.4-4.11 percent of the state's residential recycling, including Beaver, Centre, Franklin, and Schuylkill.

In 2011, there was considerable variation in residential recycling, with approximately half of counties responsible for only 0-0.47 percent of the state's residential recycling. These counties were all rural and scattered throughout the northeast, northcentral, northwest, and southwest portions of Pennsylvania. Counties in the southeastern region remained among the highest, accounting for 3.8-11.71 percent of the state's residential recycling in 2011.

Trends in the percent of residential recyclables collection in 2012 were somewhat consistent with the previous year, with those counties responsible for 6.5-24 percent of the state's residential recycling concentrated in the southeast. Slight increases in residential recycling occurred in rural counties in 2012 including Mercer and Washington, along with slight decreases in Crawford and Clearfield counties. Beaver and Dauphin counties, both urban, also experienced declines in residential recycling in 2012.

In 2013, trends in residential recycling remained relatively consistent with the previous year with urban counties primarily located in the southeast region responsible for 3.67-24 percent of the state's residential recycling. Similarly, rural counties distributed across the state accounted for the lowest percentages of residential recycling in 2013.

In 2014, numerous counties experienced increases in the percent of residential recyclables. Most of this growth occurred in urban counties including Allegheny, Bucks, Montgomery, Philadelphia, Delaware, Cumberland, Dauphin, Berks, Lehigh, Northampton, Luzerne, and Lackawanna counties. A clear pattern emerges across the southcentral, southeast, and northeast. Centre County located in northcentral Pennsylvania was the only rural county experiencing a related increase.

Trends in residential recycling remained consistent in 2015 with some variation in urban counties in southcentral, southeastern, and northeastern Pennsylvania. For example, Delaware and Lebanon counties experienced a decline in residential recycling while an increase occurred in Montgomery. Overall, there were no major changes observed for residential recycling in rural counties in 2015.

In 2016, trends in residential recycling persisted with urban counties found in the southeast, southcentral, southwest, and northeast accounting for the largest percentages of

residential recycling, including Bucks, Philadelphia, Delaware, Allegheny, Northampton, and Lackawanna counties. Centre County was the only rural county accounting for 2.74-4 percent of residential recycling in 2016.

Similar trends were observed in 2017 with many urban counties responsible for 2-10 percent of the state's residential recycling, including those concentrated in the southeast around Philadelphia, Erie, Luzerne, and Lackawanna counties. In terms of rural counties, Centre County's percent of residential recycling remained high, while an increase occurred in Lycoming County from the previous year.

Trends in residential recycling in 2018 remained relatively consistent with the previous year, with decreases occurring in both urban and rural counties accounting for the highest percentages of the state's residential recycling.

In 2019, trends in residential recycling remained steady with some urban and rural counties experiencing increases in their percentages of the state's residential recycling. However, the spatial patterns reveal the largest contributions in residential recycling primarily from urban counties in the southeast, southcentral, southwest, northeast, and northwest portions of Pennsylvania.

Demographic Trends in Counties

Population, social, economic, and housing data were obtained from the United States Census Bureau's (2018) American Community Survey (ACS) 5-Year Estimates for all Pennsylvania counties for the years 2014-2018. All county demographic data were tabulated, formatted for analysis, and mapped in ArcGIS. These data were then compared to MSW generation data and recycling collection data in both rural and urban counties to identify specific factors that may influence residential participation in recycling. See Appendices 6

and 10, respectively, for all Figures and Tables associated with data discussed in this section.

Counties with the lowest populations were rural and distributed across the northeast, northcentral, northwest, southcentral, and southwest. MSW generation in these counties was lower than urban counties, accounting for 39 percent of total rural MSW for the time period. Populations were highest in and around cities like Pittsburgh and Philadelphia, including Allegheny, Philadelphia, Montgomery, Delaware, Chester, Bucks, and Lancaster counties. In sharp contrast, these counties account for more than 62 percent of the total MSW generated in urban counties from 2014 to 2018. Those rural counties mentioned above were responsible for about 35 percent of rural residential recycling, compared to the seven urban counties that accounted for almost 58 percent of urban residential recycling collection for the 5-year period. This makes sense, as higher populations result in increased consumption and ultimately, waste generation and recycling.

Counties with almost 85 percent or more people age 18 and over were found in Forest and Sullivan counties. Other counties with 81 to 84.8 percent of their population comprised of people aged 18 and over were also found in rural locations throughout the northeast, northcentral, northwest, southcentral, and southwest. Interestingly, Forest and Sullivan counties had some of the lowest rates of MSW generation in rural counties for the time period, accounting for less than 0.15 percent of rural county MSW. Similarly, Forest and Sullivan counties containing the highest populations of age 18 and over were responsible for less .10 percent of rural residential recycling collection. Populations comprised of people age 18 and above were lowest (76 to 78 percent) in a combination of rural and urban counties located in the southcentral, southeast, and northeast. Urban counties

with the lowest percentages of the population age 18 and over were responsible for more than 65 percent of the total MSW generated in urban counties from 2014 to 2018, compared to less than 8 percent of rural MSW in those rural counties. Similarly, the urban counties accounting for the lowest populations age 18 and over were responsible for almost 63 percent of urban residential recycling collection for the 5-year period, compared to just 7 percent in those rural counties. These results do not suggest a relationship between populations with larger percentages of age 18 and over and increased recycling participation.

Trends in percent of the population age 65 and over were similar to those outlined above, with counties with smaller percentages of the elderly population generating more waste and recycling, the opposite of what the literature suggests. Cameron and Sullivan counties, both rural, had more elderly people yet accounted for just 1.2 percent of rural MSW and 0.16 percent of rural recycling for the time period. Of those primarily urban counties with 76 to 78 percent of their populations age 65 and over, they were responsible for 36 percent of urban MSW and 33 percent of urban recycling.

Median age was also examined, as studies suggest that older populations are more likely to recycle. However, these findings are consistent with those observed for percent of populations age 18 and above and 65 and above, respectively. Again, rural Sullivan and Cameron counties are highest, with a median age of 48 to 53, yet minimal MSW generation and recycling. In contrast, Centre and Philadelphia counties contain populations with the lowest median age, 31 to 34. Centre County was responsible for almost 6 percent of rural MSW generation and over 18 percent of rural residential recycling. Similarly, Philadelphia accounted for nearly 19 percent of

urban MSW generation and more than 11 percent of urban recycling. Overall, the results suggest that age was not a strong predictor of MSW generation and recycling participation.

Housing characteristics were also examined in relation to MSW generation and recycling behavior. Allegheny and Philadelphia counties, not surprisingly, had the highest total number of housing units between 332,632 and 682,893. Collectively these urban counties account for 33 percent of urban MSW generation and 20 percent of recycling. Larger populations place an increased demand on housing, and thus result in increased consumption, waste production, and recycling collection. In contrast, all counties with 4,438 and 45,427 total housing units were rural and distributed across the state, showing an almost identical pattern with total population.

Similar trends were observed with total occupied housing units, where those with the highest percent of total occupied housing units were predominantly located in urban counties, excluding Adams, Butler, and Franklin counties. Those urban counties were responsible for more than 64 percent of urban MSW generation and over 63 percent of urban recycling. The three rural counties included among the highest percentage of total occupied housing units accounted for more than 13 percent of rural MSW and 11 percent of rural recycling for the 5-year period. In contrast, those counties with the lowest percent of total occupied housing units were all rural, including Cameron, Forest, Pike, Potter, Sullivan, and Wayne counties. Collectively, these counties were responsible for less than 3 percent of both rural MSW and recycling, respectively. This makes sense, as areas with high numbers of occupied housing units typically associated with urban locations require both waste collection and recycling services, compared to those with fewer occupied housing units.

Percent of occupied housing units with no vehicle access was also examined to determine if there was a relationship between decreased recycling, particularly in rural areas that have more

limited collection services. Among those counties with 13 to 30 percent of occupied housing units with no vehicles, 56 percent were rural compared to 44 percent urban. Of those rural counties with the highest percentages of no vehicle access, MSW generation was about 24 percent, while recycling was relatively high accounting for almost 30 percent of rural residential recycling. Similarly, urban counties were responsible for nearly 43 percent of urban recycling and 55 percent of MSW. Residents in those urban counties with high percentages of occupied housing units with no vehicle access are probably more likely to use public transportation, walk, or bike, because they have increased options available to them in urban areas. This is likely the opposite for rural residents, which are dispersed throughout counties, and may require further distances to reach goods and services, placing more of a restriction on travel and participation in voluntary behaviors like recycling, particularly in rural counties with drop-off collection only. The results do not suggest a relationship between vehicle access and recycling.

Because the literature suggests a relationship between increased income and residential recycling, median household income was analyzed. Three urban counties including Bucks, Chester, and Montgomery have the highest median household incomes ranging from \$71, 540 to \$96, 726. Collectively, these counties account for more than 26 percent of urban recycling and 18 percent of MSW. In contrast, with the exception of Philadelphia County, those counties with the lowest median household incomes are rural and responsible for more than 10 percent of rural MSW and just 5 percent of recycling. While these findings initially support the link between income and recycling, Philadelphia somewhat contradicts this due to its high percentage of recycling: 11 percent of urban recycling.

Poverty was also examined, as one would expect that counties with increased levels of poverty would be linked to lower rates of recycling and MSW generation, because these

collection services may be unaffordable to residents. The results however did not reveal a relationship between these two factors. Of those counties with the highest percent of families living in poverty in the past 12 months, 76 percent were found in rural counties compared to 24 percent of urban counties. Interestingly, rural and urban counties were responsible for relatively high MSW generation and recycling. Rural counties were responsible for 29 percent of rural MSW production and more than 26 percent of rural recycling. Urban counties similarly accounted for over 27 percent of MSW generation and more than 22 percent of urban recycling.

Philadelphia County had the highest percent of people living in families whose income in the past 12 months was below the poverty level. However, this urban county alone is responsible for almost 19 percent of urban MSW generation and over 11 percent of recycling, and as a result does not support the relationship identified by the literature.

Similar patterns were observed with percent of people age 18 and over whose income in the past 12 months was below poverty level. Philadelphia and Centre counties had the highest percent of people age 18 and over whose income in the past 12 months was below the poverty level, not surprising given the large college-age populations residing there. However, when examining recycling, these counties were among the highest individual counties contributing to recycling collection. MSW generation was similar with Centre County accounting for 5 percent of MSW in rural counties and Philadelphia responsible for more than 18 percent of urban MSW. In other words, the findings do not support the relationship between income and recycling identified in the literature.

Studies also suggest a link between employment and recycling, with those having steady jobs being more likely to recycle compared to those who do not who may experience financial limitations that make waste and recycling collection services unaffordable to residents. The

findings confirm this link, with urban counties in the southeast, southcentral, and southwest regions comprised of the highest percent of the population age 16 and over participating in the labor force. Collectively, these counties account for over 62 percent of urban MSW and 69 percent of recycling collection. In sharp contrast, rural Forest County with the lowest percent in the labor force, accounts for less than 1 percent of rural MSW and recycling.

Interestingly, when examining civilian labor force unemployment rates, a negative association is observed with those counties with the lowest unemployment rates accounting for less waste production and recycling collection, almost 5 percent rural MSW and more than 6 percent recycling. In sharp contrast, the rural counties with the highest rates of unemployment were responsible for over 12 percent of MSW and almost 13 percent of rural recycling. Similarly, Philadelphia County accounted for almost 19 percent of urban MSW generation and over 11 percent of recycling.

The total number of households was also examined, and patterns were almost identical to those observed for total housing units with the highest found in Allegheny and Philadelphia counties. Collectively these urban counties account for 33 percent of urban MSW generation and 20 percent of recycling. In contrast, all counties with 1,631 and 36,907 total households were rural and distributed across the state, showing a very similar pattern with total population.

Family households were also examined by county to determine if a relationship existed between locations with higher percentages of family households and increased recycling participation. One could argue that compared to other types of households, families may be more inclined to recycle and participate in pro-environmental behaviors, especially if they have young children for whom they wish to model ecofriendly practices. Among those counties with 69 to 72 percent of family households, 58 percent were rural compared to 42 percent urban. Of the rural

counties accounting for the highest percentages of family households, rural MSW generation and recycling were consistent at just over 16 percent. Urban counties with the highest percentages of family households were responsible for more than 20 percent of urban MSW production and over 25 percent recycling collection. However, urban counties with the lowest percentages of family households accounted for 33 percent of urban MSW and 20 percent of recycling, suggesting a poor link between family households and recycling behavior.

Interestingly, percent of family households that are married couple families with their own children under age 18, does support the relationship referenced above. Counties with 20 to 25 percent of family households that are married couple families with their own children under age 18 are all urban, with the exception of Snyder County, accounting for more than 23 percent of urban MSW and almost 32 percent of recycling. In contrast, rural Forest, Cameron, and Sullivan counties, with the lowest percentages of family households that are married couple families with their own children under age 18 were responsible for less than 0.29 percent of rural MSW and recycling.

Because research suggests that higher levels of education correspond with increased participation in recycling, the research also examined education variables in counties. The findings appear to confirm this association, with 91.4 to 94.6 percent of the population age 25 and older with a high school education or higher located in a combination of urban and rural counties. In particular, 53 percent were found in urban counties compared to 47 percent in rural counties. Of those urban counties, they account for almost 47 percent of urban MSW and more than 47 percent of recycling. Rural counties with highest percentages of high graduates and above were responsible for almost 23 percent of rural MSW and more than 30 percent of recycling. However, Philadelphia and Lancaster counties were the only urban counties with the

lowest percentages of high graduates and above yet accounted for nearly 24 percent of urban MSW and more than 16 percent of recycling. This was in sharp contrast to the rural counties with the least educated populations, responsible for less than 3 percent of rural MSW and recycling.

The findings differed slightly when examining the percentage of the population age 25 and older with a bachelor's degree or higher in counties. Of those counties with 35.81 to 51.8 percent of the population age 25 and older with a bachelor's degree or higher, 83 percent were found in urban counties compared to 27 percent in rural counties. Those counties in the southeast and southwest accounted for more than 41 percent of urban MSW and over 38 percent of recycling. Centre County was the only rural county with the highest percentages of the population age 25 and older with a bachelor's degree or higher, not surprising given it is home to Pennsylvania State University in State College. Centre County alone is responsible for 5 percent of rural MSW and more than 18 percent of recycling collection. In contrast, all counties with the lowest percentages of the population age 25 and older with a bachelor's degree or higher are rural yet are responsible for 25 percent of rural MSW and 23 percent of recycling.

In addition to higher levels of education, one could argue that populations with access to computers may be more likely to recycle especially if they have an Internet connection. This may allow them to find information more quickly compared to those who may not have a computer at their disposal. As a result, the research examined both computer access and Internet access in counties to determine if an association exists with recycling participation. The Census Bureau refers to individuals "with a computer" as those who responded "yes" to at least one of the following: desktop or laptop; smartphone; tablet or other portable wireless computer; or some other type of computer (U.S. Census Bureau 2018).

Urban counties located in the southeast, including Bucks, Chester, Delaware, and Montgomery, as well as rural counties located in the northeast and northcentral, including Monroe, Pike, and Centre reported 89.2 to 92.3 percent of total households with a computer. Because Centre and Monroe counties are home to colleges and communities including the Pennsylvania State University and East Stroudsburg University, it is not surprising they have some of the highest percentages of the population with computer access. Urban counties with the highest computer access were responsible for almost 25 percent of urban MSW and 33 percent of recycling, along with rural counties accounting for over 12 percent of rural MSW and almost 27 percent of recycling. Not surprisingly, all counties reporting the lowest percentages of the population with computer access were rural and responsible for almost 15 percent of rural MSW and less than 10 percent of recycling. Overall, there appears to be more of a relationship between urban counties with 89.2 to 92.3 percent of total households with a computer and increased recycling collection.

The percent of households with a broadband internet subscription was also examined. It is important to note that "with a broadband Internet subscription" includes those who responded "yes" to at least one of the following kinds of Internet subscriptions: broadband (including cable, fiber optic, or DSL), satellite, a cellular data plan, or a fixed wireless subscription service. Further, an Internet "subscription" denotes a type of service that a person pays for to access the Internet, and most often, this is billed for directly for Internet alone or may exist as part of a bundle (cable, phone, etc.) (U.S. Census Bureau 2018). Results were similar to those observed for percent of total households with a computer. Bucks, Chester, Montgomery, and Pike counties had 84.2 to 88.1 percent of their households with a broadband Internet subscription. The urban counties accounted for more than 18 percent of urban MSW and almost 30 percent of recycling,

thus suggesting a possible association. Interestingly, Pike was the only rural county reporting high broadband Internet access among residents and was responsible for more than 2 percent of rural MSW and over one percent of recycling. In contrast, many of the counties with the lowest percentages of the population with broadband Internet access were those that did not have access to a computer noted above.

Overall, the findings suggest some associations between population, social, economic, and housing characteristics and increased MSW generation and recycling participation. However, because there are inconsistencies with the literature regarding demographic variables, it may be helpful to conduct research on the psychological factors related to individual perceptions and attitudes that could serve to increase or decrease participation in recycling collection programs.

Solutions to Make Recycling Collection More Accessible in Counties

While county recycling coordinators provided detailed information on negative impacts on their recycling collection services, it was just as important to get an understanding of the kinds of solutions available to assist in improving policies governing municipal solid waste and recycling in Pennsylvania to adequately address current challenges faced by rural counties. While those solutions proposed in response to China's National Sword Policy were discussed in a previous section, the focus here will be on the broader policy implications for improving access to residential recycling in counties and municipalities. A total of 25 counties responded to this question: 68 percent were rural counties and 31 percent were urban counties. Open-ended responses were analyzed and coded to generate a total of six categories, including public education on recycling, transferring the responsibility for recycling collection from the county to the municipality, creation of local markets and jobs, imposing fees on residents for recycling,

modification of existing recycling collection services, and other solutions. See Appendix 3 for all Figures and Tables associated with data in this section.

The two most commonly proposed solutions from counties that would help make recycling collections services more accessible to residents were other solutions and public education on recycling, which accounted for more than 65 percent of responses (see Figure 19). A few key themes emerged in other solutions reported by county recycling coordinators which was responsible for almost 39 percent of responses alone. These included media support for county recycling collection services, issues related to funding of recycling programs, the need for more consistent waste and recycling contract requirements by the state, issues related to collection sites, facilities, and/or staffing, the need for contracted waste through private haulers, issues with bulk waste, electronics, and HHW, and federally-mandated manufacturer accountability for product disposal and recycling.

By fostering relationships with local media, including newspapers, TV, radio, and social media, county recycling collection programs can not only serve to educate residents about the benefits of recycling but can increase involvement from the community, as well as reduce contamination in recycling because residents will be aware of what can and cannot be recycled. These outlets are also valuable for announcing special collection events and workshops to the public and can increase community engagement. The support of local media outlets not only assists with public outreach on recycling but can be particularly important for survival of collection programs in those counties that simply do not have the time or financial resources to invest in educational campaigns and websites. Counties that are not mandated to recycle or those staffed by volunteers could especially benefit from this kind of relationship with local media outlets.

Themes related to the funding of county recycling programs were also among those proposed solutions for improving access to residents. These were cited specifically by rural counties that stated the need for increased grant funding to effectively develop their recycling collection sites as well as offering recycling to county/municipality residents. This underscores the financial challenges reported by rural counties in previous questions that serve to limit their ability to not only create but maintain recycling collection programs amidst market fluctuations and substantial fee increases. For rural counties to address these challenges and develop successful recycling collection programs, the state must offer financial support for recycling and make it a priority. Funds designated for recycling should not be siphoned into other areas or put towards other activities, as they have in recent years. If we want to keep Pennsylvania Beautiful it starts with investing in our local waste management and recycling collection programs, which can reduce illegal dumping and improve the environment and public health for residents of the Commonwealth.

The demand for more consistent waste and recycling contract requirements by the state as well as the need for contracted waste through private haulers were also referenced by county recycling coordinators. One County suggested a need for recycling collection to be run through a public-private partnership which allows the public sector to exercise more control over negotiating contracts with private haulers. There are multiple benefits to this approach, as more uniform requirements for the collection of waste and recyclable materials can decrease contamination of materials thus improving the quality of recyclables collected. This is particularly important now as market values for items like glass continue to decline. This also makes it more convenient for residents to recycle, as many counties reported in previous

questions that they are seeing a decline in residential participation in recycling because there is widespread confusion over what can and cannot be accepted for collection.

County recycling coordinators reported issues related to collection sites, facilities, and/or staffing. It is important to note that these were all cited by rural counties. Some expressed that additional drop-off locations and a centrally located recycling center could increase access to recycling collection services for their residents. This is particularly important, as rural residents often have more limited opportunities to recycle compared to their urban counterparts, due to geographic location, vehicle access, and hours of operation. Financial resources are important to assist rural counties in expanding existing recycling collection services to residents. Further research is needed to determine the most suitable locations for these facilities or sites to ensure equitable access to rural residents as well as increased participation in recycling.

Solutions are needed that address bulk waste, electronics, and HHW and federally-mandated manufacturer accountability for product disposal and recycling (see Figure 19), as reported by county recycling coordinators and discussed in more detail in a previous section related to National Sword. Counties expressed their frustration and difficulty in collecting these items due to a lack of consistent funding, in addition to restrictions imposed by the Covered Device Recycling Act. It is critical for the state to examine ways to increase access to electronics and HHW recyclables for county residents, especially in rural areas. By doing so, this could minimize illegal dumping in those locations as well as create economic and environmental benefits for Pennsylvania in the way of jobs and increased revenue.

Lastly in terms of other solutions, county recycling coordinators expressed the need to hold manufacturers of packaging materials responsible for meeting a federally-mandated minimum recycled content requirement. By requiring them to buy back those materials and use

them in their new packaging, it greatly reduces the collection burden on local communities and overall reduces the amount additional waste that is generated by increased consumption of these “hard-to-recycle” items.

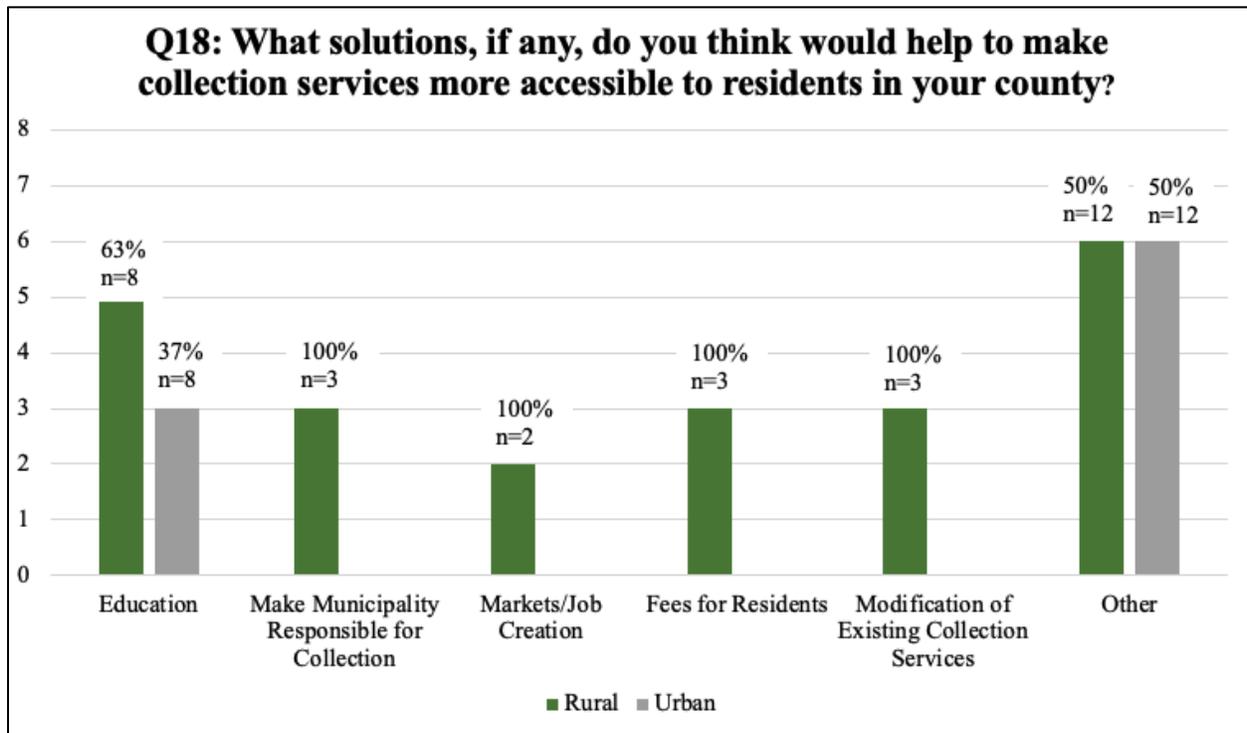
In addition to other proposed solutions to improve residential access to recycling collections services discussed above, public education on recycling was reported by county recycling coordinators, accounting for nearly 26 percent of responses. Both rural and urban counties cited this as important for maintenance of their recycling collection programs. Rural counties highlighted the financial burden of public education campaigns that are often one of the first items to be cut amid rising fees in those counties not mandated to recycle. Three rural counties cited an innovative proposal for expanding educational outreach to community residents to increase participation in recycling: A uniform state-funded recycling education program. Not only could this aid in improving the quality of recyclables collected, which would reduce overhead costs and allow for the expansion of collection services, but it would ensure that rural counties are not left behind when it comes to educating residents about recycling. Most importantly, this process should begin with state officials meeting with all county recycling coordinators to outline existing challenges in recycling education in their communities, highlight those that are unique to rural counties, and work to jointly create a successful program for all. This ensures buy-in from all counties in the beginning of the process, as they are the recycling experts in their own counties and know what works and what does not for their residents. It will also likely increase empowerment and engagement among county recycling coordinators.

This kind of program may include supplied literature and informational brochures on recycling and its associated economic and environmental benefits, tailored to the local geography to provide clear, concise, and up-to-date information to residents on what can and cannot

recycled in their counties. The state can also offer technical and/or financial support to counties that wish to develop a website or maintain an existing one for their recycling collection programs, as websites were among the most popular means to increase community involvement in recycling, as cited in previous responses. For many rural counties, many coordinators simply do not have the time or expertise to undertake this kind of outreach which could prove invaluable for recycling efforts in their communities. This could also strengthen the relationship between counties and the state as they work together to create an effective recycling educational program.

Overwhelmingly, rural counties offered more solutions for improving recycling collection services to residents, compared to urban counties. This suggests that access to recycling collection services in urban counties may not be a major problem, particularly as it relates to financial limitations.

Figure 19: Solutions to Make Collection Services More Accessible in Counties



Geographically, the predominantly rural counties with recycling programs located in northcentral and northwestern regions offered the most solutions to improve access to recycling collection services in their communities, accounting for almost 55 percent of respondents. While solutions related to education were most frequently cited by the counties located in the northcentral portion of the state, northwestern counties reported other solutions related to funding of recycling collection programs, centralized access to a recycling facility, and a public-private partnership that contracts with haulers. As discussed previously, a solution proposing a uniform state-funded recycling education program could also entail conducting further research by DEP region to identify common challenges related to recycling education that may exist within those counties as well as any distinctions linked to geography.

Solutions to Make Recycling Collection More Accessible in Municipalities

Researchers also asked municipal recycling coordinators to consider the kinds of solutions that could be undertaken to improve residential access to recycling and compared their solutions to those reported by county recycling coordinators. A total of 243 municipalities, 57 percent rural and 43 percent urban, responded to this question. Open-ended responses were analyzed and coded to generate a total of 17 categories, including expanding hours of operation for recycling collection sites, provide more private hauler-offered recycling collection services, the need for local markets and processors, federally-mandated manufacturer accountability for product disposal and recycling, more frequent collection of recycling, mandatory recycling, offering and/or expansion of curbside collection, offering and/or expansion of drop-off collection, public education on recycling, no solutions/unsure of solutions, factors related to the costs of developing and maintaining a recycling collection program, providing recycling bins or other receptacles to residents, improve special collection and recycling of glass, electronics, and

HHW, and transferring the responsibility for recycling collection from the municipality to the county, and other solutions (see Figure 20). Many of the responses collected from municipalities reflect those reported by counties suggesting shared obstacles and opportunities for solutions that could be beneficial to both types of recycling collection programs. See Appendix 4 for all Figures and Tables associated with data in this section.

The four most proposed solutions from municipalities that would help make recycling collection services more accessible to residents were factors related to the costs of developing and maintaining a recycling collection program, no solutions/unsure of solutions, other solutions, and offering and/or expansion of drop-off collection accounting for nearly 60 percent of responses.

Almost 20 percent of municipalities, predominantly rural, offered solutions addressing the costs of developing and maintaining a recycling collection program (see Figure 20). These costs included but were not limited to the following: staffing, trucks, equipment, time, and transport of recyclable materials. Municipalities also stressed the need for recycling services that are affordable to low-income residents, some even suggesting free collection. Other municipalities proposed a push for incentives to both vendors and residents in an effort to increase participation in recycling, as several Municipal Coordinators expressed frustration with the rising costs of recycling that make it both cheaper and more convenient to toss items in the landfill. Overall, municipalities reported that in order for them to develop and maintain recycling collection programs in their communities there must be financial support from the counties and/or state in the way of grants, rebates, and other incentives. Many rural municipalities have been forced to suspend programs, limit collection of certain materials, or faced other challenges

because of rising costs, and do not wish to increase taxes for their residents to offer recycling collection services.

More than 18 percent of municipalities reported that they did not know what solutions could help to improve access to recycling in their communities or that they were perfectly satisfied with their current recycling collection services and accessibility was not an issue. Interestingly, rural municipalities more frequently reported this compared to urban municipalities (see Figure 20).

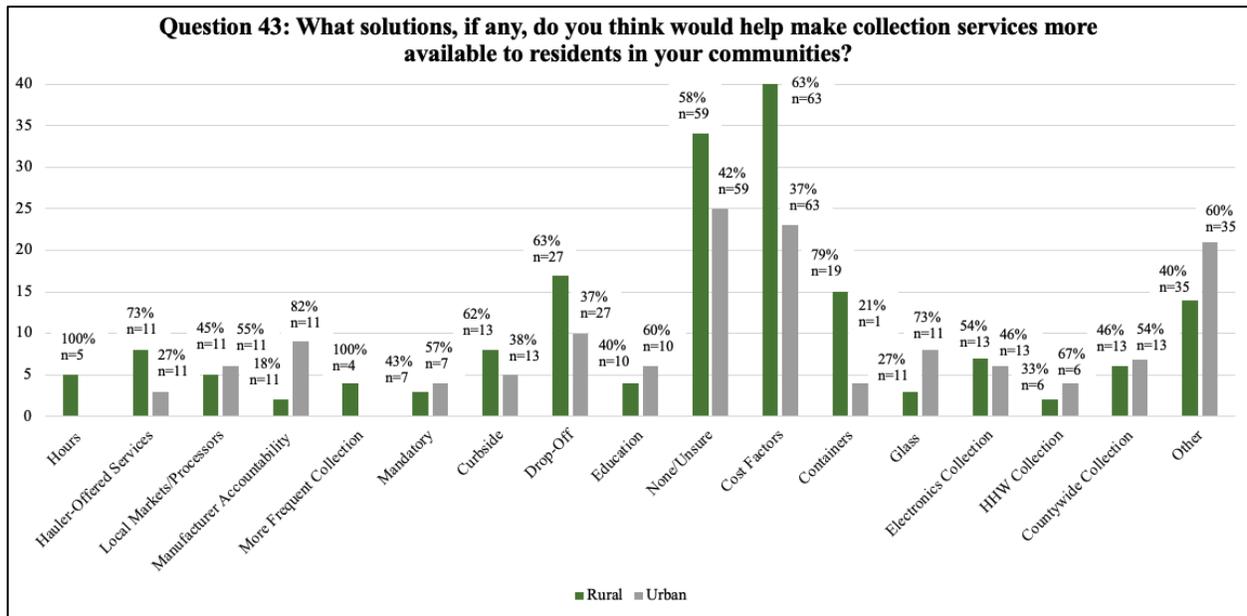
As with county-proposed solutions, a few key themes emerged among other solutions offered by municipal recycling coordinators which was responsible for over 11 percent of responses. The most common themes included the need for a joint or cooperative process for recycling collection services in multiple municipalities to assist with cost sharing and residential coverage, a push for abandoning single-stream recycling in favor of source separation of materials to decrease contamination of recyclables and increase cost-effectiveness, and the need for regional recycling facilities that are convenient and accessible to residents in municipalities that do not offer collection. Compared to rural municipalities, urban municipalities more frequently offered other solutions (see Figure 20).

More than 8 percent of municipalities, overwhelmingly rural, proposed solutions related to offering and/or expansion of drop-off collection (see Figure 20). The majority of responses stated the need for more drop-off locations for recyclable materials as the demand does not currently meet the supply in communities, and some municipalities have seen an increase in illegal dumping and abuse of existing drop-off locations as a result. Some municipalities stressed the need for drop-off sites reserved for special collection recyclables like bulky items, electronics, and HHW which would be available year-round to residents in multiple

municipalities. Other municipalities proposed a shared regional drop-off facility that could reach residents that did not have access to recycling collection services in their communities, which could serve to increase participation in recycling. Rural municipalities in particular have reported in previous questions the difficulty of staffing existing drop-off locations which influences hours of operation or residents and can also impact the abuse of drop-off sites. Having drop-off locations shared by multiple municipalities can allow for more flexibility and also result in extended hours of operation making it more convenient for residents to recycle, thus minimizing opportunities for illegal dumping and abuse of drop-off locations. Similarly, some municipalities stressed the need for stronger policing and enforcement of laws related to littering and illegal dumping in rural municipalities which could improve both the efficiency and accessibility of drop-off collection locations.

Similar to counties who offered solutions, rural municipalities offered more solutions for improving recycling collection services to residents, compared to urban municipalities (see Figure 20). This suggests that access to recycling collection services is more problematic for rural municipalities as it relates to cost factors as well as others.

Figure 20: Solutions to Make Collection Services More Accessible in Municipalities



Compared to urban counties, rural counties with municipalities offering solutions to increase accessibility of recycling collection services to residents more frequently focused on answers related to the following: hauler-offered services, the need for local markets and processors of recyclable materials, offering and/or expanding curbside recycling collection, offering and/or expanding drop-off recycling collection, public education on recycling, none/unsure of solutions, cost factors related to developing and/or maintaining a recycling collection program, providing containers or bins for recycling collection, the need for glass recyclable collection, the need for electronics collection, and countywide recycling collection. This is not surprising given some of the previous responses from rural municipalities and counties addressing challenges related to rising costs of recycling, lack of domestic markets and processors for recyclable materials, limited recycling collection sites, electronics collection. Overall these findings suggest a great need for state and federal involvement in decision-making related to solid waste reduction and recycling collection if recycling as an industry is to survive in the Commonwealth.

Successful Recycling Programs Operating in Rural Counties

The research team employed the use of in-depth case studies detailing the development and implementation of successful waste management and recycling programs in rural counties in Pennsylvania. The selected counties were deemed to have successful recycling programs because they are still in operation despite the multitude of challenges associated with their rural locations. Because researchers aimed to include a variety of recycling collection programs, they also used the DEP regions to highlight the geographic considerations and diversity in recycling collection programs and services offered to residents throughout the state. A total of seven counties were selected for inclusion in the case studies based on their participation in the web-based survey, with researchers opting to highlight two different programs in the northcentral region (see Table 1). County recycling coordinators in the selected counties (as well as their municipalities) were contacted by the researchers and provided with a list of questions that were answered via email or by phone (see Table 2). Four counties responded, confirmed their information provided in Table 1, and will be discussed in detail: Wayne, Perry, Fayette, and Centre counties. For Columbia County, the two mandated municipalities, the Town of Bloomsburg and Scott Township responded and will be discussed. Indiana and Clearfield counties did not respond.

Wayne County

Wayne County, located in northeastern Pennsylvania, operates a source-separated curbside collection and drop-off collection for residents and has no municipalities that are mandated by Act 101 to recycle (see Table 1). The Wayne County Recycling Center, accessible to nearly 53,000 residents, currently has eight full-time staff and three part-time staff assist with daily operations. However, the Solid Waste/Recycling Coordinator, Randy Heller, anticipates a

problem replacing staff in the coming years, as most of the current employees have been working at Wayne County for several years and are nearing retirement. The difficulty of hiring qualified individuals, particularly CDL drivers for collection, is of increasing concern for Wayne County. Other challenges Wayne County's Recycling Center has faced during the past 10 years include the decline in market prices for recyclable materials, the state Recycling Fund which is the primary source of grant money for counties with recycling collection programs, and difficulties related to the ongoing global pandemic. While fluctuations in the market prices of recyclable materials are to be expected, trends over the past few years have placed an additional burden on the county's budget. Randy also expressed concern for the sustainability of the state Recycling Fund given the millions of dollars that are consistently diverted away to supplement other programs, including the General Fund. COVID-19 has disrupted Wayne County's Recycling Center, as with other counties in the state, by forcing them to cease collection operations for over a month in accordance with the Governor's mandate. With the exception of those COVID-19-related impacts, Wayne County Recycling Center expects these challenges to be ongoing over the next 5 years.

Table 1: Waste Management and Recycling Collection Programs in Pennsylvania

| DEP Region | County | Mandated Municipalities | Mandated Curbside Collection Technique | Mandated Drop-Off Collection Technique | Voluntary Municipalities | Voluntary Curbside Collection Technique | Voluntary Drop-Off Collection Technique | Recycling Collection Provider | County Recyclable Processor | Elec | HHW |
|------------|----------|-------------------------|----------------------------------------|----------------------------------------|--------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------------------------------------|-----------------------------|------|-----|
| NE | Wayne | 0 | N/A | N/A | ¹⁴ | Source Separated | Source Separated | Countywide Program; Private Hauler | Public Sector MRF | Yes | No |
| SC | Perry | 0 | N/A | N/A | 8 | Single Stream; Source Separated | Single Stream; Source Separated | Individual Municipality; Other: Individual Buy-A-Bag Recycling Program | Public Sector MRF | Yes | Yes |
| SW | Fayette | 4 | Commingled | Commingled | 17 | Commingled | Commingled | Individual Municipality; Private Hauler | Private Sector MRF | Yes | Yes |
| NC | Centre | 5 | Curb Sort | Source Separated | 23 | Curb Sort | Source Separated | Countywide Program | Public Sector MRF | Yes | Yes |
| NC | Columbia | 3 | Single Stream; Source Separated | Single Stream; Source Separated | 5 | None | Single Stream | Individual Municipality; Private Hauler | N/A | N/A | No |

Table 2: Questions for Recycling Coordinators at Selected Counties

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| <ul style="list-style-type: none">• What is the total population served with recycling collection services in your County?• If applicable, how many (full-time and part-time) staff are employed at your recycling facility?• Looking Back: What have been some major challenges and opportunities you've encountered in your position over the last 10 years? How did you address them?• Looking Ahead: What are some major challenges and opportunities you anticipate in your position over the next five years? How will you address them?• What are some key areas for improving policies governing waste and recycling in Pennsylvania? What role do you see the state playing in this process?• Can you provide copies of educational outreach materials distributed to County residents? How frequently do you send out information to residents? |
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Randy identified two primary areas for improving policies governing waste and recycling in Pennsylvania: the amendment of Act 101 and the modification of single-stream recycling collection. If Act 101 were amended to authorize counties to collect an administrative fee to be used specifically for solid waste management and recycling collection services, it could help ease the financial burden placed on the development and maintenance of recycling programs in rural counties that do not have mandated municipalities and continue to face rising costs, like Wayne County. Randy also noted the need to reform single-stream collection to significantly reduce the contamination of items, much of it diverted to landfills because of the poor quality of materials. Further, he said that single-stream contributes to the decreasing value of recyclable materials at a time when markets have reached critical lows, which does affect source-separated programs like those in Wayne County. The state's role in this process relates to the enforcement of existing laws and regulations governing solid waste management and recycling collection as well as advising the legislature in the drafting of new legislation and initiatives to improve the recovery

rate of recyclable materials. To accomplish this, DEP must assume its responsibility to protect the Commonwealth's air, land, and water resources while considering the health and safety of its citizens. This is not an easy task, Randy said, as DEP has been operating with low staffing, shrinking budgets, and other challenges that restrict its involvement and role in key issues related to environmental quality.

Education and public outreach related to recycling is important for the Wayne County Recycling Center and has, in part, contributed to its success over the years. Informational brochures with simple visuals are provided to residents of the county and municipalities which outlines the materials that are and are not accepted for recycling at their facility, benefits of recycling, provides details on special collection programs for tires and refrigerants, and hours of operation and contact information for Wayne County Recycling Center. In addition, Wayne County Recycling Center actively maintains a user-friendly website with a wealth of information available to residents, expanding on what is included in the brochure (see Table 3). For example, residents can find out about opportunities for backyard composting and recycling of Christmas trees and explore Wayne County's most recent Municipal Waste Management Plan directly on the website.

In addition to the Wayne County Recycling Center website, the facility is an active member of *Wayne Tomorrow!*, a collaborative community-driven effort focused on initiatives, resources, and projects that improve the quality of life for its residents. A key component of *Wayne Tomorrow!*'s approach is sustainability, where Wayne County has helped to create a website that describes opportunities for local residents to recycle a variety of materials, from household items to hazardous waste (see Table 3). It also features "Local Sustainability Super Stars," which

includes county businesses and partners and their initiatives that contribute to improving environmental quality and public health for local residents; Wayne County Recycling Center was the first one highlighted here.

Table 3: Websites for Waste Management and Recycling Collection Programs in Selected Counties/Municipalities

| County Program | Website(s) |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wayne County Recycling Center | Wayne County Recycling: PA’s Northern Poconos Recycling Resource, a Wayne Tomorrow! Initiative: https://www.neparecycles.com/ |
| Perry County | Perry County Conservation District: http://www.perrycd.org/Pages/Recycling.aspx Perry County Conservation District Facebook Page: https://www.facebook.com/pages/category/Public---Government-Service/Perry-County-Conservation-District-1675481516059957/ |
| Rye Township (located in Perry County) | Rye Township Municipal Website: http://www.ryetwp.com/Pages/Township%20Officials/Recycling.aspx |
| Fayette County | Solid Waste, Recycling, and Stormwater: https://www.fayettetcountypa.org/242/Solid-Waste-Recycling-Stormwater |
| Centre County Recycling and Refuse Authority | Centre County Recycling and Refuse Authority: https://www.centrecountyrecycles.org/ |
| Town of Bloomsburg (located in Columbia County) | Town of Bloomsburg Pennsylvania, Bloomsburg Recycling Center: https://www.bloomsburgpa.org/recycle/ |
| Scott Township (located in Columbia County) | Scott Township Municipal Website: http://scott-township.com/wp-content/uploads/2020-Recycling-Newsletter.pdf |

Perry County

Perry County Conservation District, located in southcentral Pennsylvania, has a different approach to recycling. Perry County's recycling program began nearly 20 years ago by three municipalities that worked together to start their own site: Greenwood Township, Tuscarora Township, and Millerstown Borough. Since the establishment of that first site, Perry County's program grew to nine drop-off sites, all operated by volunteers dedicated to the recycling cause. The county offered support to the program by providing administration and a recycling hauler. The required collection bins were obtained with grants as well as funding from the townships. In September 2012, however, Perry County commissioners chose to disband it and assign all recycling responsibilities to their municipalities where they are located.

Currently, Perry County has eight voluntary municipal recycling programs that offer single-stream and source-separated curbside collection and drop-off collection services for residents (see Table 1). Because the countywide program was dissolved, there is no central recycling facility with paid staff; all recycling collection services are run through individual municipalities. As a result, Kristie Smith's role as Perry County Conservation District's County Recycling Coordinator centers around providing resources and technical assistance to individual municipalities to meet the needs of residents. Kristie is also Perry County Conservation District's Watershed Specialist, which demonstrates the multiple hats employees in many rural counties often wear in their day-to-day operations.

Echoing Wayne County, Perry County also stressed the volatile markets for recyclable materials as a major challenge for its collection programs. This has resulted in a range of outcomes for municipalities in Perry County, from closures of operations to the loss of contracts with haulers, and ultimately loss of recycling collection for some residents. Kristie, however,

emphasized the hard work of municipalities that have been able to maintain their programs in these difficult circumstances, citing their dedication to the cause which has helped to increase residential participation in recycling.

Within the next 5 years, as county recycling coordinator, Kristi would like to accomplish two goals: reestablish a local municipality's collection program and reconvene the Perry County Solid Waste and Recycling Committee. The recycling program in a local municipality was recently forced to end collection, Kristie noted, because its private hauler discontinued service. She would like to work with the municipality to find a new provider to continue providing collection services to residents and hopes to achieve this by the end of 2021. A second priority is to reunite the County's Solid Waste and Recycling Committee to reevaluate the existing Municipal Solid Waste Plan, discuss changes, and implement updates to the 2025 Plan. This will be an ongoing process that takes place over the next 4 years to better understand and improve solid waste management and recycling collection in Perry County.

A key area for improving policies governing waste and recycling in Pennsylvania is glass recycling. This issue has been frequently cited by other counties and municipalities surveyed for this project. Kristie, like others, expressed frustration over the removal of glass collection by programs throughout the state due to low market values, which ultimately diverts these recyclables to landfills. She noted the need for the state to address this urgent issue to ensure that Pennsylvania residents and businesses not only recycle glass items but use glass in their operations. This would also help establish local markets for glass and allow the state and nation to be less reliant on foreign markets and processors. This sentiment was also referenced by Rye Township's recycling coordinator, a municipality in Perry County, who responded to the questions. She noted that the state could help by providing local businesses with incentives to

recycle, which would enable the creation of local, domestic markets for recyclable materials. For example, a deposit on glass bottles could be reestablished by the state that could help glass markets rebound, increase the value of those materials locally, and encourage residential participation.

Like Wayne County, Perry County Conservation District understands the importance of public education and outreach on recycling. Information is provided on its website to residents of the county and municipalities, which includes the materials that are and are not accepted for recycling at the facility, benefits of recycling, details on special collection programs for electronics and HHW, and contact information and frequency of collection for all municipal recycling collection programs (see Table 3). In addition to maintaining an active and detailed website, Perry County Conservation District also has a Facebook page for posting announcements, videos, educational materials, and special events related to solid waste and recycling as well as other environmental priority areas.

Fayette County

Fayette County, located in southwestern Pennsylvania, operates a commingled curbside collection and drop-off collection for residents, and unlike Perry and Wayne counties, has four municipalities that are mandated by Act 101 to recycle in addition to 17 voluntary municipalities (see Table 1). Fayette County's recycling collection services are accessible to over 136,000 residents and as of November 2020, acquired a building which will house the countywide Recycling Convenience Center. As the name suggests, this facility will allow for drop-off recycling collection services to be accessible to those residents who may not have recycling in their own communities. Until the facility is operational, there will only be one full-time

employee. However, this may change as the Fayette County Recycling Convenience Center becomes more established and more staff are needed to assist with daily operations.

Similar to Perry County's Kristie Smith, Sheila Shea serves dual roles for Fayette County, as both the stormwater manager and recycling coordinator. Since coming aboard in 2017, Sheila has encountered several challenges in her position, including encouraging residents to participate in recycling, using outdated equipment for modern operations, and working to establish a strong collection system. Fortunately, she has been able to overcome these challenges with help from DEP recycling grants reinforcing just how critical this funding is for rural counties to develop and maintain their recycling collection programs. During Sheila's tenure she has worked tirelessly and enthusiastically to create a state-of-the-art countywide recycling program, which has enabled the county to exponentially increase its total drop-off recycling tonnage. In addition to acquiring a new building to house the Fayette County Recycling Center, Sheila has also established new contracts with private haulers and service providers, allowing the county to further expand its recycling collection.

One major challenge Sheila anticipates is determining how to address the increasing cost of transportation for hauling recyclable materials. This is a salient issue for rural counties, compared to urban counties, as residents are more geographically dispersed thus making it more time-consuming and expensive for haulers to reach residents and transport their recyclables. Sheila also expressed concern for the dwindling state grant funding program which has been so critical for the development and expansion of Fayette County's recycling collection program. As a result, she noted the need for the state to prioritize funding for solid waste management and recycling collection activities to ensure the sustained operation and growth of rural county programs like hers.

As mentioned by other counties, Sheila also considers public education and outreach on recycling to be a major role in her position. She has created a new Fayette County Recycling Guide, which is available to residents both through their municipalities and on the Fayette County website. The website features detailed information on the location and contacts for curbside and drop-off recycling collection programs and waste haulers, as well as special collections like the recent HHW event (see Table 3). Sheila is enthusiastic about her recycling education efforts which also involve outreach to local newspapers, TV, and radio, and Facebook and other forms of social media where she shares information with local residents. She has also worked hard to establish a partnership with county schools where she gets young children excited about recycling and has often seen an increase in recycling participation as they share that information with their families. Sheila also takes advantage of opportunities to attend local events where she can provide information on the county recycling program to residents. For Fayette County, education is a major component of its efforts to encourage residential participation in recycling and expand its program.

Centre County

Centre County Recycling and Refuse Authority, located in northcentral Pennsylvania, operates curb-sort curbside collection and source separated drop-off collection for residents, and has five municipalities that are mandated by Act 101 to recycle in addition to 23 voluntary municipalities (see Table 1). Serving approximately 160,000 residents as well as the Pennsylvania State University, Centre County Recycling and Refuse Authority has over 25,000 curbside residents, 125 drop-off collection bins and more than 1,000 commercial establishments they serve throughout the county. The facility has a staff of 70, including those who work at the recycling MRF, waste transfer station, in recycling collection, and in administration. Joanne

Shafer, deputy executive director/recycling coordinator, identified two major challenges she has encountered during her tenure at Centre County: lack of funding and fluctuations in the marketplace. She keeps working hard to maintain the reputable program and credits board members with aiding her and her staff through difficult times. They created a Long-Range Strategic Plan 12 years ago anticipating changes 40 years out, which has helped them adapt to changing conditions. That plan will be updated in 2021.

In terms of challenges over the next 5 years, Joanne expressed concern for legislative actions that aim to weaken recycling in the state making educational efforts and public outreach that much more important to the success of collection programs in rural counties. While Centre County Recycling and Refuse Authority is fortunate to have established an Education Endowment Fund that will aid in public education efforts into the future, these opportunities do not exist for all rural counties throughout the Commonwealth. Joanne also reinforced the need for continued training and workforce development opportunities for her staff. Like other rural counties, Joanne agreed that a key area for improving policies governing waste and recycling in Pennsylvania is funding. More specifically, she noted that the state must stop diverting funds from the special recycling fund to other projects and activities.

Education is vitally important to the success of Centre County Recycling and Refuse Authority. Education Coordinator Amy Schirf is responsible for educating residents year-round about the recycling collection program in a variety of ways. Centre County Recycling and Refuse Authority has a simple and comprehensive website that provides information on their various recycling collection programs, including electronics and HHW, annual activity reports, and other news and events (see Table 3). Amy is responsible for actively maintaining the website as well as Centre County's Facebook and Twitter pages, where she advertises recycling events

and opportunities to the public. Residents using contracted collection services regularly receive educational materials with their bills. Amy is also responsible for a quarterly newsletter provided to residents, attends schools to teach about recycling, writes columns for the local newspapers, and makes guest appearances on radio shows to promote recycling activities, announce events, and inform Centre County residents of any changes in collection operations.

Town of Bloomsburg and Scott Township (Municipalities in Columbia County)

While researchers did not receive a response from Columbia County for the request for information, both the Town of Bloomsburg and Scott Township, two of the three mandated municipalities, did respond. Columbia County does not operate a recycling program of its own, instead individual municipalities are responsible for collection (see Table 1). Beginning in August 1977, the Town of Bloomsburg was the first community in Pennsylvania to provide curbside recycling collection to residents (Bloomsburg, 2020). The Bloomsburg Recycling Center serves nearly 15,000 residents (within the town) with curbside collection while the drop-off center is difficult to estimate because it is not tracked. However, Charles Fritz, Director of Governmental Services/Recycling Coordinator for the Bloomsburg Recycling Center, said that he has received phone calls from residents in Luzerne, Montour, Northumberland, and Schuylkill counties, who use the facility. Currently, the following municipalities within Columbia County paid a stipend to the Bloomsburg Recycling Center to allow their residents to use the facility: Fishing Creek, North Centre, Beaver, and Mount Pleasant Townships. In addition to providing curbside and drop-off collection to town residents, the Bloomsburg Recycling Center has intermunicipal contracts with Bloomsburg University for recycling collection and Danville Borough (Montour County) for both curbside collection and weekend drop-off.

Prior to 2013, Bloomsburg University contracted with a waste hauler for trash and recycling services. The Bloomsburg Recycling Center and Bloomsburg University entered into an intergovernmental agreement for the recycling services and the Town of Bloomsburg began collecting the recycling in July 2013. The contract was renewed for 5 years annually, and in 2018, a new agreement was entered again with the renewal clauses.

Bloomsburg Recycling Center has similar intergovernmental agreements with both Danville Borough and the Bloomsburg School District for recycling services. This model works because the Recycling Center is municipally-owned and operated. Many communities do not operate their own recycling programs and instead opt to contract for services with a private company. As a result, it would be difficult to say that other university/town agreements could be replicated. While most universities contract waste and recycling services together, Bloomsburg University is unique in remaining source separated and requiring pick up at each building. This is in sharp contrast to placing a trash dumpster and a recycling dumpster outside of buildings on campus. According to Charles, “this is why the collection agreement is a good fit for both entities.”

In addition to Charles’ position, the Bloomsburg Recycling Center employs five people, including four full-time drivers/operators, and one part-time laborer. Over the past 7 years the center has been forced to downsize by two full-time employees and have not been able to replace those positions. Charles has served as the recycling coordinator for more than 18 years and has encountered numerous challenges along the way, including multiple market price collapses for commodities, rising costs of expenses (electricity, labor, insurance, equipment, health care, etc.), and decreasing revenue. Another challenge is related to the weight of the recyclable containers. According to Charles, the weight of the recyclables continues to decrease, making it necessary to

collect more recyclable materials to acquire the same weight as in the past. In other words, even though the volume of materials collected is the same or more, it requires more bottles or cans to equal a ton. As a result, it increases costs of the center's operations because it is not generating more marketable commodities. Bloomsburg Recycling Center takes pride in its source separated collection program, which reduces the likelihood of contamination of mixed materials and solid waste in outgoing bales. The result: a clean marketable commodity that will generate the best available market price.

Charles anticipates many of the same challenges over the next 5 years, the greatest of which will be maintaining a self-sufficient collection operation where revenue meets expenses annually. Increased costs of services like curbside collection, business collection, and shredding are another concern, as these fees were already raised in 2021. Another challenge for Bloomsburg Recycling Center is being able to maintain a clean source of recyclable material to continue to have a high-quality end product. In particular, there's the need to adapt to shrinking office paper and newsprint, both higher valued commodities, compared to the lower quality mixed paper. He also expressed frustration over the rise in unacceptable plastic items, which contaminates the collection.

A key area for the state to improve policies governing waste and recycling is to maintain and/or increase state funding for recycling. Echoed by other rural counties, Charles noted that Pennsylvania Act 101 grants for equipment (902) and performance (904) must continue. The funds taken from the state recycling fund to balance the budget severely limits the amount DEP has to assist communities with waste management and recycling activities. Further, Charles said, "the recycling industry should be viewed as a priority for the state of Pennsylvania and be supported as such; it provides a return on investment of \$4 for every \$1 spent and contributes to

the tax base.” Looking at the bigger picture, Charles also underscored the importance of meeting the EPA’s new goal of 50 percent by 2030: currently the nation has reached 32 percent. Charles emphasized, “by taking these suggestions seriously, Pennsylvania can do its part in meeting that national goal.”

Like other rural counties have mentioned, education is a critical component of recycling collection programs. The Town of Bloomsburg is no exception, as it conducts public outreach in a variety of ways. For mandated municipalities like Bloomsburg, DEP requires educational materials to be provided to residents twice a year. Both recycling collection calendars and brochures detailing curbside collection guidelines are mailed out to residents, and a full-page information guide is published in the local phonebook which is distributed throughout the area. The Bloomsburg Recycling Center also maintains an active website, which includes contact information, drop-off center hours of operation, and information on what materials are and are not acceptable for recycling collection, special collections like electronics and compost, and much more (Table 3). Charles also works tirelessly in his position to get the community involved and frequently attends local fairs and events, like the Bloomsburg Fair, where the Recycling Center has an exhibit in the Educational Building. He also provides tours of the Recycling Center to school groups, including the researchers’ environmental courses at Bloomsburg University, and speaks to students and other community groups.

Scott Township is another mandated municipality within Columbia County that is mandated to recycle, accepting newspaper, glass, plastic, and metal items (see Table 1). Curbside recycling collection as well as trash removal is provided through private haulers which have a minimum requirement of monthly pick-up for Scott Township residents. The township posts

updates on its website (see Table 3) to educate residents about recycling and make announcements about special collections including spring yard waste and fall leaf collection.

In summary, the case studies of recycling collection programs located in Wayne, Perry, Fayette, and Centre counties, as well as the Town of Bloomsburg and Scott Township in Columbia County, highlight the diversity in successful waste management and recycling programs in rural counties in Pennsylvania. More importantly, counties and municipalities echoed common challenges for rural recycling as well as common solutions for improving policy governing waste and recycling in Pennsylvania. Common challenges frequently reported by these successful rural collection programs include: declining market values for recyclable materials, diminishing funds available for recycling by the state, and rising costs of expenses including transportation.

CONCLUSIONS

Recycling in Pennsylvania is at a crossroads. The rising costs and declining program revenues are making it harder for recycling facilities to operate. The fate of recycling for Pennsylvania residents and the future of the recycling industry remains uncertain. This study provides a historical look at recycling in all 67 counties over the last decade. Secondary data coupled with municipal and county survey data provides a snapshot of the current state of recycling in Pennsylvania.

Pennsylvania established Act 101, The Municipal Waste Planning, Recycling and Waste Reduction Act in 1988 making recycling mandatory in municipalities with populations over 10,000 and those with populations between 5,000 and 10,000 that have population densities greater than 300 persons per square mile. Act 101 set forth the guidelines and requirements for curbside collection. All urban communities, therefore, were mandated to establish recycling

collection programs. Many rural communities, however, voluntarily started recycling programs. At present, this research found that many recycling programs are increasingly operating at a loss, and that many small, nonmandated communities are dropping their recycling programs all together due to rising costs and shrinking revenues. The Town of Bloomsburg in Columbia County is an example of this trend. In the early 1990s, every township in Columbia County had a recycling program. Today only three mandated communities, Bloomsburg, Berwick, and Scott Township, and 2 voluntary communities, Hemlock and Mifflin townships, continue to have recycling programs.

Recycling is more than what goes “into the bin.” It is now, more than ever before, part of the global economy. The empty bottle or can, newspaper, or box is feedstock for manufacturers. Connecting the homeowner to the end user is the job of the municipality or collector. In some industries, a recycling content mandate in the finished product has spurred the purchase of recyclables. In other industries it provides a cost savings over purchasing raw materials to manufacture new products. Collection techniques vary significantly throughout Pennsylvania. Some community collection programs require each homeowner to be responsible to separate recyclable materials prior to setting them out at the curb, while others have chosen to collect all recyclable items mixed together at the curb (e.g., single-stream) and take the collected materials to a Material Recovery Facility (MRF) for separation. In all instances, the municipality or collector determine what items are to be “put in the bin.” The diversity of collection approaches has created, in some cases, high rates of contamination and/or lower grade recyclables, resulting in lower market prices for collected materials, and thus, lower revenues. Not only is the collection technique different from community to community, what is deemed to be recyclable

also varies throughout the state. Every community must educate their residents, new and old, on their specific recycling program and the variations therein.

Key Takeaways:

- Local recycling programs are impacted by global markets and constraints;
- Contamination of recyclable materials has decreased the value of materials collected;
- Recycling programs rely on state funding;
- Recycling has environmental and economic benefits to Pennsylvania; and
- Stagnate recycling program revenues and rising recycling program costs are causing a hardship on the sustainability of recycling programs.

This study aimed to better understand the geographic extent and availability of recycling programs and services offered to residents in rural counties to effectively address challenges posed by recent international, national, and regional policy and market changes. The findings are summarized below comparing MSW generation and recycling collection services in urban counties to rural counties.

Characteristics of County Recycling Programs

The research identified differences in both mandated and voluntary recycling collection services in urban and rural counties. Urban counties were more likely to offer mandated curbside recycling collection using single-stream and dual stream methods, with the highest concentrations of these programs in the northeast and southeast portions of the state. In contrast, rural counties were more likely to offer voluntary curbside recycling collection using source separated and curb-sort methods, with the highest concentrations of these programs in the northcentral part of the state.

Urban counties also favored single-stream and dual stream techniques for mandated drop-off recycling collection sharing a spatial pattern with mandated curbside collection. Source separated collection for mandated drop-off recycling was preferred in rural counties, with the highest concentrations found in the southwest and northcentral regions. Single-stream was the only technique used for voluntary curbside collection in urban counties compared to a combination of single-stream and source separated methods in rural counties.

Urban counties relied on source separated, single-stream, and dual stream for voluntary drop-off recycling collection compared to source separated in rural counties. It should also be noted that 60 percent of all voluntary drop-off collection sites were in rural counties.

Differences were also observed in the providers of and payment for residential recycling collection services as well as the system used for acceptance of county recycling at Material Recovery Facilities (MRFs) in urban and rural counties. Urban counties used only individual municipalities and private haulers for collection compared to rural counties, which used these providers in addition to countywide programs and other providers. Rural counties primarily relied on individual municipalities and private haulers who bill the customer, but also reported that the county, residents, or other party provides payment for recycling collection services. In contrast, urban counties reported that individual municipalities and private haulers are responsible for payment of recycling collection services. The system used for acceptance of county recycling at MRFs widely varied, with urban counties favoring single-stream MRFs compared to rural counties, which overwhelmingly preferred source separated MRFs.

Access to electronics and HHW recycling collection varied in urban and rural counties. Interestingly, residents in rural counties have increased access (almost 70 percent) to electronics recycling collection as well as more collection techniques than residents in urban counties. While

the majority of urban counties provided electronics recycling through public sector drop-off sites, rural counties were more likely to offer residents the opportunity to recycle electronic items at a special event. Although rural counties identified more variety in the parties responsible for the payment of electronics collection compared to urban counties, with the exception of charging a fee to residents, payment for electronics recycling collection trends were generally consistent across urban and rural counties. Similar trends were observed with HHW recycling collection with residents in rural counties reporting increased access (nearly 70 percent). However, one notable difference was identified, where all geographic regions reported residential access to household hazardous waste (HHW) recycling in rural and urban counties except for those located in the northeast, suggesting a great need for increasing access to residents in those counties. Similar to electronics collection, rural counties identified more diversity in parties responsible for the payment of HHW recycling collection services, relying primarily on the county/waste authority, grants, and county residents to fund the collection of their HHW recyclables. Rural counties, however, were increasingly reliant on DEP grants to fund HHW recycling collections for their residents compared to urban counties. A very important finding emerged with every county (rural and urban) reporting DEP Act 190 grants as a funding mechanism for the collection of HHW recycling (excluding Chester County), required other additional sources to pay for these collection expenses. This underscores the need for improving the moneys available to counties through the State Recycling Fund to develop and maintain their recycling collection programs.

Lastly, compared to urban counties, rural counties more frequently reported (over 70 percent) knowing the processing location for their county's recyclables. Urban counties reported using primarily private sector MRFs for processing unlike rural counties who preferred both public sector MRFs and private sector MRFs equally for processing their recyclables.

Characteristics of Municipal Recycling Programs

Similar to counties, rural and urban distinctions were observed with the types of collection programs offered by municipalities. Compared to rural municipalities, urban municipalities are more likely required to establish recycling programs under Act 101. Rural municipalities reported a strong preference for drop-off locations compared to urban municipalities who favored curbside collection. Compared to rural municipalities, urban municipalities overwhelmingly reported offering both curbside collection and drop-off sites thus providing increased access to recycling to residents. This is likely because they have more municipalities that are mandated to recycle compared to rural municipalities. One important finding related to rural counties however should be highlighted here. Centre County provides the highest total number (33) of municipal recycling opportunities to residents, preferring drop-off sites and both types of collection.

Urban and rural differences were also identified in assessing the problem of illegal dumping in the state. Rural municipalities more frequently reported that illegal dumping was somewhat of a problem and a very big problem, compared to urban municipalities. There was however no rural-urban distinction in municipalities reporting that illegal dumping was not a problem at all, yet rural municipalities and counties continue to report incidents of increased illegal dumping. These findings highlight the need for further investigation into the role of geography in influencing residential accessibility to waste disposal and recycling collection programs.

Clear urban and rural differences were observed in municipalities that offer any kind of recycling education to residents, with urban municipalities reporting nearly double the number of educational efforts compared to rural municipalities. This may be due to larger, urban

municipalities having more resources, staff, and funds in which to target recycling education to their residents compared to rural municipalities. Findings by county also suggest disparities in access to recycling education; of the seven counties (rural) that reported that none of their 46 municipalities provided recycling education to residents, nearly all were found in rural locations. Similar trends were observed with the types of recycling educational efforts implemented in municipalities. Compared to rural municipalities, urban municipalities more frequently reported consistent use of municipal websites, social media like Facebook, and educational materials in their campaigns to inform residents about recycling. Urban municipalities were also more likely to give presentations about recycling to schools and their communities, and conduct other educational efforts including sending out newsletters, recycling calendars, and using TV and radio to promote recycling behavior. In contrast, rural municipalities reported more frequent use of other educational activities and giving talks on recycling with less reliance on websites and social media. It is important to note that rural municipalities reported more frequent involvement with schools as part of their educational campaigns, compared to urban municipalities, including K-12 and universities, where recycling coordinators give presentations, hold workshops on the importance of recycling, and offer field trips to local recycling facilities.

There was some variation in the type of recycling collection techniques offered by municipalities. While single-stream was the most common method reported by both rural and urban municipalities, rural municipalities were more likely to use source separated collection compared to urban municipalities. Further, dual stream, source separated, and curbside recycling methods proved more popular in rural municipalities, where urban municipalities relied heavily on a single collection technique: single-stream. Similar trends were observed with frequency of curbside recycling collection where urban and rural municipalities were consistent with

recyclable materials picked up on a weekly basis and every other week. Rural municipalities, however, were more likely than urban municipalities to have recyclables picked up monthly.

The providers of and payment for curbside recycling collection services in municipalities were relatively consistent where both rural and urban municipalities reported a strong preference toward private subscription providers. Rural and urban municipalities were also comparable in terms of the county providing curbside recycling collection. Multiple hauler systems, however, were more commonly used in rural counties. Similar trends were observed for payment, where both rural and urban municipalities frequently reported that the individual homeowner is responsible for recycling collection service. This could be problematic for residents in rural municipalities if they cannot afford the cost of recycling collection suggesting a link between illegal dumping and burning of waste in those locations. Rural and urban municipalities also consistently reported that the municipality pays for recycling collection services in their areas. Other options for payment of recycling collection services were more frequently reported by rural municipalities compared to urban municipalities.

While the collector was reported to be the most common, key differences were observed in rural and municipalities in terms of who determined the kinds of recyclable items to be collected. Overwhelmingly, 90 percent of rural municipalities reported that the collector made that decision compared to just 45 percent of urban municipalities. This is not surprising given that urban municipalities, many of which are mandated to implement recycling programs, must have an ordinance identifying at least three materials for recycling collection.

Some differences emerged in rural and urban municipalities related to the processing and selling location of collected recyclable materials. Overall, urban municipalities more frequently reported that other processing/selling locations were used compared to rural municipalities.

Urban municipalities also reported using recyclable materials processing and selling locations that were absent from rural municipalities' responses.

There was little variation between rural and urban municipalities regarding the operators of drop-off centers, which were primarily identified as municipalities or counties. Private industry was also consistently cited by both urban and rural municipalities. Compared to rural municipalities, other operators like local boy scout troops and solid waste authorities were more frequently reported by urban municipalities. The drop-off centers' hours of operation yielded similar results, with many providing convenient 24/7 access to residents, with rural municipalities more frequently indicating these hours of operation compared to urban municipalities. Municipalities also frequently reported drop-off centers that were open daily, however these were more common in urban municipalities compared to rural municipalities. Drop-off locations operating with both weekend hours and on a monthly basis were more likely to be found in rural municipalities.

Interesting findings were observed with access to electronics recycling in municipalities that conflict with trends identified in counties. Where rural counties overwhelmingly reported increased access to electronics recycling for residents compared to urban counties, rural municipalities were less likely to find this service compared to those in urban municipalities. What's more, urban municipalities who reported access to electronics recycling were more than twice that of rural municipalities. These findings highlight the importance of geographic scale in determining distance or access to electronics recycling opportunities in municipalities. For municipalities where residents have access to electronics recycling, they are primarily offered through special event collections or public sector-drop off sites. However rural municipalities report more of these opportunities for residents compared to urban municipalities who reported

private industry as more likely to sponsor electronics recycling collection. Compared to rural municipalities, urban municipalities more commonly reported other entities as responsible for providing access to electronics recycling.

There were urban-rural distinctions in the funding of electronics recycling services, with urban municipalities reporting residents as more likely to be responsible for electronics recycling collection. Other entities, including private haulers and solid waste authorities, providing funding for electronics recycling collection were more common in rural municipalities.

Like electronics recycling, similar findings were observed with access to HHW recycling in municipalities that conflict with trends identified in counties. Urban municipalities were more than three times as likely to have access to HHW recycling collection compared to rural municipalities. This spatial pattern is also reflected when examining access to HHW recycling aggregated by county. Funding mechanisms for HHW recycling collection however were comparable among rural and urban municipalities, with a strong preference reported for a county/waste authority or residents and grants and other provides cited as the least popular. It should be noted that compared to rural municipalities, urban municipalities were more likely to fund HHW recycling collection.

Differences were also observed in the municipal burning of residential waste. Open burning was much more likely to occur in rural municipalities, which is not surprising. For those municipalities that permit open burning, rural municipalities were more than four times as likely to place restrictions on the kind of materials that may be burned compared to urban municipalities.

Changes in County Recycling Programs Related to Markets, Policies, and COVID-19

When examining the frequency of negative impacts on recycling collection services, including market trends and China's National Sword policy, there was some variation. Plunge in the market values of recyclable materials, contamination of recyclable materials, costs of transportation, costs associated with program maintenance, and China Green Fence or National Sword policies were the most frequently reported negative impacts by counties. Urban counties reported more frequent negative impacts on collection services in every category compared to rural counties. Rural counties consistently reported being less frequently affected by limited access to recyclable materials processors, lack of domestic markets for recyclable materials, contamination, and Chinese policies compared to urban counties. Disproportionate impacts stemming from the lack of state and local enforcement of recycling, diminishing grants, limited access to domestic recyclable materials processors, and Chinese policies were more frequently reported by rural counties compared to urban counties. Similar trends emerged for transportation and maintenance costs, a decline in market values of recyclable materials, a lack of markets, and other impacts. Geographically, the northwest, northcentral, and northeast regions account for more than 80 percent of rural counties and commonly reported maintenance costs and other impacts to be the most challenging for their recycling programs. Further, northcentral counties also mentioned decreasing grants while northeastern counties indicated contamination of recyclable materials to be particularly difficult.

Counties reported a range of solutions for increasing residential access to recycling related to National Sword. Rural counties specifically cited the need to establish local or domestic markets for and processors of recyclable materials as well as high quality recyclable materials, a statewide mandate for recycling to improve residential participation, and the

difficulty in collecting electronics and HHW recycling materials due to restrictions imposed by the Covered Device Recycling Act and a lack of funding and providers for these items. The single urban county that responded emphasized the role of federal legislation in extending manufacturer responsibility on items like plastics and other “difficult-to-recycle” products.

More than half of counties reported that they are anticipating making changes to their recycling programs in the next year in response to international policies and market trends, with the majority located in rural counties compared to urban counties. These results suggest that rural counties are less resistant to the rising costs of collection and declining markets and processors compared to urban counties. Counties reported increasing fees for collection, type of recyclable materials collected, and equipment to be among the most common changes they plan to implement in the next year. Excluding the type of recyclable materials collected, rural counties more frequently reported their plans to make changes in all categories compared to urban counties. Geographically, the northcentral and northeastern regions primarily comprised of rural counties were more likely to anticipate changes to their recycling programs compared to other regions. These findings suggest that rural counties, compared to urban counties, face unique challenges related to maintenance costs for their recycling programs and shrinking budgets.

COVID-19 has also impacted county recycling collection programs, with other impacts, modification of recyclable materials collected, and increased tonnages of recyclable materials being among the most common. Compared to urban counties, rural counties consistently reported more frequent COVID-19-related impacts, some of which were distinctive to rural counties, including modification of the recycling facility or collection hours of operation, loss of revenue, and those with no known impacts from the pandemic.

Changes in Municipal Recycling Programs Related to Markets, Policies, and COVID-19

Trends in the frequency of negative impacts on collection services in municipalities were consistent with what was reported by counties, with the plunge in the market values of recyclable materials, contamination of recyclable materials, lack of domestic markets for recyclable materials, increased volume of residue in recycling materials, and increase in recycling collection contract fees most commonly reported among the negative impacts on collection. As observed with counties, excluding transportation costs and limited access to domestic processors, urban municipalities reported more frequent negative impacts in every category compared to rural municipalities. Rural municipalities more frequently reported impacts associated with increased costs of their collection programs, including transportation, labor, and equipment, contamination of recyclable materials, and COVID-19. This is in contrast to urban municipalities that more frequently reported impacts related to decreasing grants, lack of recycling education, falling markets, Chinese policies, and changes in items accepted for recycling collections. Geographic patterns also confirm the urban-rural differences, where municipalities found in rural counties reported more frequent negative impacts in collection related to the rising transportation costs and costs associated with maintenance of their program, as well as the lighter weight of recyclables, requiring larger volumes per ton, compared to municipalities located in urban counties.

Rural-urban differences were observed in the level of concern over both the temporary suspension and permanent loss of recycling collection services in municipalities. Results were polarizing, with 30 percent of municipalities not at all concerned about the temporary suspension of collection services in 2021 and 26 percent very concerned. Rural municipalities more frequently reported being very concerned about temporary suspension of collection. However,

urban municipalities surpassed rural municipalities in all other categories, including those where recycling collection services had already been temporarily suspended. Results were similar when examining the level of concern over the permanent loss of collection programs in municipalities with the equally strong preference for not at all concerned and very concerned about permanent loss of recycling collection services in 2021. Other trends were also consistent with the temporary suspension of programs.

Municipalities reported a range of solutions, many of which were commonly reported by counties, for increasing residential access to recycling related to National Sword. Rural municipalities more frequently reported the need for reassessing electronics recycling collection in the state and advocated for increased access to residents where disposal of items like TVs and computers generates a profit rather than imposes fees. Frustration over the difficulty of finding HHW recycling collection services in their locations was also more commonly reported in rural municipalities. The lack of glass collection and solutions for reestablishing programs was mentioned more frequently by urban municipalities, many of which were in western Pennsylvania. Both urban and rural municipalities called for the establishment of local markets, collection, and processing facilities for recyclable materials and maintained that federal responsibility was critical to the survival of recycling collection services. These findings point to a re-evaluation of current recycling laws including Act 101 and the CDRA, which could significantly improve the sustainability of recycling collection programs in both counties and municipalities.

While counties more frequently reported that they were anticipating making changes to their recycling programs in the next year in response to international policies and market trends, that trend was not observed in municipalities, where only 24 percent stated they plan to

implement changes. The majority of municipalities planning to make changes to their collection programs were located in urban municipalities compared to rural municipalities. The most common changes in those locations included an increase in fees associated with collection and modifications associated with the type of recyclable materials collected.

In sharp contrast to counties, almost 40 percent of municipalities reported no known COVID-19-related impacts on recycling collection. Compared to urban municipalities, rural municipalities more frequently reported no impacts. Rural municipalities were more likely than urban municipalities to report closures to their collection facilities or drop-off locations and cancellations of special event collections. Compared to rural municipalities, urban municipalities reported an increase in the residential volumes of trash and recyclables collected due to the pandemic as well as temporary changes to collection techniques and the types of recyclables collected. Changes to their recycling facility hours of operation were also more frequently reported by urban municipalities compared to rural municipalities.

Types of Recyclable Materials Collected by Curbside Collection Programs and Drop-Off Locations in Municipalities

For municipal curbside collection programs, recyclable paper products were most commonly collected compared to other items, with newspaper and cardboard being the most popular items within this category. Compared to rural municipalities, excluding other paper fiber, urban municipalities more frequently reported collecting recyclable paper products. A notable exception was observed with Adams and Centre counties, both rural, reporting increased capacity for curbside paper collection. Recyclable can and glass products were the second most common materials collected curbside, with aluminum cans, steel cans, and clear glass being the most popular in this category. Similarly, urban municipalities more frequently reported collecting these items compared to rural municipalities. However, Adams and Centre counties

again reported increased capacity for this type of collection. Plastic recyclables were the third most commonly collected product curbside, PET and HDPE plastics among the most popular, with urban municipalities more likely to collect these items compared to rural municipalities. Centre, Butler, and Fayette counties also stood out among rural counties for collecting plastics. Other recyclable products were the least common items collected curbside in municipalities with tree trimmings/Christmas trees and grass among the most popular materials. Similar trends were observed with other recyclable materials, where urban municipalities greatly exceeded rural municipalities in terms of collection. Disparities in municipal curbside collection of appliances/scrap metal and electronics were observed with residents in rural municipalities greatly lacking access to these services compared to urban municipalities.

For municipal drop-off collection programs, similar trends emerged with the popularity of recyclable paper products, can and glass recyclables, plastics, and other recyclables. Collection at drop-off facilities was also identified as the overwhelming preference for rural municipalities compared to urban municipalities, particularly for the paper, can and glass, and plastic recyclables collected at drop-off sites. However, with the exception of food waste, urban municipalities more frequently accepted all categories of other recyclables for collection compared to rural municipalities.

Market Trends in Recyclable Materials

The pricing of recyclable materials was volatile over the study period with steady declines in value observed for recycled aluminum and steel (tin) cans, corrugated cardboard, sorted newspaper, office paper, mixed paper, PET#1 plastic, HDPE#2 colored plastic, commingled plastics, and mixed glass. One notable exception was observed for recycled HDPE#2 natural plastic. While extremely volatile in price over the study period, prices went

from a low of \$.20/lb. (\$406.80 per ton) in July 2019, to an all-time high price of \$.59/lb. (\$1,186.80 per ton) by December 2019, making HDPE#2 natural plastic the most valuable commodity collected in recycling programs in terms of the national average price per ton.

County Trends in MSW Generation

With the exception of 2011 to 2012, trends in MSW generated by county show a steady increase over the study period. Trends in both rural and urban counties were relatively consistent excluding 2014 to 2015, where rural counties experienced a decrease in MSW compared to an increase in MSW in urban counties. Clear differences were observed when comparing the total tons of MSW generated over the study period in rural counties to urban counties, with urban counties producing more than three times the amount of MSW annually compared to rural counties. Year to year, compared to rural counties, urban counties also consistently produced over 76 percent of all waste annually. Spatially, counties located in the southeast (all urban) were responsible for nearly 34 percent of all MSW produced over the study period, followed by the southcentral (20 percent) and southwest (19 percent). In contrast, counties in the northwest and northcentral regions (almost all rural), produced the least amount of MSW. Results point to a strong association between population size and density and MSW generation. Similar patterns were observed with the percent of MSW generated by county over the study period, where Allegheny County consistently produced the largest percentage of the state's waste for the entire study period as well as individual years, with the addition of Montgomery County in 2011.

County Trends in Recycling

Trends in residential recycling by county were comparable to those observed for MSW generation. Compared to rural counties, urban counties accounted for the majority of total tons of residential recycling collected for the study period as well as individual years. The largest

concentrations of recycling were found in counties through the southeast, southcentral, and northeast, similar to trends in MSW generation. Further, Montgomery, Chester, Philadelphia, Bucks, and Allegheny counties were among the urban counties responsible for 51 percent of recycling over the study period. Rural counties, including Centre, Schuylkill, Butler, Monroe, and Franklin, accounted for 49 percent of residential recycling. While there was some variation in rural and urban counties for individual years, trends were relatively consistent. Urban counties typically generated the highest amounts of the following recyclables: single-stream, paper, commingled, HHW, other, and organics. Rural counties, in contrast, usually accounted for the most glass, plastic, and metal recyclables. In 2016, however, the largest collection of glass recyclables shifted to urban counties.

County trends in single-stream recycling collection varied substantially throughout the study period. Initially, participation in this collection technique was rather limited to urban counties in the southeast and southwest, but slowly began to expand outward to rural counties throughout the state. However, significant differences were observed from year to year, with the percent of residential recyclables that were single-stream in rural counties accounting for the highest values only to drop out the next year. The final year of the study period, 2019, was also difficult to document given the lack of available data.

Demographic Trends in Counties

Population, social, economic, and housing data yielded some associations with MSW generation data and recycling collection data. Relationships were identified with the following variables: Total population, total housing units, total occupied housing units, percent of the population age 16 and over in the labor force, total number of households, percent of family households that were married couple families with own children of householder under age 18,

percent of the population 25 years and over that is a high school graduate (or equivalent) or higher. Percent of total households with a computer and percent of households with a broadband internet subscription also revealed associations as related to urban counties. Overall, the role of demographic variables in influencing recycling were inconsistent suggesting that research on the psychological factors related to individual attitudes could be more meaningful in an effort to understand factors that may increase or decrease participation in recycling collection programs.

Solutions to Make Recycling Collection More Accessible in Counties

Counties offered a variety of solutions to improve residential access to collection services with other solutions and public education on recycling the two most commonly reported. Rural counties more frequently reported solutions related to increased grant funding to allow them to effectively develop and expand their recycling collection sites. Compared to urban counties, rural counties were also more likely to report solutions related to collection sites, facilities, and/or staffing. Both rural and urban counties proposed solutions related to the collection of bulk waste, electronics, and HHW recyclables, as well as public education on recycling. However, rural counties in particular underscored the financial burden of simply maintaining their collection programs, that often contributes to the loss of public education campaigns. The predominantly rural counties with recycling programs found in the northcentral and northwest offered the most solutions to improve access to recycling collection services in their communities. Counties located in the northcentral emphasized solutions related to education compared to counties found in the northwest who reported other solutions related to funding of collection programs, centralized access to a recycling facility, and a public-private partnership that contracts with haulers.

Solutions to Make Recycling Collection More Accessible in Municipalities

Municipalities also offered a variety of solutions, many of which were identified by counties, to improve residential access to collection services. Solutions related to the costs of developing and maintaining a recycling collection program, no solutions/unsure of solutions, other solutions, and offering and/or expansion of drop-off collection were among the four most commonly reported. With the exception of other solutions to improve residential access to recycling collection services, rural municipalities more frequently reported solutions in the above-mentioned categories. Similar to counties who proposed solutions, rural municipalities offered more solutions for improving recycling collection services to residents compared to urban municipalities, suggesting that access to recycling collection services is more problematic for rural municipalities as it relates to cost factors.

Successful Recycling Programs Operating in Rural Counties

In-depth case studies of recycling collection programs located in Wayne, Perry, Fayette, and Centre counties, as well as the Town of Bloomsburg and Scott Township in Columbia County, highlighted the diversity in successful waste management and recycling programs in rural counties in Pennsylvania. Although they are diverse in terms of mandated and voluntary municipalities, recycling collection techniques, and public education campaigns, these counties and municipalities echoed common challenges for rural recycling as well as common solutions for improving policy governing waste and recycling in Pennsylvania. Common challenges frequently reported by these successful rural collection programs included the following: declining market values for recyclable materials, diminishing state funds available for recycling, and rising costs of expenses including transportation. Key areas for improving policy related to

waste and recycling were also shared among these programs. Overwhelmingly the most popular was maintaining or increasing funds available to county and municipal recycling programs in the State Recycling Fund. They argued for the state to prioritize recycling by restricting access to these funds, and no longer diverting moneys to other programs and services.

In conclusion, recycling programs in Pennsylvania are very diverse and regionally different across the state, with significant differences identified between rural and urban communities. In addition, both the survey data and secondary data indicate significant variations in programs within a DEP region, county, and from municipality to municipality. Recycling collections are not standardized: some exclude glass, others refuse mixed paper, and some only collect a simple three items as required. Collection methods are also very diverse: from source separation to single-stream. Recycling locally has been affected by recycling markets globally, and environmental concerns now have economic drivers affecting the continuation of recycling services. Voluntary communities may or may not continue to offer recycling services. Mandated communities may or may not be able to reconcile significant decreases in revenues combined with increasing costs. In short, significant challenges for recycling programs across the state are increasing, thus bringing into question the long run viability and sustainability of recycling efforts across the state, particularly in Pennsylvania's rural communities.

POLICY CONSIDERATIONS

There are numerous practical and policy implications of this research project, which may influence state and local programs and directives regarding municipal waste management and recycling collection in Pennsylvania. This research could not be timelier as news articles frequently report information about the glut of recyclable materials in communities across the

nation. This project has measured the negative impacts on and challenges for recycling collection services operating in counties and municipalities in Pennsylvania. As a result, solutions can now be proposed to guide counties and municipalities on weathering the storm of volatile markets for recyclable materials and import restrictions. In particular, those unique challenges identified for recycling collection programs in rural counties and municipalities allow for targeted solutions that aim to improve access to recycling for rural residents. Key themes from the research findings are outlined below.

Lack of Funding for Development and Maintenance of Rural Recycling Collection Programs

One of the most significant findings was the lack of funding available to effectively develop and expand recycling collection programs amidst declining revenues from operations, falling market values of recyclable materials, and rising costs of transportation, equipment, staffing, and other associated fees. Compared to urban counties and municipalities, rural counties and municipalities are at a major disadvantage due to shrinking budgets and a lack of other resources to effectively maintain their collection programs, in addition to adapting to numerous changes in their operations as a result of COVID-19. Recycling coordinators overwhelming emphasized the urgency of making recycling a state priority, which can be accomplished by replenishing the DEP-managed Recycling Fund, established by Act 101, and placing restrictions on the activities supported by these funds.

The Recycling Fund was established to help pay for planning and activities related to municipal waste, resource recovery, and recycling. Revenue for the fund is derived from a \$2/ton recycling fee on waste processed at a municipal facility. According to Act 101 (1988: Section 706c), revenue must be allocated from the Recycling Fund as follows:

- At least 70 percent for grants to municipalities to aid in the development and implementation of recycling programs, with remaining funds allocated as follows;
- Up to 30 percent for public information, public education, and technical assistance programs concerning litter control, recycling and waste reduction, for counties and other municipalities, for research and demonstration projects, planning grants and other purposes;
- Up to 10 percent for grants for feasibility studies for municipal waste processing and disposal facilities;
- No more than 3 percent for the collection and administration of monies in the fund.

Sections 901-904 in Act 101 (1988) outline the eligible expenses for reimbursement through grants as follows:

- Section 901 - Planning grants: Counties are eligible for reimbursement of 80 percent for activities related to the preparation of municipal waste management plans and studies related to environmental mediation and municipal waste processing or disposal facilities.
- Section 902 - Grants for development and implementation of municipal recycling programs: Counties and municipalities are eligible for 90 percent of expenses related to the identification of markets, development of a public education campaign, and purchase of collection and storage equipment, and other things necessary to establish a municipal recycling program.
- Section 903 - Grants for recycling coordinators: Reimburses County Coordinator up to 50 percent of salary and expenses.

- Section 904 - Performance grants for municipal recycling programs: Municipalities are eligible based on the type and weight of source-separated recyclable materials that were recycled in the previous calendar year and the population of the municipality.

Despite the detailed grant opportunities for counties and municipalities provided by the Recycling fund, in its current state it is not sustainable. In recent years, the fund has been drained for offsetting expenditure demands in the General Fund. In what some critics have called “raiding the environmental funds to balance the budget,” the following amounts have been transferred from the Recycling Fund to the General Fund: \$15 million in 2008-09; \$9 million in 2016-17; \$15 million in 2018-19; and \$10 million in 2019-20 (Tochev 2019: 2; Vitali 2019). However, Governor Wolf’s final budget for 2020-21 transfers more than \$201 million from numerous environmental conservation and energy funds. These are described in detail in House Bill 2536 (2020) also known as the Fiscal Code. Monies to be transferred from the Recycling Fund alone have reached an all-time high in 2020-21, with \$50 million being reallocated to the General Fund.

Rural counties and municipalities are facing a losing battle with the decline in funds that are desperately needed to ensure the survival of their programs. This was best summarized by Executive Director of the Professional Recyclers of Pennsylvania Jennifer Summers and then Director of Government Relations and currently Executive Director of the County Commissioners Association of Pennsylvania Lisa Schaeffer in response to an approved transfer of \$10 million from the Recycling Fund to the General Fund in 2019:

“...One primary concern is the long-term impact this diversion from the Recycling Fund will have on the recycling grants. While specific changes in the grant programs have not been

published, a loss of \$10 million will negatively impact local recycling programs and services. Grants to counties and municipalities authorized under Act 101 and disbursed from the Recycling Fund are used to maintain the recycling infrastructure we have in place today. Today, more than 11.6 million residents, at least 94 percent of the state's population, have access to recycling. About 79 percent have convenient access to recycling through about 1,050 curbside pickup programs. Since Pennsylvania is largely rural, 870 drop-off programs extend recycling to the greatest number of communities. The following examples offer a just a miniscule glimpse into Pennsylvania's robust recycling marketplace.

Taking funds away from recycling is particularly troubling given the current challenges facing local recycling programs. China's National Sword policy has essentially eliminated it as a market for recyclable materials. The policy has substantially increased the cost to process and market recyclables. Grant funds are a key component supporting municipal recycling programs, off-setting some of the impact of increased costs. Of equal and perhaps greater importance, grant funds provide resources to help educate consumers, a critical factor as we work to improve the quality of materials collected and processed.

The expense for curbside recycling collection equipment is reimbursed (90 percent) to counties and municipalities from the Recycling Fund. Consumers are used to collecting recyclable material at their residence and workplace. Recycling trucks (@ \$250,000 per truck) conveniently pick up material for transport to a processing facility. If counties and municipalities cannot collect recyclable goods, consumers will simply put them in their trash, which will then be transported to the landfill. In 2015, Pennsylvania recycled over 7.78 million tons of resources.

Recycling facilities need processing equipment for handling of material. Recycling balers compact recyclables like aluminum, cardboard, paper, and plastic into blocks which can easily be stacked and transported. A baler generally costs in the range of \$400,000. Without a baler, recycling material cannot be efficiently moved to market.

...Professional staff who keep all the moving parts working in harmony are a critical component of the complex recycling picture. 50 percent of a county recycling coordinator's salary is reimbursable from a grant under the Recycling Fund.

Expenses add up quickly. Which county or municipality will be chosen to not receive the support necessary to maintain recycling operations? Pulling on what seem to be inconsequential threads of the recycling tapestry will result in the disintegration of decades of development. Whittling away at the resources needed to sustain recycling in the Commonwealth will negatively impact the recycling marketplace, the environment, and the resources of local governments..." (Summers and Schaeffer 2019).

These research findings demonstrate that current funds are not enough to support special collection events and recycling programs, as both urban and rural programs have been required to seek additional grants just to provide these services to residents. In 2017, the Department of Environmental Protection (DEP) urged state legislators to reexamine the current state of Act 101 to improve the effectiveness of recycling programs and services and ease the financial constraints faced by county coordinators throughout Pennsylvania; however, as cited above, no substantial action has been taken (Commonwealth of Pennsylvania 2017). Findings from this research may offer the support that is finally needed for the state to reevaluate the role of revenue for recycling programs in rural Pennsylvania counties and demonstrate the need for additional

help, financial and other, in implementing and expanding successful waste management and recycling collection programs.

Restructuring Funding for Development and Maintenance of Rural Recycling Collection Programs

In addition to increasing the Recycling Fund to provide grants for counties and municipalities, a restructuring of the use of funds under Section 902 - Grants for development and implementation of municipal recycling programs would be helpful. While the current use of grant funds under Section 902 is broad, as they relate to the development and expansion of municipal collection programs, researchers argue that distinguishing between operational expenses like the purchase of collection and storage equipment and identification of markets for recyclable materials and public education campaigns would be beneficial. County and municipal recycling coordinators reported the critical role of public education to the success of their collection programs and argued for solutions to help expand education to their residents. Rural counties and municipalities that are not mandated to recycle or those staffed by volunteers often do not have the time or financial resources to invest in educational campaigns and websites promoting their services. Further many rural recycling coordinators take on dual roles, as demonstrated by Perry County and Fayette County, placing even more restrictions on their time. The financial burden of public education campaigns makes them one of the first items to be cut amid rising fees in rural counties not mandated to recycle.

Three rural counties in the northeast proposed an innovative solution for expanding educational outreach to community residents to increase participation in recycling in rural areas: a uniform state-funded recycling education program. Not only could this aid in improving the quality of recyclables collected, which would reduce overhead costs and allow for the expansion

of collection services, but it would allocate monies for a specific purpose. This is important because, as the Recycling Fund shrinks, grants become even more competitive, and by limiting the eligible activities in the Section 902 program to operational expenses, it frees up money to be used strictly for essential collection services.

This kind of state-funded recycling education program may include the following:

- supplied literature and informational brochures on recycling and its associated economic and environmental benefits, tailored to the local geography to provide clear, concise, and up-to-date information to residents on what can and cannot be recycled in rural counties.
- technical and/or financial support provided to rural counties and municipalities that wish to develop a website or maintain an existing one for their recycling collection programs, as websites were among the most popular means to increase community involvement in recycling.

This initiative could also improve the relationship between rural counties, municipalities, and the state as they work together to create an effective recycling educational program. One way to do this is to foster a dialogue between state officials and rural county recycling coordinators to outline existing challenges in recycling education in their communities, highlight those that are unique to rural counties, and work to jointly create a successful program for all. This ensures buy-in from all counties in the beginning of the process, as they are the recycling experts in their own counties and know what works and what does not for their residents. It will also likely increase empowerment and engagement among county recycling coordinators. Involvement from DEP as well as groups like the Professional Recyclers of Pennsylvania

(PROP), the Pennsylvania Recycling Markets Center (RMC), and County Commissioners Association of Pennsylvania could also enhance the success of this program.

Establishment of Local Markets and Processors for Recyclable Materials

Another key finding that emerged in this research is the urgency for Pennsylvania to establish local markets and processors for recyclable materials. This problem was emphasized by both urban and rural counties and municipalities as they are forced to adapt to the volatile landscape of recycling markets due to National Sword and its cascading effects. For counties and municipalities to continue offering recycling collection to residents, there needs to be value in the end-product. As we can no longer be reliant on foreign countries to accept our waste, it is up to Pennsylvania to cash in on this opportunity. With the help of leaders at the Pennsylvania Recycling Markets Center (RMC) and Professional Recyclers of Pennsylvania (PROP), the state could outline specific requirements for developing local markets and processors for recyclable materials. This would involve encouraging the location, growth, and expansion of businesses in Pennsylvania that purchase and use recyclable materials from Pennsylvania, as well as looking to other states to see how they are tackling the problem and growing local markets and identifying those recyclable materials that could be the most valuable.

Act 127 of 2020 amended the Solid Waste Management Act of 1980 to allow for advanced recycling, “a manufacturing process for the conversion of post-use polymers through processes, including pyrolysis, gasification, depolymerization, catalytic cracking, reforming, hydrogenation, and other similar technologies into any of the following:

- (1) Basic hydrocarbon raw materials, feedstocks, chemicals, liquid fuels, waxes, and lubricants.

(2) Other products, including but not limited to, monomers, oligomers, plastics, crude oil, naphtha, liquid transportation fuels, and other basic hydrocarbons” (Act 127 of 2020, Section 1).

This law is being praised by plastics processors in the state who claim that it will create thousands of jobs to curb plastic items from being tossed into landfills. However, environmental groups do not believe it is the solution to the plastic crisis and argue that it will increase dependency on single-use items by reinforcing plastics production and result in increased burning of fossil fuels and harmful greenhouse gases entering the atmosphere (Kummer 2020). One of the controversial elements of the legislation involves the classification of advanced recycling as manufacturing, which means it will not be regulated as a solid waste management facility would, thus requiring no specific regulations guiding how waste is handled.

While it is far too early to determine the effectiveness of Act 127 of 2020, it does suggest a willingness to consider the importance of recycling and how it could generate revenue for the state of Pennsylvania. Working with the groups identified above to create sustainable solutions will reap environmental and economic benefits for the state and will be of particular help to rural counties and municipalities with struggling recycling collection programs.

Increased Access to Collection of Electronic Devices and HHW Recyclables

Counties and municipalities expressed their frustration and difficulty in collecting electronic recyclables due to a lack of consistent funding, in addition to restrictions imposed by the Covered Device Recycling Act (CDRA) of 2010. The CDRA requires manufacturers of covered devices, including computers and TVs, to register with the state if they wish to sell new items and create a plan for the collection, transportation, and recycling of those devices.

Manufacturers who fail to comply face a penalty of up to \$10,000 for the first violation and up to

\$25,000 for the second and each subsequent violation, all of which will be deposited into the Electronic Materials Recycling Account. Section 506 of the CDRA also placed a ban on the disposal of these items in a municipal solid waste facility, which took effect in 2013. Section 502 of the CDRA requires the completion and submission of an annual report which will be available to the public online that includes the following:

- “Total weight of covered devices collected in the Commonwealth during the previous calendar year;
- A complete listing of all manufacturers’ collection, transportation, and recycling programs and collection sites operating in this Commonwealth during the prior calendar year, the parties that operated them and the amount of material by weight collected at each site;
- An evaluation of the effectiveness of the education and outreach program;
- An evaluation of the existing collection and processing infrastructure; and
- Recommendations for expanding the program to include additional electronic device” (CDRA Section 502 2020).

During the time of this study, annual reports were only available on DEP’s website for the years 2014-2018. There has been a steady decline in the total weight of covered devices collected, falling from 62.4 million pounds in 2014 to 56.5 million pounds in 2018. Similar trends were observed with the total number of registered manufacturers dropping from 75 in 2014 to 63 in 2018. Further, manufacturers do not appear to be deterred by existing penalties set forth in the CDRA, as nine companies failed to register with the state in 2016, resulting in 1.7 million pounds of covered devices that were not collected. In 2017, four companies failed to register accounting for 884,825 pounds of covered devices not collected. In 2018, three

companies failed to register and 70,351 pounds of covered devices were not collected. Trends for 2018 are concerning given that the total collection of covered devices were at an all-time low, and only 70,000 pounds of covered devices were not recovered by manufacturers. This could suggest that fewer manufacturers are selling new devices in the Commonwealth, resulting in a decline in revenue, or worse, consumers are finding other means to dispose of their covered devices, by illegal dumping or other means.

Further examination of the collection points in manufacturer plans from 2018's annual report yields significant disparities in access to electronic recyclables for residents. Only 32 percent of covered device collection points are in rural counties compared to 68 percent in urban counties. What's more, seven counties in the Commonwealth do not have access to any collection points, all of which are rural, including: Cameron, Carbon, Forest, Juniata, Northumberland, Sullivan, and Susquehanna. The Pennsylvania Recycling Markets Center also conducted an analysis of covered device recycling access for inclusion in the annual report for the years 2016-2018, which showed a steady decline in unrestricted access to recycling opportunities under the CDRA. Yearly breakdowns are as follows:

- In 2016, collection infrastructure diminished to the point of 32 collection sites in the state that accept covered devices without restriction.
- In 2017, collection infrastructure diminished to the point of 30 collection sites (27.5 percent of the population) in the state that accept covered devices without restriction.
- In 2018, collection infrastructure diminished to the point of an all-time low of 10 collection sites (24.9 percent of the population) in the state that accept covered devices without restriction.

Nearly every annual report from 2015 onward remains virtually unchanged in terms of the evaluation of education and outreach programs and evaluation of existing collection and processing infrastructure under the CDRA. Contributing to the frustration of county and municipal recycling coordinators and residents of the Commonwealth is the consistent reporting of inadequate infrastructure to ensure recycling access on a continual basis:

“Issues continue with the collection and processing infrastructure necessary to implement the CDRA...The same concerns DEP has heard previously are more prevalent due to the absence of reliable funding. Low market values for materials, and the uncertainty of having the collected materials covered by a manufacturer’s plan” (DEP 2018: 3).

This hardly constitutes an in-depth evaluation of existing infrastructure and collection of covered devices if year after year no recommendations are made to improve the existing state of electronics recycling access to residents. It is clear that the CDRA is not increasing access to electronics recycling, but is restricting access to these opportunities, especially for rural residents. A few legislative bills have been introduced over the past few years that aimed to address some of the problems associated with the CDRA (Senate Bill 52 and House Bill 179 of 2019, and House Bill 2299 of 2020), however none were enacted.

These findings suggest the critical and urgent need for the state to examine ways to increase access to electronics recycling for residents, especially in rural areas. By doing so, this could minimize illegal dumping in those locations as well as create economic and environmental benefits for Pennsylvania in the way of jobs and increased revenue. Similar to suggestions for creating a recycling education initiative, there must be a dialogue with counties and municipalities, particularly in rural areas lacking access to recycling opportunities. Some municipalities stressed the need for drop-off sites reserved for special collection recyclables like

bulky items, electronics, and HHW, which would be available year-round to residents in multiple municipalities. This is certainly a starting point for expanding the dwindling access to electronics collection in the Commonwealth. Information gleaned from the case studies in this research can provide concrete examples of successful integrated waste management systems and recycling programs that can serve as the foundation for putting forth recommendations and guidelines for recycling best practices in rural counties and municipalities across the state.

Increased Access to Collection of HHW Recyclables

Rural counties and municipalities also reported problems with consistent, unrestricted access to HHW recycling collection in their locations, citing many of the same difficulties mentioned above with electronics recycling. Many collection programs operating in rural areas do not have the necessary funding and population requirements to offer more frequent collection of HHW recyclables to their residents. For those that were able to successfully work with other entities to secure a location and date for a special annual collection event, many were cancelled due to COVID-19.

In June 2019, legislation was introduced to amend Act 190 of 1996, which provided an update to the state's HHW collection program. Recognizing rising vendor costs for collection and trucking of HHW recyclables, Senate Bill 766 proposed an increase on the state funding match per county, from \$100,000 to \$250,000, to enable HHW collection events to continue. While the legislation was not passed, there was support for such a bill by county recycling coordinators, particularly rural county recycling coordinators.

More needs to be done to increase access to collection of HHW recyclables in rural counties and municipalities, as these locations are woefully underserved with recycling opportunities for both these items and electronics, compared to urban residents. As a result,

increased dumping of hazardous materials and TVs continue to be an ongoing problem reported by recycling coordinators because the increasing demand for these services are not being met. A supplemental approach where individual agencies, nonprofits, manufacturers, and other groups are responsible for collection, could prove to increase access to HHW recyclable collection in Pennsylvania. For example, many rural counties and municipalities cited the Pennsylvania Department of Agriculture's CHEMSWEEP Program as their primary source of collection and disposal of unwanted pesticide products. For counties that are eligible for this service, a special event collection is held where these hazardous materials are collected at little or no cost to residents. To date, this program has been successful in safely disposing of over 2.7 million pounds of pesticides (Pennsylvania Department of Agriculture 2020).

This approach would also involve looking to other states to see how they are tackling the problem of HHW recyclables collection and could help to establish similar programs in Pennsylvania. For example, PaintCare (2021) is a program operating in nine states that collects unwanted or leftover paint products from designated drop-off locations where it is then sorted for reuse, recycling, or safe disposal. These supplemental programs could remove some of the financial burdens from counties and municipalities that often bear the costs of organizing and funding special event collections for HHW recyclables and increase access to their residents.

The long-term practical implications of this research project for county and municipal recycling coordinators cannot be overstated. This creates an opportunity to identify common challenges and propose solutions that are both feasible and targeted to recycling programs and services located in rural Pennsylvania counties. It may also serve to bring rural county and municipal recycling coordinators together in their effort to improve services offered to residents

in their communities. For example, perhaps it could spur the creation of a coalition that promotes dialogue on issues faced by members.

In summary, results of this research can improve upon the existing efforts in waste disposal and recycling currently being undertaken by state and local governments, associated agencies like DEP, and partners like the Pennsylvania RMC and PROP, and advance existing county and municipal recycling programs throughout rural Pennsylvania.

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APPENDICES

Appendix 1 County Survey Results

Q1. How many municipalities within your county are mandated by ACT 101 to recycle?

| | |
|---------|-------|
| 0..... | 20% |
| 1..... | 17.1% |
| 2..... | 11.4% |
| 3..... | 5.7% |
| 4..... | 2.9% |
| 5..... | 8.5% |
| 6..... | 5.7% |
| 7..... | 5.7% |
| 11..... | 5.7% |
| 14..... | 2.9% |
| 15..... | 5.7% |
| 16..... | 2.9% |
| 18..... | 2.9% |
| 40..... | 2.9% |

Q2. Of those municipalities within your county that are *mandated by ACT 101* to recycle, how many offer curbside:

Single-stream?

| | |
|---------|-------|
| 0..... | 25% |
| 1..... | 7.1% |
| 2..... | 17.9% |
| 4..... | 3.6% |
| 5..... | 7.1% |
| 6..... | 7.1% |
| 7..... | 7.1% |
| 9..... | 3.6% |
| 11..... | 3.6% |
| 15..... | 7.1% |
| 18..... | 3.6% |
| 37..... | 3.6% |
| 74..... | 3.6% |

Dual stream?

| | |
|--------|-------|
| 0..... | 89.3% |
| 1..... | 3.6% |
| 2..... | 3.6% |
| 3..... | 3.6% |

Source Separated?

| | |
|--------|-------|
| 0..... | 78.6% |
| 1..... | 14.3% |
| 2..... | 7.1% |

Curb sort?

| | |
|--------|-------|
| 0..... | 75% |
| 1..... | 10.7% |
| 2..... | 7% |
| 3..... | 3.6% |
| 5..... | 3.6% |

Q3. Of those municipalities within your county that are *mandated by ACT 101* to recycle, how many offer drop-off locations that are:

Single-stream?

0.....78.6%
 1.....7.1%
 2.....7.1%
 4.....3.6%
 5.....3.6%

Source Separated?

0.....53.6%
 1.....14.3%
 2.....7.1%
 3.....10.7%
 4.....3.6%
 5.....7.1%
 9.....3.6%

Dual stream?

0.....89.2%
 1.....3.6%
 2.....3.6%
 3.....3.6%

Q4. How many municipalities within your county have voluntary recycling programs?

0.....11.4%
 1.....8.6%
 2.....11.4%
 3.....5.7%
 5.....8.6%
 7.....5.7%
 8.....8.6%
 10.....2.9%
 11.....2.9%
 12.....2.9%
 14.....5.7%
 17.....2.9%
 18.....2.9%
 21.....2.9%
 23.....2.9%
 24.....2.9%
 27.....2.9%
 33.....2.9%
 38.....2.9%
 51.....2.9%

Q5. Of those municipalities within your county that have voluntary recycling programs, how many offer curbside:

Single-stream?

| | |
|---------|-------|
| 0..... | 45.2% |
| 1..... | 12.9% |
| 2..... | 3.2% |
| 4..... | 9.7% |
| 6..... | 3.2% |
| 7..... | 3.2% |
| 11..... | 3.2% |
| 12..... | 3.2% |
| 19..... | 3.2% |
| 22..... | 3.2% |
| 33..... | 3.2% |
| 38..... | 3.2% |
| 51..... | 3.2% |

Source Separated?

| | |
|---------|-------|
| 0..... | 74.2% |
| 2..... | 16.1% |
| 3..... | 3.2% |
| 4..... | 3.2% |
| 14..... | 3.2% |

Curb sort?

| | |
|--------|-------|
| 0..... | 96.8% |
| 3..... | 3.2% |

Dual stream?

| | |
|--------|-------|
| 0..... | 96.8% |
| 1..... | 3.2% |

Q6. Of those municipalities within your county that have voluntary recycling programs, how many offer drop-off locations that are:

Single-stream?

| | |
|---------|-------|
| 0..... | 74.2% |
| 1..... | 3.2% |
| 2..... | 3.2% |
| 3..... | 3.2% |
| 4..... | 6.5% |
| 5..... | 3.2% |
| 13..... | 3.2% |
| 14..... | 3.2% |

Source Separated?

| | |
|---------|-------|
| 0..... | 29% |
| 1..... | 19.4% |
| 2..... | 6.5% |
| 3..... | 6.5% |
| 4..... | 6.5% |
| 5..... | 3.2% |
| 6..... | 3.2% |
| 7..... | 3.2% |
| 8..... | 9.7% |
| 14..... | 3.2% |
| 15..... | 3.2% |
| 18..... | 3.2% |
| 21..... | 3.2% |

Dual stream?

| | |
|---------|-------|
| 0..... | 87.1% |
| 1..... | 6.5% |
| 2..... | 3.2% |
| 14..... | 3.2% |

Q7. In municipalities in your county that have drop-off locations for materials, who oversees those locations? (Please check all that apply.)

County drop-off site.....26%
Municipality.....42%
Private hauler(s)14%
Volunteer group.....12%
Other.....6%

Q8. Who provides the residential recycling collection services in your county? (Please check all that apply.)

Countywide program.....13%
Individual municipality.....33.3%
Private hauler(s)50%
Volunteer group.....0%
Other.....3.7%

Q9. Who pays for the residential recycling collection services in your county? (Please check all that apply.)

County.....11.5%
Individual municipality.....30.8%
Private hauler bills customer.....28.2%
Residents through a fee or taxes.....23.1%
Other.....6.4%

Q10. Do you know where your county's recyclables are processed?

Public Sector Material Recovery Facility (MRF).....41.9%
Private Sector Material Recovery Facility (MRF).....58.1%

Q11. How is the recycling accepted at the Material Recovery Facility (MRF)?

Single-stream.....52.8%
Dual stream8.3%
Source separated.....38.9%

Q12. Using the following scale, please indicate your responses to the following questions.

(1) Almost never (2) Occasionally (3) About half the time (4) Often (5) Almost always

Since 2018 how frequently have recycling collection services in your county been negatively impacted by:

Costs of transportation

Almost never.....3.3%
Occasionally.....26.7%
About half the time.....13.3%
Often.....30%
Almost always.....26.7%

Costs associated with maintenance of your program

Almost never.....6.7%
Occasionally.....16.7%
About half the time.....20%
Often.....33.3%
Almost always.....23.3%

Decreasing grant availability

Almost never.....23.3%
Occasionally.....26.7%
About half the time.....10%
Often.....20%
Almost always.....20%

Contamination of recyclable materials

Almost never.....6.5%
Occasionally.....19.4%
About half the time.....3.2%
Often.....29%
Almost always.....41.9%

Plunge in the market values of recyclable materials

Almost never.....3.2%
Occasionally.....12.9%
About half the time.....6.5%
Often.....32.3%
Almost always.....45.2%

Increased volume of residue in recyclable materials

Almost never.....6.7%
Occasionally.....33.3%
About half the time.....3.3%
Often.....33.3%
Almost always.....23.3%

Limited access to recyclable materials processors

Almost never.....27.6%
Occasionally.....37.9%
About half the time.....6.9%
Often.....10.3%
Almost always.....17.2%

Lack of domestic markets for recyclable materials

Almost never.....10%
Occasionally.....36.7%
About half the time.....3.3%
Often.....26.7%
Almost always.....23.3%

China Green Fence or National Sword Policies

Almost never.....10%
Occasionally.....23.3%
About half the time.....10%
Often.....20%
Almost always.....36.7%

Q13. Is there a way for residents to have electronics recycled in your county?

Yes.....90.6%
No.....9.4%

Q14. If residents in your county are able to recycle electronics (including TVs, computers, keyboards, and printers), who pays for this service? (Please check all that apply.)

Residents.....51.6%
Government-sponsored program.....16.1%
Original Equipment Manufacturer (OEM)-sponsored program.....16.1%
Other.....16.1%
N/A.....0%

Q15. How are electronics collected?

Public sector drop-off site.....39.5%
Special Event.....44.7%
Private Industry.....15.8%

Q16. Is there a way for residents to have household hazardous waste recycled in your county?

Yes.....72.7%
No.....27.3%

Q17. How is this service paid for?

County/Waste Authority.....25%
Residents.....29.5%
Grants.....27.3%
Tipping Fees.....4.5%
Dept. of Agriculture.....9.1%
Other.....4.5%

Q18. Can you tell me more about things that have negatively impacted collection services in your county?

Contamination.....16.7%
Lack of education on recycling.....4.5%
Lack of enforcement from DEP and municipalities.....3%
Transportation costs.....9.1%
Maintenance costs.....15.2%
Decreasing grants.....6.1%
Plunge in market values.....9.1%
Limited access to processors.....3%
Lack of markets.....7.6%
China.....6.1%
Other.....19.7%

Q19. What solutions, if any, do you think would help to make collection services more accessible to residents in your county?

Education.....25.8%
Make municipality responsible for collection.....9.7%
Markets/job creation.....6.5%
Fees for residents.....9.7%
Modification of existing collection services.....9.7%
Other.....38.7%

Q20. Do you anticipate making any changes to your recycling program in the next year (e.g. collection frequency, type of materials collected, staffing, increase in fees, etc.)?

Yes.....56.7%
 No.....43.3%

Q21. Can you tell me how, if at all, COVID-19 has impacted collection services in your county?

No impact.....6.6%
 Increased tonnages.....13.1%
 Closures.....11.5%
 Loss of revenue.....3.3%
 Collection technique modified.....9.8%
 Materials collection modified.....13.1%
 Event cancellations.....6.6%
 Hours of operation.....9.8%
 Other.....26.2%

Q22. Do you have any additional comments?

Question 17: How is HHW recycling service paid for in your county? (Please describe in the space below).

| Response |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The County pays for a bulk of the cost but the residents are asked to pay \$3.00 per pound for the HHW items. |
| Spring and fall collection events paid for through Act 190 grants and County contributions. |
| Northern Tier Solid Waste Authority pays for the event and submits a grant to PA DEP for 50% reimbursement. The PA Department of Agriculture pays for the pesticides collected through their CHEMSWEEP Program. |
| combination resident + county/gov't-sponsored program |
| Included in trash tipping fee at Transfer Station |
| Municipalities pay based on population and grants. |
| residents pay half and state grant pays half. |
| User-based fees |
| The county recycling office pays for half of the costs, and the other half is covered by an Act 190 grant through DEP. The county is reimbursed half of the cost of the HHW collection through a state grant. It covers the other half. Residents may drop off HHW free of charge. |
| Through fees paid per pound by residents who participate and through a grant from the DEP |
| Event users pay a per pound fee for materials dropped off |
| residents pay 1/2 , the other 1/2 is paid through DEP HHW grant. |
| Residents pay for the service. |
| Landfill Tipping Fees |
| By residents |

| |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Montgomery County paid \$500,000 for 7 HHW events in 2019. The County was reimbursed \$100,000 by the DEP grant program which is supposed to cover 50% of the cost but is capped since 1996 at \$100,000 per county. |
| Department of Agriculture ChemSweep Program |
| Philadelphia, Delaware, Montgomery, Chester and Bucks counties fund HHW event throughout the five county region. |
| By residents |
| Northern Tier Solid Waste Authority (NTSWA) holds event through PA Dept of Agriculture CHEMSWEEP Program, pays for event and then Dept Ag. covers cost of pesticides and NTSWA applies for a 50% reimbursement grant through PA DEP. |
| Northern Tier Solid Waste Authority pays for the event and also applies for a grant for 50% reimbursement through PA DEP. The pesticides collected are covered under the PA Dept. of Agriculture CHEMSWEEP Program. |
| dep grant funding and resident fees |
| County partners with non-profit (Pennsylvania Resources Council); county pays a contribution to offset administration costs for non-profit, and nonprofit conducts contracting, advertising, and grant writing to pay for event. A nominal fee is charged to participants. |
| county Authority funds and DEP HHW Grant |

Question 18: Can you tell me more about things that have negatively impacted collection services in your county? (Please describe these things in the space provided below.)

| Response |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Our drop off recycling center is fully staffed. The staff provide education on a daily basis. People want to recycle but don't understand what can be recycled and what is trash. Secondly, the recyclables have residue. Having consistent education provided to the general public would be most helpful. Various sources providing different messaging makes the job very difficult to get end users the recyclables they need in challenging markets. |
| Contamination is our largest ongoing problem. |
| Same answer as Sullivan County |
| private haulers refusing to collect materials due to China / contamination / market issues, plus the COVID19 shutdown |
| Lack of enforcement support from PA DEP. |
| Lack of media cooperation |
| loss local market for mixed paper & glass due to markets and penalties associated with residue, still have some residents who use drop-offs for trash disposal or simply don't follow guidelines as to what we can or cannot accept. |
| The electronics recycling is extremely difficult in the county and most must be paid for when you can find a place willing to accept them. |
| Our County-Wide Recycling Drop-Off Collection program closed at the end of 2017 so it doesn't fit in your survey window. 2017 saw HUGE issues with contamination of recyclables because China's new policies were so restrictive. |
| The county's community recycling center manages almost all of the residential recycling in the county. We have continued service uninterrupted through market downturns and COVID-19. |
| Contamination, single-stream issues with glass, lack of transparency on how much is getting recycled and how much goes to landfill due to contamination. |
| High transportation cost, low price for recyclables |
| the costs of a recycling program |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment issues, Unstable market prices for materials |
| The Solid Waste Authority cannot charge participants for using the drop off recycling sites. Act 101 doesn't authorize it. Lack of recycling haulers in our area. Lacks of local markets is a big problem, as is the state government taking Recycling Fund monies to balance the state budget. This only reduces the amount of grant funds available for programs, as checked on a previous screen. |
| The various factors noted in earlier questions (contamination, China, etc.) resulted in much higher costs to programs. Due to significantly higher costs, the County dropped the collection of bottles, cans, jugs, and jars from its dual stream drop-off program and now only collects fiber. Residents saw materials dropped from their curbside recycling programs. Glass was dropped from most programs to help address the contamination issue. |
| Collection Services are impacted by contamination, disposal costs, poor market values, limited markets, and education. |
| contamination, extremely low markets, reduction in staff at a municipal level, funding issues at the municipal levels, costs at MRF's to deposit recyclables. |
| Lack of enforcement of municipal ordinances. All Property owners are required by municipal ordinance to have a waste hauler and the waste haulers are required to offer recycling. Municipal enforcement of their ordinances does not exist. |
| Single stream collection has increased contamination. Decreases in commodity prices especially for fiber has upended the economic model of profiting from recycling. The processing costs far exceed revenue from material sales. |
| Haulers within the County are claiming that providing recycling services to municipalities are becoming too expensive, and are dropping out of local programs as of this year. |
| Very small rural county. Apathy from previous Solid Waste/Recycling Coordinators. Expense of constructing, or difficulty in acquiring, a transfer facility or other local options for bulk waste, electronics or HHW. |
| Decreased grant revenue and the continual raiding of the Recycling fund is impacting our programs and making it harder for us to keep up with how recycling is evolving, such as the types of materials and quantities (ex: decreased Newspaper over time, rapidly multiplying plastics, and an overabundance of Amazon Cardboard boxes) |
| Same answer as Sullivan County |
| The only way to have HHW collected is through the PA DEPs HHW grant. It is a 50% reimbursable grant. A typical event costs about \$50,000.00. So the cost to the county would be about half that which is not realistic for most counties. |
| loss of municipal drop offs due to contamination and costs. lack of proper legislation to properly address e-waste |
| Restrictions from National Sword and hauler restrictions reduced types of material accepted; cost of hauling and processing prohibitive. All curbside programs are managed and contracted through municipalities. |
| Private sector haulers provide curbside single stream service. This has reduced the tonnage to the County-Run source separated MRF. Market pricing for recyclables has been the biggest negative factor since the situation in China. |
| Lack of competition when it comes to hauling services. Only two companies bidding in most of county. In some cases only 1. |

Question 19: What solutions, if any, do you think would help to make collection services more accessible to residents in your county?

| Response |
|------------------------------------------|
| EDUCATION, EDUCATION, and MORE EDUCATION |

| |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Where bins are located....What can go in the bins/what can't....Why contamination harms recycling programs....Financial benefits vs cost due to illegal dumping/clean ups.....Environmental benefits for communities that are running efficient programs..... |
| Same answer as Sullivan County |
| More money for education |
| Education and media support |
| perhaps state could look at recycling markets as business development/ job creation. If China isn't taking these materials anymore new opportunities exist for us to make new products here. There seems to be little legislative support for anything deemed environmental. How about we call it job creation then? |
| In light of the loss of our county-wide drop-off program we actually saw many positive impacts. Municipalities that offered trash service now include recycling, as well. Townships are starting to implement (or investigate) having a franchised collection for their waste and recycling. We're seeing the onus for residential recycling being placed back on the municipalities where it belongs. |
| Have recycling owned by a public private partnership, to allow public sector to have more control and accountability for contracts with haulers. |
| no costs to the residents or townships/county |
| More grant funding to develop collection sites |
| Authorize County's and its' agent to collect a fee for the use of the drop off recycling sites. Being such a rural area with limited curbside collection, 82% of our residents rely on the drop off program for managing their waste by recycling. |
| Increased domestic capacity. Mandated curbside recycling (and waste collection) for more communities, where feasible. Perhaps with a population density of greater than 300/sq mi or overall population of 2 or 3 thousand people. |
| CONTRACTED WASTE |
| Education, education, education. |
| Municipal collection either directly or by contract for municipal waste and recycling. Allow county's/municipality's to charge administrative fees on municipal waste to fund recycling programs. Admin fees are not permitted under Act 101 as the Grant programs were intended to fund them. Eliminate state grant programs and allow municipality's to fund programs themselves. |
| Extended producer responsibility laws must be passed to ensure that the paper and packaging manufacturers have to meet a minimum recycled content requirement. As the original producers of the material, they must purchase back the recycled materials that our communities collect and use them in their new packaging. There must be a guaranteed market for the programs to survive economically. |
| We have no access issues in Philadelphia. |
| Collection services are provided by private hauler in 11 municipalities and municipally run in the two boroughs. Accessibility is not an issue for general household single stream. Issue is bulk waste, electronics, and HHW. |
| More drop-offs. Less contamination by residents. |
| A uniform state funded recycling education program, which could help improve the quality of the recyclables collected now, which would overall decrease overhead costs and allow for the expansion of collection services and availability. |
| Same answer as Sullivan County |
| Perhaps a fee structure to residents for the event but there's no way of knowing how much of your costs would be recovered. |
| Centralized recycling convenience center which county is currently working towards setting up. |
| Municipal investment and involvement; offering source-separated opportunities for materials that are not accepted curbside (i.e. glass). |
| Need for volunteers at municipal drop-off sites. Older volunteers leave and are difficult to replace sometimes. It can also be challenging to hire CDL drivers for the County Recycling program. |
| More consistent waste/recycling contract requirements |

Question 20: Do you anticipate making any changes to your recycling program in the next year (e.g. collection frequency, type of materials collected, staffing, increase in fees, etc.)?

| Response |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| In 2019, we doubled the hours of operation at the Recycling Center due to public demands. In the past 7 years, we have added the collection of 6 additional recyclable products. With the added days, the tonnages collected continue to rise. |
| We recently gated our center to control access which may restrict access if need be in the future. |
| Same answer as Sullivan County |
| No |
| No |
| No |
| Possibly adding film collection in specific communities |
| not at this time. We are struggling just to keep a bare bones program in place while our residents demand more. |
| Find a way to cut the cost of recycling. |
| Our program is discontinued. We no longer collect or contract for collection so our answer will skew your results. County-wide, I see more municipalities offering recycling with their trash contracts. |
| No |
| We are currently working on a 5-year recycling strategic plan for the county that will help map this out further. |
| Yes, we are in process of having a countywide drop off locations |
| No |
| Fees will be reevaluated |
| Just trying to maintain the program as it is and hold down the costs. Hoping that we won't have to close sites. We operate on a small budget now and there are not many other places to cut expenses. |
| No. But, given the volatility of recycling in its current state, that could change. |
| Adding materials |
| No |
| We are constantly changing our system in order to meet the market demands stress the means to fund programs. |
| Fees may have to be increased. |
| No |
| County is looking into utilizing a newly acquired property to provide drop-off of sorted materials. |
| No |
| Yes, we have already had to adjust the types of trucks used on certain routes, the # of trucks and are looking to start charging for recycling services, because currently they are collected for free for NTSWA garbage customers because the fee for waste disposal is supposed to cover that cost, but does not. |
| Same answer as Sullivan County |
| Perhaps. A couple of our sites had to restrict hours due to Covid 19. Hopefully they can get those hours back. |
| creation of convenience center for all county residents to use |
| Not at the county level |
| We are looking at increasing user fees for our refrigerant evacuation program, as well as our public truck scale. We will also be looking at resuming our county electronics collection program, which was discontinued 4 years ago, due to problems with Act 108. |
| No |

Question 21: Can you tell me how, if at all, COVID-19 has impacted collection services in your county?

| Response |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The general observation is that the tonnages collected are higher than normal. The perception is that people are consuming more food at home versus restaurants or other areas like work, etc. Additionally, people are cleaning out home spaces sending more items like electronics, books, scrap metals, etc. to the Recycling Center. |
| Our recycling center and electronic recycling center were closed for 10 weeks. We will reopen on Monday, June 15, 2020. |
| Same answer as Sullivan County |
| With all other worries, I think recycling was last on many people's minds, coupled with the fact that many haulers had previously already quit accepting glass and had become stricter with other materials. |
| None |
| We briefly suspended curbside collection and added drop off locations. We did not bill for the month of April, so lost approximately \$200,000. Additionally, with social distancing protocols, it became necessary to extend hours in the processing facility. Since we did not lay anyone off, we paid folks for 8 hours for 6 hours work. We had additional education expenses totaling over \$20,000. |
| Don't know |
| yes it did. First folks were just dumping their materials in front of our boxes instead of in the containers; much of which was unrecyclable. We were in jeopardy of losing our site sponsors and our part time officer who monitors the site was furloughed. As such we temporarily had to remove the containers. |
| Closed the recycling center down. |
| It's been a struggle for our private haulers to work with the CDC guidelines. These are now evolving so they're still trying to comply. Many are seeing a loss in revenue as the big events in the county are cancelled from now through at least October. |
| The community recycling center was closed, and all recycling switched to a drop-off system. Residents continued to recycle throughout the past three months. We closed the recycling center drive-through and turned our parking area into a drop-off site, so recycling continued for traditional items. However, we did discontinue the collection of electronics and Universal Waste. We began to offer electronics recycling by appointment only two hours each week starting in mid-May. |
| We canceled our monthly HHW and electronics collection events for April and May. |
| Yes it has with employees taking time off |
| Unknown |
| Collection of fee-based items at the Indiana County Recycling Center (electronics, appliances, tires) was suspended for about 8 weeks. Cans and glass bottles were removed from curbside collections in mandated municipalities for about 5 weeks now and should be added back in within next 2 to 3 weeks. |
| We noticed a slight increase in recyclables collection in March when shelter in place started, but it has tapered off to normal. Our May tv, electronics & hhw collection for May was cancelled by the vendor. Hoping the September one will be able to be held. |
| None of our municipalities or haulers reported to us about being impacted by COVID-19 in our county. |
| Trash and Recycling WERE NOT disrupted. Residential numbers for both were up the first quarter of 2020 due to Stay At Home Order. |
| Several municipalities have closed their drop off locations. Other towns have experienced more contamination in recyclables collected curbside, thus making the product cheaper to landfill instead of recycling. Many towns did not have the capability to store the recycling, as suggested, until the crisis was over and once again opted for sending to the landfill instead of recycling. |
| No impact for our county-wide public drop-off locations. |
| It has not impacted curbside collection but has stopped most drop off programs. |

| |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Some municipal bulk collections and yard waste collections were suspended. County HHW collections and e-waste collections were also suspended. |
| 14-day quarantine period has impacted staffing. Residential tonnage has increased. |
| We have no facilities, no known impact |
| We closed our drop-offs for several weeks. They have partially reopened with limited days and hours of operation. |
| Down time allowed for needed catch up work and repairs. However, the 3 month down time led to an overabundance because no one threw anything away and stockpiled it. Collection costs increased because of necessary PPE and sanitary measures. Also, mills were shut down and not processing materials so now with the overabundance there are backlogs of loads sitting at MRF's waiting for pick up. |
| Same answer as Sullivan County. |
| Two of our sites have had to reduce their hours. Lycoming County Resource Management Services pick up our roll-offs when they are full. Now municipalities must lock down the roll-offs when full and report the time and day when they do so. Lycoming County must wait three full days to pick up any materials which are not fiber based. Fiber based products only need to sit on site for one full day. Obviously, this is because Covid 19 can stay on different recyclables for a different amount of time. Because of this some residents may find their roll-off full when they come to recycle. Residents are also asked to wear a mask and practice social distancing. If someone in their household has Covid 19 then they are asked to throw their recycling in the trash. There was also about a two-month period when Union County residents could not recycle from the middle of March to the middle of May. When Lycoming County went Red, they were not allowed to use prison labor at their MRF. Therefore they were not accepting recycling for those two months. A lot of people, including myself, stockpiled recycling during this time. As a result, some sites are being inundated with recycling. |
| cancellation of a special event in March |
| 3 electronics collection dates had to be cancelled due to COVID restrictions; county tire collection day rescheduled to fall to comply with COVID restrictions. |
| The county MRF was closed for 2 months. We are operating on a part-time basis currently. The majority of our staff was furloughed for that time period. Municipal drop-off sites were closed as well to protect staff and residents. |
| not sure. it is handled privately in our county. |

Question 22: Do you have any additional comments?

| Response |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thank you! |
| No |
| Please call to follow up if any answers are unclear. Since we are a county-based program, I am not answering the other survey which requires one to choose a municipality. Also, there are 20 additional municipalities in Centre County that have drop off recycling service. |
| 85 percent of the county has access to curbside single stream collection. Two other MRFs also take: Mascaro Total Recycling in Birdsboro and a smaller amount to York by Eagle Disposal. |
| While our residents have access to electronics recycling it is only 2 days a year. Not convenient nor affordable at 60 cents per pound for CRTS. Due to COVID our vendor was shut down and we had to cancel our spring e-waste event leaving just one fall event if COVID doesn't spike again. |
| As additional information: We have one municipality with a population under 5,000 that self-mandated curbside recycling (around 1992). That same municipality now includes curbside pickup of HHW and electronics in its collection contract. The county operates a recycling drop-off program that is independent of its municipalities. Our municipalities do offer us space (usually at their municipal building), but the county secures the RFP and pays for all aspects of the program. We have three trash haulers that offer single stream |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| curbside recycling to their waste customers regardless of their municipality. Many of our rural residents subscribe to this service. We have been promoting curbside recycling to our municipalities since it is much more sustainable than our drop-off program. |
| More efforts need to be placed on getting back to the basics of recycling as well as education. I cannot express the need to re-educate the general public on what recycling is, can be and more importantly what is accepted. |
| Mandated vs non-mandated municipalities is plain stupid. Recycling should be required for all. Allow county's to fund and manage their programs as the specific private and public infrastructure and market conditions permit. Rural counties where curbside collection isn't feasible should provide drop off locations for residential recycling. |
| Systemic change is needed to guarantee markets for recycled material and producers must be part of the solution. |
| Survey questions were difficult to interpret applicability, a call may clarify intent of answers provided. |
| Thank you for doing this study!!! |
| Thank you!! |
| Practice social distancing. Wash your hands. Wear a mask and stay safe! |
| Our greatest concerns are material market prices being so low for so long, as well as the continued viability of DEP grants. We have been fortunate to have reliable markets for all of our materials, due to the high quality of our "source-separated" program. |

Appendix 2 Municipality Survey Results

Q1. Is your municipality mandated by Act 101 to recycle?

Yes.....69.8%
 No.....30.2%

Q2. Does your municipality have a curbside collection program, drop-off location, or both?

| | | |
|------------------------------------|-------------|------------|
| Curbside collection program | Yes.....33% | No.....67% |
| Drop-off location | Yes.....22% | No.....78% |
| Both | Yes.....22% | No.....78% |

Q3. What recycling collection technique is used in your municipality? (Check all that apply.)

Single-stream: A system in which all unsorted materials are placed in a single bin for recycling, collected by a single truck, and taken to a Materials Recovery Facility (MRF) to be sorted.
71.4%

Dual stream: A system where the resident sorts materials into two categories: paper/cardboard and metals/glass/plastic containers before they are picked up by truck.
10.6%

Source separated: A system where all materials accepted for collection are separated by the resident and placed at the curb by item type with no mixing.
12.2%

Curb sort: A system where the resident neatly places all materials accepted for collection in a single bin at the curb and the driver sorts it into the truck.
5.8%

Q4. What is the frequency of curbside recycling collection services in your municipality? (Check all that apply.)

Weekly.....62.2%
 Every other week.....28.3%
 Monthly.....9.5%

Q5. Who provides the curbside recycling collection services in your municipality? (Check all that apply.)

Municipality.....32.6% Volunteer group.....1.3%
 County.....7.5%
 Multiple hauler system.....18.1%
 Private subscription.....40.4%

Q6. Who pays for the recycling collection services in your municipality? (Check all that apply.)

Municipality.....37%
 Individual homeowner.....48.6%
 Other.....14.4%

Q7. Who determines the types of recyclable items that will be collected in your municipality?

| | | |
|-----------|---------------|--------------|
| Ordinance | Yes.....30.7% | No.....69.3% |
| Collector | Yes.....69.3% | No.....30.7% |

Q8. Please answer the following regarding curbside collection programs in your municipality.

What recyclable materials are currently being collected curbside from residents within your municipality? Check all that apply:

| | | |
|------------------------------------|---------------------------------|----------------------------|
| Newspaper.....8.2% | Aluminum Cans.....9.2% | Clear Glass.....8% |
| Office Paper.....6.3% | Steel Cans.....8% | Green Glass.....7.3% |
| Cardboard.....8.2% | Appliances/Scrap Metal.....1.1% | Brown Glass.....7.3% |
| Magazines.....6.8% | Used Motor Oil.....0.3% | Grass.....2% |
| Mixed Paper.....6.5% | Food Waste.....0.4% | Other Paper Fiber.....2.1% |
| Trimmings/Christmas Trees.....3.5% | PET Plastic.....5.5% | HDPE |
| Plastic.....5.6% | Electronics.....0.9% | Other Plastics.....2.9% |

Q9. Where are the collected recyclable materials processed / sold? (Please provide a name and address in the space provided below.)

| | |
|----------------------------------------|-------|
| Advanced Disposal..... | 2.7% |
| CCRRA..... | 14.3% |
| Cougle's Recycling..... | 2.2% |
| County Waste..... | 3.5% |
| J.P. Mascaro & Sons..... | 5.3% |
| LCRMS..... | 4.4% |
| Penn Waste..... | 7.1% |
| Republic Services..... | 3.6% |
| Waste Management..... | 8.5% |
| York County Solid Waste Authority..... | 3.1% |
| Other..... | 45.3% |

Q10. Please answer the following regarding drop-off programs in your municipality.

What recyclable materials are currently being collected at any drop-off facilities operating within or on behalf of your municipality? (Check all that apply.):

| | | | | | |
|-------------------------------|------|-----------------------------|------|------------------------|------|
| Newspaper..... | 8.7% | Aluminum Cans..... | 8% | Clear Glass..... | 7% |
| Office Paper..... | 6.9% | Steel Cans..... | 6.7% | Green Glass..... | 6.6% |
| Cardboard..... | 8.9% | Appliances/Scrap Metal..... | 1.7% | Brown Glass..... | 6.4% |
| Magazines..... | 8% | Used Motor Oil..... | 0.7% | Grass..... | 1.9% |
| Mixed Paper..... | 7% | Food Waste..... | 0.3% | Other Paper Fiber..... | 2.7% |
| Trimming/Christmas Trees..... | 3.5% | PET Plastic..... | 4.4% | HDPE | |
| Plastic..... | 4.8% | Electronics..... | 2.8% | Other Plastics..... | 3% |

Q11. If known, who operates the drop-off center?

| | |
|-----------------------|-------|
| Municipality..... | 42.3% |
| County..... | 35.6% |
| Private Industry..... | 16.3% |
| Other..... | 5.8% |

Q12. What is the drop-off center's hours of operation? Please indicate the days and hours of operation in the space provided.

| | |
|---------------|-------|
| 24/7..... | 34.6% |
| Daily..... | 22.1% |
| Weekends..... | 14.3% |
| Monthly..... | 9.1% |
| Other..... | 19.9% |

Q13. How concerned, if at all, are you that recycling collection services in your municipality could be temporarily suspended by 2021?

Very concerned.....26.2%
Somewhat concerned.....20.6%
Slightly concerned.....20%
Not at all concerned.....29.6%
Collection services have already been temporarily suspended in my municipality.....3.7%

Q14. How concerned, if at all, are you that recycling collection services in your municipality could be permanently dropped by 2021?

Very concerned.....32.3%
Somewhat concerned.....16%
Slightly concerned.....16.9%
Not at all concerned.....34.6%
Collection services have already been temporarily suspended in my municipality.....0.3%

Q15. Using the following scale, please indicate your responses to the following questions.

(1) Almost never (2) Occasionally (3) About half the time (4) Often (5) Almost always

Since 2018 how frequently have recycling collection services in your municipality been negatively impacted by:

Increased costs of transportation

Almost never.....52%
Occasionally.....24.1%
About half the time.....4.1%
Often.....11.6%
Almost always.....8.2%

Increased costs associated with maintenance of your program such as labor and equipment

Almost never.....57.2%
Occasionally.....18.2%
About half the time.....6.3%
Often.....10.5%
Almost always.....7.7%

Increase in recycling collection contract fee

Almost never.....49.1%
Occasionally.....20.6%
About half the time.....4.1%
Often.....13.7%

Almost always.....12.4%

Decrease in grant availability

Almost never.....57.2%

Occasionally.....18.3%

About half the time.....7.9%

Often.....8.6%

Almost always.....7.9%

Contamination of recyclable materials

Almost never.....39.7%

Occasionally.....23.1%

About half the time.....7.6%

Often.....15.9%

Almost always.....13.8%

Plunge in the market values of recyclable materials

Almost never.....38.9%

Occasionally.....16.1%

About half the time.....7.4%

Often.....15.8%

Almost always.....21.8%

Increased volume of residue in recycling materials

Almost never.....41.9%

Occasionally.....23.3%

About half the time.....7.5%

Often.....17.2%

Almost always.....10%

Reduction in or elimination of recycling rebates on commodities

Almost never.....52.4%

Occasionally.....16.1%

About half the time.....7%

Often.....15.8%

Almost always.....8.8%

Light weight of containers require larger volumes per ton

Almost never.....59.8%

Occasionally.....20.3%

About half the time.....9%

Often.....6.8%

Almost always.....4.1%

Limited access to recyclable materials processors

Almost never.....54.5%
Occasionally.....17.7%
About half the time.....7.2%
Often.....12.6%
Almost always.....7.9%

Lack of domestic markets for recyclable materials

Almost never.....42.3%
Occasionally.....25.4%
About half the time.....9%
Often.....16.1%
Almost always.....17.2%

China Green Fence or National Sword Policies

Almost never.....52.3%
Occasionally.....12.8%
About half the time.....8.1%
Often.....14.3%
Almost always.....12.4%

Q16. Is there a way for residents to have electronics recycled in your municipality?

Yes.....61.6%
No.....38.4%

Q17. If residents in your municipality are able to recycle electronics (including TVs, computers, keyboards, and printers), who pays for this service? (Please check all that apply.)

Residents.....48.6%
Government-sponsored program.....27.8%
Original Equipment Manufacturer (OEM)-sponsored program.....4.6%
Other.....17%
N/A.....1.9%

Q18. How are electronics collected?

Public sector drop-off site.....39.2%
Special Event.....40%
Private Industry.....13.1%
Other.....7.7%

Q19. Is there a way for residents to have household hazardous waste recycled in your municipality?

Yes.....40.3%
No.....59.7%

Q20. How is this service paid for?

County/Waste Authority.....40.9%
Residents.....37.6%
Grants.....4%
Municipality.....10.7%
Other.....6.7%

Q21. Does your municipality allow for the burning of trash?

Yes.....30.6%
No.....69.4%

Q22. Are there any restrictions placed on the type of materials that may be burned?

Yes.....87.5%
No.....12.5%

Q23. How would you describe the problem of illegal dumping in your municipality?

Not a problem at all.....13.2%
Not a very big problem.....46.8%
Somewhat of a problem.....33.4%
A very big problem.....6.5%

Q24. Does your municipality provide any education on recycling?

Yes.....56.5%
No.....43.5%

Q25. How are recycling education efforts conducted in your municipality?

| | | |
|------------------------------------------------------------------------------------|---------------|--------------|
| Via our Website | Yes.....28.8% | No.....71.2% |
| Via Social Media (Facebook, Twitter, etc.) | Yes.....20% | No.....80% |
| Educational materials (brochures, infographics, etc.) | Yes.....27.8% | No.....72.2% |
| Speaking about recycling in your municipality (in schools, other organizations) | Yes.....12.8% | No.....87.2% |
| Other | Yes.....10.6% | No.....89.4% |

Q26. Can you tell me more about how recycling education efforts are conducted in your municipality?

| | |
|-----------------------|-------|
| Newsletters..... | 15.6% |
| Guides/Brochures..... | 17.3% |
| Website..... | 18% |
| Social media..... | 11.8% |
| Community Events..... | 11.6% |
| Schools..... | 8.5% |
| Other..... | 17.3% |

Q27. Can you tell me more about things that have negatively impacted collection services in your municipality?

| | |
|-------------------------------------|-------|
| None..... | 2.2% |
| Contamination..... | 10.7% |
| Decreasing grants..... | 2.2% |
| Lack of education on recycling..... | 2% |
| Increased costs..... | 18.7% |
| Market Issues..... | 6% |
| COVID-19..... | 6.2% |
| China..... | 2.9% |
| Other..... | 27.4% |
| No Electronics..... | 2.2% |
| No Glass..... | 6% |
| Changes in Accepted Material..... | 13.4% |

Q28. What solutions, if any, do you think would help to make collection services more available to residents in your communities?

| | |
|------------------------------------------------|-------|
| Hours..... | 1.6% |
| Hauler-Offered Services..... | 3.5% |
| Local Markets..... | 3.5% |
| Manufacturer Accountability for Recycling..... | 3.5% |
| More Frequent Collection..... | 1.3% |
| Mandated Recycling..... | 2.2% |
| Curbside..... | 4.1% |
| Drop-Off..... | 8.5% |
| Education..... | 3.1% |
| None..... | 18.6% |
| Cost..... | 19.8% |
| Containers..... | 6% |
| Glass Recycling..... | 3.5% |
| Electronics Collection..... | 4.1% |
| HHW Collection..... | 1.9% |

Countywide.....4.1%
 Other.....11%

Q29. Do you anticipate making any changes to your recycling program in the next year (e.g. collection frequency, type of materials collected, staffing, increase in fees, etc.)?

Yes.....24.1%
 No.....75.9%

Q30. Can you tell me how, if at all, COVID-19 has impacted collection services in your municipality?

No impact.....36.4%
 Increased tonnages.....4.9%
 Closures.....12.1%
 Loss of revenue.....0.2%
 Collection technique modified.....17%
 Materials collection modified.....14.7%
 Event cancellations.....5.2%
 Hours of operation.....1.9%
 Other.....7.6%

Q31. Do you have any additional comments?

Question 20: How is this service paid for? Please describe in the space below.

| Response |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| residents pay per item. |
| it is included in the cost of the trash removal billed quarterly |
| General Fund |
| Residents at special event |
| Built into the residential billing |
| Residents pay fee if applicable |
| Via County programs |
| Household hazardous waste and green waste and electronic are included in the contract and all picked up at the curb. All by scheduling with the ahuler |
| By resident |
| No cost through Allegheny County special drop-off program once per year. |
| The Township pays Republic Services for the collection of all hazardous waste |
| No, There are events held yearly at Beaver County Recycling Center |
| Beaver County provides through grant and fees |
| Residents |
| Added into the residents monthly bill. \$1.00 PER MONTH |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residents |
| Paid for by the residents, |
| By residents. |
| Periodic County drop-off events, no cost |
| County funded program |
| County. County provides two HHW and two paper shredding events per year. Neither are in city or well attended by City residents. |
| COUNTY PROVIDED - BOROUGH VOLUNTARILY CONTRIBUTES \$250 ANNUALLY |
| Government program |
| Residents are responsible for cost. |
| The County holds the event and the municipality contributes financially. |
| By the municipality. |
| County program |
| Municipal Government |
| Previously paid for by a State grant which has been eliminated and restricted our ability to continue the program |
| household hazardous waste collection is included in the Township's single hauler rate |
| Grant funding from DEP to County |
| paid for by residents, with subsidized rates |
| Residents |
| we have a special event yearly for hazardous waste, electronics etc. where we obtain a grant from DEP and the residents pay a small part and township pays the rest. |
| Collection provided by Private Concern, resident must pay for it if there is a charge. |
| Residents |
| Monthly |
| CCRRA does for entire County |
| Included in tipping fee at the transfer station |
| Municipality pays annual fee to county participate. |
| Residents |
| By the participating Townships |
| County and municipalities |
| We have an agreement with Chester County Solid Waste Authority for there Household Hazardous Waste Program |
| Individual recyclers |
| By Chester County Hazardous Waste Events, monthly. Suspended this year due to the coronavirus. see details @ www.chestercountyswa.org |
| Municipalities share |
| The County invoices the municipality based on the volume dropped off. |
| Residents |
| Chester County Hazardous Household Waste events held 6 times a year |
| County holds a recycling drop-off event at the County Park once a year. All hazardous waste and electronics can be dropped off there for a fee paid by the person dropping off. |
| Residents |
| Residents pay per pound |
| residents pay |

| |
|-----------------------------------------------------------------------------------------------------------------------------|
| Dauphin County has a program for residents to follow. First drop off is paid by County and after that there is a fee |
| Dauphin County runs this program. PennWaste also has a limited hazardous waste program. |
| Delaware County hosts 4 events each year and they are free for residents. |
| Municipality pays county |
| County level service |
| Delaware County sponsors it |
| County pays -- but just got word that the HHW collections are cancelled for the time being due to the pandemic |
| County |
| County |
| County |
| Elk County Solid Waste Authority offers this program once a year for free to Elk County residents. |
| The service is offered by the Elk County Recycling and Conservation office |
| by resident per item or per item weight |
| monthly recycling fee on municipal billing |
| RESIDENTS PAY FOR THIS SERVICE. |
| Individual Residents subsidized by Erie County |
| Included in contract with Waste Management |
| By residents |
| residents |
| The Township has an E-waste program contracted through Waste Management which is included in the in the monthly trash bill. |
| County program |
| County program |
| don't know |
| County has a collection once a year |
| Residents |
| LCSWMA |
| Residents |
| By the resident |
| Per item to Waste Management Authority |
| Lancaster County Solid Waste Authority (drop off area in Lancaster) |
| resident responsibility and must drop off at county facility. |
| Residents pay for |
| Resident pays a co-pay while the balance is paid by local refuse authority and subsidized by grants. |
| Residents |
| Residents pay a small fee and then the rest is handled at the county level. |
| municipality and residents cost share |
| Montgomery County performs these services |
| The county provides the hazardous waste drop-off locations. |
| County program |
| Montgomery County provides a household hazardous waste program. This is not a municipal service. |
| County Tax funds |

| |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| County Government entity pays for 6 annual collections throughout the County. |
| Drop off Centers sponsored by Montgomery County |
| County |
| Government/County / Residents |
| County Service |
| County/resident funded drive up dropoff |
| County offers events and pays for these services. |
| government sponsored event |
| Individual |
| County |
| The county pays for it |
| Residents pay |
| County government |
| County run special event. Some items require payment by residents |
| Individual |
| Residents |
| City/County Government |
| Individual resident pays own |
| Residents |
| Added to the regular garbage bill |
| By residents |
| Our Twp pays a fee to Westmoreland Cleanways to help sponsor a drop-off recycle day. |
| County drop off site paid for by the resident if not listed as free |
| In garbage bill |
| Resident pays or York County Solid Waste Authority special collection |
| I am not sure if they charge at the drop off site or not. |
| Offered free thru the county but they have to transport or arrange a pickup. The gas or pickup fee is the residents responsibility |
| by resident. YCSW has a mail in program and a box pick up program. |
| residents |
| Homeowner |
| York County Solid Waste Authority provides a once a year collection. |
| Residents |
| County |
| York County Solid Waste Authority collects and pays for it |
| Unknown - It is a government agency/authority so it may have government assistance. |
| annually there is a household hazardous waste pickup that residents can put out their hazardous waste, this is free of charge (paid for by a grant.) YCSWA also has a drop off for hazardous waste, paid for by the individual. |

Question 26: Are there any restrictions placed on the type of materials that may be burned?

| Restrictions |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| We go by the PA State guidelines. |
| No construction material, tar products |
| See Ordinance 2003-01: unlawful substances construction debris, aerosol cans, by-products of manufacturing and processing operations and wastes from commercial operations is strictly prohibited. |
| No, unfortunately |
| Yes. County Control monitors this |
| Can not burn plastic bottles or any plastic bottle that had chemicals in it. Can only burn in a burn barrel that has a grate on the top. |
| We have a burning ordinance that places restrictions in addition to state (DEP) restrictions |
| No |
| No burning of recyclables (plastic, leaves, grass, etc.) |
| Standard household trash in a fireproof container. May not burn yard waste or recyclables. |
| Yes. No burning of garbage or treated wood. |
| Only yard waste |
| plastic cannot be burned |
| anything but recyclables or leaves |
| Burnable waste materials limited to wood, cardboard and paper |
| No township ordinance restrictions but try to enforce and educate public about DEP restrictions (i.e. no commercial burning at all; only residential natural brush and tree branch type burning; no burning of municipal waste at all) |
| Toxic materials can not be burned. electronics and hazard materials can be disposed of or collected via the county coordination. |
| no burning of tires, shingles, plastic, food |
| Our ordinance restricts to yard waste, refuse, and household trash from single family residential units only. BUT we also notify individuals of DEP restrictions on what can be in the at refuse and household trash. |
| Nothing hazardous like plastic or tires |
| Follow DEP guidelines (i.e., no plastics, painted or stained wood, etc.) |
| Only paper and lawn debris may be burned. |
| Newspaper just to start the fire. Paper plates, napkins can be burned and tree and brush trimmings |
| Yes, tires are frowned on |
| No hazardous materials |
| Materials eligible for recycling are not allowed to be burned |
| nothing recyclable |
| Only paper and wood and vegetation removed from home owner property |
| Yes, only Paper, brush, leaves |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Household trash and yard waste, no plastics, batteries, etc. |
| You cannot burn, rubber, plastics, treated wood anything that would contaminate the environment. |
| Burning is to be limited to paper products and we go by DEP guidelines. |
| Burning of household waste must be outdoors and in enclosed containers. |
| No restrictions by the township. However, I believe DEP does not allow the burning of tires. |
| Non-recycleables may be burned |
| No |
| Yes, Shirley Twp has a burn ordinance with restrictions to paper, cardboard and yard waste, as well as day/hours allotted for burning. |
| No burning of recyclables. |
| They must be within DEP guidelines. . . |
| Wood products only may be burned - nothing toxic or odorous M-W-F from 5-9 p.m. |
| We do not have an open burning ordinance so we follow DEP guidelines. |
| Only household paper , leaves twigs, sticks, etc. may be burned. |
| Only household paper trash in a burn barrel with a screen. Must be so many feet away from property lines and must be manned at all times. |
| no tires |
| Ordinance regulates burning hours and items allowed to be burned (i.e. everyday household paper products and yard waste) |
| manmade materials like tires, furniture, etc. |
| No plastic or anything producing a noxious smell are allowed to be burned. |
| Luzerne County Ordinance on burning. Tires, mattresses not acceptable. Not sure of other items. |
| Leaves, branches, paper only, |
| Domestic purposes. shall mean any fire on property located within the Township where the material being burned was produced on the property where it is being burned such as yard clippings, brush, leaves, grass clippings, weeds, vegetable or garden debris produced from the property where the burning is taking place and/or paper products and trash produced as a result of consumption on the property where the burning is taking place. Prohibited materials. Shall mean tires and other materials that give off noxious odors and dense smoke. |
| Toxic items not permitted. |
| Paper products only |
| Tires |
| Certain materials are prohibited. |
| Paper products |
| Paper products only. Tuesday, Thursday, Saturday only. Burn location must be 150 feet from any structure. |
| Yes definitely. Individual's are told we follow DEP regulations which only allows paper to be burned. No plastics, metals, treated lumber, etc. |
| None |
| None |
| No recyclable, rubber, or garbage. |

| |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Garbage, flammable liquids, plastic, rubber, combustible material which gives off a noxious offensive odor. |
| Only paper, cardboard boxes or wood |
| non hazardous or noxious materials. Follow the guidelines set by PA DEP. |
| Basically paper and wood. Not garbage. Technically anything that can be recycled. Of course there are residents that burn everything. |
| No, we have no ordinances covering this. |
| yes, paper products only |
| No |
| no burning of recyclables |
| NO plastics or hazardous materials or food garbage |
| usually paper only but some do not follow |
| Only paper & cardboard |
| We do not have a Burning Ordinance |
| Under County Ordinance |
| Burning within the Borough shall only be permitted in a burn container constructed of masonry, metal or other non-combustible rigid material containing a bottom, sides and a cover. Burnable materials include ONLY materials such as paper, cardboard, and chip board and wood. Non-burnable materials include plastic, rubber, oils, asbestos, composition boards, shingles, felt paper, canvas, fiberglass, vinyl, human or animal waste, sanitary napkins, diapers, food solids, oil filters and it is illegal to burn any materials that give off any kind of acrid, obnoxious or toxic odors or emit heavy smoke. |
| No |
| We follow the county Burning guidelines and Burn ban when it applies |
| Open container burn with mesh screen covering |
| yes. household trash only. No hazardous waste, plastics, etc.. No burning after dark. |
| No treated wood, no unnatural materials including but not limited to metals, chemicals, treated woods, etc. |
| We have a burn ordinance that details what is allowable. Yard waste, domestic refuse-(does not include appliances, carpet, demolition waste, furniture, mattresses, paint, putrescible waste, solvents, tires, treated wood, construction waste materials) |

Q26. Can you tell me more about how recycling education efforts are conducted in your municipality? Please describe these things in the space provided below.

| Response |
|---------------------------------------------------------------------------------------|
| Sharing materials on website, social media and at office |
| We provide free copies of a recycling guide provided by the County. |
| We have a citizens' recycling committee that meets regularly to address local issues. |

| |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Materials from the county are available to twp. visitors at our information center. |
| Primarily by/through residents, except for Electronics waste |
| Every new resident receives a binder when they move in. In that binder we provide the Valley Waste information who picks up for trash and recycling. |
| The information provide by our hauler is published on our website and also published on our newsletter. |
| We utilize our website and newsletter to keep people up-to-date on what can and cannot be recycled. We have also held educational nights to inform residents of recycling changes and to provide an opportunity to talk about recycling. |
| Emsworth is part of Quaker Valley Council of Governments which work to provide semi-annual recycling events. State Rep Anita Kulik also sponsors pop up events for recycling, shredding and electronics. |
| we tried using a third party Zero Waste organization and it was ridiculously expensive - |
| Newsletter articles 2x yearly, postcards, website with links to local resources and County info, Reverse911 notifications (Phone/email/text) to residents re: special collection days, i.e. tires, yard waste, Christmas trees, electronics, and coming soon, glass. |
| General publications and bulletins from the collector are published on Community Social Media Platforms. |
| The Township prints a yearly magazine to the residents and provide two pages of recycling information in there. The Township website and also information sent to our school district via flyers and brochures |
| Newsletter; new contract carrier brochure |
| Mostly Twp. media. (Cable TV, Twitter, Facebook, Website, Magazine) |
| Newsletter, website. |
| We post information on the website and via social media (push notification). We also send out newsletter 3 times per year that includes recycling information. |
| We offer our residents recycling calendars with information regarding recycling. It is also located on the back of our quarterly garbage bills. We also have reading material on our website and at our City Building |
| We mail newsletters to each household and business that include information on recycling. Available on website also. Contracted hauler provides information also. |
| Our Township recyclers are constantly talking to all residents that use the program on the proper way and things to recycle |
| We are a Gold Certified PA Sustainable Community. We take recycling very serious. We promote recycling in our quarterly newsletter, via social media, me ha e a Borough app which provides us the ability to send push notifications. Our Cardboard and Polystyrene drop off collection are utilized very well, and we advertise this program to both our residents and businesses in the Borough. We also promote it in our Downtown where we have recycling trash container and a Big Belly Solar trash can that promotes both solar energy and recycling. |
| Twice a year we publish a Newsletter informing our residents about our recycling program. The last newsletter there was an article about the Township receiving a grant through the recycling program and how it benefited the Township in purchasing much needed equipment and enlarging our recycling area. |
| We have a section on our website with info and a handout at the recycling site. |
| Public meetings....on our website |

| |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| We provide recycle containers to all our residents for free. Upon handing out the container to our resident we explain how important recycling is, what items must be recycled and that cardboard is recyclable not trash. We also have our own Polystyrene program at the Township . |
| Our contracted hauler is required to mail a yearly educational flyer which also includes a schedule of curb-side pick up. |
| -4th grade education program with a lesson to each classroom per year; Partnership with library, boys & girls clubs, etc. for lessons; Summer camps & playground; Field trips; Weekly Facebook posts; Occasional PSA's and other videos; Partnership with community groups to speak at events, etc.; Tabling at community activities & more |
| MUNICIPAL NEWSLETTER AND BOROUGH WEBSITE. PROVIDE INFORMATION ON MUNICIPAL COLLECTION, COUNTY COLLECTION AND LIST MULTIPLE OUTLETS THAT ACCEPT OTHER ITEMS (CFL'S, PROPANE TANKS, CLOTHING, HOUSEHOLD ITEMS, ETC.) |
| Union Township newsletter |
| The Borough promotes it's recycling program through its website, Facebook, distribution of annual calendar, distribution of informational brochures, speak to the public upon request, participate in community events. |
| Brochures, social media and monthly awards for residents |
| place out information in bi-annual printed newsletters, website news alerts |
| Via the website and materials at the township building. Residents can recycle used oil at the Public Works building. We participate and inform residents about the County's Hazardous Waste events and provide links to other avenues for recycling and safely disposing of things such as electronics, metal, clothing, etc. |
| List of items that can and cannot be recycled is included in our Quarterly Newsletter |
| As per the previous page, through our website, printed handout material and reminders in both our print and electronic newsletters. |
| Our branded "Collection Connection" program is one of the most well received public programs we offer and experience one of the highest recycling rates in the state. https://www.cranberrytownship.org/89/Trash-Recycling |
| Township still has recycling bins available for free that it received from a DEP grant many years ago. Township still gives those out, answers frequent questions from residents, puts resources and information on its website. |
| We have information available in office |
| We post the events on our utility bills, Facebook, newsletter and website. We have a Q/A Recycling page on our website. We also recycle tires once a year and post that event on our all of the above sites. |
| Done by CCRRA on behalf of the Borough |
| Flyers, display materials at twp. bldg. |
| We answer the questions about recycling when asked by our residents |
| The Borough contracts with Eagle Disposal and they collect recyclables. Eagle Disposal provides materials to educate residents, which we post on our website and depending on the content, also on our Borough sign and newsletter which is distributed to residents every other month. |
| We have a drop off that has been in operation for quite a long time. People generally obey the rules; however, there are people who use it as a dumping ground. There are also people who dump trash and non recyclables into the bins and we have been warned by SECCRA that if it continues |

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| they will remove the bins. Currently we have 5 bins that are emptied 2x/week. They are usually overflowing come emptying time. |
| We post materials given to us regarding recycling. |
| Via our website |
| When the park & rec committee hold events here there is distribution of literature, advertisement, proper trash/recycling cans shown, Reese' the recycler is a costume that we have borrowed from Lanchester Landfill Company in Honeybrook, PA. Verbal instructions on what is recyclable and what is not. |
| Residential Materials for Pickup, Community Day usage of disposable trash cans |
| As a fairly rural municipality, we are not required to recycle but encourage our residents to recycle as part of their private trash subscription. We also provide information on opportunities and locations where residents can recycle hard to dispose of items, Household Hazardous Waste, electronics, appliances, etc. |
| via the public school system |
| We have a Recycling Commission made up of 7 residents. They host recycling events every year and provide articles for our newsletter. |
| We provide educational materials to our Borough residents and to all the schools within our municipality. I personally have conducted classes at the local schools to teach kids the importance of recycling. I have also worked with some of the professors at Clarion University in providing them educational material and supplies such as: gloves, masks, face shields, disposable Hazmat suits, and curbside containers for hands on training. |
| Word of mouth |
| Building |
| Posts on Facebook and information posted on Township bulletin board |
| We have a page on our website specifically for the recycling program, and will post items reinforcing its importance on our social media from time to time. |
| The Recycling coordinator is available for tours and speaking to groups. A collection schedule calendar is mailed to all residents which includes info on the drop off location. Brochures are available at the drop off and are mailed. Businesses are mailed a brochure and a compliance letter annually. The Towns website has a recycling page with all of the information. |
| Since we had to disband our local recycling drop off program, we just let our residents know that they are able to recycle at the Bloomsburg facility. |
| We had a partnership with the Township single stream drop off center. Recycling company tripled their price and made it unafford. for all of us. So both township and borough stopped the program all together and told residents to take it to Bloomsburg. |
| The Township mails an annual recycling newsletter with the tax bills and maintains recycling information on its website. Also mails information to all business. Individual haulers are responsible for educating their customers on collection schedule and materials accepted. |
| Articles on our website and newsletter |
| Our hauler provides recycling education. |
| We participate at National Night Out each year, we have brochures for our residents and we have information on our website |
| Waste Management provides recycling materials to put in newsletter and on website. Also a new resident packet explains recycling. |
| Newletter information |

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| We provide posts on our social media, have detailed information on our website, and discuss recycling in our newsletter which is issued twice per year. PennWaste also provides educational material during with there bills. |
| We conduct an annual recycling day at the municipal building where single stream recycling is done and recycling of electronics. |
| We have a very active EAC that does a lot of outreach |
| We had a section in the newsletter and there was a section on the website from a few years back |
| Info on the Web site; Brochures are sent out with Township mailing |
| We send out calendars and information once a year to all residents. Each new resident is given recycling information when they move in. Residents are informed about HHW collections that happen during the year and of any other recycling event that may happen in our area through our e-mail blast or website. |
| It's pretty much coverage |
| Yearly calendar with rules and regulations; Social Media |
| All of the above. But change is hard. As and example we are trying to change residents to cleaning their recycling better and removing plastic bags to very little affect. We sent out literature and put stickers on every recycling can with very little affect. |
| Education material is available on the City's and County's programs at City Hall and on our website and Facebook page. We, the City, also include education material when handing out recycling bins. |
| WE PROVIDE A NEWSLETTER TWICE A YEAR THAT EXPLAINS THE RECYCLING PROCESS, THE ITEMS THAT CAN BE RECYCLED, AND OTHER PERTINENT INFORMATION. |
| We mail an annual Recycling Guide and Calendar once/year to all residents and businesses. I go to schools and community events to do workshops/presentations on request. |
| Information is included in our quarterly magazine and yearly calendar. |
| The cost of recycling has become to high...therefore we have decided not to offer it any longer |
| I believe the local schools provide education to students about the value of recycling. The Municipality also provides recycling information in a calendar provided to all our residents. |
| Flyers are made available on all types of recycling. |
| Limited now that we no longer have a drop off site, but we work with the County to encourage use of their facility. |
| We have a volunteer recycling program that is held the first Saturday of every month. This is only to recycle glass, plastic and metal. |
| This is mostly accomplished by mailed flyers |
| Material is handed out by contractor |
| biannual newsletter |
| Twp Supervisors have cleaned up 2 very large dump sites and monitor it for activity. Twice a year there is twp clean up day is promoted and we are lucky to have Park's within our community. |
| At one point, we had a curbside recycling program thru the county. The Supervisors were unwilling to pass the ordinances that were required to continue it, and it went by the wayside. Several of the garbage haulers in the area offer curbside recycling that their customers pay for, and there is a drop box in another township close to ours that we are sure our residents use as well at no cost - it is supported through the county. |
| With a population of 307 the municipal only provides a dumpster for Spring and Fall cleanup. Only nonhazardous materials can be discarded in the dumpster which goes to the Evergreen Landfill near Homer City. Materials to be recycled are placed on a separate lowboy trailer provided by a |

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| <p>local recycler which he then has processed. Hazardous materials are disposed of as required by law by the individual. Curbside pickup of household waste is the individual household choice of three companies available. A Spring and a Fall newsletter is mailed to each household informing of the date and time the dumpster is being placed and a list of acceptable and non acceptable items for each category with no household waste to be placed in this dumpster. Cost of this service is a general fund expense form local taxes collected.</p> |
| <p>Tri-fold pamphlets, postings on website and Facebook, A Supervisor goes to the elementary and speaks to the students and faculty.</p> |
| <p>We remind residents about recycling on Facebook and have information on our website. We also have brochures in the office people can take.</p> |
| <p>Presentation to scout groups Township Newsletter</p> |
| <p>Social Media updates, pamphlets available at the municipal building and a borough mass email for schedule changes if needed.</p> |
| <p>Social media posts and information in borough newsletter.</p> |
| <p>National Night Out tables. Brochues. Poster!</p> |
| <p>There are brochures available in the Borough's Municipal office. It lists and has pictures of the Big 4. The Borough has battery recycling bags available free. There's a LCSWMA pamphlet informing residents of all the services available, some at no cost. The Borough picks up yard waste curbside of brown biodegradable yard waste bags every Monday generally from early April through September or October, depending on the weather, next they do leaf collection, following street sweeper routes, vacuuming leaves. Also the Borough Yard Waste Recycling Facility which is open to Borough residents only, is available for Christmas tree drop-off along with another location generally the 2nd Saturday of January from 8 am-12 noon. The yard waste recycling facility processes the yard waste and turns it into a finished product - Compost, also available to participating Municipalities, Contractors and Borough residents</p> |
| <p>New resident packages, website, inserts in newsletters</p> |
| <p>When the Lancaster County Solid Waste Authority issues new recycling information, we post it on our township website</p> |
| <p>As stated prior, website and printed materials are provided. We are attempting to have a composting workshop to promote leaf and organic composting to reduce fall leaf burning.</p> |
| <p>As guidelines for recycling are changed, we post those changes on our website and facebook page. We also post flyers on the municipal bulletin board.</p> |
| <p>Residents contract with their hauler for recycling services. In conjunction with the GLRA we provide recycling containers free of charge to the residents. We let it be known that those are available at the borough hall and promote recycling.</p> |
| <p>Website, flyer, & newsletter education is constant while in person presentations are upon request.</p> |
| <p>Recycling materials from the county is available for the services they provide our residents. We also provide information on our website, through social media posts, and our semi-annual newsletter. We are currently working on developing a brochure to send out with our upcoming yard waste facility.</p> |
| <p>Recycling services are available to our residents by the County at the Greater Lebanon Refuse Authority and Union Township, a neighboring municipality.</p> |
| <p>Brochures located on website and in Borough Offices</p> |
| <p>Each resident contracts privately with a recycling Co</p> |

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| <p>Monthly we run an ad in our local free press of our hours and accepted items along with educational materials.</p> <p>We have an entire area on our website dedicated to Recycling.</p> <p>We inform our followers on social media of the importance of recycling and about our free service for residents.</p> <p>We also host and educate the public about paper shredding and electronic recycling.</p> |
| <p>We pass out flyers every year when the residents pay there refuse and recycling fee and also have information on our web site.</p> |
| <p>Handout with recycling permit are given to all residents who purchase a recycling permit for the year; information/handouts are posted on Swoyersville Borough Facebook page and web site; handouts are posted on Borough's bulletin board inside municipal building.</p> |
| <p>Annual Flyers to each resident, newspaper articles</p> |
| <p>annual letter to businesses, website and occasional posts on google</p> |
| <p>Local info</p> |
| <p>Public speaking events when requested, tour of recycling facility when requested.</p> |
| <p>We also offer tours to local organizations and schools.</p> |
| <p>Unfortunately, the majority of the recycling bins in McKean County were pulled around 2008 and were never replaced. There are a couple of recycling bin sites that are a minimum of 15 miles from Eldred Township, even farther for other municipalities. There is not an active push to create a workable, sustainable program in our county due to a lack of money and no real push from community leaders to explore more options for drop off locations. The driving distance hurts recycling in our rural area. As you well know, to encourage people to recycle, you cannot make it harder for them. The current bin locales do not lend themselves to be too user friendly when you have to drive 15 or more miles to recycle. Neither locations are near a nearby retail shopping area where driving trips could be combined. In a nutshell, with the low price of selling recyclables, there is not a lot of effort expended to expand the current county program. We have a large glass bottle factory in McKean County, common wisdom would think they would make a concerted effort around the county for cullet raw material, they don't.</p> |
| <p>educational materials available at Township Building, through newspaper articles</p> |
| <p>We have about 10 different brochures available in our office that are on display daily. Multiple copies are available for any resident to take.</p> |
| <p>Printer material is available at Township Building.</p> |
| <p>Recycling flier with recycling information distributed twice a year</p> <p>Quarterly newsletter has a recycling article</p> <p>Website has a recycling section</p> |
| <p>Information is available on our website and we have a brochure that gives information about what can be recycled, how and the contact number for our local recycle center</p> |
| <p>Standard recycling education.</p> |
| <p>We use our website, social media, and attach flyers to the bundles of trash bags the residents are required to purchase.</p> |
| <p>All types of media</p> |
| <p>Information is regularly provided to residents on social media and through mailed newsletters. We also keep updated recycling information on our Township website.</p> |
| <p>Weekly electronic newsletters to residents, website, social media, special event advertising.</p> |
| <p>Spearheaded by our Environmental Advisory Board</p> |
| <p>Water/ Sewer bill stuffers 4 times per year and also website information</p> |

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| flyers are sent out to all businesses, website, fall and spring newsletter |
| Mail out an annual recycling brochure that includes instructions, recycling dates and other information regarding the program. |
| An annual letter including a list of recycling items accepted is mailed with the recycling calendar to each property owner and resident. The same information is published on our web page. |
| In addition to previously listed efforts, our municipality holds monthly Environmental Steering Committee meetings open to the public. We post ads in our local newspaper. Our borough office refers calls to the Committee to address specific issues. |
| Additional information is given in welcome packets, included in newsletters & emails |
| Our holler provides educational seminars |
| Information on our website. Recently since monitoring our facility on days open, we have taught residents how to check containers for the recycling emblem and what number they are. Also, sharing the importance of cleaning the container before recycling to eliminate contamination. |
| Volunteers from various non-profit organizations had run the recycling center since 1973. They sold the materials and split the profits. This year, they disbanded because the profits had dwindled and they had to pay to have some things taken away. The Borough Council is in the process of deciding what to do. We have a very small street department and do not have the manpower or the funding to pay someone to take over. |
| information is published in our newsletter |
| Articles are provided in the quarterly newsletter and email blasts. Penn Waste, our current contractor, provides info on their website and through email blasts. |
| Collaboration on education with Schools, community groups, professional organizations; advertising on trucks, radio, transit, and print; door-to-door/bin notifications; social media |
| All residents required to have curbside recycling for aluminum, steel, cor, cardboard and high quality office paper. Collectors all allow other products including magazines 1-7 plastic, all color glass, milk cartons, juice boxes, etc. Have 2 electronics collection days at municipal building - no fee. This year will be opening it up to all county residents (small fee for non-twp residents). Batteries may be dropped off daily at twp. building or at electronics day - no fee. Metal, white goods, tires etc. collected twice a year at clean-up day held at twp. building. |
| We provide bins, bi monthly single stream recycling |
| Our quarterly news bulletin continuously updates residents on recycling opportunities |
| We use our bi-annual newsletter, Facebook and website to educate the public on the use of our recycling center. |
| Website and the Borough Newsletter that goes out twice a year. |
| Recycling information can be found on the township website and periodically recycling information is included in the township newsletter |
| Signage at the site |
| We have fliers for the County wide recycling events that we distribute |
| Venango County Recycling advertises in our local paper and produces fliers and magnets for recycling dates |
| Prior to January 2020, Youngsville Borough did curb side pick up 2X per month. We would pick the recyclable items and transport them in our garbage truck to the transfer station. Due to the consistently increased costs, we discontinued our recycling program in December 2019. The residents are able to breakdown and take their recycling to a drop off box that are located in two |

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| different locations outside of our municipality. We really don't educate about recycling as much as remind residents that those options are available. |
| In the schools and advertisements and web site. |
| I answered no to electronic recycling being done by the municipality. It should be noted that the County provided semi-annual opportunities for dropping off electronic recycling. |
| Website, Cable Channel, Newsletters, Handouts in our Lobby |
| Information is on the website. A packet is sent to each new resident moving into the municipality. |
| answers on prior page |
| we mail out flyers explaining what the hauler will expect, we post the hauler requirements in our borough hall, and we offer free recycling bins to all residents. |
| We provide a quarterly newsletter, mailed to all homes. This always has at least one page of Recycling guidance, with additional information included as needed. The Township also utilizes recycling information on the website with additional links for materials not able to be collected in the Township. |
| We send out information with our quarterly water bills and post information on our website. |
| Information on recycling can be found on our website and is included in our yearly newsletter. |
| annual events, facebook/social media, quarterly newsletter, website |

Question 27: Can you tell me more about things that have negatively impacted collection services in your municipality? Please describe these things in the space provided below.

| Response |
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| High winds blowing garbage from collection bins; need lids |
| Parks Garbage Service discontinued collecting glass in 2018. I'm sure the reason is cost-related, but we do not have the details. |
| The site was seen as a junk/trash collection site. Our staff was constantly collection junk that blew into the neighboring fields. Too much non-recyclable junk was carelessly dropped off. Finally, the BOS discontinued the program. |
| Collector stopped recycling glass |
| No longer taking any glass |
| Valley waste recently removed glass pick up from our new 3 year contract. |
| The fact that you can no longer use plastic bag to put your recycling in for pick up is difficult, the whole glass issues is now being addressed with our hauler. people just want to know what to do and how to do it properly. I think education for the municipalities would help so we could pass the information along to the residents. Blawnox does not have to recycle and the residents that do really want to know how to do it correctly. It is expensive to hold drop off recycling events for our size community. I would appreciate any suggestions on how to do this correctly. |
| We only began a mixed stream drop off dumpster program in 2020. COVID-19 has halted the program and it is temporarily commingled with regular waste. |
| Our drop off location often sees some contaminants due to it being un-manned but we are currently working on changing that. We also have narrow streets or lot locations that make it difficult to collect curbside recycling from all residents |
| No glass collection.; no "clam shell" collection. Most people want to recylce and are dismayed to learn many items are no longer feasible to collect. |

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| the loss of glass collection - and repeated refusal of hauler to take cardboard - |
| The removal of glass from the stream. The cost of larger recycling containers and having less grant opportunities to purchase larger containers. The requirements of the contract hauler to fit recycling in the container. The confusion about what to recycle when some areas do accept and then change what's accepted (ex. bottle caps) |
| Glass Recycling will be eliminated. Public perception is negatively impacted as the habits are to recycle glass for the good of the environment and we no longer offer that option. Not popular! |
| China no longer accepting our recyclables. Changes in what is accepted in our recycling contracts. |
| termination of glass recycling |
| Dropping glass and mixed plastics because of a contamination and lack of market issue. |
| COVID-19, and hauler's inability to take electronics and certain recyclables |
| The inability to recycle glass has negatively affected the Township's recycling program. |
| Residents leaving recycling around the trailer when it's full, which makes a mess when wind blows it all over & animals tear the bags |
| Our borough doesn't have collection or a place to recycle but our citizens have the opportunity to take their recyclables to an area that is provided by our county. |
| No funding to provide recycling services. |
| Our municipality does not have a recycling program. Our residents recycle through a drop off site through county recycling. |
| Costs |
| all glass has been eliminated from the recycling program due to no market and contamination. |
| Foreign market and the biggest impact is probably our hauler no longer accepting Glass a recyclable material. We are currently exploring the opportunity of implementing a Drop off program for glass recycling. We have a glass manufacture in town and we are hoping they can use this recyclable glass in their manufacturing process. |
| Glass collection has been stopped, however we are seeking grant funds to be able to provide a drop off site for these items again |
| People putting trash in the recycling truck. |
| Finding someone who will take electronics to recycle. |
| We have filled bins in no time to the point of overflowing. We have had to increase pickup to twice a week through Conservation Office. |
| the only recycling bin here in Hopewell Borough is located inside the post office and it is generally used for paper only |
| We have a bulky waste program once a year and my biggest issue is electronics disposal |
| COVID-19 |
| We are a very small borough with only 20 residents (9 homes). We do not have a recycling program at this time because the cost is prohibitive. |
| <ul style="list-style-type: none"> - Lack of knowledge & care among community - Lack of faith in current recycling efforts. 'It's a rip'off' & 'Recycling is useless' - Bad press, lawsuit, and other local historic issues - Dense urban environment & ability to use quality lidded recycling carts - Lack of communication resources (staff, website, bilingual talent, etc.) - Many more! |
| PEOPLE NOT WILLING TO BE BOTHERED, TO MUCH EFFORT. |

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| Increased costs, rural residents don't like being forced to recycle. |
| The amount of time it takes to conduct curbside collection. The Borough collects curbside twice a month in each of the three (3) neighborhood zones. A total of five (5) employees are needed to complete the task which is more than 60% of our total DPW staff. The average hourly rate of these employees is \$20.00/hr not including benefits. |
| Going to once a week collection to save costs |
| Since the service is by private subscription the haulers have had to raise their recycling fees because of the difficulty to find markets for the material. |
| Cost for the haulers/collectors to dispose of recyclables. |
| the 'china sword' had a large impact with our largest trash hauler giving notice to residents they would no longer collect their trash |
| At one time we had a recycling dumpster for residents to discard cardboard, paper, recyclable plastics and metal cans. It was meant to be used in conjunction with the private waste hauler recycling as many of them only collected recycling every 2 weeks. However, the bin quickly became swamped with non-recyclable materials such as tvs, computers, etc. People from outside the township were dumping construction waste and other material. Some residents began cancelling their waste haulers and bring everything to the dumpster. Eventually, hazardous waste began showing up (soiled adult diapers). It was impossible to police and we had to remove the dumpster. After that the private waste haulers began to collect recyclables weekly. Another issue would be that by having multiple waste haulers, there is more wear and tear on the roads. |
| Nothing has negatively impacted collection services |
| Fortunately we have a contract that currently cover cost increases. Removed or diminished State grants have decreased our ability as well. |
| Cost more to recycle than it's worth |
| No desire by the township supervisors |
| We did not back off our requirements of our contracted collector when the rest of the region did. We felt strongly about not changing our public's behavior about recycling. To do so, would have made it difficult to return to full recycling. |
| Problems the trash haulers tell me they have with recycling now that other countries are not taking recyclables. |
| The township attempted to schedule a collection of hard to recycle things in the township and asked for sign up so that a confirmation of the required 50 residents would be met and only 4 signed up. Also, glass is not longer being recycled regularly. Perhaps we have gotten lazy with recycling and just through everything in recycle bins without cleaning it or don't care if it is a recyclable object or not. |
| We are a small municipality and the cost to hold events is prohibitive. The County has some good programs but many of our residents are elderly and won't drive to them. Commercial recycling is almost non-existent except for cardboard, businesses don't want to pay for the additional dumpster. |
| Worth Township, Butler County doesn't not have municipal trash pick up. It is up to the property owners to use a refuse service. There are only two companies that service the area. |
| Theres zero value in recycling |
| We have never had a collection service, curbside pick up or drop boxes, available in our municipality. There are nearby drop boxes within 12 minutes drive and a larger facility within 20 minute drive. Plastics are down to only 1&2, not taking any other numbers any longer. Glass is only clear collection except at the further facility. |
| We do not have a recycling program because we are so small but Croyle township, which is very close to our town, has county recycling bins which are available for our use. |

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| There were a few inquiries but was informed by the county that they are having a hard time disposing of the items - not to set up anything at this time. |
| Lack of participation. |
| The Borough does not have the budget to include recycling services. |
| Our municipality doesn't have recycling of it's own. Nearby Croyle Twp. and Portage Boro have recycle bins. In Sept., through the County Conservation Dist. we participate in recycling for appliances and tires that is through a grant at the county level. Residents pay a small fee for discharging of tires and Freon appliances. |
| We tried years ago to set up a recycling program but it was too expensive |
| If we were to provide recycling bins, it would promote illegal dumping. |
| Garbage contractor limited garbage to be pick ed up each week and had to use bags and only pick up bagged items. |
| we are very rural and nobody will collect our recyclables so everything goes in a dumpster then to the land fill |
| There is nothing the borough is aware of that negatively impacted collection services |
| We have never had a recycling program in East Side Borough |
| lack of ease to recycle electronics |
| The company who handled our recycling needs opted out of the contract in May 2018 |
| Our contract with our hauler will be up the end of the year and from what I am hearing we will not have the option to recycle certain items we now can because there is no longer a market for them. |
| Cost of recycling |
| Recycling is voluntary. The majority of residents participate in recycling through their haulers. This is the highest median income township in the County and well educated residents. |
| People putting wrong items in with recycling. |
| All collection of trash and recycling is done by private haulers. One of the negative impacts of that is more large trucks on roads, especially when it's in the same subdivision. |
| The only concern recently was the slight change with the COVID19 restrictions in regard to allowing for taking yard waste and bulk items, but that is back to normal schedule. |
| Covid-19 has likely impacted collection services |
| The costs are rising for the service by the hauler, which then the residents have to pay the annual increase due to the Borough not having the funds to cover these extra costs. |
| We have a very old Recycling Truck, that doesn't allow for Residents to tour the area were it is kept to see it in operation. The Borough pay for its disposal of the collected recycling material because of the low return value of the material |
| The PA law that was adopted to improve recycling has hindered it for our residents as businesses have discontinued recycling in stores making it more difficult for residents to recycle electronics and appliances. |
| We operate and manage our own recycling and refuse collections so our services have been consistent. The largest impact on our operation is rising costs, decreased grant funding, decreased value in recyclable material. |
| Our municipality does not have a collection service. Each resident must privately contact a hauler. |
| There is no demand for large quantities of glass. Our local bars and food establishments are having trouble finding a hauler that will remove the recyclables. Some have reverted to merely throwing the glass into the regular garbage to be hauled away. We need to find a facility that will take this product. |
| We are a very small borough and have a recycling center about 20 miles away. |
| I'm sure our residents would participate in recycling if it we're available to participate. |

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| We do not have recycling available. Residents hire their own garbage collectors. Garbage collection is mandated by ordinance. I wish we did offer recycling of everything! |
| Recycling containers in our municipality were pulled because of cost. |
| Major problems with hauling |
| Individual residents purchase their own collection. The township does not offer it. |
| Collection services are purchased by individual residents. Graham Township does not offer them. |
| getting residents to recycle |
| Far away from collection sites |
| Our township is very rural with a large part taken up by state lands. People in township are very spread out. Population is less than 70, yes I said 70 people. It would not be cost effective to do anything. People who are motivated will recycle with another township (like my family does). |
| Costs of starting up and maintaining an "in Township" drop off point is cost prohibitive. Was able to take recyclables to neighboring Township (within a 10 minute drive). Our Township is no longer able to drop off recyclables at that Township. Have entered into an agreement with Town of Bloomsburg to allow residents to drop off recyclables at their facility, longer drive time of at least 20-25 minutes. |
| Our Borough uses only one Collection Service which residents must strictly adhere to the policies of the Service. In spring and Fall residents often clean out home areas with no place to discard paint, tires, computer equipment, etc. |
| We do not have recycling in Benton Twp. For 5 years we paid Fishing Creek Township to allow our residents to recycle there. They stopped due to the expense. So Benton Township has NO recycling. |
| Contract costs for the collection of recyclables has risen dramatically, starting with our 2019 contract. We've continued to provide the service, because we are required to do so, but it is rapidly becoming a problem. This is almost entirely due to the market for recyclables crashing, making it not financially prudent for providers to even bid to provide this service, unless they do so at a significant cost to the Borough. |
| The increasing costs of labor and overhead costs such as fuel, electricity and vehicle expenses costs combined with a reduced value of commodities. These combine to an operational deficit. The sustained low value for commodities has drastically reduced the revenue from the sale of materials. This has put our program under constant pressure from the council due to budget constraints. |
| We canceled our drop off service due to a doubling in fees for the service. We were unable to find a less expensive service provider and the existing service provider could not commit to a length of time that the service will be available through them. |
| Cost of recycling more than doubling resulted in the closing of our drop-off facility. |
| cost factors of providing a Township Recycling Center. |
| We are a very small and split township. Three villages are close together while one is at the very southern tip of Columbia County and separated by approximately 7 miles. We are also on a very limited budget. |
| We offered drop off recycling until our hauler raised rates from \$500 per month to \$1500. Township could not afford that. |
| We do not have any recycling programs in place. Some residents have recycling picked up through their home trash hauler. Other residents do take their recycling materials to the Bloomsburg Recycling Center and some residents do not recycle. |
| we were in with a recycling program in an adjoining Township. 3 or 4 townships divided the costs for their residents to have a recycling drop off at the neighboring township. costs went through the roof and the program was disbanded. we are currently looking at working with the town of Bloomsburg recycling center to come up with a plan, but Covid happened and many things are "pending" |

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| The rise in recycling collection costs caused by the drop in the amount that recyclers receive from where they drop off has created a climate where it is near impossible for small municipalities to be able to afford to offer local drop off sites. |
| We had a drop off program at the municipal building until the recycling price per ton was increased. The increase came after China's decision to stop accepting the US's recycling. We had to eliminate our program and have encouraged residents to recycle with their garbage haulers. |
| The huge cost change for both the Borough and the Township. We can't afford to provide the single stream. Residents now have to travel into Bloomsburg to drop it off at an overly crowded center. It is a far distance and it is inconvenient for our residents. |
| The Township does not incur any of the collection costs of recycling other than for the collection of yardwaste and leaves by Township employees. |
| Sugarloaf Township use to pay Fishing Creek Township to allow our residents to recycle there. They stopped it due to the cost. Now Sugarloaf Township has NO recycling. |
| Changes is accepted materials |
| Business owners and Residential owners are keeping all aluminum which leaves the Borough with items that cost to dispose of. |
| Residents not washing containers. When tossing a milk jug, soup can, soda bottle ect. they should be rinsed out/washed |
| Certain plastics are now not recyclable. I assume due to China the recyclable items will be ever changing. |
| There was a lot of confusion in 2019 with what was allowed to be collected, our ordinance requires mixed paper products, as does our contract, but the contractor tried to quit picking those up because of the issues with residual waste and the lack of companies to take the products. Our grant funding has also decreased because of the reduced amount of recycling, and PA DEP increasing the residual waste percentage. |
| We do not offer collection services. This is the property owners responsibility. |
| Not everyone in the Township recycles since it is suggested but not mandated. The collection services are conducted by private local companies, which all have different rates and policies. |
| Our biggest problem is that residents are still not sure what to recycle and still include items that are not recyclable in their bins. |
| Cost primarily |
| I want to clarify the "list" questions wherein I responded "never" or "almost never" to all of the items. The question queried negatively impacting "service" and while the borough has been impacted by virtually all of the items service has been maintained. |
| It cost too much so we stopped a few years ago. People were disappointed but knew the cost was to high. Our trash pick- up is higher due to higher costs in the market place. |
| This was difficult to answer which is why I could not respond to your earlier listing. We are the Municipality. We provide the service. It is difficult as costs keep going up but we still provide the services. |
| The use of plastic bags for recycling |
| We are always worried that the recycling market will fall or stop and contractors will no longer be picking up materials. |
| Costs for the handling is the biggest negative against our recycling program |
| Major increase in cost |
| Fines from Republic for contamination. |

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| <p>The Elk County Solid Waste Authority has a great recycling program that we try to participate in whenever possible; however, recently they started having to charge municipalities to place roll off containers for recycling in their communities and we could not absorb the substantial cost. Unfortunately, our residents did use the containers and were upset to see them removed but also understood the borough could not absorb the significant cost in our budget.</p> |
| <p>In 2019, the Elk County SWA began charging individual municipalities for collection costs. These costs have doubled for 2020. A neighboring municipality choose to have the containers removed, so we feel that we are getting some of those recycling materials in our containers, filling them up faster, with us paying more than our fair share. We have no plans to discontinue the service as of yet, but may reconsider in the coming year.</p> |
| <p>Our community has done an amazing job with recycling and reducing/eliminating illegal dumping. We have been educating our community to recycling all year round at local metal and scrap dealers as well as the community recycling center. Because of these efforts, we were able to decrease to one clean up day a year.</p> |
| <p>recycling drop off site was receiving animal remains & resident garbage and lack of security</p> |
| <p>cost of contract</p> |
| <p>CHINA'S REFUSAL TO ACCEPT U.S. RECYCLING, LACK OF RECYCLING FACILITIES IN THE U.S., RESIDENTS COMBING TRASH WITH RECYCLING.</p> |
| <p>Waste Management will no longer accept recyclables in plastic bags. Their new contract allows the City of Erie to, because we are so large, but the cost went from \$40/Ton to \$125/Ton for 2020. We cannot afford to purchase bins for 4oK households at \$16/bin. They also stopped accepting glass in 2019 form everyone and Glass is 100% recyclable. They also stopped accepting plastics #3-7 in 2019.</p> |
| <p>The elimination of glass from recycling has had a negative impact for residents who do not want to put it in the landfill.</p> |
| <p>Trying to get rid of glass</p> |
| <p>The lack of funding is a huge issue, and recycling companies to take our collected items was a huge issue.</p> |
| <p>Cost</p> |
| <p>The problem has been abuse when collection sites have been set up. We have a multi community Recycle day once a year that residents can participate in, but for daily recycling they have never worked because of abuse.</p> |
| <p>The discontinuation of accepting glass and some plastic in single stream collection.</p> |
| <p>We have a contract and nothing has changed the last three years.</p> |
| <p>People abusing the drop off site, we had it on the TV, Newspaper and Radio but the abuse never stopped. we removed the site.</p> |
| <p>Belle Vernon Borough is a small municipality. The expense to our residents for recycling would be too much.</p> |
| <p>We have not had any big problems with our waste collection. At times due to the weather it may be a day later.</p> |
| <p>We tried a drop off for recycling but people were dumping all their trash and other things into the recycle bins.</p> |
| <p>Increased costs by the hauler, causing the program to be dropped; and the lack of adequate of industries to repurpose the recycled materials.</p> |
| <p>We had collection by Goodwill services but our recycling containers rusted out. It has taken us a few years to start another service with the volunteer program that just began this month.</p> |

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| At one time, Goodwill provided bins on our property where residents could bring their recycling. Then, the cost got too high. They removed them. |
| 1. monthly cost 2. |
| We have drop off at the municipality and take it once a month to Fayette county recycling plant. |
| Finances |
| Once a year we have a hazardous waste collection day, which costs people to bring their items to the collection point, they are not real happy about paying for this service. |
| There is no recycling program available in our township. Residential Garbage pickup is limited as well, so recycling is not an option for our residents unless they take their items to a facility and the closest is about 8 miles away. |
| The change in the market for recycled glass has been a very big impact. The drop-off locations still see a large amount of glass being deposited despite notifications that glass is no longer being collected. |
| Waste Management didn't want to recycle glass. We eventually found a new site to recycle but had to start our own collection service. |
| We discontinued our voluntary bi-monthly recycle program due to lack of interest |
| We no longer have an outlet for glass items, therefore, we had to stop offering our recycling trailer drop off for normal household containers. |
| Costs, and people available to facilitate it. |
| Funding from the State to do Household Hazardous Waste and Electronics Recycling would be a great help. The County does not want to fund these activities and, therefore, these events have not been happening on a regular basis. |
| We do not offer municipal collection. Each resident must arrange for their own trash pickup. The borough has like ten year-round residents and no paved roads. In the winter, the trash hauler would need 4wheel drive. In bad winters, the hauler would need tire chains. |
| Trash haulers do not offer curbside recycling pickup |
| Stay at home order by Governor |
| Residents have the option to purchase recycling services through local garbage companies. Saltillo Borough does not offer any recycling services. We do offer a "dumpster day" annually in order for residents to get rid of unwanted trash at the municipalities expense. |
| We are a very small Twp. and all recycling is done through the County Commissioners at the County Level. The County does have a drop off site located in our Twp. at the Huntingdon County Fairgrounds property. |
| No controls. Everyone chooses their own method |
| Stopped glass recycling. |
| The cost associated with the recycling programs are a detriment to people wanting to recycle. When it's free, people will do it, but they don't want to have to pay. It's easier to put all their garbage together in one spot and not have to separate and then pay twice. |
| Our borough uses the townships recycling program. |
| As stated before we do not have collection services provided. However four times a year we have recycling bins delivered to the township on weekends for residents to bring their items. |
| Limited capacity of curbside collection truck |
| We are only provided monthly collection containers March through November. Weekly containers would be beneficial so people do not have to hang on to their recyclables for so long. |
| All trash pick-up is done by a private company. We don't have a burning ordinance so many people burn. The only recycling center is in Homer City and they only take certain plastics, glass and paper free. Anything else has a fee. |

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| Findina an acceptable location for the dumpster |
| We are a small, rural township |
| Cost |
| Due to Covid 19, our local recycling center will not accept commingle items at this time. |
| Reduction in acceptable recycled items, COVID virus. |
| It's hard for us to tell, because our garbage and recycling are all handled through the same contract, and we aren't really given reasons for increases. |
| La Plume does not sponsor collection. All citizens contract w/ companies on their own. The Township sponsors one Spring Cleanup each year, curbside. In 2020 Waste Mgt. refused to do curbside cleanup. Blamed it on Covid. Some of us recycle but the recycling centers, Factoryville Boro and Troop Recycling are closed at the moment. So, we're all in trouble. |
| Lackawanna Recycling Center not accepting recycling for municipalities due to COVID19. |
| contamination got so bad we now only accept recyclables during scheduled hours when containers are manned to screen for contamination and unauthorized material. |
| The County Recycling Center is no longer accepting items, forcing the closure of the Covington Township Recycling Center during the pandemic. We are unsure what changes will continue as we move forward. |
| Recent changes implemented by Lackawanna Recycling center have made advising residents not using available technology have made it difficult to communicate these changes. |
| Some people don't recycle and or don't separate recycling from trash/rubbish. I feel it's very important to educate children about recycling at an early age, children like to do the right thing. A program in the schools would be a welcome tool. They could start with daily breakfast, lunch and snacks, plus used paper |
| Extra costs for lack of recyclable markets. |
| Recently the Lancaster County Solid Waste Authority has stopped taking "yard waste" from their registered waste haulers. This, in turn, has caused the area waste haulers to stop taking "yard waste" from their customers |
| The change in recycling materials that are accepted is really hard . Most people struggle to adapt to the County's Big 4 program and continue to place non recyclables in the curbside collection bins. |
| Currently we have seen a major increase in cardboard disposal. In addition to the curbside pickup the Township maintain a 30 yard rolloff on site that is available 24/7 for residents to drop off. We have had to adjust the pick up dates as well as increase from once to twice per week since the start of April due to volume. |
| We had the bin program through the county for recycling. It got out of hand with too many people putting illegal items in the bins and trash being dumped outside of the bins that the borough had to clean up and dispose of. |
| People would leave bags of GARBAGE instead of recycle materials. They would leave televisions, computers, high chairs....just anything they could dump off at the township. |
| people dumping trash and not recycling |
| We would be better served to have a community, curbside program but residents have always pushed back because of "freedom of choice". |
| In addition to the recycling markets, recent changes (buyouts) of local haulers by national chains has negatively impacted collection. |
| The cost of collecting and disposing of recyclable material has increased from \$30/ton to \$75 /ton in one year. It costs more to recycle than to dispose as trash. |

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| Lack of places to take or accept the recyclable materials and cost associated with the places that do accept them. |
| The Township lacks the space to develop an area for recycling. |
| the increased price of what the township has to pay to have the recyclables picked up |
| People dumping garbage in containers designated for recycling only. High cost to operate center while there is little or no return on materials. |
| Cost |
| since covis-19 we are unable to find people to work at our recycle center |
| Several times I have heard that household garbage get intertwined within the recycling. That alone is disturbing. |
| We need more education on recycling. Even people who think that they know exactly what can be recycled are misinformed. |
| Collection providers eliminating pick-up of certain items or stopping service all together. Increasing cost of pick-up. |
| Prices have went up, yet many materials are no longer taken (Glass). |
| Residents use private trash haulers for collections |
| Trying to get the residents to make sure hey follow our guidelines |
| Recycling used to be low cost; now cost has almost tripled. The desire is to keep the drop-off open but cost may become prohibitive. |
| We had drop off recycling for several years until last year when the prices went triple from what we had been paying. We discontinued recycling. |
| State changing how recycling collections are to be done. 1 time they say single stream then a few years later they strongly suggest going back to commingled collections. Residents are slow to want to change back. |
| We have not been negatively impacted yet but that may change as our contract for collection is up for renewal in 2021 and will put out for bid summer of 2020 |
| improper recycling habitats |
| People improperly recycling, placing the wrong items in for recycling. |
| Private contractors pick up garbage/recyclable items on a weekly basis - not required to separate garbage from recycled items. |
| Pulling the local bins and now the extended driving Distance to recycling drop off locations in our rural area hurts us. We need a few satellite transfer stations to accept recyclables. |
| we used to have recycling bins at the township but people were putting garbage in them so the recycling company took the bins away. |
| Residents contact and pay for their own services here. Many fail to pay, then garbage starts to accumulate on their property. Usually renters. |
| Costs; unwilling residential participation |
| County discontinued recycling of glass/bottles/cans using big blue bins at our Township Building. Residents can only recycle these items through private service/waste hauler |
| The Municipality does not have the budget or personnel to provide these services. |
| I think people are confused on what they are to recycle. Do we recycle glass? Newspapers? Which plastics? |
| Residents use commercial garbage pickup, Waste Management and Tri County. We don't have a problem to speak off. |

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| We do not have a Garbage pick up contract in our rural township. Each homeowner is responsible to arrange the own trash pick up. We are very rural and not as profitable to a waste hauler as a heavier populated area. |
| The refuse companies do not offer recycling in this area. |
| We really haven't had any problem with the recycling program. However, we only offer a place to set the recycle bins and the Solid Waste Authority handles everything else. |
| We have a clean up day once a year |
| Collection services in our community has been satisfactory for now. Electrical wastes are handled by a County service. |
| COVID-19 reduced shipping options |
| Eldred Township has electronics recycling at our Municipal garage from May-September each year. The biggest problem is people dropping off items not considered electronics. We also run an annual cleanup day for other large items to keep them off the roadways |
| All recycling by private waste haulers, vast majority served by Waste Management and County Waste. Single stream recycling rejects much of what could be recycled and much public confusion over what is acceptable. |
| Delinquent trash fee accounts by residents. |
| Contaminated recycling materials, usually with non-recyclable materials, and recycling market issues. |
| Lack of recycling markets and increasing costs to dispose of recycled material |
| There have not been issues with collection services in our community. There are challenges for the 3rd party hauler after they've processed the material which may impact future bids. However, we have not realized that impact locally during our current contract. |
| Change in the importation of recycling materials to China |
| County used to collect electronics for residents with their hazardous waste collections, but no longer provide. Residents are always looking for ways to dispose of electronics. |
| Many businesses do not have room to locate dumpsters for both trash and recycling. |
| Cost of Recycling going up. Whereas communities used to see positive returns for recycling, it now costs more to maintain programs and get rid of recycling than it does for regular trash. |
| haulers not recycling and collecting it as trash. Enforcement difficult |
| Cost to recycle has increased since 2015 |
| It costs too much for a small municipality. |
| Cost |
| The COVID-19 pandemic, of course! County collection events have been cancelled (for items not generally included in normal residential recycling). |
| Hauler issues |
| Some residents do not partake in the recycling process |
| We are an extremely small, rural township with limited funds and resources. |
| Residents using the facility to dispose of their garbage, leaving bags of garbage outside of the containers, leaving electronics, furniture or tires that we do not accept. |
| Lack of volunteers; low to no buyers for the recyclables. |
| I have been here for just over two years and was interested in having recycling but was told it was very expensive and the Board wouldn't approve it. We relied on the surrounding municipalities. |
| COVID-19 closed recycling for a period of time. |
| We do not have collection services. |
| COVID-19 |

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| We have no recycling services in our township. We are very rural and the 747 residents generally keep their properties clean. I do know of residents who take their recycling to neighboring townships. |
| Our cost recently quadrupled and we have suspended for the last few months due to the Covid-19 pandemic as we have young volunteers run the drop-off and pick-up |
| This is a rural area.... |
| The price of the recyclables at the processing location dropping. |
| The lack of markets greatly impacted collection of recyclables. Vendors did not want to bid to collect most articles. The question was: why recycle if it is going to go to the land fill anyway? Contamination was an issue b/c vendors could not or were not expected to sort out trash placed in the recycling bins. Violators who would put in construction debris, electronics, etc. |
| We have never had a recycling program. Cost prohibitive. We do have a spring and fall Clean-up day for recycling and trash collection. |
| we are a very small municipality with limited funds. |
| The recent Covid 19 pandemic and ensuing racial justice protests have impacted revenue, expenditures, staffing and efficiencies. |
| No electronic cleanup days |
| DEP. We had a better program before they got involved by making Twp. a mandated community. |
| We used to have a drop off recycling site but it was misused so we no longer have it. Recycling became to costly to continue. |
| We have about 450 residents and no businesses, residents take their recycling to the transfer station in Gold. |
| Nearest dump drop off is located approx. 25-30 min. away and curb pick up is available but not something the township offers. Pick up service can be pricey. |
| We are in the corner of Potter County and our recycling center is at least 40 minutes from here. At last census our population is at least 33% elderly so they do not driving that distance to the recycling center. The Shinglehouse Borough attempted to place recycling bins at our property several years ago, but some individuals used it for household trash so we discontinued the service. As far as the pandemic, I don't believe we were impacted that much |
| Cost |
| state laws prohibiting the disposal of tv's and other electronics are a large problem. |
| It didn't negatively impact the services exactly, just concerned the citizens for awhile when they had to use paper bags instead of plastic. |
| We use to have a drop off center but it became very expensive, now our residents use the county program that is within 7 miles of the township. |
| From what I understand, we are rural enough that we can't get any company to pick up in our Municipality. The closet recycling station is about 6-8 miles away, and it is open once a week from 9-7 (I think) That can be very frustrating for people who would want to recycle, but might not be able to make it to that location during those hours. |
| Covid 19 has temporarily closed our recycling center due to the fact that our hauler of bins discontinued pick up. We hope to resume services in the near future. |
| Covid and the closing temporarily of the LCRMS site. Residents had nowhere to take recyclables |
| The cost to the municipality has increased tremendously and the pick up services were temporarily suspended due to Covid-19 |
| We have a neighboring area, still within Washington Twp, that does provide drop off recycling. They are considered a separate entity from us. They closed down at the beginning of the pandemic. They may |

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| not reopen, according to what my understanding is. There is usually a problem with people utilizing it for non recyclable items. |
| We do not have a recycling program. |
| Lack of respect by citizens concerning keeping our community beautiful. |
| we are having a hard time keeping up with the amount of recycling being collected |
| Some local trash collectors will take recycling. A neighboring township has drop off some of our residents use. There is a County site that recycling can be taken to. |
| We are very rural and cost to pick up at each home would be very expensive. |
| Collection services are not provided by the Borough. Residents use commercial garbage haulers. |
| Residents are able to choose their own collection business - the only negative is when its a rental property people tend to accumulate trash. |
| Residents are responsible for arranging their own trash services |
| We are a VERY small Borough that strives to get some residents to even use the vendor garbage collector we do have. Some have tried to bring in garbage from nearby areas that can't burn and burn it here. It's probably NOT a very cost-effective business for our collector; unknown how long they will keep doing it. It is a family-run business. |
| the cost involved in a recycling program for a small township is why we don't have a program |
| People abusing this offer and placing their garbage in the receptible. Not cleaning bottles and cans. |
| The Covid 19 virus shut us down for a couple of months |
| We have private vendors collect recycling |
| lack of organizations to take electronics for recycling eliminated them from our recycling program. |
| COVID-19 |
| We have a well run program and a clean site. |
| Covid-19 put a halt on our recycling for several weeks |
| Unaware |
| Inappropriate materials when we did have recycling bins led to the service being stopped. |
| There is no recycling facility in the county. |
| We guide residents to use the county recycling program that takes place once or twice a year. The cost of taking certain items has a negative problem. The cost is a per pound price. |
| We do not have a collection services our residents use various trash pick up companies in the area. We only have 309 residents. Our Township does a yearly spring cleanup one day a year for residents to bring items they cannot get rid of through regular garbage pick up. |
| Many recycling center around us have closed which impacts our municipality. |
| People throwing household trash in the bin |
| Dumping of non-recyclable material and other municipality residents using them. |
| Cost to Township |
| ABUSE OF OUR RECYCLING CENTER WITH GARBAGE |
| Drop off site has received unwanted items that are not recyclables. |
| The biggest obstacle has become the cost. It has create a lot of wear and tear on our garbage truck. |
| Hard to find a place to recycle electronics |
| We have paper, clothing & metal recycling programs. All are voluntary. |
| We do not have recycling collections services |
| customer service of private haulers |
| We had one property that had a lot of old tires on, and people would drop off tires there. It has since been cleaned up by the property owner. |

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| 1. very rural 2. low income 3. lack of recycle markets (many locals collect scrap metal to earn a few dollars but no other market exists) |
| Lack of funding locally; and lack of personnel. |
| Covid-19 |
| People put Garbage into the recycling bins |
| With a limit of what can be collected people are not following and still dump whatever they want. If the containers are full residents have no respect and leave recyclables and trash on the ground |
| Ordinarily our recycling is picked up by a trailer. We often find that people will drop garbage, which is prohibited, if no one is attending the trailer. We also have people who do not live in our municipality, use the service that is funded by our municipality. This is prohibited but hard to police. |
| We have private vendors that collect waste. Some of the vendors provide recycling, some don't. Our county provides a recycling service but not everyone can get to it when it is open. |
| Cost of service has jumped due to the China problem. |
| The contract price with the hauler continues to rise. The cost rises some because of wages, truck expenses. The biggest recent issue is because of the recycling issue with China. |
| Waste Management takes fewer items since the changes due to China's changes. The residents don't pay attention and we have complaints about recycling not being picked up, when we determine it's because of non-allowable items the residents indicate they're not going to recycle any more. |
| The recent dealings with China have negatively impacted the collection service, since China was the major buyer of all recycled papers, Penn Waste was hit with a surplus of materials and stopped processing certain papers and cardboard. |
| Reduction in recycling markets have decreased the amount and kinds of items can be recycled. |
| A lot of road work throughout the borough has made it hard to haulers to get to all streets to collect. Also the turn around of workers not knowing the position properly for picking up in our Borough. |
| The change in China's acceptance of recyclable materials has reduced the items we are permitted to place in our recycling bins since 2018 and changes have not yet been made to accept new items. |
| Due to the pandemic, our Board has cancelled our Spring Clean Up and we are not able to take yard waste at this time. We also have had a loss of revenue due to the dropping scrap metal costs. |
| Recycling criteria changes often so people don't always know what they can recycle. |
| We had expanded the items that could be recycled and launched an educational program to make sure that residents were aware of what could be recycled. Then the issue with China limiting the amount of contamination required the Township to educate the residents again on what could no longer be recycled. |
| The cost of recycling went up dramatically. Due to this, we no longer offer recycling. Also based on a cost analysis of our tipping fees from prior years when we did have recycling, to now when we don't, we are only paying a few hundred dollars more. |

Question 28: What solutions, if any, do you think would help make collection services more available to residents in your communities?

| Response |
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| A local transfer station for all county residents |
| Control the cost for recycling. Provide mobile collection. Different day, different materials. |
| It is available |
| We need to do glass collection events, this would resolve the issue of contaminating the rest of our recycling. |

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| Curbside collection of Recyclables, however because we are a small community, it is cost prohibitive. Our residents want to recycle. |
| A glass recycling drop-off. |
| I think we are in a unique situation where our topography and street grid makes complete collection services difficult to achieve. Greater availability of smaller trucks and smaller trucks with collector arms would increase the number of residents were are able to provide service to. |
| If its convenient, like curbside, most residents will and want to recycle. |
| have more regional events, less expensive if they are regional and residents would use and drive to them. |
| Find a viable solution for glass - our residents MAY participate in a drop off event but not as much as they would if they could go back to using curbside. After that, more drop off events for free or reducing costs more - paying to get rid of an old appliance or tires incites throwing them on the side of the road (cost prohibitive). |
| County-wide contract(s) with service provider and mandated recycling for all Municipalities. |
| A product in the metropolitan area that allowed the level of convenience that our residents are accustomed to. |
| Changes in the requirements for residents to recycle. The changes that have happened in the past makes it more difficult for a resident to recycle. |
| Unfortunately recycling is largely a losing game right now, about 4 to 5 times more costly than throwing in the garbage and in some if not many cases, far more expensive to actually "recycle" than to produce from virgin material. I can no longer get in front of a group and extol the virtues of recycling at least in its current state! Solution might be more "bottle" return legislation and encourage use of more paper (v. plastic), which is at least biodegradable. |
| Having a place to take what is collected. |
| Joint collection efforts across communities / counties |
| I think maybe having more sights available for drop offs. |
| Funding for the recycling program managed by the Progressive Workshop of Armstrong County. |
| More availability of bins for recycling |
| Stronger Federal mandates for companies that manufacture this products to responsible to help fund their reuse. We need more companies in the use to utilize our recyclables and companies that do this can be Federally subsidized. |
| additional collection sites. |
| Limited locations for collection sites so, we are doing better with twice a week pickups around cleanups during each season. |
| I don't believe anyone in this borough would actually participate in recycling even if things were available |
| Possibly recycling bins |
| We have a recycling center in a neighboring township |
| <ul style="list-style-type: none"> - Accountability, SWEEP program, and litter enforcement (need to make waste & recycling a priority!) - Strong, well respected public leader (i.e. Mayor, athlete, hip-hop star, etc.) - Culturally-relevant messaging - Simple material lists and focus on "When in doubt, throw it out" |
| Having more free drop off points available. |

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| I don't believe that we could make it any easier for people to recycle. Some may feel that single stream is more practical however the amount of waste generated by contamination during the single stream process negates any potential savings |
| They are available |
| Availability of large item recyclables (appliances) picked up curbside. |
| It might be good if the township contracted with one waste hauler to serve the whole township, but that would mean raising taxes. |
| We are perfectly satisfied with the collection service we currently have. |
| Not aware of any. |
| Enacting mandatory recycling |
| We are a single stream, pay-as-you-throw system, using automated cart collection system, providing a variety of cart sizes for trash, recycling and yard waste. Costs of this program are included on the Customer sewer and water bills. The program requirements are established the Township and a contractor is used to implement the program, but administered by the Township, including billing and customer service. The Township owns the carts. |
| Knowing residents in other counties, I like that my county requires trash haulers to collect recycling as opposed to people having to pay "extra" to do so. Makes it easier to get "buy in" from residents. |
| Simplify. Glass Collection, newspaper/paper collection, plastic collection. Set up locations for the collection. |
| Mandates to the haulers that all customers be provided facilities to recycle, such as glass bottles from restaurants with bars, recycle dumpsters for apartments. |
| Clarity on what is allowed to be collected for recycling and the cost of refuse collection. |
| a monthly curb side pick up would be ideal |
| I really don't think we have a problem or have a need for a recycling center |
| Being able to get rid of TV's and Computers and Paint cans |
| Neighboring municipalities provide bins for residents to recycle various materials. |
| I've asked for recycle bins 8 years ago. Haven't heard anything since. Would be nice to keep our township cleaner. |
| There is a recycling center in Cresson. Having one in Tunnelhill would be much better |
| possibly recycle bins for individual households or a common area for recycle bins in town. |
| I personally do not know. |
| None |
| The need for recycling facilities to take our recyclables |
| Our borough is fine because we contract with a hauler for both garbage, recycling and tire recycling. Our only issue is the electronics as no one wants to pay to get rid of old TV's and things. The townships surrounding us are having issues as some of them have drop-off locations that people are dumping electronics that there is a fee for and just garbage in general at the drop-off sites. Their residents contract individually with a hauler of their choice making it more difficult for them. |
| lower cost |
| Not sure |
| Municipal collection would help but we don't have the budget for that and there's no desire to increase taxes to cover it. |
| More local locations to drop off electronics. |

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| We should offer residents smaller cans for trash and larger cans for recycling. We should also offer composting cans for residents and have a municipal compost pile. |
| Have manufactures stop making plastic bags, go back to brown bags. |
| Show commercials on tv how the oceans and islands are polluted with plastic. Educate, educate! |
| The ability to have a new Truck that could be used to demenstrate its usage and sow how valuable a modern truck could service the borough better, saving travel dump time and high gas cost in using a very old machine. |
| I believe we offer a full array of options for residents. We continue to educate the residents on what is available to them and the value in taking advantage of our programs. |
| Clarion Borough has a population around 5,200 people. We have a 95% compliance rate with our Borough residents in recycling. If we could find a local facility to accept the commercial glass quantities, then we could have the same for commercial properties within the Borough. We collected nearly 2,500 tons of recycling and yard waste in the last 2 years. We at the Borough Offices feel that we are doing everything possible for our Borough residents. |
| Perhaps a local trailer |
| No idea. We are so rural I doubt it would be beneficial for a company to implement for our area. |
| Having recycling available first! |
| do not have any solutions. |
| It would help the community to get rid of unwanted items. |
| Make recycling a county priority instead of smaller poorer townships. Just a thought. |
| Cost factors. |
| A central location of collection. |
| At this point, there has been no decrease in collection services, and it seems highly unlikely that anything short of it being provided for free would cause us to increase those services to more than once per month. |
| no changes necessary to make more collection services available. Every other week curbside plus 4 weekday drop off days and 2 weekends per month. |
| Regional recycling facilities with facility owned equipment to transport the recycling. |
| I don't think it is possible, but to reduce recycling costs to a point that they are sustainable for smaller (or any) municipalities. |
| Cost factors. |
| Signs, an aggressive campaign to stop littering, higher fines, increased police |
| Do not know |
| Curbside Pick-Ups would be a big help |
| making it mandatory |
| A Countywide collection program would be helpful to offset costs and make recycling available to smaller communities. |
| There needs to be a broader range of haulers willing to invest in the materials needed for larger drop off sites. The people want to recycle. However, it is difficult when drop off sites are limited. |
| If there were more affordable options. Our drop off was highly utilized and 24/7 accessible. We had a multi township drop off center. Now we cannot offer anything. Orangeville would love to Go Green but for little Boroughs like ours, we cannot afford anything offered. Grants? |
| If the cost charged by haulers would be lower and all haulers would better notify their customers of how to recycle. |
| Less dependence on foreign processors |

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| A service that collects everything; items that contain freon, electronics and somewhere to dispose batteries. Only rechargeable batteries are recycled. |
| I don't know if requiring residents to separate out products would be more effective, instead of having single-stream recycling. Education seems to be the best way to encourage recycling. We would like to have more educational opportunities with our local school district. |
| It would be better if we had a mandated recycling ordinance, with uniform guidelines. |
| Improve market conditions |
| Bringing financial value to the consumer. Apply a cost to produce the waste and create value on the disposal end. Both outcomes would be a reduction in volume. |
| reduce the cost of recycling |
| If better ways to recycle the recyclables were created. |
| We should have a county-based drop-off for HHW and electronics year-round and not sporadically as is done now in Delaware County |
| Open to suggestions |
| We try hard and do as much as possible to collect as much as can. We do everything we can but it is the residents not putting out clean recycling that is the problem. |
| As it is with most "extra" services, funding is the only thing preventing us from providing recycling to our residents. |
| residents do have the capability of taking recyclables to the county site. Expansion of those hours would help. |
| Unsure |
| recycling program reform including methods to reduce costs to recycle. Single stream experiment did not work and is costly. |
| None |
| I WOULD LIKE TO SEE THE FEDERAL GOVERNMENT MANDATE THAT PRODUCERS OF GOODS WOULD BE REQUIRED TO RECYCLE THE ITEMS THEY PRODUCE. |
| Source separated recycling is the only way to recycle the most materials. However, that is almost impossible for curbside recycling considering how many trucks you need/night to collect everything. The average recycling/garbage truck costs \$250,000. We have 10-14 that already run 3 times/night, 5 nights/week. One for recycling, once for compost and once for garbage. A source separated drop-off recycling might work, if there were recycling police to watch every drop to prevent contamination and dumping. Then who would own it, operate it, staff it? It obviously isn't profitable or a private business would already be doing this. So it's up to the municipalities, who have no money to do it. |
| Lower costs and glass pick up by private company. |
| None |
| If Townships are required to recycle, please provide funding to support the programs, staff, trucks, time. Our Townships are small communities with very few employees, to get the road work and recycling done is very hard. |
| lowering the costs |
| I really do not know. Cost is a concern, and abusing the drop offs. |
| We are in process of coordinating with private industry for a drop-off glass collection site. We are fortunate to have an affluent municipality. But more funding for local municipalities to stage drop off sites may help. Another solution for our throw-away society is to develop some kind of container besides plastic that is more recyclable. |
| Mandatory curb side from collectors. |

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| Reduction in costs of recycling. Availability of programs to dispose of televisions at a reasonable cost. |
| None |
| State wide mandatory recycling, bins provided at no cost, curbside pick-up and no additional cost to resident or municipality. |
| The residents in the community do utilize the recycling container. I would like to see our county bring in industries who can remanufacture the materials that are recycled. |
| I believe the volunteer program we started will be a good program once word gets out in the community. We had a really good turnout at our first one this month. |
| Having any recycling services for pick up at little cost. |
| No comment at this time |
| Curbside but we can't afford it |
| Grants for equipment |
| Electronic recycling is a reoccurring problem. We are very limited by the number of companies that accept these items, and the cost is substantial so we only have an event every few years to collect electronic waste. Incentivizing companies to accept these types of waste would be helpful. |
| We have worked hard to maintain single stream recycling which is very popular with the residents. No new solutions needed at this time. |
| ?? |
| We have plenty of curb side haulers at present. |
| Residents are able to have private curb side recycling through a garbage company of their choice. In order for the township to provide a recycling service, there would need to be a way to off set the costs of transporting the recycling off site, and paying someone to do it. |
| State Funding |
| I do not think we need more trash collection. The Borough of Valley-Hi is not particularly big enough to be "real". Dad has trash pickup 3 seasons a year from a local hauler. In the winter he's at his house in Mexico. Howie and Peg do similarly but they're in Myrtle Beach over the winter. I live here year round and haul my trash into my dumpster at work in the back of my pickup. I am not sure what Mike (other full-time resident) does for trash. I think he hauls his into his parents' place in town because I don't see a trash guy going past my door to his house. The summer cabin residents haul theirs out when they go home at the end of the weekend. (They are all 'vacation cabins at the lake' style of things, not real houses.) |
| trash haulers to offer same |
| Regular pick up schedules of individual containers or a recycling unit placed at a central location in the municipality for residents to place items at their convenience |
| One carrier |
| I don't believe we have any solutions, but the State could help if they were to fund the recycling efforts through the haulers so that it made it more cost effective for them to do it. It's almost impossible to find a place that takes electronics because the State mandated it and funded it for a few years, then backed out, now its still mandated, but there is no money to be made collecting the stuff, so no one wants to do it. |
| There needs to be a county wide approach to recycling collection. |
| enhanced drop off capabilities |
| Permanent collection containers instead of just being brought out once a month that could be picked up once a week. |

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| We are a spread out township, but I would like the township to buy recycling bins on a trailer to have at the township building but also somewhere that will accept all plastics, glass etc.. free of charge. |
| A collection facility closer to our area |
| Reopening of recycling center. Manufacturers who use plastic to hold their products should come up with a matter of recycling their containers. |
| Our residents started recycling more when County Waste provided each household with a 65 gallon single stream recycling container. |
| Find a substitute for plastic. (and that's doable). Recycling isn't paying anyone now. Other countries don't want our junk. Overwhelm citizens w/ sensible behavior concerning garbage. Remember the Litter effort, to get folks to stop littering roadsides? Give us glass containers again. Best idea. Develop a replacement for plastics. I dare you! |
| Re-open recycling center to accept municipal recycling |
| Grants and funding from commonwealth. Stop prioritizing funds going to new programs rewarding them for doing nothing till now. We are in our 30th year. Solve the crisis of electronics disposal before we are buried by dumping. |
| Communication with the older residents of our Borough is the most difficult part. |
| We have a neighboring Township that allows our residents to drop off certain items at their location |
| The Borough picks up bagged (biodegradable) yard waste throughout the Borough every Monday from April thru October. Property owners and landlords contract with licensed trash hauler for weekly pick up of trash and recycling. |
| If private haulers offered recycling with their trash pickup services. |
| Develop markets for recyclables. |
| I think drop offs are great but we really don't have the space or manpower to monitor them. |
| Not a thing! The township discontinued the recycle bins and moved them out of our township entirely. We will not bring them back. |
| Buy in from all parties. |
| Collection services are pretty convenient. The ever present problem is resident/commercial participation. |
| Hopefully our new yard waste facility and drop off center will help. Having the market to take our recyclable materials locally would be a great benefit too. |
| Trash haulers that provide recycling services. |
| Collections are based on RFP's and an agreed contract |
| More money available to municipalities for recycling through grants. |
| cost |
| I believe having a specified collection site for recyclables would be better than having a private contractor picking it up. |
| Possibly having a multi-municipal drop off location. We have been speaking to surrounding communities about this idea. Nothing is settled yet. |
| It's pretty good right now, about 80% use borough services for recycling. |
| we went from every other week to weekly recycle collections and noticed that more people would participate when cans were provided, and it was done weekly. |
| none |
| Agreement between contractors and municipality officials to separate the items |

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| More drop off locations locally. |
| if they were free |
| domestic market for recyclables. |
| Grants but applying for grants is not easy. |
| Advertising. |
| NONE |
| There used to be recycle bins at various locations in the area. Those no longer exist. If they were still there, many people would recycle |
| A viable contract with a waste hauler who also offers a drop off location for recycling. |
| If we would get large recycling bins put in at our local park |
| I have no idea |
| Free recycling |
| better recycling bins |
| At home pick up, but we do not have staff nor funds for that. |
| The only solution for us is County-wide collection and running our own small MRF, but the problem is funding. |
| Unsure |
| Recycling markets |
| All of our recycling services are provided as curbside pickup or as a dropoff location in a small, 7 square mile community. I'm not sure the program could be more convenient. |
| A local drop off recycling center would be helpful for those residents who live in communities that do not recycle. |
| We are mandated by the state to have a program, so we really don't have a choice. The problem instead will be on the cost of the program and how much of that cost is placed on residents as a tax burden. |
| Fully available |
| eliminate glass from the recycling stream |
| None that I can think of. |
| County or State financial support. |
| Offering municipal collection |
| Our borough has no problems with the availability of collection services for our residents |
| Obtain additional recycling dumpsters at our borough location and have several public recycling containers available for residents at various locations within our borough, in case recycling curbside pickup is ceased within the next year. |
| county & state run programs |
| More dollars to create an effective municipal program. |
| Individual rebates |
| Some trash haulers are collecting recyclables. It would be helpful if more would do this. |
| We are starting small. We help with small brush and will start picking up Christmas trees this year. We already collect leaves in the fall. As far as glass, plastic etc.....I would love to have something in our area for our residents. I would have to find out what programs/grants are available and what cost is associated with providing such a service. Currently on our website we direct people to the Sunbury Municipal Authority |

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| Increased funding. Right now we have a limited budget and recycling is not a high priority with the services provided to our residents. We strongly encourage residents to recycle within their own households and recycle where possible. |
| We need to know that our materials are actually being recycled before we push for more involvement |
| More ways developed to use recycled materials and businesses willing to do so. |
| Increase domestic markets so vendors have a place to take the recyclables so we could receive decent cost effective bids. Provide some incentive to the vendors to recycle. It used to be profitable, however minimal that profit was, to recycle. It no longer is. |
| THE LOCAL GARBAGE HAULER DOES PROVIDE RECYCLING BAGS THAT NEED TO BE PURCHASED FROM THEM AND A REGULAR PICK UP DAY IN THE TOWNSHIP. |
| Collection services are available to all residents at no additional cost and to qualifying commercial businesses for a fee. |
| Lower prices. Private carters are expensive. |
| State should start a program to collect hazardous waste and cfl bulbs. It's too much cost and liability for small municipalities. State could send collection vehicles for one Saturday in each county every year and give residents a means of disposing these materials. |
| There could be a county waste station |
| less regulations |
| More grant availability |
| WE CURRENTLY ONLY HAVE GARBAGE COLLECTION. NO ONE TO COLLECT RECYCLING |
| State funding |
| Curb pickup |
| the state needs to create viable options to dispose of electronics |
| We are pretty well off here. The collection services that do not exist in Tower City do exist in close communities and twice a year large vans are brought into Porter Twp for both communities to use. All recyclables are allowed then. |
| If they choose to go private. Many of our residents already pay for a service with their trash pickup. |
| have a company that would pick up here...we used to have one, the collection site was at the boro office, and it was only 1 or 2 times a month, but then that company refused to continue. We have yet to find one that would pick up to do that type of service again. |
| Options, education, and bins available for residents to recycle. |
| Unknown |
| I have no clue. In my opinion, this is something that my eldest son was taught in school years ago. I still recycle because of him. |
| Public education |
| Stricter laws concerning blighted communities |
| if the cost was not an issue we would have another bin- more signage is needed to communicate what is accepted and what is not- volunteers to make sure everyone is following the recycling guidelines- |
| Some of our residents do have curb side recycling pickup by their individual waste haulers. |
| Can't think of anything. There are 3 companies who collect trash in our Borough and the recycling plant is less than 1 mile away. |
| The Borough could try to subsidize the garbage sticker system so more people could afford to use it. More accessibility of the bag stickers would be good. Outlets have been closed during COVID. |

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| We need to support the County's collection of electronics. It would be great if we community composting. |
| To be able to reopen every Saturday. We used to be open 7 days a week, but a few bad apples made us change to once a week with someone manning the recycle center |
| Publicize availability |
| Residents have the option of paying for single stream curbside pickup by a private hauler, or bringing items to the drop off location. We don't have much of an issue with this. |
| curbside pickup would be a nice service |
| recycle station at the office of the Township. with limited hours to prevent illegal dumping. |
| Establish a recycling center. |
| No issues |
| None |
| Having more recycling center would help with dumping and trash around our communities. |
| Our collection site and system works very well and is successful operating at a profit for the volunteer organization of the Tidioute Lions Club. We have been visited by other communities to observe our system and have been used as a model for which Warren county has based their system. |
| Our borough council is very willing to recycle, but the costs to do so became larger than the costs to dispose. We do charge a garbage fee, but our council was not willing to raise the rates the amount necessary to continue to offer a recycling program. We are a small municipality and we have to watch our spending in order to continue to offer garbage collection. |
| Having a drop off point and a collection |
| Find an easy inexpensive collection service. I liked the recycling trailers in Greene County but Washington Cty does not offer. |
| Educating Supervisors, Staff about successful, existing programs in other municipalities including the expense and revenue of such programs. |
| Not sure |
| A monthly mobile collection drop off site with bins provided by the county or private company. This has worked in Saltsburg Indiana Co our bordering municipality. |
| Additional funding, and the ability to hire more public works employees. |
| Have garbage collector take single stream |
| Once the pandemic is over to have extra containers available to handle the large impact we anticipate. |
| A cooperative process including many municipalities |
| Can't think of any |
| Develop the current recycling facilities to process more materials locally. |
| Just better communication on how or what is expected of the workers within each municipality. |
| Just the reduction in the items being taken for recycling. |
| A location for additional drop-off - such as Styrofoam or other hard to recycle items. |
| Residents have household recycling available weekly with their regular trash pick up. If other recycling option were available at no charge locally I believe more residents would use it. |
| A GREAT PRICE THAT WOULD BE AFFORDABLE TO LOW INCOME RESIDENTS |
| If the county would offer electronic, household waste and yard waste recycling bins closer to our Municipality. Residents have to drive about 30 minutes to get to the closest recycling plant. People |

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| dump these things in the woods because they don't want to drive 30 minutes to drop off an old tv, etc. |
| Encourage and provide incentives to companies within the United States to develop ways to use recycled materials in their manufacturing process. |
| None. It is not cost effective at this point for a low income community. |
| residents are required to have trash and recycling pick up |

Question 29: Do you anticipate making any changes to your recycling program in the next year (e.g. collection frequency, type of materials collected, staffing, increase in fees, etc.)? Please describe these things in the space provided below.

| Response |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No |
| No, it is part of our garbage contract. |
| no. We are under contractual agreement with Parks Garbage Service through 03-31-2022 |
| No |
| We may decrease the number of electronic device turn-in events if interest wanes. |
| No |
| not at this time as contract extended |
| No |
| March our contracts are up and the County is the one that handles the process and we get who came in at the lowest bid. As to why many questions are based not on the Borough but who the County said won the bid. |
| No |
| I am in the process of meeting with our hauler to discuss the elimination of glass and some plastic. We have a contract through and they are bound to continue to take through the life of the contract> I don't want them to take what they are unable to have an end use for and therefore the entire load of recycling ends up in the landfill |
| No. |
| Hopefully institute a glass recycling system. |
| no changes in the next year. The single drop off point is a pilot to gauge resident interest and use before considering a curbside program. |
| No. We recently underwent some changes in what could and could not be collected but we do not anticipate more changes anytime soon. |
| No...unless through the QVCOG; but if there isn't a collector of recycle materials no change will happen. |
| would like to help promote, sponsor, regional glass recycling events |
| Investigating a multi-municipality glass collection |
| No. |
| None anticipated |
| Eliminate glass recycling. |
| No |
| continued reduction in marketable materials |

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| Probably need to reduce other items which may be recyclable in concept but impractical due to either insufficient quantities collected, poor quality, or simply cost far exceeds what making new would cost. |
| Perhaps. We are in a current agreement, but I am hearing that certain materials are no longer being collected in other municipalities. |
| No |
| No |
| Armstrong County Commissioners did not renew contract with the Armstrong Recycling Center, so as of July, 2020 the municipalities in Armstrong County will not have recycling collection trailers available for the residents. I do not know why the contract wasn't renewed. |
| No |
| No |
| no, our recycling program has been in effect for many years, and runs smoothly, we have no changes anticipated. |
| increase in fees |
| As fees increase at the processing center those fees are passed on to the customer bills. |
| No |
| We are actually going to move to an Automated collection system. Our residents will be provided large totes in hopes that the added capacity will increase our municipalities collection rate. |
| Yes, we will be expanding our recycling program should grant funds be awarded. |
| No |
| No |
| I, as the secretary, am not authorized to make these kind of changes in the borough |
| No |
| As of now we have no plan on making changes. |
| No |
| no changes |
| No |
| No |
| None at this time. |
| No |
| Yes. Our contract ends this year and an RFP will go out later this summer. I anticipate costs will rise and fees may rise accordingly. We are working on improving our contracting significantly, which should help provide more services/free up staff time/ add accountability. I am strongly advocating for a SWEEP program, but we are severely limited in hiring staff due to PA Act 47 financial restrictions. COVID certainly won't help. |
| No |
| No |
| It may become necessary to reduce the frequency of curbside collection days each month and increase the hours of the drop-off center. The concern is that residents will stop recycling and place items in their trash because our trash fees are much lower than neighboring municipalities. |
| Potential increase in fees |
| Not at this time. |
| No. |

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| Most collection is private, we have a townhouse development that is in a trash district and there may be a problem getting bidders when it is rebid in 2022. The yard waste collection at the municipal complex is an issue with non-residents and commercial drop-offs which increases our costs but at this time Supervisors do not want to make changes. |
| No |
| No |
| We may try a one day event, such as paper shredding. |
| No |
| No changes anticipated |
| No |
| No |
| we are in the second year of an 8 year contract |
| NONE |
| Not that I am aware |
| No. |
| No |
| No, Worth Township, Butler County does collect bulk items two times a year. The cost of the dumpsters and workers is worth not seeing trash along the highways. |
| Most likely cease recycling efforts altogether |
| We do not have the personnel to create or a program already in place. I do not foresee a program being made any time soon for our municipality. |
| no |
| No I do not see a change. |
| NO |
| NO |
| No |
| Not at this time |
| no -- no money to do this |
| No. We are continuing to participate in the county recycle project in the fall. |
| No |
| nope |
| the borough is currently under contract with a hauler until 2022 |
| No |
| no |
| We are still seeking the services of a recycling vendor to handle our recycling needs |
| No we have everything in place that we can. |
| no |
| no |
| No changes |
| We don't have a recycling program. |
| Any changes would be provided by Eagle Disposal, as they are our contracted hauler. |
| No changes are anticipated. |
| The Township itself does not have a recycling program. Residents are free to use whatever trash hauler they want, so recycling differs by hauler. |

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| None - Will remain private subscription |
| No |
| No - these changes were just made in 2019 & 2020 |
| Putting out more educational materials and hopefully through a Applied for grant, be able to purchase a new recycling truck. |
| No changes on our end. Only way we would change what we collect is if the recycling centers stop accepting certain items due to market demands or lack thereof. |
| No |
| No changes are anticipated. |
| No |
| None. |
| At this time there are no plans for a recycling program |
| No |
| Sadly, no. I have heard to discussion of it. |
| NO CHANGES PLANNED |
| No, we do not anticipate changes. |
| Yes. Changes will be made to not take glass |
| No |
| Our Board of Supervisor has discussed possibly installing recycling bins within the township. |
| no not at this time |
| No |
| None |
| Looking at yearly contributions to Town of Bloomsburg so that residents can continue to drop off at their site. |
| No |
| We are exploring doing the entire operation in house, rather than contracting it out, which would require an increase in staffing. That has not yet been decided for sure. No other changes are anticipated at this time. |
| Potentially elimination of the drop off collection of 3-7 plastics due to contamination and poor marketability of the baled product. Potentially increase of the curbside collection fee and the addition of a fee for drop off for non residents. |
| No. |
| No |
| No |
| No |
| We are in discussions about working with the Bloomsburg center and paying a fee per resident want to work with town of bloomsburg |
| We would love to be able to affordably restart our program. |
| No |
| Our Borough is not required to recycle. The Borough and the Township are more worried about other issues right now than to focus on recycling or lack there of in the town/surrounding area. |
| No changes |
| No |
| No Our contract with the waste hauler will not expire next year |
| Probably remove all glass from any type of pickup, no market for glass. |

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| Yes determining that now. |
| Possibly increased fees |
| No |
| No |
| No. |
| No |
| We may do a township recycling day twice a year instead of once a year. |
| cost increases may be required. Will have to review |
| No. |
| No changes |
| No |
| Not at this time |
| No |
| No |
| No |
| No |
| Yes, 5 year Contract is up with Contractor and rebid will most likely be higher |
| Fees were increased due to rising tipping fees. |
| No |
| We expect another increase in fees and will consider at that time if we should stop local collection. |
| We provide a waste site for household goods and a metal scrap container |
| None |
| depends on the industry itself and what changes come about. |
| we have a yearly multi municipal clean up / recycle day |
| NO CHANGES OF WHICH I AM AWARE. WE ARE CURRENTLY IN THE SECOND YEAR OF OUR THREE YEAR CONTRACT WITH OUR WASTE/RECYCLING HAULER. |
| We may have to increase fees or eliminate more materials that are being collected. It's still unsure at this time. We are trying to purchase bins fro recycling to eliminate the plastic bags, but with 40K households and bins costing \$16/each. It will take many grants over several years or not at all. |
| No |
| No |
| we don't recycle now, and do not plan to go back to it unless the State provides funding 100% for the staff, trucks, containers, time, etc. |
| No |
| No |
| Yes, we will have a drop-off site for glass, and may expand our "Spring Clean-up" |
| We will be going out for bid for a new contract. |
| No |
| Nothing anticipated |
| No |
| We have completed grants for recycling and are trying to get the bins and attempt to recycle again now that we have mandatory trash pick-up. |
| This matter is not currently on the table for discussion. |
| There are currently no fees and we are hoping to keep it that way. Hoping to start taking newspapers |

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| No, our township is currently working on getting rid of mandatory garbage pick up in general. Looking for residents to find their own garbage collection. |
| Not at this time |
| No |
| No |
| No |
| No |
| No changes |
| No |
| We may be adding staffing to the drop-off location in an effort to reduce/eliminate improper use of the facility (for dumping trash, electronics, non-recyclable contaminants). |
| No |
| If we have an outlet for glass, yes. |
| No. |
| I am would like to be able to start recycling drop off at the township building like we once had, however I do not believe our budget allows for it. |
| No |
| No plans to change our recycling. To reiterate, the Borough of Valley-Hi is a teensy tiny thing that my grandfather thought we needed to have so he fought the state for the Right To Have A Borough to the state supreme court and won. Subsequently, the state made a law that all future boroughs had to have a reasonable number of people in them. But, since we won the court case before the new rule, we still exist even though it is kind of silly. Honest resident population is Howie, Peg, Dad, Sue, me, and Mike. I have some relatives who maintain voting registrations here, but there are six full-time residents. In the winter, there are TWO. I do not think we particularly suit what you are looking for, but you kept emailing us, so... |
| NO |
| NO |
| no |
| No. Saltillo does not currently provide recycling programs. They will probably not offer any programs that will cost the borough money. |
| no |
| No |
| This would be up to the individual hauler. |
| no |
| No changes |
| No - we have no recycling program as most of our township is rural/farmland, etc. |
| We may offer several clean-up days of large items and tires, in addition to the four days per year we have recycling through the Indiana County Recycling Center. |
| Yes, increase in fees. Looking into OCC collection within Borough |
| We do not have our own as a municipality we use Indiana Recycling in Indiana PA and do not expect them to make any changes. |
| Probably not. We are a small township with limited funds. |
| No |
| All recycling in the township is voluntary. No changes are anticipated. |
| no |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No change |
| No |
| All based on the reopening of the recycling center. |
| no |
| No changes expected |
| No |
| As I said, the twp doesn't control garbage pickup, only once a year "cleanup". We finally found someone to do curbside "Fall" cleanup, a new company, Mascaro Brothers. So, at the moment, that problem seems to be fixed. Myself, and a few others I know, recycle, compost and re-use plastic materials, zip lock bags, egg cartons, containers as best we can. |
| no |
| Drop off recyclables collected by township are taken to Lackawanna County Recycling Center for processing. They have stopped taking comingled materials because of pandemic causing us to suspend our drop off program |
| We are currently evaluating the manpower utilized for pickup activities and also looking at going from a three day a week collection to a two day collection to allow us to complete larger projects other than recycling. |
| Not at this time. |
| No |
| No |
| Columbia Borough has it's own Yard Waste Recycling Facility. We did increase the tonnage fee from \$25 to \$30 per ton effective 1/1/2020. That was the first increase since 2014. We have 14 participating Municipalities that contract with local haulers to haul yard waste into our facility. |
| No plans at this time. Free recycle dumpster at Township building is open to the public. |
| No |
| No |
| No |
| No |
| No changes are expected. |
| NO |
| No |
| Third party yard waste processing facility rates increase \$5 per ton annually. Potential increase in rates charged to residents as a result. |
| no unless we have to stop due to people dropping off trash/garbage at the recycling bins |
| No |
| Unknown at this time. |
| No |
| We do not. |
| No. |
| Fees will increase. We are a mandated municipality so, we have no choice until State changes the mandate. |
| We are hoping to have our yard waste and drop off facility open to residents this fall. We will have more materials and collection increase due to this. |
| None |
| Possibly. Contract expires on 12/31/2020 |

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| no changes |
| Not at this time. |
| No |
| Possibly returning to separation of materials and only collecting marketable materials. No more single stream as people aren't cleaning their items and throwing more actual trash in with it. |
| NO |
| Not at this time. |
| No |
| None |
| Possibly a change in materials collected. |
| No |
| Hopefully not as we have already had to hire manpower at our center due to dumping of non-accepted items and we are no longer to take any plastics #3-#7 or glass whatsoever per our hauler. |
| not that i'm aware of |
| None |
| NO |
| No |
| No changes are planned but it will all depend upon pricing in the new contract. |
| No |
| there may be consolidation on sites and maybe relocation to accommodate more and larger recycling containers. |
| Commingled collections at the drop off |
| commingling materials. There's talk of implementing "regional recycling sites" and combining sites to make a staffed site. This is still being discussed. |
| change in how recycling is collected at the drop offs. And possibly changing to a regional drop off that is staffed. |
| None of these have been discussed |
| No |
| No. |
| No |
| No |
| Tri-County handles all decisions about recycling. |
| Considering implementing Township contract to provide more affordable waste service with curb side recycling |
| No |
| No |
| NO |
| No |
| No changes |
| The Township had an increase in fees this year. |
| No |
| No |
| No |
| No |
| new recycling truck and new larger bins |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No |
| We are hopeful that we can find government funds, federal or state, to finance a MRF and start our own curbside collections. |
| No |
| Not until the beginning of 2022 when the new collection contract took effect. We are under contract until 12/31/2021. |
| No |
| No |
| Fees will be determined this Fall for the following year once we have bid pricing for upcoming years. |
| No. |
| possibly an increase in fees to match the increasing processing costs. |
| No changes necessary |
| NO |
| Everyone selects their own trash/recycling hauler. The municipality does not have a contracted vendor. |
| No |
| Increase in fees. Contract up at end of 2020 |
| No |
| No |
| Not at this time. |
| possible yard waste facility, going out to bid for contracted hauler next year |
| Yes, electronics, appliances, |
| No changes in the foreseeable future |
| No |
| Limiting hours of operation and having a staff member monitor during operating hours. |
| We will not have a program unless someone comes up with a solution. |
| Not unless the cost is minimal to the Township, or Ill never have it approved. It actually angers me that recycling isn't covered by some government program. People aren't going to comply unless we have a facility or outlet for them to access. |
| We have many things to consider. It costs the township to take our glass to the Sunbury Municipal Authority. At this time we have the recycling trailer because we want to provide a service to our residents. Sadly though it has often been abused when people throw in dirty diapers, regular household trash, pane glass, etc. We have discussed stopping it and have notified the public that the abuse needs to stop. At this time we have not opened up again since COVID - 19 because we want to be sure we have a place to take all of our recyclables. |
| NO |
| We have no recycling program in this township. |
| no |
| we recently removed books and glass from our list or recyclables. we plan to reassess in a few months to determine if those changes made a difference or if more changes need to be made |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No changes. |
| none |
| We are experiencing a reduction of accepted items due to costs this year. Depending on the fees associated with the transportation more cuts may have to be made in the future. |
| Probably not. The markets are too volatile. |
| NO |
| Currently due to the Covid-19 pandemic we have changed from weekly to every-other week collection schedule. We are analyzing data as we consider whether this change may or may not be temporary. We look to continue collection of the same materials. |
| no |
| No. Provided His Excellency grants us his blessings so we can get back to normal. We had to cancel our Spring metals and e-waste days when we wouldn't grant us permission to hold it even through the "customer" doesn't have to get out of their vehicle. Employees unload everything so there was social distancing before the pandemic. Lets hope they find a cure for megalomania along with one for Covid-19! |
| We have a yearly dump day where we rent dumpsters and the residents pay by carload to dump in them. |
| no. We just call PCSW when they are full. |
| No |
| No |
| We don't charge our residents for the recycle but that may start. |
| No |
| No |
| NO |
| No |
| Unknown |
| We expect no changes |
| No |
| Nothing at this time |
| No changes anticipated at this time. |
| No |
| No, not as long as our hauler will take them. |
| yes, increasing fees |
| We have no say in the matter, since it is a neighboring location operated recycle center. |
| No |
| No |
| We don't have a recycling program. |
| our first electronic recycling clean up was canceled due to the virus, but we are hoping to reschedule for this fall |
| No |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No |
| We are very rural so a location problem is an issue. |
| No. |
| Hopefully, we can be open more hours for our residents. Staffing is a problem! |
| We do not have recycling through twp |
| No |
| No |
| We have been working over the past three years to improve our site. Changes have already been made and the program is working well. |
| No |
| None |
| No |
| No |
| No |
| Sugarcreek Borough discontinued the recycling program in 2016 due to illegal dumping. |
| No |
| No. |
| NO |
| We have a County program through Warren County Solid Waste Authority. They take care of the processing and any changes to the program. We are under their regulations so uncertain of these changes. |
| No |
| No |
| NO |
| That is unknown to me. |
| No changes will be made in 2020 and most likely 2021. |
| Yes, The types of recycled materials will decrease. |
| No |
| No |
| Not unless the County offers an inexpensive program |
| No |
| No |
| Yes, collection frequency, material types. |
| We just began our recycling of aluminum cans within the past couple of months. We plan to expand what is collected in the future. |
| No |
| None at this time. |
| as of now, no |
| No |
| no plans as of now |
| We regularly discuss whether to change the program in order to have only authorized recycling collections and no garbage. |
| No |
| None |
| Might decrease frequency of hours of operation. |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No changes. Our trash contract is 2020 through 2024. |
| This is all dependent on our trash hauler. The trash contract is put out to bid and awarded to lowest bidder. Last contract, there was only one bid received, who was awarded the contract. |
| No, we do not. |
| Not unless our hauler is required to implement changes |
| No, we are under contract until 2021. |
| No |
| No changes expected at this time. |
| No |
| No |
| No |
| No |
| Not at this time |
| NO |
| Windsor Borough is a very small community and does not have the resources to offer more services to the residents so we rely on what the garbage company will recycle for us |
| No changes are proposed. |
| We are limited to what is collected for recycling by the hauler. |
| we have a contract for services |
| there is an annual cost increase, apparently there may also be a tax increase |

Question 30: Can you tell me how, if at all, COVID-19 has impacted collection services in your municipality?

| Response |
|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Bulk item collection was suspended for two months |
| The 1 large item/week pickup was suspended for April and May 2020. |
| not at all |
| It hasn't |
| Our weekly large-item pickups were temporarily halted. |
| No effect |
| Electronics waste special event cancelled in April. |
| has had no effect yet |
| Yes |
| No bulk pick up for a couple of months but other then this everything went well. |
| trash and recycling have been picked up later than usual. Today, recycling was picked up in the evening vs the morning in which it's supposed to. |
| It did not impact the recycling collection, just regular trash pick up |
| We do offer HHW and ewaste collections 4x/year. COVID -19 has simply delayed the 2Q collection from June to July |
| Hauler suspended pick-up of yard waste and large items for 6 weeks forcing us to rent dumpsters and have Public Works pick it up. |
| recycling has stopped and is temporarily commingled with regular waste. |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| We have asked residents to ensure all trash is completely bagged and that no loose items are in the trash bins. Recycling has not changed. |
| It has not. |
| very slightly and only for a very short while |
| During the height of the pandemic, collections continued but were curtailed to only what could fit in the container - this was an issue for some residents that didn't want/couldn't cut up large cardboard. Our hauler is back to regular collection, so affected for only about 2 months. |
| Not at all |
| Has not impacted drop off |
| Limited collection of unpackaged items. Much outcry on the inconvenience of that temporary policy. |
| Our garbage service provider restricted the amount of garbage and recycling put out to the curb and the amount of large items. |
| eliminated cardboard pickup loose at the curb for 6 weeks |
| Only impacted bulk waste collection for a month. |
| We had to temporarily halt collection of certain nontypical items. |
| I am unaware that there was an impact on recycling. |
| It has not affected the collection services |
| No impact |
| None |
| Not at all |
| Not at all |
| Our drivers have modified their hours but it has not affected our curb-side recycling program |
| We have a once a year curbside spring cleanup that was cancelled by the trash company this year. |
| A large amount of extra trash with people staying home and apparently a lot of clean up projects going on. |
| It did not impact it. |
| it has not impacted recycling, but for a couple of weeks they would not collect bulk items and furniture |
| None. Our recycling is all volunteer |
| No change in collection |
| It has not effected our program. |
| The hauler told the residents WE WILL BE TEMPORARILY SUSPENDING ALL PICKUPS OF NON-ESSENTIAL ITEMS DURING THIS PERIOD OF EMERGENCY. |
| It hasn't |
| Maybe a slight increase in quantity do to lock down and excessive clean out of homes. |
| Not at all |
| no impact |
| Not much participation in our bulky waste day was slightly reduced |
| Bulk pick up was suspended for a few months |
| None |
| Not at all |
| My County center has not been open. Therefore we do not have our secondary location to recycle |
| Very little. We are mainly commercial and do not have a recycling program. The individual businesses may do their own. |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Collection services themselves have not changed significantly, although our local MRFs are running an even greater stockpile. However, our city is certainly dirtier and we are seeing higher contamination and significant amounts of trash set curbside. |
| NOT AT ALL |
| Drop off center run by County closed. |
| COVID-19 impacted our collection services initially because our processor (NTSWA) was not able to pick up containers at the drop-off center. This coincided with the closure of a drop-off center in a neighboring municipality which dramatically increased our volume of people using the center. Adjustments were also necessary for our curbside program due to concerns with the virus' lifespan on flat surfaces like plastics and cardboard. Ultimately we were able to get back to "new normal" by April 1st after implementing social distancing practices for employees doing curbside and residents using the drop off center |
| Slower collection from the haulers with more people home, more to collect |
| Not at all. |
| No change. |
| None |
| It has increased the volume of material |
| No impact. |
| Recycling was stopped for a two (2) week period but is back on schedule now |
| Not to my knowledge |
| No |
| No |
| Not at all |
| NONE, as we have used automated collection since the program was launched 22 years ago. No human contact with the material at the curb. |
| None known. |
| Not that I am aware |
| Unsure if it has in the township. |
| It has not. |
| Not that I am aware |
| It has ruined the core of America |
| No it has not |
| None |
| None |
| None at all |
| None |
| Not in our township but in a neighboring borough it did. |
| limited bags each week and only bagged items. |
| Nothing at all has impacted collection services |
| It hasn't impacted recycling since the borough does not have a recycling program |
| It hasn't |
| They have not been affected. |
| It didn't |
| temporary suspension for April 2020 |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| not sure |
| Bulk and yard waste was suspended for a short time, however it is back to normal pick up schedule. |
| Not so far. |
| I don't know that it has. |
| not known |
| Probably more people at home and clearing out has likely increased our quantity. On the other hand, with elderly residents they may not have recycled for fear of contracting the virus. Somewhat of a toss up. |
| Read notes in the other questions that I responded to regarding the Covid-19 |
| Services have suspended pickup of anything not in a refuse or recycle approved container |
| Not at all |
| no impact |
| We maintained consistent service through Covid-19. However, we did see a large spike in trash and recycling as people were home much more and many took advantage of the time to clean out their homes. |
| No significant change |
| No information. |
| Not at all |
| None. That we know of. |
| no affect to my knowledge |
| Not at all. |
| NO COLLECTION TO BE IMPACTED |
| No impact. |
| County shut down recycling. We had no way to limit. Therefore, received more than our municipality |
| not aware of any |
| not aware |
| it hasn't been affected at all |
| Not at all. |
| Overall, it generally seems like there is an increase in garbage/recyclable generation. |
| Drop off point was closed and recyclables were being thrown away in trash. |
| Has not effected. |
| No impact. |
| Curbside collection continued nonstop throughout. The drop off center was closed from March 17th until May 22nd. Beginning May 11th for two weeks individual drop offs appointments were scheduled. Resumed regular drop off hours on May 22nd under Yellow guidelines limits on occupancy and mask required. |
| It has not. We canceled the service as of December 31, 2020. |
| None |
| None |
| i know personally the recycling has taken a life of it's own at my house. some people are just throwing away since the recycling centers were closed, but i'm holding off. i believe in the benefits of recycling |
| The Bloomsburg Recycling center had to totally shut down during the red phase. So the option for anyone in the entire area to recycle with out the use of a traditional trash hauler was not an option. So those who cannot afford the extra monthly charge with a traditional trash bill had no where to take their recycling. |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| During COVID-19 the Lycoming County Resource Management Services shut down recycling drop off. All materials collected during this time were diverted to the landfill by haulers. |
| No |
| Occasional delays due to lack of landfill drivers |
| None |
| Not at all other than electronic recycling is closed. |
| We had to shut down our center for several weeks |
| no impact |
| Minimal impact - The brush site was closed a few week. |
| No |
| Bulk-item pickup and yard waste were halted for March and April, but have since resumed. The County drop-off facility which we use is currently closed. |
| It has barely an impact. |
| It has not affected this municipality. |
| Weekly brush collection was temporarily suspended. Otherwise, no change |
| Increased volume, slightly. |
| No changes |
| JP Mascaro has continued to collect on-schedule. Electronics drop off event was cancelled for now but curbside collection opportunity still available. Yard waste (branches) drop off was delayed but curbside pickup was still done. |
| We are collecting Trash, Recycling and Yard Waste weekly. Bulk Collection has been suspended |
| Not so far. We are 100% residential. We have no business area, restaurants or hospitals/health facilities. We are lucky that we do not have the problems of bigger municipalities. |
| No |
| None |
| No impact |
| Huge increase in home waste and recycling |
| We mixed with trash due to employees changing duties to keep them apart. We did send it to a trash to steam plant that burns it for electric. We also were not allowed to cross the state line where the Recycling plant is in Delaware. We are right on the state line. |
| None |
| It hasn't affected our local collections, but it has closed the Elk County Collection Site. They have put out containers for some materials, but electronics aren't one of them. We expect to see computer screens, TV's being thrown over banks.... |
| Yes. There was a increase in household "stuff". Evidently people had time to clean out their homes, sheds, and garages. |
| The county's center was closed by bins were put out for residents to recycling cardboard, paper, aluminum cans, bi-metal cans and plastics. For the most part, our curbside collection continued as well as our compost site hours of operation |
| stop collection of for about 8 weeks |
| it has not |
| Raccoon Refuse will not pick up large items at this time |
| IT HAS NOT. |
| We had wo cancel two annual spring events: tires and electronics drop-off collection |
| Temporary elimination of trash pickup not put in the bin and elimination of any large items. |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| no impact |
| Nobody will accept newspapers at this time, so we stopped collection, but once Erie County goes Green, I am sure we will resume collection of newspapers again. |
| garbage haulers will not pick up any loose bags or items off the ground |
| I haven't noticed any impact |
| No impact. Except communication with the glass recycler has been slow. |
| hasn't |
| None |
| It has not impacted collection |
| COVID-19 has impacted the weekly collection of white goods in the Township. Per our contract Waste Management is to pick up any whit goods set out, an example would be a couch, mattress or any other large item. This has been suspended. |
| No impacted |
| To date, the hauler has been picking up the recycled materials on a regular basis. |
| We were scheduled to start this program in April but due to COVID we had to postpone till June. |
| cancelled our spring clean up day until later |
| People did not want to travel to our site |
| no impact |
| Yes, it was stopped during the months of March and April which caused a pile up |
| Don't feel there has been an impact on this. |
| No |
| Volumes at the drop-off locations have increased. |
| No impact |
| Due to COVID-19 we cancelled our yearly bulky trash collection day |
| We had to cancel a bulky item drop off day. |
| Only in that we did not collect during the mandated stay at home order |
| Little impact. |
| It has not. Private trash services have been able to continue. |
| the Spring Bulky Waste Collection was canceled |
| Not at all. The entire county has like twenty cases. We as a borough are the poster child for social distancing. One does not live on five hundred acres and establish one's very own municipality unless one is decidedly on board with social distancing in the first place. |
| NOT AT ALL |
| NO |
| When Governor had a stay at home order and items were not collected |
| no impact to my knowledge |
| As far as I know, recycling services through the local garbage company stayed on schedule. |
| no impact |
| No impact |
| Our haulers are all privately contracted, but they have been running on the same pick up schedule that they always were. |
| It has not affected our community's collection services. They still collect once per week. |
| It hasn't. |
| We do not have a recycling program. |
| Temporary reduction in commodities collected (no glass or cans) |

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| It had been canceled due to the shelter at home order but is back to being collected once a month. |
| It delayed it by 4 weeks |
| Not at all. |
| None |
| Yes. The Lackawanna County Recycling Center will not accept commingle - glass & plastic -. |
| As in previous answers, COVID has greatly affected our recycling ability. |
| not at all |
| We shut down recycling from March 14 - May 16. When we reopened we spaced the dumpsters 20 feet apart and residents are now required to empty their own recyclables. In addition, we ask them to wear masks. |
| COVID-19 has not affected recycling collection services. |
| That's what Waste Mgt. told me. They don't want to do curbside spring cleanup because their people don't want to "handle" materials put out. I don't believe that was the reason but..... |
| Highly impacted |
| see previous notes. Since Lackawanna hand sorts recyclables they are not accepting comingled material. When they resume operations we can resume our volunteer staffed program |
| We have an agreement in place with Covington Township to allow our residents to drop off recyclables at their facility. Collection at that facility has been on hold since March 2020. |
| Increased PPE for our employees and removal of our drop off location at the Borough Municipal Garage to limit contact with the general public for our DPW employees. |
| No impact |
| Temporarily disruption |
| no impact |
| The Borough started yard waste pick up as originally scheduled April 6. Each household contracts with a licensed hauler for weekly pick up of trash and rubbish and recyclables. That continued throughout CoVid19. There were a few Municipalities whose haulers did not haul yard waste (non-essential) into our facility in April |
| From a collection standpoint, no effect. From an accounting standpoint, increased costs and altered processes. |
| Reduced oversized item collection. Appliance collection cancelled. |
| Unknown |
| No real impact. |
| No impact |
| No impact |
| There has been significant impact. We had to discontinue yard waste and bulk item pickup as well as reduce the amount normally picked up for waste and recycling. The result has been more burning, property maintenance violation suspension, some homes placing 30+ bags of waste out once services resumed and in general a community extremely upset with services being suspended even just temporarily. |
| No |
| Haven't really noticed any impact. |
| We do not have collection services. |
| No impact |
| It has not affected collection service by the independent haulers. |

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cardboard has been increase greatly due to the pandemic and thankfully we still are able to take that to a facility to recycle, but that's not always the case. |
| None |
| No impact |
| township recyclables station was temporarily closed for approx. 6 weeks |
| Our center was closed for the first few weeks. Our center employees students to help the elderly and those in need unload their recycling into the containers. With COVID-19 we have stopped the hands on help. |
| None |
| no one is willing to work the center |
| Our recycling center was closed since March 21 and will reopen June 13. |
| Our recycling center shut down 3/17 until 6/2 residents were beside themselves wondering what to do with their recyclables. |
| Yes it has. For approximately 1 month the private contractor was working on a skeleton crew and garbage/recycling was not being picked up. |
| Not at all |
| None |
| No impact |
| We had to close our center as we didn't have manpower - when we reopened that is when the hauler told us no glass. But other than that, it hasn't effected it too much. |
| It has not really impacted it |
| Temporary suspension of service, now operating |
| It has not impacted the collections at all |
| no impact at all |
| No impact at all |
| recycling closed for short period, yard waste facility closed |
| No |
| site and single stream was suspended for a brief time. |
| site and curbside collections were suspended during shutdown of recycling building. |
| suspension of recycling for a month. |
| recycling was temporarily suspended for a month. |
| None known |
| No current collection system in place. |
| No. |
| Very little. |
| None |
| I have not noticed any changes. |
| not at all |
| It hasn't that I know of |
| NO |
| not at all |
| Has not affected the area |
| No impact. |
| no |
| It hasn't impacted the collection services at all. |

| |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No |
| Increase in recycled materials in our bins |
| They have reduced the amount of recycled material that is collected. I think that restriction has been removed since we went to the yellow stage. |
| suspended drop off for 3 weeks |
| suspended drop off for 3 weeks |
| no, it has not. |
| not really |
| Our contractor's employees seem to be taking more precautions. |
| Yes - increase residential tonnage of all materials including trash. |
| Our 3rd party hauler did not change their recycling collection program. The only temporary impacts were delays in collection of white goods and bulk goods, but those had resumed by the first week of April. |
| No impact as best we can tell. Trash haulers are still collection recyclables curbside. |
| We contract with a single hauler. Our services have not been interrupted or altered. We have a three year contract with two one year renewal options. |
| it has not had a financial impact. the social impact has been that our crews have had to continue working and being put a health risk. |
| No impact |
| Recycling volume has increased 30% |
| Just by driving through the township, you can see there's more trash/recycling. |
| Curbside continued with stricter regulations but the drop off location closed for 6 weeks and now its only offered one day a week for a few hours. |
| no |
| None |
| No impact |
| none |
| not at all |
| Too many people out of work which has increased brush |
| Didn't affect our collection service |
| No impact on recycling |
| It really has not impacted the borough's collection services. WM had temporarily stopped accepting bulk items back in March, but has since resumed all normal curbside service(s) as of June 1, 2020. |
| bulk pick ups not being done, haulers not picking up all cans put out |
| Not |
| Our holler only picks up bagged and things in trash cans |
| We were required to close due to our hauler having to close their recycling facility. As guidelines slowly lifted we opened on a limited basis once a week to allow materials to sit for a certain amount of days before hauled away. This has been frustrating for many to not be able to recycle. |
| The volunteers decision to disband was made before COVID-19 hit. The center was to close the end of April. Instead it closed when the stay at home order was in place. |
| One of our surrounding municipal facilities closed down. |
| Closed facility for a period of time |
| We had to remove the Eager Beaver trailer and stop all recycling drop off's. We had no where to take the items since recycling centers were closed. We do not have anywhere to store the recyclables so we |

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| pulled the recycling trailer and put it in storage until further notice. We put up signs and barricades advising the residents as well as posting a notice on our Facebook page. |
| closed the center |
| Collection was suspended |
| I don't think it has. |
| None |
| We have had to cancel two collection dates due to the rules of CDC |
| Has not affected it except people slowed down during the lock in to stay safe. We are a small municipality so it's not like we have a lot of people stopping by at the same time. |
| NONE |
| Covid-19 has impacted staffing levels due to illness, childcare, and other Covid-19 effects. To accommodate the changes, recycling collection was changed to every other week, citywide. Revenue decreases and increased expenses due to Covid-19, along with other impacts, will inform whether this schedule will remain. |
| We have not scheduled our yearly clean-up day because of the stay-at-home order. |
| Had to cancel Spring metal/whitegoods/tires etc. day and spring e-waste collection day. |
| Our Dump Day had to be postponed |
| No |
| There was very little impact...the Township provided a dumpster when the County Transfer Station was closed. |
| The transfer station was shut down for a short while. |
| they were temp. shut down |
| We suspended pick-up due to the fact that we didn't want people in and out of the office during recycle times. |
| No effect |
| NONE |
| Huge increase in cardboard recycling. I'm assuming because of people staying home and ordering online. |
| no impact |
| not at all |
| It hasn't impacted the collection at all |
| no effect |
| It hasn't |
| The site that we can access that is 6-8 miles away was closed to recycling for a couple of months...people don't have the room to store their recycling, which forced them to put it with the regular garbage that does pick up in our town every week |
| Center was closed since Lycoming would not collect our containers. Operational now but on their basis not ours. |
| It totally stopped our program which we hope to resume soon. |
| Services were temporarily suspended and people were unhappy plus Borough clean up had to be rescheduled. |
| Yes. We had to suspend recycling for about 5 weeks until our containers could be emptied due to Covid-19 |
| It was closed down. |
| None |

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| No impact |
| No impact |
| Haven't noticed any change |
| Closed the County recycling center. Bridgewater Township cancelled our annual clean up days and electronic recycling event for the current year. |
| our first electronic recycling clean up was canceled due to the virus, but we are hoping to reschedule for this fall and we have noticed a large increase in the amount people are recycling |
| NO |
| none |
| The neighboring municipality has stopped drop off for now. |
| Not at all |
| No impact |
| Not affected. |
| As stated before, access to purchasing garbage bag stickers has been cut off, now requiring residents to mail a check in and wait for the stickers to be returned. |
| Closed recycling center for several weeks. |
| We were closed for 2 months. Then it changed to twice a month. |
| The vendors stopped collection March and April |
| recycling center was closed for over a month due to COVID-19. Recycling Center hours cut by 1/3 currently due to COVID 19 |
| Stopped collection services. When facility opened again, it was backed up for several weeks. |
| Of course it has impacted because the collector, LCRM was not permitted to empty our bins so we had to close. We are now open again, and it has been very busy due to people holding materials at home. Once we get through the next few weeks of getting caught up, the rush will balance out again. But people have been very understanding and are doing their part. |
| The company that picks up our recycling was not picking up for a period of time, therefore we had to halt our recycling program. |
| none |
| no impact |
| None |
| None. |
| Has not affected us at all. |
| I believe we have had a larger use of our collection service due to more residents being home and cleaning out which made more recycling. |
| our dumpster is filling up twice as fast as it used to and have had to shut it down until it is emptied |
| None |
| Do not have collection services |
| WE HAVE HAD TO HAVE OUR CONTAINERS DUMPED EVERY WEEK NOW BECAUSE PEOPLE ARE CLEANING OUT THEIR HOMES WHILE THE STAY AT HOME ORDER WAS IN EFFECT |
| Also unknown to me. |
| It has not impacted. |
| Temporary restriction on pick up of all items not stored in a container. |
| No impact known |
| none |

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| No impact |
| No evidence |
| No impact |
| None |
| Services have continued but on a more cautious basis. |
| Collection of card board stoped |
| we had to remove our containers so there is no recycling, and we received emails and phone calls almost daily for 2 weeks, now they understand |
| Residents had to keep their recyclables for about 2 months before they could drop them off again. |
| none that i am aware of |
| Yes, we temporarily suspended recycling operations. |
| Bulk items and leaf waste was not picked up for about a month. |
| Yes, some services were discontinued for a period of time. |
| only items placed in a tote were picked up...nothing outside of the tote was picked up..... |
| The hauler has had replacement drivers that don't know our route and miss locations |
| no impact. |
| Not much of a change. |
| Hasn't really affected anything |
| None at all we operated during the entire Covid crisis |
| Was suspended for about 6 weeks but bulk items have been collected again |
| COVID-19 impacted in April as the Contracted Hauler we utilize did not collect brush/yard waste nor bulk items. There were times when these materials were left curbside and not collected because the Hauler was running with a reduced staff. We have also had our Township offices closed which reduced the availability for persons to purchase additional trash bags (an additional cost to go above the contracted amount) or brush stickers to be placed on brush/yard waste bins so they can be identified. We had to open up this access by placing the brush sticker on our website, reducing revenue and the bags are now purchased at another location. |
| Our third party contractor continued to pickup normal recycling items however everything needed to be inside the proper container. |
| As previously stated, we were not able to hold our Spring cleanup and our yard waste drop off has stopped. |
| NO IMPACT |
| Residents were not allowed to put out large items (such as furniture) for a few months |
| The stay-at-home order increased the amount of recycling that is being placed at the curb for pickup. |
| The only service that was temporarily suspended was bulk trash. |
| we had to stop household brush pick up for 2 months, we have left our brush drop off open daily to accomodate. our contractor isn't in the office and everything is being done through email so i have had to respond to additional concerns due to that, our shred event had to be postponed until september and the household hazardous waste pickup is being rescheduled. |

Question 31: Do you have any additional comments?

| Response |
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| We do hazardous recycling picked up by our contracted hauler, by appointment. |
| If you build a recycling location, people and business will come. |
| The recycling program will be missed by our area residents, not just the borough residents, as it was highly used |
| I am requesting a copy of my responses be sent to Kevin.Lugo@ReadingPA.gov. Thank you. |
| I want to clarify the frequency of the curbside collection process. The Borough is divided into three (3) zones, and recyclables are collected at the curb twice each month or every ten days in each zone each month unless a collection days falls on a holiday. |
| Thank you for your interest in this nation wide concern. |
| I think probably some people do not properly recycle, i.e. jars or plastics are not clean, or placing materials in their recycling bins that are not truly recyclable. It would be helpful if the wastehaulers did periodic mailings or placed stickers on their bins that would help to guide residents in proper recycling. |
| More concerned about the General Assembly continuing to take funds away from the recycling fund to pay for general government and away from supporting recycling programs. |
| There is a strong belief among many many residents (and people from all across the US that I've spoken with) that trash haulers just dump the recycling in with the trash once they are out of sight and nothing is ever done with it. They say things like, "I've seen the recycle truck go into the landfill place!" and "The trash truck is the one that picks it up." Because of personal knowledge, in my area, I can tell these folks that the hauler has trucks with dual capacity and they pick up both at the same time and it goes into separate containers on the truck or that the recycling facility is on the same campus as the landfill. But I have been amazed at how many people, from all parts of the country, believe this or some similar version of this and so they do not recycle at all. |
| We have at least 4 haulers that service the Borough. There is no consistency between them of what they do and do not recycle. Additionally, many citizens complain that they see the recycling going into the same truck as the trash so why should they recycle? |
| We have a lot of rural area in our township. People are willing to take recyclable materials to designated bin areas. We would like to get some in our municipality. |
| I really have nothing to contribute since we do not have a recycling program. I know some residents who drive three miles to Cresson and use that facility. |
| There is a need for recycling vendors. |
| The electronics are the hardest to get rid of because the consumer bought the product and now has to pay up to \$75 to get rid of a TV because the landfills will no longer take them and the residents do not feel this is fair. The flip side is; no one made the consumer purchase the TV or other items that are charged a fee for. These people are the ones who dump these types of items in the surrounding townships. It's sad all the way around. We took tires out of our contract and replaced it with an event once a year for our residents to get rid of 5 tires per garbage bill instead. We had the local scrappers in the area leaving all the tires in our municipality. We no longer have that problem. |
| As recycling is all voluntary, the survey is not applicable. |
| It would be nice if recycling was more uniform. I know what my residential recycler recycles is quite different from the recycler where I work. |
| No thank you. Keep America Clean! Stay safe & healthy! |

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| WE DO POST WHEN CLARION COUNTY IS HAVING THEIR BI-ANNUAL RECYCLING DAYS SO THAT OUR RESIDENTS MAY PARTICIPATE. |
| I believe the difference with our community and many other is the source separation of recyclables at each home. This process almost eliminates contamination, and provides for a marketable product. |
| Revenues continue to decline and expenses continue to rise. time will tell on how long the recycling department can operate in a loss. We have downsized by 2 employees by not rehiring replacements when they left. |
| if there was some sort of incentive to recycle, making mandatory is a negative move but having an incentive is more positive |
| While recycling is important to our community, having affordable solar energy as a way to power our town is something we are highly interested in. If you have any information to share with us on grants for recycling and or green technology, we would love to hear about it. |
| We have a landfill located a few miles outside of our borough. We have an agreement that allows our residents to take trash and recyclables for free on weekly basis. |
| We have a multiple municipal contract with the hauler. The number of municipalities in the contract provides stability |
| Recycling drop offs are available in our general area, provided by the County. Electronic recycling is available at one local site, an inter-municipal effort, aided by the County. |
| see our Public Works webpage (https://www.newtowntownship.org/154/Public-Works) for additional information. |
| We found out in talking to Republic that only 8 % of what we pickup is actually recycled and 92% goes to landfill due to contamination. |
| We offer no recycling programs in the Twp |
| Recycling has reached a strange level at least in our community. We have done a great job teaching our children about recycling but now we find ourselves at a time where there is no market for the products and people are frustrated because they have gotten into a life long habit of doing a good thing by recycling and there is no where to take the items at least in our rural area. People are not going to collect items for weeks and then drive several miles to recycle them. Not sure what the answers are for a solution but I see the frustration from the community on a regular basis. |
| The Elk County Solid Waste Authority has an amazing operation; I know they have been affected by Covid-19 and hope that they come out the other end intact. It would be a shame to lose this service. |
| I WOULD LIKE TO SEE THE RESULTS OF YOUR SURVEY WHEN COMPLETE. |
| Everyone who recycles in our community is very upset about not being able to recycle glass. Many die-hard recyclers try to help buy purchasing recycling bins themselves to avoid using plastic bags. But it has difficult to get management to allow bins. But now the cost of recyclables has sky-rocketed to \$125/Ton (from \$40/T), they are finally encouraging bins. |
| Recycling has cost our Township tons of money; this is the reason we stopped. If the Government would fund the recycling program 100 % and offer some good close, and easy locations to haul the materials to would be great. |
| we would like to see recycling services in our municipality |
| Residents contract private companies to collect garbage and recycling. It is up to each resident if they choose to recycle. We at one point had recycling drop off at the township building once a month but had to stop due to the costs we were incurring. I am very interested in starting a recycling program back up if there is a way to offset costs. |
| I'm Jessica U. Gothie, borough council president (or I would be if we bothered to hold meetings) and I generally wind up filling out this sort of thing for assorted gov't agencies. I do not think that the |

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| Borough of Valley-Hi represents the sort of municipal challenges and stuff you're trying to measure, but you reached out, and LO I have responded. Enjoy. If you have further questions, you can call my office 8 am to 4 pm m-f, 814 623 7100. |
| Please note that Birmingham has a population of 90 so many of the issues which affect larger municipalities do not affect them. Sorry I can't be of more assistance. |
| WE ARE A MUNICIPALITY OF APPROXIMATELY ONLY 50 HOUSES AND TOO SMALL TO FINANCIALLY BE RESPONSIBLE FOR THESE SERVICES. |
| We use Park's Garbage for the collection of individual residence recycling. |
| I personally would love to see more things recycled, but the State will have to help with the costs, because it's just not cost effective for the collectors/haulers to do it with the reduced money that they get to make it happen. The prices of recycling have gone through the floor, and they aren't willing to lose money to do the collections. |
| At this point, recycling is not recommended for our township. Anyone wanting to recycle is welcome to take whatever is collected at the local recycling facility. |
| Residents who recycle take their recycling items to the Indiana County Recycling Center. |
| We also have many older residents that just don't recycle. |
| None you haven't heard. I remember the days when contaminating the planet was at a minimum. When we could swim in the Lackawanna River and others w/o being poisoned. When we could eat meat that wasn't filled w/ antibiotics, growth hormones and pesticides. When the air was fairly clean. When the sun wasn't dangerous because of what we've done to the ozone layer. Can that come back? Not as long as our 'scientists' keep coming up w/ inventions that make things easier, but that tend to make us sick & fill whales stomachs w/ plastic.; along with the fracking jerks that contaminate our water supplies and do terrible damage to our creeks and god knows what else. I will stop now. Bet you're glad. |
| when Waste Management introduced the concept of single stream recycling it was the beginning of the end for our program. As long as there is a need and we can get volunteers our program will be here. |
| Our residents use their own private trash services and it works out well for the most part. Our illegal dumping is usually large items such TV's, tires, and believe it or not even boats. LCSWMA offers a place for people to take their items. People are just lazy. |
| We do not have recycling in our community. It's available to our residents at the Greater Lebanon Refuse Authority. |
| Jonestown Borough allows their residents to choose the trash/recycling company they prefer. The trash haulers participate in recording curbside recycling in our community. Jonestown Borough recycles green waste by providing residents with an area to place their tree trimmings, etc. |
| Changes in recycling sites have not been confirmed yet. Working with County Commissioners, as LCRMS is county owned and operated. |
| Separating these items would be beneficial |
| There needs to be more work from the plastics industry for lower tech products made from recycled plastics. With the push for more home gardens, make Boards made of recycled plastic for the sides for said garden. This would use approx 35-40# of recycled material. A board for a home garden doesn't need critical properties such as high tensile or impact strength so commingling of PP, PETE, PET etc wouldn't be as critical for a board. If you know your collection market, I'm sure you could get reliable material. Before I retired, I worked in R&D in the epoxy industry. Unfortunately, our specs were very tight so we did have scrap epoxy liquids occasionally. We were spending approx \$10/gallon to get rid of |

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| <p>scrap that failed our QC specs. As a solution, I made molds to make parking bumpers from this failed product. Each bumper kept 125# of liquid epoxy from going to an incinerator. The large concrete blocks that use leftover concrete are in large demand, quite expensive and quite heavy. Why not the same type of system for recycled plastic? Along with boards, Dividers for compost piles at home, dividers for different types of gravel or mulch at a commercial business. Large, heavy, low tech specs. An approach along these lines may work?</p> |
| <p>Recycling is not very accessible in the area</p> |
| <p>The amount of misinformation about what is recyclable is vast, most of it because the system is controlled by the major waste haulers and the MRFs they operate. The public has no idea about the real facts, and any education campaign is either partially in the dark or doesn't inform people of the real value of commodities.</p> |
| <p>I wanted to provide some additional context to some earlier answers: Who provides curbside recycling collection services in your municipality?</p> <ul style="list-style-type: none"> o We contract with a 3rd party collection company for our residential recycling collection. So the closest available answer would be municipality but it is not our employees providing the service. Who pays for the recycling collection services in your municipality? o We pay the bill directly with our 3rd party hauler. However, we collect a \$290 trash fee from all residential properties which covers trash, recycling, yard waste, curbside leaves, and e-waste collection/disposal. So far, I've chosen municipality again as the answer. <ul style="list-style-type: none"> Since 2018, how frequently have recycling collection services in your municipality been negatively impacted by: <ul style="list-style-type: none"> o We are in the midst of a flat-rate, 3-year contract which began in 2018. So there have been no impacts to our collection program. I'd imagine our 3rd party hauler has had significant challenges after they have processed the recyclable material, though. <ul style="list-style-type: none"> If residents in your municipality are able to recycle electronics, who pays for this service? o I chose government-sponsored program. Our cost incurred for e-waste recycling is covered by the annual \$290 fee I described above. |
| <p>Since recycling is mandated through ACT101 besides the 902 Grants the State government should subsidize municipality's recycling programs</p> |
| <p>J.P. Mascaro & Sons provides excellent collection service</p> |
| <p>State needs to realistically address the issues with recycling, electronics, etc</p> |
| <p>If you can provide any information for the process of having collection or grant opportunities I would appreciate it. I think it is an important step forward.</p> |
| <p>As in all things there are those who follow the rules (which are clearly stated at the site) and those who will abuse the recycling center. We have two full time employee's that work the roads and take care of the recycling trailer. If we continue to have abuse we may not have a choice but to stop having the drop off site. We discuss this at least twice a year at our meetings. We would hope to provide recycling in our township in future years.</p> |
| <p>We would hope to provide recycling in our township in future years.</p> |
| <p>There is a route that Cocolamus Creek takes each week to empty recycling dumpsters and residents along that route, which is not many, may put their recycling out for pickup. It would be nice if they could pick up all residents' recycling.</p> |
| <p>There are local volunteer groups that collect recycling in our area. Our Township does not have a garbage pickup, that is done by outside sources</p> |
| <p>If BU and PA are really concerned about recycling follow the recycling trail. A surprisingly amount of comingled materials are not recycled at the facilities and buried as waste. There are also rumors</p> |

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| that lack of markets has resulted in separated waste (eg. #7 plastic and mixed glass) being landfilled. You may find that comingled recycling is not worth the effort and select single stream a better way to go. |
| A county wide recycling and waste drop off center would be helpful |
| No, thank you. This was an interesting survey |
| NO recycling |
| I believe people would be willing to better clean and sort their recyclables if they knew it was going to be used - we have single stream and many people feel that it is put in the dump anyway due to cross contamination. We can do better if it was offered. |
| Our residents are encouraged to take their recycling to a neighboring borough (Forest City). Collection is available every Saturday from 8 am to 11 am. Out of FC Borough people are asked to make a donation. Recycling can also be taken to our county seat Montrose, Pa. |
| Our Township has an annual cleanup |
| I'd like to see a copy of the survey results. |
| Hartleton Borough does not have a community recycling center but we use those in the communities around us. |
| I really think recycling is very beneficial to the community. |
| I was unable to correct a question. We do not mandate curbside recycling collection. It is a voluntary program for electronics and hazardous household waste through our regular garbage collection program. |
| We want recycling in rural PA. Find a way that rural municipalities can easily and inexpensive accomplish. |
| I'm assuming that when you ask collections questions, you are specifically only talking about recycling materials and I based my answers from that. |
| Waste Management contract takes care of all of our needs. |
| Our municipality only offers curbside pick up but within 15 miles of our municipality is Westmoreland Cleanways & Recycling where residents can take items not accepted at curbside including hazardous waste. |
| Overall I believe our trash and recycling is working well. Cost is the biggest factor with our residents. |
| I anticipate a reduction in our recycling when our next contract comes into negotiations. |

Appendix 3 County Survey Results- Figures and Tables

Figure 1: Municipalities Mandated to Recycle

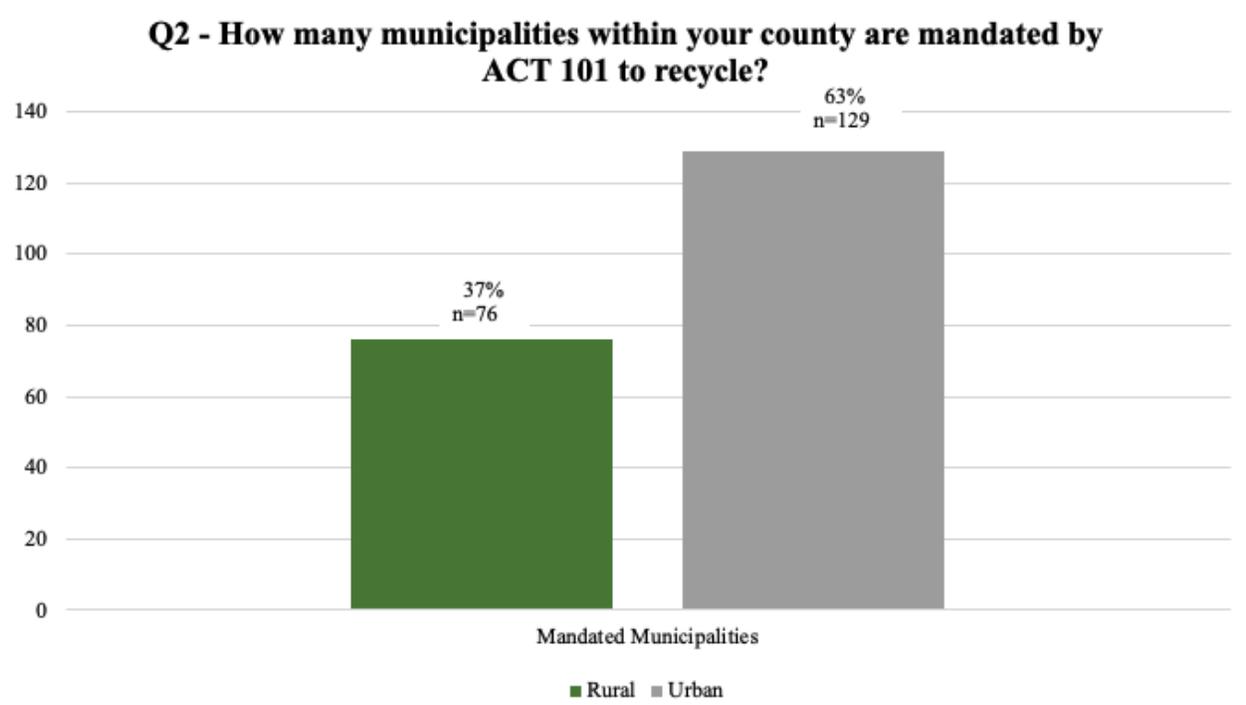


Table 1: Municipalities within your County Mandated by Act 101 to Recycle by DEP Region

| DEP Region | Counties | Type | Population, 2019 | Number Mandated |
|--------------|-------------------------|-------|------------------|-----------------|
| Southeast | Chester | Urban | 524,989 | 15 |
| | Montgomery | Urban | 830,915 | 40 |
| | Philadelphia | Urban | 1,584,064 | 1 |
| | REGION TOTAL | | | 56 |
| | RESPONDENT TOTAL | | | 27.32 |
| Northeast | Luzerne | Urban | 317,417 | 15 |
| | Monroe | Rural | 170,271 | 7 |
| | Pike | Rural | 55,809 | 2 |
| | Susquehanna | Rural | 40,328 | 0 |
| | Wayne | Rural | 51,361 | 0 |
| | REGION TOTAL | | | 24 |
| | RESPONDENT TOTAL | | | 11.71 |
| Southcentral | Berks | Urban | 421,164 | 16 |

| | | | | |
|---------------------|-------------------------|---------------------|---------|--------------|
| | Lebanon | Urban | 141,793 | 7 |
| | Perry | Rural | 46,272 | 0 |
| | York | Urban | 449,058 | 18 |
| | REGION TOTAL | | | 41 |
| | RESPONDENT TOTAL | | | 20 |
| Northcentral | Bradford | Rural | 60,323 | 1 |
| | Cameron | Rural | 4,447 | 0 |
| | Centre | Rural | 162,385 | 5 |
| | Clearfield | Rural | 79,255 | 3 |
| | Columbia | Rural | 64,964 | 3 |
| | Snyder | Rural | 40,372 | 1 |
| | Sullivan | Rural | 6,066 | 0 |
| | Tioga | Rural | 40,591 | 0 |
| | Union | Rural | 44,923 | 14 |
| | | REGION TOTAL | | |
| | RESPONDENT TOTAL | | | 13.17 |
| Southwest | Beaver | Urban | 163,929 | 11 |
| | Fayette | Rural | 129,274 | 4 |
| | Somerset | Rural | 73,447 | 1 |
| | Washington | Rural | 206,865 | 11 |
| | | REGION TOTAL | | |
| | RESPONDENT TOTAL | | | 13.17 |
| Northwest | Butler | Rural | 187,853 | 6 |
| | Crawford | Rural | 84,629 | 2 |
| | Elk | Rural | 29,910 | 1 |
| | Erie | Urban | 269,728 | 6 |
| | Forest | Rural | 7,247 | 0 |
| | Indiana | Rural | 84,073 | 2 |
| | Jefferson | Rural | 43,425 | 1 |
| | Lawrence | Rural | 85,512 | 5 |
| | Mercer | Rural | 109,424 | 5 |
| | Venango | Rural | 50,668 | 2 |
| | | REGION TOTAL | | |
| | RESPONDENT TOTAL | | | 14.63 |

Source for Population Data: U.S. Census Bureau via Center for Rural Pennsylvania, Demographics, County Profiles

Figure 2: Mandated Municipalities Offering Curbside Collections

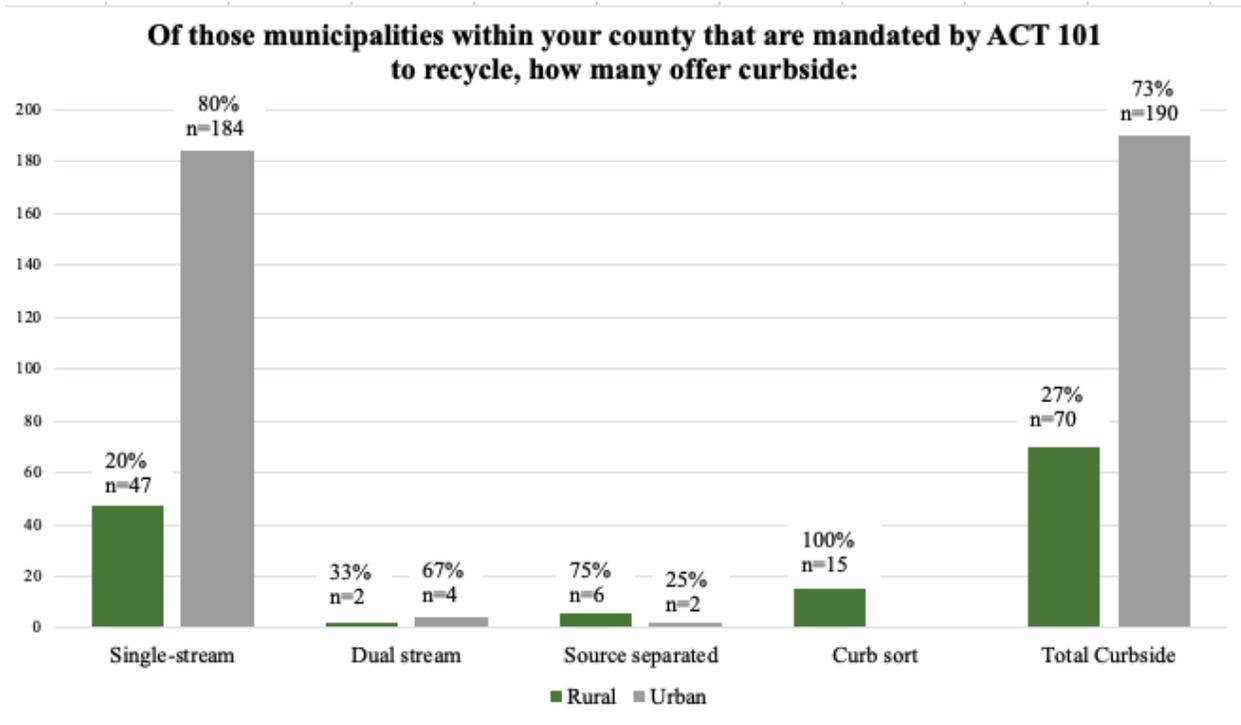


Table 2: Mandated Municipalities by Curbside Collection Types by DEP Region

| DEP Region | Counties | Type | Single-Stream | Dual Stream | Source Separated | Curb Sort | Total Curbside |
|--------------|-------------------------|-------|---------------|--------------|------------------|-------------|----------------|
| Southeast | Chester | Urban | 15 | 0 | 0 | 0 | 15 |
| | Montgomery | Urban | 37 | 3 | 0 | 0 | 40 |
| | Philadelphia | Urban | 1 | 0 | 0 | 0 | 1 |
| | REGION TOTAL | | 53 | 3 | 0 | 0 | 56 |
| | RESPONDENT TOTAL | | 22.94 | 50 | 0 | 0 | 21.54 |
| Northeast | Luzerne | Urban | 74 | 1 | 1 | 0 | 76 |
| | Monroe | Rural | 7 | 0 | 0 | 1 | 8 |
| | Pike | Rural | 2 | 0 | 0 | 0 | 2 |
| | Susquehanna | Rural | NA | NA | NA | NA | NA |
| | Wayne | Rural | NA | NA | NA | NA | NA |
| | REGION TOTAL | | 83 | 1 | 1 | 1 | 86 |
| | RESPONDENT TOTAL | | 35.93 | 16.67 | 12.50 | 6.67 | 33.08 |
| Southcentral | Berks | Urban | 15 | 0 | 1 | 0 | 16 |

| | | | | | | | |
|---------------------|-------------------------|-------|--------------|--------------|--------------|--------------|--------------|
| | Lebanon | Urban | 7 | 0 | 0 | 0 | 7 |
| | Perry | Rural | NA | NA | NA | NA | NA |
| | York | Urban | 18 | 0 | 0 | 0 | 18 |
| | REGION TOTAL | | 40 | 0 | 1 | 0 | 41 |
| | RESPONDENT TOTAL | | 17.32 | 0 | 12.50 | 0 | 15.77 |
| Northcentral | Bradford | Rural | 0 | 0 | 1 | 0 | 1 |
| | Cameron | Rural | NA | NA | NA | NA | NA |
| | Centre | Rural | 0 | 0 | 0 | 5 | 5 |
| | Clearfield | Rural | 0 | 0 | 0 | 3 | 3 |
| | Columbia | Rural | 2 | 0 | 2 | 0 | 4 |
| | Snyder | Rural | 0 | 0 | 1 | 0 | 1 |
| | Sullivan | Rural | NA | NA | NA | NA | NA |
| | Tioga | Rural | NA | NA | NA | NA | NA |
| | Union | Rural | 2 | 0 | 2 | 2 | 6 |
| | REGION TOTAL | | 4 | 0 | 6 | 10 | 20 |
| | RESPONDENT TOTAL | | 1.73 | 0 | 75 | 66.67 | 7.69 |
| Southwest | Beaver | Urban | 11 | 0 | 0 | 0 | 11 |
| | Fayette | Rural | 4 | 0 | 0 | 0 | 4 |
| | Somerset | Rural | 1 | 0 | 0 | 0 | 1 |
| | Washington | Rural | 9 | 2 | 0 | 0 | 11 |
| | REGION TOTAL | | 25 | 2 | 0 | 0 | 27 |
| | RESPONDENT TOTAL | | 10.82 | 33.33 | 0 | 0 | 10.38 |
| Northwest | Butler | Rural | 6 | 0 | 0 | 0 | 6 |
| | Crawford | Rural | 2 | 0 | 0 | 0 | 2 |
| | Elk | Rural | 0 | 0 | 0 | 1 | 1 |
| | Erie | Urban | 6 | 0 | 0 | 0 | 6 |
| | Forest | Rural | NA | NA | NA | NA | NA |
| | Indiana | Rural | 0 | 0 | 0 | 2 | 2 |
| | Jefferson | Rural | 0 | 0 | 0 | 1 | 1 |
| | Lawrence | Rural | 5 | 0 | 0 | 0 | 5 |
| | Mercer | Rural | 5 | 0 | 0 | 0 | 5 |
| | Venango | Rural | 2 | 0 | 0 | 0 | 2 |
| | REGION TOTAL | | 26 | 0 | 0 | 4 | 30 |

| | | | | | | | |
|--|-------------------------|--|--------------|----------|----------|--------------|--------------|
| | RESPONDENT TOTAL | | 11.26 | 0 | 0 | 26.67 | 11.54 |
|--|-------------------------|--|--------------|----------|----------|--------------|--------------|

Figure 3: Mandated Municipalities Offering Drop-Off Collections

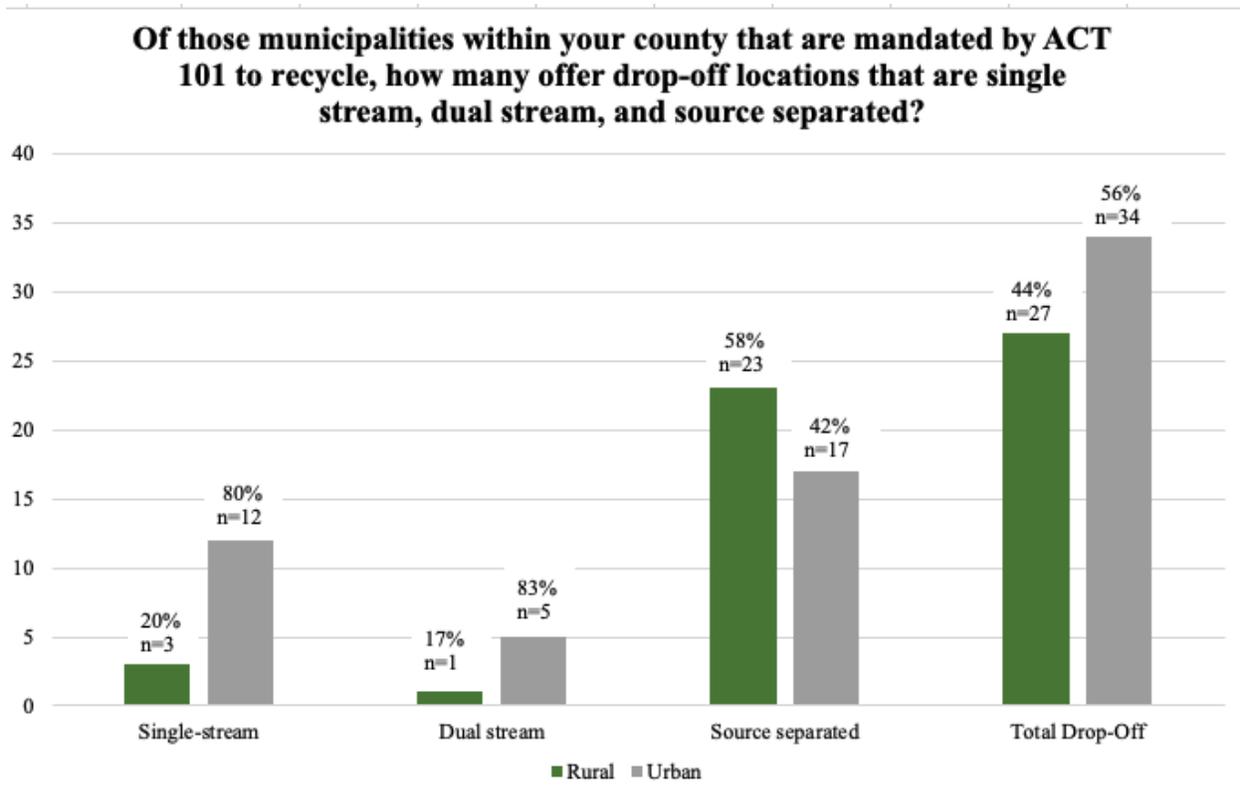


Table 3: Mandated Municipalities by Drop-Off Collection Types by DEP Region

| DEP Region | Counties | Type | Single-Stream | Dual Stream | Source Separated | Total Drop-Off |
|------------------|-------------------------|-------|---------------|--------------|------------------|----------------|
| Southeast | Chester | Urban | 0 | 0 | 3 | 3 |
| | Montgomery | Urban | 0 | 0 | 0 | 0 |
| | Philadelphia | Urban | 1 | 0 | 0 | 1 |
| | REGION TOTAL | | 1 | 0 | 3 | 4 |
| | RESPONDENT TOTAL | | 6.67 | 0 | 8 | 6.56 |
| Northeast | Luzerne | Urban | 4 | 2 | 0 | 6 |
| | Monroe | Rural | 0 | 0 | 3 | 3 |
| | Pike | Rural | 0 | 0 | 0 | 0 |
| | Susquehanna | Rural | NA | NA | NA | NA |
| | Wayne | Rural | NA | NA | NA | NA |
| | REGION TOTAL | | 4 | 2 | 3 | 9 |
| | RESPONDENT TOTAL | | 26.67 | 33.33 | 7.5 | 14.75 |

| | | | | | | |
|---------------------|-------------------------|-------|--------------|--------------|-------------|--------------|
| Southcentral | Berks | Urban | 2 | 0 | 0 | 2 |
| | Lebanon | Urban | 0 | 0 | 4 | 4 |
| | Perry | Rural | NA | NA | NA | NA |
| | York | Urban | 5 | 0 | 3 | 8 |
| | REGION TOTAL | | 7 | 0 | 7 | 14 |
| | RESPONDENT TOTAL | | 46.67 | 0 | 17.5 | 22.95 |
| Northcentral | Bradford | Rural | 0 | 0 | 1 | 1 |
| | Cameron | Rural | NA | NA | NA | NA |
| | Centre | Rural | 0 | 0 | 5 | 5 |
| | Clearfield | Rural | 0 | 0 | 1 | 1 |
| | Columbia | Rural | 1 | 0 | 1 | 2 |
| | Snyder | Rural | 0 | 0 | 1 | 1 |
| | Sullivan | Rural | NA | NA | NA | NA |
| | Tioga | Rural | NA | NA | NA | NA |
| | Union | Rural | 2 | 0 | 2 | 4 |
| | REGION TOTAL | | 3 | 0 | 11 | 14 |
| | RESPONDENT TOTAL | | 20 | 0 | 27.5 | 22.95 |
| Southwest | Beaver | Urban | 0 | 3 | 5 | 8 |
| | Fayette | Rural | 0 | 0 | 0 | 0 |
| | Somerset | Rural | 0 | 0 | 0 | 0 |
| | Washington | Rural | 0 | 0 | 9 | 9 |
| | REGION TOTAL | | 0 | 3 | 14 | 17 |
| | RESPONDENT TOTAL | | 0 | 50.00 | 35 | 27.87 |
| Northwest | Butler | Rural | 0 | 0 | 0 | 0 |
| | Crawford | Rural | 0 | 0 | 0 | 0 |
| | Elk | Rural | 0 | 0 | 0 | 0 |
| | Erie | Urban | 0 | 0 | 2 | 2 |
| | Forest | Rural | NA | NA | NA | NA |
| | Indiana | Rural | 0 | 0 | 0 | 0 |
| | Jefferson | Rural | 0 | 0 | 0 | 0 |
| | Lawrence | Rural | 0 | 0 | 0 | 0 |
| | Mercer | Rural | 0 | 0 | 0 | 0 |
| | Venango | Rural | 0 | 1 | 0 | 1 |
| | REGION TOTAL | | 0 | 1 | 2 | 3 |
| | RESPONDENT TOTAL | | 0 | 16.67 | 5 | 4.92 |

Figure 4: Municipalities Not Mandated to Recycle

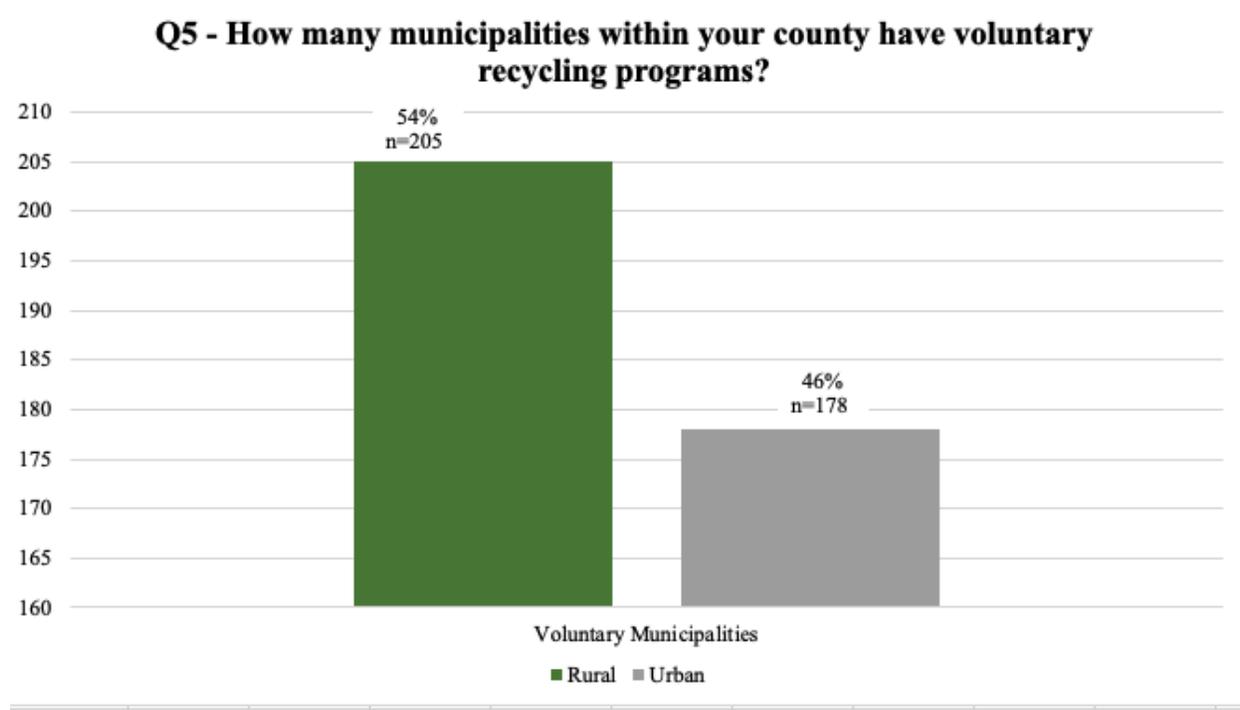


Table 4: Municipalities within your County that have Voluntary Recycling Programs by DEP Region

| DEP Region | Counties | Type | Number Voluntary |
|--------------|-------------------------|-------|------------------|
| Southeast | Chester | Urban | 33 |
| | Montgomery | Urban | 7 |
| | Philadelphia | Urban | 0 |
| | REGION TOTAL | | 40 |
| | RESPONDENT TOTAL | | 10.44 |
| Northeast | Luzerne | Urban | 38 |
| | Monroe | Rural | 0 |
| | Pike | Rural | 11 |
| | Susquehanna | Rural | 5 |
| | Wayne | Rural | 14 |
| | REGION TOTAL | | 68 |
| | RESPONDENT TOTAL | | 17.75 |
| Southcentral | Berks | Urban | 24 |
| | Lebanon | Urban | 12 |
| | Perry | Rural | 8 |
| | York | Urban | 23 |

| | | | |
|---------------------|-------------------------|-------|--------------|
| | REGION TOTAL | | 67 |
| | RESPONDENT TOTAL | | 17.49 |
| Northcentral | Bradford | Rural | 21 |
| | Cameron | Rural | 1 |
| | Centre | Rural | 3 |
| | Clearfield | Rural | 5 |
| | Columbia | Rural | 5 |
| | Snyder | Rural | 7 |
| | Sullivan | Rural | 8 |
| | Tioga | Rural | 18 |
| | Union | Rural | 8 |
| | REGION TOTAL | | 76 |
| | RESPONDENT TOTAL | | 19.84 |
| Southwest | Beaver | Urban | 27 |
| | Fayette | Rural | 17 |
| | Somerset | Rural | 0 |
| | Washington | Rural | 2 |
| | REGION TOTAL | | 46 |
| | RESPONDENT TOTAL | | 12.01 |
| Northwest | Butler | Rural | 51 |
| | Crawford | Rural | 1 |
| | Elk | Rural | 3 |
| | Erie | Urban | 14 |
| | Forest | Rural | 2 |
| | Indiana | Rural | 1 |
| | Jefferson | Rural | 2 |
| | Lawrence | Rural | 2 |
| | Mercer | Rural | 10 |
| | Venango | Rural | 0 |
| | REGION TOTAL | | 86 |
| | RESPONDENT TOTAL | | 22.45 |

Figure 5: Voluntary Municipalities Offering Curbside Collections

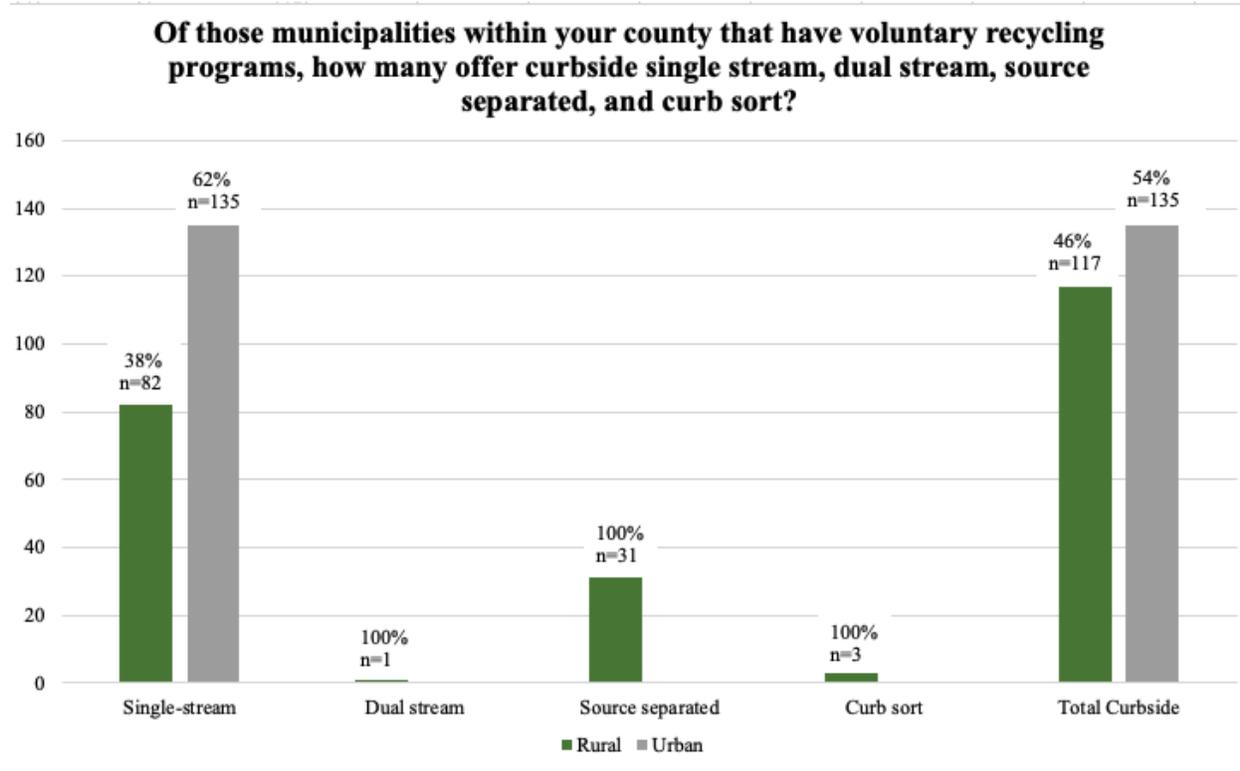


Table 5: Voluntary Municipalities by Curbside Collection Types by DEP Region

| DEP Region | Counties | Type | Single-Stream | Dual Stream | Source Separated | Curb Sort | Total Curbside |
|-------------------------|-------------------------|--------------|---------------|--------------|------------------|--------------|----------------|
| Southeast | Chester | Urban | 33 | 0 | 0 | 0 | 33 |
| | Montgomery | Urban | 7 | 0 | 0 | 0 | 7 |
| | Philadelphia | Urban | NA | NA | NA | NA | NA |
| | REGION TOTAL | | 40 | 0 | 0 | 0 | 40 |
| | RESPONDENT TOTAL | | 18.43 | 0 | 0 | 0 | 15.87 |
| Northeast | Luzerne | Urban | 38 | 0 | 0 | 0 | 38 |
| | Monroe | Rural | NA | NA | NA | NA | NA |
| | Pike | Rural | 11 | 0 | 0 | 0 | 11 |
| | Susquehanna | Rural | 1 | 0 | 0 | 0 | 1 |
| | Wayne | Rural | 0 | 0 | 14 | 0 | 14 |
| | REGION TOTAL | | 50 | 0 | 14 | 0 | 64 |
| RESPONDENT TOTAL | | 23.04 | 0.00 | 45.16 | 0 | 25.40 | |
| Southcentral | Berks | Urban | 19 | 0 | 0 | 0 | 19 |
| | Lebanon | Urban | 12 | 0 | 0 | 0 | 12 |
| | Perry | Rural | 6 | 0 | 2 | 0 | 8 |

| | | | | | | | |
|---------------------|-------------------------|-------|--------------|------------|--------------|------------|--------------|
| | York | Urban | 22 | 0 | 0 | 0 | 22 |
| | REGION TOTAL | | 59 | 0 | 2 | 0 | 61 |
| | RESPONDENT TOTAL | | 27.19 | 0 | 6.45 | 0 | 24.21 |
| Northcentral | Bradford | Rural | 0 | 0 | 4 | 0 | 4 |
| | Cameron | Rural | 0 | 0 | 0 | 0 | 0 |
| | Centre | Rural | 0 | 0 | 0 | 3 | 3 |
| | Clearfield | Rural | 0 | 0 | 0 | 0 | 0 |
| | Columbia | Rural | 0 | 0 | 0 | 0 | 0 |
| | Snyder | Rural | 0 | 0 | 2 | 0 | 2 |
| | Sullivan | Rural | 0 | 0 | 2 | 0 | 2 |
| | Tioga | Rural | 0 | 0 | 2 | 0 | 2 |
| | Union | Rural | 0 | 0 | 2 | 0 | 2 |
| | REGION TOTAL | | 0 | 0 | 12 | 3 | 15 |
| | RESPONDENT TOTAL | | 0 | 0 | 38.71 | 100 | 5.95 |
| Southwest | Beaver | Urban | 0 | 0 | 0 | 0 | 0 |
| | Fayette | Rural | 4 | 0 | 0 | 0 | 4 |
| | Somerset | Rural | NA | NA | NA | NA | NA |
| | Washington | Rural | 1 | 1 | 0 | 0 | 2 |
| | REGION TOTAL | | 5 | 1 | 0 | 0 | 6 |
| | RESPONDENT TOTAL | | 2.30 | 100 | 0 | 0 | 2.38 |
| Northwest | Butler | Rural | 51 | 0 | 0 | 0 | 51 |
| | Crawford | Rural | 1 | 0 | 0 | 0 | 1 |
| | Elk | Rural | 0 | 0 | 3 | 0 | 3 |
| | Erie | Urban | 4 | 0 | 0 | 0 | 4 |
| | Forest | Rural | 1 | 0 | 0 | 0 | 1 |
| | Indiana | Rural | 0 | 0 | 0 | 0 | 0 |
| | Jefferson | Rural | 2 | 0 | 0 | 0 | 2 |
| | Lawrence | Rural | 0 | 0 | 0 | 0 | 0 |
| | Mercer | Rural | 4 | 0 | 0 | 0 | 4 |
| | Venango | Rural | NA | NA | NA | NA | NA |
| | REGION TOTAL | | 63 | 0 | 3 | 0 | 66 |
| | RESPONDENT TOTAL | | 29.03 | 0 | 9.68 | 0 | 26.19 |

Figure 6: Voluntary Municipalities Offering Drop-Off Collections

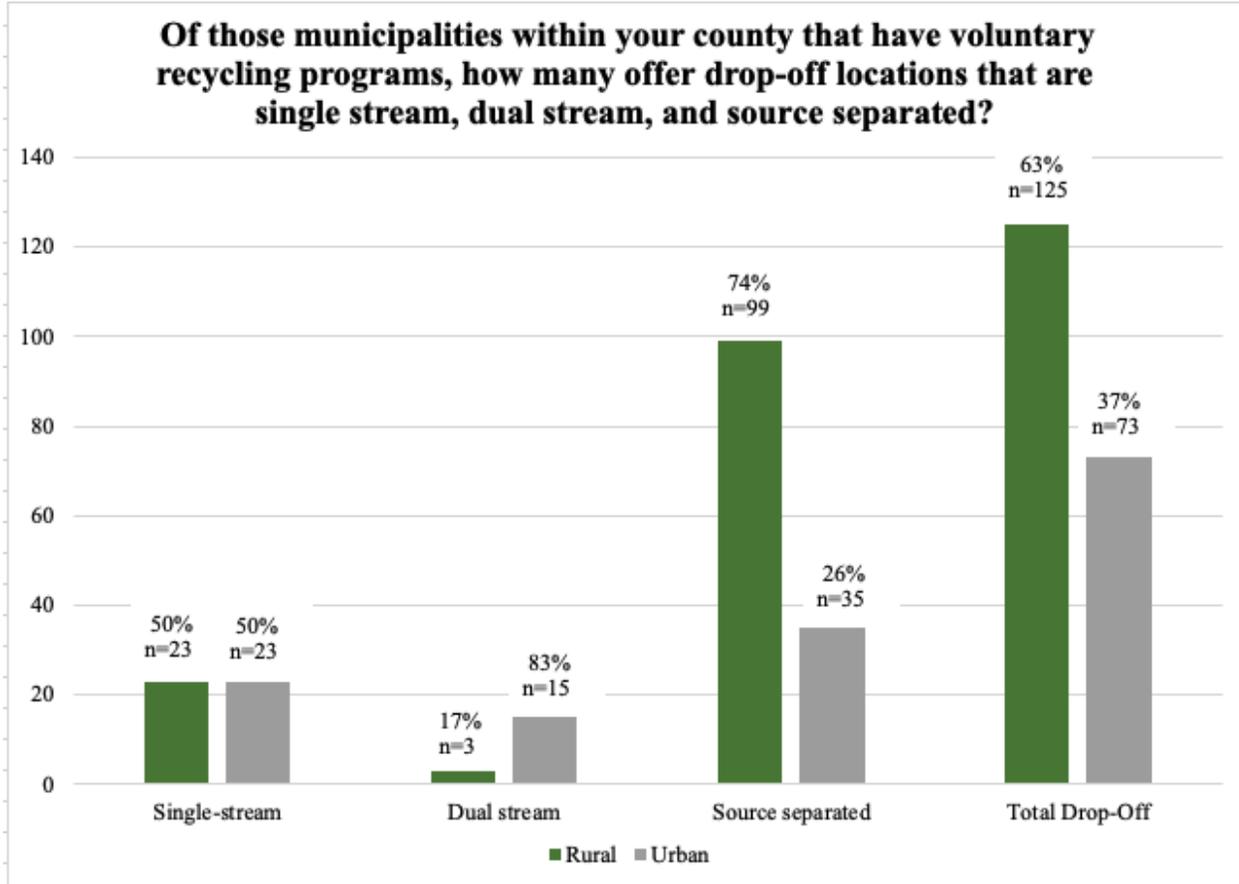


Table 6: Voluntary Municipalities by Drop-Off Collection Types by DEP Region

| DEP Region | Counties | Type | Single-Stream | Dual Stream | Source Separated | Total Drop-Off |
|------------------|-------------------------|-------|---------------|-------------|------------------|----------------|
| Southeast | Chester | Urban | 0 | 0 | 15 | 15 |
| | Montgomery | Urban | 0 | 0 | 0 | 0 |
| | Philadelphia | Urban | NA | NA | NA | NA |
| | REGION TOTAL | | 0 | 0 | 15 | 15 |
| | RESPONDENT TOTAL | | 0 | 0 | 11 | 7.58 |
| Northeast | Luzerne | Urban | 14 | 0 | 1 | 15 |
| | Monroe | Rural | NA | NA | NA | NA |
| | Pike | Rural | 0 | 0 | 0 | 0 |
| | Susquehanna | Rural | 0 | 0 | 0 | 0 |
| | Wayne | Rural | 0 | 0 | 14 | 14 |
| | REGION TOTAL | | 14 | 0 | 15 | 29 |
| | RESPONDENT TOTAL | | 30.43 | 0 | 11.2 | 14.65 |

| | | | | | | |
|---------------------|-------------------------|-------|--------------|--------------|--------------|--------------|
| Southcentral | Berks | Urban | 3 | 1 | 1 | 5 |
| | Lebanon | Urban | 2 | 0 | 2 | 4 |
| | Perry | Rural | 4 | 0 | 4 | 8 |
| | York | Urban | 4 | 0 | 1 | 5 |
| | REGION TOTAL | | 13 | 1 | 8 | 22 |
| | RESPONDENT TOTAL | | 28.26 | 2.17 | 6.0 | 11.11 |
| Northcentral | Bradford | Rural | 0 | 0 | 21 | 21 |
| | Cameron | Rural | 0 | 0 | 1 | 1 |
| | Centre | Rural | 0 | 0 | 3 | 3 |
| | Clearfield | Rural | 0 | 0 | 5 | 5 |
| | Columbia | Rural | 5 | 0 | 0 | 5 |
| | Snyder | Rural | 0 | 0 | 6 | 6 |
| | Sullivan | Rural | 0 | 0 | 8 | 8 |
| | Tioga | Rural | 0 | 0 | 18 | 18 |
| | Union | Rural | 0 | 0 | 8 | 8 |
| | REGION TOTAL | | 5 | 0 | 70 | 75 |
| | RESPONDENT TOTAL | | 11 | 0 | 52.24 | 37.88 |
| Southwest | Beaver | Urban | 0 | 14 | 8 | 22 |
| | Fayette | Rural | 13 | 0 | 0 | 13 |
| | Somerset | Rural | NA | NA | NA | NA |
| | Washington | Rural | 0 | 0 | 2 | 2 |
| | REGION TOTAL | | 13 | 14 | 10 | 37 |
| | RESPONDENT TOTAL | | 28.26 | 77.78 | 7.46 | 18.69 |
| Northwest | Butler | Rural | 0 | 0 | 0 | 0 |
| | Crawford | Rural | 0 | 0 | 0 | 0 |
| | Elk | Rural | 0 | 0 | 3 | 3 |
| | Erie | Urban | 0 | 0 | 7 | 7 |
| | Forest | Rural | 0 | 0 | 1 | 1 |
| | Indiana | Rural | 0 | 0 | 1 | 1 |
| | Jefferson | Rural | 0 | 0 | 0 | 0 |
| | Lawrence | Rural | 1 | 1 | 0 | 2 |
| | Mercer | Rural | 0 | 2 | 4 | 6 |
| | Venango | Rural | NA | NA | NA | NA |
| | REGION TOTAL | | 1 | 3 | 16 | 20 |
| | RESPONDENT TOTAL | | 2 | 16.67 | 11.94 | 10.10 |

Figure 7: Oversight of Municipal Drop-Off Locations

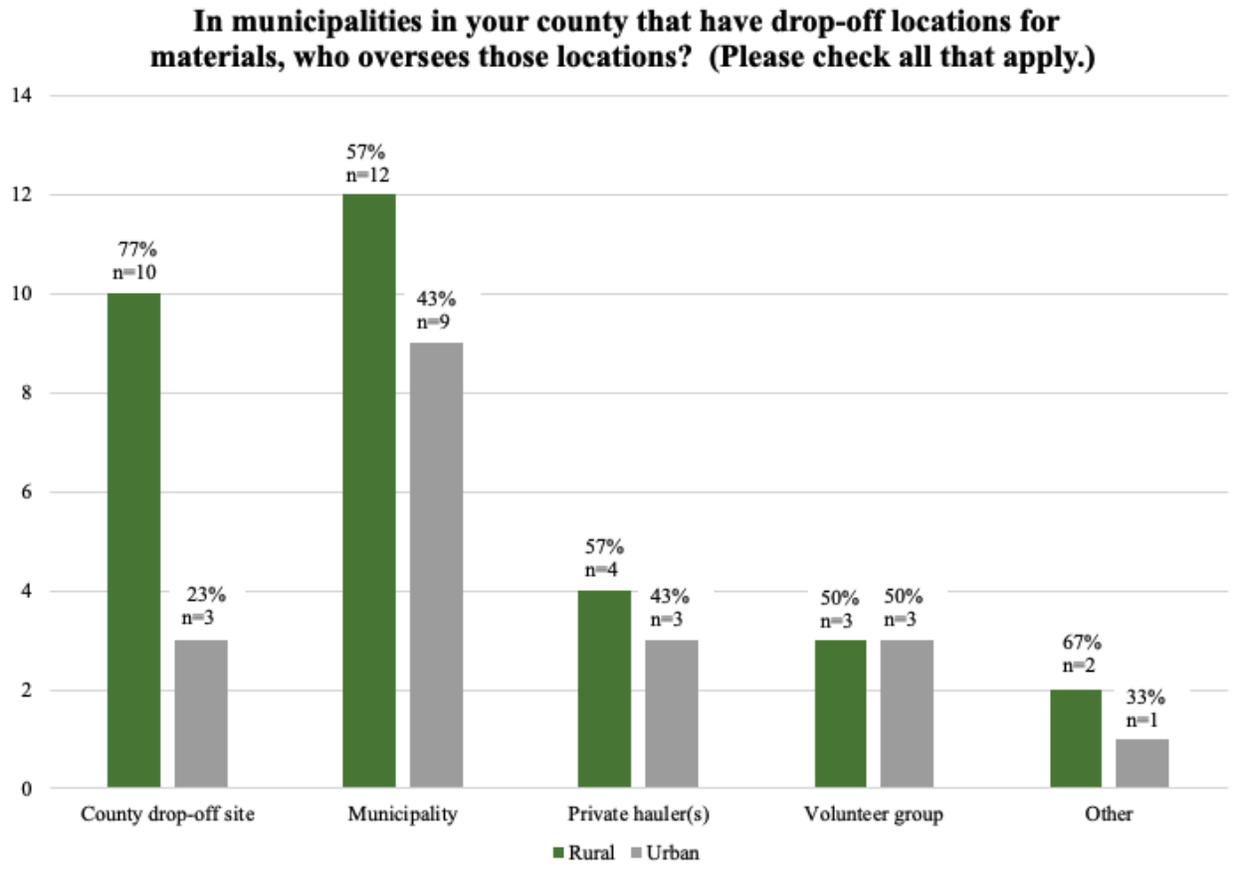


Table 7: Oversight of Municipal Drop-Off Locations by DEP Region

| DEP Region | Counties | Type | County Drop-Off | Municipality | Private Hauler(s) | Volunteer Group | Other |
|------------|-------------------------|-------|-----------------|--------------|-------------------|-----------------|--------------|
| Southeast | Chester | Urban | | 1 | 1 | | 1 |
| | Montgomery | Urban | | 1 | 1 | | |
| | Philadelphia | Urban | | 1 | | | |
| | REGION TOTAL | | 0 | 3 | 2 | 0 | 1 |
| | RESPONDENT TOTAL | | 0 | 14.29 | 28.57 | 0 | 33.33 |
| Northeast | Luzerne | Urban | | 1 | | | |
| | Monroe | Rural | 1 | 1 | | | |
| | Pike | Rural | | | 1 | | |
| | Susquehanna | Rural | NA | NA | NA | NA | NA |
| | Wayne | Rural | 1 | | | | |
| | REGION TOTAL | | 2 | 2 | 1 | 0 | 0 |
| | RESPONDENT TOTAL | | 15.38 | 9.52 | 14.29 | 0 | 0 |

| | | | | | | | |
|-------------------------|-------------------------|--------|--------------|--------------|--------------|--------------|--------------|
| Southcentral | Berks | Urban | | 1 | | 1 | |
| | Lebanon | Urban | 1 | 1 | | 1 | |
| | Perry | Rural | | 1 | 1 | | |
| | York | Urban | 1 | 1 | | | |
| | REGION TOTAL | | 2 | 4 | 1 | 2 | |
| | RESPONDENT TOTAL | | 15.38 | 19.05 | 14.3 | 33.33 | 0 |
| Northcentral | Bradford | Rural | | 1 | 1 | | |
| | Cameron | Rural | 1 | | | | |
| | Centre | Rural | 1 | | | | |
| | Clearfield | Rural | 1 | | | | |
| | Columbia | Rural | | 1 | | | |
| | Snyder | Rural | | 1 | | | |
| | Sullivan | Rural | | 1 | | 1 | |
| | Tioga | Rural | | 1 | | 1 | |
| | Union | Rural | | 1 | | 1 | |
| | REGION TOTAL | | 3 | 6 | 1 | 3 | 0 |
| | RESPONDENT TOTAL | | 23.08 | 28.57 | 14.29 | 50 | 0 |
| | Southwest | Beaver | Urban | | 1 | | 1 |
| Fayette | | Rural | | 1 | | | |
| Somerset | | Rural | NA | NA | NA | NA | NA |
| Washington | | Rural | | | 1 | | |
| REGION TOTAL | | | 0 | 2 | 1 | 1 | 0 |
| RESPONDENT TOTAL | | | 0 | 9.52 | 14.29 | 16.67 | 0 |
| Northwest | Butler | Rural | 1 | | | | 1 |
| | Crawford | Rural | NA | NA | NA | NA | NA |
| | Elk | Rural | 1 | | | | |
| | Erie | Urban | 1 | 1 | 1 | | |
| | Forest | Rural | | 1 | | | |
| | Indiana | Rural | 1 | | | | |
| | Jefferson | Rural | | | | | 1 |
| | Lawrence | Rural | | 1 | | | |
| | Mercer | Rural | 1 | 1 | | | |
| | Venango | Rural | 1 | | | | |
| | REGION TOTAL | | 6 | 4 | 1 | 0 | 2 |
| | RESPONDENT TOTAL | | 46.15 | 19.05 | 14.29 | 0 | 66.67 |

Figure 8: Provider of County Residential Recycling Collection Services

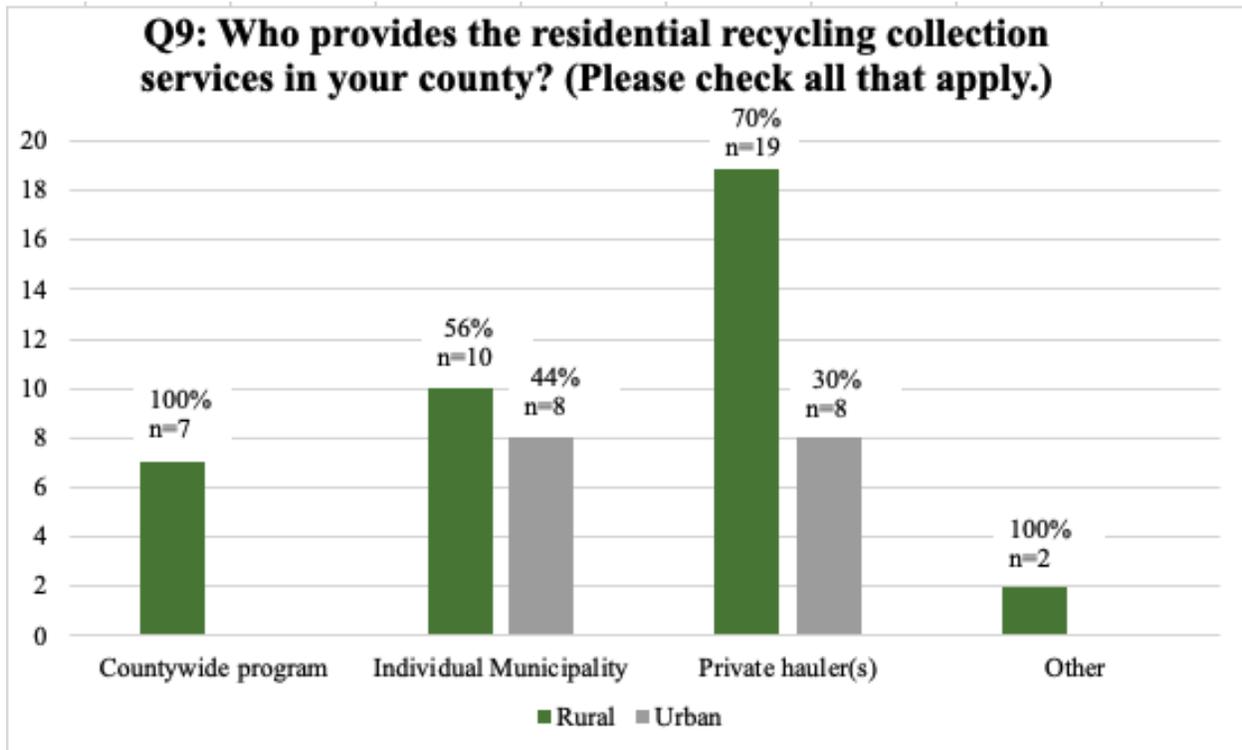


Table 8: Provider of County Residential Recycling Collections by DEP Region

| DEP Region | Counties | Type | Countywide Program | Individual Municipality | Private Hauler(s) | Volunteer Group | Other |
|--------------|-------------------------|-------|--------------------|-------------------------|-------------------|-----------------|----------|
| Southeast | Chester | Urban | | 1 | 1 | | |
| | Montgomery | Urban | | 1 | 1 | | |
| | Philadelphia | Urban | | 1 | | | |
| | REGION TOTAL | | 0 | 3 | 2 | 0 | 0 |
| | RESPONDENT TOTAL | | 0 | 16.67 | 7.41 | 0 | 0 |
| Northeast | Luzerne | Urban | | 1 | 1 | | |
| | Monroe | Rural | | 1 | 1 | | |
| | Pike | Rural | | 1 | 1 | | |
| | Susquehanna | Rural | NA | NA | NA | NA | NA |
| | Wayne | Rural | 1 | | 1 | | |
| | REGION TOTAL | | 1 | 3 | 4 | 0 | 0 |
| | RESPONDENT TOTAL | | 14.29 | 16.67 | 14.81 | 0 | 0 |
| Southcentral | Berks | Urban | | 1 | 1 | | |
| | Lebanon | Urban | | 1 | 1 | | |
| | Perry | Rural | | 1 | | | 1 |

| | | | | | | | |
|-------------------------|-------------------------|--------------|--------------|--------------|--------------|-----------|-----------|
| | York | Urban | | 1 | 1 | | |
| | REGION TOTAL | | 0 | 4 | 3 | 0 | 1 |
| | RESPONDENT TOTAL | | 0 | 22.22 | 11.11 | 0 | 50 |
| Northcentral | Bradford | Rural | | | 1 | | |
| | Cameron | Rural | 1 | | | | |
| | Centre | Rural | 1 | | | | |
| | Clearfield | Rural | 1 | 1 | 1 | | |
| | Columbia | Rural | | 1 | 1 | | |
| | Snyder | Rural | | 1 | 1 | | |
| | Sullivan | Rural | | | 1 | | |
| | Tioga | Rural | | | 1 | | |
| | Union | Rural | | 1 | | | |
| | REGION TOTAL | | 3 | 4 | 6 | 0 | 0 |
| | RESPONDENT TOTAL | | 42.86 | 22.22 | 22.22 | 0 | 0 |
| Southwest | Beaver | Urban | | | 1 | | |
| | Fayette | Rural | | 1 | 1 | | |
| | Somerset | Rural | NA | NA | NA | NA | NA |
| | Washington | Rural | | 1 | 1 | | |
| | REGION TOTAL | | 0 | 2 | 3 | 0 | 0 |
| | RESPONDENT TOTAL | | 0 | 11.11 | 11.11 | 0 | 0 |
| Northwest | Butler | Rural | | | 1 | | |
| | Crawford | Rural | | | 1 | | |
| | Elk | Rural | 1 | | 1 | | |
| | Erie | Urban | | 1 | 1 | | |
| | Forest | Rural | | | 1 | | |
| | Indiana | Rural | | | | | 1 |
| | Jefferson | Rural | | | 1 | | |
| | Lawrence | Rural | 1 | 1 | 1 | | |
| | Mercer | Rural | 1 | | 1 | | |
| | Venango | Rural | | | 1 | | |
| | REGION TOTAL | | 3 | 2 | 9 | 0 | 1 |
| RESPONDENT TOTAL | | 42.86 | 11.11 | 33.33 | 0 | 50 | |

Figure 9: Payment of County Residential Recycling Collection Services

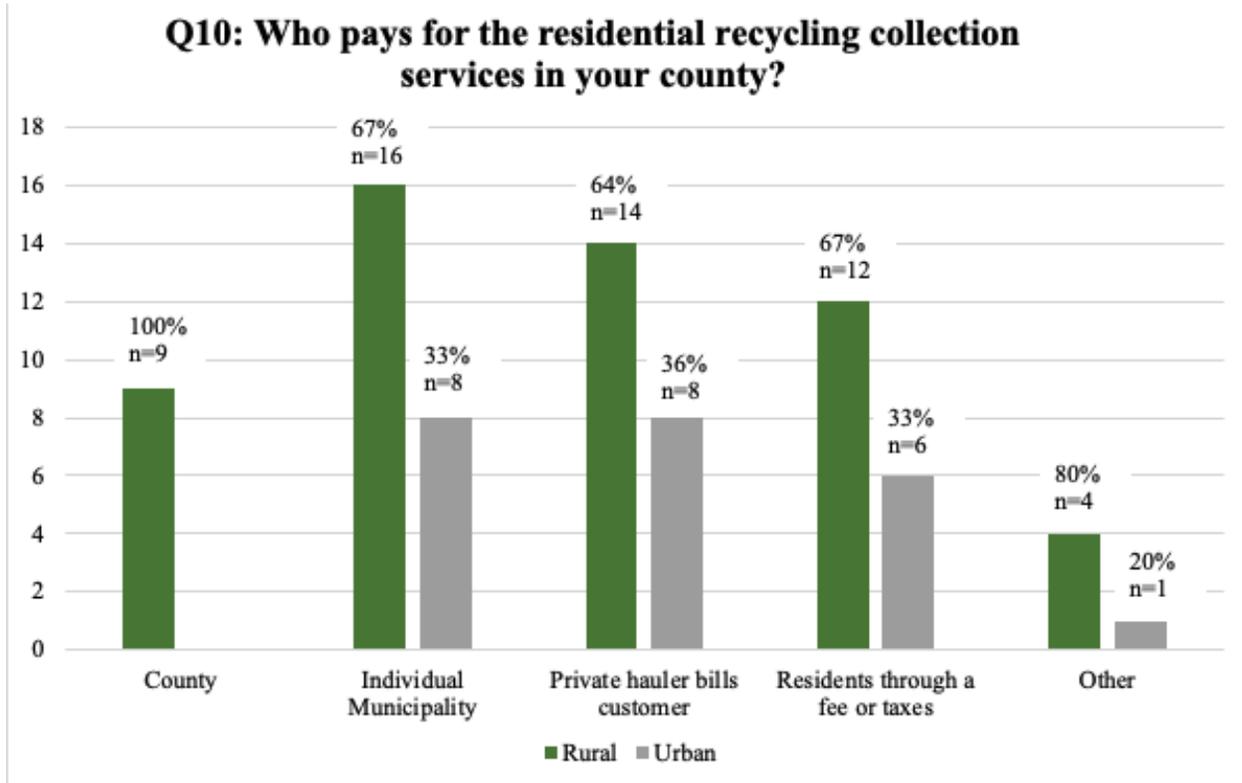


Table 9: Payment of County Residential Recycling Collection Services by DEP Region

| DEP Region | Counties | Type | County | Individual Municipality | Private Hauler(s) | Residents | Other |
|---------------------|-------------------------|-------|--------------|-------------------------|-------------------|--------------|----------|
| Southeast | Chester | Urban | | 1 | 1 | 1 | |
| | Montgomery | Urban | | 1 | 1 | 1 | |
| | Philadelphia | Urban | | 1 | | | |
| | REGION TOTAL | | 0 | 3 | 2 | 2 | 0 |
| | RESPONDENT TOTAL | | 0 | 12.5 | 9.09 | 11.11 | 0 |
| Northeast | Luzerne | Urban | | 1 | 1 | 1 | |
| | Monroe | Rural | | 1 | 1 | | |
| | Pike | Rural | | | 1 | 1 | |
| | Susquehanna | Rural | NA | NA | NA | NA | NA |
| | Wayne | Rural | 1 | | 1 | | |
| | REGION TOTAL | | 1 | 2 | 4 | 2 | 0 |
| | RESPONDENT TOTAL | | 11.11 | 8.33 | 18.18 | 11.11 | 0 |
| Southcentral | Berks | Urban | | 1 | 1 | 1 | |
| | Lebanon | Urban | | 1 | 1 | 1 | |
| | Perry | Rural | | 1 | | 1 | |

| | | | | | | | |
|---------------------|-------------------------|-------|--------------|--------------|--------------|--------------|-----------|
| | York | Urban | | 1 | 1 | 1 | 1 |
| | REGION TOTAL | | 0 | 4 | 3 | 4 | 1 |
| | RESPONDENT TOTAL | | 0 | 16.67 | 13.64 | 22.22 | 20 |
| Northcentral | Bradford | Rural | | 1 | | | 1 |
| | Cameron | Rural | 1 | | | | |
| | Centre | Rural | 1 | 1 | 1 | 1 | 1 |
| | Clearfield | Rural | 1 | 1 | 1 | | |
| | Columbia | Rural | | 1 | 1 | 1 | |
| | Snyder | Rural | 1 | 1 | 1 | 1 | |
| | Sullivan | Rural | | 1 | | | 1 |
| | Tioga | Rural | | 1 | | | 1 |
| | Union | Rural | | 1 | | | |
| | REGION TOTAL | | 4 | 8 | 4 | 3 | 4 |
| | RESPONDENT TOTAL | | 44.44 | 33.33 | 18.18 | 16.67 | 80 |
| Southwest | Beaver | Urban | | 1 | 1 | | |
| | Fayette | Rural | | 1 | | 1 | |
| | Somerset | Rural | NA | NA | NA | NA | NA |
| | Washington | Rural | | | 1 | 1 | |
| | REGION TOTAL | | 0 | 2 | 2 | 2 | 0 |
| | RESPONDENT TOTAL | | 0 | 8.33 | 9.09 | 11.11 | 0 |
| Northwest | Butler | Rural | | | 1 | | |
| | Crawford | Rural | | 1 | 1 | | |
| | Elk | Rural | 1 | 1 | | 1 | |
| | Erie | Urban | | | 1 | | |
| | Forest | Rural | | 1 | | 1 | |
| | Indiana | Rural | | | | 1 | |
| | Jefferson | Rural | | | 1 | | |
| | Lawrence | Rural | 1 | 1 | 1 | | |
| | Mercer | Rural | 1 | 1 | 1 | 1 | |
| | Venango | Rural | 1 | | 1 | 1 | |
| | REGION TOTAL | | 4 | 5 | 7 | 5 | 0 |
| | RESPONDENT TOTAL | | 44.44 | 20.83 | 31.82 | 28 | 0 |

Figure 10: How County Recycling is Accepted at Materials Recovery Facility (MRF)

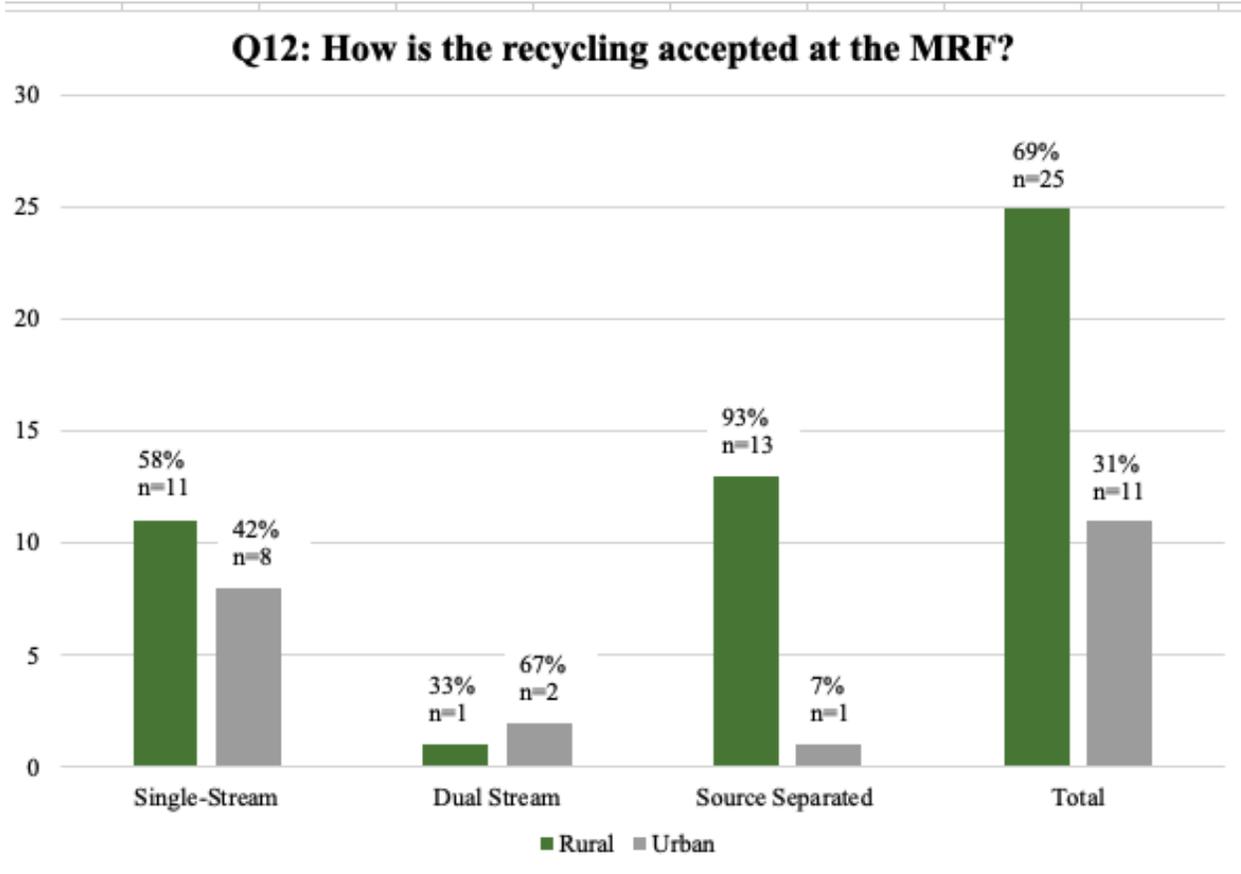


Table 10: How Recycling is Accepted at Materials Recovery Facility (MRF) by DEP Region

| DEP Region | Counties | Type | Single-Stream | Dual Stream | Source Separated |
|---------------------|-------------------------|-------|---------------|-------------|------------------|
| Southeast | Chester | Urban | 1 | | |
| | Montgomery | Urban | 1 | | |
| | Philadelphia | Urban | 1 | | |
| | REGION TOTAL | | 3 | 0 | 0 |
| | RESPONDENT TOTAL | | 15.79 | 0 | 0 |
| Northeast | Luzerne | Urban | 1 | | |
| | Monroe | Rural | 1 | | |
| | Pike | Rural | NA | NA | NA |
| | Susquehanna | Rural | NA | NA | NA |
| | Wayne | Rural | | | 1 |
| | REGION TOTAL | | 2 | 0 | 1 |
| | RESPONDENT TOTAL | | 10.53 | 0 | 7.14 |
| Southcentral | Berks | Urban | 1 | 1 | |

| | | | | | |
|---------------------|-------------------------|-------|--------------|--------------|--------------|
| | Lebanon | Urban | 1 | 1 | 1 |
| | Perry | Rural | 1 | | 1 |
| | York | Urban | 1 | | |
| | REGION TOTAL | | 4 | 2 | 2 |
| | RESPONDENT TOTAL | | 21.05 | 66.67 | 14.29 |
| Northcentral | Bradford | Rural | | | 1 |
| | Cameron | Rural | NA | NA | NA |
| | Centre | Rural | | | 1 |
| | Clearfield | Rural | | | 1 |
| | Columbia | Rural | NA | NA | NA |
| | Snyder | Rural | 1 | | 1 |
| | Sullivan | Rural | | | 1 |
| | Tioga | Rural | | | 1 |
| | Union | Rural | 1 | | 1 |
| | REGION TOTAL | | 2 | 0 | 7 |
| | RESPONDENT TOTAL | | 10.53 | 0 | 50 |
| Southwest | Beaver | Urban | NA | NA | NA |
| | Fayette | Rural | 1 | | |
| | Somerset | Rural | NA | NA | NA |
| | Washington | Rural | 1 | | |
| | REGION TOTAL | | 2 | 0 | 0 |
| | RESPONDENT TOTAL | | 10.53 | 0 | 0 |
| Northwest | Butler | Rural | NA | NA | NA |
| | Crawford | Rural | 1 | | |
| | Elk | Rural | | | 1 |
| | Erie | Urban | 1 | | |
| | Forest | Rural | NA | NA | NA |
| | Indiana | Rural | | | 1 |
| | Jefferson | Rural | 1 | | 1 |
| | Lawrence | Rural | 1 | | |
| | Mercer | Rural | 1 | 1 | 1 |
| | Venango | Rural | 1 | | |
| | REGION TOTAL | | 6 | 1 | 4 |
| | RESPONDENT TOTAL | | 31.58 | 33.33 | 28.57 |

Table 11: Access to Electronics Recycling by DEP Region

| DEP Region | Counties | Type | Electronics Recycling |
|---------------------|-------------------------|-------------|------------------------------|
| Southeast | Chester | Urban | 1 |
| | Montgomery | Urban | 1 |
| | Philadelphia | Urban | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 10.34 |
| Northeast | Luzerne | Urban | 1 |
| | Monroe | Rural | 1 |
| | Pike | Rural | 0 |
| | Susquehanna | Rural | NA |
| | Wayne | Rural | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 10.34 |
| Southcentral | Berks | Urban | 1 |
| | Lebanon | Urban | 1 |
| | Perry | Rural | 1 |
| | York | Urban | 1 |
| | REGION TOTAL | | 4 |
| | RESPONDENT TOTAL | | 13.79 |
| Northcentral | Bradford | Rural | 1 |
| | Cameron | Rural | 0 |
| | Centre | Rural | 1 |
| | Clearfield | Rural | 1 |
| | Columbia | Rural | NA |
| | Snyder | Rural | 1 |
| | Sullivan | Rural | 1 |
| | Tioga | Rural | 1 |
| | Union | Rural | 1 |
| | REGION TOTAL | | 7 |
| | RESPONDENT TOTAL | | 24.14 |
| Southwest | Beaver | Urban | 1 |
| | Fayette | Rural | 1 |
| | Somerset | Rural | NA |
| | Washington | Rural | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 10.34 |
| Northwest | Butler | Rural | 1 |

| | | | |
|--|-------------------------|-------|--------------|
| | Crawford | Rural | 1 |
| | Elk | Rural | 1 |
| | Erie | Urban | 1 |
| | Forest | Rural | 0 |
| | Indiana | Rural | 1 |
| | Jefferson | Rural | 1 |
| | Lawrence | Rural | 1 |
| | Mercer | Rural | 1 |
| | Venango | Rural | 1 |
| | REGION TOTAL | | 9 |
| | RESPONDENT TOTAL | | 31.03 |

Table 12: Electronics Collection Techniques by DEP Region

| DEP Region | Counties | Type | Public Sector Drop-Off | Special Event | Private Industry |
|---------------------|-------------------------|-------|------------------------|---------------|------------------|
| Southeast | Chester | Urban | 1 | | |
| | Montgomery | Urban | 1 | 1 | 1 |
| | Philadelphia | Urban | 1 | | |
| | REGION TOTAL | | 3 | 1 | 1 |
| | RESPONDENT TOTAL | | 20 | 5.88 | 16.67 |
| Northeast | Luzerne | Urban | | 1 | |
| | Monroe | Rural | 1 | 1 | |
| | Pike | Rural | NA | NA | NA |
| | Susquehanna | Rural | NA | NA | NA |
| | Wayne | Rural | | 1 | |
| | REGION TOTAL | | 1 | 3 | 0 |
| | RESPONDENT TOTAL | | 6.67 | 17.65 | 0 |
| Southcentral | Berks | Urban | 1 | | |
| | Lebanon | Urban | 1 | | |
| | Perry | Rural | 1 | 1 | |
| | York | Urban | 1 | | |
| | REGION TOTAL | | 4 | 1 | 0 |
| | RESPONDENT TOTAL | | 26.67 | 5.88 | 0 |
| Northcentral | Bradford | Rural | | 1 | |
| | Cameron | Rural | NA | NA | NA |
| | Centre | Rural | 1 | | |
| | Clearfield | Rural | | 1 | |
| | Columbia | Rural | NA | NA | NA |
| | Snyder | Rural | | 1 | |

| | | | | | |
|------------------|-------------------------|-------|--------------|--------------|--------------|
| | Sullivan | Rural | | 1 | |
| | Tioga | Rural | | 1 | |
| | Union | Rural | | | 1 |
| | REGION TOTAL | | 1 | 5 | 1 |
| | RESPONDENT TOTAL | | 6.67 | 29.41 | 16.67 |
| Southwest | Beaver | Urban | 1 | | |
| | Fayette | Rural | 1 | | |
| | Somerset | Rural | NA | NA | NA |
| | Washington | Rural | | | 1 |
| | REGION TOTAL | | 2 | 0 | 1 |
| | RESPONDENT TOTAL | | 13.33 | 0 | 16.67 |
| Northwest | Butler | Rural | | 1 | |
| | Crawford | Rural | 1 | 1 | 1 |
| | Elk | Rural | 1 | | |
| | Erie | Urban | | 1 | |
| | Forest | Rural | NA | NA | NA |
| | Indiana | Rural | 1 | | |
| | Jefferson | Rural | | 1 | |
| | Lawrence | Rural | | 1 | 1 |
| | Mercer | Rural | 1 | 1 | 1 |
| | Venango | Rural | | 1 | |
| | REGION TOTAL | | 4 | 7 | 3 |
| | RESPONDENT TOTAL | | 26.67 | 41.18 | 50.00 |

Table 13: Payment for Electronics Recycling by DEP Region

| DEP Region | Counties | Type | Residents | Govt-Sponsored Program | OEM-Sponsored Program | Other |
|-------------------|-------------------------|-------------|------------------|-------------------------------|------------------------------|--------------|
| Southeast | Chester | Urban | | | | 1 |
| | Montgomery | Urban | 1 | | | |
| | Philadelphia | Urban | | 1 | | |
| | REGION TOTAL | | 1 | 1 | 0 | 1 |
| | RESPONDENT TOTAL | | 6.25 | 20 | 0 | 20 |
| Northeast | Luzerne | Urban | | | | 1 |
| | Monroe | Rural | | | 1 | |
| | Pike | Rural | NA | NA | NA | NA |
| | Susquehanna | Rural | NA | NA | NA | NA |
| | Wayne | Rural | 1 | | | |
| | REGION TOTAL | | 1 | 0 | 1 | 1 |

| | | | | | | |
|-------------------------|-------------------------|--------------|--------------|-----------|-----------|-----------|
| | RESPONDENT TOTAL | | 6.25 | 0 | 20 | 20 |
| Southcentral | Berks | Urban | | 1 | | |
| | Lebanon | Urban | | | 1 | |
| | Perry | Rural | 1 | | | |
| | York | Urban | | | | 1 |
| | REGION TOTAL | | 1 | 1 | 1 | 1 |
| | RESPONDENT TOTAL | | 6.25 | 20 | 20 | 20 |
| Northcentral | Bradford | Rural | 1 | | | |
| | Cameron | Rural | NA | NA | NA | NA |
| | Centre | Rural | | | 1 | |
| | Clearfield | Rural | 1 | | | |
| | Columbia | Rural | NA | NA | NA | NA |
| | Snyder | Rural | 1 | | | |
| | Sullivan | Rural | 1 | | | |
| | Tioga | Rural | 1 | | | |
| | Union | Rural | | | | 1 |
| | REGION TOTAL | | 5 | 0 | 1 | 1 |
| | RESPONDENT TOTAL | | 31.25 | 0 | 20 | 20 |
| Southwest | Beaver | Urban | 1 | | | |
| | Fayette | Rural | | 1 | | |
| | Somerset | Rural | NA | NA | NA | NA |
| | Washington | Rural | | | 1 | |
| | REGION TOTAL | | 1 | 1 | 1 | 0 |
| | RESPONDENT TOTAL | | 6.25 | 20 | 20 | 0 |
| Northwest | Butler | Rural | | | | 1 |
| | Crawford | Rural | 1 | | | |
| | Elk | Rural | | 1 | | |
| | Erie | Urban | 1 | 1 | 1 | |
| | Forest | Rural | NA | NA | NA | NA |
| | Indiana | Rural | 1 | | | |
| | Jefferson | Rural | 1 | | | |
| | Lawrence | Rural | 1 | | | |
| | Mercer | Rural | 1 | | | |
| | Venango | Rural | 1 | | | |
| | REGION TOTAL | | 7 | 2 | 1 | 1 |
| RESPONDENT TOTAL | | 43.75 | 40 | 20 | 20 | |

Table 14: Access to Household Hazardous Waste (HHW) Recycling by DEP Region

| DEP Region | Counties | Type | HHW Recycling |
|---------------------|-------------------------|-------------|----------------------|
| Southeast | Chester | Urban | 1 |
| | Montgomery | Urban | 1 |
| | Philadelphia | Urban | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 12.5 |
| Northeast | Luzerne | Urban | 0 |
| | Monroe | Rural | 0 |
| | Pike | Rural | 0 |
| | Susquehanna | Rural | NA |
| | Wayne | Rural | 0 |
| | REGION TOTAL | | 0 |
| | RESPONDENT TOTAL | | 0 |
| Southcentral | Berks | Urban | 1 |
| | Lebanon | Urban | 1 |
| | Perry | Rural | 1 |
| | York | Urban | 1 |
| | REGION TOTAL | | 4 |
| | RESPONDENT TOTAL | | 16.67 |
| Northcentral | Bradford | Rural | 1 |
| | Cameron | Rural | 0 |
| | Centre | Rural | 1 |
| | Clearfield | Rural | 1 |
| | Columbia | Rural | 0 |
| | Snyder | Rural | 1 |
| | Sullivan | Rural | 1 |
| | Tioga | Rural | 1 |
| | Union | Rural | 0 |
| | REGION TOTAL | | 6 |
| | RESPONDENT TOTAL | | 25 |
| Southwest | Beaver | Urban | 1 |
| | Fayette | Rural | 0 |
| | Somerset | Rural | NA |
| | Washington | Rural | 0 |
| | REGION TOTAL | | 1 |
| | RESPONDENT TOTAL | | 4.17 |
| Northwest | Butler | Rural | 1 |

| | | | |
|--|-------------------------|-------|-------------|
| | Crawford | Rural | 1 |
| | Elk | Rural | 1 |
| | Erie | Urban | 1 |
| | Forest | Rural | 0 |
| | Indiana | Rural | 1 |
| | Jefferson | Rural | 1 |
| | Lawrence | Rural | 1 |
| | Mercer | Rural | 1 |
| | Venango | Rural | 1 |
| | REGION TOTAL | | 9 |
| | RESPONDENT TOTAL | | 37.5 |

Table 15: Payment for Household Hazardous Waste (HHW) Recycling by DEP Region

| DEP Region | Counties | Type | Waste Authority | Residents | Grants | Fees | Dept. of Ag. | Other |
|---------------------|-------------------------|-------|-----------------|-------------|--------------|-----------|--------------|-----------|
| Southeast | Chester | Urban | | 1 | 1 | | | 1 |
| | Montgomery | Urban | 1 | | 1 | | | |
| | Philadelphia | Urban | 1 | | | | | |
| | REGION TOTAL | | 2 | 1 | 2 | 0 | 0 | 1 |
| | RESPONDENT TOTAL | | 18.18 | 7.69 | 16.67 | 0 | 0 | 50 |
| Northeast | Luzerne | Urban | NA | NA | NA | NA | NA | NA |
| | Monroe | Rural | NA | NA | NA | NA | NA | NA |
| | Pike | Rural | NA | NA | NA | NA | NA | NA |
| | Susquehanna | Rural | NA | NA | NA | NA | NA | NA |
| | Wayne | Rural | NA | NA | NA | NA | NA | NA |
| | REGION TOTAL | | NA | NA | NA | NA | NA | NA |
| | RESPONDENT TOTAL | | NA | NA | NA | NA | NA | NA |
| Southcentral | Berks | Urban | 1 | | 1 | | | |
| | Lebanon | Urban | | | | 1 | | |
| | Perry | Rural | | | | | 1 | |
| | York | Urban | 1 | | 1 | | | |
| | REGION TOTAL | | 2 | 0 | 2 | 1 | 1 | 0 |
| | RESPONDENT TOTAL | | 18.18 | 0 | 16.67 | 50 | 25 | 0 |
| Northcentral | Bradford | Rural | 1 | | 1 | | 1 | |
| | Cameron | Rural | NA | NA | NA | NA | NA | NA |

| | | | | | | | | |
|------------------|-------------------------|-------|--------------|--------------|--------------|-----------|-----------|-----------|
| | Centre | Rural | | | | 1 | | |
| | Clearfield | Rural | | 1 | 1 | | | |
| | Columbia | Rural | NA | NA | NA | NA | NA | NA |
| | Snyder | Rural | | 1 | | | | |
| | Sullivan | Rural | 1 | | 1 | | 1 | |
| | Tioga | Rural | 1 | | 1 | | 1 | |
| | Union | Rural | NA | NA | NA | NA | NA | NA |
| | REGION TOTAL | | 3 | 2 | 4 | 1 | 3 | 0 |
| | RESPONDENT TOTAL | | 27.27 | 15.38 | 33.33 | 50 | 75 | 0 |
| Southwest | Beaver | Urban | 1 | 1 | | | | |
| | Fayette | Rural | NA | NA | NA | NA | NA | NA |
| | Somerset | Rural | NA | NA | NA | NA | NA | NA |
| | Washington | Rural | 1 | 1 | | | | 1 |
| | REGION TOTAL | | 2 | 2 | 0 | 0 | 0 | 1 |
| | RESPONDENT TOTAL | | 18.18 | 15.38 | 0 | 0 | 0 | 50 |
| Northwest | Butler | Rural | 1 | 1 | | | | |
| | Crawford | Rural | | 1 | | | | |
| | Elk | Rural | 1 | | 1 | | | |
| | Erie | Urban | | 1 | 1 | | | |
| | Forest | Rural | NA | NA | NA | NA | NA | NA |
| | Indiana | Rural | | 1 | | | | |
| | Jefferson | Rural | | 1 | 1 | | | |
| | Lawrence | Rural | | 1 | | | | |
| | Mercer | Rural | | 1 | | | | |
| | Venango | Rural | | 1 | 1 | | | |
| | REGION TOTAL | | 2 | 8 | 4 | 0 | 0 | 0 |
| | RESPONDENT TOTAL | | 18.18 | 61.54 | 33.33 | 0 | 0 | 0 |

Figure 11: Processing Location of your County's Recyclables

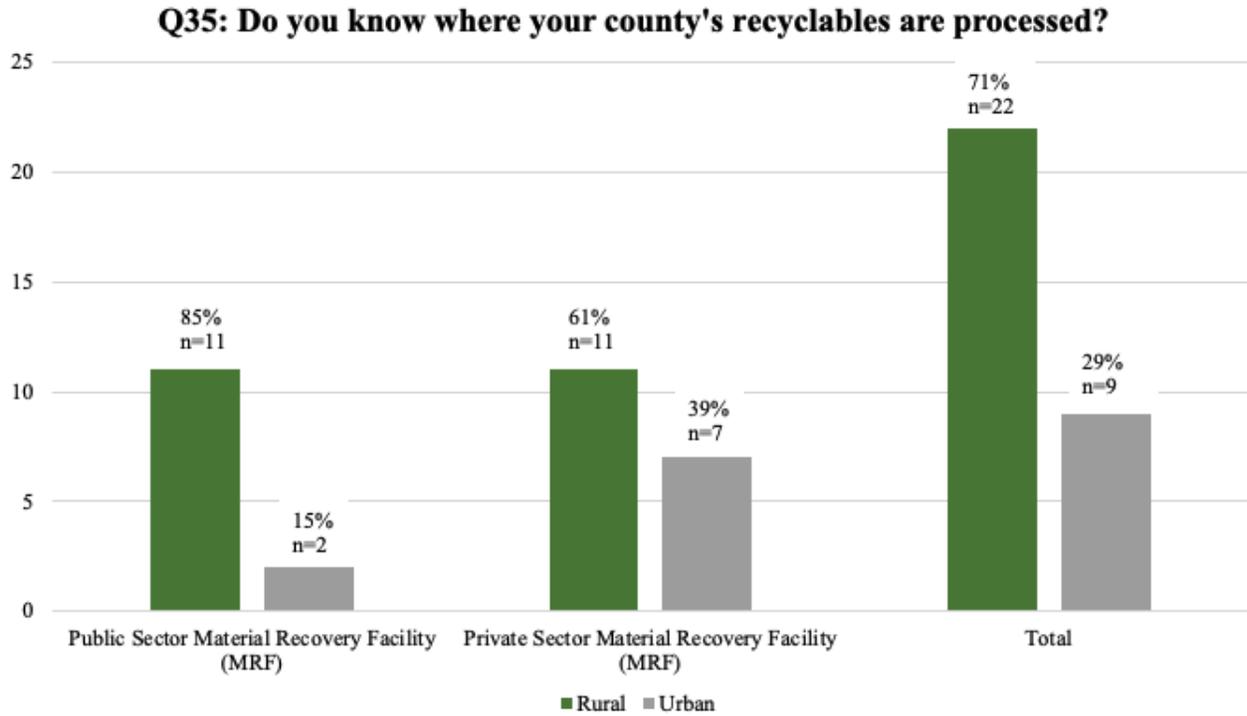


Table 16: Processing Location of your County's Recyclables by DEP Region

| DEP Region | Counties | Type | Public Sector MRF | Private Sector MRF |
|---------------------|-------------------------|-------|-------------------|--------------------|
| Southeast | Chester | Urban | | 1 |
| | Montgomery | Urban | | 1 |
| | Philadelphia | Urban | | 1 |
| | REGION TOTAL | | 0 | 3 |
| | RESPONDENT TOTAL | | 0 | 16.67 |
| Northeast | Luzerne | Urban | 1 | |
| | Monroe | Rural | | 1 |
| | Pike | Rural | | 1 |
| | Susquehanna | Rural | NA | NA |
| | Wayne | Rural | 1 | |
| | REGION TOTAL | | 2 | 2 |
| | RESPONDENT TOTAL | | 15.38 | 11.11 |
| Southcentral | Berks | Urban | | 1 |
| | Lebanon | Urban | | 1 |
| | Perry | Rural | 1 | |
| | York | Urban | | 1 |
| | REGION TOTAL | | 1 | 3 |
| | RESPONDENT TOTAL | | 7.69 | 16.67 |

| | | | | |
|---------------------|-------------------------|-------|--------------|--------------|
| Northcentral | Bradford | Rural | 1 | |
| | Cameron | Rural | | 1 |
| | Centre | Rural | 1 | |
| | Clearfield | Rural | | 1 |
| | Columbia | Rural | NA | NA |
| | Snyder | Rural | 1 | |
| | Sullivan | Rural | 1 | |
| | Tioga | Rural | 1 | |
| | Union | Rural | 1 | |
| | REGION TOTAL | | 6 | 2 |
| | RESPONDENT TOTAL | | 46.15 | 11.11 |
| Southwest | Beaver | Urban | 1 | |
| | Fayette | Rural | | 1 |
| | Somerset | Rural | NA | NA |
| | Washington | Rural | | 1 |
| | REGION TOTAL | | 1 | 2 |
| | RESPONDENT TOTAL | | 7.69 | 11.11 |
| Northwest | Butler | Rural | | 1 |
| | Crawford | Rural | 1 | |
| | Elk | Rural | 1 | |
| | Erie | Urban | | 1 |
| | Forest | Rural | NA | NA |
| | Indiana | Rural | 1 | |
| | Jefferson | Rural | | 1 |
| | Lawrence | Rural | | 1 |
| | Mercer | Rural | | 1 |
| | Venango | Rural | | 1 |
| | REGION TOTAL | | 3 | 6 |
| | RESPONDENT TOTAL | | 23.08 | 33.33 |

Table 17: Frequency of Negative Impacts on Recycling Collection by DEP Region

| DEP Region | Counties | TC | MC | DG | CO | PMV | IR | LAP | LM | CH |
|-------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SE | Chester | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Montgomery | 4 | 4 | 4 | 5 | 4 | 5 | 2 | 4 | 4 |
| | Philadelphia | 2 | 3 | 1 | 5 | 5 | 2 | 1 | 2 | 5 |
| | REG. TOTAL | 8 | 9 | 7 | 12 | 11 | 9 | 5 | 8 | 11 |
| | REG. AVG | 2.00 | 2.25 | 2.33 | 4.00 | 3.67 | 3.00 | 1.67 | 2.67 | 3.67 |

| | | | | | | | | | | |
|----|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| NE | Luzerne | 5 | 5 | 5 | 5 | 5 | 5 | NA | 5 | 5 |
| | Monroe | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| | Pike | NA | NA | NA | 4 | NA | NA | 5 | NA | NA |
| | Susquehanna | NA |
| | Wayne | 2 | 3 | 1 | 2 | 5 | 2 | 1 | 1 | 2 |
| | REG. TOTAL | 11 | 12 | 10 | 16 | 15 | 12 | 11 | 11 | 12 |
| | REG. AVG | 3.67 | 4.00 | 3.33 | 4.00 | 5.00 | 4.00 | 3.67 | 3.67 | 4.00 |
| SC | Berks | 2 | 2 | 2 | 4 | 5 | 4 | 2 | 4 | 5 |
| | Lebanon | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Perry | 4 | 4 | 3 | 5 | 5 | 4 | 4 | 5 | 3 |
| | York | 4 | 4 | 2 | 5 | 5 | 5 | 5 | 4 | 4 |
| | REG. TOTAL | 14 | 14 | 11 | 18 | 19 | 17 | 15 | 17 | 16 |
| | REG. AVG | 3.50 | 3.50 | 2.75 | 4.50 | 4.75 | 4.25 | 3.75 | 4.25 | 4.00 |
| NC | Bradford | 5 | 5 | 5 | 4 | 4 | 4 | 2 | 2 | 2 |
| | Cameron | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| | Centre | 3 | 3 | 3 | 2 | 4 | 2 | 1 | 2 | 2 |
| | Clearfield | 5 | 4 | 2 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Columbia | 5 | 4 | NA | NA | 4 | NA | NA | 4 | NA |
| | Snyder | 2 | NA | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| | Sullivan | 5 | 5 | 5 | 5 | 4 | 4 | 1 | 2 | 2 |
| | Tioga | 5 | 5 | 5 | 4 | 4 | 4 | 2 | 2 | 2 |
| | Union | 3 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 5 |
| | REG. TOTAL | 35 | 30 | 23 | 24 | 31 | 23 | 15 | 21 | 19 |
| | REG. AVG | 3.89 | 3.75 | 2.88 | 3.00 | 3.44 | 2.88 | 1.88 | 2.33 | 2.38 |
| SW | Beaver | 2 | 3 | 3 | 5 | 5 | 4 | 3 | 4 | 4 |
| | Fayette | 4 | 4 | 4 | 5 | 5 | 5 | 1 | 4 | 5 |
| | Somerset | NA |
| | Washington | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 | 5 |
| | REG. TOTAL | 9 | 10 | 9 | 13 | 13 | 12 | 6 | 11 | 14 |
| | REG. AVG | 3.00 | 3.33 | 3.00 | 4.33 | 4.33 | 4.00 | 2.00 | 3.67 | 4.67 |
| NW | Butler | NA | 1 | 1 | 4 | 4 | 4 | NA | NA | 5 |
| | Crawford | 5 | 5 | 2 | 5 | 5 | 2 | 1 | 2 | 2 |
| | Elk | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Erie | 4 | 5 | 4 | 5 | 5 | 2 | 5 | 5 | 3 |
| | Forest | NA |
| | Indiana | 4 | 4 | 4 | 2 | 4 | 2 | 2 | 2 | 4 |
| | Jefferson | 5 | 5 | 5 | 4 | 5 | 4 | 5 | 5 | 5 |
| | Lawrence | 4 | 4 | 5 | 5 | 5 | 5 | 2 | 5 | 5 |

| | | | | | | | | | | |
|--|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Mercer | 3 | 3 | 2 | 4 | 2 | 2 | 3 | 2 | 3 |
| | Venango | 2 | 2 | 2 | 5 | 5 | 5 | 2 | 5 | 5 |
| | REG. TOTAL | 28 | 30 | 26 | 35 | 36 | 27 | 21 | 27 | 33 |
| | REG. AVG | 3.50 | 3.33 | 2.89 | 3.89 | 4.00 | 3.00 | 2.63 | 3.38 | 3.67 |

Table 18: Description of Negative Impacts on Recycling Collection Services by DEP Region

| DEP Region | Counties | CO | LED | LEN | TC | MC | DG | PMV | LAP | LM | CH | O |
|------------|--------------------|-------------|-------------|-----------|-------------|-----------|----------|-------------|-----------|-----------|-----------|-------------|
| SE | Chester | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Montgomery | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | Philadelphia | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | REG. TOTAL | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | RESP. TOTAL | 9.1 | 0 | 0 | 0 | 0 | 0 | 16.7 | 0 | 0 | 0 | 7.7 |
| NE | Luzerne | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Monroe | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Pike | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Susquehanna | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Wayne | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 2 |
| | RESP. TOTAL | 9.1 | 0 | 50 | 16.7 | 10 | 0 | 16.7 | 50 | 20 | 25 | 15.4 |
| SC | Berks | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Lebanon | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| | Perry | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | REG. TOTAL | 2 | 1 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| | RESP. TOTAL | 18.2 | 33.3 | 0 | 33.3 | 10 | 0 | 16.7 | 0 | 20 | 0 | 7.7 |
| NC | Bradford | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Cameron | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Centre | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Clearfield | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| | Columbia | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Snyder | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Sullivan | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Tioga | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| | Union | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | REG. TOTAL | 1 | 1 | 1 | 0 | 4 | 3 | 0 | 0 | 1 | 0 | 2 |

| | | | | | | | | | | | | |
|-----------|--------------------|-------------|-------------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-----------|-------------|
| | RESP. TOTAL | 9.1 | 33.3 | 50 | 0 | 40 | 75 | 0 | 0 | 20 | 0 | 15.4 |
| SW | Beaver | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fayette | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | Somerset | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Washington | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| | RESP. TOTAL | 9.1 | 33.3 | 0 | 33.3 | 0 | 0 | 16.7 | 0 | 0 | 25 | 7.7 |
| NW | Butler | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| | Crawford | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Elk | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Erie | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Forest | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Indiana | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Jefferson | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| | Lawrence | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Mercer | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Venango | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | REG. TOTAL | 5 | 0 | 0 | 1 | 4 | 1 | 2 | 1 | 2 | 2 | 6 |
| | RESP. TOTAL | 45.5 | 0 | 0 | 16.7 | 40 | 25 | 33.3 | 50 | 40 | 50 | 46.2 |

Table 19: Description of Solutions to Make Collection Services More Accessible to County Residents Related to National Sword Policy

| County | Type | Response |
|---------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bradford | Rural | Same answer as Sullivan County |
| Clearfield | Rural | perhaps state could look at recycling markets as business development/ job creation. If China isn't taking these materials anymore new opportunities exist for us to make new products here. There seems to be little legislative support for anything deemed environmental. How about we call it job creation then? |
| Lawrence | Rural | Increased domestic capacity. Mandated curbside recycling (and waste collection) for more communities, where feasible. Perhaps with a population density of greater than 300/sq mi or overall population of 2 or 3 thousand people. |
| Montgomery | Urban | Extended producer responsibility laws must be passed to ensure that the paper and packaging manufacturers have to meet a minimum recycled content requirement. As the original producers of the material, they must purchase back the recycled materials that our communities collect and use them in their new packaging. There must be a guaranteed market for the programs to survive economically. |
| Pike | Rural | ... Accessibility is not an issue for general household single stream. Issue is bulk waste, electronics, and HHW. |
| Sullivan | Rural | A uniform state funded recycling education program, which could help improve the quality of the recyclables collected now, which would overall decrease overhead costs and allow for the expansion of collection services and availability. |
| Tioga | Rural | Same answer as Sullivan County |

Figure 12: Anticipating Changes to Recycling Programs in Counties

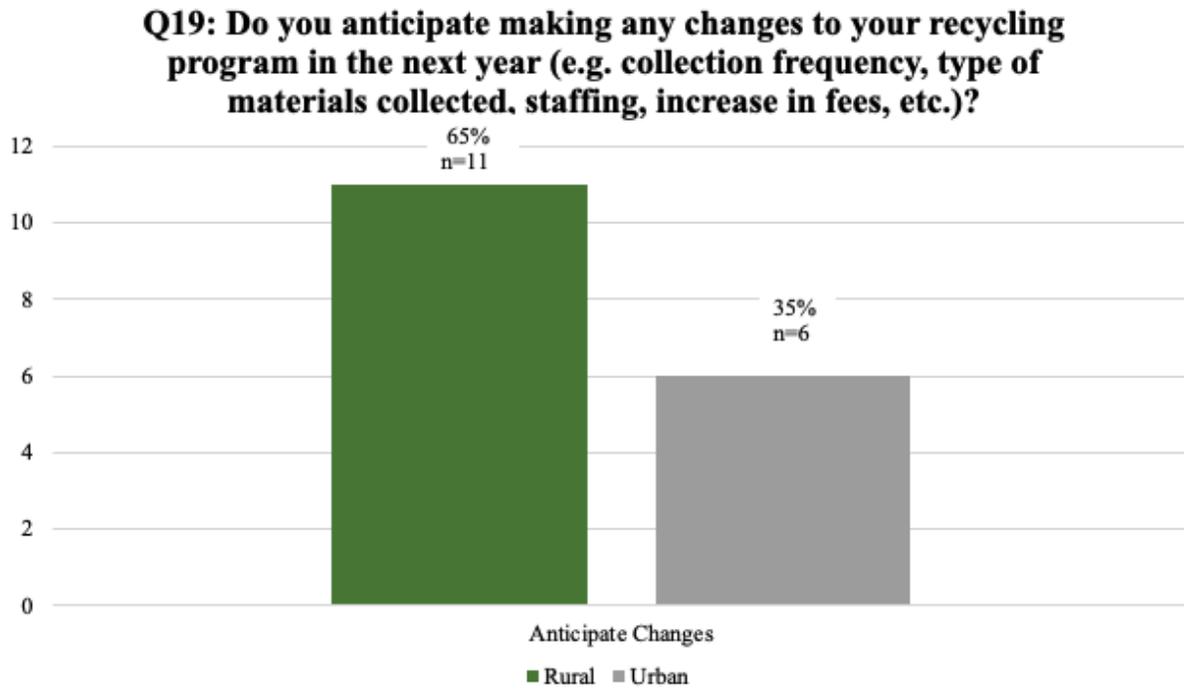


Table 20: Anticipating Changes to Recycling Programs by DEP Region

| DEP Region | Counties | Type | Anticipate Changes |
|---------------------|-------------------------|-------|--------------------|
| Southeast | Chester | Urban | 1 |
| | Montgomery | Urban | 1 |
| | Philadelphia | Urban | 0 |
| | REGION TOTAL | | 2 |
| | RESPONDENT TOTAL | | 11.76 |
| Northeast | Luzerne | Urban | NA |
| | Monroe | Rural | 1 |
| | Pike | Rural | 1 |
| | Susquehanna | Rural | NA |
| | Wayne | Rural | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 17.65 |
| Southcentral | Berks | Urban | 1 |
| | Lebanon | Urban | 1 |
| | Perry | Rural | NA |
| | York | Urban | 0 |
| | REGION TOTAL | | 2 |

| | | | |
|---------------------|-------------------------|-------|--------------|
| | RESPONDENT TOTAL | | 11.76 |
| Northcentral | Bradford | Rural | 1 |
| | Cameron | Rural | 0 |
| | Centre | Rural | 0 |
| | Clearfield | Rural | 0 |
| | Columbia | Rural | 1 |
| | Snyder | Rural | 0 |
| | Sullivan | Rural | 1 |
| | Tioga | Rural | 1 |
| | Union | Rural | 1 |
| | REGION TOTAL | | 5 |
| | RESPONDENT TOTAL | | 29.41 |
| Southwest | Beaver | Urban | 1 |
| | Fayette | Rural | 1 |
| | Somerset | Rural | NA |
| | Washington | Rural | 0 |
| | REGION TOTAL | | 2 |
| | RESPONDENT TOTAL | | 11.76 |
| Northwest | Butler | Rural | 0 |
| | Crawford | Rural | NA |
| | Elk | Rural | 0 |
| | Erie | Urban | 1 |
| | Forest | Rural | 0 |
| | Indiana | Rural | 1 |
| | Jefferson | Rural | 0 |
| | Lawrence | Rural | 0 |
| | Mercer | Rural | 0 |
| | Venango | Rural | 1 |
| | REGION TOTAL | | 3 |
| | RESPONDENT TOTAL | | 17.65 |

Figure 13: Description of Anticipated Changes to Recycling Programs in Counties

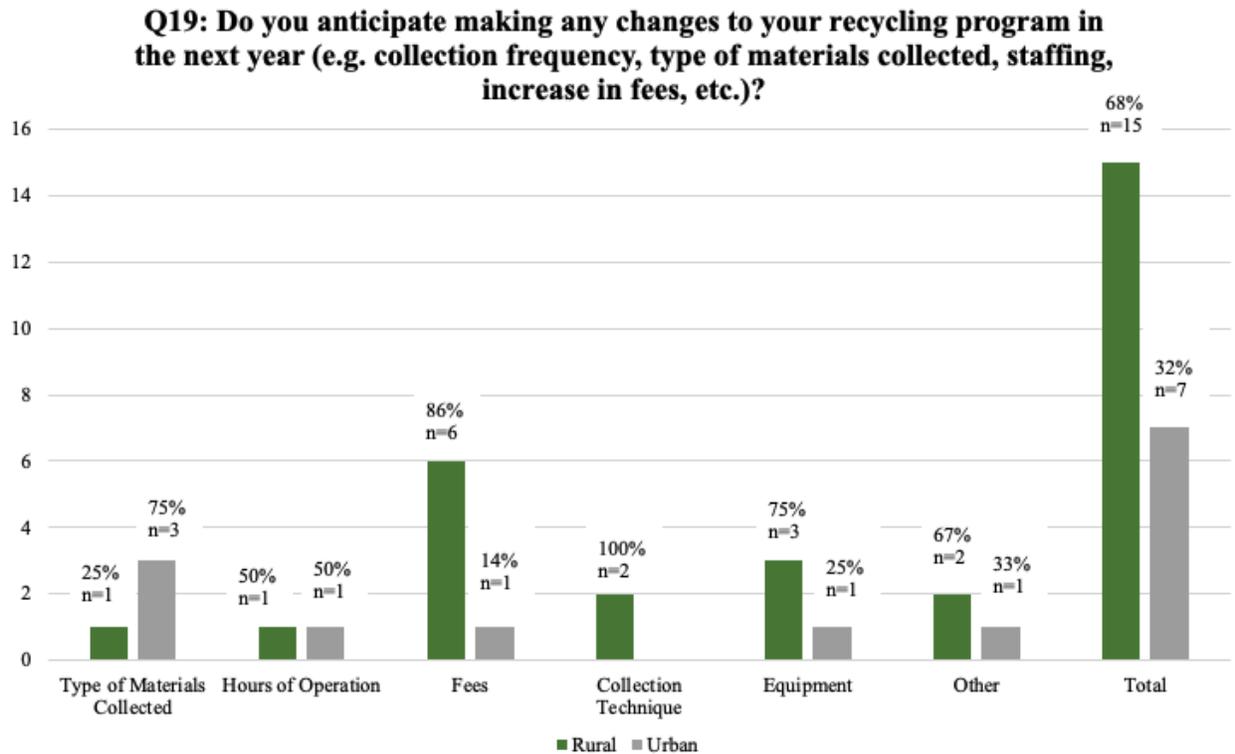


Table 21: Description of Anticipated Changes to Recycling Programs by DEP Region

| DEP Region | Counties | Materials Collected | Hours of Operation | Fees | Collection Technique | Equipment | Other | Total |
|------------|--------------------|---------------------|--------------------|-------------|----------------------|-----------|--------------|--------------|
| SE | Chester | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Montgomery | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Philadelphia | NA | NA | NA | NA | NA | NA | NA |
| | REG. TOTAL | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| | RESP. TOTAL | 25 | 0 | 14.3 | 0 | 0 | 0 | 9.09 |
| NE | Luzerne | NA | NA | NA | NA | NA | NA | NA |
| | Monroe | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Pike | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Susquehanna | NA | NA | NA | NA | NA | NA | NA |
| | Wayne | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| | REG. TOTAL | 1 | 0 | 1 | 1 | 0 | 1 | 4 |
| | RESP. TOTAL | 25 | 0 | 14.3 | 50 | 0 | 33.33 | 18.18 |
| SC | Berks | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| | Lebanon | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Perry | NA | NA | NA | NA | NA | NA | NA |
| | York | NA | NA | NA | NA | NA | NA | NA |

| | | | | | | | | |
|--------------------|--------------------|-----------|-----------|-------------|-----------|-----------|--------------|--------------|
| | REG. TOTAL | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| | RESP. TOTAL | 25 | 0 | 0 | 0 | 25 | 0 | 9.09 |
| NC | Bradford | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| | Cameron | NA | NA | NA | NA | NA | NA | NA |
| | Centre | NA | NA | NA | NA | NA | NA | NA |
| | Clearfield | NA | NA | NA | NA | NA | NA | NA |
| | Columbia | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Snyder | NA | NA | NA | NA | NA | NA | NA |
| | Sullivan | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| | Tioga | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| | Union | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | REG. TOTAL | 0 | 1 | 4 | 0 | 3 | 0 | 8 |
| | RESP. TOTAL | 0 | 50 | 57.1 | 0 | 75 | 0 | 36.36 |
| | SW | Beaver | 1 | 1 | 0 | 0 | 0 | 0 |
| Fayette | | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Somerset | | NA | NA | NA | NA | NA | NA | NA |
| Washington | | NA | NA | NA | NA | NA | NA | NA |
| REG. TOTAL | | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| RESP. TOTAL | | 25 | 50 | 0 | 50 | 0 | 0 | 13.64 |
| NW | Butler | NA | NA | NA | NA | NA | NA | NA |
| | Crawford | NA | NA | NA | NA | NA | NA | NA |
| | Elk | NA | NA | NA | NA | NA | NA | NA |
| | Erie | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Forest | NA | NA | NA | NA | NA | NA | NA |
| | Indiana | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Jefferson | NA | NA | NA | NA | NA | NA | NA |
| | Lawrence | NA | NA | NA | NA | NA | NA | NA |
| | Mercer | NA | NA | NA | NA | NA | NA | NA |
| | Venango | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 0 | 0 | 1 | 0 | 0 | 2 | 3 |
| | RESP. TOTAL | 0 | 0 | 14.3 | 0 | 0 | 66.67 | 13.64 |

Figure 14: COVID-19 Related Impacts on Collection Services in Counties

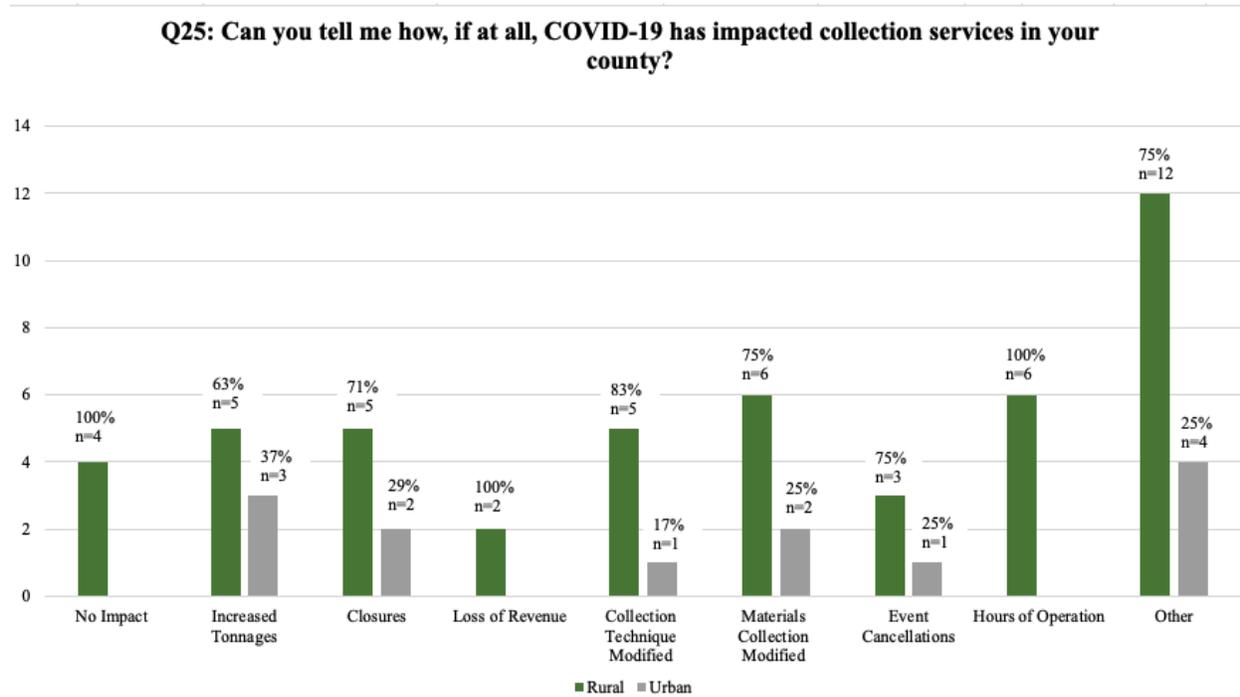


Table 22: COVID-19 Related Impacts on Collection Services by DEP Region

| DEP Region | Counties | NI | IT | C | LOR | CTM | MC M | EC | HO O | O | Total |
|------------|--------------------|-----------|-------------|-------------|----------|-----------|-------------|----------|--------------|-------------|--------------|
| SE | Chester | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Montgomery | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Philadelphia | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| | REG. TOTAL | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 4 |
| | RESP. TOTAL | 0 | 12.5 | 0 | 0 | 0 | 12.5 | 0 | 0 | 12.5 | 6.56 |
| NE | Luzerne | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 3 |
| | Monroe | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Pike | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Susquehanna | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Wayne | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 4 |
| | REG. TOTAL | 1 | 0 | 2 | 0 | 3 | 0 | 0 | 1 | 2 | 9 |
| | RESP. TOTAL | 25 | 0 | 28.6 | 0 | 50 | 0 | 0 | 16.67 | 12.5 | 14.75 |
| SC | Berks | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Lebanon | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Perry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | York | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| | | | | | | | | | | | |
|--------------------|--------------------|-------------|-------------|-------------|--------------|--------------|-------------|--------------|-----------|--------------|--------------|
| | REG. TOTAL | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| | RESP. TOTAL | 0 | 12.5 | 14.3 | 0 | 0 | 0 | 0 | 0 | 6.25 | 4.92 |
| NC | Bradford | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Cameron | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Centre | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 4 |
| | Clearfield | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| | Columbia | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Snyder | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 3 |
| | Sullivan | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Tioga | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Union | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| | REG. TOTAL | 1 | 4 | 3 | 1 | 2 | 1 | 0 | 3 | 6 | 21 |
| | RESP. TOTAL | 25 | 50 | 42.3 | 50 | 33.33 | 12.5 | 0 | 50 | 37.5 | 34.43 |
| SW | Beaver | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Fayette | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Somerset | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Washington | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| | REG. TOTAL | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 4 |
| | RESP. TOTAL | 0 | 12.5 | 0 | 0 | 0 | 12.5 | 25 | 0 | 6.25 | 6.56 |
| NW | Butler | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| | Crawford | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| | Elk | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 4 |
| | Erie | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| | Forest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Indiana | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Jefferson | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 |
| | Lawrence | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Mercer | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Venango | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| | REG. TOTAL | 2 | 1 | 1 | 1 | 1 | 5 | 3 | 2 | 4 | 20 |
| RESP. TOTAL | 50 | 12.5 | 14.3 | 50 | 16.67 | 62.5 | 75 | 33.33 | 25 | 32.79 | |

Table 23: Solutions to Make Collection Services More Accessible by DEP Region

| DEP Region | Counties | Education | Muni. Collection | Market/Job Creation | Fees | Mod. of Existing Collection | Other | Total |
|------------|------------|-----------|------------------|---------------------|------|-----------------------------|-------|-------|
| SE | Chester | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Montgomery | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| | | | | | | | | |
|----|--------------------|-------------|--------------|-----------|--------------|--------------|--------------|--------------|
| | Philadelphia | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 1 | 0 | 0 | 0 | 0 | 3 | 4 |
| | RESP. TOTAL | 12.5 | 0 | 0 | 0 | 0 | 25 | 13 |
| NE | Luzerne | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Monroe | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| | Pike | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Susquehanna | NA | NA | NA | NA | NA | NA | NA |
| | Wayne | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 1 | 1 | 0 | 1 | 0 | 2 | 5 |
| | RESP. TOTAL | 12.5 | 33.33 | 0 | 33.33 | 0 | 16.67 | 16.13 |
| SC | Berks | NA | NA | NA | NA | NA | NA | NA |
| | Lebanon | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Perry | NA | NA | NA | NA | NA | NA | NA |
| | York | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| | RESP. TOTAL | 0 | 0 | 0 | 0 | 0 | 16.67 | 6.45 |
| NC | Bradford | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Cameron | NA | NA | NA | NA | NA | NA | NA |
| | Centre | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Clearfield | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Columbia | NA | NA | NA | NA | NA | NA | NA |
| | Snyder | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Sullivan | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Tioga | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Union | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | REG. TOTAL | 5 | 0 | 1 | 1 | 0 | 1 | 8 |
| | RESP. TOTAL | 63 | 0 | 50 | 33.33 | 0 | 8.33 | 25.81 |
| SW | Beaver | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Fayette | NA | NA | NA | NA | NA | NA | NA |
| | Somerset | NA | NA | NA | NA | NA | NA | NA |
| | Washington | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| | REG. TOTAL | 1 | 1 | 0 | 0 | 1 | 0 | 3 |
| | RESP. TOTAL | 12.5 | 33.33 | 0 | 0 | 33.33 | 0 | 9.67 |
| NW | Butler | NA | NA | NA | NA | NA | NA | NA |
| | Crawford | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Elk | NA | NA | NA | NA | NA | NA | NA |
| | Erie | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Forest | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Indiana | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| | | | | | | | | |
|--|--------------------|----------|--------------|-----------|--------------|--------------|--------------|-----------|
| | Jefferson | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| | Lawrence | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| | Mercer | NA | NA | NA | NA | NA | NA | NA |
| | Venango | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | REG. TOTAL | 0 | 1 | 1 | 1 | 2 | 4 | 9 |
| | RESP. TOTAL | 0 | 33.33 | 50 | 33.33 | 66.67 | 33.33 | 29 |

Appendix 4 Municipality Survey Results- Figures and Tables

Figure 1: Municipalities Mandated by Act 101 to Recycle

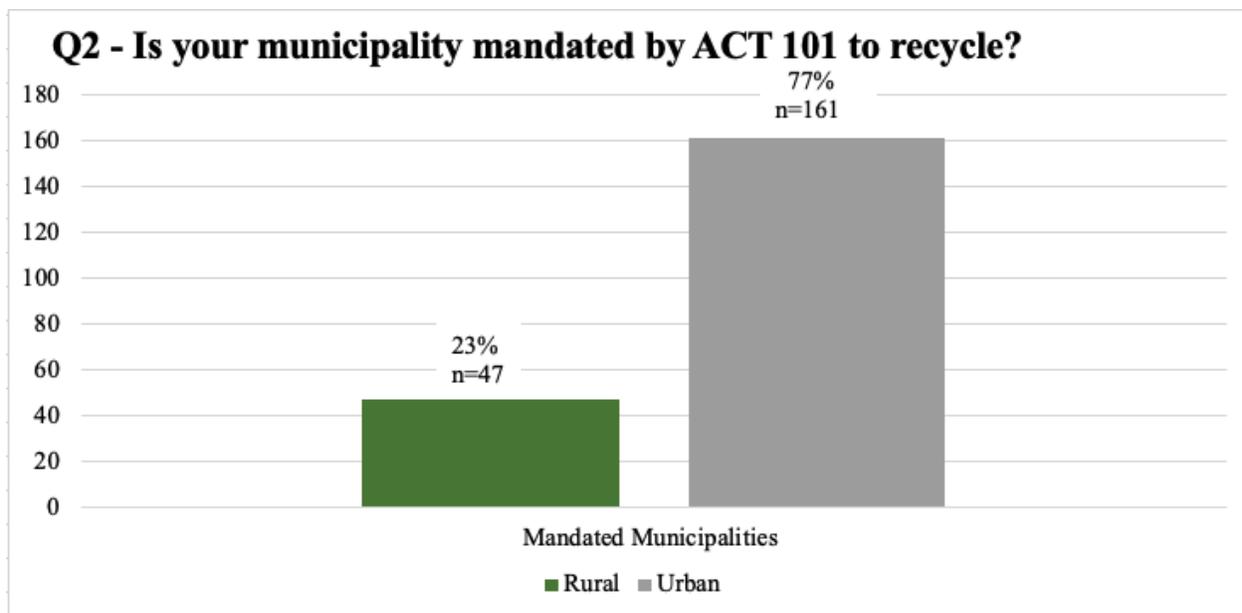


Table 1: Mandated Municipalities Located in Counties Responding to Survey

| County | Mandated Municipalities Responding | Total Responding Municipalities | Percent Mandated Per County |
|-----------|------------------------------------|---------------------------------|-----------------------------|
| Adams | 5 | 16 | 31.25 |
| Allegheny | 14 | 31 | 45.16 |
| Armstrong | 0 | 7 | 0 |
| Beaver | 10 | 16 | 62.5 |
| Bedford | 2 | 8 | 25 |
| Berks | 6 | 16 | 37.5 |
| Blair | 0 | 1 | 0 |
| Bradford | 1 | 1 | 100 |

| | | | |
|------------|----|----|-------|
| Bucks | 6 | 13 | 46.15 |
| Butler | 7 | 15 | 46.67 |
| Cambria | 2 | 22 | 9.09 |
| Cameron | 0 | 2 | 0 |
| Carbon | 2 | 7 | 28.57 |
| Centre | 5 | 35 | 14.29 |
| Chester | 16 | 24 | 66.67 |
| Clarion | 1 | 7 | 14.29 |
| Clearfield | 2 | 10 | 20 |
| Clinton | 0 | 0 | 0 |
| Columbia | 3 | 21 | 14.29 |
| Crawford | 0 | 0 | 0 |
| Cumberland | 2 | 5 | 40 |
| Dauphin | 3 | 7 | 42.86 |
| Delaware | 11 | 17 | 64.71 |
| Elk | 1 | 6 | 16.67 |
| Erie | 7 | 15 | 46.67 |
| Fayette | 4 | 18 | 22.22 |
| Forest | 0 | 4 | 0. |
| Franklin | 5 | 12 | 41.67 |
| Fulton | 1 | 4 | 25 |
| Greene | 0 | 0 | 0 |
| Huntingdon | 2 | 16 | 12.5 |
| Indiana | 1 | 12 | 8.33 |
| Jefferson | 0 | 0 | 0 |
| Juniata | 0 | 5 | 0 |
| Lackawanna | 4 | 15 | 26.67 |
| Lancaster | 8 | 19 | 42.11 |
| Lawrence | 1 | 8 | 12.5 |
| Lebanon | 4 | 9 | 44.44 |
| Lehigh | 1 | 3 | 33.33 |
| Luzerne | 7 | 24 | 29.17 |
| Lycoming | 3 | 4 | 75 |
| McKean | 0 | 6 | 0 |
| Mercer | 0 | 14 | 0 |
| Mifflin | 1 | 6 | 16.67 |
| Monroe | 4 | 6 | 66.67 |
| Montgomery | 12 | 18 | 66.67 |
| Montour | 0 | 3 | 0 |

| | | | |
|-------------------|--------------|------------|-------|
| Northampton | 6 | 13 | 46.15 |
| Northumberland | 0 | 12 | 0 |
| Perry | 0 | 11 | 0 |
| Philadelphia | 1 | 1 | 100 |
| Pike | 2 | 3 | 66.67 |
| Potter | 2 | 10 | 20 |
| Schuylkill | 4 | 14 | 28.57 |
| Snyder | 2 | 8 | 25 |
| Somerset | 0 | 10 | 0 |
| Sullivan | 0 | 0 | 0 |
| Susquehanna | 0 | 17 | 0 |
| Tioga | 0 | 0 | 0 |
| Union | 2 | 8 | 25 |
| Venango | 0 | 9 | 0 |
| Warren | 1 | 13 | 7.69 |
| Washington | 2 | 14 | 14.29 |
| Wayne | 0 | 1 | 0 |
| Westmoreland | 5 | 15 | 33.33 |
| Wyoming | 0 | 7 | 0 |
| York | 17 | 28 | 60.71 |
| TOTAL | 208 | 702 | |
| % OF TOTAL | 29.63 | | |

Figure 2: Collection Program Type by Municipality

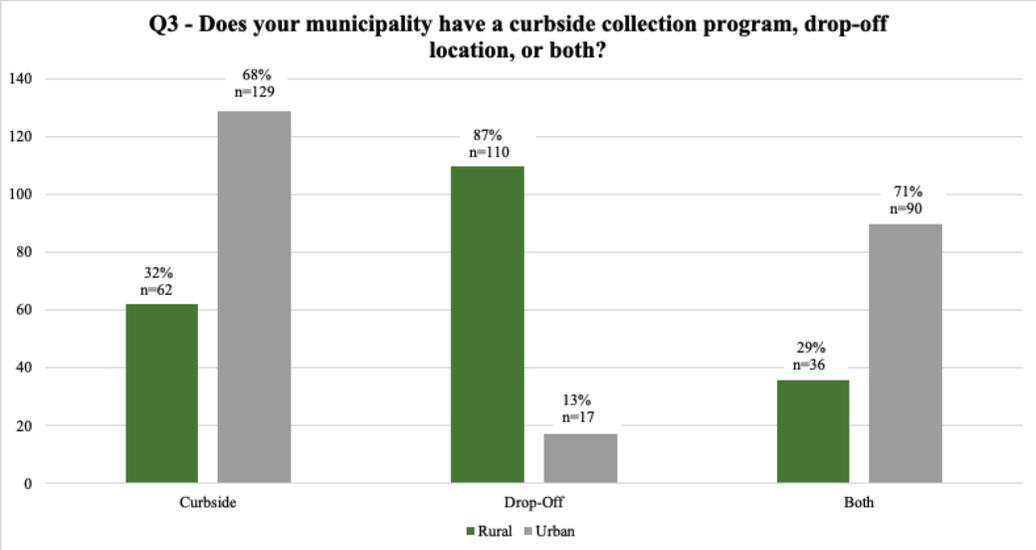


Table 2: Collection Program Type Aggregated by County

| County | Curbside | Drop-Off | Both | County Total |
|---------------|-----------------|-----------------|-------------|---------------------|
| Adams | 9 | 2 | 3 | 14 |
| Allegheny | 14 | 5 | 9 | 28 |
| Armstrong | 0 | 2 | 0 | 2 |
| Beaver | 2 | 5 | 7 | 14 |
| Bedford | 0 | 4 | 0 | 4 |
| Berks | 10 | 0 | 1 | 11 |
| Blair | 0 | 1 | 0 | 1 |
| Bradford | 0 | 0 | 1 | 1 |
| Bucks | 5 | 3 | 3 | 11 |
| Butler | 12 | 1 | 1 | 14 |
| Cambria | 4 | 2 | 1 | 7 |
| Cameron | 0 | 0 | 2 | 2 |
| Carbon | 4 | 0 | 0 | 4 |
| Centre | 0 | 21 | 12 | 33 |
| Chester | 9 | 4 | 6 | 19 |
| Clarion | 0 | 0 | 1 | 1 |
| Clearfield | 0 | 0 | 2 | 2 |
| Clinton | 0 | 0 | 0 | 0 |
| Columbia | 2 | 0 | 3 | 5 |
| Crawford | 0 | 0 | 0 | 0 |
| Cumberland | 4 | 0 | 0 | 4 |
| Dauphin | 4 | 0 | 1 | 5 |
| Delaware | 8 | 1 | 6 | 15 |
| Elk | 0 | 2 | 2 | 4 |
| Erie | 7 | 1 | 2 | 10 |
| Fayette | 5 | 2 | 2 | 9 |
| Forest | 0 | 0 | 1 | 1 |
| Franklin | 1 | 2 | 5 | 8 |
| Fulton | 1 | 2 | 0 | 3 |
| Greene | 0 | 0 | 0 | 0 |
| Huntingdon | 3 | 1 | 2 | 6 |
| Indiana | 0 | 0 | 2 | 2 |
| Jefferson | 0 | 0 | 0 | 0 |
| Juniata | 1 | 0 | 0 | 1 |
| Lackawanna | 5 | 5 | 3 | 13 |
| Lancaster | 9 | 0 | 3 | 12 |

| | | | | |
|-------------------|--------------|-------------|--------------|------------|
| Lawrence | 1 | 4 | 0 | 5 |
| Lebanon | 2 | 0 | 3 | 5 |
| Lehigh | 1 | 1 | 1 | 3 |
| Luzerne | 11 | 7 | 3 | 21 |
| Lycoming | 0 | 0 | 4 | 4 |
| McKean | 1 | 0 | 0 | 1 |
| Mercer | 1 | 3 | 1 | 5 |
| Mifflin | 0 | 2 | 1 | 3 |
| Monroe | 1 | 1 | 2 | 4 |
| Montgomery | 11 | 0 | 4 | 15 |
| Montour | 0 | 0 | 1 | 1 |
| Northampton | 8 | 0 | 5 | 13 |
| Northumberland | 0 | 3 | 0 | 3 |
| Perry | 0 | 4 | 2 | 6 |
| Philadelphia | 0 | 0 | 1 | 1 |
| Pike | 0 | 0 | 1 | 1 |
| Potter | 0 | 6 | 0 | 6 |
| Schuylkill | 5 | 3 | 2 | 10 |
| Snyder | 1 | 3 | 1 | 5 |
| Somerset | 1 | 0 | 0 | 1 |
| Sullivan | 0 | 0 | 0 | 0 |
| Susquehanna | 2 | 2 | 1 | 5 |
| Tioga | 0 | 0 | 0 | 0 |
| Union | 0 | 5 | 1 | 6 |
| Venango | 1 | 1 | 0 | 2 |
| Warren | 0 | 8 | 0 | 8 |
| Washington | 4 | 1 | 1 | 6 |
| Wayne | 0 | 1 | 0 | 1 |
| Westmoreland | 4 | 2 | 3 | 9 |
| Wyoming | 0 | 4 | 0 | 4 |
| York | 17 | 0 | 7 | 24 |
| TOTAL | 191 | 127 | 126 | 444 |
| % OF TOTAL | 43.02 | 28.6 | 28.38 | |

Figure 3: The Problem of Illegal Dumping in Municipalities

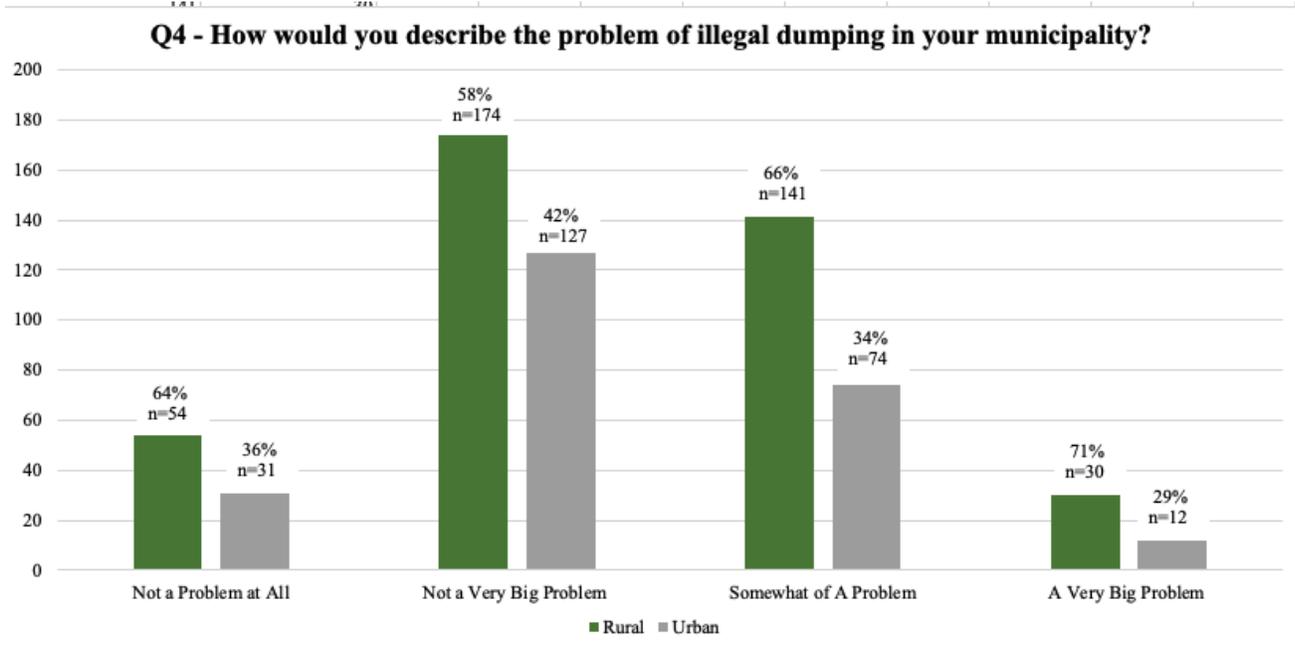


Table 3: The Problem of Illegal Dumping Aggregated by County

| County | Not a Problem at all | Not a Very Big Problem | Somewhat of a Problem | A Very Big Problem |
|------------|----------------------|------------------------|-----------------------|--------------------|
| Adams | 1 | 8 | 6 | 0 |
| Allegheny | 1 | 12 | 10 | 1 |
| Armstrong | 2 | 2 | 3 | 0 |
| Beaver | 2 | 4 | 5 | 4 |
| Bedford | 0 | 3 | 4 | 0 |
| Berks | 0 | 6 | 4 | 3 |
| Blair | 0 | 1 | 0 | 0 |
| Bradford | 0 | 0 | 1 | 0 |
| Bucks | 1 | 6 | 4 | 1 |
| Butler | 2 | 5 | 3 | 1 |
| Cambria | 4 | 8 | 8 | 1 |
| Cameron | 0 | 1 | 1 | 0 |
| Carbon | 2 | 1 | 4 | 0 |
| Centre | 10 | 16 | 8 | 5 |
| Chester | 4 | 10 | 6 | 0 |
| Clarion | 4 | 2 | 1 | 0 |
| Clearfield | 1 | 4 | 4 | 1 |
| Clinton | 0 | 0 | 0 | 0 |

| | | | | |
|----------------|---|----|----|---|
| Columbia | 2 | 9 | 7 | 2 |
| Crawford | 0 | 0 | 0 | 0 |
| Cumberland | 1 | 1 | 3 | 0 |
| Dauphin | 0 | 4 | 2 | 1 |
| Delaware | 1 | 8 | 4 | 0 |
| Elk | 0 | 3 | 2 | 0 |
| Erie | 1 | 8 | 4 | 0 |
| Fayette | 1 | 6 | 6 | 1 |
| Forest | 0 | 2 | 1 | 1 |
| Franklin | 1 | 5 | 6 | 0 |
| Fulton | 1 | 1 | 1 | 1 |
| Greene | 0 | 0 | 0 | 0 |
| Huntingdon | 3 | 9 | 3 | 1 |
| Indiana | 2 | 6 | 4 | 0 |
| Jefferson | 0 | 0 | 0 | 0 |
| Juniata | 0 | 1 | 4 | 0 |
| Lackawanna | 0 | 9 | 4 | 1 |
| Lancaster | 4 | 8 | 5 | 0 |
| Lawrence | 0 | 3 | 3 | 1 |
| Lebanon | 1 | 6 | 0 | 0 |
| Lehigh | 0 | 0 | 2 | 0 |
| Luzerne | 3 | 6 | 11 | 2 |
| Lycoming | 0 | 1 | 3 | 0 |
| McKean | 0 | 3 | 3 | 0 |
| Mercer | 2 | 7 | 4 | 0 |
| Mifflin | 1 | 2 | 2 | 0 |
| Monroe | 0 | 2 | 3 | 1 |
| Montgomery | 0 | 14 | 1 | 0 |
| Montour | 0 | 1 | 2 | 0 |
| Northampton | 1 | 6 | 4 | 2 |
| Northumberland | 3 | 5 | 4 | 0 |
| Perry | 1 | 6 | 3 | 0 |
| Philadelphia | 0 | 0 | 0 | 1 |
| Pike | 0 | 2 | 1 | 0 |
| Potter | 4 | 2 | 2 | 2 |
| Schuylkill | 1 | 2 | 8 | 1 |
| Snyder | 1 | 6 | 1 | 0 |
| Somerset | 1 | 7 | 2 | 0 |
| Sullivan | 0 | 0 | 0 | 0 |

| | | | | |
|-------------------|--------------|--------------|--------------|-------------|
| Susquehanna | 2 | 6 | 7 | 1 |
| Tioga | 0 | 0 | 0 | 0 |
| Union | 1 | 5 | 1 | 0 |
| Venango | 0 | 4 | 3 | 1 |
| Warren | 3 | 5 | 3 | 1 |
| Washington | 2 | 5 | 4 | 1 |
| Wayne | NA | NA | NA | NA |
| Westmoreland | 2 | 6 | 3 | 2 |
| Wyoming | 0 | 3 | 3 | 1 |
| York | 5 | 17 | 4 | 0 |
| TOTAL | 85 | 301 | 215 | 42 |
| % OF TOTAL | 13.22 | 46.81 | 33.44 | 6.53 |

Table 4: Recycling Education Aggregated by County

| County | Providing Education | Total Municipalities Responding | % Providing Education |
|---------------|----------------------------|----------------------------------------|------------------------------|
| Adams | 6 | 16 | 37.50 |
| Allegheny | 16 | 31 | 51.61 |
| Armstrong | 0 | 7 | 0.00 |
| Beaver | 8 | 16 | 50.00 |
| Bedford | 1 | 8 | 12.50 |
| Berks | 7 | 16 | 43.75 |
| Blair | 1 | 1 | 100.00 |
| Bradford | 1 | 1 | 100.00 |
| Bucks | 11 | 13 | 84.62 |
| Butler | 4 | 15 | 26.67 |
| Cambria | 3 | 22 | 13.64 |
| Cameron | 0 | 2 | 0.00 |
| Carbon | 2 | 7 | 28.57 |
| Centre | 35 | 35 | 100.00 |
| Chester | 16 | 24 | 66.67 |
| Clarion | 1 | 7 | 14.29 |
| Clearfield | 2 | 10 | 20.00 |
| Clinton | 0 | 0 | 0 |
| Columbia | 6 | 21 | 28.57 |
| Crawford | 0 | 0 | 0 |
| Cumberland | 4 | 5 | 80.00 |
| Dauphin | 4 | 7 | 57.14 |

| | | | |
|----------------|----|----|--------|
| Delaware | 12 | 17 | 70.59 |
| Elk | 1 | 6 | 16.67 |
| Erie | 8 | 15 | 53.33 |
| Fayette | 1 | 18 | 5.56 |
| Forest | 1 | 4 | 25.00 |
| Franklin | 3 | 12 | 25.00 |
| Fulton | 0 | 4 | 0.00 |
| Greene | 0 | 0 | 0 |
| Huntingdon | 5 | 16 | 31.25 |
| Indiana | 2 | 12 | 16.67 |
| Jefferson | 0 | 0 | 0 |
| Juniata | 0 | 5 | 0.00 |
| Lackawanna | 7 | 15 | 46.67 |
| Lancaster | 10 | 19 | 52.63 |
| Lawrence | 0 | 8 | 0.00 |
| Lebanon | 5 | 9 | 55.56 |
| Lehigh | 1 | 3 | 33.33 |
| Luzerne | 13 | 24 | 54.17 |
| Lycoming | 4 | 4 | 100.00 |
| McKean | 1 | 6 | 16.67 |
| Mercer | 5 | 14 | 35.71 |
| Mifflin | 1 | 6 | 16.67 |
| Monroe | 4 | 6 | 66.67 |
| Montgomery | 11 | 18 | 61.11 |
| Montour | 1 | 3 | 33.33 |
| Northampton | 8 | 13 | 61.54 |
| Northumberland | 3 | 12 | 25.00 |
| Perry | 2 | 11 | 18.18 |
| Philadelphia | 1 | 1 | 100.00 |
| Pike | 1 | 3 | 33.33 |
| Potter | 0 | 10 | 0.00 |
| Schuylkill | 3 | 14 | 21.43 |
| Snyder | 2 | 8 | 25.00 |
| Somerset | 0 | 10 | 0.00 |
| Sullivan | 0 | 0 | 0 |
| Susquehanna | 1 | 17 | 5.88 |
| Tioga | 0 | 0 | 0 |
| Union | 3 | 8 | 37.50 |
| Venango | 3 | 9 | 33.33 |

| | | | |
|-------------------|--------------|------------|-------|
| Warren | 1 | 13 | 7.69 |
| Washington | 3 | 14 | 21.43 |
| Wayne | NA | 1 | NA |
| Westmoreland | 5 | 15 | 33.33 |
| Wyoming | 1 | 7 | 14.29 |
| York | 18 | 28 | 64.29 |
| TOTAL | 279 | 702 | |
| % OF TOTAL | 39.74 | | |

Table 5: Types of Recycling Education Aggregated by County

| County | Website | Social Media | Educational Materials | Speaking | Other | Total |
|------------|---------|--------------|-----------------------|----------|-------|-------|
| Adams | 3 | 2 | 4 | 1 | 1 | 11 |
| Allegheny | 16 | 12 | 13 | 4 | 2 | 47 |
| Armstrong | NA | NA | NA | NA | NA | NA |
| Beaver | 8 | 5 | 6 | 2 | 2 | 23 |
| Bedford | 0 | 0 | 1 | 0 | 0 | 1 |
| Berks | 6 | 4 | 7 | 3 | 1 | 21 |
| Blair | 1 | 1 | 1 | 0 | 0 | 3 |
| Bradford | 1 | 1 | 1 | 1 | 1 | 5 |
| Bucks | 11 | 6 | 9 | 4 | 3 | 33 |
| Butler | 4 | 2 | 3 | 2 | 2 | 13 |
| Cambria | 2 | 1 | 3 | 0 | 0 | 6 |
| Cameron | NA | NA | NA | NA | NA | NA |
| Carbon | 2 | 0 | 2 | 1 | 1 | 6 |
| Centre | 35 | 35 | 35 | 35 | 35 | 175 |
| Chester | 15 | 8 | 12 | 5 | 2 | 42 |
| Clarion | 1 | 1 | 1 | 1 | 0 | 4 |
| Clearfield | 1 | 0 | 1 | 1 | 1 | 4 |
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 4 | 3 | 2 | 1 | 2 | 12 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 4 | 3 | 2 | 0 | 0 | 9 |
| Dauphin | 4 | 2 | 3 | 0 | 3 | 12 |
| Delaware | 10 | 10 | 11 | 5 | 1 | 37 |
| Elk | 1 | 1 | 1 | 1 | 0 | 4 |
| Erie | 8 | 2 | 8 | 3 | 2 | 23 |
| Fayette | 1 | 1 | 1 | 1 | 0 | 4 |
| Forest | 1 | 1 | 0 | 0 | 0 | 2 |

| | | | | | | |
|----------------|----|----|----|----|----|----|
| Franklin | 3 | 0 | 1 | 0 | 0 | 4 |
| Fulton | NA | NA | NA | NA | NA | NA |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 1 | 0 | 3 | 1 | 1 | 6 |
| Indiana | 1 | 1 | 1 | 0 | 1 | 4 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | NA | NA | NA | NA | NA | NA |
| Lackawanna | 7 | 6 | 6 | 2 | 0 | 21 |
| Lancaster | 9 | 4 | 9 | 3 | 2 | 27 |
| Lawrence | NA | NA | NA | NA | NA | NA |
| Lebanon | 4 | 2 | 5 | 2 | 3 | 16 |
| Lehigh | 1 | 0 | 1 | 0 | 0 | 2 |
| Luzerne | 9 | 7 | 12 | 1 | 2 | 31 |
| Lycoming | 4 | 4 | 2 | 4 | 1 | 15 |
| McKean | 0 | 0 | 0 | 1 | 0 | 1 |
| Mercer | 2 | 0 | 5 | 1 | 0 | 8 |
| Mifflin | 1 | 1 | 1 | 1 | 0 | 4 |
| Monroe | 4 | 2 | 4 | 1 | 0 | 11 |
| Montgomery | 11 | 8 | 11 | 3 | 2 | 35 |
| Montour | 1 | 0 | 1 | 0 | 0 | 2 |
| Northampton | 7 | 6 | 7 | 3 | 2 | 25 |
| Northumberland | 3 | 2 | 2 | 0 | 1 | 8 |
| Perry | 2 | 1 | 0 | 1 | 1 | 5 |
| Philadelphia | 1 | 1 | 1 | 1 | 1 | 5 |
| Pike | 1 | 0 | 1 | 1 | 1 | 4 |
| Potter | NA | NA | NA | NA | NA | NA |
| Schuylkill | 3 | 2 | 3 | 2 | 0 | 10 |
| Snyder | 2 | 2 | 2 | 0 | 1 | 7 |
| Somerset | NA | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 1 | 0 | 0 | 0 | 1 | 2 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 2 | 2 | 3 | 1 | 2 | 10 |
| Venango | 0 | 2 | 2 | 0 | 1 | 5 |
| Warren | 0 | 0 | 0 | 0 | 1 | 1 |
| Washington | 3 | 2 | 2 | 0 | 0 | 7 |
| Wayne | NA | NA | NA | NA | NA | NA |
| Westmoreland | 3 | 0 | 4 | 2 | 0 | 9 |
| Wyoming | 0 | 1 | 0 | 0 | 0 | 1 |

| | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|--------------|------------|
| York | 16 | 10 | 17 | 5 | 6 | 54 |
| TOTAL | 241 | 167 | 233 | 107 | 89 | 837 |
| % OF TOTAL | 28.79 | 19.95 | 27.84 | 12.78 | 10.63 | |

Figure 4: Specific Recycling Education Efforts Cited in Municipalities

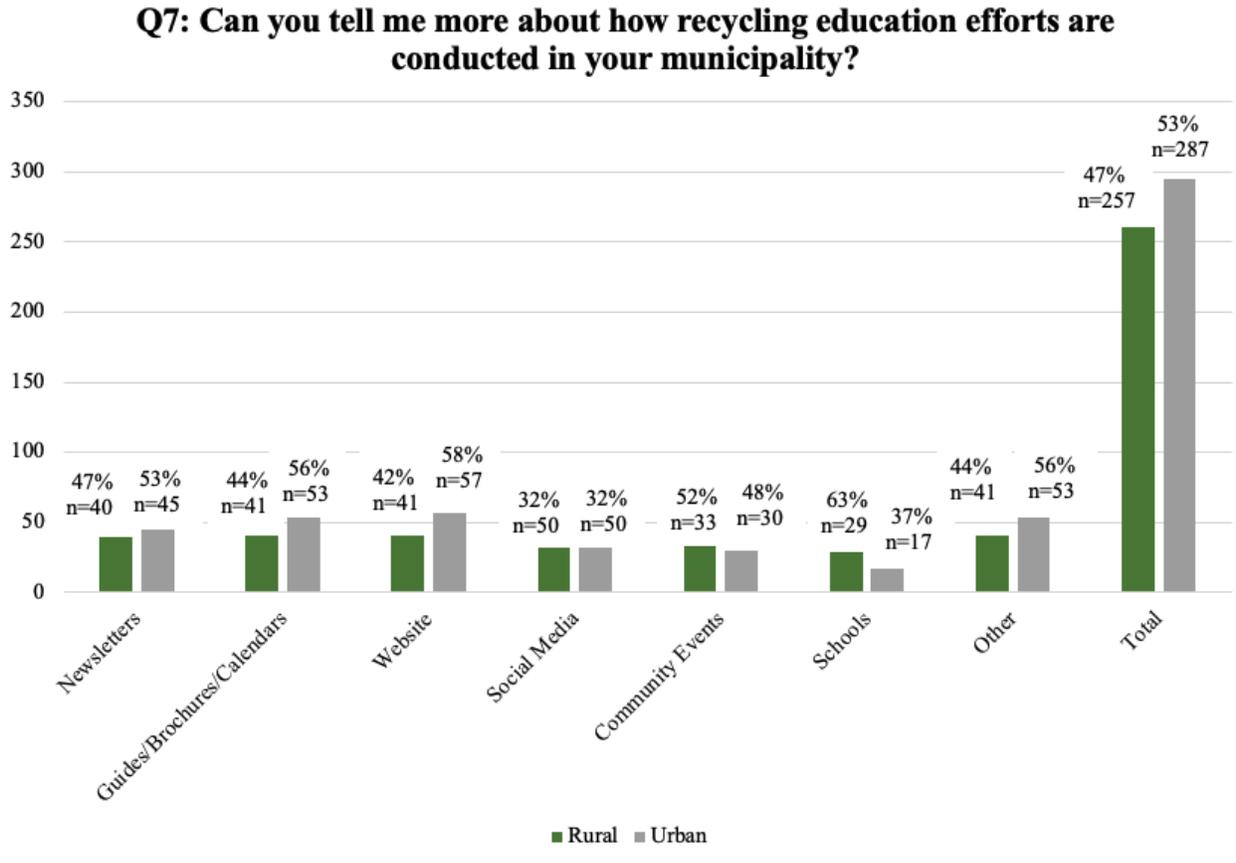


Table 6: Specific Recycling Education Efforts Aggregated by County

| County | Newsletters | Guides | Website | Social Media | Comm. Events | Schools | Other | Total |
|-----------|-------------|--------|---------|--------------|--------------|---------|-------|-------|
| Adams | 0 | 2 | 1 | 1 | 1 | 0 | 1 | 6 |
| Allegheny | 7 | 6 | 7 | 3 | 1 | 1 | 4 | 29 |
| Beaver | 3 | 2 | 3 | 1 | 1 | 0 | 2 | 12 |
| Berks | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 10 |
| Bradford | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 |
| Bucks | 3 | 3 | 3 | 1 | 1 | 0 | 0 | 11 |
| Butler | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 |
| Cambria | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Carbon | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 4 |

| | | | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|------------|
| Centre | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 245 |
| Chester | 2 | 3 | 2 | 0 | 2 | 1 | 4 | 14 |
| Clarion | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 3 |
| Clearfield | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Columbia | 1 | 1 | 3 | 2 | 1 | 0 | 4 | 12 |
| Cumberland | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 3 |
| Dauphin | 3 | 1 | 3 | 1 | 1 | 0 | 2 | 11 |
| Delaware | 2 | 4 | 3 | 2 | 2 | 1 | 3 | 17 |
| Elk | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 |
| Erie | 2 | 4 | 0 | 0 | 1 | 2 | 1 | 10 |
| Fayette | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Franklin | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Huntingdon | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 |
| Lackawanna | 2 | 3 | 2 | 4 | 0 | 1 | 1 | 13 |
| Lancaster | 1 | 4 | 4 | 1 | 2 | 0 | 2 | 14 |
| Lebanon | 2 | 2 | 2 | 1 | 1 | 0 | 2 | 10 |
| Lehigh | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Luzerne | 1 | 3 | 4 | 1 | 1 | 0 | 4 | 14 |
| Lycoming | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 4 |
| Mercer | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 4 |
| Monroe | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| Montgomery | 3 | 2 | 5 | 3 | 0 | 0 | 5 | 18 |
| Montour | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Northampton | 1 | 2 | 1 | 0 | 1 | 0 | 3 | 8 |
| Northumberland | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Perry | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Philadelphia | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 4 |
| Schuylkill | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Snyder | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 5 |
| Susquehanna | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Union | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Venango | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 4 |
| Warren | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Westmoreland | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 3 |
| York | 4 | 4 | 6 | 2 | 2 | 0 | 4 | 22 |
| TOTAL | 85 | 94 | 98 | 64 | 63 | 46 | 94 | 544 |
| % OF TOTAL | 15.63 | 17.28 | 18.01 | 11.76 | 11.58 | 8.46 | 17.28 | |

Figure 5: Recycling Collection Techniques by Municipality

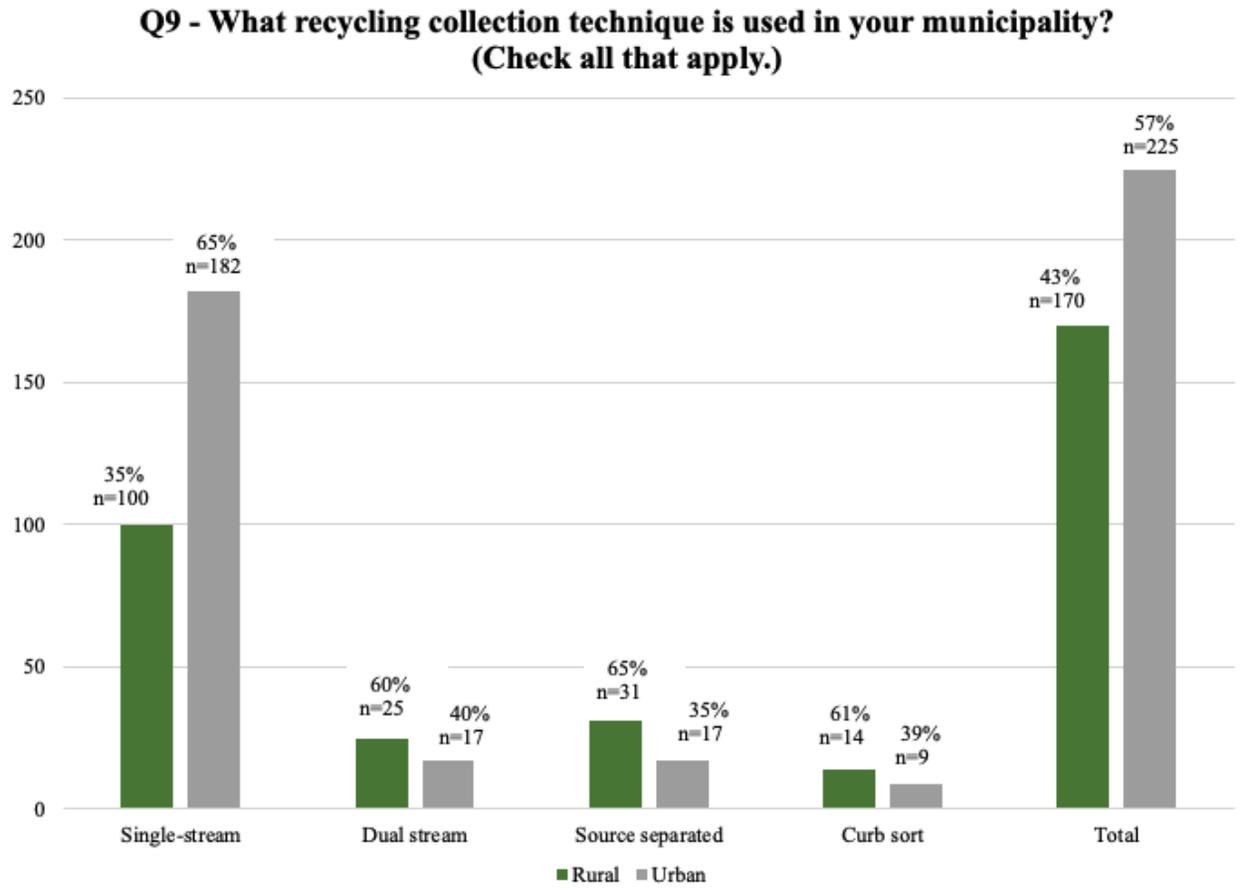


Table 7: Recycling Collection Techniques Aggregated by County

| County | Single-stream | Dual Stream | Source Separated | Curb Sort | Total |
|-----------|---------------|-------------|------------------|-----------|-------|
| Adams | 10 | 1 | 1 | 2 | 14 |
| Allegheny | 20 | 1 | 2 | 0 | 23 |
| Armstrong | 0 | 1 | 0 | 0 | 1 |
| Beaver | 10 | 2 | 1 | 1 | 14 |
| Bedford | 2 | 1 | 0 | 0 | 3 |
| Berks | 9 | 1 | 0 | 0 | 10 |
| Blair | 0 | 1 | 0 | 0 | 1 |
| Bradford | 0 | 0 | 1 | 0 | 1 |
| Bucks | 9 | 1 | 0 | 0 | 10 |
| Butler | 12 | 0 | 0 | 0 | 12 |
| Cambria | 4 | 1 | 0 | 0 | 5 |
| Cameron | 1 | 0 | 0 | 0 | 1 |
| Carbon | 4 | 0 | 0 | 0 | 4 |

| | | | | | |
|----------------|----|----|----|----|----|
| Centre | 0 | 0 | 19 | 13 | 32 |
| Chester | 17 | 0 | 1 | 0 | 18 |
| Clarion | 1 | 0 | 0 | 0 | 1 |
| Clearfield | 0 | 0 | 1 | 1 | 2 |
| Clinton | NA | NA | NA | NA | NA |
| Columbia | 2 | 1 | 2 | 0 | 5 |
| Crawford | NA | NA | NA | NA | NA |
| Cumberland | 4 | 0 | 0 | 0 | 4 |
| Dauphin | 4 | 0 | 1 | 0 | 5 |
| Delaware | 14 | 1 | 0 | 0 | 15 |
| Elk | 0 | 2 | 0 | 1 | 3 |
| Erie | 10 | 0 | 0 | 0 | 10 |
| Fayette | 5 | 4 | 0 | 0 | 9 |
| Forest | 1 | 0 | 0 | 0 | 1 |
| Franklin | 8 | 0 | 0 | 0 | 8 |
| Fulton | 3 | 0 | 0 | 0 | 3 |
| Greene | NA | NA | NA | NA | NA |
| Huntingdon | 3 | 0 | 3 | 0 | 6 |
| Indiana | 0 | 0 | 0 | 1 | 1 |
| Jefferson | NA | NA | NA | NA | NA |
| Juniata | 0 | 0 | 0 | 1 | 1 |
| Lackawanna | 7 | 3 | 2 | 0 | 12 |
| Lancaster | 12 | 0 | 0 | 0 | 12 |
| Lawrence | 1 | 1 | 0 | 0 | 2 |
| Lebanon | 3 | 1 | 0 | 0 | 4 |
| Lehigh | 3 | 0 | 0 | 0 | 3 |
| Luzerne | 15 | 5 | 0 | 0 | 20 |
| Lycoming | 4 | 0 | 0 | 0 | 4 |
| McKean | 1 | 0 | 0 | 0 | 1 |
| Mercer | 3 | 1 | 0 | 0 | 4 |
| Mifflin | 0 | 0 | 1 | 0 | 1 |
| Monroe | 2 | 0 | 2 | 0 | 4 |
| Montgomery | 14 | 1 | 0 | 0 | 15 |
| Montour | 0 | 0 | 1 | 0 | 1 |
| Northampton | 12 | 0 | 0 | 0 | 12 |
| Northumberland | 0 | 1 | 0 | 0 | 1 |
| Perry | 3 | 1 | 0 | 0 | 4 |
| Philadelphia | 1 | 0 | 0 | 0 | 1 |
| Pike | 1 | 0 | 0 | 0 | 1 |

| | | | | | |
|-------------------|--------------|--------------|--------------|-------------|------------|
| Potter | 4 | 0 | 0 | 0 | 4 |
| Schuykill | 5 | 2 | 2 | 0 | 9 |
| Snyder | 1 | 2 | 2 | 0 | 5 |
| Somerset | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA |
| Susquehanna | 2 | 1 | 1 | 0 | 4 |
| Tioga | NA | NA | NA | NA | NA |
| Union | 1 | 2 | 1 | 0 | 4 |
| Venango | NA | NA | NA | NA | NA |
| Warren | 5 | 0 | 0 | 0 | 5 |
| Washington | 3 | 0 | 1 | 0 | 4 |
| Wayne | 0 | 0 | 1 | 0 | 1 |
| Westmoreland | 2 | 1 | 1 | 2 | 6 |
| Wyoming | 2 | 1 | 1 | 0 | 4 |
| York | 22 | 1 | 0 | 1 | 24 |
| TOTAL | 282 | 42 | 48 | 23 | 395 |
| % OF TOTAL | 71.39 | 10.63 | 12.15 | 5.82 | |

Figure 6: Frequency of Curbside Recycling Collection in Municipalities

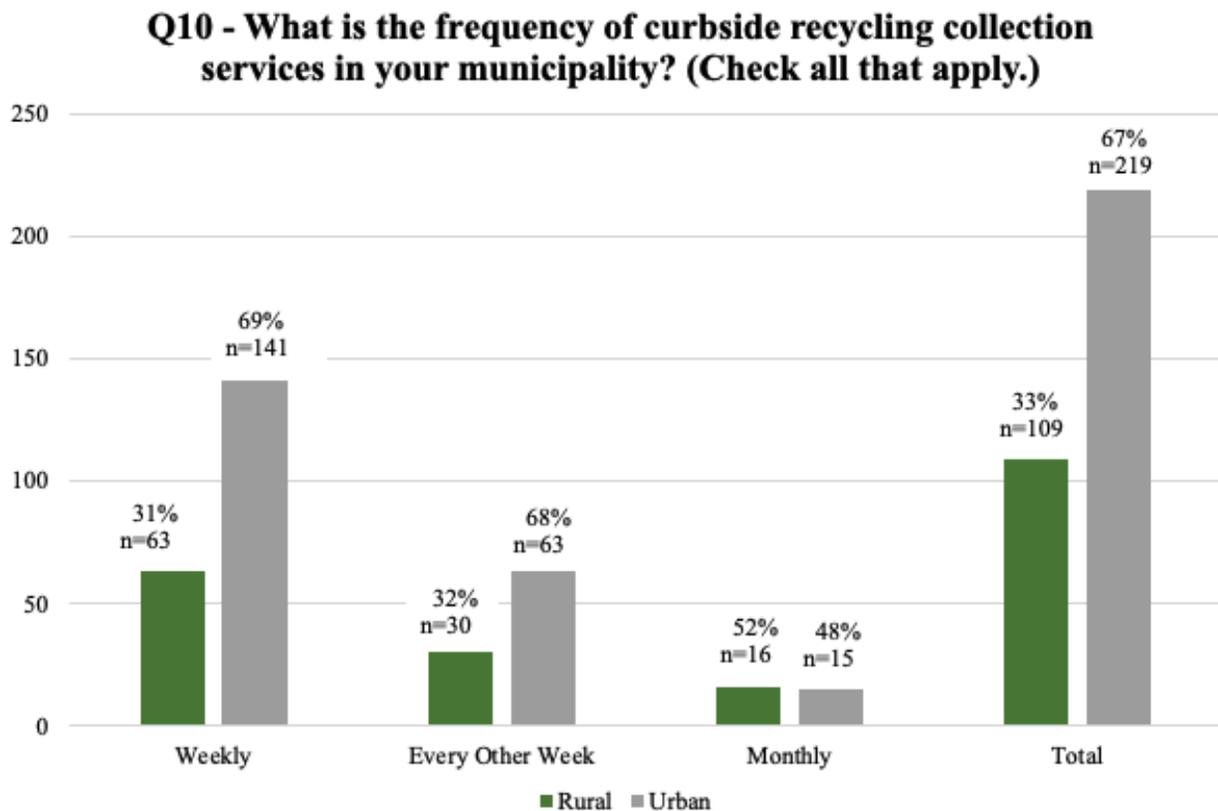


Table 8: Frequency of Curbside Recycling Collection Aggregated by County

| County | Weekly | Every Other Week | Monthly |
|---------------|---------------|-------------------------|----------------|
| Adams | 3 | 10 | 0 |
| Allegheny | 9 | 10 | 1 |
| Armstrong | 2 | 0 | 0 |
| Beaver | 3 | 4 | 0 |
| Bedford | 1 | 0 | 0 |
| Berks | 6 | 4 | 0 |
| Blair | NA | NA | NA |
| Bradford | 0 | 1 | 0 |
| Bucks | 8 | 1 | 1 |
| Butler | 1 | 11 | 0 |
| Cambria | 2 | 3 | 0 |
| Cameron | 1 | 0 | 0 |
| Carbon | 2 | 2 | 0 |
| Centre | 13 | 0 | 0 |
| Chester | 15 | 0 | 0 |
| Clarion | 0 | 1 | 0 |
| Clearfield | 1 | 1 | 0 |
| Clinton | NA | NA | NA |
| Columbia | 0 | 1 | 4 |
| Crawford | NA | NA | NA |
| Cumberland | 4 | 0 | 0 |
| Dauphin | 4 | 0 | 0 |
| Delaware | 11 | 4 | 0 |
| Elk | 0 | 1 | 0 |
| Erie | 9 | 1 | 0 |
| Fayette | 1 | 2 | 6 |
| Forest | 0 | 0 | 1 |
| Franklin | 6 | 1 | 1 |
| Fulton | 1 | 1 | 0 |
| Greene | NA | NA | NA |
| Huntingdon | 4 | 1 | 0 |
| Indiana | 1 | 0 | 0 |
| Jefferson | NA | NA | NA |
| Juniata | 1 | 0 | 0 |
| Lackawanna | 7 | 2 | 4 |
| Lancaster | 9 | 1 | 0 |

| | | | |
|-------------------|-------------|--------------|-------------|
| Lawrence | 1 | 1 | 0 |
| Lebanon | 2 | 2 | 0 |
| Lehigh | 0 | 1 | 0 |
| Luzerne | 13 | 1 | 0 |
| Lycoming | 0 | 0 | 4 |
| McKean | 0 | 1 | 0 |
| Mercer | 0 | 4 | 0 |
| Mifflin | 0 | 1 | 0 |
| Monroe | 2 | 2 | 0 |
| Montgomery | 15 | 0 | 0 |
| Montour | 0 | 0 | 1 |
| Northampton | 6 | 7 | 0 |
| Northumberland | NA | NA | NA |
| Perry | 1 | 1 | 1 |
| Philadelphia | 1 | 1 | 0 |
| Pike | 1 | 0 | 1 |
| Potter | 2 | 0 | 1 |
| Schuylkill | 4 | 2 | 0 |
| Snyder | 0 | 0 | 2 |
| Somerset | NA | NA | NA |
| Sullivan | NA | NA | NA |
| Susquehanna | 2 | 0 | 0 |
| Tioga | NA | NA | NA |
| Union | 1 | 1 | 1 |
| Venango | NA | NA | NA |
| Warren | NA | NA | NA |
| Washington | 1 | 1 | 1 |
| Wayne | 0 | 0 | 1 |
| Westmoreland | 1 | 4 | 0 |
| Wyoming | 2 | 0 | 0 |
| York | 24 | 0 | 0 |
| TOTAL | 204 | 93 | 31 |
| % OF TOTAL | 62.2 | 28.35 | 9.45 |

Figure 7: Provider of Curbside Recycling Collection in Municipalities

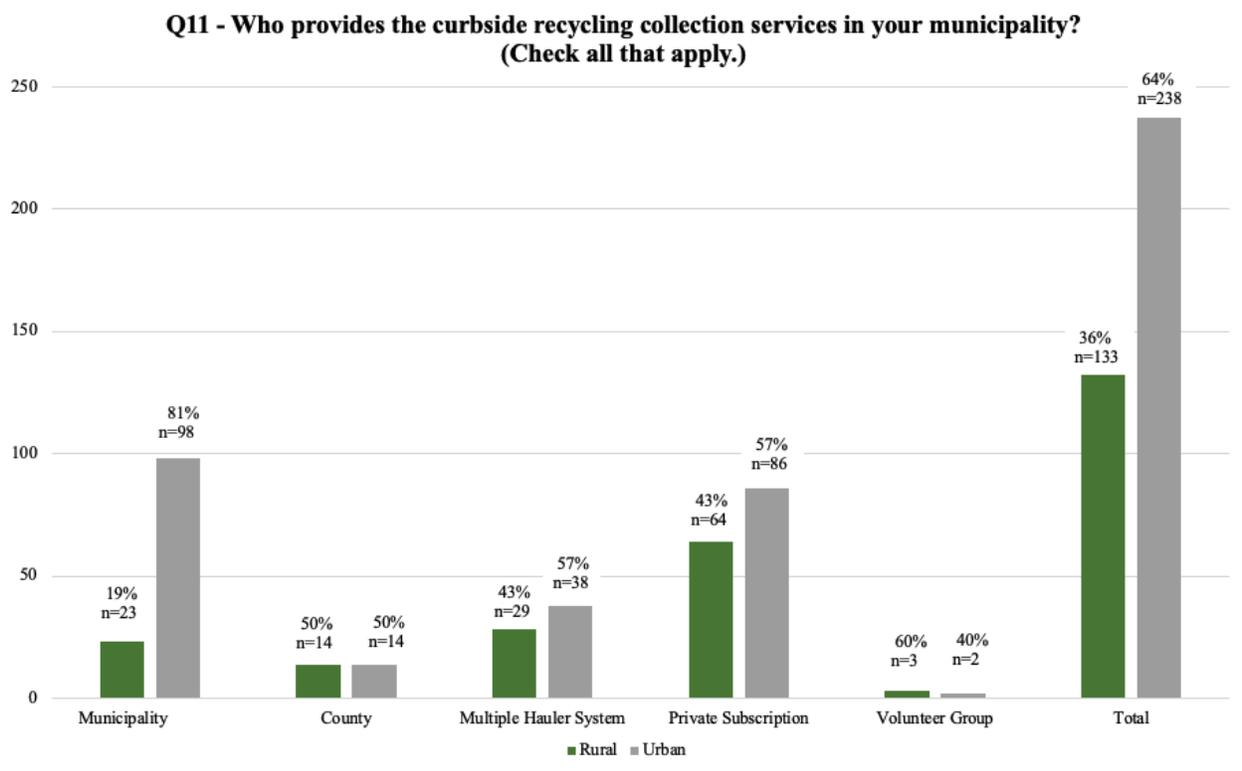


Table 9: Provider of Curbside Recycling Collection Aggregated by County

| County | Municipality | County | Multiple Hauler System | Private Subscription | Volunteer Group | Total |
|-----------|--------------|--------|------------------------|----------------------|-----------------|-------|
| Adams | 1 | 0 | 2 | 11 | 0 | 14 |
| Allegheny | 11 | 0 | 4 | 6 | 0 | 21 |
| Armstrong | 0 | 2 | 0 | 0 | 0 | 2 |
| Beaver | 3 | 1 | 1 | 6 | 0 | 11 |
| Bedford | 0 | 1 | 0 | 1 | 0 | 2 |
| Berks | 7 | 1 | 2 | 1 | 0 | 11 |
| Blair | NA | NA | NA | NA | NA | NA |
| Bradford | 1 | 0 | 0 | 0 | 0 | 1 |
| Bucks | 1 | 0 | 1 | 8 | 0 | 10 |
| Butler | 2 | 0 | 9 | 2 | 1 | 14 |
| Cambria | 1 | 0 | 2 | 2 | 0 | 5 |
| Cameron | 2 | 0 | 0 | 0 | 0 | 2 |
| Carbon | 2 | 0 | 1 | 0 | 1 | 4 |
| Centre | 0 | 11 | 0 | 4 | 0 | 15 |
| Chester | 5 | 0 | 2 | 11 | 0 | 18 |

| | | | | | | |
|----------------|----|----|----|----|----|----|
| Clarion | 1 | 0 | 0 | 0 | 0 | 1 |
| Clearfield | 1 | 1 | 0 | 1 | 0 | 3 |
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 2 | 0 | 1 | 3 | 0 | 6 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 3 | 1 | 0 | 1 | 0 | 5 |
| Dauphin | 0 | 0 | 1 | 4 | 0 | 5 |
| Delaware | 11 | 0 | 1 | 4 | 0 | 16 |
| Elk | 0 | 0 | 0 | 1 | 0 | 1 |
| Erie | 7 | 1 | 2 | 3 | 0 | 13 |
| Fayette | 2 | 0 | 3 | 4 | 1 | 10 |
| Forest | 1 | 0 | 0 | 0 | 0 | 1 |
| Franklin | 2 | 0 | 3 | 4 | 0 | 9 |
| Fulton | 0 | 1 | 0 | 1 | 0 | 2 |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 0 | 0 | 1 | 4 | 0 | 5 |
| Indiana | 0 | 1 | 0 | 0 | 0 | 1 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | 0 | 0 | 0 | 1 | 0 | 1 |
| Lackawanna | 2 | 0 | 4 | 6 | 0 | 12 |
| Lancaster | 4 | 0 | 4 | 4 | 0 | 12 |
| Lawrence | 1 | 1 | 0 | 2 | 0 | 4 |
| Lebanon | 1 | 0 | 0 | 2 | 0 | 3 |
| Lehigh | 0 | 0 | 1 | 1 | 0 | 2 |
| Luzerne | 6 | 0 | 3 | 10 | 0 | 19 |
| Lycoming | 1 | 2 | 0 | 4 | 0 | 7 |
| McKean | 0 | 0 | 1 | 0 | 0 | 1 |
| Mercer | 0 | 0 | 2 | 1 | 0 | 3 |
| Mifflin | 1 | 0 | 0 | 0 | 0 | 1 |
| Monroe | 1 | 0 | 0 | 3 | 0 | 4 |
| Montgomery | 10 | 0 | 2 | 4 | 0 | 16 |
| Montour | 1 | 0 | 0 | 0 | 0 | 1 |
| Northampton | 5 | 0 | 1 | 6 | 0 | 12 |
| Northumberland | NA | NA | NA | NA | NA | NA |
| Perry | 0 | 0 | 1 | 1 | 1 | 3 |
| Philadelphia | 1 | 0 | 1 | 0 | 0 | 2 |
| Pike | 0 | 0 | 0 | 1 | 0 | 1 |
| Potter | 1 | 1 | 0 | 0 | 0 | 2 |
| Schuylkill | 4 | 1 | 1 | 1 | 0 | 7 |

| | | | | | | |
|-------------------|--------------|-------------|--------------|--------------|-------------|------------|
| Snyder | 2 | 0 | 0 | 1 | 0 | 3 |
| Somerset | 0 | 0 | 0 | 1 | 0 | 1 |
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 0 | 0 | 2 | 0 | 0 | 2 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 2 | 0 | 0 | 2 | 0 | 4 |
| Venango | 0 | 0 | 0 | 1 | 0 | 1 |
| Warren | NA | NA | NA | NA | NA | NA |
| Washington | 0 | 0 | 1 | 3 | 0 | 4 |
| Wayne | 0 | 1 | 0 | 0 | 0 | 1 |
| Westmoreland | 3 | 0 | 2 | 0 | 1 | 6 |
| Wyoming | 1 | 1 | 0 | 0 | 0 | 2 |
| York | 8 | 0 | 5 | 13 | 0 | 26 |
| TOTAL | 121 | 28 | 67 | 150 | 5 | 371 |
| % OF TOTAL | 32.61 | 7.55 | 18.06 | 40.43 | 1.35 | |

Figure 8: Payment for Recycling Collection in Municipalities

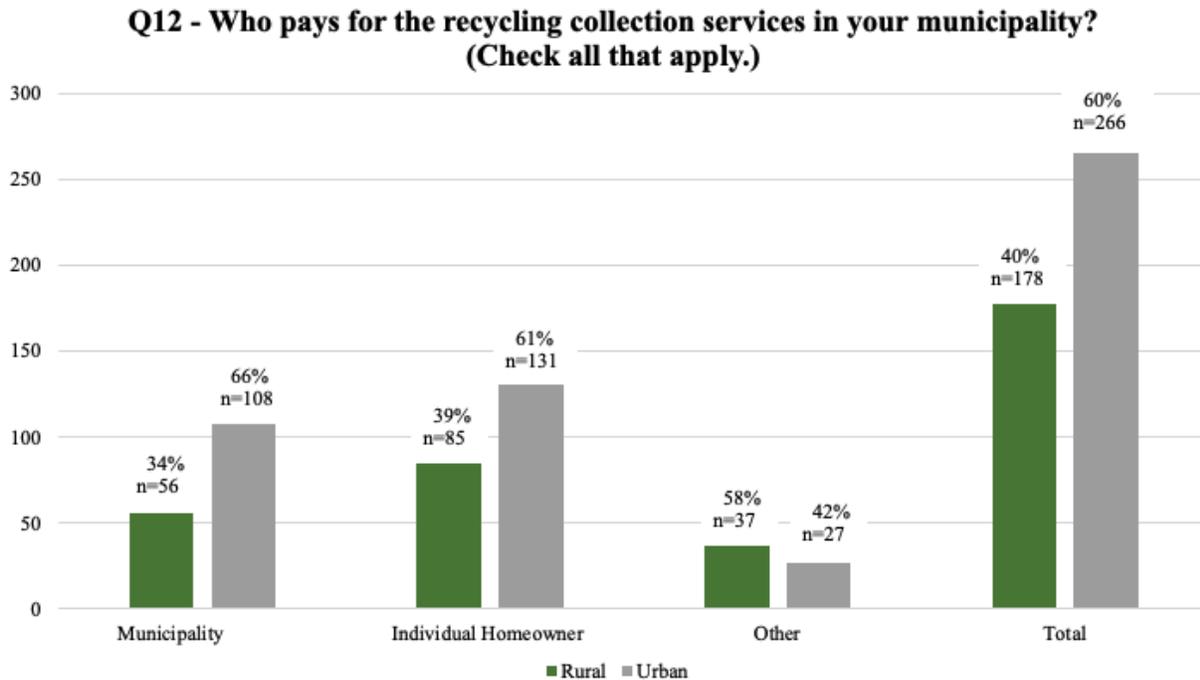


Table 10: Payment for Recycling Collection Aggregated by County

| County | Municipality | Individual Homeowner | Other | Total |
|-----------|--------------|----------------------|-------|-------|
| Adams | 2 | 13 | 0 | 15 |
| Allegheny | 11 | 11 | 1 | 23 |

| | | | | |
|------------|----|----|----|----|
| Armstrong | 0 | 0 | 2 | 2 |
| Beaver | 8 | 5 | 0 | 13 |
| Bedford | 0 | 0 | 3 | 3 |
| Berks | 6 | 4 | 1 | 11 |
| Blair | 1 | 0 | 0 | 1 |
| Bradford | 1 | 1 | 0 | 2 |
| Bucks | 3 | 8 | 0 | 11 |
| Butler | 0 | 12 | 1 | 13 |
| Cambria | 1 | 1 | 1 | 3 |
| Cameron | 2 | 0 | 0 | 2 |
| Carbon | 3 | 1 | 0 | 4 |
| Centre | 2 | 7 | 7 | 16 |
| Chester | 6 | 13 | 0 | 19 |
| Clarion | 1 | 0 | 0 | 1 |
| Clearfield | 1 | 1 | 0 | 2 |
| Clinton | NA | NA | NA | NA |
| Columbia | 2 | 3 | 0 | 5 |
| Crawford | NA | NA | NA | NA |
| Cumberland | 1 | 4 | 0 | 5 |
| Dauphin | 1 | 4 | 0 | 5 |
| Delaware | 13 | 3 | 1 | 17 |
| Elk | 2 | 0 | 0 | 2 |
| Erie | 4 | 5 | 3 | 12 |
| Fayette | 3 | 4 | 1 | 8 |
| Forest | 1 | 0 | 0 | 1 |
| Franklin | 2 | 6 | 0 | 8 |
| Fulton | 0 | 1 | 2 | 3 |
| Greene | NA | NA | NA | NA |
| Huntingdon | 1 | 4 | 2 | 7 |
| Indiana | 1 | 1 | 0 | 2 |
| Jefferson | NA | NA | NA | NA |
| Juniata | 0 | 1 | 0 | 1 |
| Lackawanna | 7 | 8 | 1 | 16 |
| Lancaster | 4 | 9 | 1 | 14 |
| Lawrence | 1 | 2 | 3 | 6 |
| Lebanon | 1 | 2 | 0 | 3 |
| Lehigh | 1 | 1 | 1 | 3 |
| Luzerne | 15 | 9 | 2 | 26 |
| Lycoming | 4 | 4 | 2 | 10 |

| | | | | |
|-------------------|--------------|--------------|--------------|------------|
| McKean | 0 | 1 | 0 | 1 |
| Mercer | 1 | 3 | 1 | 5 |
| Mifflin | 1 | 1 | 1 | 3 |
| Monroe | 0 | 4 | 0 | 4 |
| Montgomery | 5 | 11 | 2 | 18 |
| Montour | 0 | 1 | 0 | 1 |
| Northampton | 4 | 6 | 5 | 15 |
| Northumberland | 3 | 0 | 0 | 3 |
| Perry | 3 | 3 | 1 | 7 |
| Philadelphia | 1 | 0 | 1 | 2 |
| Pike | 0 | 1 | 0 | 1 |
| Potter | 1 | 0 | 2 | 3 |
| Schuylkill | 4 | 2 | 4 | 10 |
| Snyder | 4 | 2 | 1 | 7 |
| Somerset | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA |
| Susquehanna | 1 | 4 | 0 | 5 |
| Tioga | NA | NA | NA | NA |
| Union | 4 | 2 | 3 | 9 |
| Venango | 0 | 1 | 0 | 1 |
| Warren | 5 | 1 | 2 | 8 |
| Washington | 0 | 4 | 1 | 5 |
| Wayne | 0 | 0 | 1 | 1 |
| Westmoreland | 2 | 4 | 0 | 6 |
| Wyoming | 4 | 0 | 0 | 4 |
| York | 9 | 17 | 4 | 30 |
| TOTAL | 164 | 216 | 64 | 444 |
| % OF TOTAL | 36.94 | 48.65 | 14.41 | |

Figure 9: Determinant of Recyclable Items Collected in Municipalities

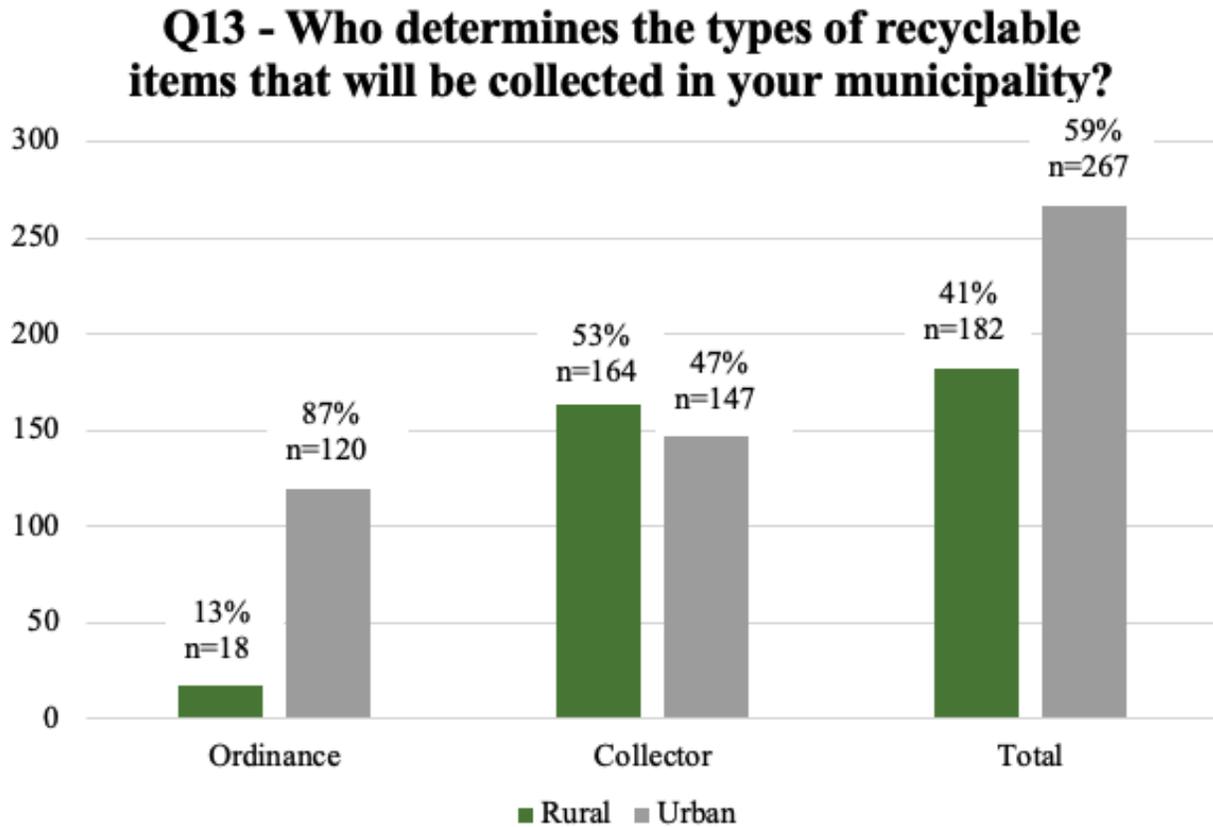


Table 11: Determinant of Recyclable Items Collected Aggregated by County

| County | Ordinance | Collector | Total |
|-----------|-----------|-----------|-------|
| Adams | 1 | 14 | 15 |
| Allegheny | 6 | 16 | 22 |
| Armstrong | 0 | 2 | 2 |
| Beaver | 4 | 8 | 12 |
| Bedford | 0 | 2 | 2 |
| Berks | 8 | 7 | 15 |
| Blair | 0 | 1 | 1 |
| Bradford | 1 | 0 | 1 |
| Bucks | 4 | 6 | 10 |
| Butler | 5 | 9 | 14 |
| Cambria | 1 | 4 | 5 |
| Cameron | NA | NA | NA |
| Carbon | 4 | 3 | 7 |
| Centre | 7 | 29 | 36 |
| Chester | 7 | 10 | 17 |

| | | | |
|----------------|----|----|----|
| Clarion | 1 | 1 | 2 |
| Clearfield | 1 | 2 | 3 |
| Clinton | NA | NA | NA |
| Columbia | 3 | 2 | 5 |
| Crawford | NA | NA | NA |
| Cumberland | 2 | 3 | 5 |
| Dauphin | 1 | 3 | 4 |
| Delaware | 10 | 9 | 19 |
| Elk | 1 | 2 | 3 |
| Erie | 4 | 9 | 13 |
| Fayette | 3 | 8 | 11 |
| Forest | 0 | 1 | 1 |
| Franklin | 3 | 6 | 9 |
| Fulton | 0 | 2 | 2 |
| Greene | NA | NA | NA |
| Huntingdon | 1 | 6 | 7 |
| Indiana | 1 | 1 | 2 |
| Jefferson | NA | NA | NA |
| Juniata | 0 | 1 | 1 |
| Lackawanna | 4 | 8 | 12 |
| Lancaster | 6 | 6 | 12 |
| Lawrence | 1 | 4 | 5 |
| Lebanon | 2 | 0 | 2 |
| Lehigh | 1 | 1 | 2 |
| Luzerne | 7 | 17 | 24 |
| Lycoming | 4 | 4 | 8 |
| McKean | 0 | 1 | 1 |
| Mercer | 0 | 5 | 5 |
| Mifflin | 1 | 2 | 3 |
| Monroe | 2 | 2 | 4 |
| Montgomery | 10 | 7 | 17 |
| Montour | 0 | 1 | 1 |
| Northampton | 6 | 9 | 15 |
| Northumberland | 0 | 2 | 2 |
| Perry | 0 | 6 | 6 |
| Philadelphia | 1 | 1 | 2 |
| Pike | 1 | 1 | 2 |
| Potter | 0 | 5 | 5 |
| Schuylkill | 1 | 6 | 7 |

| | | | |
|-------------------|--------------|--------------|------------|
| Snyder | 0 | 4 | 4 |
| Somerset | NA | NA | NA |
| Sullivan | NA | NA | NA |
| Susquehanna | 0 | 4 | 4 |
| Tioga | NA | NA | NA |
| Union | 1 | 4 | 5 |
| Venango | 0 | 2 | 2 |
| Warren | 0 | 7 | 7 |
| Washington | 1 | 4 | 5 |
| Wayne | 0 | 1 | 1 |
| Westmoreland | 2 | 4 | 6 |
| Wyoming | 0 | 3 | 3 |
| York | 8 | 23 | 31 |
| TOTAL | 138 | 311 | 449 |
| % OF TOTAL | 30.73 | 69.27 | |

Figure 10: Decade the Ordinance was Passed in Municipalities

**Q14: What is the ordinance number and year?
(Decade Ordinance was Passed)**

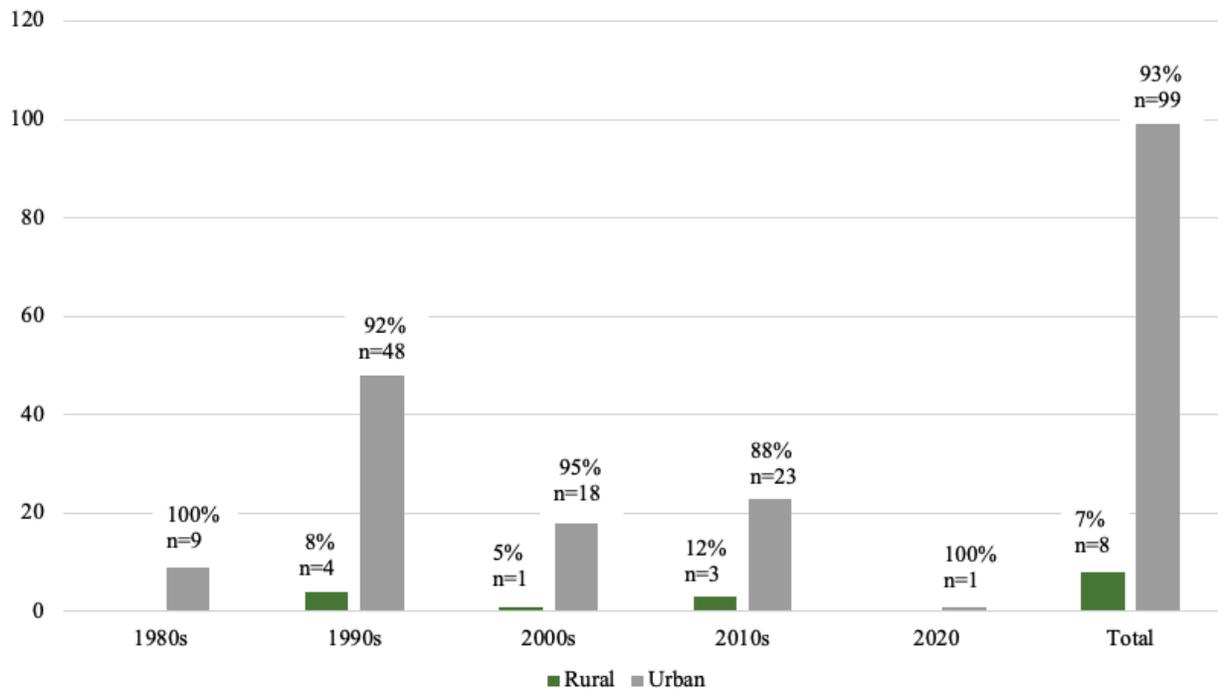


Table 12: Decade the Ordinance was Passed Aggregated by County

| County | 1980s | 1990s | 2000s | 2010s | 2020 | Total |
|-------------------|--------------|--------------|--------------|--------------|-------------|--------------|
| Allegheny | 0 | 3 | 0 | 1 | 0 | 4 |
| Beaver | 0 | 1 | 1 | 0 | 1 | 3 |
| Berks | 0 | 3 | 0 | 2 | 0 | 5 |
| Bradford | 0 | 0 | 1 | 0 | 0 | 1 |
| Bucks | 0 | 1 | 1 | 1 | 0 | 3 |
| Butler | 0 | 4 | 0 | 0 | 0 | 4 |
| Carbon | 0 | 3 | 0 | 1 | 0 | 4 |
| Centre | 0 | 6 | 0 | 1 | 0 | 7 |
| Chester | 0 | 0 | 3 | 2 | 0 | 5 |
| Clarion | 0 | 1 | 0 | 0 | 0 | 1 |
| Clearfield | 0 | 1 | 0 | 0 | 0 | 1 |
| Columbia | 0 | 0 | 2 | 1 | 0 | 3 |
| Cumberland | 0 | 0 | 0 | 1 | 0 | 1 |
| Dauphin | 0 | 0 | 1 | 0 | 0 | 1 |
| Delaware | 1 | 3 | 1 | 1 | 0 | 6 |
| Elk | 0 | 1 | 0 | 0 | 0 | 1 |
| Erie | 0 | 2 | 2 | 0 | 0 | 4 |
| Fayette | 0 | 1 | 0 | 1 | 0 | 2 |
| Franklin | 0 | 2 | 0 | 0 | 0 | 2 |
| Lackawanna | 1 | 1 | 0 | 2 | 0 | 4 |
| Lancaster | 1 | 0 | 0 | 2 | 0 | 3 |
| Lebanon | 0 | 2 | 0 | 0 | 0 | 2 |
| Lehigh | 2 | 1 | 1 | 0 | 0 | 4 |
| Luzerne | 0 | 1 | 2 | 1 | 0 | 4 |
| Lycoming | 1 | 4 | 1 | 0 | 0 | 6 |
| Mifflin | 0 | 1 | 0 | 0 | 0 | 1 |
| Montgomery | 1 | 2 | 2 | 4 | 0 | 9 |
| Northampton | 1 | 1 | 0 | 0 | 0 | 2 |
| Philadelphia | 0 | 0 | 0 | 1 | 0 | 1 |
| Schuylkill | 0 | 0 | 1 | 0 | 0 | 1 |
| Westmoreland | 0 | 1 | 0 | 1 | 0 | 2 |
| York | 1 | 6 | 0 | 3 | 0 | 10 |
| TOTAL | 9 | 52 | 19 | 26 | 1 | 107 |
| % OF TOTAL | 8.41 | 48.60 | 17.76 | 24.30 | 0.93 | |

Figure 11: Selected Processing/Selling Location of Collected Recyclable Materials in Municipalities

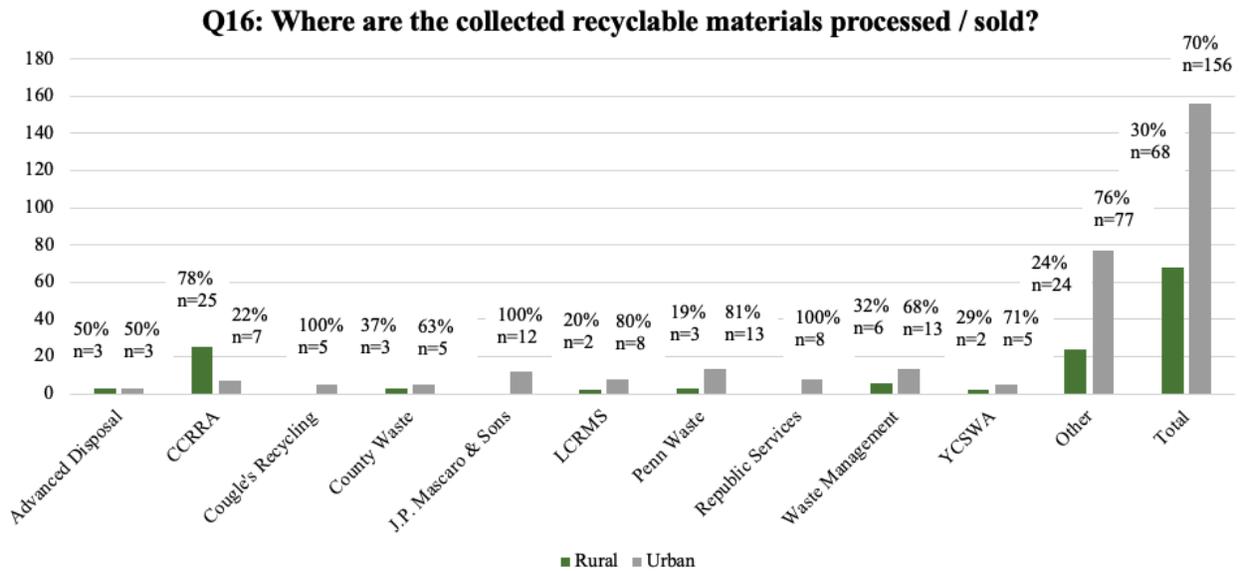


Table 13: Selected Processing/Selling Location of Collected Recyclable Materials Aggregated by County

| County | CCRRA | J.P. Mascaro & Sons | Penn Waste | Waste Management | Other | Total |
|------------|-------|---------------------|------------|------------------|-------|-------|
| Adams | 0 | 0 | 0 | 0 | 5 | 5 |
| Allegheny | 0 | 0 | 0 | 3 | 8 | 11 |
| Beaver | 0 | 0 | 0 | 3 | 3 | 6 |
| Berks | 0 | 1 | 0 | 0 | 6 | 7 |
| Bradford | 0 | 0 | 0 | 0 | 1 | 1 |
| Bucks | 0 | 0 | 0 | 1 | 2 | 3 |
| Butler | 0 | 0 | 0 | 1 | 4 | 5 |
| Cambria | 0 | 0 | 0 | 0 | 3 | 3 |
| Carbon | 0 | 0 | 0 | 0 | 4 | 4 |
| Centre | 32 | 0 | 0 | 0 | 0 | 32 |
| Chester | 0 | 0 | 0 | 0 | 8 | 8 |
| Clearfield | 0 | 0 | 0 | 0 | 2 | 2 |
| Columbia | 0 | 0 | 0 | 0 | 3 | 3 |
| Cumberland | 0 | 0 | 1 | 0 | 1 | 2 |
| Dauphin | 0 | 0 | 2 | 1 | 0 | 3 |
| Delaware | 0 | 4 | 0 | 0 | 7 | 11 |
| Elk | 0 | 0 | 0 | 0 | 1 | 1 |
| Erie | 0 | 0 | 0 | 2 | 3 | 5 |

| | | | | | | |
|-------------------|--------------|-------------|-------------|-------------|--------------|------------|
| Fayette | 0 | 0 | 0 | 1 | 4 | 5 |
| Franklin | 0 | 0 | 0 | 0 | 2 | 2 |
| Fulton | 0 | 0 | 0 | 0 | 1 | 1 |
| Huntingdon | 0 | 0 | 0 | 0 | 3 | 3 |
| Indiana | 0 | 0 | 0 | 0 | 1 | 1 |
| Juniata | 0 | 0 | 0 | 0 | 1 | 1 |
| Lackawanna | 0 | 1 | 0 | 2 | 8 | 11 |
| Lancaster | 0 | 0 | 0 | 0 | 6 | 6 |
| Lawrence | 0 | 0 | 0 | 0 | 1 | 1 |
| Lebanon | 0 | 0 | 1 | 0 | 2 | 3 |
| Lehigh | 0 | 0 | 0 | 0 | 1 | 1 |
| Luzerne | 0 | 2 | 0 | 0 | 10 | 12 |
| Lycoming | 0 | 0 | 0 | 0 | 4 | 4 |
| Mercer | 0 | 0 | 0 | 0 | 1 | 1 |
| Mifflin | 0 | 0 | 0 | 0 | 1 | 1 |
| Monroe | 0 | 0 | 0 | 1 | 3 | 4 |
| Montgomery | 0 | 3 | 0 | 0 | 8 | 11 |
| Montour | 0 | 0 | 0 | 0 | 1 | 1 |
| Northampton | 0 | 1 | 0 | 2 | 3 | 6 |
| Perry | 0 | 0 | 0 | 0 | 2 | 2 |
| Philadelphia | 0 | 0 | 0 | 1 | 0 | 1 |
| Pike | 0 | 0 | 0 | 0 | 1 | 1 |
| Schuylkill | 0 | 0 | 0 | 0 | 3 | 3 |
| Snyder | 0 | 0 | 0 | 0 | 2 | 2 |
| Susquehanna | 0 | 0 | 0 | 0 | 1 | 1 |
| Union | 0 | 0 | 0 | 0 | 3 | 3 |
| Venango | 0 | 0 | 1 | 0 | | 1 |
| Warren | 0 | 0 | 0 | 0 | 1 | 1 |
| Westmoreland | 0 | 0 | 0 | 0 | 3 | 3 |
| York | 0 | 0 | 11 | 1 | 7 | 19 |
| TOTAL | 32 | 12 | 16 | 19 | 145 | 224 |
| % OF TOTAL | 14.29 | 5.36 | 7.14 | 8.48 | 64.73 | |

Figure 12: Operator of Drop-Off Center in Municipalities

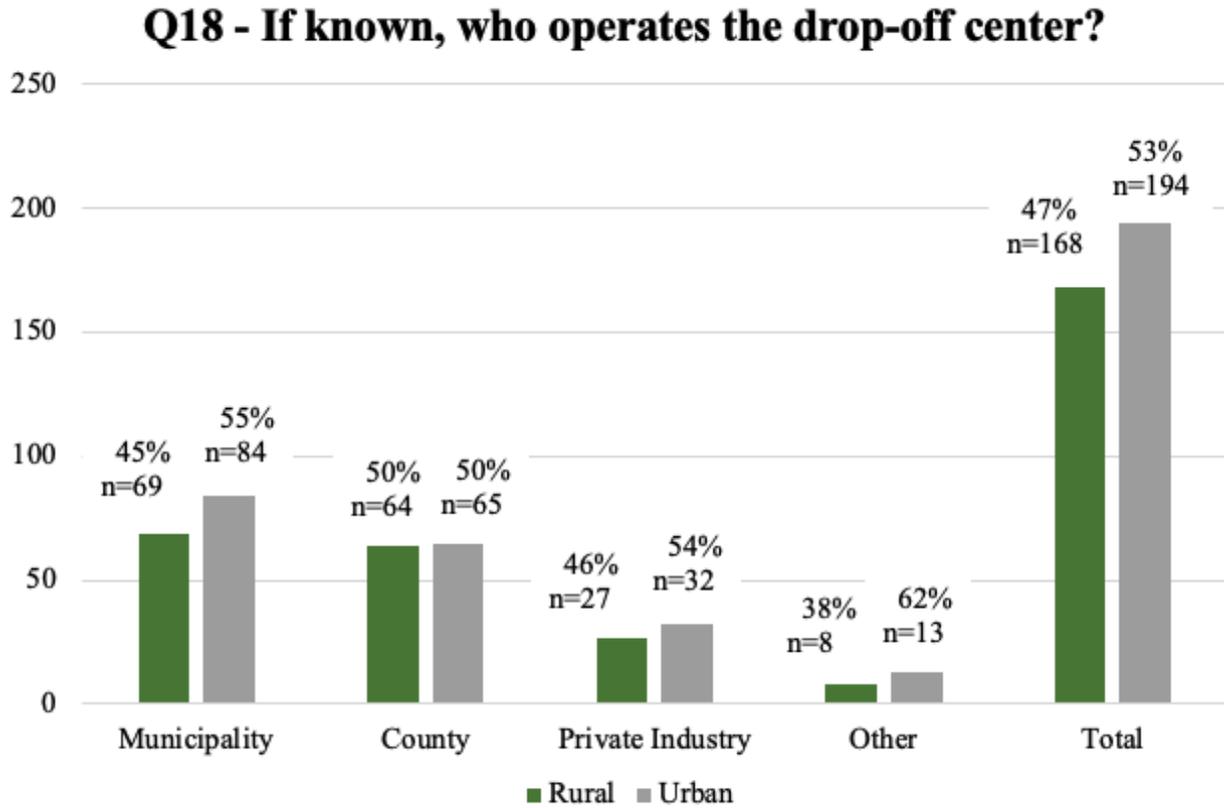


Table 14: Operator of Drop-Off Center Aggregated by County

| County | Municipality | County | Private Industry | Other | Total |
|-----------|--------------|--------|------------------|-------|-------|
| Adams | 3 | 2 | 7 | 0 | 12 |
| Allegheny | 5 | 3 | 2 | 1 | 11 |
| Armstrong | 0 | 2 | 0 | 0 | 2 |
| Beaver | 10 | 7 | 4 | 1 | 22 |
| Bedford | 1 | 1 | 1 | 1 | 4 |
| Berks | 1 | 4 | 0 | 0 | 5 |
| Blair | 1 | 1 | 0 | 0 | 2 |
| Bradford | 1 | 0 | 0 | 0 | 1 |
| Bucks | 6 | 3 | 0 | 0 | 9 |
| Butler | 1 | 1 | 3 | 1 | 6 |
| Cambria | 2 | 4 | 0 | 1 | 7 |
| Cameron | NA | NA | NA | NA | NA |
| Carbon | 2 | 2 | 0 | 0 | 4 |
| Centre | 1 | 2 | 0 | 0 | 3 |
| Chester | 7 | 4 | 3 | 2 | 16 |

| | | | | | |
|----------------|----|----|----|----|----|
| Clarion | 1 | 1 | 0 | 0 | 2 |
| Clearfield | 2 | 1 | 0 | 0 | 3 |
| Clinton | NA | NA | NA | NA | NA |
| Columbia | 2 | 0 | 0 | 0 | 2 |
| Crawford | NA | NA | NA | NA | NA |
| Cumberland | 1 | 2 | 0 | 0 | 3 |
| Dauphin | 3 | 4 | 0 | 0 | 7 |
| Delaware | 6 | 5 | 0 | 3 | 14 |
| Elk | 1 | 2 | 0 | 0 | 3 |
| Erie | 5 | 4 | 3 | 0 | 12 |
| Fayette | 0 | 0 | 3 | 0 | 3 |
| Forest | 1 | 0 | 0 | 0 | 1 |
| Franklin | 5 | 4 | 2 | 1 | 12 |
| Fulton | 1 | 2 | 0 | 0 | 3 |
| Greene | NA | NA | NA | NA | NA |
| Huntingdon | 0 | 0 | 5 | 0 | 5 |
| Indiana | 0 | 0 | 0 | 1 | 1 |
| Jefferson | NA | NA | NA | NA | NA |
| Juniata | 0 | 1 | 1 | 0 | 2 |
| Lackawanna | 5 | 4 | 0 | 0 | 9 |
| Lancaster | 5 | 3 | 1 | 0 | 9 |
| Lawrence | 1 | 3 | 0 | 0 | 4 |
| Lebanon | 3 | 1 | 0 | 0 | 4 |
| Lehigh | 2 | 1 | 0 | 0 | 3 |
| Luzerne | 11 | 8 | 0 | 1 | 20 |
| Lycoming | 2 | 4 | 1 | 0 | 7 |
| McKean | NA | NA | NA | NA | NA |
| Mercer | 2 | 3 | 4 | 0 | 9 |
| Mifflin | 2 | 3 | 0 | 0 | 5 |
| Monroe | 2 | 1 | 0 | 0 | 3 |
| Montgomery | 6 | 1 | 2 | 0 | 9 |
| Montour | 1 | 0 | 0 | 0 | 1 |
| Northampton | 1 | 0 | 3 | 2 | 6 |
| Northumberland | 3 | 1 | 0 | 0 | 4 |
| Perry | 3 | 1 | 3 | 2 | 9 |
| Philadelphia | 1 | 0 | 0 | 0 | 1 |
| Pike | 1 | 0 | 0 | 0 | 1 |
| Potter | 3 | 1 | 1 | 2 | 7 |
| Schuylkill | 2 | 5 | 0 | 0 | 7 |

| | | | | | |
|-------------------|--------------|--------------|-------------|------------|------------|
| Snyder | 4 | 1 | 0 | 0 | 5 |
| Somerset | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA |
| Susquehanna | 1 | 2 | 0 | 0 | 3 |
| Tioga | NA | NA | NA | NA | NA |
| Union | 6 | 4 | 0 | 0 | 10 |
| Venango | 0 | 1 | 0 | 0 | 1 |
| Warren | 5 | 5 | 1 | 0 | 11 |
| Washington | 1 | 0 | 2 | 1 | 4 |
| Wayne | 0 | 1 | 0 | 0 | 1 |
| Westmoreland | 2 | 1 | 1 | 1 | 5 |
| Wyoming | 3 | 3 | 0 | 0 | 6 |
| York | 6 | 9 | 6 | 0 | 21 |
| TOTAL | 153 | 129 | 59 | 21 | 362 |
| % OF TOTAL | 42.27 | 35.64 | 16.3 | 5.8 | |

Figure 13: Drop-Off Center Hours of Operation in Municipalities

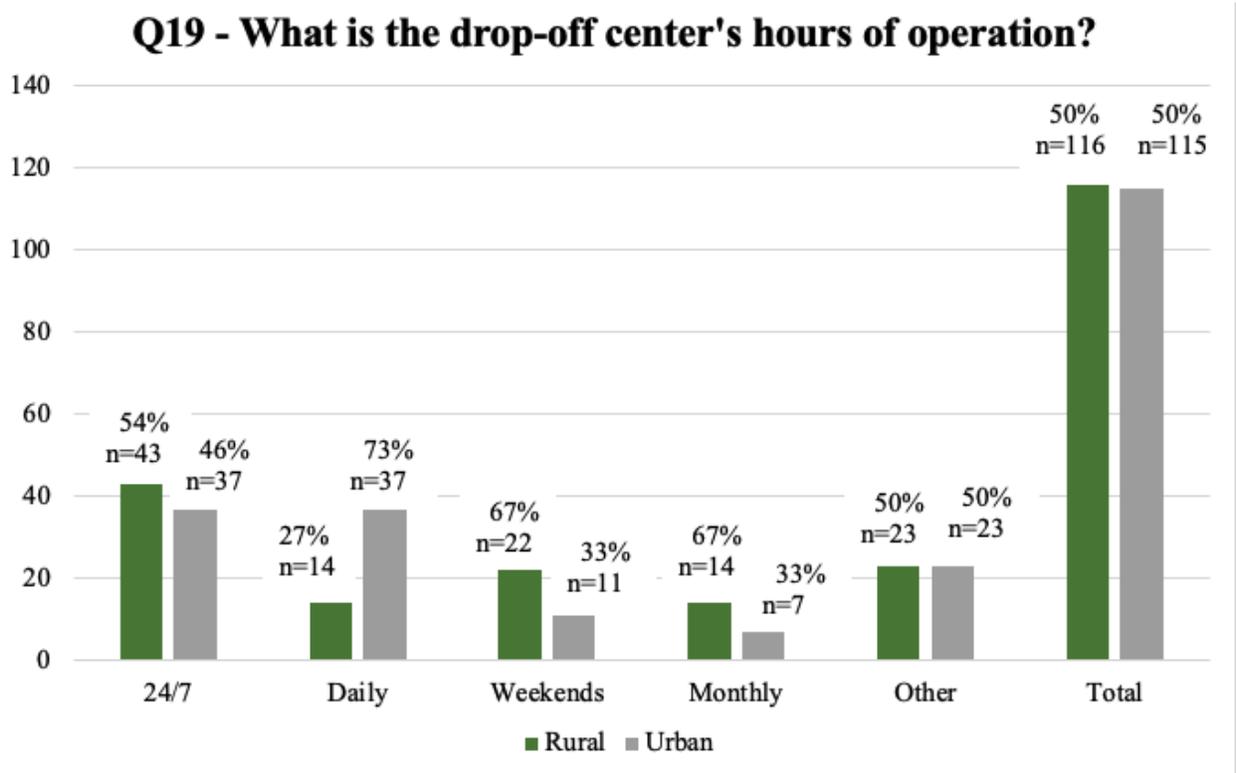


Table 15: Drop-Off Center Hours of Operation Aggregated by County

| County | 24/7 | Daily | Weekends | Monthly | Other | Total |
|---------------|-------------|--------------|-----------------|----------------|--------------|--------------|
| Adams | 1 | 2 | 0 | 0 | 4 | 7 |
| Allegheny | 5 | 1 | 0 | 0 | 2 | 8 |
| Armstrong | 2 | 0 | 0 | 0 | 0 | 2 |
| Beaver | 5 | 1 | 1 | 4 | 1 | 12 |
| Bedford | 1 | 0 | 0 | 0 | 0 | 1 |
| Berks | 0 | 2 | 0 | 0 | 1 | 3 |
| Blair | 0 | 1 | 0 | 0 | 0 | 1 |
| Bradford | 0 | 1 | 0 | 0 | 0 | 1 |
| Bucks | 1 | 2 | 1 | 2 | 0 | 6 |
| Butler | 4 | 0 | 0 | 0 | 0 | 4 |
| Cambria | 3 | 0 | 0 | 0 | 1 | 4 |
| Cameron | NA | NA | NA | NA | NA | NA |
| Carbon | 0 | 1 | 0 | 0 | 1 | 2 |
| Centre | 2 | 0 | 0 | 0 | 0 | 2 |
| Chester | 1 | 0 | 1 | 1 | 2 | 5 |
| Clarion | 1 | 0 | 0 | 0 | 0 | 1 |
| Clearfield | 1 | 0 | 0 | 1 | 0 | 2 |
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 0 | 1 | 2 | 2 | 0 | 5 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 0 | 0 | 0 | 0 | 1 | 1 |
| Dauphin | 1 | 2 | 1 | 0 | 0 | 4 |
| Delaware | 3 | 1 | 0 | 0 | 3 | 7 |
| Elk | 2 | 1 | 0 | 0 | 0 | 3 |
| Erie | 1 | 1 | 0 | 0 | 3 | 5 |
| Fayette | 1 | 1 | 0 | 0 | 0 | 2 |
| Forest | NA | NA | NA | NA | NA | NA |
| Franklin | 0 | 2 | 3 | 1 | 1 | 7 |
| Fulton | 1 | 0 | 0 | 0 | 1 | 2 |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 2 | 0 | 0 | 0 | 2 | 4 |
| Indiana | 1 | 0 | 0 | 0 | 0 | 1 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | NA | NA | NA | NA | NA | NA |
| Lackawanna | 0 | 3 | 2 | 1 | 2 | 8 |
| Lancaster | 2 | 1 | 1 | 1 | 1 | 6 |

| | | | | | | |
|-------------------|--------------|--------------|--------------|-------------|--------------|------------|
| Lawrence | 3 | 0 | 0 | 0 | 0 | 3 |
| Lebanon | 2 | 1 | 0 | 0 | 0 | 3 |
| Lehigh | 1 | 0 | 1 | 0 | 0 | 2 |
| Luzerne | 1 | 3 | 2 | 0 | 4 | 10 |
| Lycoming | 4 | 0 | 0 | 0 | 0 | 4 |
| McKean | NA | NA | NA | NA | NA | NA |
| Mercer | 3 | 0 | 1 | 0 | 0 | 4 |
| Mifflin | 1 | 1 | 0 | 0 | 0 | 2 |
| Monroe | 0 | 0 | 1 | 0 | 2 | 3 |
| Montgomery | 4 | 4 | 0 | 0 | 0 | 8 |
| Montour | 0 | 0 | 0 | 0 | 1 | 1 |
| Northampton | 0 | 1 | 0 | 0 | 3 | 4 |
| Northumberland | 1 | 0 | 0 | 0 | 2 | 3 |
| Perry | 2 | 1 | 2 | 2 | 1 | 8 |
| Philadelphia | 0 | 1 | 0 | 0 | 0 | 1 |
| Pike | 0 | 1 | 0 | 0 | 0 | 1 |
| Potter | 1 | 0 | 2 | 0 | 2 | 5 |
| Schuylkill | 3 | 3 | 0 | 0 | 0 | 6 |
| Snyder | 0 | 2 | 1 | 1 | 1 | 5 |
| Somerset | NA | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 0 | 0 | 1 | 0 | 2 | 3 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 2 | 0 | 4 | 2 | 0 | 8 |
| Venango | NA | NA | NA | NA | NA | NA |
| Warren | 5 | 1 | 0 | 0 | 0 | 6 |
| Washington | 2 | 0 | 1 | 0 | 0 | 3 |
| Wayne | NA | NA | NA | NA | NA | NA |
| Westmoreland | 2 | 2 | 0 | 0 | 0 | 4 |
| Wyoming | 2 | 1 | 1 | 0 | 0 | 4 |
| York | 0 | 5 | 4 | 3 | 2 | 14 |
| TOTAL | 80 | 51 | 33 | 21 | 46 | 231 |
| % OF TOTAL | 34.63 | 22.08 | 14.29 | 9.09 | 19.91 | |

Table 16: Access to Electronics Recycling Aggregated by County

| County | Electronics Recycling | Percent of Total |
|---------------|------------------------------|-------------------------|
| Adams | 9 | 4.13 |
| Allegheny | 12 | 5.50 |

| | | |
|------------|----|------|
| Armstrong | 0 | 0.00 |
| Beaver | 8 | 3.67 |
| Bedford | 2 | 0.92 |
| Berks | 6 | 2.75 |
| Blair | 1 | 0.46 |
| Bradford | 1 | 0.46 |
| Bucks | 8 | 3.67 |
| Butler | 8 | 3.67 |
| Cambria | 3 | 1.38 |
| Cameron | 0 | 0.00 |
| Carbon | 3 | 1.38 |
| Centre | 2 | 0.92 |
| Chester | 12 | 5.50 |
| Clarion | 1 | 0.46 |
| Clearfield | 1 | 0.46 |
| Clinton | NA | NA |
| Columbia | 1 | 0.46 |
| Crawford | NA | NA |
| Cumberland | 3 | 1.38 |
| Dauphin | 3 | 1.38 |
| Delaware | 9 | 4.13 |
| Elk | 2 | 0.92 |
| Erie | 9 | 4.13 |
| Fayette | 3 | 1.38 |
| Forest | 0 | 0.00 |
| Franklin | 4 | 1.83 |
| Fulton | 1 | 0.46 |
| Greene | NA | NA |
| Huntingdon | 2 | 0.92 |
| Indiana | 2 | 0.92 |
| Jefferson | NA | NA |
| Juniata | 1 | 0.46 |
| Lackawanna | 4 | 1.83 |
| Lancaster | 8 | 3.67 |
| Lawrence | 2 | 0.92 |
| Lebanon | 3 | 1.38 |
| Lehigh | 1 | 0.46 |
| Luzerne | 6 | 2.75 |
| Lycoming | 4 | 1.83 |

| | | |
|----------------|------------|------|
| McKean | 0 | 0.00 |
| Mercer | 1 | 0.46 |
| Mifflin | 2 | 0.92 |
| Monroe | 3 | 1.38 |
| Montgomery | 10 | 4.59 |
| Montour | 0 | 0.00 |
| Northampton | 12 | 5.50 |
| Northumberland | 0 | 0.00 |
| Perry | 4 | 1.83 |
| Philadelphia | 1 | 0.46 |
| Pike | 1 | 0.46 |
| Potter | 1 | 0.46 |
| Schuylkill | 3 | 1.38 |
| Snyder | 3 | 1.38 |
| Somerset | 0 | 0.00 |
| Sullivan | NA | NA |
| Susquehanna | 4 | 1.83 |
| Tioga | NA | NA |
| Union | 1 | 0.46 |
| Venango | 1 | 0.46 |
| Warren | 2 | 0.92 |
| Washington | 3 | 1.38 |
| Wayne | NA | NA |
| Westmoreland | 5 | 2.29 |
| Wyoming | 2 | 0.92 |
| York | 14 | 6.42 |
| TOTAL | 218 | |

Table 17: Electronics Collection Techniques Aggregated by County

| County | Public Sector Drop-Off Site | Special Event | Private Industry | Other | Total |
|---------------|------------------------------------|----------------------|-------------------------|--------------|--------------|
| Adams | 1 | 7 | 1 | 0 | 9 |
| Allegheny | 2 | 7 | 4 | 1 | 14 |
| Armstrong | NA | NA | NA | NA | NA |
| Beaver | 4 | 6 | 1 | 0 | 11 |
| Bedford | 1 | 1 | 0 | 0 | 2 |
| Berks | 5 | 0 | 1 | 1 | 7 |
| Blair | 0 | 1 | 0 | 0 | 1 |
| Bradford | 0 | 1 | 0 | 0 | 1 |

| | | | | | |
|------------|----|----|----|----|----|
| Bucks | 4 | 5 | 1 | 1 | 11 |
| Butler | 2 | 3 | 5 | 0 | 10 |
| Cambria | 2 | 0 | 0 | 1 | 3 |
| Cameron | NA | NA | NA | NA | NA |
| Carbon | 1 | 2 | 0 | 0 | 3 |
| Centre | 2 | 0 | 0 | 0 | 2 |
| Chester | 6 | 5 | 2 | 1 | 14 |
| Clarion | 0 | 1 | 0 | 0 | 1 |
| Clearfield | 1 | 0 | 0 | 0 | 1 |
| Clinton | NA | NA | NA | NA | NA |
| Columbia | 0 | 0 | 1 | 0 | 1 |
| Crawford | NA | NA | NA | NA | NA |
| Cumberland | 3 | 0 | 0 | 0 | 3 |
| Dauphin | 2 | 1 | 0 | 0 | 3 |
| Delaware | 0 | 8 | 3 | 1 | 12 |
| Elk | 2 | 0 | 0 | 0 | 2 |
| Erie | 2 | 5 | 2 | 2 | 11 |
| Fayette | 1 | 1 | 1 | 0 | 3 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 4 | 1 | 0 | 0 | 5 |
| Fulton | 1 | 0 | 0 | 0 | 1 |
| Greene | NA | NA | NA | NA | NA |
| Huntingdon | 0 | 2 | 0 | 0 | 2 |
| Indiana | 1 | 0 | 0 | 1 | 2 |
| Jefferson | NA | NA | NA | NA | NA |
| Juniata | 0 | 0 | 0 | 1 | 1 |
| Lackawanna | 2 | 3 | 0 | 0 | 5 |
| Lancaster | 7 | 2 | 0 | 0 | 9 |
| Lawrence | 0 | 2 | 0 | 0 | 2 |
| Lebanon | 3 | 0 | 0 | 0 | 3 |
| Lehigh | 0 | 1 | 1 | 0 | 2 |
| Luzerne | 1 | 5 | 0 | 0 | 6 |
| Lycoming | 4 | 0 | 0 | 2 | 6 |
| McKean | NA | NA | NA | NA | NA |
| Mercer | 0 | 0 | 1 | 0 | 1 |
| Mifflin | 2 | 0 | 0 | 0 | 2 |
| Monroe | 3 | 0 | 0 | 0 | 3 |
| Montgomery | 3 | 7 | 5 | 2 | 17 |
| Montour | NA | NA | NA | NA | NA |

| | | | | | |
|-------------------|--------------|------------|--------------|-------------|------------|
| Northampton | 5 | 9 | 0 | 1 | 15 |
| Northumberland | NA | NA | NA | NA | NA |
| Perry | 1 | 4 | 2 | 0 | 7 |
| Philadelphia | 1 | 0 | 1 | 0 | 2 |
| Pike | 0 | 1 | 0 | 0 | 1 |
| Potter | 1 | 0 | 0 | 0 | 1 |
| Schuylkill | 1 | 2 | 0 | 0 | 3 |
| Snyder | 2 | 2 | 0 | 1 | 5 |
| Somerset | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA |
| Susquehanna | 1 | 3 | 0 | 0 | 4 |
| Tioga | NA | NA | NA | NA | NA |
| Union | 0 | 1 | 0 | 0 | 1 |
| Venango | 0 | 1 | 0 | 0 | 1 |
| Warren | 2 | 0 | 0 | 0 | 2 |
| Washington | 0 | 1 | 1 | 1 | 3 |
| Wayne | NA | NA | NA | NA | NA |
| Westmoreland | 2 | 1 | 1 | 3 | 7 |
| Wyoming | 1 | 1 | 0 | 0 | 2 |
| York | 13 | 1 | 0 | 0 | 14 |
| TOTAL | 102 | 104 | 34 | 20 | 260 |
| % OF TOTAL | 39.23 | 40 | 13.08 | 7.69 | |

Table 18: Access to Household Hazardous Waste (HHW) Recycling Aggregated by County

| County | HHW Recycling | Percent of Total |
|---------------|----------------------|-------------------------|
| Adams | 0 | 0 |
| Allegheny | 11 | 7.80 |
| Armstrong | 0 | 0 |
| Beaver | 7 | 4.96 |
| Bedford | 0 | 0 |
| Berks | 6 | 4.26 |
| Blair | 0 | 0 |
| Bradford | 1 | 0.71 |
| Bucks | 6 | 4.26 |
| Butler | 7 | 4.96 |
| Cambria | 2 | 1.42 |
| Cameron | 0 | 0 |

| | | |
|----------------|----|------|
| Carbon | 0 | 0 |
| Centre | 2 | 1.42 |
| Chester | 11 | 7.80 |
| Clarion | 1 | 0.71 |
| Clearfield | 1 | 0.71 |
| Clinton | NA | NA |
| Columbia | 0 | 0 |
| Crawford | NA | NA |
| Cumberland | 3 | 2.13 |
| Dauphin | 2 | 1.42 |
| Delaware | 8 | 5.67 |
| Elk | 2 | 1.42 |
| Erie | 7 | 4.96 |
| Fayette | 2 | 1.42 |
| Forest | 0 | 0 |
| Franklin | 1 | 0.71 |
| Fulton | 0 | 0 |
| Greene | NA | NA |
| Huntingdon | 2 | 1.42 |
| Indiana | 0 | 0 |
| Jefferson | NA | NA |
| Juniata | 0 | 0 |
| Lackawanna | 1 | 0.71 |
| Lancaster | 9 | 6.38 |
| Lawrence | 1 | 0.71 |
| Lebanon | 3 | 2.13 |
| Lehigh | 0 | 0 |
| Luzerne | 2 | 1.42 |
| Lycoming | 0 | 0 |
| McKean | 0 | 0 |
| Mercer | 0 | 0 |
| Mifflin | 1 | 0.71 |
| Monroe | 0 | 0 |
| Montgomery | 10 | 7.09 |
| Montour | 0 | 0 |
| Northampton | 11 | 7.80 |
| Northumberland | 0 | 0 |
| Perry | 0 | 0 |
| Philadelphia | 1 | 0.71 |

| | | |
|--------------|------------|------|
| Pike | 0 | 0 |
| Potter | 1 | 0.71 |
| Schuylkill | 0 | 0 |
| Snyder | 1 | 0.71 |
| Somerset | 0 | 0 |
| Sullivan | NA | NA |
| Susquehanna | 0 | 0 |
| Tioga | NA | NA |
| Union | 0 | 0 |
| Venango | 1 | 0.71 |
| Warren | 0 | 0 |
| Washington | 1 | 0.71 |
| Wayne | NA | NA |
| Westmoreland | 4 | 2.84 |
| Wyoming | 0 | 0 |
| York | 12 | 8.51 |
| TOTAL | 141 | |

Figure 12: Permission for Burning of Trash in Municipalities



Table 19: Permission for Burning of Trash Aggregated by County

| County | Burning of Trash | Percent of Total |
|---------------|-------------------------|-------------------------|
| Adams | 10 | 9.35 |
| Allegheny | 0 | 0.00 |
| Armstrong | 0 | 0.00 |
| Beaver | 6 | 5.61 |
| Bedford | 0 | 0.00 |
| Berks | 0 | 0.00 |
| Blair | 1 | 0.93 |
| Bradford | 0 | 0.00 |
| Bucks | 2 | 1.87 |
| Butler | 9 | 8.41 |
| Cambria | 0 | 0.00 |
| Cameron | 0 | 0.00 |
| Carbon | 0 | 0.00 |
| Centre | 0 | 0.00 |
| Chester | 3 | 2.80 |
| Clarion | 0 | 0.00 |
| Clearfield | 0 | 0.00 |
| Clinton | NA | NA |
| Columbia | 1 | 0.93 |
| Crawford | NA | NA |
| Cumberland | 0 | 0.00 |
| Dauphin | 2 | 1.87 |
| Delaware | 0 | 0.00 |
| Elk | 3 | 2.80 |
| Erie | 1 | 0.93 |
| Fayette | 2 | 1.87 |
| Forest | 0 | 0.00 |
| Franklin | 5 | 4.67 |
| Fulton | 2 | 1.87 |
| Greene | NA | NA |
| Huntingdon | 5 | 4.67 |
| Indiana | 1 | 0.93 |
| Jefferson | NA | NA |
| Juniata | 1 | 0.93 |
| Lackawanna | 0 | 0.00 |
| Lancaster | 3 | 2.80 |

| | | |
|----------------|------------|------|
| Lawrence | 2 | 1.87 |
| Lebanon | 0 | 0.00 |
| Lehigh | 1 | 0.93 |
| Luzerne | 5 | 4.67 |
| Lycoming | 0 | 0.00 |
| McKean | 0 | 0.00 |
| Mercer | 2 | 1.87 |
| Mifflin | 2 | 1.87 |
| Monroe | 0 | 0.00 |
| Montgomery | 0 | 0.00 |
| Montour | 0 | 0.00 |
| Northampton | 2 | 1.87 |
| Northumberland | 2 | 1.87 |
| Perry | 2 | 1.87 |
| Philadelphia | 0 | 0.00 |
| Pike | 0 | 0.00 |
| Potter | 2 | 1.87 |
| Schuylkill | 3 | 2.80 |
| Snyder | 3 | 2.80 |
| Somerset | 1 | 0.93 |
| Sullivan | NA | NA |
| Susquehanna | 3 | 2.80 |
| Tioga | NA | NA |
| Union | 4 | 3.74 |
| Venango | 2 | 1.87 |
| Warren | 4 | 3.74 |
| Washington | 0 | 0.00 |
| Wayne | NA | NA |
| Westmoreland | 2 | 1.87 |
| Wyoming | 3 | 2.80 |
| York | 5 | 4.67 |
| TOTAL | 107 | |

Figure 13: Municipalities with Restrictions Placed on the Type of Materials Burned

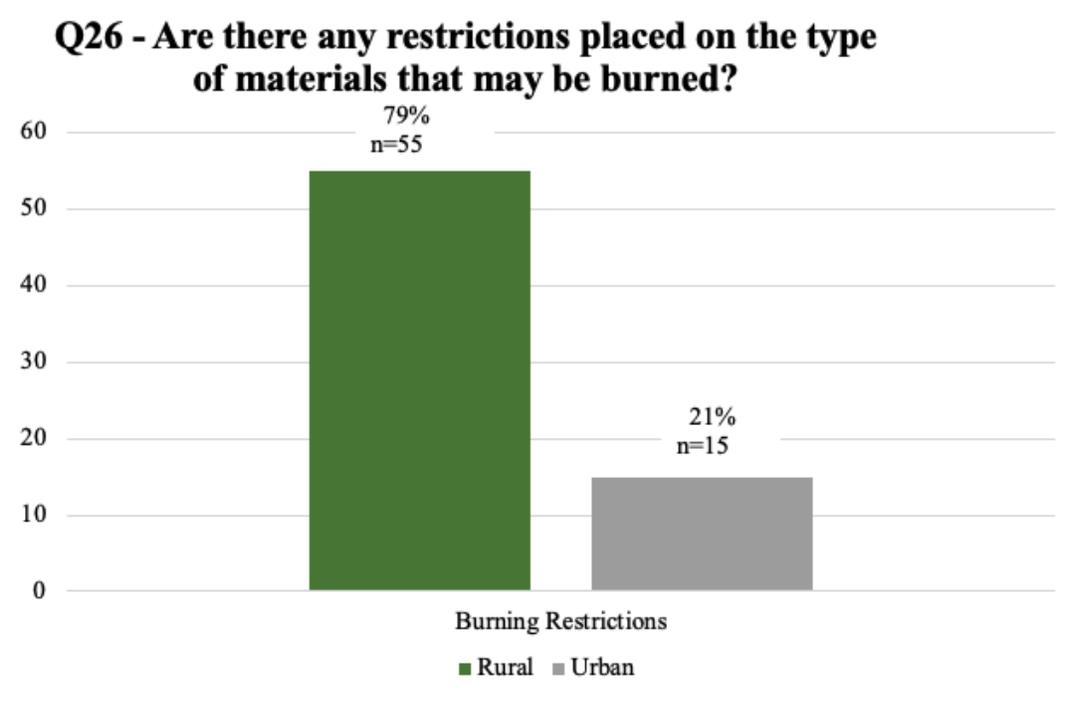


Table 20: Restrictions Placed on the Type of Materials Burned Aggregated by County

| County | Restrictions | Percent of Total |
|------------|--------------|------------------|
| Adams | 5 | 7.14 |
| Beaver | 2 | 2.86 |
| Bucks | 2 | 2.86 |
| Butler | 8 | 11.43 |
| Chester | 2 | 2.86 |
| Columbia | 1 | 1.43 |
| Dauphin | 2 | 2.86 |
| Elk | 2 | 2.86 |
| Erie | 1 | 1.43 |
| Fayette | 2 | 2.86 |
| Franklin | 4 | 5.71 |
| Fulton | 1 | 1.43 |
| Huntingdon | 3 | 4.29 |
| Indiana | 1 | 1.43 |
| Lancaster | 2 | 2.86 |
| Lawrence | 2 | 2.86 |
| Lehigh | 1 | 1.43 |

| | | |
|----------------|-----------|------|
| Luzerne | 3 | 4.29 |
| Mercer | 2 | 2.86 |
| Mifflin | 2 | 2.86 |
| Northampton | 2 | 2.86 |
| Northumberland | 2 | 2.86 |
| Perry | 0 | 0.00 |
| Potter | 1 | 1.43 |
| Schuylkill | 3 | 4.29 |
| Snyder | 2 | 2.86 |
| Somerset | 0 | 0.00 |
| Susquehanna | 2 | 2.86 |
| Union | 3 | 4.29 |
| Warren | 1 | 1.43 |
| Westmoreland | 1 | 1.43 |
| Wyoming | 2 | 2.86 |
| York | 3 | 4.29 |
| TOTAL | 70 | |

Table 21: Payment for Electronics Recycling Aggregated by County

| County | Residents | Govt-Sponsored Program | OEM-Sponsored Program | Other | NA | Total |
|------------|-----------|------------------------|-----------------------|-------|----|-------|
| Adams | 6 | 0 | 0 | 3 | 0 | 9 |
| Allegheny | 8 | 3 | 1 | 1 | 0 | 13 |
| Armstrong | NA | NA | NA | NA | NA | NA |
| Beaver | 6 | 2 | 0 | 1 | 0 | 9 |
| Bedford | 1 | 0 | 0 | 1 | 0 | 2 |
| Berks | 2 | 3 | 2 | 3 | 0 | 10 |
| Blair | 0 | 1 | 0 | 0 | 0 | 1 |
| Bradford | 1 | 1 | 0 | 0 | 0 | 2 |
| Bucks | 6 | 4 | 0 | 0 | 0 | 10 |
| Butler | 4 | 5 | 0 | 2 | 0 | 11 |
| Cambria | 2 | 0 | 0 | 2 | 0 | 4 |
| Cameron | NA | NA | NA | NA | NA | NA |
| Carbon | 3 | 0 | 0 | 1 | 0 | 4 |
| Centre | 0 | 1 | 1 | 0 | 0 | 2 |
| Chester | 6 | 3 | 0 | 3 | 0 | 12 |
| Clarion | 0 | 0 | 0 | 1 | 0 | 1 |
| Clearfield | 1 | 0 | 0 | 0 | 0 | 1 |

| | | | | | | |
|----------------|----|----|----|----|----|----|
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 1 | 0 | 0 | 0 | 0 | 1 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 2 | 1 | 0 | 0 | 0 | 3 |
| Dauphin | 0 | 2 | 0 | 1 | 0 | 3 |
| Delaware | 7 | 2 | 0 | 2 | 0 | 11 |
| Elk | 1 | 1 | 0 | 0 | 0 | 2 |
| Erie | 8 | 3 | 1 | 2 | 0 | 14 |
| Fayette | 1 | 2 | 0 | 0 | 0 | 3 |
| Forest | NA | NA | NA | NA | NA | NA |
| Franklin | 3 | 1 | 0 | 0 | 0 | 4 |
| Fulton | 0 | 0 | 0 | 1 | 0 | 1 |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 2 | 0 | 0 | 0 | 0 | 2 |
| Indiana | 1 | 0 | 0 | 1 | 0 | 2 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | 1 | 0 | 0 | 0 | 0 | 1 |
| Lackawanna | 1 | 1 | 0 | 1 | 1 | 4 |
| Lancaster | 4 | 2 | 0 | 3 | 1 | 10 |
| Lawrence | 2 | 0 | 0 | 0 | 0 | 2 |
| Lebanon | 1 | 0 | 0 | 2 | 0 | 3 |
| Lehigh | 1 | 0 | 0 | 0 | 0 | 1 |
| Luzerne | 2 | 4 | 0 | 2 | 0 | 8 |
| Lycoming | 0 | 0 | 4 | 0 | 0 | 4 |
| McKean | NA | NA | NA | NA | NA | NA |
| Mercer | 1 | 0 | 0 | 0 | 0 | 1 |
| Mifflin | 0 | 1 | 0 | 0 | 1 | 2 |
| Monroe | 1 | 1 | 0 | 1 | 0 | 3 |
| Montgomery | 4 | 8 | 2 | 1 | 0 | 15 |
| Montour | NA | NA | NA | NA | NA | NA |
| Northampton | 10 | 4 | 0 | 0 | 0 | 14 |
| Northumberland | NA | NA | NA | NA | NA | NA |
| Perry | 4 | 2 | 0 | 0 | 0 | 6 |
| Philadelphia | 1 | 1 | 0 | 0 | 0 | 2 |
| Pike | 0 | 0 | 0 | 1 | 0 | 1 |
| Potter | 1 | 0 | 0 | 0 | 0 | 1 |
| Schuylkill | 2 | 1 | 0 | 0 | 0 | 3 |
| Snyder | 3 | 0 | 0 | 1 | 0 | 4 |
| Somerset | NA | NA | NA | NA | NA | NA |

| | | | | | | |
|-------------------|------------|-----------|-----------|-----------|----------|------------|
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 1 | 0 | 0 | 3 | 0 | 4 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 0 | 0 | 0 | 0 | 1 | 1 |
| Venango | 0 | 1 | 0 | 0 | 0 | 1 |
| Warren | 2 | 0 | 0 | 0 | 0 | 2 |
| Washington | 2 | 2 | 0 | 0 | 0 | 4 |
| Wayne | NA | NA | NA | NA | NA | NA |
| Westmoreland | 4 | 2 | 0 | 1 | 0 | 7 |
| Wyoming | 1 | 0 | 0 | 1 | 0 | 2 |
| York | 5 | 7 | 1 | 2 | 1 | 16 |
| TOTAL | 126 | 72 | 12 | 44 | 5 | 259 |
| % OF TOTAL | 48.65 | 27.80 | 4.63 | 16.99 | 1.93 | |

Table 22: Payment for Household Hazardous Waste (HHW) Recycling Aggregated by County

| County | County/Waste Authority | Residents | Grants | Municipality | Other | Total |
|------------|------------------------|-----------|--------|--------------|-------|-------|
| Allegheny | 3 | 6 | 1 | 1 | 0 | 11 |
| Beaver | 2 | 5 | 1 | 0 | 0 | 8 |
| Berks | 4 | 0 | 0 | 1 | 1 | 6 |
| Bradford | 0 | 1 | 0 | 0 | 0 | 1 |
| Bucks | 2 | 0 | 1 | 3 | 0 | 6 |
| Butler | 1 | 4 | 2 | 1 | 0 | 8 |
| Cambria | 0 | 1 | 0 | 0 | 1 | 2 |
| Centre | 2 | 0 | 0 | 0 | 1 | 3 |
| Chester | 4 | 2 | 0 | 5 | 1 | 12 |
| Clarion | 0 | 1 | 0 | 0 | 0 | 1 |
| Clearfield | 0 | 1 | 0 | 0 | 0 | 1 |
| Cumberland | 0 | 2 | 0 | 0 | 0 | 2 |
| Dauphin | 2 | 1 | 0 | 0 | 0 | 3 |
| Delaware | 7 | 0 | 0 | 1 | 0 | 8 |
| Elk | 2 | 0 | 0 | 0 | 0 | 2 |
| Erie | 0 | 6 | 0 | 0 | 1 | 7 |
| Fayette | 1 | 0 | 0 | 0 | 1 | 2 |
| Franklin | 1 | 0 | 0 | 0 | 0 | 1 |
| Huntingdon | 1 | 0 | 0 | 0 | 1 | 2 |
| Lackawanna | 0 | 1 | 0 | 0 | 0 | 1 |

| | | | | | | |
|-------------------|--------------|--------------|-------------|--------------|-------------|------------|
| Lancaster | 3 | 3 | 0 | 0 | 0 | 6 |
| Lawrence | 0 | 1 | 0 | 0 | 0 | 1 |
| Lebanon | 2 | 3 | 0 | 0 | 0 | 5 |
| Luzerne | 0 | 1 | 0 | 1 | 0 | 2 |
| Montgomery | 10 | 1 | 0 | 1 | 0 | 12 |
| Northampton | 7 | 6 | 0 | 0 | 0 | 13 |
| Philadelphia | 1 | 0 | 0 | 1 | 0 | 2 |
| Potter | 0 | 1 | 0 | 0 | 0 | 1 |
| Snyder | 0 | 1 | 0 | 0 | 0 | 1 |
| Washington | 0 | 0 | 0 | 0 | 1 | 1 |
| Westmoreland | 1 | 2 | 0 | 1 | 1 | 5 |
| York | 5 | 6 | 1 | 0 | 1 | 13 |
| Total | 61 | 56 | 6 | 16 | 10 | 149 |
| % OF TOTAL | 40.94 | 37.58 | 4.03 | 10.74 | 6.71 | |

Table 23: Frequency of Negative Impacts on Recycling Collection Aggregated by County

| County | TC | MC | IF | DG | CO | PMV | IR | RL | LC | LAP | LM | CH |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Adams | 1.4 | 1.3 | 1.2 | 0.9 | 1.4 | 1.5 | 1.6 | 1.4 | 1.2 | 1.8 | 1.2 | 1.8 |
| Allegheny | 2.0 | 2.1 | 2.8 | 1.6 | 3.1 | 3.1 | 2.8 | 2.3 | 1.6 | 1.8 | 2.6 | 2.3 |
| Armstrong | 2.0 | 5.0 | 2.0 | 2.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 4.0 |
| Beaver | 1.8 | 1.8 | 1.9 | 1.7 | 2.2 | 2.1 | 1.9 | 1.8 | 1.2 | 1.5 | 2.2 | 1.9 |
| Bedford | 1.0 | 1.7 | 1.3 | 1.3 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Berks | 1.8 | 1.6 | 2.3 | 1.6 | 2.9 | 2.8 | 2.6 | 2.0 | 1.9 | 1.9 | 2.5 | 2.4 |
| Blair | 4.0 | 3.0 | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Bradford | 4.0 | 4.0 | 1.0 | 2.0 | 4.0 | 2.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 |
| Bucks | 2.1 | 2.0 | 2.7 | 2.3 | 2.1 | 2.6 | 2.3 | 2.2 | 1.3 | 2.0 | 2.6 | 2.8 |
| Butler | 2.6 | 1.9 | 2.0 | 2.3 | 1.9 | 2.6 | 1.5 | 1.8 | 1.9 | 2.5 | 2.4 | 2.0 |
| Cambria | 3.3 | 3.3 | 3.3 | 3.3 | 2.3 | 3.3 | 1.0 | 3.3 | 2.7 | 3.3 | 3.3 | 2.0 |
| Cameron | NA |
| Carbon | 1.3 | 1.0 | 1.3 | 2.0 | 1.3 | 1.7 | 1.3 | 1.0 | 1.0 | 1.7 | 1.7 | 0.7 |
| Centre | 0.5 | 0.5 | 1.0 | 2.5 | 1.0 | 1.0 | 1.0 | 2.5 | 1.0 | 1.0 | 1.0 | 1.0 |
| Chester | 2.4 | 2.1 | 2.3 | 1.9 | 2.1 | 3.0 | 2.8 | 2.6 | 2.2 | 2.0 | 2.5 | 1.0 |
| Clarion | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Clearfield | 2.5 | 3.0 | 1.0 | 1.5 | 3.5 | 3.5 | 2.5 | 2.5 | 2.0 | 3.0 | 3.0 | 3.0 |
| Clinton | NA |
| Columbia | 3.5 | 3.8 | 2.8 | 2.5 | 2.0 | 3.0 | 2.0 | 2.0 | 3.0 | 3.0 | 2.8 | 2.8 |
| Crawford | NA |
| Cumberland | 1.8 | 1.8 | 2.0 | 1.8 | 2.3 | 2.3 | 1.5 | 1.8 | 1.0 | 1.8 | 1.8 | 1.0 |

| | | | | | | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dauphin | 1.6 | 1.2 | 0.8 | 1.4 | 1.8 | 1.6 | 1.4 | 1.4 | 1.2 | 1.4 | 1.4 | 1.4 |
| Delaware | 2.0 | 1.5 | 3.0 | 1.8 | 2.1 | 3.3 | 2.1 | 3.0 | 1.9 | 2.3 | 3.1 | 3.1 |
| Elk | 2.7 | 2.3 | 2.7 | 1.0 | 3.0 | 1.3 | 3.0 | 1.3 | 1.7 | 2.7 | 2.7 | 1.7 |
| Erie | 2.7 | 1.9 | 2.8 | 2.1 | 3.0 | 3.3 | 2.4 | 2.3 | 1.4 | 2.8 | 3.2 | 2.7 |
| Fayette | 2.0 | 2.0 | 1.8 | 1.8 | 1.3 | 1.8 | 1.3 | 1.8 | 1.8 | 2.0 | 2.0 | 1.3 |
| Forest | 1.0 | 1.0 | 4.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 3.0 | 3.0 | 0.0 |
| Franklin | 1.8 | 2.0 | 1.7 | 1.2 | 1.8 | 1.5 | 1.8 | 1.7 | 1.5 | 1.7 | 3.3 | 1.5 |
| Fulton | 2.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 1.0 | 0.5 | 1.5 | 1.5 | 2.0 | 2.0 |
| Greene | NA |
| Huntingdon | 1.8 | 1.3 | 1.5 | 1.3 | 0.8 | 1.8 | 0.5 | 0.3 | 0.5 | 1.0 | 0.8 | 0.0 |
| Indiana | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 5.0 | 1.0 | 5.0 | 5.0 | 1.0 | 5.0 | 5.0 |
| Jefferson | NA |
| Juniata | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lackawanna | 2.5 | 2.6 | 2.1 | 2.1 | 3.4 | 3.0 | 3.3 | 2.3 | 1.8 | 2.0 | 2.6 | 2.0 |
| Lancaster | 1.4 | 1.4 | 1.6 | 1.4 | 1.4 | 1.6 | 1.4 | 1.2 | 0.7 | 0.8 | 1.2 | 1.9 |
| Lawrence | 2.7 | 2.3 | 2.7 | 3.3 | 2.3 | 3.3 | 2.3 | 3.3 | 2.3 | 2.3 | 3.7 | 3.0 |
| Lebanon | 2.0 | 1.7 | 1.7 | 1.3 | 2.7 | 3.7 | 2.3 | 2.3 | 2.3 | 2.3 | 3.3 | 1.7 |
| Lehigh | 1.5 | 0.5 | 3.0 | 2.0 | 0.5 | 3.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Luzerne | 2.4 | 2.4 | 2.7 | 2.1 | 3.0 | 3.2 | 2.6 | 2.3 | 1.7 | 2.4 | 2.9 | 1.5 |
| Lycoming | 4.0 | 3.0 | 1.0 | 5.0 | 4.0 | 5.0 | 4.0 | 4.0 | 2.0 | 1.0 | 3.0 | 2.0 |
| McKean | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Mercer | 2.7 | 2.0 | 3.7 | 2.3 | 3.7 | 2.7 | 2.7 | 2.3 | 1.3 | 3.0 | 4.3 | 1.0 |
| Mifflin | 2.3 | 2.3 | 1.3 | 1.3 | 2.7 | 2.3 | 1.3 | 1.0 | 1.3 | 2.0 | 1.7 | 1.3 |
| Monroe | 2.0 | 2.3 | 3.0 | 1.8 | 2.8 | 2.5 | 2.3 | 2.3 | 2.0 | 2.5 | 2.3 | 2.3 |
| Montgomery | 2.3 | 2.3 | 2.5 | 2.6 | 2.7 | 3.0 | 2.8 | 2.4 | 1.8 | 1.5 | 2.8 | 2.8 |
| Montour | 1.0 | 5.0 | 5.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Northampton | 1.4 | 1.0 | 1.2 | 1.3 | 1.8 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.2 | 1.4 |
| Northumberland | 1.0 | 1.5 | 2.0 | 1.0 | 2.5 | 3.0 | 2.5 | 0.5 | 0.5 | 1.0 | 3.0 | 0.5 |
| Perry | 2.0 | 1.5 | 2.7 | 1.0 | 2.5 | 3.0 | 2.2 | 1.5 | 1.7 | 2.7 | 2.8 | 2.3 |
| Philadelphia | 1.0 | 2.0 | 3.0 | 1.0 | 5.0 | 4.0 | 5.0 | 1.0 | 2.0 | 1.0 | 2.0 | 4.0 |
| Pike | 2.0 | 1.0 | 2.0 | 1.0 | 2.0 | 3.0 | 0.0 | 0.0 | 0.0 | 2.0 | 3.0 | 4.0 |
| Potter | 1.0 | 1.0 | 2.3 | 2.3 | 1.0 | 1.0 | 1.7 | 1.0 | 1.0 | 1.0 | 1.0 | 2.3 |
| Schuylkill | 1.7 | 1.0 | 1.3 | 1.5 | 1.8 | 2.2 | 1.5 | 1.8 | 1.5 | 2.3 | 2.3 | 2.0 |
| Snyder | 2.4 | 2.2 | 3.0 | 2.2 | 1.6 | 1.8 | 2.0 | 2.2 | 1.8 | 2.0 | 2.2 | 1.2 |
| Somerset | NA |
| Sullivan | NA |
| Susquehanna | 1.5 | 2.0 | 3.0 | 2.0 | 2.5 | 4.5 | 2.5 | 3.0 | 0.5 | 0.5 | 2.5 | 0.5 |
| Tioga | NA |

| | | | | | | | | | | | | |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Union | 1.3 | 1.7 | 1.3 | 1.3 | 2.0 | 1.3 | 1.5 | 1.2 | 1.0 | 1.2 | 1.2 | 1.3 |
| Venango | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Warren | 3.0 | 2.0 | 2.4 | 2.4 | 3.0 | 1.4 | 2.6 | 1.6 | 1.0 | 1.0 | 1.0 | 0.8 |
| Washington | 0.7 | 0.7 | 2.3 | 0.7 | 2.3 | 2.3 | 2.3 | 0.7 | 0.7 | 0.7 | 2.3 | 2.3 |
| Wayne | NA |
| Westmoreland | 1.3 | 1.2 | 1.2 | 1.2 | 1.7 | 2.7 | 2.0 | 1.8 | 1.5 | 2.7 | 2.8 | 1.7 |
| Wyoming | 1.5 | 1.5 | 1.3 | 1.0 | 1.4 | 1.3 | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.0 |
| York | 1.5 | 1.4 | 2.3 | 1.6 | 2.6 | 2.9 | 2.5 | 1.8 | 1.7 | 1.9 | 2.5 | 2.3 |
| AVERAGE | 1.9 | 1.9 | 2.1 | 1.7 | 2.2 | 2.4 | 1.9 | 1.8 | 1.5 | 1.8 | 2.2 | 1.8 |

Table 24: Description of Negative Impacts on Recycling Collection Services Aggregated by County

| County | N | C | DG | LED | IC | MI | CV | CH | O | NE | NG | CAM | T |
|------------|----|----|----|-----|----|----|----|----|----|----|----|-----|----|
| Adams | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 9 |
| Allegheny | 0 | 3 | 1 | 1 | 0 | 1 | 2 | 1 | 6 | 1 | 9 | 12 | 37 |
| Armstrong | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Beaver | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 3 | 2 | 12 |
| Bedford | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 4 |
| Berks | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 0 | 0 | 9 |
| Blair | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Bradford | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Bucks | 0 | 1 | 1 | 0 | 5 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 14 |
| Butler | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 7 |
| Cambria | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 4 |
| Cameron | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Carbon | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 6 |
| Centre | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chester | 0 | 1 | 1 | 0 | 2 | 2 | 2 | 0 | 2 | 1 | 0 | 2 | 13 |
| Clarion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 3 |
| Clearfield | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 6 |
| Clinton | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Columbia | 0 | 0 | 0 | 0 | 13 | 2 | 1 | 1 | 8 | 0 | 0 | 1 | 26 |
| Crawford | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cumberland | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| Dauphin | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 8 |
| Delaware | 0 | 2 | 0 | 1 | 6 | 2 | 0 | 0 | 4 | 0 | 0 | 1 | 16 |
| Elk | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 5 |
| Erie | 1 | 4 | 1 | 0 | 4 | 0 | 0 | 1 | 3 | 0 | 4 | 5 | 23 |
| Fayette | 1 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 9 |

| | | | | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Forest | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Franklin | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 3 | 11 |
| Fulton | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Greene | NA |
| Huntingdon | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 1 | 7 |
| Indiana | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| Jefferson | NA |
| Juniata | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Lackawanna | 0 | 1 | 0 | 0 | 1 | 0 | 5 | 0 | 4 | 0 | 0 | 3 | 14 |
| Lancaster | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 9 |
| Lawrence | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Lebanon | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 7 |
| Lehigh | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Luzerne | 1 | 2 | 0 | 2 | 6 | 1 | 1 | 0 | 1 | 0 | 1 | 3 | 18 |
| Lycoming | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| McKean | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 7 |
| Mercer | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 6 |
| Mifflin | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Monroe | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 6 |
| Montgomery | 1 | 1 | 0 | 0 | 3 | 2 | 0 | 1 | 4 | 1 | 0 | 1 | 14 |
| Montour | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Northampton | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 5 |
| Northumberland | 0 | 1 | 0 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 8 |
| Perry | 0 | 1 | 0 | 0 | 2 | 2 | 1 | 0 | 2 | 0 | 0 | 1 | 9 |
| Philadelphia | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| Pike | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 6 |
| Potter | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| Schuylkill | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 6 |
| Snyder | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 7 |
| Somerset | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Sullivan | NA |
| Susquehanna | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 5 |
| Tioga | NA |
| Union | 1 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 8 |
| Venango | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Warren | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 9 |
| Washington | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| Wayne | NA |

| | | | | | | | | | | | | | |
|-------------------|------------|-------------|------------|------------|-------------|------------|------------|------------|-------------|------------|------------|-------------|------------|
| Westmoreland | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 7 |
| Wyoming | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| York | 0 | 2 | 1 | 1 | 3 | 1 | 1 | 6 | 3 | 0 | 0 | 6 | 24 |
| TOTAL | 10 | 48 | 10 | 9 | 84 | 27 | 28 | 13 | 123 | 10 | 27 | 60 | 449 |
| % OF TOTAL | 2.2 | 10.7 | 2.2 | 2.0 | 18.7 | 6.0 | 6.2 | 2.9 | 27.4 | 2.2 | 6.0 | 13.4 | |

Figure 14: Concern for Temporary Suspension of Collection Services in Municipalities

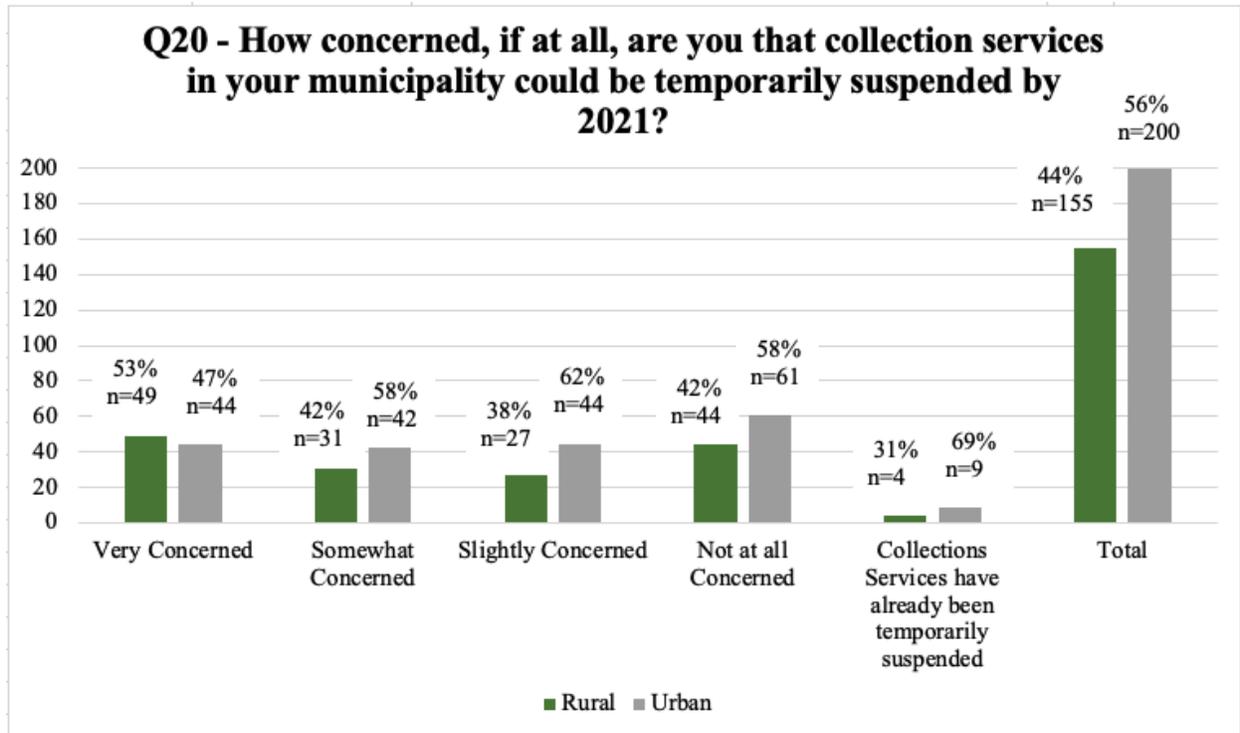


Table 25: Concern for Temporary Suspension of Collection Services Aggregated by County

| County | Very Concerned | Somewhat Concerned | Slightly Concerned | Not at all Concerned | Temporarily Suspended | Total |
|-----------|----------------|--------------------|--------------------|----------------------|-----------------------|-------|
| Adams | 2 | 4 | 1 | 7 | 0 | 14 |
| Allegheny | 7 | 1 | 4 | 7 | 2 | 21 |
| Armstrong | 2 | 0 | 0 | 0 | 0 | 2 |
| Beaver | 5 | 2 | 3 | 2 | 0 | 12 |
| Bedford | 1 | 2 | 0 | 0 | 0 | 3 |
| Berks | 4 | 2 | 1 | 3 | 0 | 10 |
| Blair | 0 | 1 | 0 | 0 | 0 | 1 |
| Bradford | 0 | 0 | 0 | 1 | 0 | 1 |
| Bucks | 3 | 3 | 2 | 2 | 0 | 10 |

| | | | | | | |
|-------------|----|----|----|----|----|----|
| Butler | 1 | 7 | 1 | 2 | 0 | 11 |
| Cambria | 3 | 2 | 0 | 1 | 0 | 6 |
| Cameron | 0 | 0 | 0 | 2 | 0 | 2 |
| Carbon | 1 | 0 | 1 | 2 | 0 | 4 |
| Centre | 0 | 0 | 0 | 2 | 0 | 2 |
| Chester | 3 | 2 | 6 | 4 | 0 | 15 |
| Clarion | 0 | 1 | 0 | 0 | 0 | 1 |
| Clearfield | 0 | 1 | 0 | 1 | 0 | 2 |
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 1 | 0 | 2 | 2 | 0 | 4 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 2 | 1 | 0 | 1 | 0 | 4 |
| Dauphin | 1 | 1 | 1 | 1 | 1 | 5 |
| Delaware | 4 | 3 | 2 | 1 | 0 | 10 |
| Elk | 1 | 1 | 1 | 0 | 0 | 3 |
| Erie | 1 | 2 | 2 | 4 | 0 | 9 |
| Fayette | 2 | 2 | 2 | 0 | 0 | 6 |
| Forest | 1 | 0 | 0 | 0 | 0 | 1 |
| Franklin | 2 | 1 | 3 | 2 | 0 | 8 |
| Fulton | 1 | 1 | 0 | 1 | 0 | 3 |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 2 | 1 | 0 | 3 | 0 | 6 |
| Indiana | 0 | 1 | 0 | 0 | 0 | 1 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | 0 | 0 | 0 | 1 | 0 | 1 |
| Lackawanna | 2 | 2 | 3 | 1 | 3 | 11 |
| Lancaster | 1 | 2 | 3 | 3 | 0 | 9 |
| Lawrence | 1 | 1 | 2 | 0 | 0 | 4 |
| Lebanon | 0 | 0 | 1 | 2 | 0 | 3 |
| Lehigh | 1 | 1 | 0 | 0 | 0 | 2 |
| Luzerne | 6 | 4 | 2 | 6 | 1 | 19 |
| Lycoming | 0 | 0 | 0 | 1 | 3 | 4 |
| McKean | 0 | 0 | 0 | 1 | 0 | 1 |
| Mercer | 3 | 0 | 1 | 1 | 0 | 5 |
| Mifflin | 0 | 0 | 1 | 2 | 0 | 3 |
| Monroe | 3 | 0 | 0 | 1 | 0 | 4 |
| Montgomery | 1 | 2 | 3 | 6 | 0 | 12 |
| Montour | 0 | 0 | 0 | 0 | 1 | 1 |
| Northampton | 7 | 2 | 2 | 1 | 0 | 12 |

| | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|-------------|--------------|
| Northumberland | 0 | 0 | 2 | 1 | 0 | 3 |
| Perry | 2 | 1 | 1 | 2 | 0 | 6 |
| Philadelphia | 0 | 0 | 1 | 0 | 0 | 1 |
| Pike | 0 | 0 | 1 | 0 | 0 | 1 |
| Potter | 1 | 0 | 2 | 2 | 0 | 5 |
| Schuylkill | 2 | 1 | 2 | 4 | 0 | 9 |
| Snyder | 1 | 2 | 1 | 1 | 0 | 5 |
| Somerset | NA | NA | NA | NA | NA | NA |
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 3 | 0 | 1 | 0 | 0 | 4 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 1 | 1 | 1 | 2 | 0 | 5 |
| Venango | 1 | 0 | 0 | 0 | 0 | 1 |
| Warren | 1 | 3 | 1 | 2 | 0 | 7 |
| Washington | 1 | 1 | 1 | 2 | 0 | 5 |
| Wayne | 1 | 0 | 0 | 0 | 0 | 1 |
| Westmoreland | 0 | 2 | 2 | 2 | 0 | 6 |
| Wyoming | 0 | 0 | 2 | 1 | 1 | 4 |
| York | 4 | 6 | 3 | 9 | 1 | 23 |
| TOTAL | 93 | 73 | 71 | 105 | 13 | 355 |
| % OF TOTAL | 26.20 | 20.56 | 20.00 | 29.58 | 3.66 | 26.20 |

Figure 15: Concern for Permanent Loss of Collection Services in Municipalities

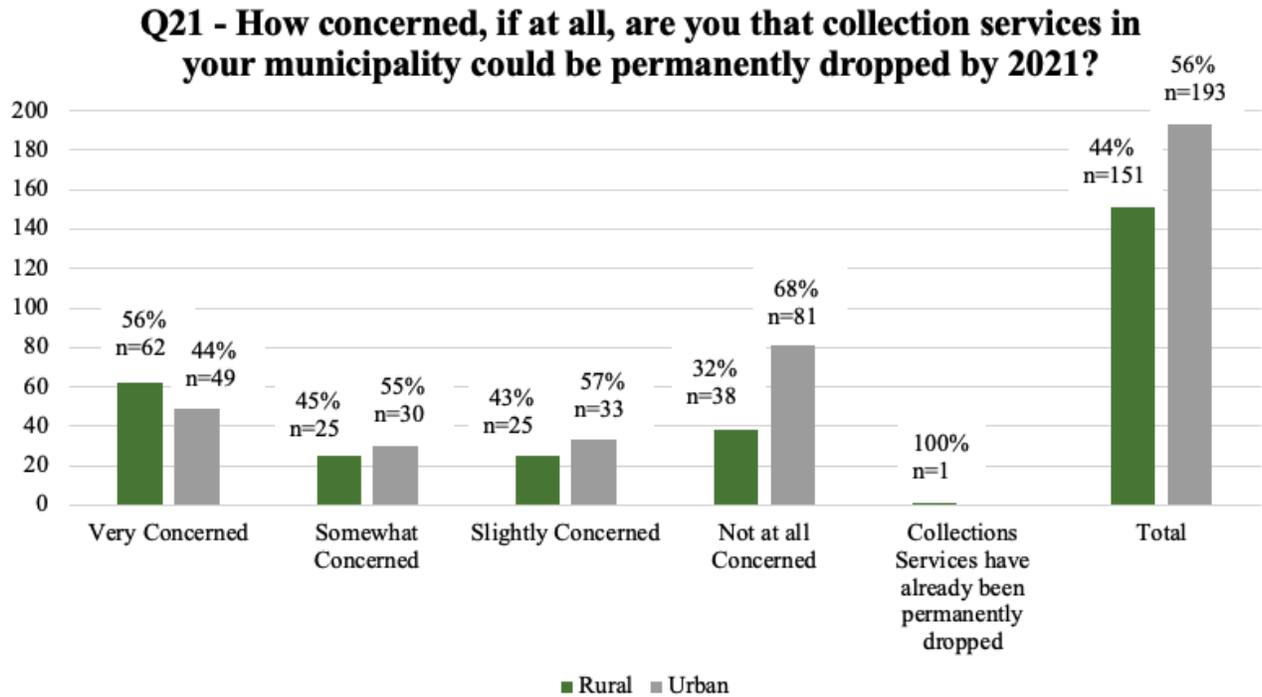


Table 26: Concern for Permanent Loss of Collection Services Aggregated by County

| County | Very Concerned | Somewhat Concerned | Slightly Concerned | Not at all Concerned | Permanently Dropped | Total |
|------------|----------------|--------------------|--------------------|----------------------|---------------------|-------|
| Adams | 3 | 5 | 2 | 4 | 0 | 14 |
| Allegheny | 7 | 3 | 3 | 8 | 0 | 21 |
| Armstrong | 2 | 0 | 0 | 0 | 0 | 2 |
| Beaver | 6 | 2 | 2 | 2 | 0 | 12 |
| Bedford | 3 | 0 | 0 | 0 | 0 | 3 |
| Berks | 3 | 1 | 0 | 5 | 0 | 9 |
| Blair | 0 | 1 | 0 | 0 | 0 | 1 |
| Bradford | 0 | 0 | 0 | 1 | 0 | 1 |
| Bucks | 4 | 1 | 2 | 2 | 0 | 9 |
| Butler | 2 | 6 | 1 | 2 | 0 | 11 |
| Cambria | 4 | 1 | 0 | 1 | 0 | 6 |
| Cameron | 0 | 0 | 0 | 1 | 0 | 1 |
| Carbon | 1 | 0 | 2 | 1 | 0 | 4 |
| Centre | 0 | 0 | 0 | 2 | 0 | 2 |
| Chester | 3 | 5 | 2 | 4 | 0 | 14 |
| Clarion | 0 | 1 | 0 | 0 | 0 | 1 |
| Clearfield | 0 | 1 | 0 | 1 | 0 | 2 |

| | | | | | | |
|----------------|----|----|----|----|----|----|
| Clinton | NA | NA | NA | NA | NA | NA |
| Columbia | 0 | 1 | 0 | 3 | 0 | 4 |
| Crawford | NA | NA | NA | NA | NA | NA |
| Cumberland | 2 | 0 | 1 | 1 | 0 | 4 |
| Dauphin | 1 | 1 | 1 | 1 | 1 | 5 |
| Delaware | 3 | 2 | 1 | 3 | 0 | 9 |
| Elk | 2 | 0 | 1 | 0 | 0 | 3 |
| Erie | 1 | 2 | 2 | 4 | 0 | 9 |
| Fayette | 3 | 1 | 2 | 0 | 0 | 6 |
| Forest | 1 | 0 | 0 | 0 | 0 | 1 |
| Franklin | 2 | 1 | 4 | 1 | 0 | 8 |
| Fulton | 1 | 1 | 0 | 0 | 0 | 2 |
| Greene | NA | NA | NA | NA | NA | NA |
| Huntingdon | 2 | 0 | 1 | 3 | 0 | 6 |
| Indiana | 0 | 1 | 0 | 0 | 0 | 1 |
| Jefferson | NA | NA | NA | NA | NA | NA |
| Juniata | 0 | 0 | 0 | 1 | 0 | 1 |
| Lackawanna | 4 | 2 | 2 | 3 | 0 | 11 |
| Lancaster | 2 | 0 | 4 | 3 | 0 | 9 |
| Lawrence | 1 | 1 | 1 | 1 | 0 | 4 |
| Lebanon | 0 | 0 | 0 | 3 | 0 | 3 |
| Lehigh | 1 | 0 | 1 | 0 | 0 | 2 |
| Luzerne | 8 | 2 | 4 | 5 | 0 | 19 |
| Lycoming | 0 | 0 | 0 | 4 | 0 | 4 |
| McKean | 0 | 0 | 0 | 1 | 0 | 1 |
| Mercer | 3 | 0 | 0 | 1 | 0 | 4 |
| Mifflin | 0 | 0 | 0 | 2 | 0 | 2 |
| Monroe | 3 | 0 | 0 | 1 | 0 | 4 |
| Montgomery | 2 | 1 | 2 | 7 | 0 | 12 |
| Montour | 0 | 1 | 0 | 0 | 0 | 1 |
| Northampton | 8 | 1 | 1 | 2 | 0 | 12 |
| Northumberland | 0 | 0 | 2 | 1 | 0 | 3 |
| Perry | 3 | 0 | 1 | 2 | 0 | 6 |
| Philadelphia | 0 | 0 | 0 | 1 | 0 | 1 |
| Pike | 0 | 0 | 0 | 1 | 0 | 1 |
| Potter | 1 | 0 | 0 | 4 | 0 | 5 |
| Schuylkill | 2 | 1 | 2 | 4 | 0 | 9 |
| Snyder | 1 | 2 | 1 | 1 | 0 | 5 |
| Somerset | NA | NA | NA | NA | NA | NA |

| | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|-------------|------------|
| Sullivan | NA | NA | NA | NA | NA | NA |
| Susquehanna | 2 | 1 | 0 | 1 | 0 | 4 |
| Tioga | NA | NA | NA | NA | NA | NA |
| Union | 2 | 1 | 1 | 2 | 0 | 6 |
| Venango | 1 | 0 | 0 | 0 | 0 | 1 |
| Warren | 2 | 2 | 1 | 1 | 0 | 6 |
| Washington | 1 | 0 | 1 | 3 | 0 | 5 |
| Wayne | 1 | 0 | 0 | 0 | 0 | 1 |
| Westmoreland | 1 | 0 | 3 | 2 | 0 | 6 |
| Wyoming | 0 | 1 | 2 | 1 | 0 | 4 |
| York | 6 | 2 | 2 | 11 | 0 | 21 |
| TOTAL | 111 | 55 | 58 | 119 | 1 | 344 |
| % OF TOTAL | 32.27 | 15.99 | 16.86 | 34.59 | 0.29 | |

Table 27: Description of Solutions to Make Collection Services More Accessible to Municipal Residents Related to National Sword Policy

| Municipality | County | Type | Response |
|-------------------------|---------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blawnox Borough | Allegheny | Urban | We need to do glass collection events, this would resolve the issue of contaminating the rest of our recycling. |
| Crafton Borough | Allegheny | Urban | A glass recycling drop-off. |
| Findlay Township | Allegheny | Urban | Find a viable solution for glass - our residents MAY participate in a drop off event but not as much as they would if they could go back to using curbside. After that, more drop off events for free or reducing costs more - paying to get rid of an old appliance or tires incites throwing them on the side of the road (cost prohibitive). |
| Scott Township | Allegheny | Urban | Changes in the requirements for residents to recycle. The changes that have happened in the past makes it more difficult for a resident to recycle. |
| Upper St Clair Township | Allegheny | Urban | Unfortunately recycling is largely a losing game right now, about 4 to 5 times more costly than throwing in the garbage and in some if not many cases, far more expensive to actually "recycle" than to produce from virgin material. I can no longer get in front of a group and extol the virtues of recycling at least in its current state! Solution might be more "bottle" return legislation and encourage use of more paper (v. plastic), which is at least biodegradable. |
| West Deer Township | Allegheny | Urban | Having a place to take what is collected. |
| Monaca Borough | Beaver | Urban | Stronger Federal mandates for companies that manufacture this products to responsible to help fund their |

| | | | |
|------------------------|------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | reuse. We need more companies in the use to utilize our recyclables and companies that do this can be Federally subsidized. |
| Patterson Township | Beaver | Urban | additional collection sites. |
| Muddy Creek Township | Butler | Rural | Simplify. Glass Collection, newspaper/paper collection, plastic collection. Set up locations for the collection. |
| Saxonburg Borough | Butler | Urban | Mandates to the haulers that all customers be provided facilities to recycle, such as glass bottles from restaurants with bars, recycle dumpsters for apartments. |
| Lower Yoder Township | Cambria | Urban | Being able to get rid of TV's and Computers and Paint cans |
| Lehigh Township | Carbon | Rural | The need for recycling facilities to take our recyclables |
| Lehighton Borough | Carbon | Urban | ...Our only issue is the electronics as no one wants to pay to get rid of old TV's and things. The townships surrounding us are having issues as some of them have drop-off locations that people are dumping electronics that there is a fee for and just garbage in general at the drop-off sites. Their residents contract individually with a hauler of their choice making it more difficult for them. |
| Clarion Borough | Clarion | Urban | Clarion Borough has a population around 5,200 people. We have a 95% compliance rate with our Borough residents in recycling. If we could find a local facility to accept the commercial glass quantities, then we could have the same for commercial properties within the Borough. We collected nearly 2,500 tons of recycling and yard waste in the last 2 years. We at the Borough Offices feel that we are doing everything possible for our Borough residents. |
| Benton Borough | Columbia | Rural | A central location of collection. |
| Penn Township | Cumberland | Rural | Less dependence on foreign processors |
| Middle Paxton Township | Dauphin | Rural | A service that collects everything; items that contain freon, electronics and somewhere to dispose batteries. Only rechargeable batteries are recycled. |
| Haverford Township | Delaware | Urban | Improve market conditions |
| Lansdowne Borough | Delaware | Urban | Bringing financial value to the consumer. Apply a cost to produce the waste and create value on the disposal end. Both outcomes would be a reduction in volume. |
| Edinboro Borough | Erie | Urban | I WOULD LIKE TO SEE THE FEDERAL GOVERNMENT MANDATE THAT PRODUCERS OF GOODS WOULD BE REQUIRED TO RECYCLE THE ITEMS THEY PRODUCE. |
| Summit Township | Erie | Urban | ...Another solution for our throw-away society is to develop some kind of container besides plastic that is more recyclable. |

| | | | |
|------------------------|------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dunbar Borough | Fayette | Urban | ...I would like to see our county bring in industries who can remanufacture the materials that are recycled. |
| Tionesta Borough | Forest | Rural | Electronic recycling is a reoccurring problem. We are very limited by the number of companies that accept these items, and the cost is substantial so we only have an event every few years to collect electronic waste. Incentivizing companies to accept these types of waste would be helpful. |
| Walker Township | Huntingdon | Rural | I don't believe we have any solutions, but the State could help if they were to fund the recycling efforts through the haulers so that it made it more cost effective for them to do it. It's almost impossible to find a place that takes electronics because the State mandated it and funded it for a few years, then backed out, now its still mandated, but there is no money to be made collecting the stuff, so no one wants to do it. |
| Elmhurst Township | Lackawanna | Rural | Reopening of recycling center. Manufacturers who use plastic to hold their products should come up with a matter of recycling their containers. |
| Laplume Township | Lackawanna | Rural | Find a substitute for plastic. (and that's doable). Recycling isn't paying anyone now. Other countries don't want our junk. Overwhelm citizens w/ sensible behavior concerning garbage. Remember the Litter effort, to get folks to stop littering roadsides? Give us glass containers again. Best idea. Develop a replacement for plastics. I dare you! |
| Roaring Brook Township | Lackawanna | Rural | Grants and funding from commonwealth. Stop prioritizing funds going to new programs rewarding them for doing nothing till now. We are in our 30th year. Solve the crisis of electronics disposal before we are buried by dumping. |
| Mount Joy Borough | Lancaster | Urban | Develop markets for recyclables. |
| Hempfield Township | Mercer | Rural | domestic market for recyclables. |
| Lower Merion Township | Montgomery | Urban | Recycling markets |
| Penn Township | Perry | Rural | More ways developed to use recycled materials and businesses willing to do so. |
| Rye Township | Perry | Rural | Increase domestic markets so vendors have a place to take the recyclables so we could receive decent cost effective bids. Provide some incentive to the vendors to recycle. It used to be profitable, however minimal that profit was, to recycle. It no longer is. |
| Dingman Township | Pike | Rural | State should start a program to collect hazardous waste and cfl bulbs. It's too much cost and liability for small municipalities. State could send collection vehicles for |

| | | | |
|-------------------|------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | one Saturday in each county every year and give residents a means of disposing these materials. |
| Pottsville City | Schuylkill | Urban | the state needs to create viable options to dispose of electronics |
| Goldsboro Borough | York | Urban | Develop the current recycling facilities to process more materials locally. |
| Windsor Borough | York | Urban | If the county would offer electronic, household waste and yard waste recycling bins closer to our Municipality. Residents have to drive about 30 minutes to get to the closest recycling plant. People dump these things in the woods because they don't want to drive 30 minutes to drop off an old tv, etc. |
| Windsor Township | York | Urban | Encourage and provide incentives to companies within the United States to develop ways to use recycled materials in their manufacturing process. |

Figure 16: Anticipating Changes to Recycling Programs in Municipalities

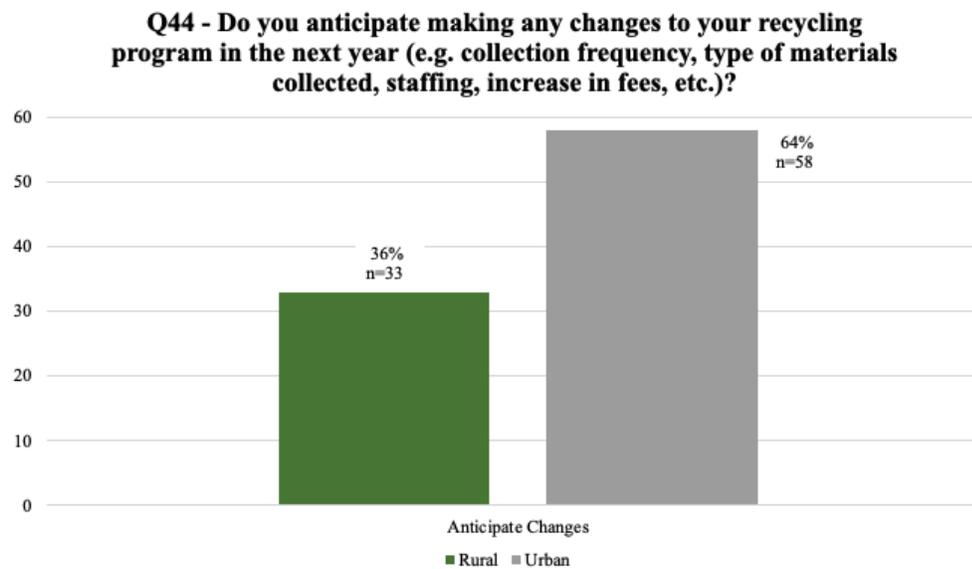


Table 28: Anticipating Changes to Recycling Programs Aggregated by County

| County | Type | Anticipate Changes | % of Total |
|-----------|-------|--------------------|------------|
| Adams | Rural | 2 | 2.20 |
| Allegheny | Urban | 8 | 8.79 |
| Armstrong | Rural | 1 | 1.10 |
| Beaver | Urban | 4 | 4.40 |
| Bedford | Rural | 0 | 0 |
| Berks | Urban | 1 | 1.10 |
| Blair | Rural | NA | NA |
| Bradford | Rural | 1 | 1.10 |

| | | | |
|------------|-------|----|------|
| Bucks | Urban | 3 | 3.30 |
| Butler | Rural | 0 | 0 |
| Cambria | Rural | 1 | 1.10 |
| Cameron | Rural | 0 | 0 |
| Carbon | Rural | 1 | 1.10 |
| Centre | Rural | 0 | 0 |
| Chester | Urban | 1 | 1.10 |
| Clarion | Rural | 0 | 0 |
| Clearfield | Rural | 2 | 2.20 |
| Clinton | Rural | NA | NA |
| Columbia | Rural | 6 | 6.59 |
| Crawford | Rural | NA | NA |
| Cumberland | Urban | 2 | 2.20 |
| Dauphin | Urban | 1 | 1.10 |
| Delaware | Urban | 4 | 4.40 |
| Elk | Rural | 2 | 2.20 |
| Erie | Urban | 3 | 3.30 |
| Fayette | Rural | 2 | 2.20 |
| Forest | Rural | 0 | 0 |
| Franklin | Rural | 3 | 3.30 |
| Fulton | Rural | 0 | 0 |
| Greene | Rural | NA | NA |
| Huntingdon | Rural | 0 | 0 |
| Indiana | Rural | 2 | 2.20 |
| Jefferson | Rural | NA | NA |
| Juniata | Rural | 0 | 0 |
| Lackawanna | Urban | 2 | 2.20 |
| Lancaster | Urban | 2 | 2.20 |
| Lawrence | Rural | 0 | 0 |
| Lebanon | Urban | 2 | 2.20 |
| Lehigh | Urban | 1 | 1.10 |
| Luzerne | Urban | 2 | 2.20 |
| Lycoming | Rural | 4 | 4.40 |
| McKean | Rural | 0 | 0 |
| Mercer | Rural | 2 | 2.20 |
| Mifflin | Rural | 0 | 0 |
| Monroe | Rural | 2 | 2.20 |
| Montgomery | Urban | 2 | 2.20 |
| Montour | Rural | 0 | 0 |

| | | | |
|----------------|-------|-----------|------|
| Northampton | Urban | 3 | 3.30 |
| Northumberland | Rural | 3 | 3.30 |
| Perry | Rural | 2 | 2.20 |
| Philadelphia | Urban | 1 | 1.10 |
| Pike | Rural | 0 | 0 |
| Potter | Rural | 1 | 1.10 |
| Schuylkill | Rural | 0 | 0 |
| Snyder | Rural | 1 | 1.10 |
| Somerset | Rural | 0 | 0 |
| Sullivan | Rural | NA | NA |
| Susquehanna | Rural | 1 | 1.10 |
| Tioga | Rural | NA | NA |
| Union | Rural | 1 | 1.10 |
| Venango | Rural | 0 | 0 |
| Warren | Rural | 0 | 0 |
| Washington | Rural | 2 | 2.20 |
| Wayne | Rural | NA | NA |
| Westmoreland | Urban | 1 | 1.10 |
| Wyoming | Rural | 2 | 2.20 |
| York | Urban | 4 | 4.40 |
| TOTAL | | 91 | |

Figure 17: Description of Anticipated Changes to Recycling Programs by Municipality

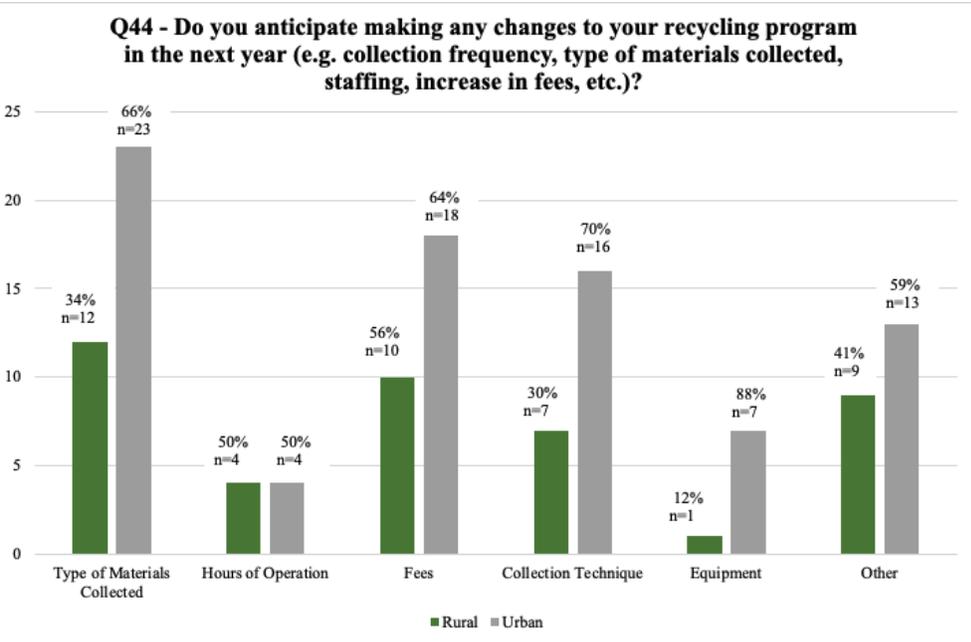


Table 29: Description of Anticipated Changes to Recycling Programs Aggregated by County

| County | Materials Collected | Hours of Operation | Fees | Collection Technique | Equipment | Other | Total |
|----------------|---------------------|--------------------|------|----------------------|-----------|-------|-------|
| Adams | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| Allegheny | 7 | 0 | 0 | 2 | 0 | 1 | 10 |
| Armstrong | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Beaver | 1 | 0 | 2 | 2 | 0 | 0 | 5 |
| Berks | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Bradford | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Bucks | 1 | 0 | 1 | 1 | 0 | 1 | 4 |
| Cambria | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Carbon | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Chester | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Clearfield | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| Columbia | 1 | 0 | 5 | 0 | 0 | 1 | 7 |
| Cumberland | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| Dauphin | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Delaware | 0 | 1 | 3 | 1 | 0 | 0 | 5 |
| Elk | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| Erie | 2 | 0 | 1 | 1 | 1 | 1 | 6 |
| Fayette | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| Franklin | 1 | 0 | 0 | 0 | 0 | 2 | 3 |
| Indiana | 1 | 1 | 1 | 1 | 0 | 0 | 4 |
| Lackawanna | 1 | 1 | 0 | 0 | 0 | 1 | 3 |
| Lancaster | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Lebanon | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| Lehigh | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Luzerne | 2 | 0 | 0 | 1 | 0 | 0 | 3 |
| Lycoming | 3 | 0 | 0 | 3 | 1 | 1 | 8 |
| Mercer | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| Monroe | 0 | 0 | 0 | 1 | 2 | 1 | 4 |
| Montgomery | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Northampton | 2 | 0 | 1 | 2 | 1 | 0 | 6 |
| Northumberland | 1 | 1 | 1 | 1 | 0 | 2 | 6 |
| Perry | 2 | 0 | 1 | 0 | 0 | 0 | 3 |
| Philadelphia | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| Potter | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Snyder | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| | | | | | | | |
|-------------------|--------------|-------------|--------------|--------------|-------------|--------------|------------|
| Susquehanna | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| Union | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Washington | 2 | 0 | 0 | 1 | 0 | 0 | 3 |
| Westmoreland | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| Wyoming | 0 | 1 | 0 | 0 | 0 | 1 | 2 |
| York | 1 | 0 | 1 | 0 | 0 | 2 | 4 |
| TOTAL | 35 | 8 | 28 | 23 | 8 | 22 | 124 |
| % OF TOTAL | 28.23 | 6.45 | 22.58 | 18.55 | 6.45 | 17.74 | |

Figure 18: COVID-19 Related Impacts on Collection Services in Municipalities

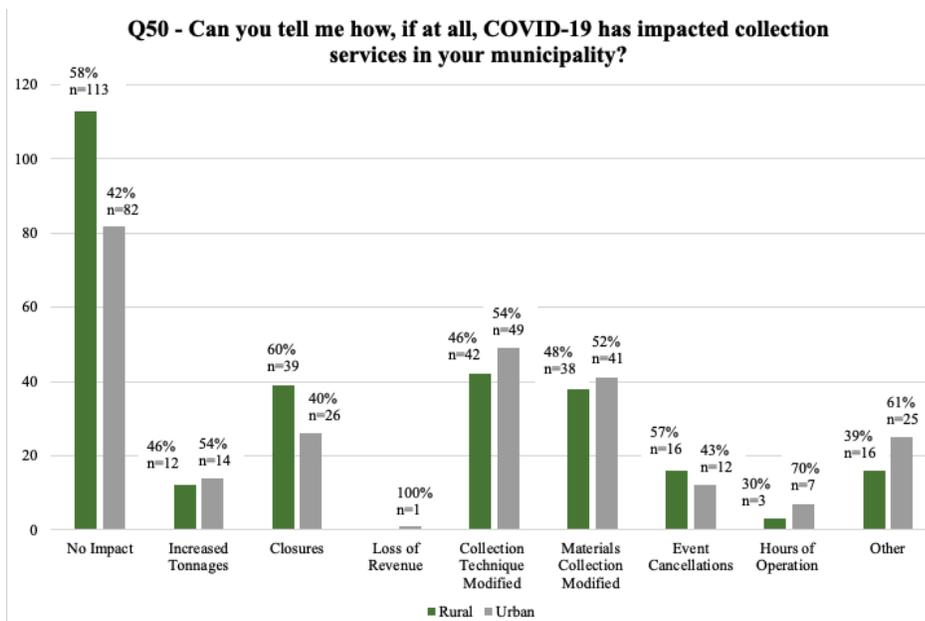


Table 30: COVID-19 Related Impacts on Collection Services Aggregated by County

| County | NI | IT | C | LOR | CTM | MCM | EC | HOO | O | Total |
|-----------|----|----|----|-----|-----|-----|----|-----|----|-------|
| Adams | 4 | 0 | 0 | 0 | 5 | 5 | 5 | 0 | 1 | 20 |
| Allegheny | 4 | 0 | 1 | 0 | 10 | 8 | 3 | 1 | 3 | 30 |
| Armstrong | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Beaver | 5 | 1 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 12 |
| Bedford | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 |
| Berks | 3 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 2 | 10 |
| Blair | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Bradford | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 3 |
| Bucks | 6 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 10 |
| Butler | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 |

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| Cambria | 6 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 9 |
| Cameron | NA |
| Carbon | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Centre | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 |
| Chester | 5 | 2 | 0 | 0 | 2 | 2 | 1 | 0 | 5 | 17 |
| Clarion | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Clearfield | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Clinton | NA |
| Columbia | 5 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 11 |
| Crawford | NA |
| Cumberland | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5 |
| Dauphin | 2 | 0 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 9 |
| Delaware | 7 | 2 | 0 | 0 | 4 | 3 | 1 | 0 | 1 | 18 |
| Elk | 1 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 5 |
| Erie | 7 | 0 | 0 | 0 | 5 | 5 | 2 | 0 | 2 | 21 |
| Fayette | 4 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 11 |
| Forest | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Franklin | 2 | 1 | 1 | 0 | 3 | 2 | 2 | 0 | 1 | 12 |
| Fulton | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 |
| Greene | NA |
| Huntingdon | 8 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| Indiana | 1 | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 0 | 7 |
| Jefferson | NA |
| Juniata | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Lackawanna | 3 | 0 | 3 | 0 | 6 | 4 | 1 | 0 | 3 | 20 |
| Lancaster | 5 | 1 | 0 | 0 | 2 | 2 | 1 | 0 | 4 | 15 |
| Lawrence | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Lebanon | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Lehigh | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Luzerne | 8 | 0 | 6 | 0 | 2 | 3 | 1 | 0 | 3 | 23 |
| Lycoming | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| McKean | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Mercer | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Mifflin | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Monroe | 1 | 0 | 1 | 0 | 2 | 2 | 0 | 1 | 0 | 7 |
| Montgomery | 4 | 3 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 12 |
| Montour | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| Northampton | 6 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 1 | 13 |
| Northumberland | 0 | 0 | 6 | 0 | 2 | 1 | 0 | 0 | 0 | 9 |

| | | | | | | | | | | |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|
| Perry | 4 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 8 |
| Philadelphia | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 5 |
| Pike | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 8 |
| Potter | 1 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 1 | 8 |
| Schuylkill | 7 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 9 |
| Snyder | 0 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 0 | 9 |
| Somerset | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Sullivan | NA | NA | NA |
| Susquehanna | 5 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 1 | 12 |
| Tioga | NA | NA | NA |
| Union | 0 | 0 | 7 | 0 | 4 | 4 | 0 | 1 | 0 | 16 |
| Venango | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Warren | 4 | 2 | 0 | 0 | 3 | 2 | 0 | 0 | 1 | 12 |
| Washington | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 6 |
| Wayne | NA | NA | NA |
| Westmoreland | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 5 |
| Wyoming | 1 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 6 |
| York | 5 | 1 | 2 | 0 | 9 | 9 | 1 | 0 | 2 | 29 |
| TOTAL | 195 | 26 | 65 | 1 | 91 | 79 | 28 | 10 | 41 | 536 |
| % OF TOTAL | 36.4 | 4.85 | 12.1 | 0.19 | 16.9 | 14.7 | 5.22 | 1.87 | 7.7 | 36.4 |

Figure 19: Recyclable Paper Products Collected Curbside in Municipalities

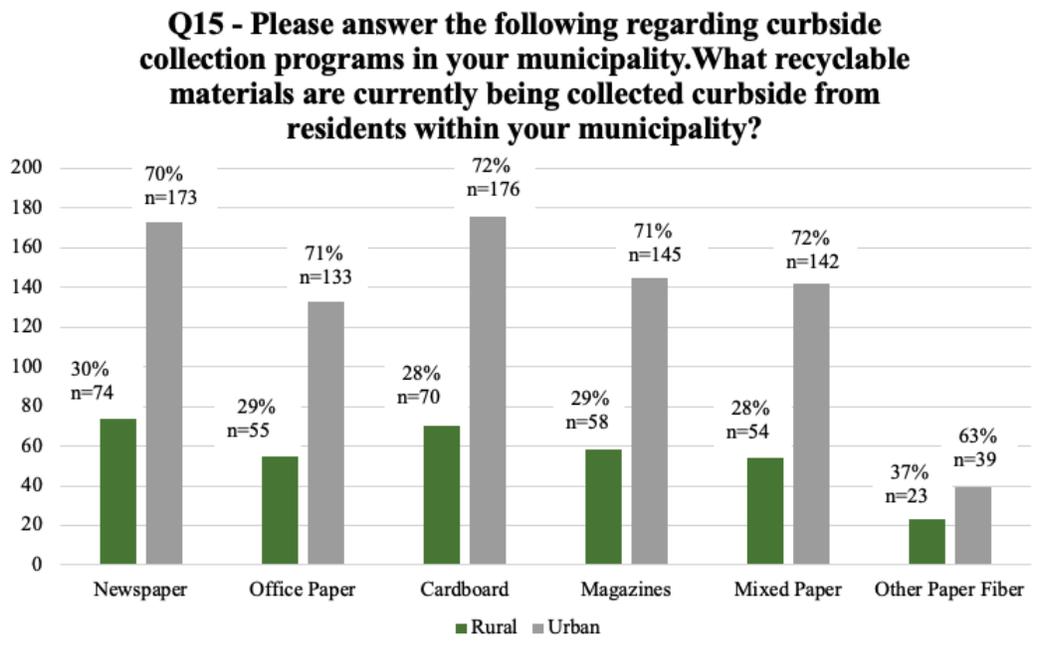


Table 31: Recyclable Paper Products Collected Curbside Aggregated by County

| County | Newspaper | Office Paper | Cardboard | Magazines | Mixed Paper | Other Paper Fiber | Total |
|------------|-----------|--------------|-----------|-----------|-------------|-------------------|-------|
| Adams | 12 | 11 | 11 | 11 | 10 | 5 | 60 |
| Allegheny | 15 | 10 | 15 | 15 | 12 | 3 | 70 |
| Beaver | 4 | 3 | 4 | 5 | 5 | 3 | 24 |
| Berks | 10 | 9 | 10 | 9 | 9 | 4 | 51 |
| Bradford | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| Bucks | 9 | 9 | 8 | 7 | 7 | 1 | 41 |
| Butler | 9 | 9 | 10 | 8 | 8 | 1 | 45 |
| Cambria | 3 | 0 | 3 | 0 | 0 | 0 | 6 |
| Carbon | 4 | 4 | 4 | 4 | 3 | 0 | 19 |
| Centre | 12 | 12 | 12 | 12 | 12 | 12 | 72 |
| Chester | 14 | 11 | 14 | 12 | 13 | 2 | 66 |
| Clarion | 1 | 1 | 1 | 0 | 1 | 0 | 4 |
| Clearfield | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Columbia | 5 | 2 | 4 | 3 | 4 | 0 | 18 |
| Cumberland | 4 | 3 | 4 | 3 | 3 | 1 | 18 |
| Dauphin | 4 | 3 | 4 | 3 | 3 | 1 | 18 |
| Delaware | 10 | 11 | 10 | 10 | 10 | 4 | 55 |
| Elk | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Erie | 8 | 7 | 8 | 7 | 6 | 3 | 39 |
| Fayette | 7 | 5 | 4 | 5 | 5 | 0 | 26 |
| Forest | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Franklin | 4 | 2 | 4 | 3 | 3 | 1 | 17 |
| Fulton | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Huntingdon | 4 | 2 | 3 | 2 | 3 | 1 | 15 |
| Indiana | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Juniata | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Lackawanna | 9 | 7 | 9 | 10 | 10 | 1 | 46 |
| Lancaster | 1 | 1 | 10 | 1 | 1 | 0 | 14 |
| Lawrence | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Lebanon | 2 | 0 | 3 | 0 | 0 | 0 | 5 |
| Lehigh | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Luzerne | 13 | 10 | 13 | 10 | 12 | 1 | 59 |
| Lycoming | 4 | 4 | 4 | 4 | 4 | 0 | 20 |
| McKean | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Mercer | 3 | 3 | 3 | 3 | 2 | 0 | 14 |
| Mifflin | 1 | 0 | 0 | 0 | 0 | 0 | 1 |

| | | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|
| Monroe | 3 | 3 | 3 | 3 | 3 | 2 | 17 |
| Montgomery | 12 | 10 | 12 | 11 | 10 | 4 | 59 |
| Montour | 1 | 0 | 0 | 1 | 1 | 0 | 3 |
| Northampton | 10 | 8 | 11 | 10 | 9 | 1 | 49 |
| Perry | 2 | 1 | 2 | 2 | 1 | 1 | 9 |
| Philadelphia | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Pike | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Schuylkill | 5 | 2 | 5 | 4 | 4 | 3 | 23 |
| Snyder | 2 | 2 | 2 | 2 | 1 | 0 | 9 |
| Susquehanna | 2 | 1 | 1 | 0 | 0 | 1 | 5 |
| Union | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Venango | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Washington | 2 | 2 | 2 | 1 | 1 | 0 | 8 |
| Wayne | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| Westmoreland | 3 | 2 | 3 | 3 | 3 | 0 | 14 |
| Wyoming | 1 | 1 | 1 | 1 | 0 | 1 | 5 |
| York | 17 | 7 | 18 | 7 | 8 | 1 | 58 |
| TOTAL | 247 | 188 | 246 | 203 | 196 | 62 | 1142 |
| % OF TOTAL | 21.63 | 16.46 | 21.54 | 17.78 | 17.16 | 5.43 | |

Figure 20: Recyclable Can and Glass Products Collected Curbside in Municipalities

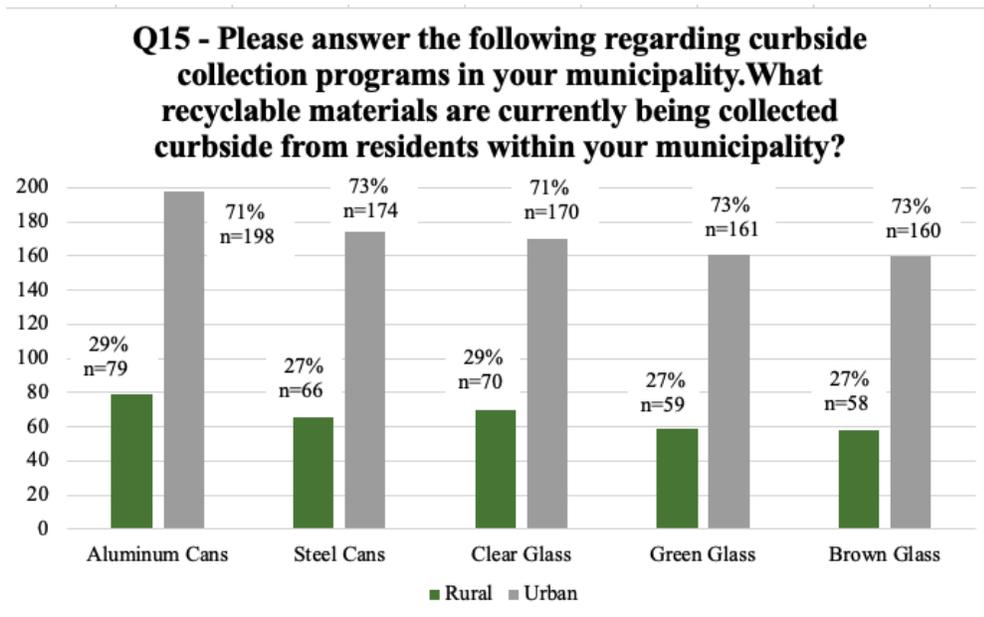


Table 32: Recyclable Can and Glass Products Collected Curbside Aggregated by County

| County | Aluminum Cans | Steel Cans | Clear Glass | Green Glass | Brown Glass | Total |
|---------------|----------------------|-------------------|--------------------|--------------------|--------------------|--------------|
| Adams | 12 | 10 | 9 | 8 | 8 | 47 |
| Allegheny | 19 | 17 | 8 | 6 | 6 | 56 |
| Beaver | 7 | 7 | 3 | 3 | 3 | 23 |
| Berks | 10 | 9 | 10 | 9 | 9 | 47 |
| Bradford | 1 | 1 | 1 | 1 | 1 | 5 |
| Bucks | 9 | 8 | 9 | 9 | 9 | 44 |
| Butler | 10 | 8 | 8 | 5 | 4 | 35 |
| Cambria | 3 | 2 | 2 | 2 | 2 | 11 |
| Carbon | 4 | 3 | 4 | 4 | 4 | 19 |
| Centre | 12 | 12 | 12 | 12 | 12 | 60 |
| Chester | 14 | 11 | 14 | 13 | 12 | 64 |
| Clarion | 1 | 1 | 1 | 1 | 1 | 5 |
| Clearfield | 2 | 2 | 2 | 2 | 2 | 10 |
| Columbia | 5 | 4 | 5 | 5 | 5 | 24 |
| Cumberland | 4 | 4 | 4 | 4 | 4 | 20 |
| Dauphin | 4 | 3 | 3 | 3 | 3 | 16 |
| Delaware | 11 | 10 | 10 | 11 | 11 | 53 |
| Elk | 1 | 0 | 1 | 1 | 1 | 4 |
| Erie | 8 | 6 | 4 | 3 | 3 | 24 |
| Fayette | 8 | 6 | 7 | 7 | 7 | 35 |
| Forest | 1 | 1 | 1 | 0 | 0 | 3 |
| Franklin | 5 | 5 | 2 | 2 | 2 | 16 |
| Fulton | 1 | 1 | 1 | 0 | 0 | 3 |
| Huntingdon | 4 | 1 | 2 | 1 | 1 | 9 |
| Indiana | 1 | 1 | 1 | 1 | 1 | 5 |
| Juniata | 1 | 1 | 1 | 0 | 0 | 3 |
| Lackawanna | 10 | 9 | 10 | 10 | 10 | 49 |
| Lancaster | 10 | 8 | 9 | 8 | 8 | 43 |
| Lawrence | 1 | 1 | 1 | 1 | 1 | 5 |
| Lebanon | 3 | 3 | 3 | 3 | 3 | 15 |
| Lehigh | 1 | 1 | 1 | 1 | 1 | 5 |
| Luzerne | 13 | 10 | 13 | 12 | 12 | 60 |
| Lycoming | 4 | 4 | 4 | 4 | 4 | 20 |
| McKean | 1 | 1 | 1 | 1 | 1 | 5 |
| Mercer | 3 | 3 | 3 | 3 | 3 | 15 |

| | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|--------------|-------------|
| Mifflin | 1 | 1 | 1 | 0 | 1 | 4 |
| Monroe | 3 | 3 | 3 | 3 | 3 | 15 |
| Montgomery | 12 | 11 | 12 | 12 | 12 | 59 |
| Montour | 1 | 1 | 1 | 1 | 1 | 5 |
| Northampton | 12 | 10 | 11 | 11 | 10 | 54 |
| Perry | 2 | 2 | 1 | 1 | 1 | 7 |
| Philadelphia | 1 | 1 | 1 | 1 | 1 | 5 |
| Pike | 1 | 1 | 1 | 1 | 1 | 5 |
| Schuylkill | 5 | 5 | 5 | 5 | 5 | 25 |
| Snyder | 3 | 2 | 3 | 3 | 3 | 14 |
| Susquehanna | 0 | 2 | 2 | 1 | 1 | 6 |
| Union | 1 | 1 | 1 | 0 | 0 | 3 |
| Washington | 2 | 2 | 1 | 1 | 1 | 7 |
| Wayne | 1 | 1 | 1 | 0 | 0 | 3 |
| Westmoreland | 5 | 4 | 3 | 3 | 3 | 18 |
| Wyoming | 1 | 0 | 1 | 0 | 0 | 2 |
| York | 22 | 19 | 22 | 21 | 21 | 105 |
| TOTAL | 277 | 240 | 240 | 220 | 218 | 1195 |
| % OF TOTAL | 23.18 | 20.08 | 20.08 | 18.41 | 18.24 | |

Figure 21: Recyclable Plastic Products Collected Curbside in Municipalities

Q15 - Please answer the following regarding curbside collection programs in your municipality. What recyclable materials are currently being collected curbside from residents within your municipality?

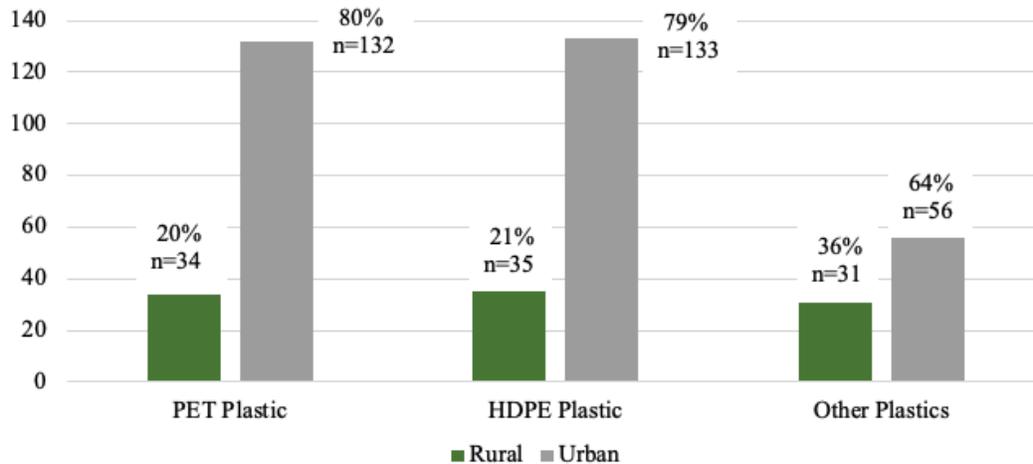


Table 33: Recyclable Plastic Products Collected Curbside Aggregated by County

| County | PET Plastic | HDPE Plastic | Other Plastics | Total |
|---------------|--------------------|---------------------|-----------------------|--------------|
| Adams | 6 | 5 | 2 | 13 |
| Allegheny | 13 | 11 | 1 | 25 |
| Beaver | 6 | 5 | 3 | 14 |
| Berks | 7 | 8 | 5 | 20 |
| Bradford | 1 | 1 | 0 | 2 |
| Bucks | 5 | 5 | 3 | 13 |
| Butler | 6 | 7 | 5 | 18 |
| Cambria | 1 | 1 | 3 | 5 |
| Carbon | 1 | 1 | 2 | 4 |
| Centre | 12 | 12 | 12 | 36 |
| Chester | 7 | 8 | 4 | 19 |
| Clarion | 1 | 1 | 0 | 2 |
| Clearfield | 1 | 1 | 0 | 2 |
| Columbia | 3 | 4 | 2 | 9 |
| Cumberland | 1 | 2 | 0 | 3 |
| Dauphin | 3 | 3 | 0 | 6 |
| Delaware | 9 | 10 | 5 | 24 |
| Erie | 5 | 4 | 1 | 10 |
| Fayette | 3 | 2 | 4 | 9 |
| Forest | 0 | 0 | 1 | 1 |
| Franklin | 2 | 3 | 2 | 7 |
| Fulton | 0 | 0 | 1 | 1 |
| Huntingdon | 2 | 2 | 1 | 5 |
| Indiana | 1 | 1 | 0 | 2 |
| Lackawanna | 6 | 4 | 2 | 12 |
| Lancaster | 2 | 3 | 2 | 7 |
| Lawrence | 1 | 1 | 0 | 2 |
| Lebanon | 2 | 2 | 1 | 5 |
| Lehigh | 1 | 1 | 0 | 2 |
| Luzerne | 6 | 6 | 1 | 13 |
| Lycoming | 4 | 4 | 1 | 9 |
| McKean | 1 | 1 | 1 | 3 |
| Mercer | 1 | 0 | 2 | 3 |
| Mifflin | 1 | 0 | 0 | 1 |
| Monroe | 2 | 2 | 1 | 5 |
| Montgomery | 10 | 10 | 4 | 24 |

| | | | | |
|-------------------|--------------|--------------|--------------|------------|
| Northampton | 7 | 7 | 3 | 17 |
| Perry | 2 | 2 | 0 | 4 |
| Philadelphia | 1 | 1 | 1 | 3 |
| Pike | 1 | 1 | 1 | 3 |
| Schuylkill | 4 | 4 | 2 | 10 |
| Snyder | 1 | 2 | 1 | 4 |
| Susquehanna | 0 | 0 | 0 | 0 |
| Washington | 2 | 2 | 0 | 4 |
| Wayne | 0 | 1 | 0 | 1 |
| Westmoreland | 3 | 3 | 0 | 6 |
| Wyoming | 0 | 0 | 1 | 1 |
| York | 12 | 14 | 6 | 32 |
| TOTAL | 166 | 168 | 87 | 421 |
| % OF TOTAL | 39.43 | 39.90 | 20.67 | |

Figure 22: Other Recyclable Products Collected Curbside in Municipalities

Q15 - Please answer the following regarding curbside collection programs in your municipality. What recyclable materials are currently being collected curbside from residents within your municipality?

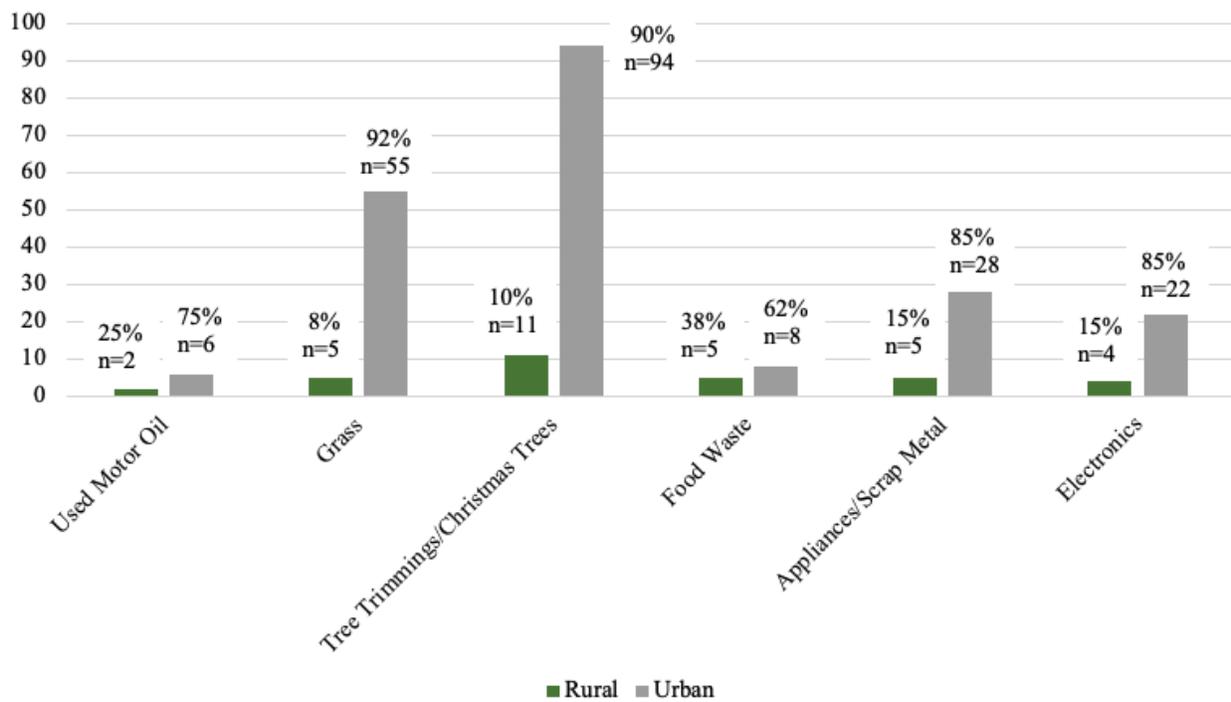


Table 34: Other Recyclable Products Collected Curbside Aggregated by County

| County | Used Motor Oil | Grass | Tree Trimmings | Food Waste | Appliances | Electronics | Total |
|-------------|----------------|-------|----------------|------------|------------|-------------|-------|
| Adams | 0 | 2 | 5 | 0 | 3 | 3 | 13 |
| Allegheny | 2 | 9 | 10 | 0 | 4 | 4 | 29 |
| Beaver | 0 | 1 | 2 | 1 | 1 | 0 | 5 |
| Berks | 0 | 2 | 5 | 0 | 0 | 1 | 8 |
| Bradford | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Bucks | 0 | 2 | 5 | 2 | 2 | 0 | 11 |
| Butler | 1 | 3 | 3 | 1 | 0 | 1 | 9 |
| Cambria | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Carbon | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Centre | 0 | 2 | 2 | 2 | 2 | 2 | 10 |
| Chester | 0 | 3 | 6 | 2 | 2 | 1 | 14 |
| Clearfield | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Columbia | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Cumberland | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| Dauphin | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| Delaware | 0 | 3 | 7 | 0 | 3 | 5 | 18 |
| Erie | 1 | 4 | 6 | 0 | 2 | 2 | 15 |
| Fayette | 1 | 0 | 1 | 0 | 0 | 1 | 3 |
| Franklin | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Fulton | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Huntingdon | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Lackawanna | 0 | 2 | 2 | 0 | 1 | 0 | 5 |
| Lancaster | 0 | 1 | 4 | 0 | 2 | 1 | 8 |
| Lawrence | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Lebanon | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Lehigh | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Luzerne | 0 | 7 | 6 | 0 | 1 | 1 | 15 |
| Mercer | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Monroe | 2 | 0 | 1 | 0 | 1 | 1 | 5 |
| Montgomery | 0 | 4 | 8 | 0 | 2 | 1 | 15 |
| Northampton | 0 | 4 | 4 | 2 | 2 | 0 | 12 |
| Schuylkill | 0 | 2 | 3 | 1 | 1 | 0 | 7 |
| Snyder | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| Venango | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Washington | 1 | 0 | 0 | 0 | 0 | 1 | 2 |

| | | | | | | | |
|-------------------|-------------|--------------|--------------|-------------|--------------|--------------|------------|
| Westmoreland | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| York | 0 | 1 | 9 | 0 | 2 | 0 | 12 |
| TOTAL | 8 | 60 | 105 | 13 | 33 | 26 | 245 |
| % OF TOTAL | 3.27 | 24.49 | 42.86 | 5.31 | 13.47 | 10.61 | |

Figure 23: Recyclable Paper Products Collected at Drop-Off Facilities in Municipalities

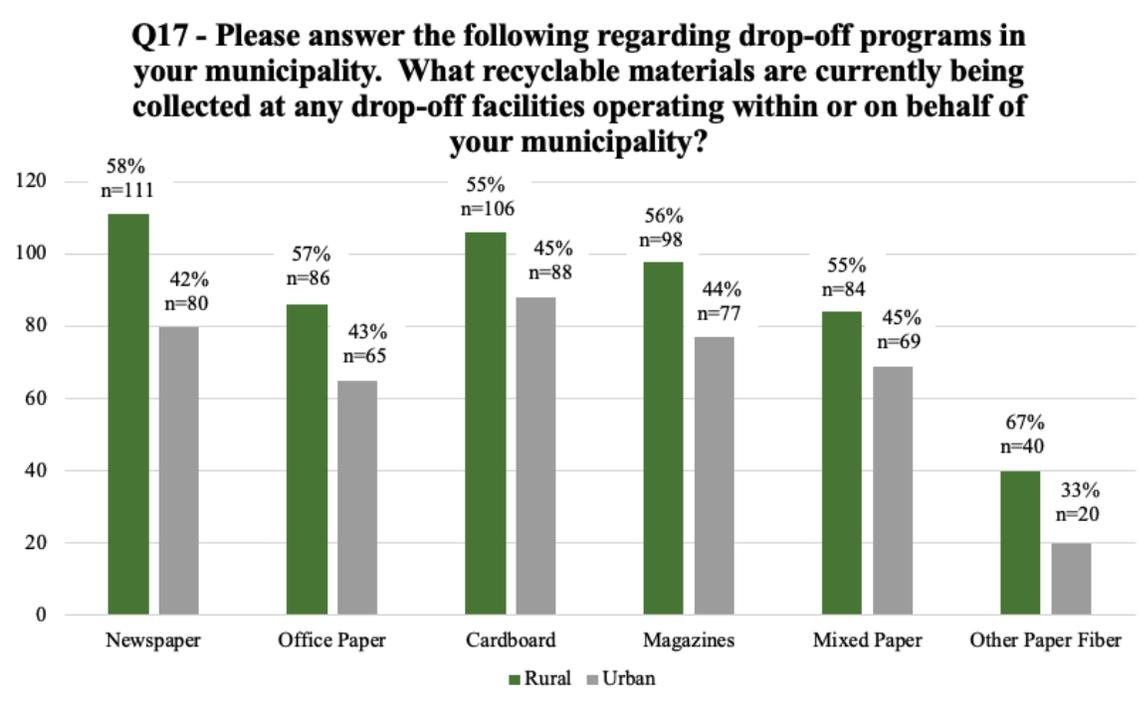


Table 35: Recyclable Paper Products Collected at Drop-Off Facilities Aggregated by County

| County | Newspaper | Office Paper | Cardboard | Magazines | Mixed Paper | Other Paper Fiber | Total |
|-----------|-----------|--------------|-----------|-----------|-------------|-------------------|-------|
| Adams | 3 | 2 | 3 | 3 | 1 | 0 | 12 |
| Allegheny | 7 | 5 | 5 | 6 | 5 | 1 | 29 |
| Armstrong | 2 | 1 | 0 | 1 | 0 | 0 | 4 |
| Beaver | 11 | 6 | 8 | 10 | 10 | 4 | 49 |
| Bedford | 3 | 2 | 3 | 3 | 3 | 0 | 14 |
| Berks | 3 | 3 | 3 | 3 | 3 | 1 | 16 |
| Blair | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Bradford | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Bucks | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| Butler | 4 | 2 | 5 | 4 | 3 | 0 | 18 |

| | | | | | | | |
|----------------|----|----|----|----|----|----|-----|
| Cambria | 4 | 1 | 4 | 3 | 0 | 0 | 12 |
| Centre | 29 | 29 | 29 | 29 | 29 | 29 | 174 |
| Chester | 6 | 6 | 7 | 5 | 6 | 1 | 31 |
| Clearfield | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Columbia | 3 | 3 | 2 | 2 | 3 | 0 | 13 |
| Dauphin | 2 | 1 | 3 | 2 | 1 | 0 | 9 |
| Delaware | 4 | 4 | 6 | 5 | 5 | 2 | 26 |
| Elk | 2 | 2 | 2 | 2 | 2 | 0 | 10 |
| Erie | 2 | 2 | 2 | 0 | 0 | 0 | 6 |
| Fayette | 2 | 1 | 1 | 2 | 1 | 0 | 7 |
| Forest | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Franklin | 4 | 2 | 3 | 3 | 2 | 2 | 16 |
| Fulton | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| Huntingdon | 2 | 1 | 3 | 2 | 2 | 0 | 10 |
| Indiana | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Juniata | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| Lackawanna | 6 | 7 | 7 | 7 | 6 | 1 | 34 |
| Lancaster | 0 | 0 | 3 | 1 | 0 | 0 | 4 |
| Lawrence | 3 | 0 | 3 | 2 | 2 | 1 | 11 |
| Lebanon | 1 | 0 | 3 | 1 | 1 | 0 | 6 |
| Lehigh | 2 | 2 | 1 | 1 | 1 | 0 | 7 |
| Luzerne | 10 | 10 | 11 | 9 | 10 | 3 | 53 |
| Lycoming | 4 | 4 | 4 | 4 | 4 | 0 | 20 |
| Mercer | 4 | 2 | 4 | 4 | 1 | 2 | 17 |
| Mifflin | 3 | 2 | 3 | 2 | 3 | 0 | 13 |
| Monroe | 2 | 2 | 2 | 1 | 2 | 0 | 9 |
| Montgomery | 2 | 1 | 2 | 2 | 2 | 1 | 10 |
| Montour | 1 | 0 | 1 | 1 | 1 | 0 | 4 |
| Northampton | 3 | 3 | 4 | 4 | 4 | 0 | 18 |
| Northumberland | 2 | 2 | 2 | 2 | 2 | 2 | 12 |
| Perry | 5 | 4 | 6 | 4 | 3 | 1 | 23 |
| Philadelphia | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Potter | 5 | 3 | 6 | 4 | 3 | 1 | 22 |
| Schuylkill | 3 | 3 | 3 | 3 | 2 | 1 | 15 |
| Snyder | 4 | 4 | 4 | 4 | 3 | 0 | 19 |
| Susquehanna | 1 | 1 | 2 | 1 | 1 | 0 | 6 |
| Union | 5 | 5 | 6 | 5 | 3 | 0 | 24 |
| Warren | 7 | 4 | 6 | 6 | 4 | 0 | 27 |
| Washington | 2 | 3 | 1 | 3 | 3 | 0 | 12 |

| | | | | | | | |
|-------------------|-------------|--------------|--------------|-------------|--------------|--------------|------------|
| Westmoreland | 2 | 0 | 1 | 2 | 2 | 0 | 7 |
| Wyoming | 4 | 2 | 4 | 2 | 1 | 0 | 13 |
| York | 6 | 5 | 6 | 5 | 4 | 4 | 30 |
| TOTAL | 8 | 60 | 105 | 13 | 33 | 26 | 245 |
| % OF TOTAL | 3.27 | 24.49 | 42.86 | 5.31 | 13.47 | 10.61 | |

Figure 24: Recyclable Can and Glass Products Collected at Drop-Off Facilities in Municipalities

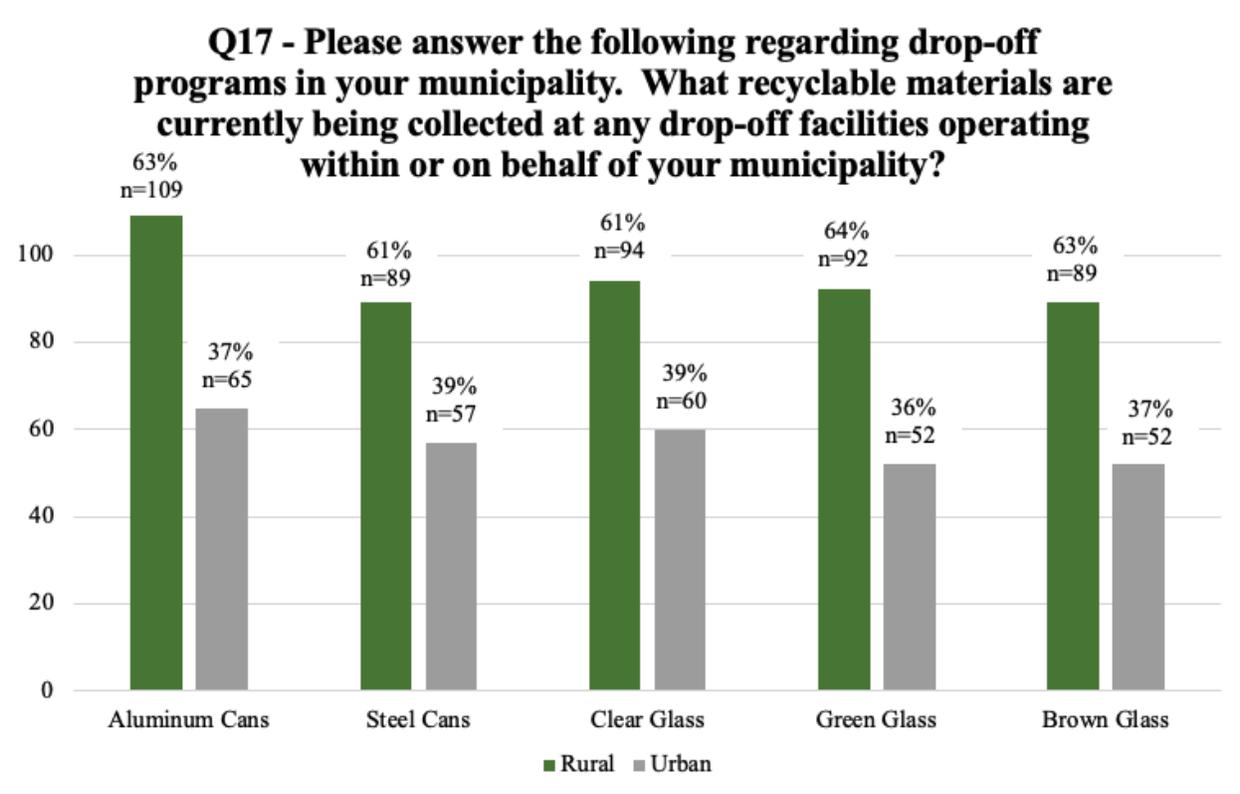


Table 36: Recyclable Can and Glass Products Collected at Drop-Off Facilities Aggregated by County

| County | Aluminum Cans | Steel Cans | Clear Glass | Green Glass | Brown Glass | Total |
|-----------|---------------|------------|-------------|-------------|-------------|-------|
| Adams | 3 | 1 | 1 | 1 | 1 | 7 |
| Allegheny | 1 | 0 | 3 | 2 | 2 | 8 |
| Armstrong | 2 | 2 | 1 | 2 | 1 | 8 |
| Beaver | 6 | 5 | 6 | 6 | 6 | 29 |
| Bedford | 2 | 1 | 2 | 1 | 1 | 7 |
| Berks | 3 | 3 | 2 | 2 | 2 | 12 |
| Blair | 1 | 1 | 1 | 1 | 1 | 5 |
| Bradford | 1 | 1 | 1 | 1 | 1 | 5 |

| | | | | | | |
|----------------|----|----|----|----|----|-----|
| Bucks | 3 | 2 | 3 | 3 | 3 | 14 |
| Butler | 2 | 1 | 1 | 0 | 0 | 4 |
| Cambria | 2 | 0 | 1 | 0 | 0 | 3 |
| Centre | 29 | 29 | 29 | 29 | 29 | 145 |
| Chester | 6 | 5 | 7 | 6 | 5 | 29 |
| Clearfield | 1 | 1 | 1 | 1 | 1 | 5 |
| Columbia | 3 | 3 | 3 | 3 | 3 | 15 |
| Dauphin | 3 | 2 | 0 | 0 | 0 | 5 |
| Delaware | 4 | 4 | 4 | 4 | 4 | 20 |
| Elk | 2 | 1 | 2 | 2 | 2 | 9 |
| Erie | 3 | 3 | 2 | 2 | 2 | 12 |
| Fayette | 1 | 1 | 1 | 1 | 1 | 5 |
| Forest | 1 | 1 | 1 | 0 | 0 | 3 |
| Franklin | 6 | 6 | 1 | 1 | 1 | 15 |
| Fulton | 1 | 1 | 0 | 0 | 0 | 2 |
| Huntingdon | 3 | 1 | 2 | 2 | 2 | 10 |
| Indiana | 1 | 1 | 1 | 1 | 1 | 5 |
| Juniata | 1 | 0 | 1 | 1 | 1 | 4 |
| Lackawanna | 7 | 7 | 7 | 7 | 7 | 35 |
| Lawrence | 1 | 0 | 1 | 1 | 1 | 4 |
| Lehigh | 2 | 2 | 2 | 1 | 1 | 8 |
| Luzerne | 10 | 9 | 10 | 8 | 8 | 45 |
| Lycoming | 4 | 4 | 4 | 4 | 4 | 20 |
| Mercer | 2 | 2 | 1 | 1 | 1 | 7 |
| Mifflin | 3 | 3 | 1 | 1 | 1 | 9 |
| Monroe | 2 | 2 | 2 | 2 | 2 | 10 |
| Montour | 1 | 1 | 1 | 1 | 1 | 5 |
| Northampton | 4 | 3 | 3 | 4 | 4 | 18 |
| Northumberland | 3 | 3 | 3 | 3 | 3 | 15 |
| Perry | 5 | 5 | 3 | 3 | 3 | 19 |
| Philadelphia | 1 | 1 | 1 | 1 | 1 | 5 |
| Potter | 5 | 2 | 6 | 5 | 5 | 23 |
| Schuylkill | 3 | 3 | 3 | 3 | 3 | 15 |
| Snyder | 4 | 4 | 4 | 4 | 4 | 20 |
| Susquehanna | 2 | 1 | 2 | 2 | 2 | 9 |
| Union | 6 | 6 | 6 | 6 | 6 | 30 |
| Warren | 7 | 5 | 7 | 7 | 7 | 33 |
| Washington | 1 | 0 | 1 | 1 | 1 | 4 |
| Wyoming | 4 | 1 | 4 | 2 | 1 | 12 |

| | | | | | | |
|-------------------|--------------|--------------|--------------|--------------|--------------|------------|
| York | 6 | 6 | 5 | 5 | 5 | 27 |
| TOTAL | 174 | 146 | 154 | 144 | 141 | 759 |
| % OF TOTAL | 22.92 | 19.24 | 20.29 | 18.97 | 18.58 | |

Figure 25: Recyclable Plastic Products Collected at Drop-Off Facilities in Municipalities

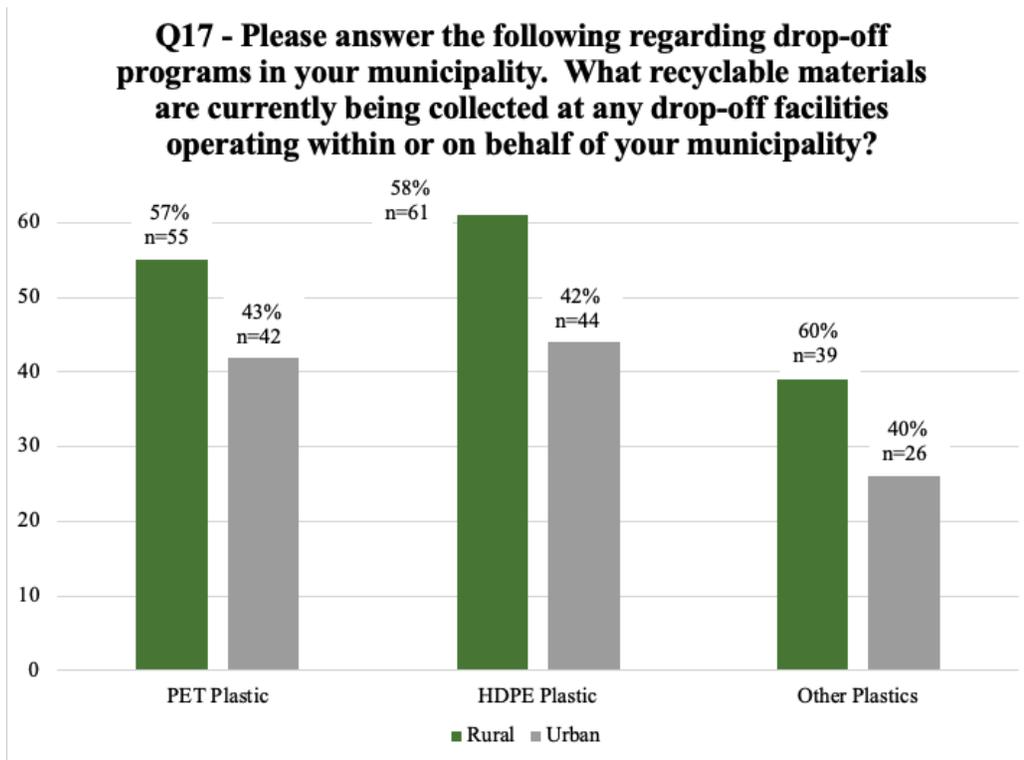


Table 37: Recyclable Plastic Products Collected at Drop-Off Facilities Aggregated by County

| County | PET Plastic | HDPE Plastic | Other Plastics | Total |
|-----------|-------------|--------------|----------------|-------|
| Allegheny | 1 | 0 | 0 | 1 |
| Beaver | 1 | 2 | 0 | 3 |
| Bedford | 1 | 1 | 0 | 2 |
| Berks | 3 | 3 | 2 | 8 |
| Bradford | 1 | 1 | 0 | 2 |
| Bucks | 2 | 2 | 0 | 4 |
| Butler | 0 | 2 | 1 | 3 |
| Cambria | 0 | 1 | 2 | 3 |
| Centre | 29 | 29 | 29 | 87 |
| Chester | 2 | 2 | 2 | 6 |

| | | | | |
|-------------------|--------------|--------------|--------------|------------|
| Columbia | 2 | 3 | 2 | 7 |
| Dauphin | 0 | 0 | 1 | 1 |
| Delaware | 3 | 3 | 3 | 9 |
| Elk | 1 | 1 | 0 | 2 |
| Erie | 1 | 2 | 0 | 3 |
| Fayette | 0 | 0 | 1 | 1 |
| Forest | 0 | 0 | 1 | 1 |
| Franklin | 2 | 4 | 1 | 7 |
| Fulton | 0 | 0 | 1 | 1 |
| Huntingdon | 1 | 1 | 1 | 3 |
| Indiana | 1 | 1 | 0 | 2 |
| Lackawanna | 4 | 3 | 2 | 9 |
| Lehigh | 1 | 2 | 0 | 3 |
| Luzerne | 7 | 7 | 3 | 17 |
| Lycoming | 4 | 4 | 0 | 8 |
| Mercer | 1 | 1 | 1 | 3 |
| Mifflin | 1 | 0 | 1 | 2 |
| Monroe | 2 | 2 | 0 | 4 |
| Northampton | 2 | 2 | 2 | 6 |
| Northumberland | 1 | 2 | 0 | 3 |
| Perry | 3 | 4 | 1 | 8 |
| Philadelphia | 1 | 1 | 1 | 3 |
| Potter | 1 | 2 | 2 | 5 |
| Schuylkill | 1 | 3 | 0 | 4 |
| Snyder | 3 | 2 | 0 | 5 |
| Susquehanna | 1 | 1 | 1 | 3 |
| Union | 3 | 2 | 1 | 6 |
| Warren | 4 | 5 | 0 | 9 |
| York | 6 | 4 | 3 | 13 |
| TOTAL | 97 | 105 | 65 | 267 |
| % OF TOTAL | 36.33 | 39.33 | 24.34 | |

Figure 26: Other Recyclable Products Collected at Drop-Off Facilities in Municipalities

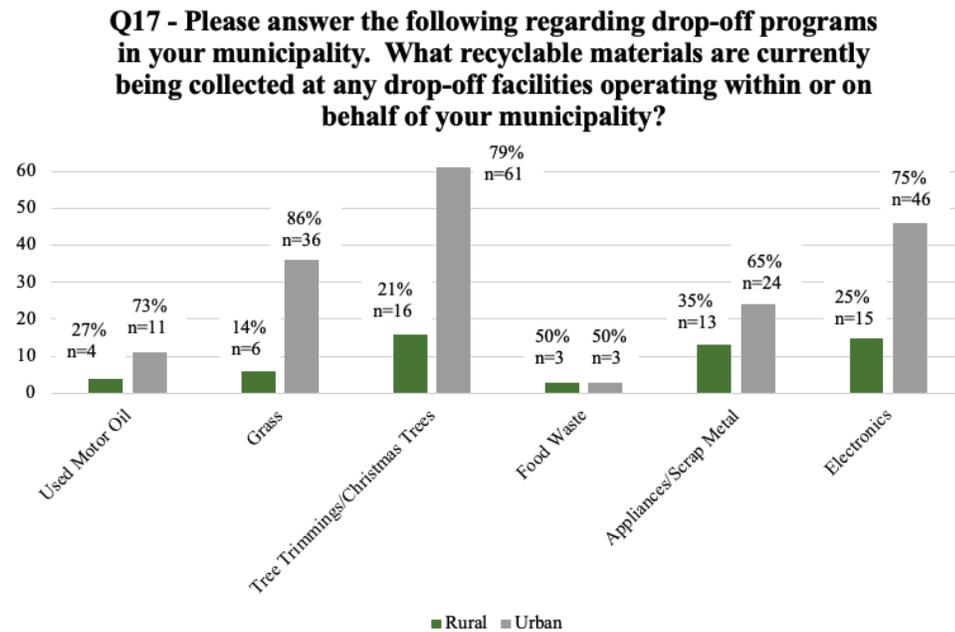


Table 38: Other Recyclable Products Collected at Drop-Off Facilities Aggregated by County

| County | Used Motor Oil | Grass | Tree Trimmings | Food Waste | Appliances | Electronics | Total |
|------------|----------------|-------|----------------|------------|------------|-------------|-------|
| Adams | 0 | 0 | 0 | 1 | 0 | 7 | 8 |
| Allegheny | 1 | 2 | 2 | 0 | 1 | 4 | 10 |
| Beaver | 0 | 5 | 6 | 0 | 1 | 2 | 14 |
| Berks | 0 | 1 | 1 | 0 | 0 | 3 | 5 |
| Bradford | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Bucks | 0 | 0 | 3 | 0 | 1 | 1 | 5 |
| Butler | 1 | 0 | 3 | 0 | 1 | 1 | 6 |
| Carbon | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| Centre | 1 | 1 | 1 | 0 | 1 | 1 | 5 |
| Chester | 0 | 4 | 6 | 1 | 1 | 2 | 14 |
| Clarion | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| Clearfield | 0 | 1 | 2 | 0 | 1 | 1 | 5 |
| Columbia | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| Cumberland | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| Dauphin | 1 | 2 | 3 | 0 | 1 | 2 | 9 |
| Delaware | 1 | 1 | 2 | 0 | 3 | 4 | 11 |

| | | | | | | | |
|-------------------|-------------|--------------|--------------|-------------|--------------|--------------|------------|
| Elk | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Erie | 2 | 1 | 2 | 0 | 3 | 4 | 12 |
| Franklin | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| Fulton | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| Indiana | 0 | 1 | 1 | 0 | 0 | 1 | 3 |
| Lackawanna | 0 | 1 | 1 | 0 | 2 | 1 | 5 |
| Lancaster | 0 | 1 | 3 | 1 | 1 | 1 | 7 |
| Lebanon | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| Lehigh | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Luzerne | 2 | 2 | 2 | 0 | 1 | 1 | 8 |
| Mercer | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Mifflin | 0 | 0 | 1 | 0 | 1 | 1 | 3 |
| Monroe | 2 | 1 | 2 | 0 | 2 | 3 | 10 |
| Montgomery | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| Northampton | 0 | 3 | 5 | 2 | 1 | 0 | 11 |
| Philadelphia | 0 | 1 | 1 | 0 | 0 | 1 | 3 |
| Pike | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Potter | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Schuylkill | 0 | 2 | 3 | 0 | 0 | 0 | 5 |
| Snyder | 0 | 2 | 3 | 0 | 0 | 0 | 5 |
| Union | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| Warren | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Washington | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Westmoreland | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| York | 4 | 1 | 8 | 0 | 6 | 10 | 29 |
| TOTAL | 15 | 42 | 77 | 6 | 37 | 61 | 238 |
| % OF TOTAL | 6.30 | 17.65 | 32.35 | 2.52 | 15.55 | 25.63 | |

Table 39: Solutions to Make Collection Services More Accessible Aggregated By County

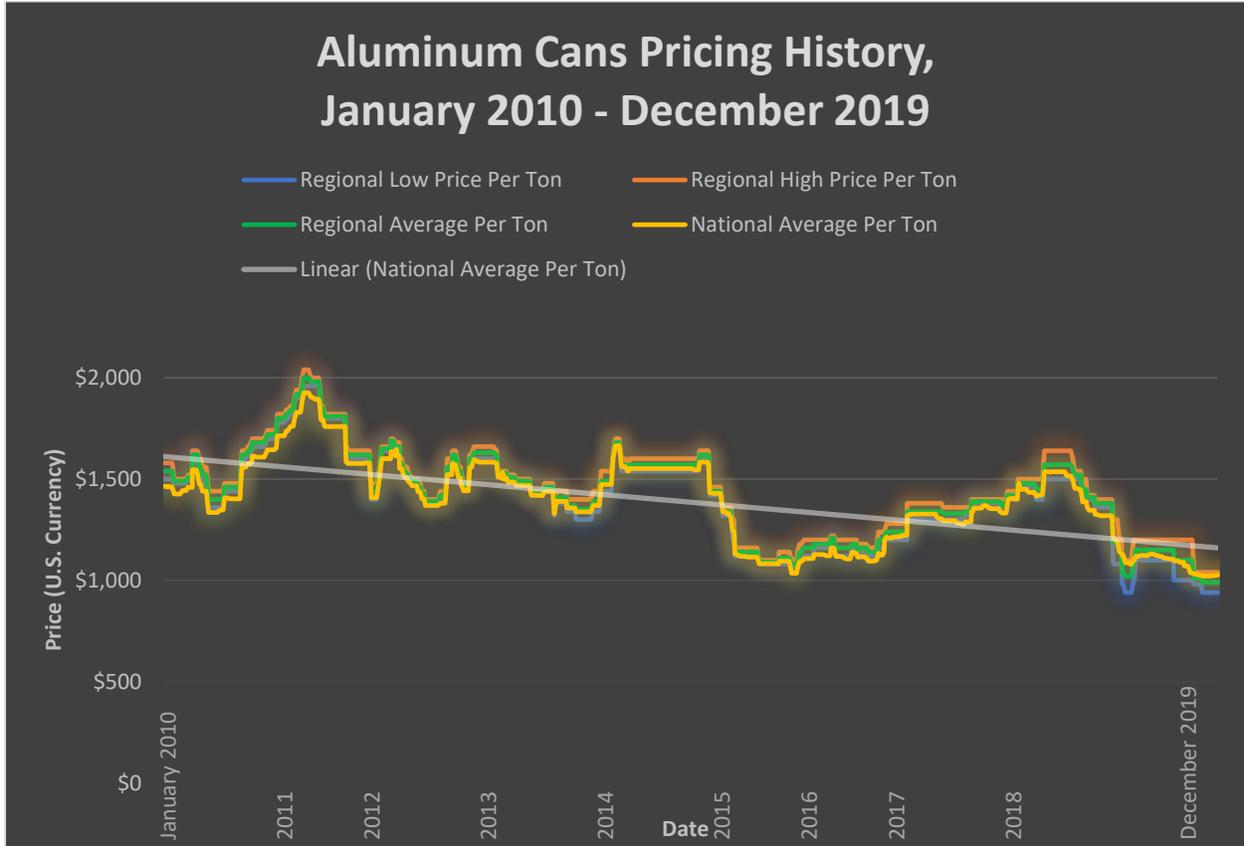
| County | HR | H L | MK T | M A | MF C | M D | CS | D O | E D | N | CS T | CN T | GL S | EL C | HH W | CW C | O |
|-----------|----|-----|------|-----|------|-----|----|-----|-----|----|------|------|------|------|------|------|----|
| Adams | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Allegheny | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 2 | 0 | 4 | 0 | 0 | 1 | 4 |
| Armstrong | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beaver | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Bedford | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Berks | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Blair | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

| | | | | | | | | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Bradford | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bucks | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Butler | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 |
| Cambria | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 1 | 0 | 0 |
| Cameron | NA |
| Carbon | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Centre | NA |
| Chester | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 1 |
| Clarion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Clearfield | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Clinton | NA |
| Columbia | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 7 | 0 | 0 | 0 | 0 | 1 | 2 |
| Crawford | NA |
| Cumberland | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dauphin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| Delaware | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 1 |
| Elk | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Erie | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 1 | 0 | 2 | 6 | 0 | 2 | 0 | 0 | 0 | 2 |
| Fayette | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 3 | 5 | 0 | 0 | 1 | 0 | 1 | 0 |
| Forest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Franklin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fulton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greene | NA |
| Huntingdon | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Indiana | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 |
| Jefferson | NA |
| Juniata | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lackawanna | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| Lancaster | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lawrence | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lebanon | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Lehigh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Luzerne | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Lycoming | NA |
| McKean | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Mercer | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mifflin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Monroe | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 1 |

| | | | | | | | | | | | | | | | | | |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-----------|------------|------------|------------|------------|-----------|
| Montgomery | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Montour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Northampton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 1 | 1 |
| Northumberland | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 |
| Perry | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Philadelphia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pike | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 |
| Potter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Schuylkill | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Snyder | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Somerset | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Sullivan | NA | NA | NA | NA | NA | NA | NA | NA |
| Susquehanna | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 2 |
| Tioga | NA | NA | NA | NA | NA | NA | NA | NA |
| Union | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Venango | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Warren | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Washington | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wayne | NA | NA | NA | NA | NA | NA | NA | NA |
| Westmoreland | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| Wyoming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| York | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 0 | 0 | 1 | 1 | 2 | 2 |
| TOTAL | 5 | 11 | 11 | 11 | 4 | 7 | 13 | 27 | 10 | 59 | 63 | 19 | 11 | 13 | 6 | 13 | 35 |
| % OF TOTAL | 1.6 | 3.5 | 3.5 | 3.5 | 1.3 | 2.2 | 4.1 | 8.5 | 3.1 | 18.6 | 19.8 | 6 | 3.5 | 4.1 | 1.9 | 4.1 | 11 |

Appendix 5 Recyclable Materials Market Trends

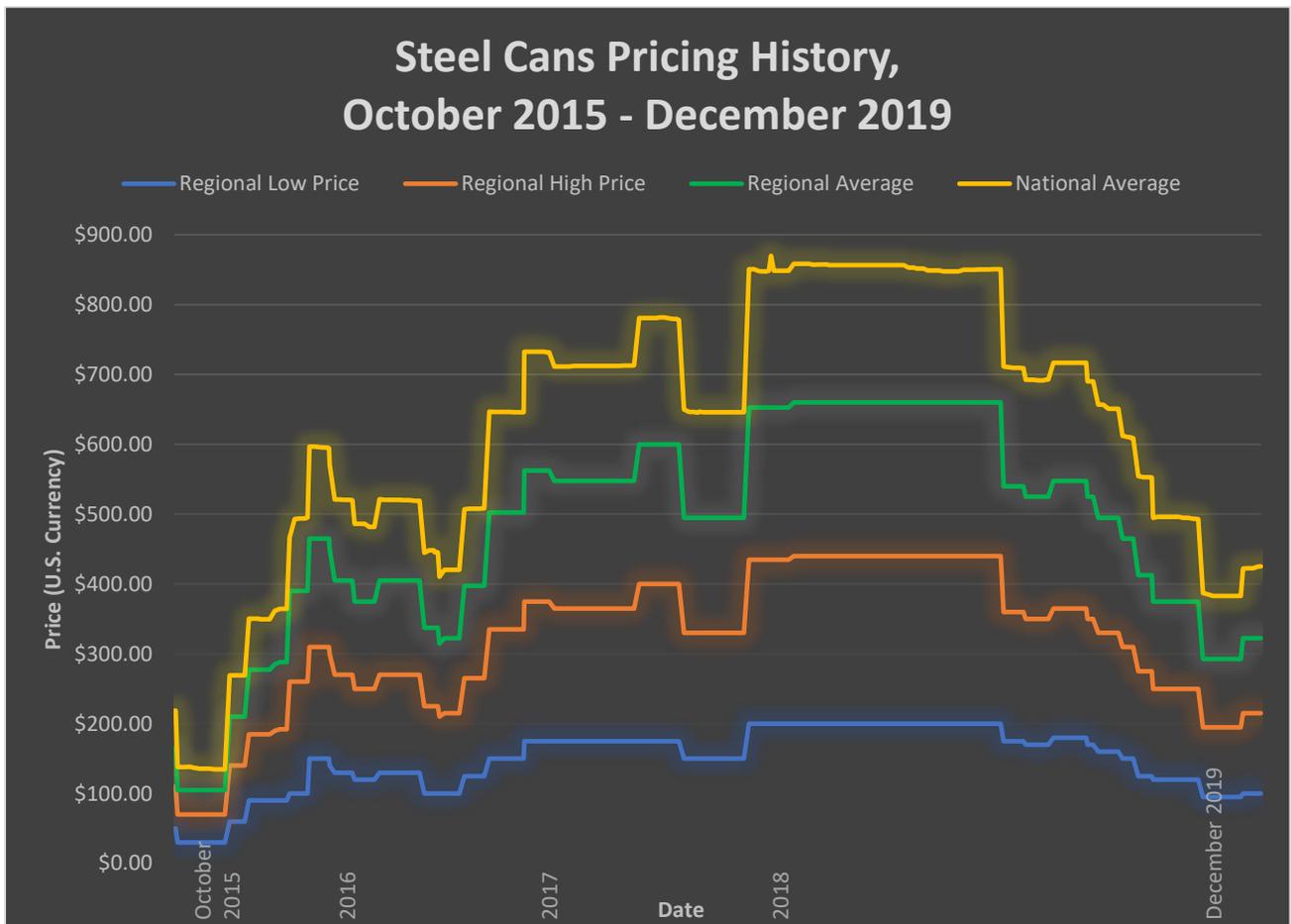
Figure 1: Aluminum Cans Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

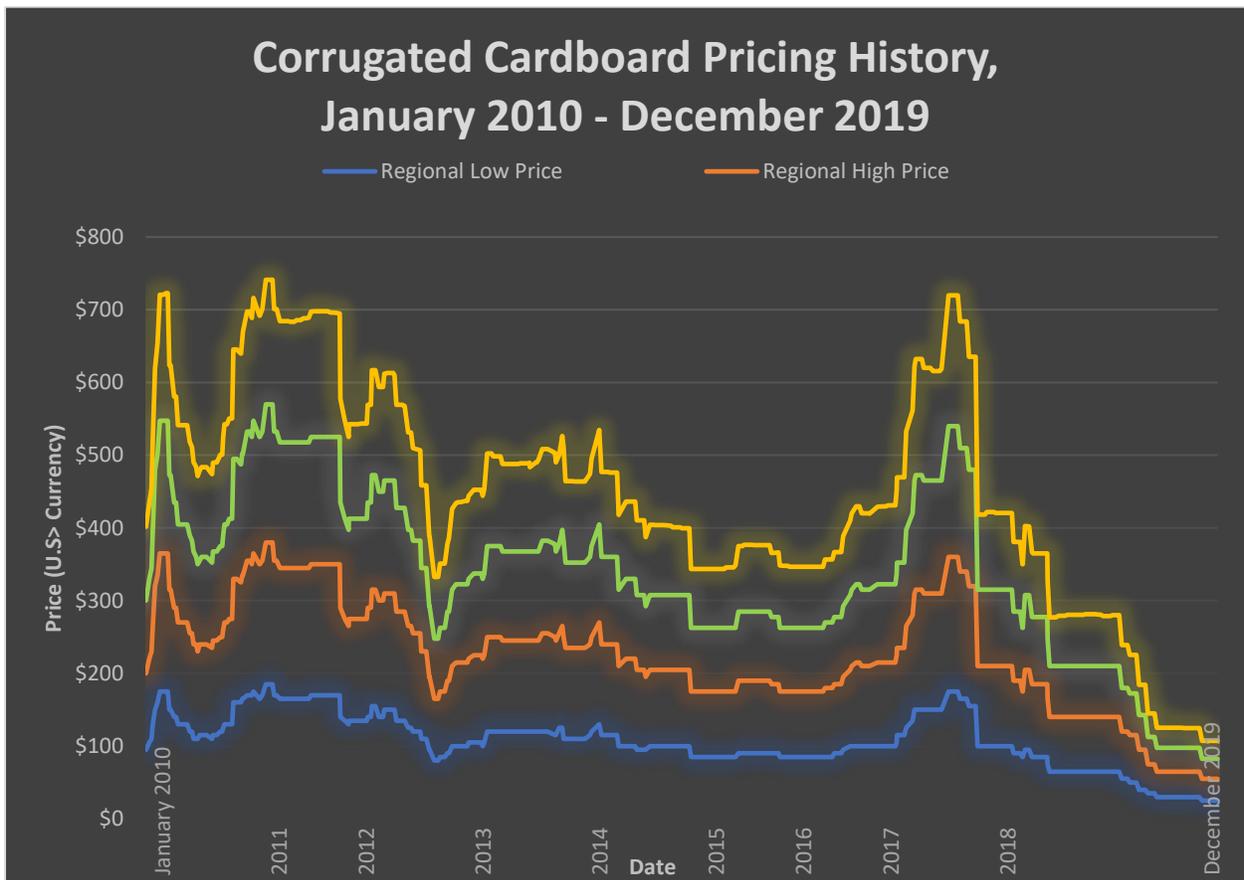
Figure 2: Steel Cans Pricing History, 2015-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

Figure 3: Corrugated Cardboard Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

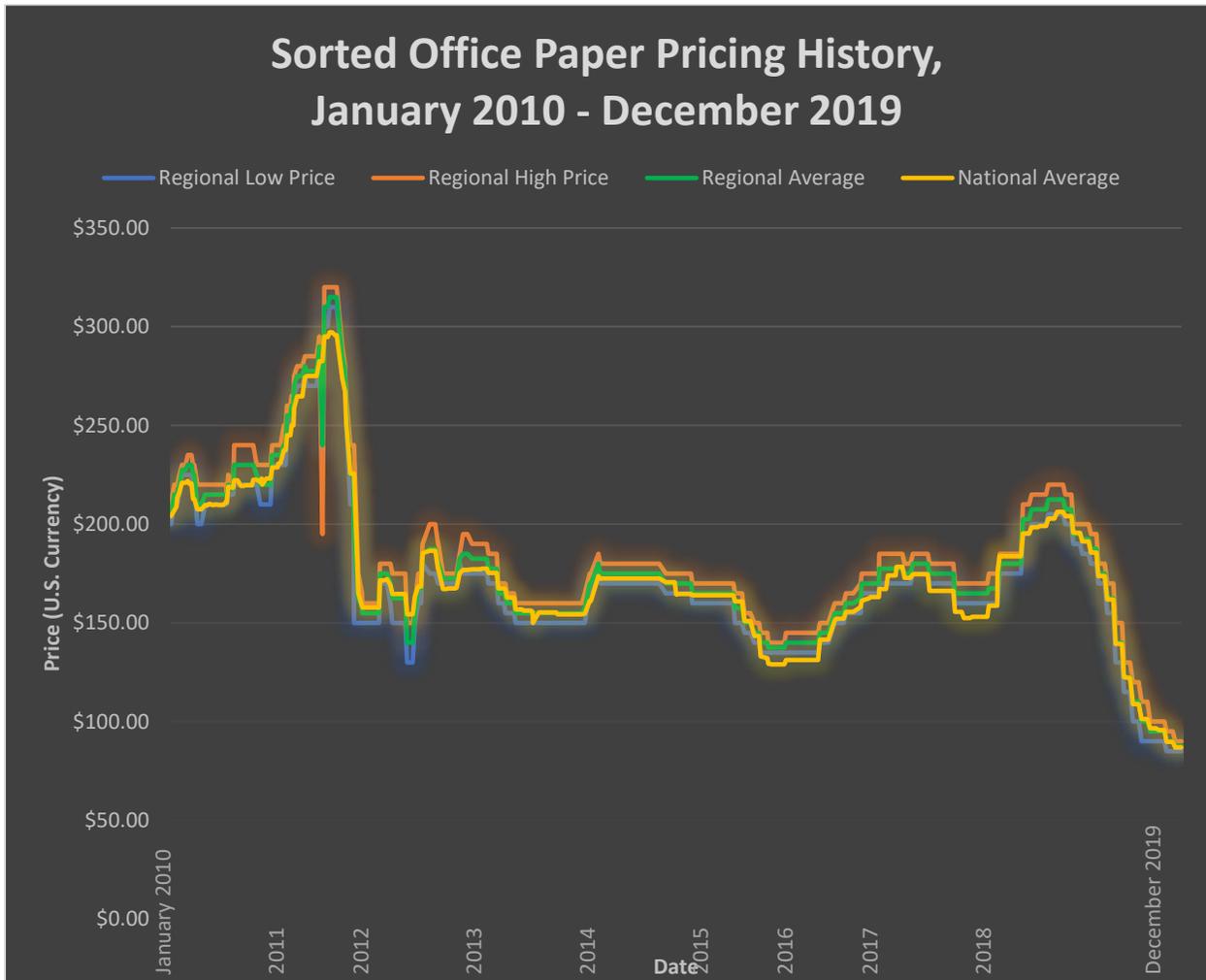
Figure 4: Newspaper Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

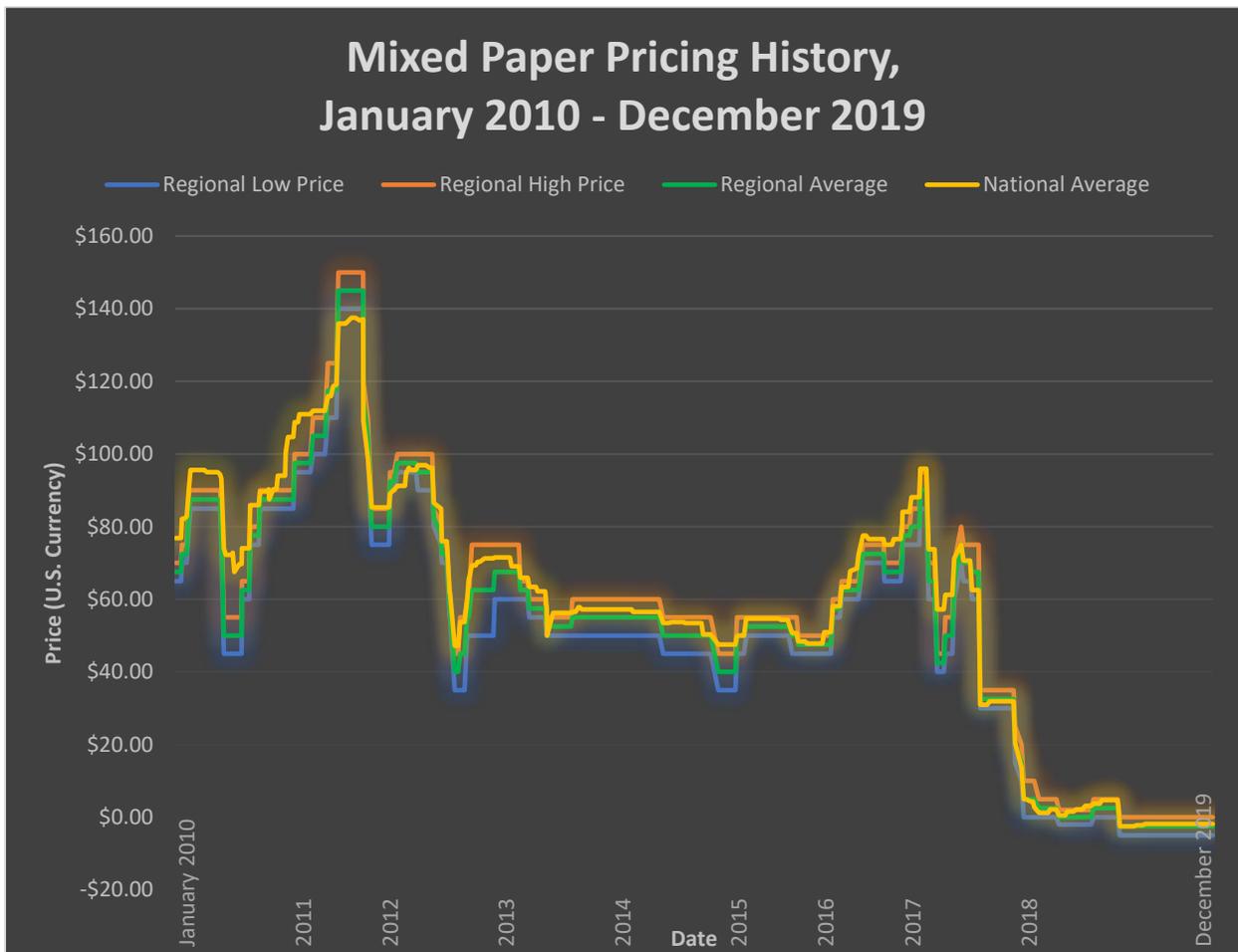
Figure 5: Sorted Office Paper Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

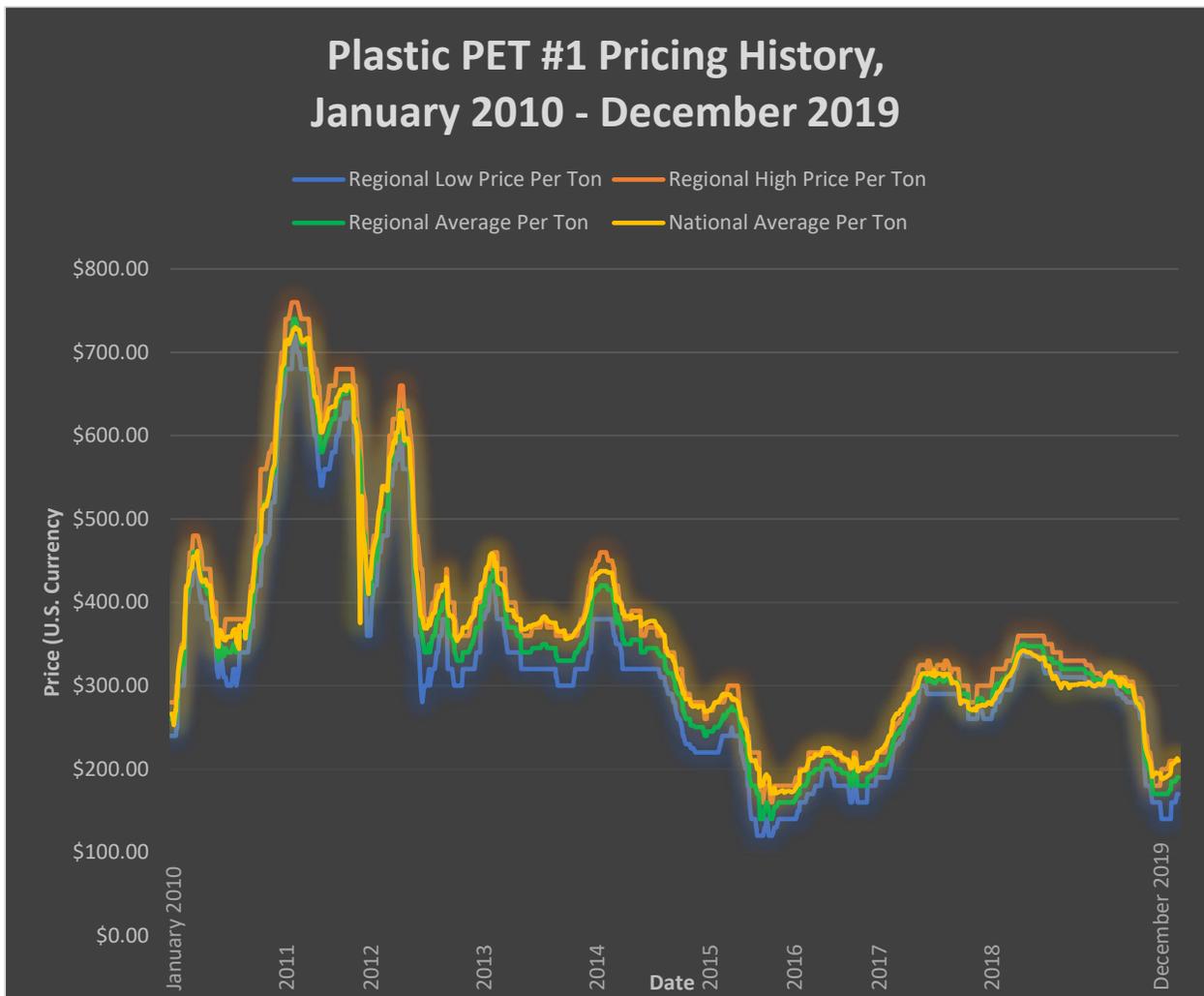
Figure 6: Mixed Paper Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

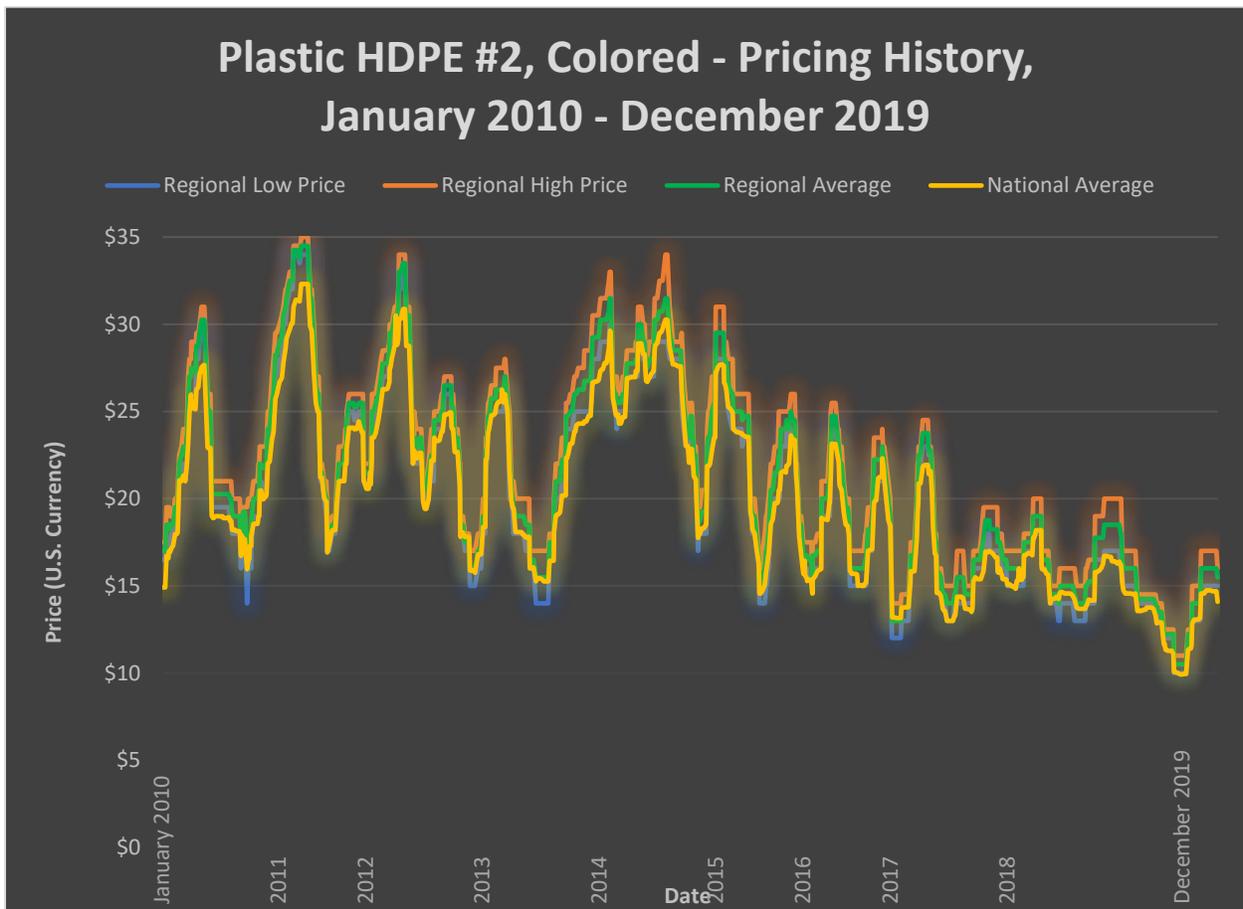
Figure 7: Plastic PET #1 Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

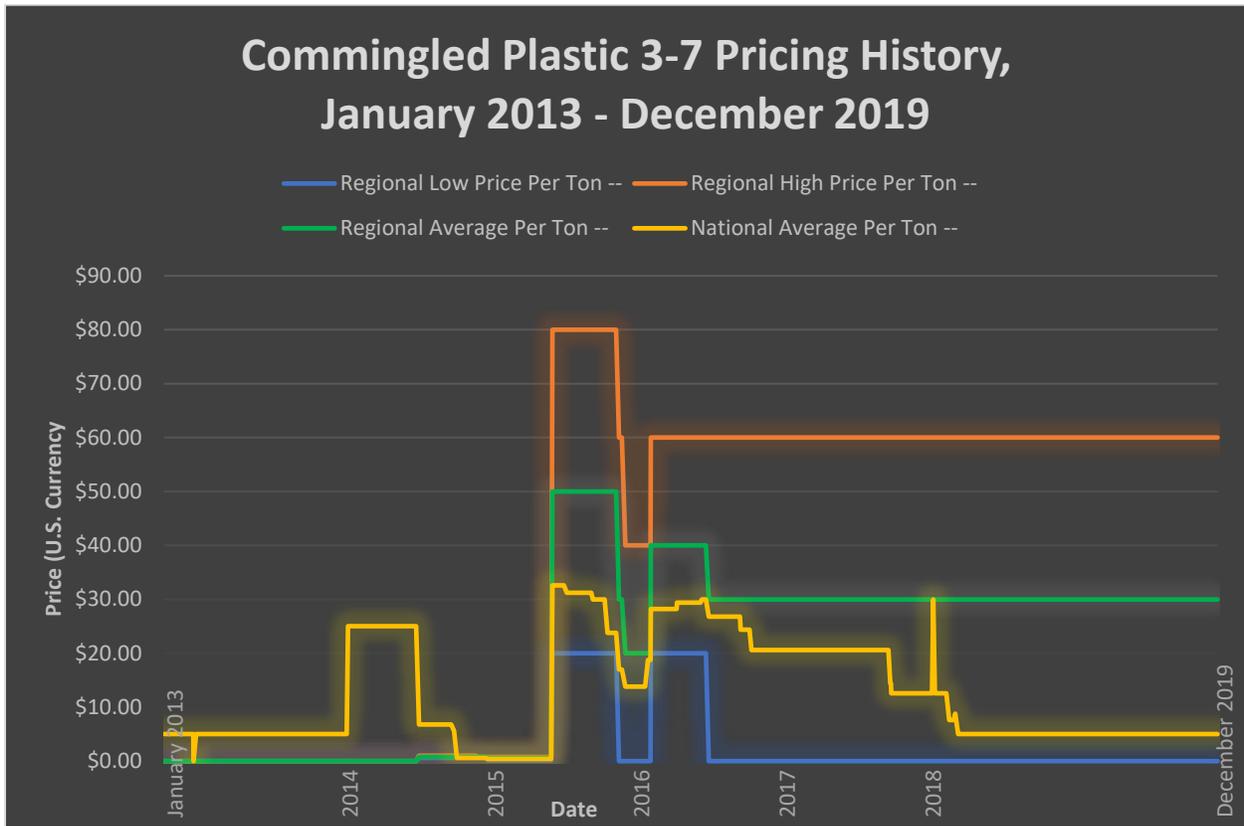
Figure 8: Plastic HDPE #2, Colored -- Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

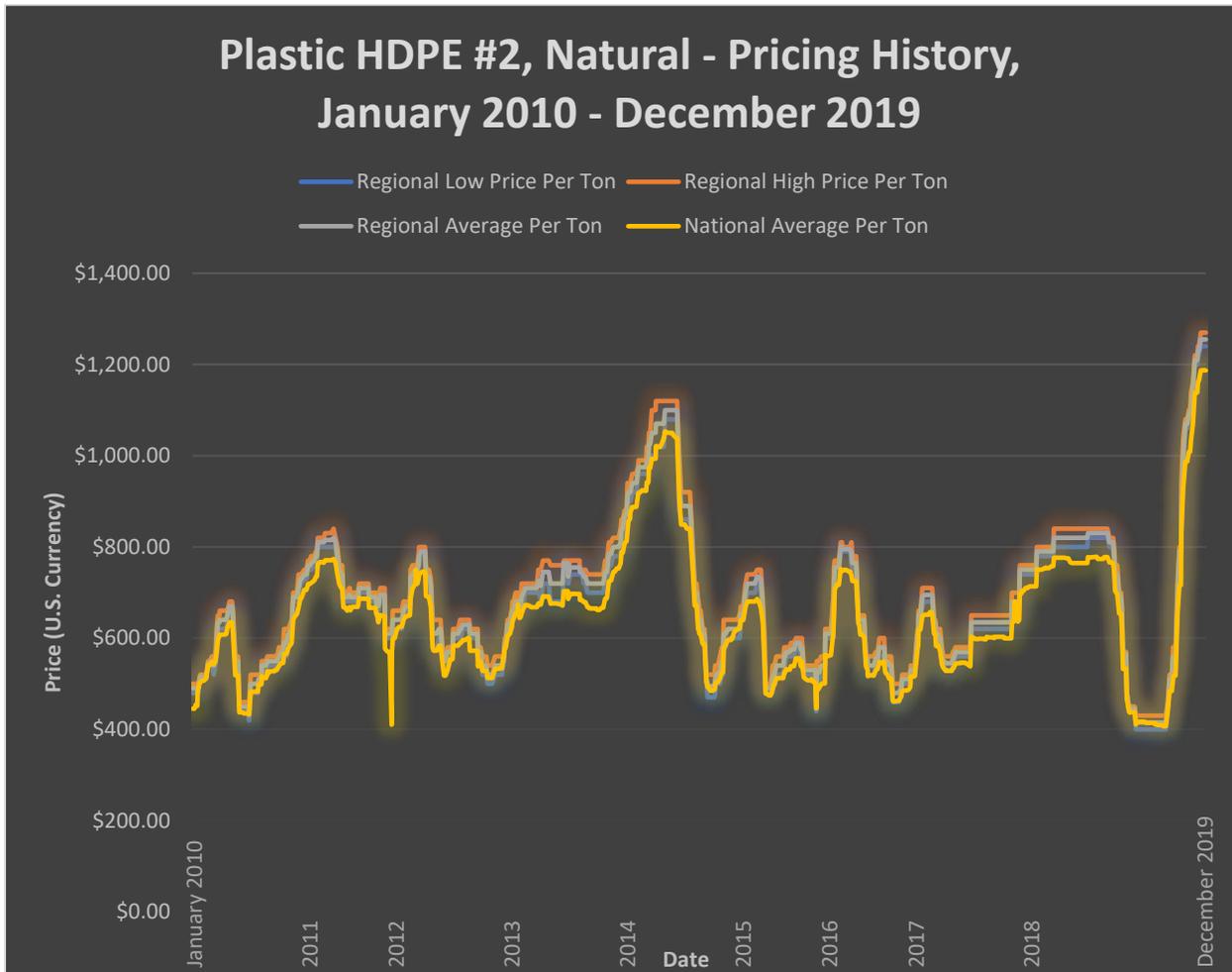
Figure 9: Commingled Plastic 3-7 Pricing History, 2013-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

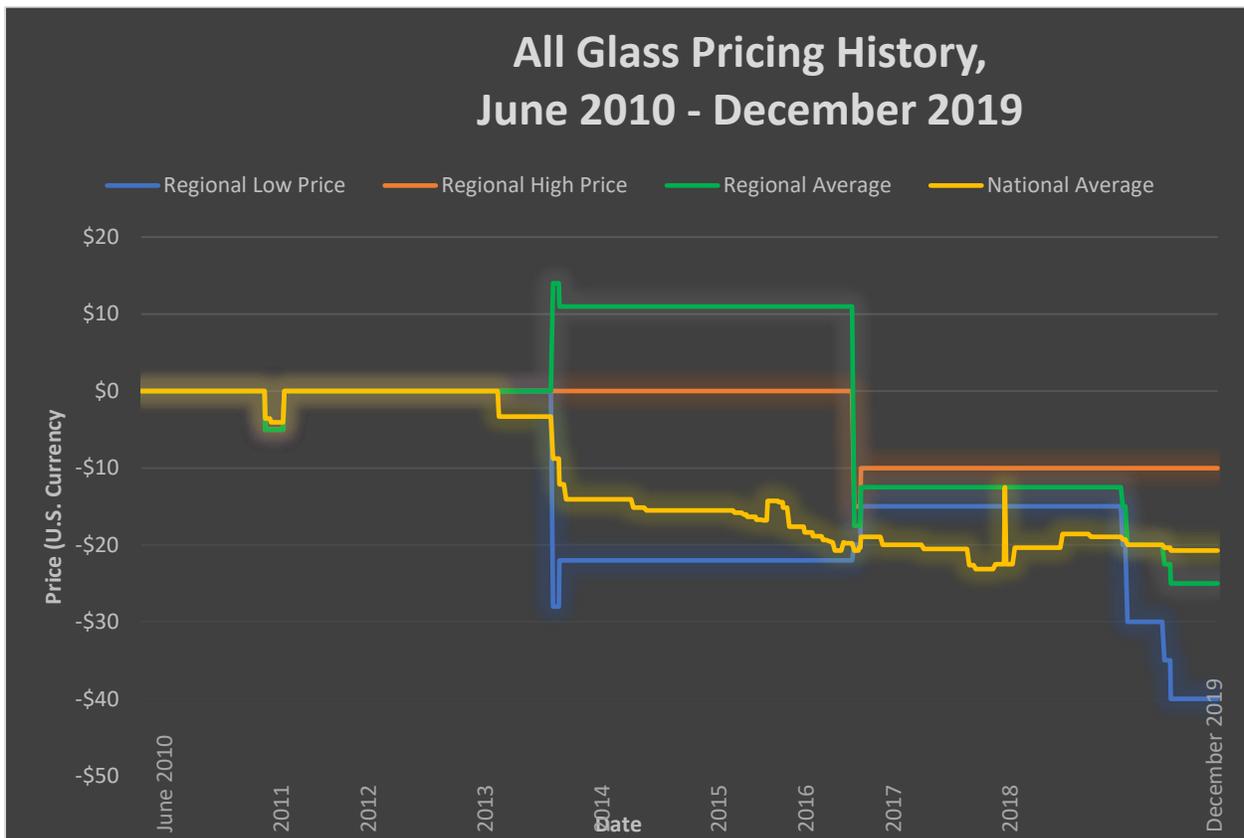
Figure 10: Plastic HDPE #2, Natural -- Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

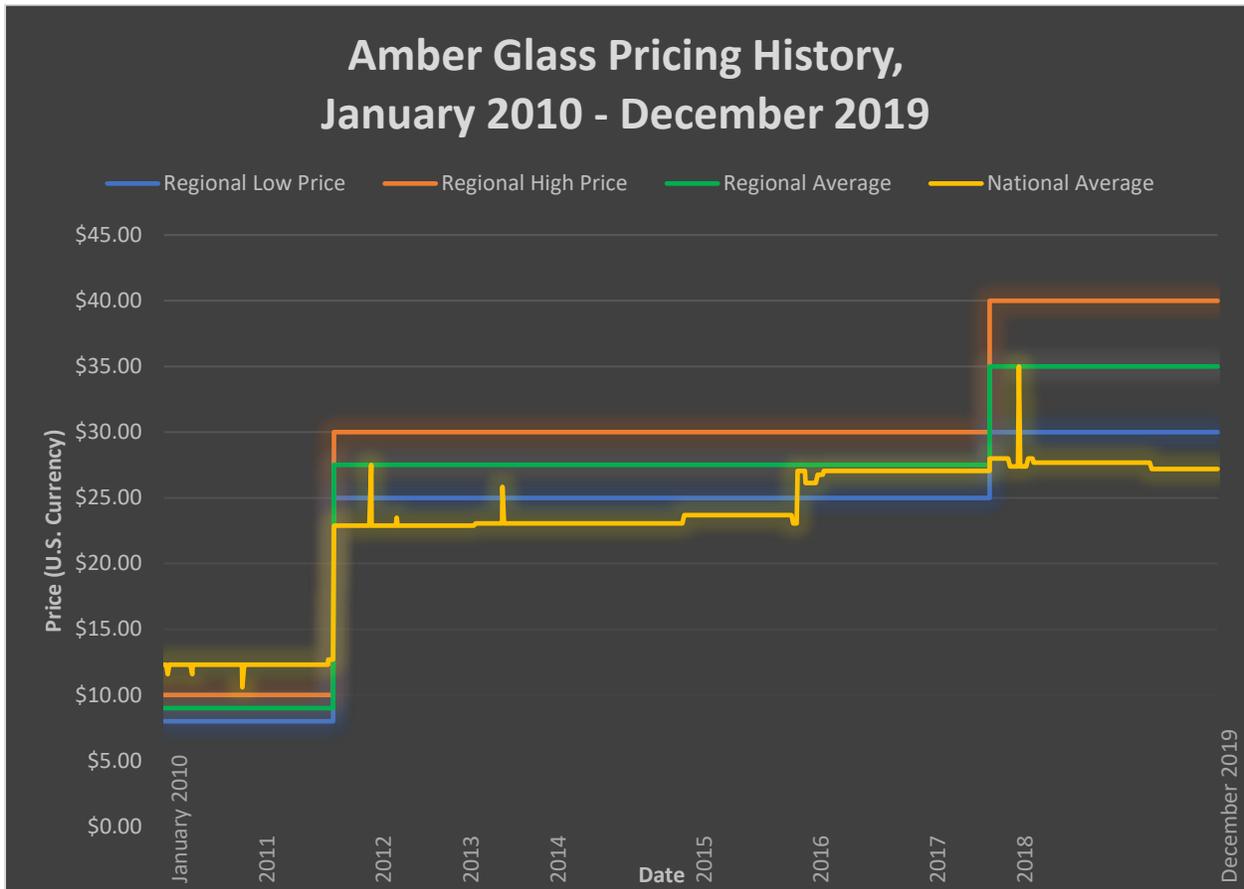
Figure 11: All Glass Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

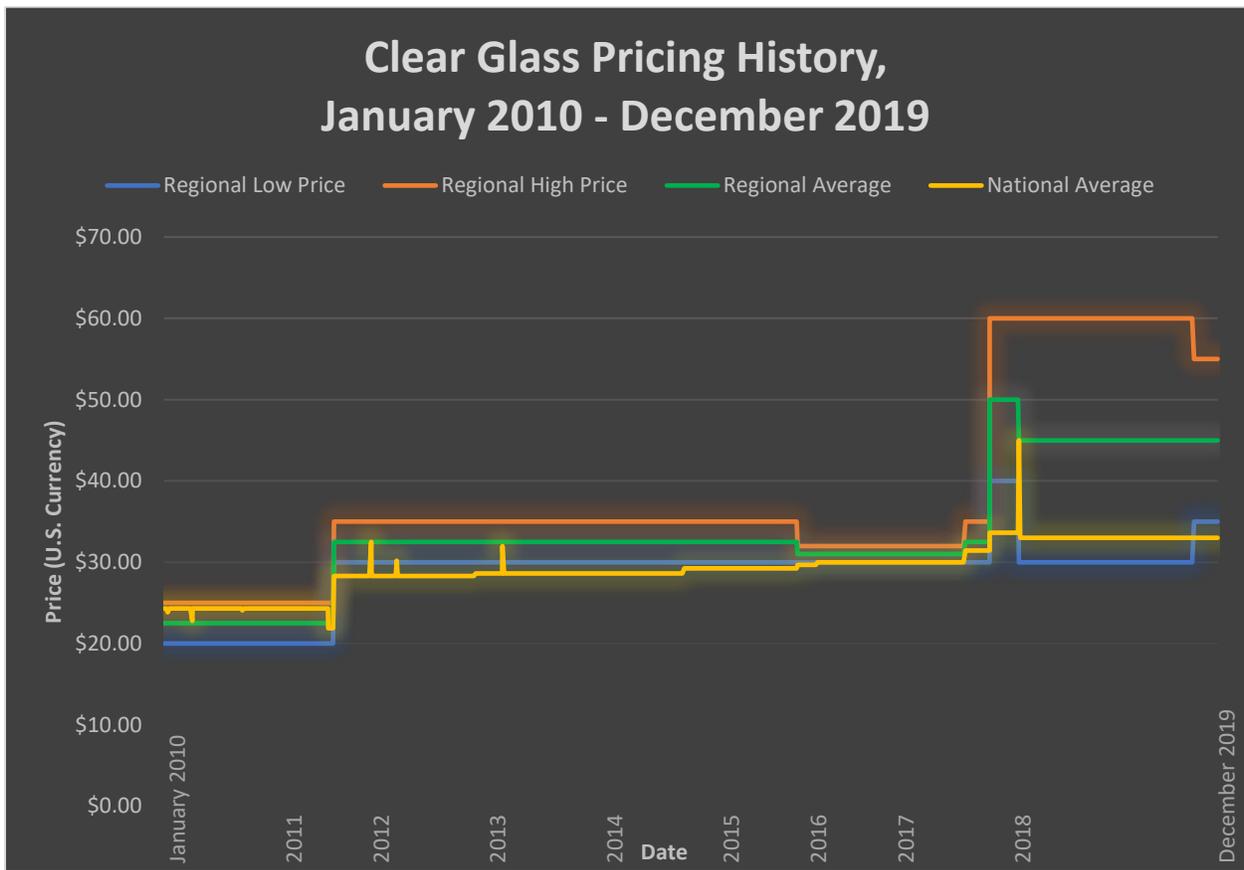
Figure 12: Amber Glass Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

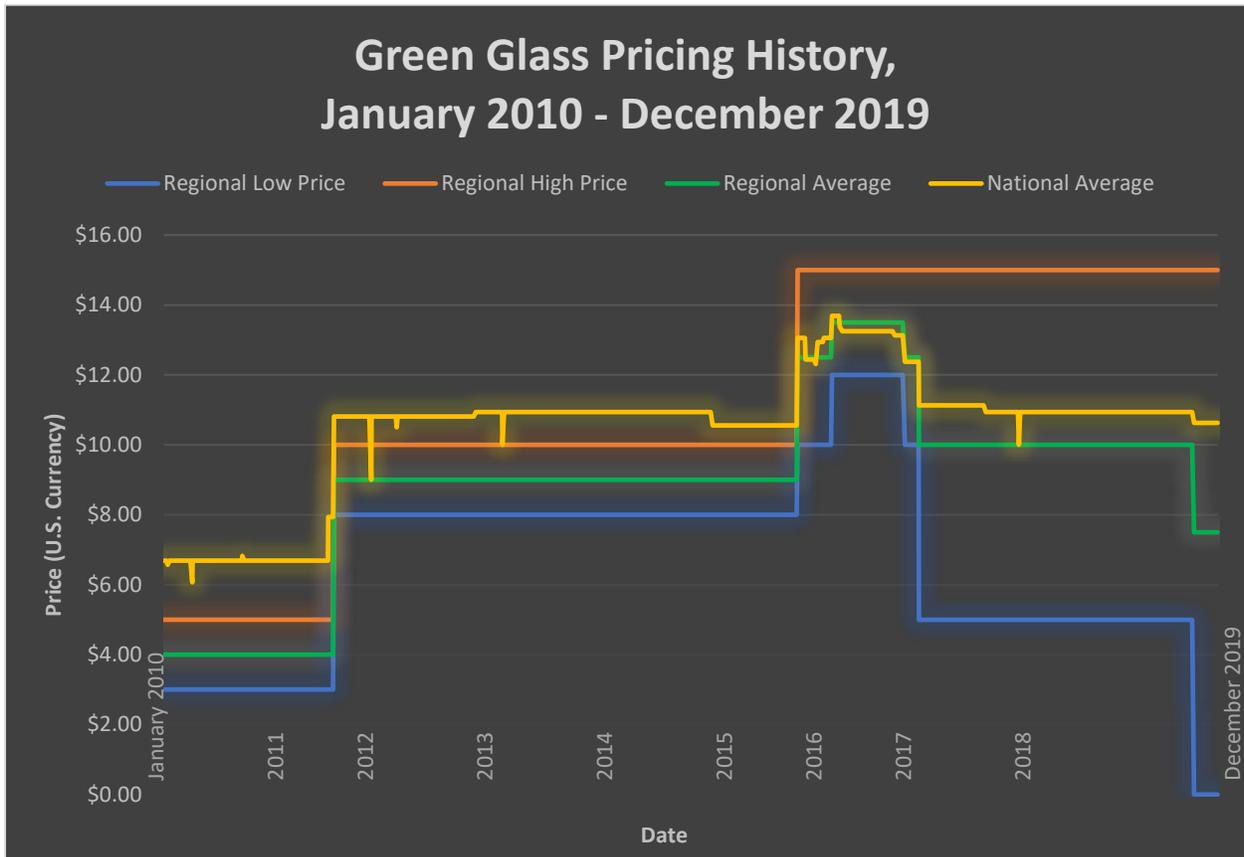
Figure 13: Clear Glass Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

Figure 14: Green Glass Pricing History, 2010-2019



Data Source: RecyclingMarkets.Net, 2020

<https://www.recyclingmarkets.net/secondarymaterials/prices.html>

Appendix 6 County Trends in MSW Generation

Table 1: County Waste Destinations in Tons of MSW, 2010-2014

| County | MSW (2010) | MSW (2011) | MSW (2012) | MSW (2013) | MSW (2014) |
|------------|------------|------------|------------|------------|------------|
| Adams | 51,882.5 | 51,833.1 | 51,442.40 | 51,467.70 | 52,666.40 |
| Allegheny | 913,014.2 | 910,102.3 | 892,155.90 | 888,646.20 | 894,248.20 |
| Armstrong | 32,514.5 | 32,957.4 | 31,848.40 | 31,210.90 | 29,948.30 |
| Beaver | 125,049.3 | 122,122.9 | 121,808.10 | 159,739.70 | 139,295.10 |
| Bedford | 22,546.6 | 25,041.0 | 27,541.30 | 32,915.20 | 35,049.60 |
| Berks | 307,563.9 | 310,429.5 | 291,168.20 | 267,248.10 | 272,501.80 |
| Blair | 111,894.5 | 105,373.2 | 101,176.50 | 100,394.90 | 93,878.50 |
| Bradford | 23,602.3 | 30,541.5 | 28,796.90 | 28,405.60 | 28,966.10 |
| Bucks | 333,244.8 | 295,927.9 | 262,145.90 | 248,164.30 | 269,012.40 |
| Butler | 106,113.2 | 107,363.3 | 117,059.10 | 116,372.30 | 118,951.30 |
| Cambria | 89,406.2 | 92,255.2 | 92,216.50 | 86,888.10 | 92,030.30 |
| Cameron | 2,838.6 | 3,057.6 | 2,750.60 | 2,695.10 | 2,678.60 |
| Carbon | 30,481.1 | 35,972.5 | 34,477.50 | 23,691.20 | 21,025.50 |
| Centre | 90,224.4 | 91,739.4 | 89,269.80 | 99,948.80 | 96,915.10 |
| Chester | 326,633.9 | 331,889.1 | 318,831.70 | 315,092.80 | 307,146.60 |
| Clarion | 42,015.7 | 42,666.4 | 41,184.30 | 39,216.20 | 38,176.30 |
| Clearfield | 54,448.3 | 56,260.0 | 51,384.10 | 48,486.60 | 46,236.50 |
| Clinton | 27,327.7 | 28,601.7 | 28,780.50 | 26,784.50 | 26,279.00 |
| Columbia | 53,184.9 | 56,361.6 | 57,239.90 | 35,062.60 | 36,398.70 |
| Crawford | 15,233.7 | 12,361.2 | 11,758.20 | 10,975.90 | 9,761.10 |
| Cumberland | 166,326.1 | 169,502.5 | 158,806.60 | 152,071.40 | 147,311.10 |
| Dauphin | 179,293.3 | 185,450.0 | 195,164.10 | 180,052.60 | 174,908.00 |
| Delaware | 392,023.1 | 399,281.8 | 382,538.90 | 379,648.40 | 402,161.50 |
| Elk | 18,557.1 | 18,796.2 | 18,624.00 | 17,210.10 | 18,499.50 |
| Erie | 153,800.6 | 151,927.2 | 145,044.60 | 140,692.90 | 139,485.30 |
| Fayette | 82,481.7 | 85,900.5 | 81,896.80 | 81,661.70 | 80,845.10 |
| Forest | 44.3 | 2.9 | 11.90 | 23.90 | 30.70 |
| Franklin | 97,081.4 | 98,216.8 | 95,463.80 | 90,136.80 | 92,012.10 |
| Fulton | 4,621.0 | 5,449.0 | 5,270.30 | 3,361.20 | 3,400.80 |
| Greene | 21,892.4 | 22,070.4 | 20,706.70 | 19,308.70 | 21,081.80 |
| Huntingdon | 23,055.9 | 22,361.5 | 25,049.10 | 28,096.40 | 29,578.40 |
| Indiana | 41,254.2 | 40,917.5 | 41,249.80 | 39,409.30 | 38,805.90 |
| Jefferson | 23,265.0 | 23,452.7 | 24,116.30 | 24,874.60 | 25,588.50 |
| Juniata | 222.1 | 363.0 | 177.70 | 167.80 | 131.00 |
| Lackawanna | 210,605.6 | 227,057.4 | 216,395.10 | 209,805.90 | 204,636.40 |
| Lancaster | 317,085.0 | 330,610.1 | 322,640.20 | 321,594.90 | 322,712.70 |
| Lawrence | 19,238.3 | 19,853.0 | 17,484.80 | 14,378.70 | 12,847.70 |
| Lebanon | 82,587.8 | 86,668.6 | 81,450.70 | 80,371.10 | 80,151.00 |
| Lehigh | 286,734.9 | 288,113.2 | 272,605.10 | 260,055.10 | 260,049.00 |

| | | | | | |
|------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
| Luzerne | 246,472.2 | 231,557.0 | 222,438.60 | 206,039.70 | 209,014.70 |
| Lycoming | 73,343.0 | 85,314.5 | 83,594.00 | 77,123.70 | 75,565.60 |
| McKean | 20,013.7 | 19,083.8 | 18,660.50 | 17,424.60 | 16,147.80 |
| Mercer | 130,437.1 | 146,485.9 | 151,063.60 | 141,053.20 | 135,217.90 |
| Mifflin | 37,771.8 | 41,570.3 | 43,589.10 | 39,924.60 | 39,578.80 |
| Monroe | 98,065.8 | 116,524.2 | 111,350.60 | 113,896.00 | 113,239.00 |
| Montgomery | 666,855.3 | 695,227.9 | 642,613.40 | 623,598.80 | 626,421.60 |
| Montour | 8,114.6 | 9,342.8 | 8,841.40 | 8,296.60 | 8,761.00 |
| Northampton | 198,332.4 | 199,315.6 | 197,048.40 | 251,597.90 | 264,933.80 |
| Northumberland | 74,167.6 | 67,859.5 | 61,599.60 | 100,636.70 | 103,803.80 |
| Perry | 17,367.4 | 15,701.6 | 13,529.00 | 9,441.20 | 8,780.40 |
| Philadelphia | 1,376,490.3 | 1,390,446.7 | 1,291,072.00 | 1,316,446.90 | 1,316,762.40 |
| Pike | 25,689.2 | 26,470.0 | 22,539.10 | 32,520.60 | 39,674.90 |
| Potter | 32.8 | 44.0 | 111.50 | 25.60 | 45.90 |
| Schuylkill | 109,712.1 | 119,142.0 | 120,370.10 | 107,092.60 | 109,676.30 |
| Snyder | 15,383.9 | 17,031.6 | 16,395.60 | 14,169.60 | 13,310.80 |
| Somerset | 48,858.6 | 50,237.6 | 46,660.50 | 45,327.90 | 48,712.80 |
| Sullivan | 1,187.0 | 2,012.6 | 3,492.30 | 2,942.20 | 2,608.70 |
| Susquehanna | 16,414.7 | 16,126.8 | 19,530.70 | 21,405.60 | 20,988.90 |
| Tioga | 20,378.1 | 17,204.7 | 16,729.50 | 17,372.60 | 16,881.70 |
| Union | 22,723.2 | 24,093.2 | 24,363.80 | 22,358.50 | 20,681.30 |
| Venango | 2,360.5 | 2,508.3 | 2,872.20 | 3,682.50 | 3,370.10 |
| Warren | 28,530.1 | 28,960.9 | 27,424.20 | 29,807.70 | 30,336.50 |
| Washington | 135,040.0 | 142,710.9 | 133,178.50 | 135,394.60 | 141,279.70 |
| Wayne | 28,733.9 | 29,042.0 | 30,527.40 | 23,953.60 | 20,571.80 |
| Westmoreland | 241,485.4 | 251,789.0 | 242,006.40 | 233,804.10 | 235,033.00 |
| Wyoming | 13,654.7 | 15,702.4 | 16,092.50 | 14,910.00 | 13,515.60 |
| York | 294,505.7 | 306,958.8 | 298,107.80 | 289,413.40 | 291,761.50 |
| TOTAL MSW | 8,831,511.2 | 8,987,315.7 | 8,623,534.60 | 8,555,989.20 | 8,592,078.20 |

Table 2: County Waste Destinations in Tons of MSW, 2015-2019

| County | MSW (2015) | MSW (2016) | MSW (2017) | MSW (2018) | MSW (2019) |
|-----------|------------|------------|------------|------------|------------|
| Adams | 50,515.20 | 52,176.40 | 53,540.10 | 51,531.60 | 54,418.30 |
| Allegheny | 911,094.30 | 909,822.80 | 935,006.60 | 970,405.10 | 952,822.90 |
| Armstrong | 28,901.20 | 28,771.50 | 23,945.50 | 25,516.30 | 23,688.20 |
| Beaver | 119,440.70 | 181,817.80 | 173,054.70 | 173,224.90 | 183,555.80 |
| Bedford | 35,765.60 | 36,630.00 | 38,865.60 | 41,895.70 | 46,070.60 |
| Berks | 286,747.40 | 301,315.80 | 302,215.70 | 322,704.10 | 310,045.10 |
| Blair | 96,314.50 | 102,496.90 | 104,204.80 | 106,767.40 | 109,426.50 |
| Bradford | 24,117.40 | 23,346.70 | 24,909.30 | 26,705.10 | 55,480.20 |
| Bucks | 268,590.30 | 412,776.30 | 405,663.50 | 413,466.40 | 426,703.80 |
| Butler | 124,538.40 | 121,893.90 | 126,427.30 | 125,677.30 | 130,766.10 |
| Cambria | 94,518.00 | 90,110.10 | 93,964.70 | 92,930.70 | 88,330.60 |
| Cameron | 2,772.60 | 2,715.70 | 2,742.70 | 2,684.20 | 2,634.30 |

| | | | | | |
|----------------|--------------|--------------|--------------|--------------|--------------|
| Carbon | 27,744.20 | 28,175.90 | 25,417.30 | 26,879.50 | 28,578.40 |
| Centre | 96,994.50 | 101,489.30 | 104,888.30 | 115,936.00 | 116,885.10 |
| Chester | 294,753.50 | 288,094.20 | 287,261.40 | 296,936.60 | 304,496.90 |
| Clarion | 37,202.20 | 38,161.10 | 38,165.30 | 42,285.40 | 41,001.10 |
| Clearfield | 47,457.00 | 47,144.20 | 46,698.70 | 45,328.00 | 46,431.50 |
| Clinton | 27,880.10 | 28,193.60 | 30,085.30 | 32,614.90 | 33,302.00 |
| Columbia | 41,770.70 | 44,761.40 | 49,640.30 | 50,625.90 | 47,936.80 |
| Crawford | 9,127.90 | 8,936.70 | 9,269.80 | 9,569.10 | 9,622.90 |
| Cumberland | 153,364.90 | 159,981.50 | 166,886.20 | 172,875.30 | 168,280.80 |
| Dauphin | 175,324.70 | 177,436.50 | 192,705.10 | 202,039.40 | 193,070.50 |
| Delaware | 417,804.90 | 429,011.40 | 423,616.90 | 455,814.80 | 454,949.50 |
| Elk | 17,897.90 | 17,507.10 | 18,211.40 | 17,861.70 | 18,361.50 |
| Erie | 138,539.60 | 153,994.00 | 153,082.90 | 112,840.60 | 105,325.40 |
| Fayette | 79,475.30 | 81,429.50 | 82,824.50 | 84,865.30 | 83,694.30 |
| Forest | 115.90 | 63.60 | 124.60 | 89.50 | 10.90 |
| Franklin | 99,012.00 | 96,288.10 | 99,523.00 | 109,284.50 | 109,060.60 |
| Fulton | 3,488.50 | 3,337.60 | 3,286.50 | 3,159.00 | 894.20 |
| Greene | 21,362.60 | 18,584.10 | 18,282.70 | 18,481.90 | 20,102.60 |
| Huntingdon | 28,250.40 | 29,594.30 | 32,948.20 | 36,051.60 | 35,826.40 |
| Indiana | 39,608.30 | 38,309.50 | 38,090.00 | 39,955.50 | 38,254.10 |
| Jefferson | 24,094.60 | 22,363.50 | 22,340.50 | 21,394.10 | 22,705.20 |
| Juniata | 9,356.10 | 9,148.90 | 9,625.70 | 9,656.30 | 9,858.10 |
| Lackawanna | 208,484.90 | 216,616.00 | 239,438.30 | 240,287.40 | 225,248.60 |
| Lancaster | 320,075.60 | 325,924.70 | 335,360.60 | 375,316.90 | 360,345.80 |
| Lawrence | 12,829.70 | 11,892.30 | 11,368.10 | 10,972.70 | 10,830.10 |
| Lebanon | 79,893.60 | 83,042.90 | 85,469.50 | 91,689.30 | 96,143.70 |
| Lehigh | 264,854.80 | 271,973.80 | 273,408.00 | 291,943.60 | 283,333.00 |
| Luzerne | 204,564.20 | 195,286.00 | 209,636.40 | 233,179.00 | 255,590.50 |
| Lycoming | 73,679.50 | 71,187.40 | 75,338.60 | 77,486.00 | 76,574.80 |
| McKean | 16,500.70 | 15,066.50 | 16,020.20 | 15,921.20 | 17,092.70 |
| Mercer | 132,398.90 | 145,120.60 | 136,071.80 | 132,022.10 | 135,654.00 |
| Mifflin | 19,803.60 | 19,329.00 | 20,995.40 | 22,220.40 | 22,268.20 |
| Monroe | 110,176.10 | 114,474.80 | 112,655.40 | 132,890.30 | 122,123.40 |
| Montgomery | 612,928.10 | 530,043.20 | 544,363.70 | 572,349.70 | 645,598.60 |
| Montour | 8,737.30 | 8,965.60 | 9,377.20 | 9,558.10 | 9,482.80 |
| Northampton | 272,764.50 | 263,681.30 | 319,687.10 | 281,488.20 | 281,533.90 |
| Northumberland | 95,408.00 | 75,839.40 | 65,314.20 | 53,386.00 | 44,681.40 |
| Perry | 11,916.70 | 12,578.10 | 12,350.00 | 12,401.40 | 13,756.90 |
| Philadelphia | 1,328,303.80 | 1,230,297.20 | 1,161,941.50 | 1,295,842.90 | 1,283,257.50 |
| Pike | 35,784.60 | 33,733.10 | 29,243.60 | 38,098.10 | 39,403.80 |
| Potter | 15.60 | 6.60 | 15.30 | 557.80 | 2,185.60 |
| Schuylkill | 114,150.50 | 134,365.10 | 148,394.00 | 182,059.60 | 188,524.00 |
| Snyder | 16,187.20 | 15,608.50 | 15,011.50 | 14,145.70 | 12,859.20 |
| Somerset | 48,281.20 | 47,429.40 | 44,405.30 | 45,476.40 | 47,690.10 |
| Sullivan | 2,786.50 | 3,352.80 | 3,365.60 | 3,753.80 | 6,114.10 |

| | | | | | |
|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Susquehanna | 20,529.20 | 20,402.70 | 21,474.30 | 29,320.60 | 35,495.70 |
| Tioga | 17,338.90 | 17,671.20 | 17,746.40 | 18,837.50 | 19,103.80 |
| Union | 22,079.20 | 22,116.20 | 22,929.70 | 23,809.20 | 22,882.50 |
| Venango | 3,176.30 | 3,468.10 | 3,461.70 | 3,560.10 | 3,516.00 |
| Warren | 29,896.80 | 29,999.10 | 45,043.30 | 44,077.50 | 44,576.20 |
| Washington | 139,477.00 | 138,377.30 | 143,533.40 | 150,046.80 | 149,119.80 |
| Wayne | 20,139.90 | 17,174.80 | 16,663.90 | 18,439.40 | 18,354.10 |
| Westmoreland | 235,701.10 | 234,501.70 | 241,085.90 | 253,042.00 | 253,785.60 |
| Wyoming | 13,424.40 | 12,294.70 | 12,771.80 | 9,804.30 | 11,413.60 |
| York | 298,292.40 | 306,248.20 | 321,680.50 | 344,465.50 | 330,622.30 |
| TOTAL MSW | 8,624,522.20 | 8,713,948.20 | 8,853,137.30 | 9,286,503.20 | 9,341,753.50 |

Table 3: Rural County Waste Destinations in Tons of MSW, 2010-2014

| County | MSW (2010) | MSW (2011) | MSW (2012) | MSW (2013) | MSW (2014) |
|------------|------------|------------|------------|------------|------------|
| Adams | 51,882.5 | 51,833.1 | 51,442.4 | 51,467.7 | 52,666.4 |
| Armstrong | 32,514.5 | 32,957.4 | 31,848.4 | 31,210.9 | 29,948.3 |
| Bedford | 22,546.6 | 25,041.0 | 27,541.3 | 32,915.2 | 35,049.6 |
| Blair | 111,894.5 | 105,373.2 | 101,176.5 | 100,394.9 | 93,878.5 |
| Bradford | 23,602.3 | 30,541.5 | 28,796.9 | 28,405.6 | 28,966.1 |
| Butler | 106,113.2 | 107,363.3 | 117,059.1 | 116,372.3 | 118,951.3 |
| Cambria | 89,406.2 | 92,255.2 | 92,216.5 | 86,888.1 | 92,030.3 |
| Cameron | 2,838.6 | 3,057.6 | 2,750.6 | 2,695.1 | 2,678.6 |
| Carbon | 30,481.1 | 35,972.5 | 34,477.5 | 23,691.2 | 21,025.5 |
| Centre | 90,224.4 | 91,739.4 | 89,269.8 | 99,948.8 | 96,915.1 |
| Clarion | 42,015.7 | 42,666.4 | 41,184.3 | 39,216.2 | 38,176.3 |
| Clearfield | 54,448.3 | 56,260.0 | 51,384.1 | 48,486.6 | 46,236.5 |
| Clinton | 27,327.7 | 28,601.7 | 28,780.5 | 26,784.5 | 26,279.0 |
| Columbia | 53,184.9 | 56,361.6 | 57,239.9 | 35,062.6 | 36,398.7 |
| Crawford | 15,233.7 | 12,361.2 | 11,758.2 | 10,975.9 | 9,761.1 |
| Elk | 18,557.1 | 18,796.2 | 18,624.0 | 17,210.1 | 18,499.5 |
| Fayette | 82,481.7 | 85,900.5 | 81,896.8 | 81,661.7 | 80,845.1 |
| Forest | 44.3 | 2.9 | 11.9 | 23.9 | 30.7 |
| Franklin | 97,081.4 | 98,216.8 | 95,463.8 | 90,136.8 | 92,012.1 |
| Fulton | 4,621.0 | 5,449.0 | 5,270.3 | 3,361.2 | 3,400.8 |
| Greene | 21,892.4 | 22,070.4 | 20,706.7 | 19,308.7 | 21,081.8 |
| Huntingdon | 23,055.9 | 22,361.5 | 25,049.1 | 28,096.4 | 29,578.4 |
| Indiana | 41,254.2 | 40,917.5 | 41,249.8 | 39,409.3 | 38,805.9 |
| Jefferson | 23,265.0 | 23,452.7 | 24,116.3 | 24,874.6 | 25,588.5 |
| Juniata | 222.1 | 363.0 | 177.7 | 167.8 | 131.0 |
| Lawrence | 19,238.3 | 19,853.0 | 17,484.8 | 14,378.7 | 12,847.7 |
| Lycoming | 73,343.0 | 85,314.5 | 83,594.0 | 77,123.7 | 75,565.6 |
| McKean | 20,013.7 | 19,083.8 | 18,660.5 | 17,424.6 | 16,147.8 |
| Mercer | 130,437.1 | 146,485.9 | 151,063.6 | 141,053.2 | 135,217.9 |
| Mifflin | 37,771.8 | 41,570.3 | 43,589.1 | 39,924.6 | 39,578.8 |

| | | | | | |
|--------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Monroe | 98,065.8 | 116,524.2 | 111,350.6 | 113,896.0 | 113,239.0 |
| Montour | 8,114.6 | 9,342.8 | 8,841.4 | 8,296.6 | 8,761.0 |
| Northumberland | 74,167.6 | 67,859.5 | 61,599.6 | 100,636.7 | 103,803.8 |
| Perry | 17,367.4 | 15,701.6 | 13,529.0 | 9,441.2 | 8,780.4 |
| Pike | 25,689.2 | 26,470.0 | 22,539.1 | 32,520.6 | 39,674.9 |
| Potter | 32.8 | 44.0 | 111.5 | 25.6 | 45.9 |
| Schuylkill | 109,712.1 | 119,142.0 | 120,370.1 | 107,092.6 | 109,676.3 |
| Snyder | 15,383.9 | 17,031.6 | 16,395.6 | 14,169.6 | 13,310.8 |
| Somerset | 48,858.6 | 50,237.6 | 46,660.5 | 45,327.9 | 48,712.8 |
| Sullivan | 1,187.0 | 2,012.6 | 3,492.3 | 2,942.2 | 2,608.7 |
| Susquehanna | 16,414.7 | 16,126.8 | 19,530.7 | 21,405.6 | 20,988.9 |
| Tioga | 20,378.1 | 17,204.7 | 16,729.5 | 17,372.6 | 16,881.7 |
| Union | 22,723.2 | 24,093.2 | 24,363.8 | 22,358.5 | 20,681.3 |
| Venango | 2,360.5 | 2,508.3 | 2,872.2 | 3,682.5 | 3,370.1 |
| Warren | 28,530.1 | 28,960.9 | 27,424.2 | 29,807.7 | 30,336.5 |
| Washington | 135,040.0 | 142,710.9 | 133,178.5 | 135,394.6 | 141,279.7 |
| Wayne | 28,733.9 | 29,042.0 | 30,527.4 | 23,953.6 | 20,571.8 |
| Wyoming | 13,654.7 | 15,702.4 | 16,092.5 | 14,910.0 | 13,515.6 |
| TOTAL RURAL MSW | 2,013,407.4 | 2,102,938.2 | 2,069,492.9 | 2,031,905.0 | 2,034,532.1 |
| TOTAL COUNTY MSW | 8,831,511.2 | 8,987,315.7 | 8,623,534.6 | 8,555,989.2 | 8,592,078.2 |
| % OF COUNTY MSW THAT IS RURAL | 22.8 | 23.4 | 24.0 | 23.7 | 23.7 |

Table 4: Urban County Waste Destinations in Tons of MSW, 2010-2014

| County | MSW (2010) | MSW (2011) | MSW (2012) | MSW (2013) | MSW (2014) |
|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Allegheny | 913,014.2 | 910,102.3 | 892,155.9 | 888,646.2 | 894,248.2 |
| Beaver | 125,049.3 | 122,122.9 | 121,808.1 | 159,739.7 | 139,295.1 |
| Berks | 307,563.9 | 310,429.5 | 291,168.2 | 267,248.1 | 272,501.8 |
| Bucks | 333,244.8 | 295,927.9 | 262,145.9 | 248,164.3 | 269,012.4 |
| Chester | 326,633.9 | 331,889.1 | 318,831.7 | 315,092.8 | 307,146.6 |
| Cumberland | 166,326.1 | 169,502.5 | 158,806.6 | 152,071.4 | 147,311.1 |
| Dauphin | 179,293.3 | 185,450.0 | 195,164.1 | 180,052.6 | 174,908.0 |
| Delaware | 392,023.1 | 399,281.8 | 382,538.9 | 379,648.4 | 402,161.5 |
| Erie | 153,800.6 | 151,927.2 | 145,044.6 | 140,692.9 | 139,485.3 |
| Lackawanna | 210,605.6 | 227,057.4 | 216,395.1 | 209,805.9 | 204,636.4 |
| Lancaster | 317,085.0 | 330,610.1 | 322,640.2 | 321,594.9 | 322,712.7 |
| Lebanon | 82,587.8 | 86,668.6 | 81,450.7 | 80,371.1 | 80,151.0 |
| Lehigh | 286,734.9 | 288,113.2 | 272,605.1 | 260,055.1 | 260,049.0 |
| Luzerne | 246,472.2 | 231,557.0 | 222,438.6 | 206,039.7 | 209,014.7 |

| | | | | | |
|--------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Montgomery | 666,855.3 | 695,227.9 | 642,613.4 | 623,598.8 | 626,421.6 |
| Northampton | 198,332.4 | 199,315.6 | 197,048.4 | 251,597.9 | 264,933.8 |
| Philadelphia | 1,376,490.3 | 1,390,446.7 | 1,291,072.0 | 1,316,446.9 | 1,316,762.4 |
| Westmoreland | 241,485.4 | 251,789.0 | 242,006.4 | 233,804.1 | 235,033.0 |
| York | 294,505.7 | 306,958.8 | 298,107.8 | 289,413.4 | 291,761.5 |
| TOTAL URBAN MSW | 6,818,103.8 | 6,884,377.5 | 6,554,041.7 | 6,524,084.2 | 6,557,546.1 |
| TOTAL COUNTY MSW | 8,831,511.2 | 8,987,315.7 | 8,623,534.6 | 8,555,989.2 | 8,592,078.2 |
| % OF COUNTY MSW THAT IS URBAN | 77.2 | 76.6 | 76.0 | 76.3 | 76.3 |

Table 5: Rural County Waste Destinations in Tons of MSW, 2015-2019

| County | MSW (2015) | MSW (2016) | MSW (2017) | MSW (2018) | MSW (2019) |
|------------|------------|------------|------------|------------|------------|
| Adams | 50,515.2 | 52,176.4 | 53,540.1 | 51,531.6 | 54,418.3 |
| Armstrong | 28,901.2 | 28,771.5 | 23,945.5 | 25,516.3 | 23,688.2 |
| Bedford | 35,765.6 | 36,630.0 | 38,865.6 | 41,895.7 | 46,070.6 |
| Blair | 96,314.5 | 102,496.9 | 104,204.8 | 106,767.4 | 109,426.5 |
| Bradford | 24,117.4 | 23,346.7 | 24,909.3 | 26,705.1 | 55,480.2 |
| Butler | 124,538.4 | 121,893.9 | 126,427.3 | 125,677.3 | 130,766.1 |
| Cambria | 94,518.0 | 90,110.1 | 93,964.7 | 92,930.7 | 88,330.6 |
| Cameron | 2,772.6 | 2,715.7 | 2,742.7 | 2,684.2 | 2,634.3 |
| Carbon | 27,744.2 | 28,175.9 | 25,417.3 | 26,879.5 | 28,578.4 |
| Centre | 96,994.5 | 101,489.3 | 104,888.3 | 115,936.0 | 116,885.1 |
| Clarion | 37,202.2 | 38,161.1 | 38,165.3 | 42,285.4 | 41,001.1 |
| Clearfield | 47,457.0 | 47,144.2 | 46,698.7 | 45,328.0 | 46,431.5 |
| Clinton | 27,880.1 | 28,193.6 | 30,085.3 | 32,614.9 | 33,302.0 |
| Columbia | 41,770.7 | 44,761.4 | 49,640.3 | 50,625.9 | 47,936.8 |
| Crawford | 9,127.9 | 8,936.7 | 9,269.8 | 9,569.1 | 9,622.9 |
| Elk | 17,897.9 | 17,507.1 | 18,211.4 | 17,861.7 | 18,361.5 |
| Fayette | 79,475.3 | 81,429.5 | 82,824.5 | 84,865.3 | 83,694.3 |
| Forest | 115.9 | 63.6 | 124.6 | 89.5 | 10.9 |
| Franklin | 99,012.0 | 96,288.1 | 99,523.0 | 109,284.5 | 109,060.6 |
| Fulton | 3,488.5 | 3,337.6 | 3,286.5 | 3,159.0 | 894.2 |
| Greene | 21,362.6 | 18,584.1 | 18,282.7 | 18,481.9 | 20,102.6 |
| Huntingdon | 28,250.4 | 29,594.3 | 32,948.2 | 36,051.6 | 35,826.4 |
| Indiana | 39,608.3 | 38,309.5 | 38,090.0 | 39,955.5 | 38,254.1 |
| Jefferson | 24,094.6 | 22,363.5 | 22,340.5 | 21,394.1 | 22,705.2 |
| Juniata | 9,356.1 | 9,148.9 | 9,625.7 | 9,656.3 | 9,858.1 |
| Lawrence | 12,829.7 | 11,892.3 | 11,368.1 | 10,972.7 | 10,830.1 |
| Lycoming | 73,679.5 | 71,187.4 | 75,338.6 | 77,486.0 | 76,574.8 |

| | | | | | |
|--------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| McKean | 16,500.7 | 15,066.5 | 16,020.2 | 15,921.2 | 17,092.7 |
| Mercer | 132,398.9 | 145,120.6 | 136,071.8 | 132,022.1 | 135,654.0 |
| Mifflin | 19,803.6 | 19,329.0 | 20,995.4 | 22,220.4 | 22,268.2 |
| Monroe | 110,176.1 | 114,474.8 | 112,655.4 | 132,890.3 | 122,123.4 |
| Montour | 8,737.3 | 8,965.6 | 9,377.2 | 9,558.1 | 9,482.8 |
| Northumberland | 95,408.0 | 75,839.4 | 65,314.2 | 53,386.0 | 44,681.4 |
| Perry | 11,916.7 | 12,578.1 | 12,350.0 | 12,401.4 | 13,756.9 |
| Pike | 35,784.6 | 33,733.1 | 29,243.6 | 38,098.1 | 39,403.8 |
| Potter | 15.6 | 6.6 | 15.3 | 557.8 | 2,185.6 |
| Schuylkill | 114,150.5 | 134,365.1 | 148,394.0 | 182,059.6 | 188,524.0 |
| Snyder | 16,187.2 | 15,608.5 | 15,011.5 | 14,145.7 | 12,859.2 |
| Somerset | 48,281.2 | 47,429.4 | 44,405.3 | 45,476.4 | 47,690.1 |
| Sullivan | 2,786.5 | 3,352.8 | 3,365.6 | 3,753.8 | 6,114.1 |
| Susquehanna | 20,529.2 | 20,402.7 | 21,474.3 | 29,320.6 | 35,495.7 |
| Tioga | 17,338.9 | 17,671.2 | 17,746.4 | 18,837.5 | 19,103.8 |
| Union | 22,079.2 | 22,116.2 | 22,929.7 | 23,809.2 | 22,882.5 |
| Venango | 3,176.3 | 3,468.1 | 3,461.7 | 3,560.1 | 3,516.0 |
| Warren | 29,896.8 | 29,999.1 | 45,043.3 | 44,077.5 | 44,576.2 |
| Washington | 139,477.0 | 138,377.3 | 143,533.4 | 150,046.8 | 149,119.8 |
| Wayne | 20,139.9 | 17,174.8 | 16,663.9 | 18,439.4 | 18,354.1 |
| Wyoming | 13,424.4 | 12,294.7 | 12,771.8 | 9,804.3 | 11,413.6 |
| TOTAL RURAL MSW | 2,032,998.9 | 2,042,082.9 | 2,081,572.8 | 2,186,591.5 | 2,227,043.3 |
| TOTAL COUNTY MSW | 8,624,522.2 | 8,713,948.2 | 8,853,137.3 | 9,286,503.2 | 9,341,753.5 |
| % OF COUNTY MSW THAT IS RURAL | 23.6 | 23.4 | 23.5 | 23.5 | 23.8 |

Table 6: Urban County Waste Destinations in Tons of MSW, 2015-2019

| County | MSW (2015) | MSW (2016) | MSW (2017) | MSW (2018) | MSW (2019) |
|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Allegheny | 911,094.3 | 909,822.8 | 935,006.6 | 970,405.1 | 952,822.9 |
| Beaver | 119,440.7 | 181,817.8 | 173,054.7 | 173,224.9 | 183,555.8 |
| Berks | 286,747.4 | 301,315.8 | 302,215.7 | 322,704.1 | 310,045.1 |
| Bucks | 268,590.3 | 412,776.3 | 405,663.5 | 413,466.4 | 426,703.8 |
| Chester | 294,753.5 | 288,094.2 | 287,261.4 | 296,936.6 | 304,496.9 |
| Cumberland | 153,364.9 | 159,981.5 | 166,886.2 | 172,875.3 | 168,280.8 |
| Dauphin | 175,324.7 | 177,436.5 | 192,705.1 | 202,039.4 | 193,070.5 |
| Delaware | 417,804.9 | 429,011.4 | 423,616.9 | 455,814.8 | 454,949.5 |
| Erie | 138,539.6 | 153,994.0 | 153,082.9 | 112,840.6 | 105,325.4 |
| Lackawanna | 208,484.9 | 216,616.0 | 239,438.3 | 240,287.4 | 225,248.6 |
| Lancaster | 320,075.6 | 325,924.7 | 335,360.6 | 375,316.9 | 360,345.8 |

| | | | | | |
|--------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Lebanon | 79,893.6 | 83,042.9 | 85,469.5 | 91,689.3 | 96,143.7 |
| Lehigh | 264,854.8 | 271,973.8 | 273,408.0 | 291,943.6 | 283,333.0 |
| Luzerne | 204,564.2 | 195,286.0 | 209,636.4 | 233,179.0 | 255,590.5 |
| Montgomery | 612,928.1 | 530,043.2 | 544,363.7 | 572,349.7 | 645,598.6 |
| Northampton | 272,764.5 | 263,681.3 | 319,687.1 | 281,488.2 | 281,533.9 |
| Philadelphia | 1,328,303.8 | 1,230,297.2 | 1,161,941.5 | 1,295,842.9 | 1,283,257.5 |
| Westmoreland | 235,701.1 | 234,501.7 | 241,085.9 | 253,042.0 | 253,785.6 |
| York | 298,292.4 | 306,248.2 | 321,680.5 | 344,465.5 | 330,622.3 |
| TOTAL URBAN MSW | 6,591,523.3 | 6,671,865.3 | 6,771,564.5 | 7,099,911.7 | 7,114,710.2 |
| TOTAL COUNTY MSW | 8,624,522.2 | 8,713,948.2 | 8,853,137.3 | 9,286,503.2 | 9,341,753.5 |
| % OF COUNTY MSW THAT IS URBAN | 76.4 | 76.6 | 76.5 | 76.5 | 76.2 |

Table 7: Rural County Waste Destinations in Tons of MSW, 2010-2019

| County | MSW (2010-19) |
|---------------|----------------------|
| Adams | 521,473.7 |
| Armstrong | 289,302.2 |
| Bedford | 342,321.2 |
| Blair | 1,031,927.7 |
| Bradford | 294,871.1 |
| Butler | 1,195,162.2 |
| Cambria | 912,650.4 |
| Cameron | 27,570.0 |
| Carbon | 282,443.1 |
| Centre | 1,004,290.7 |
| Clarion | 400,074.0 |
| Clearfield | 489,874.9 |
| Clinton | 289,849.3 |
| Columbia | 472,982.8 |
| Crawford | 106,616.5 |
| Elk | 181,526.5 |
| Fayette | 825,074.7 |
| Forest | 518.2 |
| Franklin | 986,079.1 |
| Fulton | 36,268.1 |
| Greene | 201,873.9 |
| Huntingdon | 290,812.2 |
| Indiana | 395,854.1 |
| Jefferson | 234,195.0 |

| | |
|--------------------------------------------------|---------------------|
| Juniata | 48,706.7 |
| Lawrence | 141,695.4 |
| Lycoming | 769,207.1 |
| McKean | 171,931.7 |
| Mercer | 1,385,525.1 |
| Mifflin | 307,051.2 |
| Monroe | 1,145,395.6 |
| Montour | 89,477.4 |
| Northumberland | 742,696.2 |
| Perry | 127,822.7 |
| Pike | 323,157.0 |
| Potter | 3,040.7 |
| Schuylkill | 1,333,486.3 |
| Snyder | 150,103.6 |
| Somerset | 473,079.8 |
| Sullivan | 31,615.6 |
| Susquehanna | 221,689.2 |
| Tioga | 179,264.4 |
| Union | 228,036.8 |
| Venango | 31,975.8 |
| Warren | 338,652.3 |
| Washington | 1,408,158.0 |
| Wayne | 223,600.8 |
| Wyoming | 133,584.0 |
| TOTAL RURAL MSW | 20,822,565.0 |
| TOTAL COUNTY MSW | 88,410,293.3 |
| % OF COUNTY MSW THAT IS RURAL | 23.6 |

Table 8: Urban County Waste Destinations in Tons of MSW, 2010-2019

| County | MSW (2010-19) |
|---------------|----------------------|
| Allegheny | 9,177,318.5 |
| Beaver | 1,499,109.0 |
| Berks | 2,971,939.6 |
| Bucks | 3,335,695.6 |
| Chester | 3,071,136.7 |
| Cumberland | 1,615,406.4 |
| Dauphin | 1,855,444.2 |
| Delaware | 4,136,851.2 |

| | |
|--------------------------------------|---------------------|
| Erie | 1,394,733.1 |
| Lackawanna | 2,198,575.6 |
| Lancaster | 3,331,666.5 |
| Lebanon | 847,468.2 |
| Lehigh | 2,753,070.5 |
| Luzerne | 2,213,778.3 |
| Montgomery | 6,160,000.3 |
| Northampton | 2,530,383.1 |
| Philadelphia | 12,990,861.2 |
| Westmoreland | 2,422,234.2 |
| York | 3,082,056.1 |
| TOTAL URBAN MSW | 67,587,728.3 |
| TOTAL COUNTY MSW | 88,410,293.3 |
| % OF COUNTY MSW THAT IS URBAN | 76.4 |

Table 9: County Waste Destinations by DEP Region in Tons of MSW, 2010-2019

| DEP Region | Counties | MSW (2010-19) |
|-------------------|-----------------------|----------------------|
| Southeast | Bucks | 3,335,695.6 |
| | Chester | 3,071,136.7 |
| | Delaware | 4,136,851.2 |
| | Montgomery | 6,160,000.3 |
| | Philadelphia | 12,990,861.2 |
| | REGION TOTAL | 29,694,545.00 |
| | % OF TOTAL MSW | 33.59 |
| Northeast | Carbon | 282,443.1 |
| | Lackawanna | 2,198,575.6 |
| | Lehigh | 2,753,070.5 |
| | Luzerne | 2,213,778.3 |
| | Monroe | 1,145,395.6 |
| | Northampton | 2,530,383.1 |
| | Pike | 323,157.0 |
| | Schuylkill | 1,333,486.3 |
| | Susquehanna | 221,689.2 |
| | Wayne | 223,600.8 |
| | Wyoming | 133,584.0 |

| | | | |
|---------------------|-----------------------|-----------------------|----------------------|
| | REGION TOTAL | 13,359,163.50 | |
| | % OF TOTAL MSW | 15.11 | |
| Southcentral | Adams | 521,473.7 | |
| | Bedford | 342,321.2 | |
| | Berks | 2,971,939.6 | |
| | Blair | 1,031,927.7 | |
| | Cumberland | 1,615,406.4 | |
| | Dauphin | 1,855,444.2 | |
| | Franklin | 986,079.1 | |
| | Fulton | 36,268.1 | |
| | Huntingdon | 290,812.2 | |
| | Juniata | 48,706.7 | |
| | Lancaster | 3,331,666.5 | |
| | Lebanon | 847,468.2 | |
| | Mifflin | 307,051.2 | |
| | Perry | 127,822.7 | |
| | York | 3,082,056.1 | |
| | | REGION TOTAL | 17,396,443.60 |
| | | % OF TOTAL MSW | 19.68 |
| Northcentral | Bradford | 294,871.1 | |
| | Cameron | 27,570.0 | |
| | Centre | 1,004,290.7 | |
| | Clearfield | 489,874.9 | |
| | Clinton | 289,849.3 | |
| | Columbia | 472,982.8 | |
| | Lycoming | 769,207.1 | |
| | Montour | 89,477.4 | |
| | Northumberland | 742,696.2 | |
| | Potter | 3,040.7 | |
| | Snyder | 150,103.6 | |
| | Sullivan | 31,615.6 | |
| | Tioga | 179,264.4 | |
| | Union | 228,036.8 | |
| | | REGION TOTAL | 4,772,880.60 |
| | % OF TOTAL MSW | 5.40 | |
| Southwest | Allegheny | 9,177,318.5 | |
| | Beaver | 1,499,109.0 | |
| | Cambria | 912,650.4 | |
| | Fayette | 825,074.7 | |

| | | |
|------------------|-----------------------|----------------------|
| | Greene | 201,873.9 |
| | Somerset | 473,079.8 |
| | Washington | 1,408,158.0 |
| | Westmoreland | 2,422,234.2 |
| | REGION TOTAL | 16,919,498.50 |
| | % OF TOTAL MSW | 19.14 |
| Northwest | Armstrong | 289,302.2 |
| | Butler | 1,195,162.2 |
| | Clarion | 400,074.0 |
| | Crawford | 106,616.5 |
| | Elk | 181,526.5 |
| | Erie | 1,394,733.1 |
| | Forest | 518.2 |
| | Indiana | 395,854.1 |
| | Jefferson | 234,195.0 |
| | Lawrence | 141,695.4 |
| | McKean | 171,931.7 |
| | Mercer | 1,385,525.1 |
| | Venango | 31,975.8 |
| | Warren | 338,652.3 |
| | REGION TOTAL | 6,267,762.10 |
| | % OF TOTAL MSW | 7.089403129 |

Figure 1: Percent of MSW Generated by County, 2010-2019

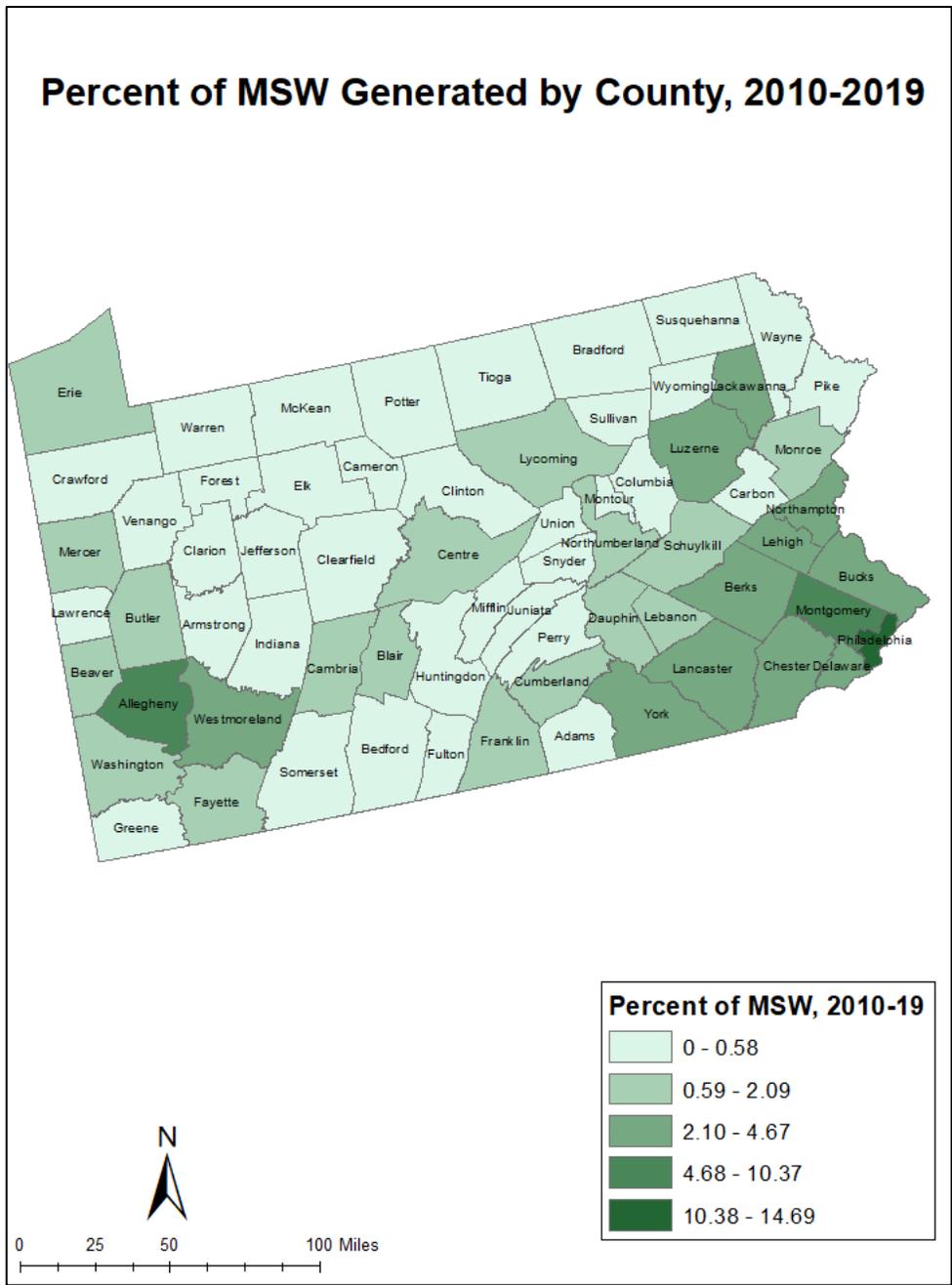


Figure 2: Percent of MSW Generated by County, 2010

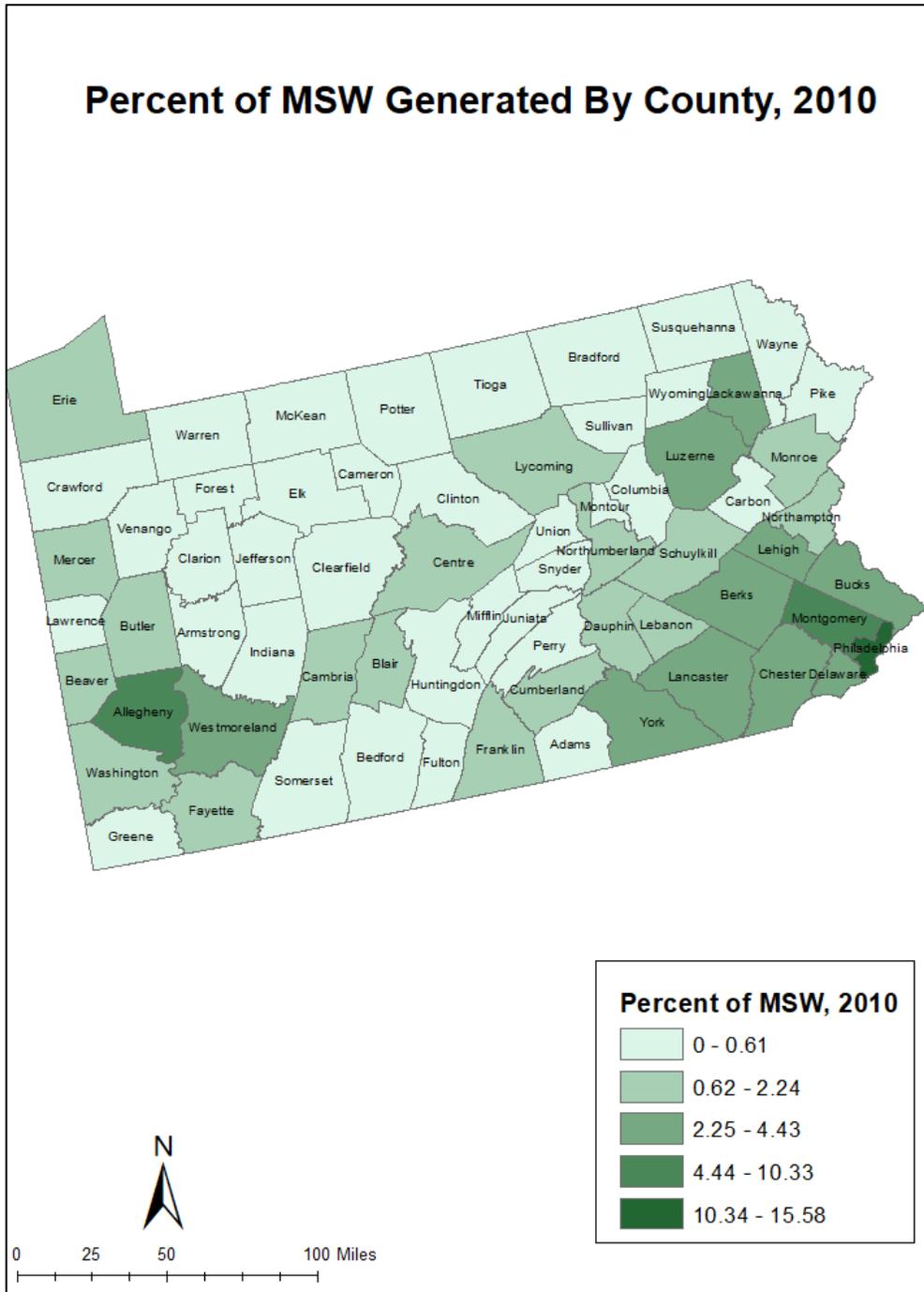


Figure 3: Percent of MSW Generated by County, 2011

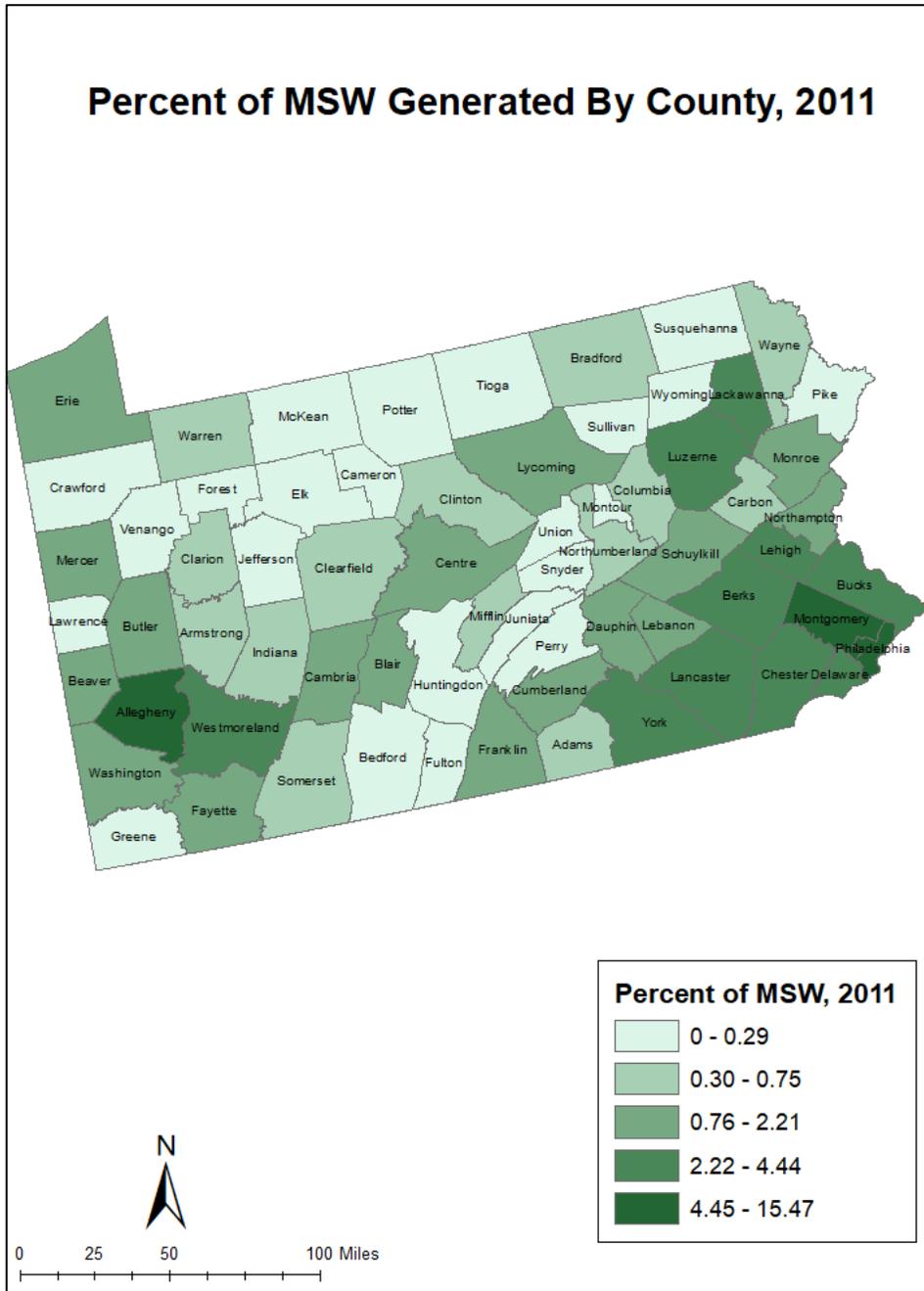


Figure 4: Percent of MSW Generated by County, 2012

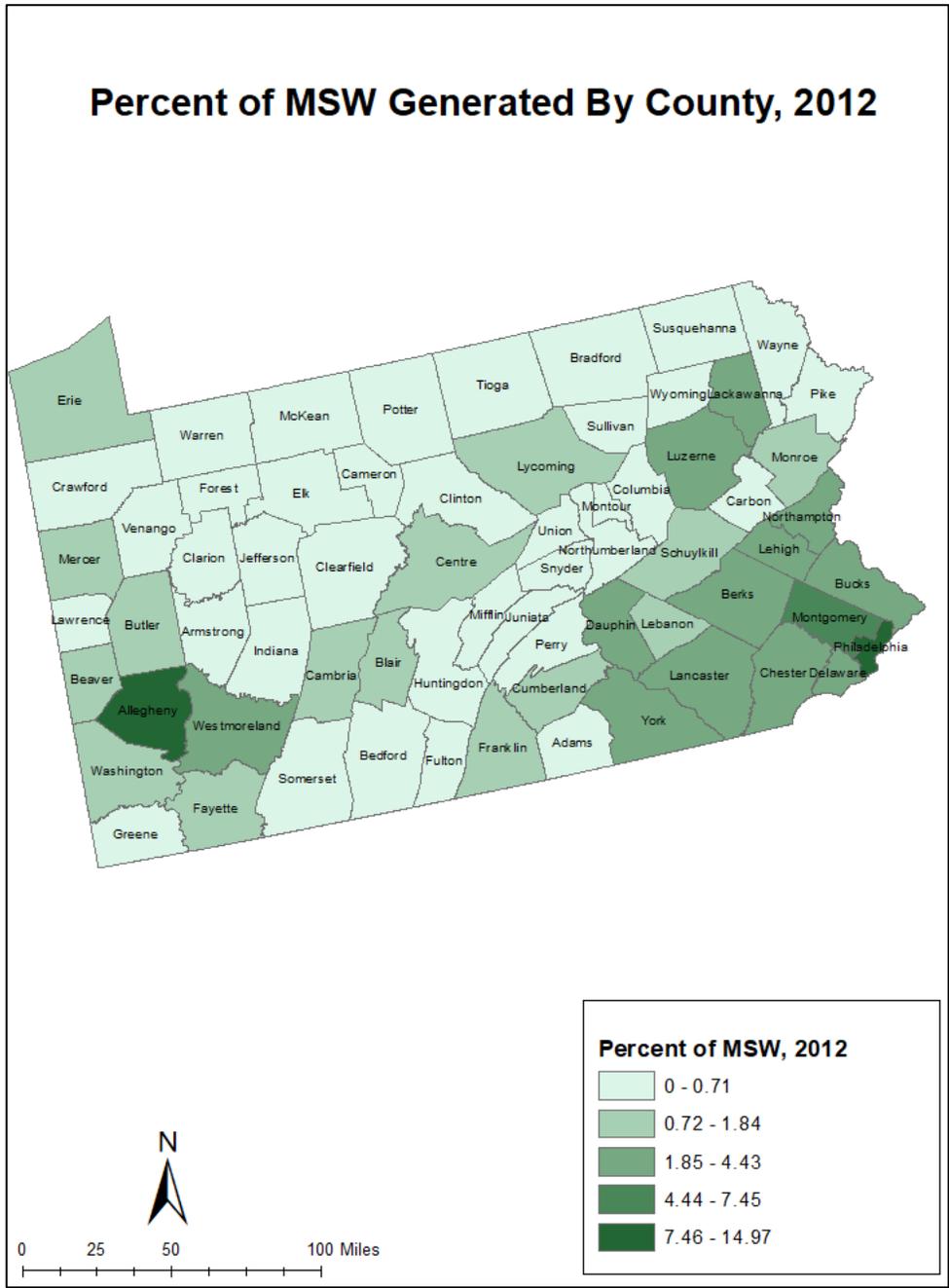


Figure 5: Percent of MSW Generated by County, 2013

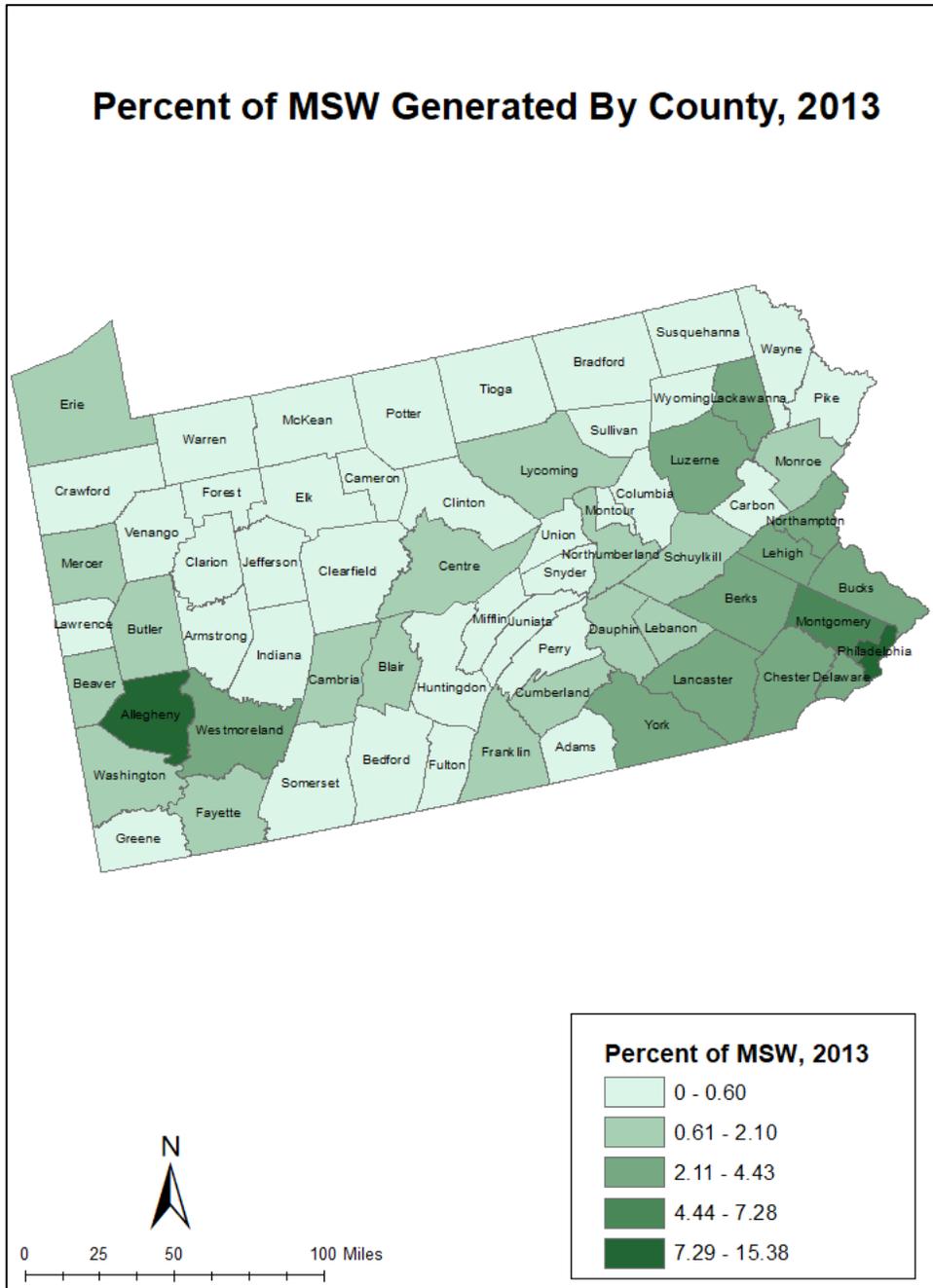


Figure 6: Percent of MSW Generated by County, 2014

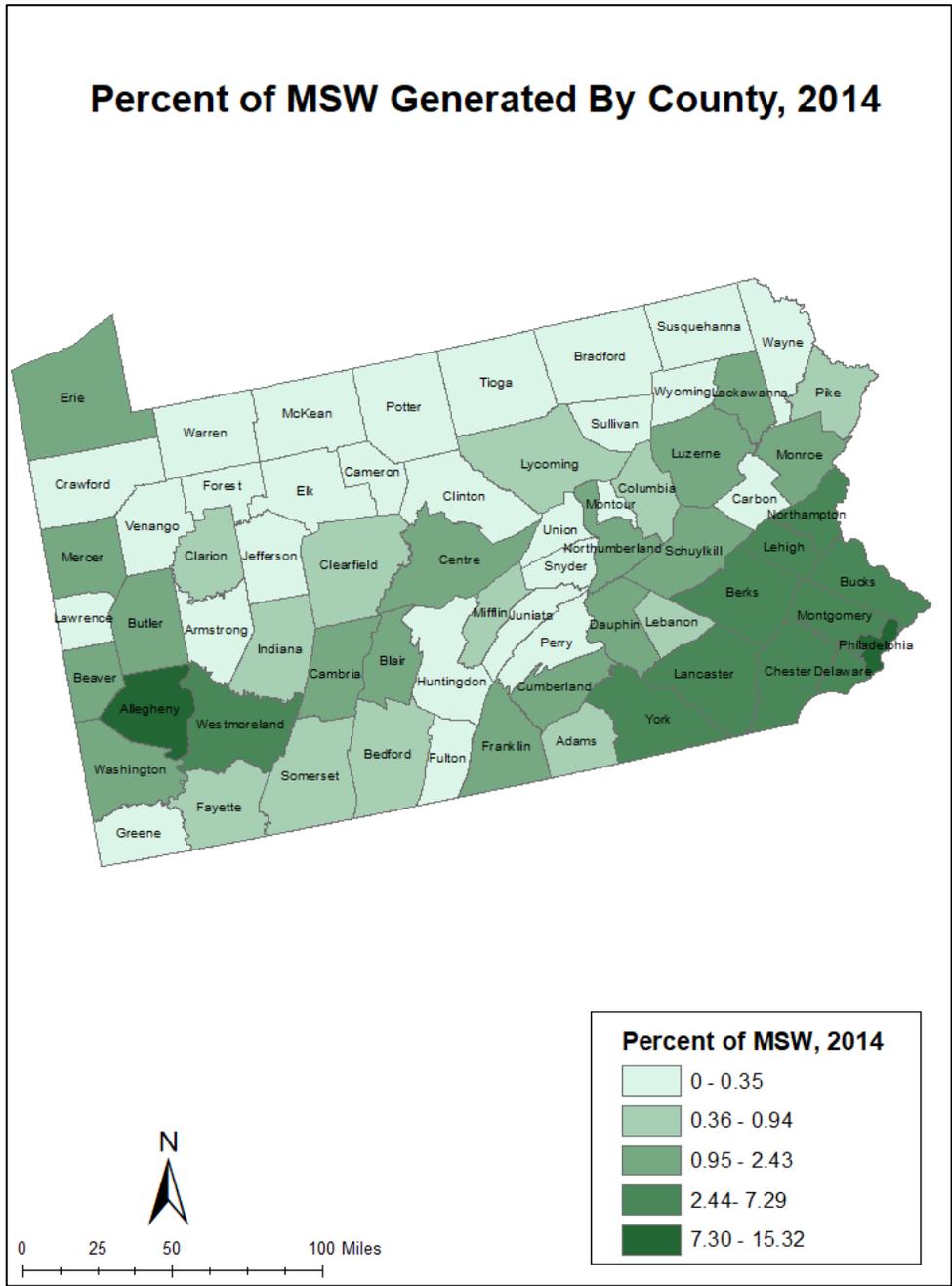


Figure 7: Percent of MSW Generated by County, 2015

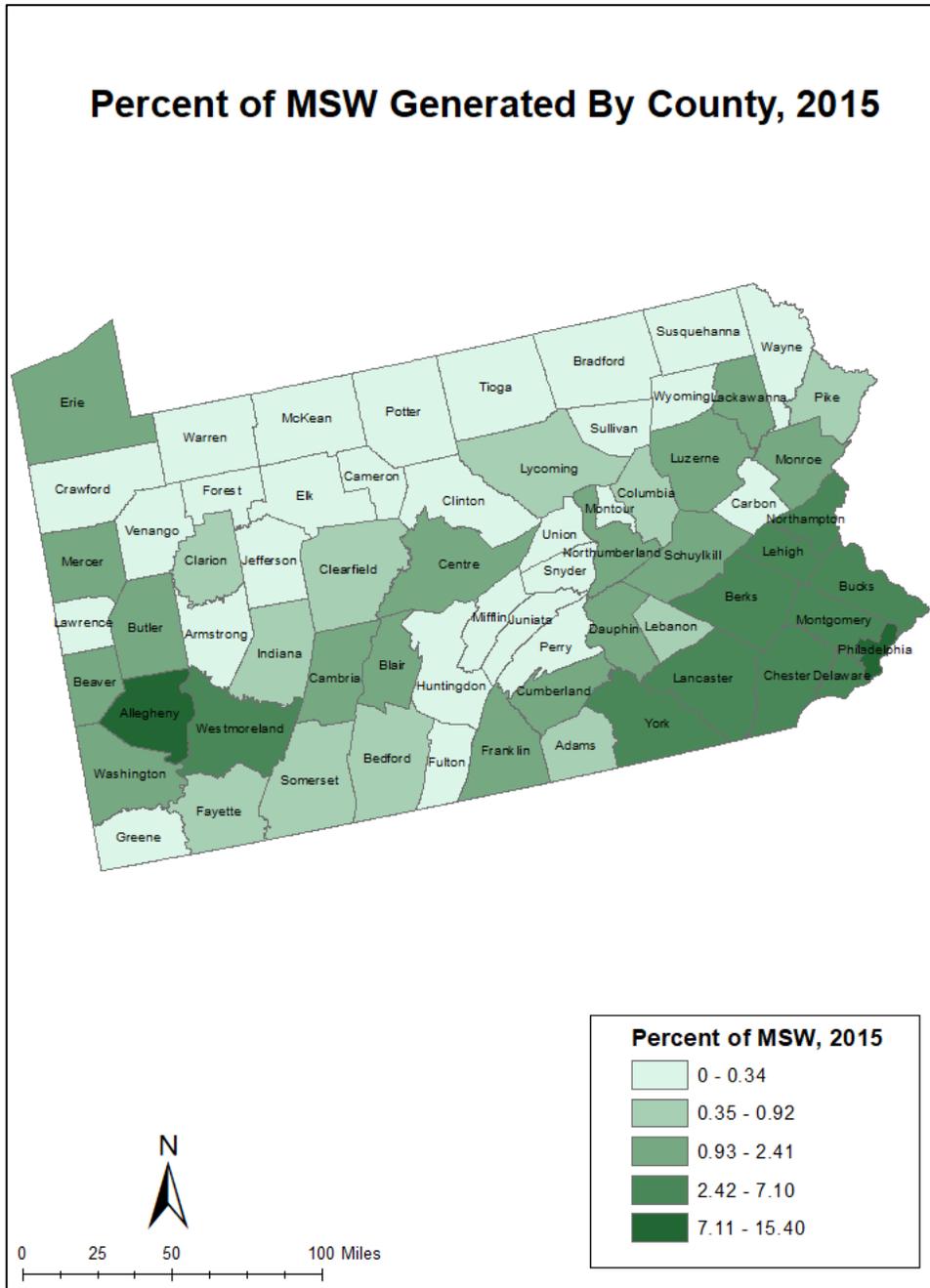


Figure 8: Percent of MSW Generated by County, 2016

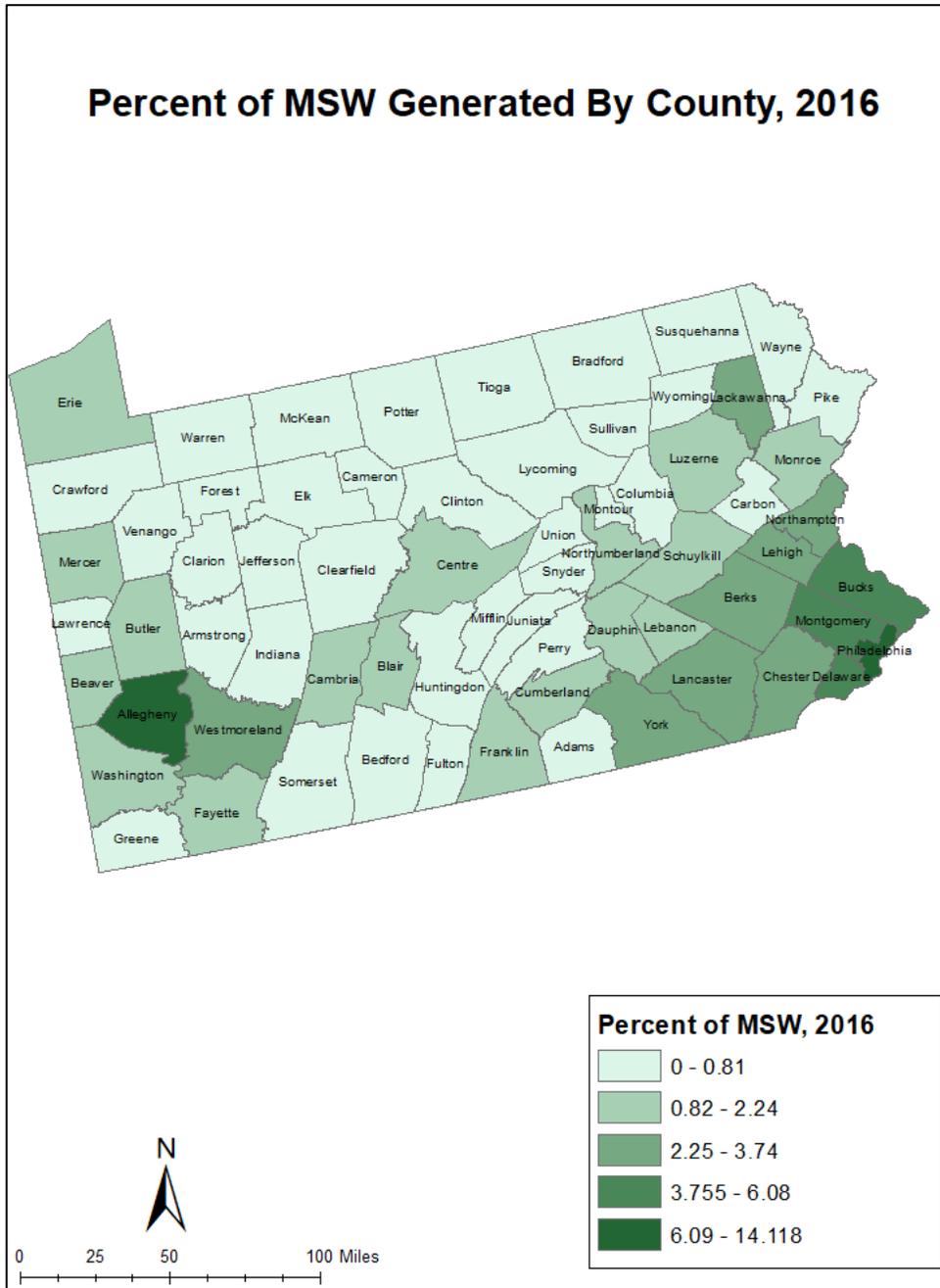


Figure 9: Percent of MSW Generated by County, 2017

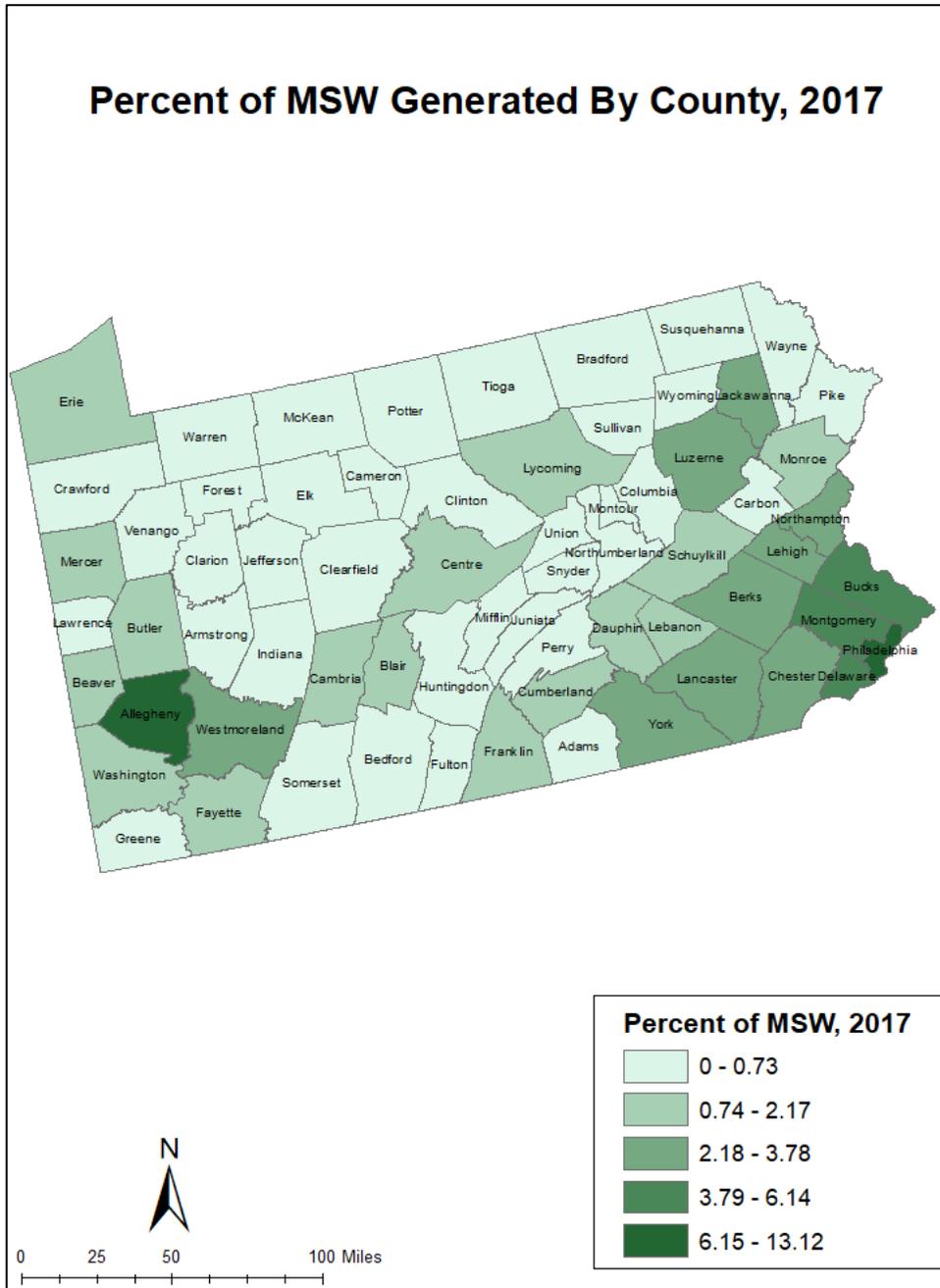


Figure 10: Percent of MSW Generated by County, 2018

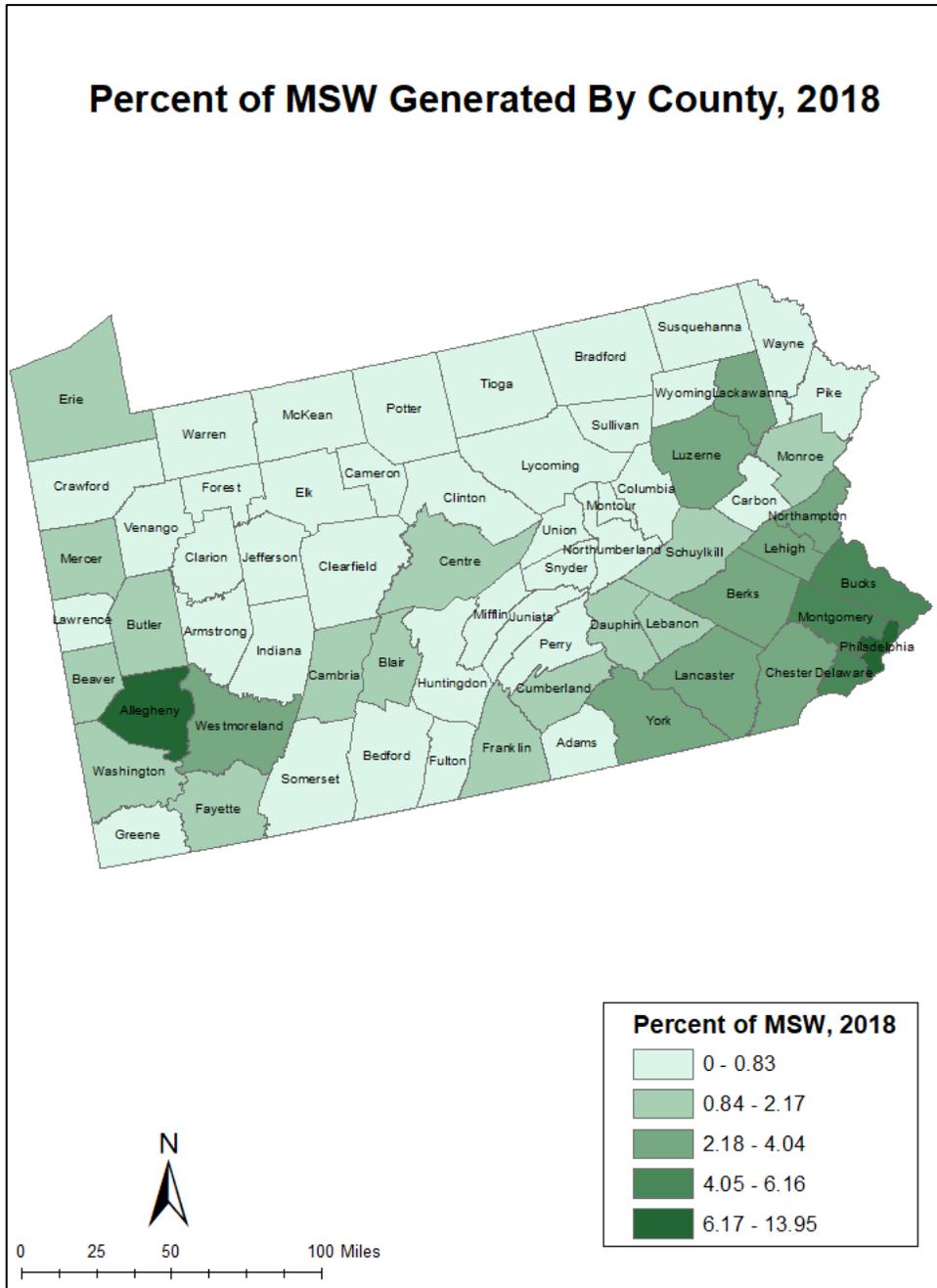


Figure 11: Percent of MSW Generated by County, 2019

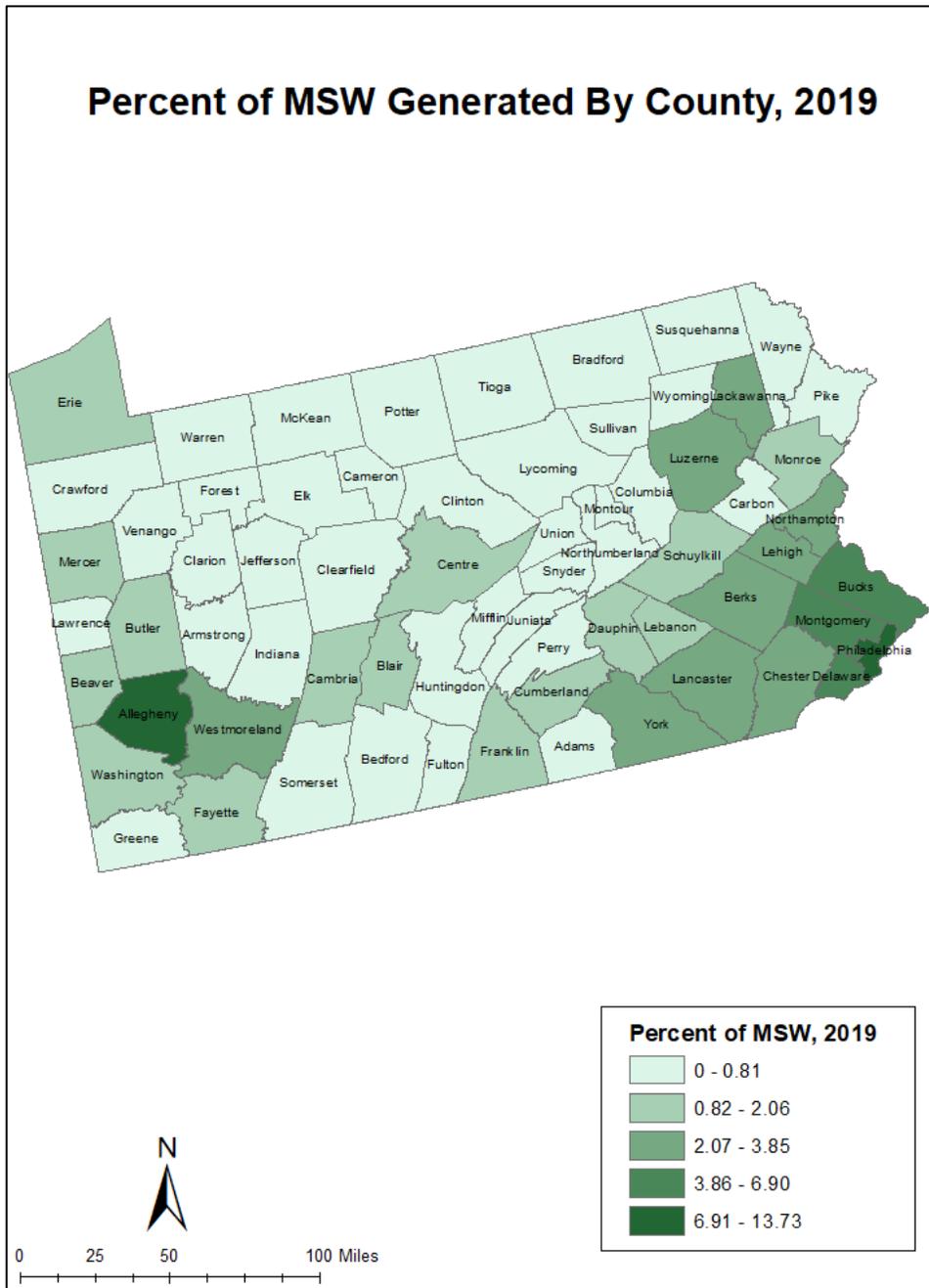


Figure 12: Per Capita of MSW Generated by County, 2010-2019

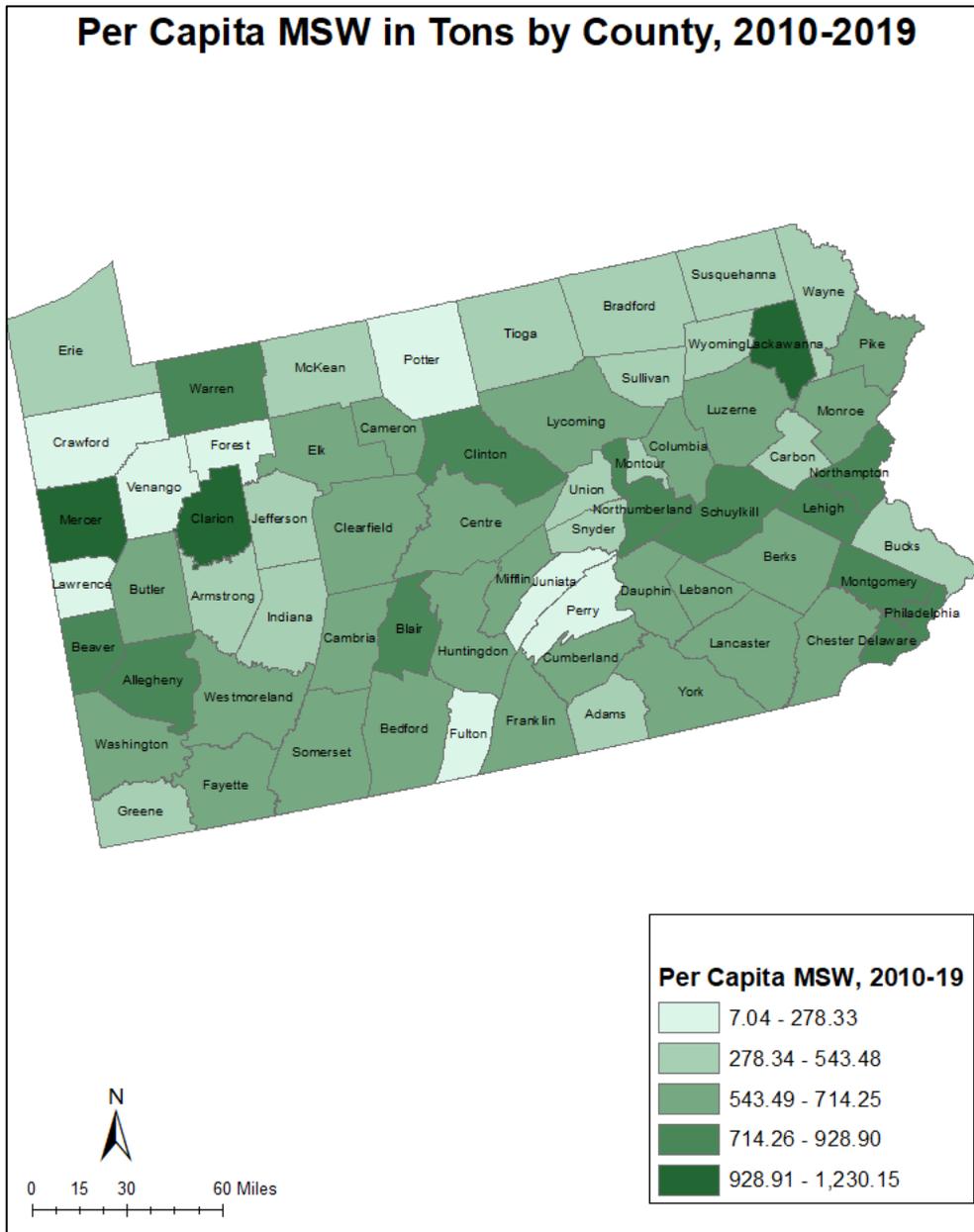


Figure 13: Per Capita of MSW Generated by County, 2010

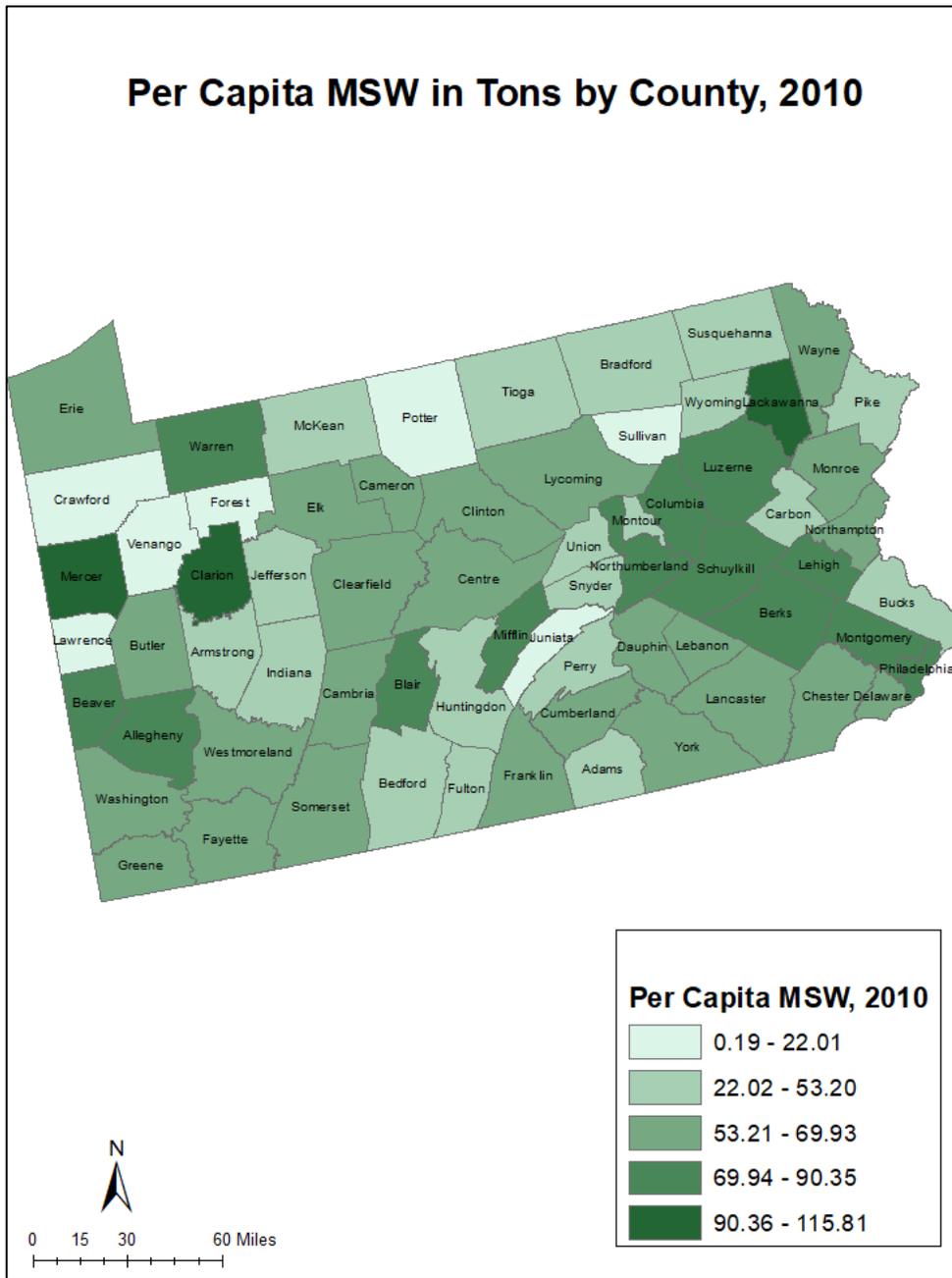


Figure 14: Per Capita of MSW Generated by County, 2011

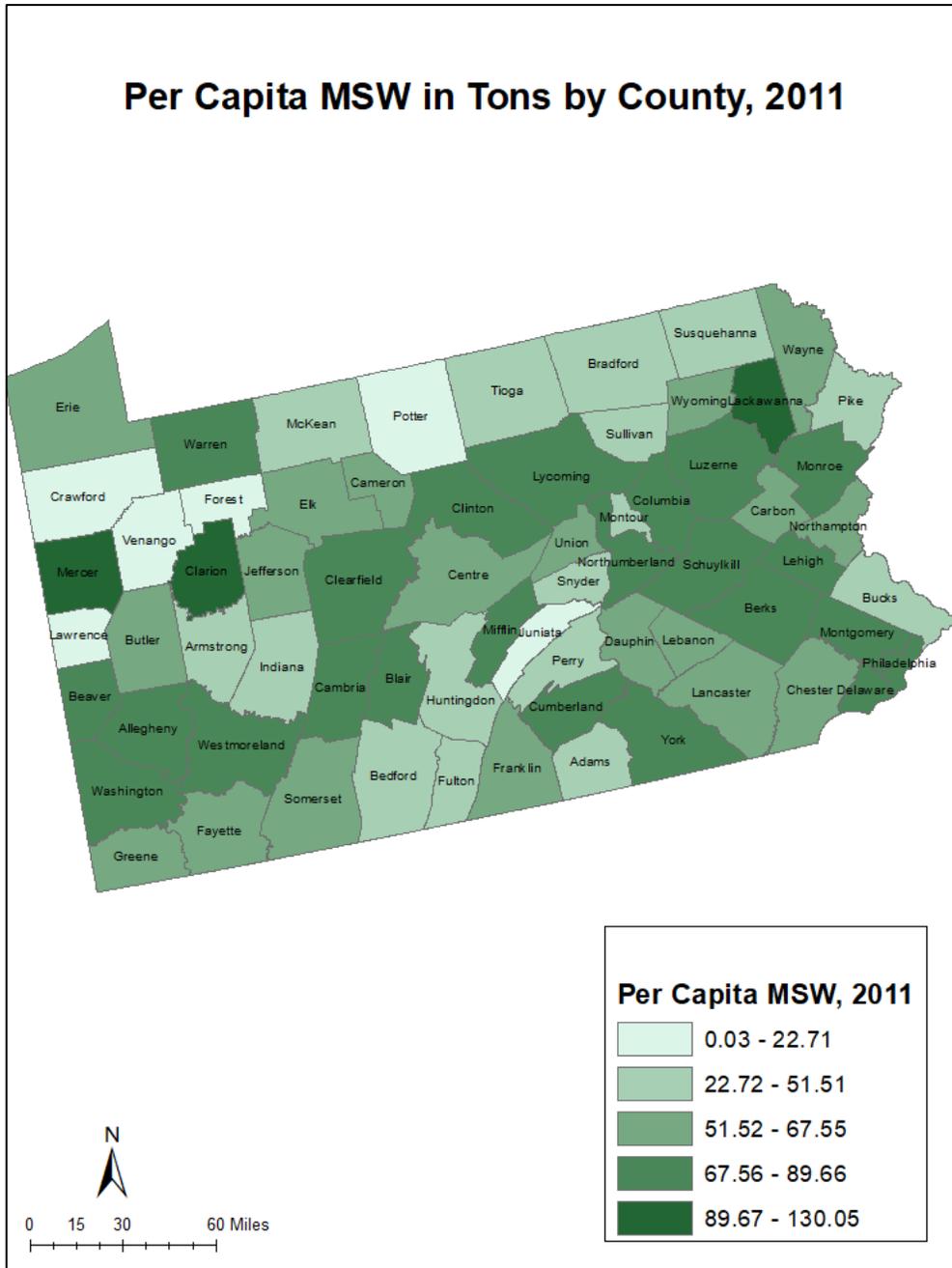


Figure 15: Per Capita of MSW Generated by County, 2012

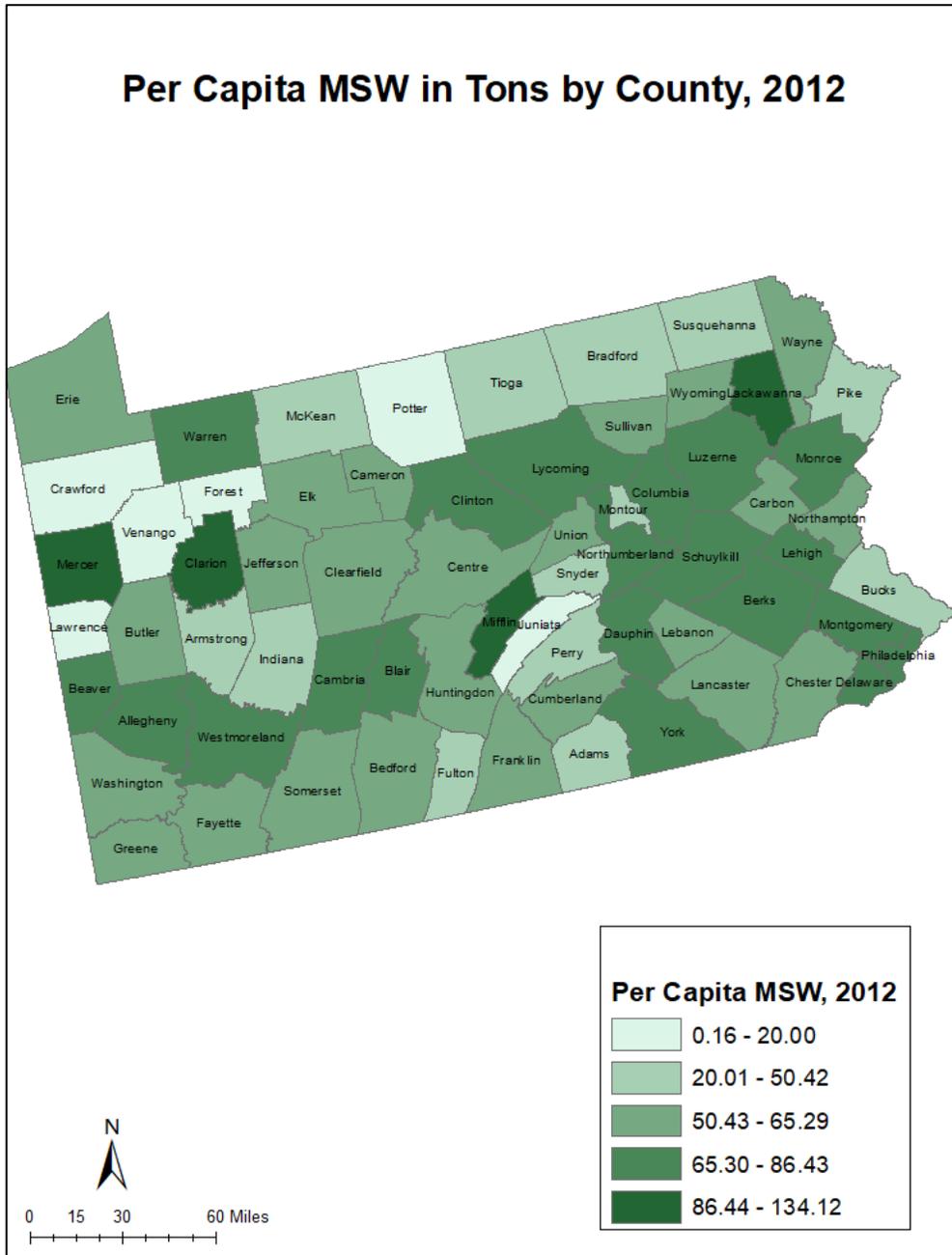


Figure 16: Per Capita of MSW Generated by County, 2013

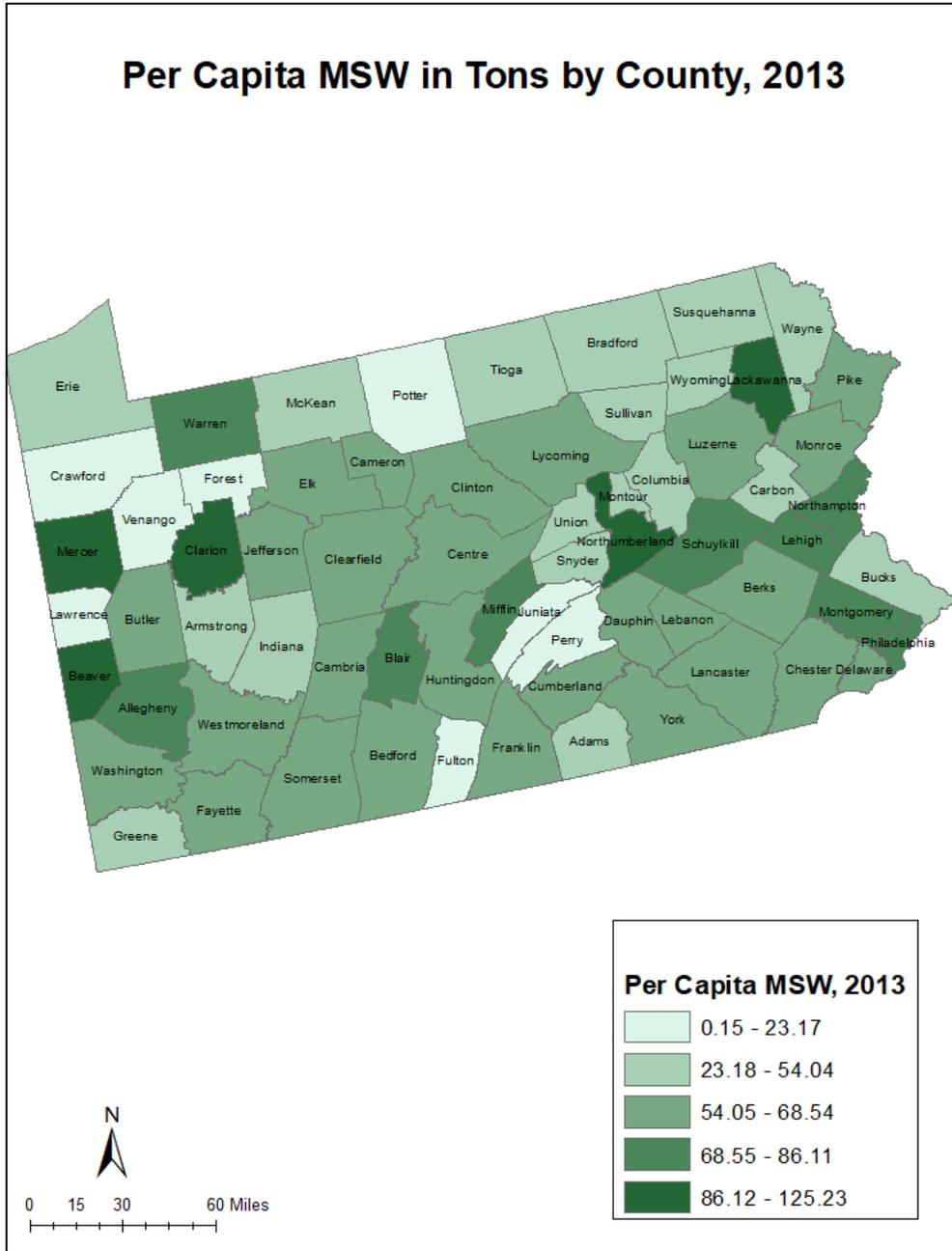


Figure 17: Per Capita of MSW Generated by County, 2014

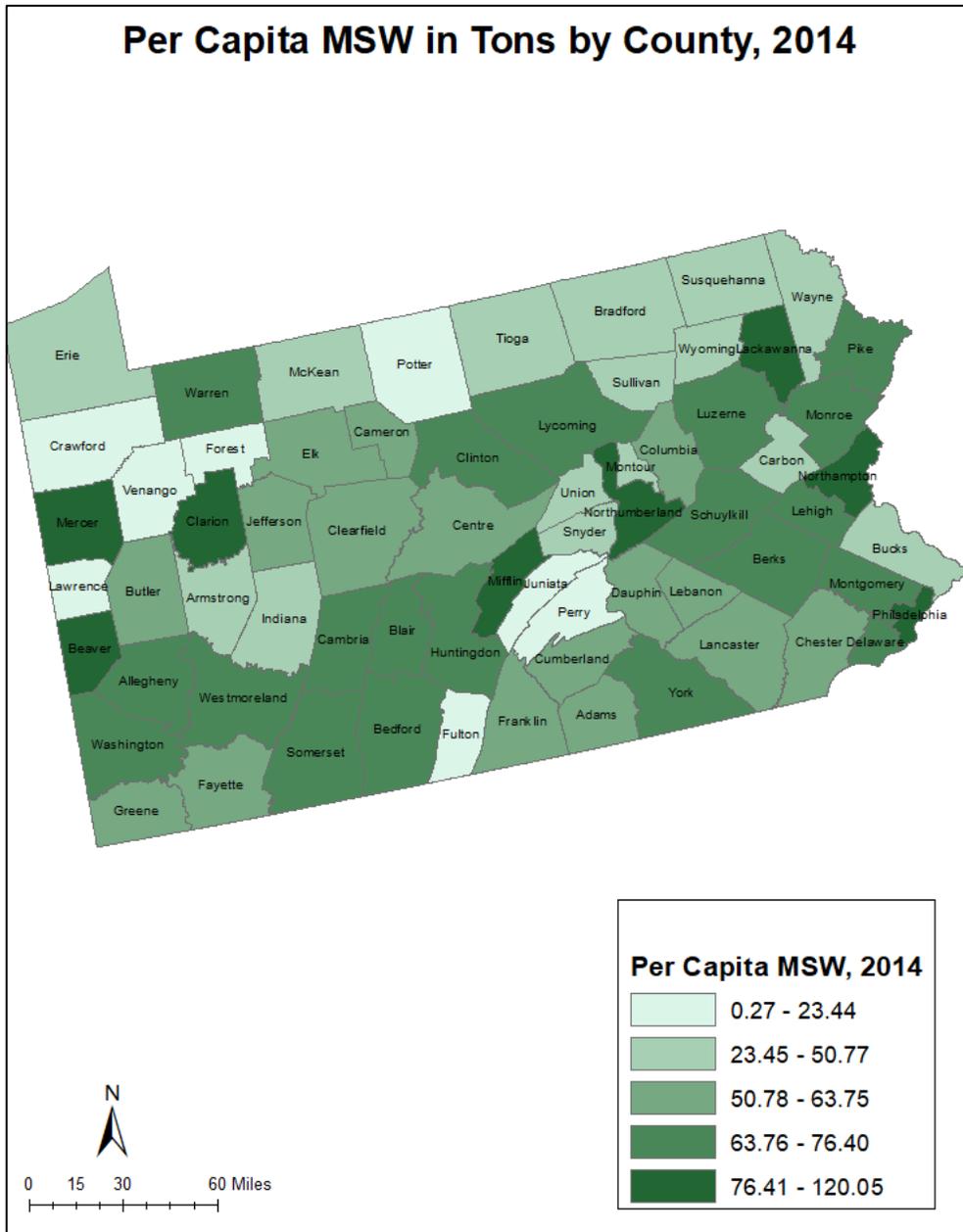


Figure 18: Per Capita of MSW Generated by County, 2015

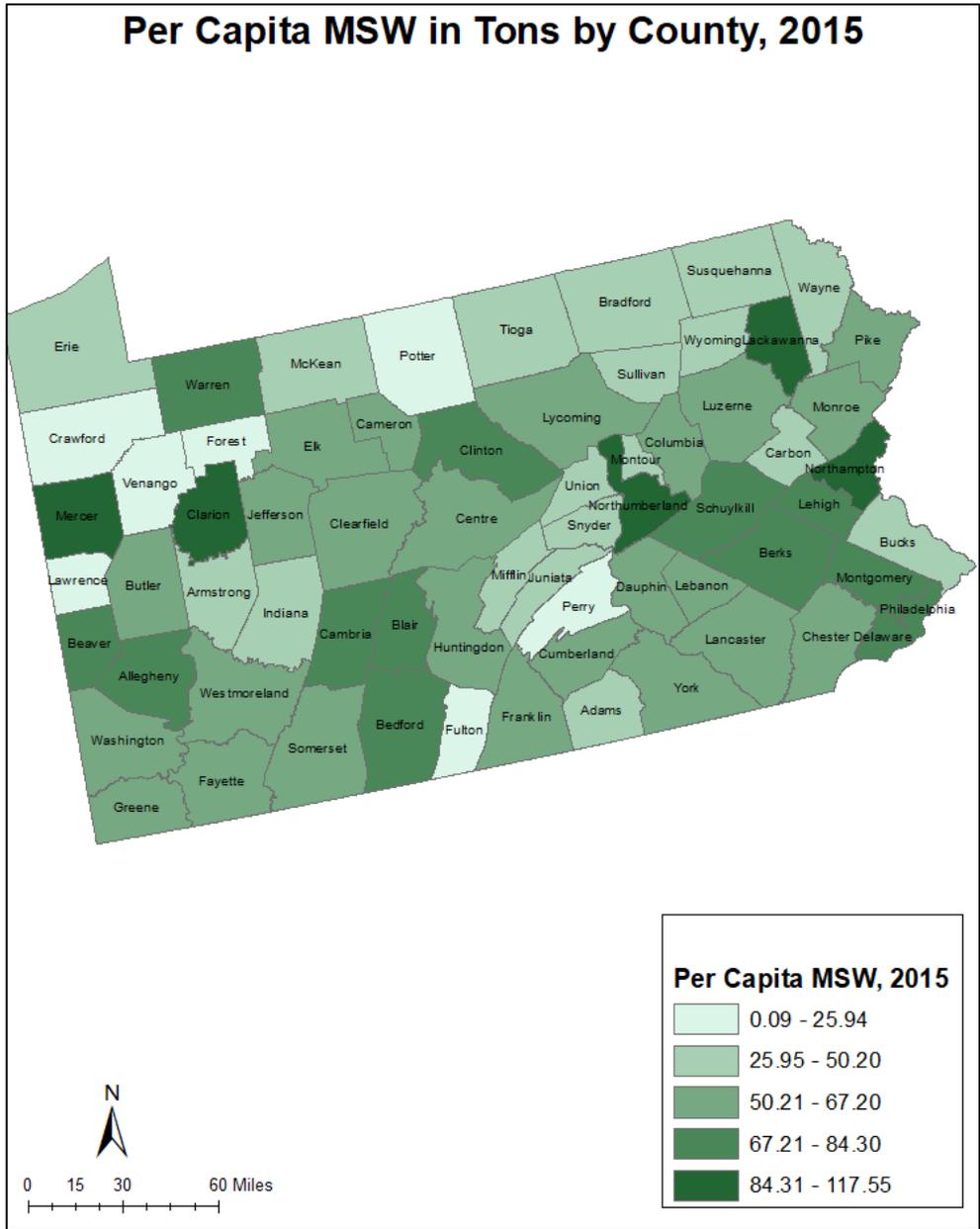


Figure 19: Per Capita of MSW Generated by County, 2016

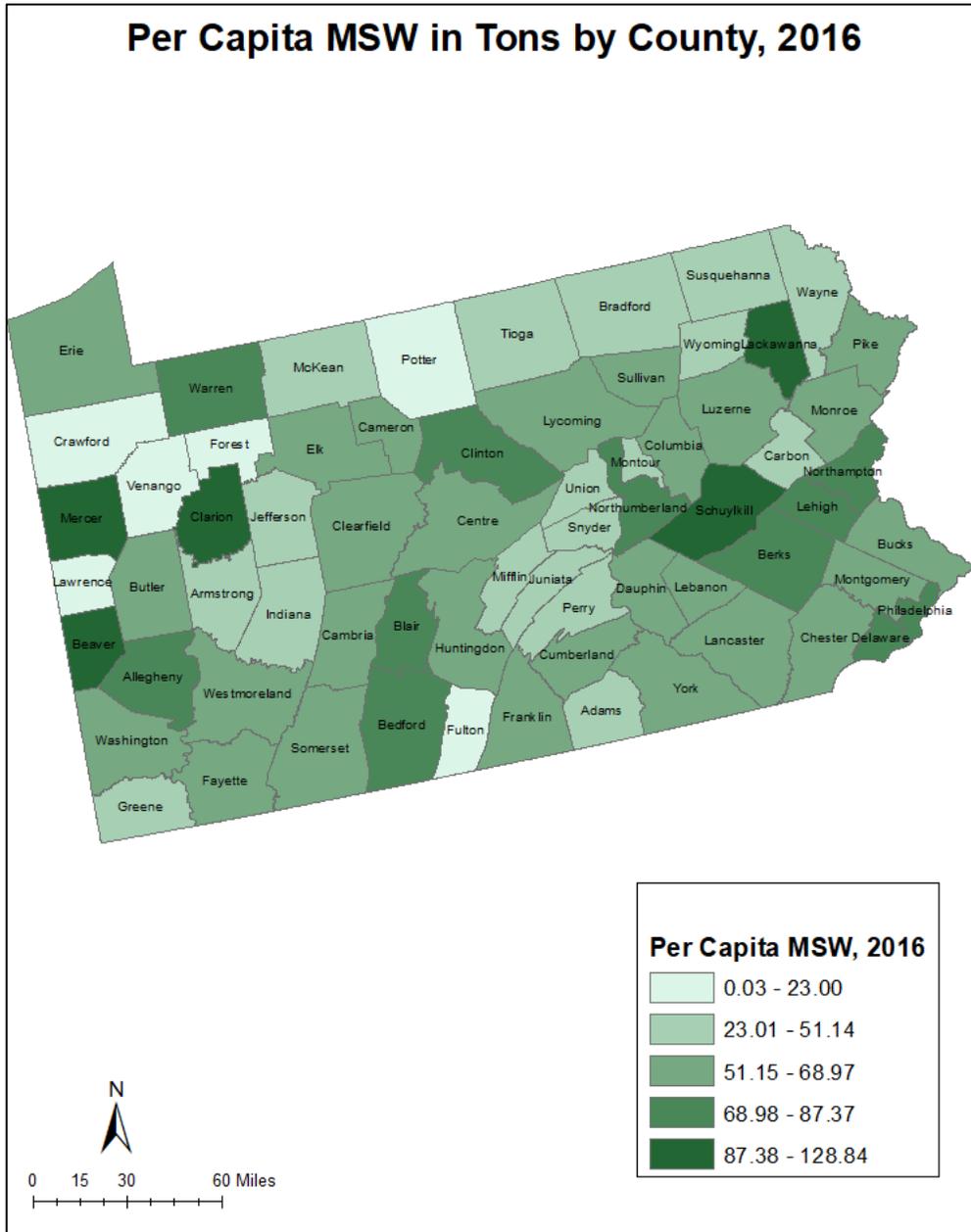


Figure 20: Per Capita of MSW Generated by County, 2017

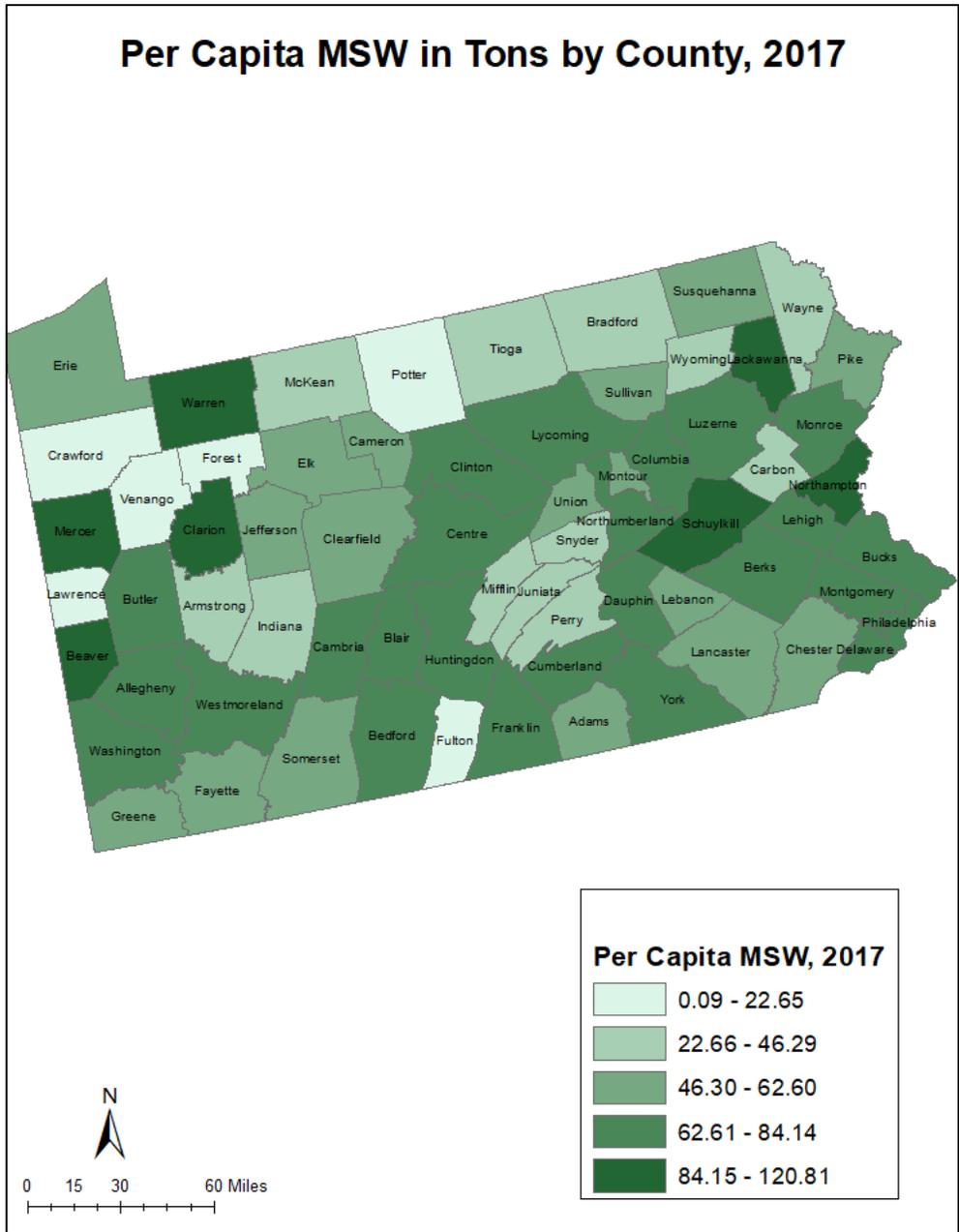


Figure 21: Per Capita of MSW Generated by County, 2018

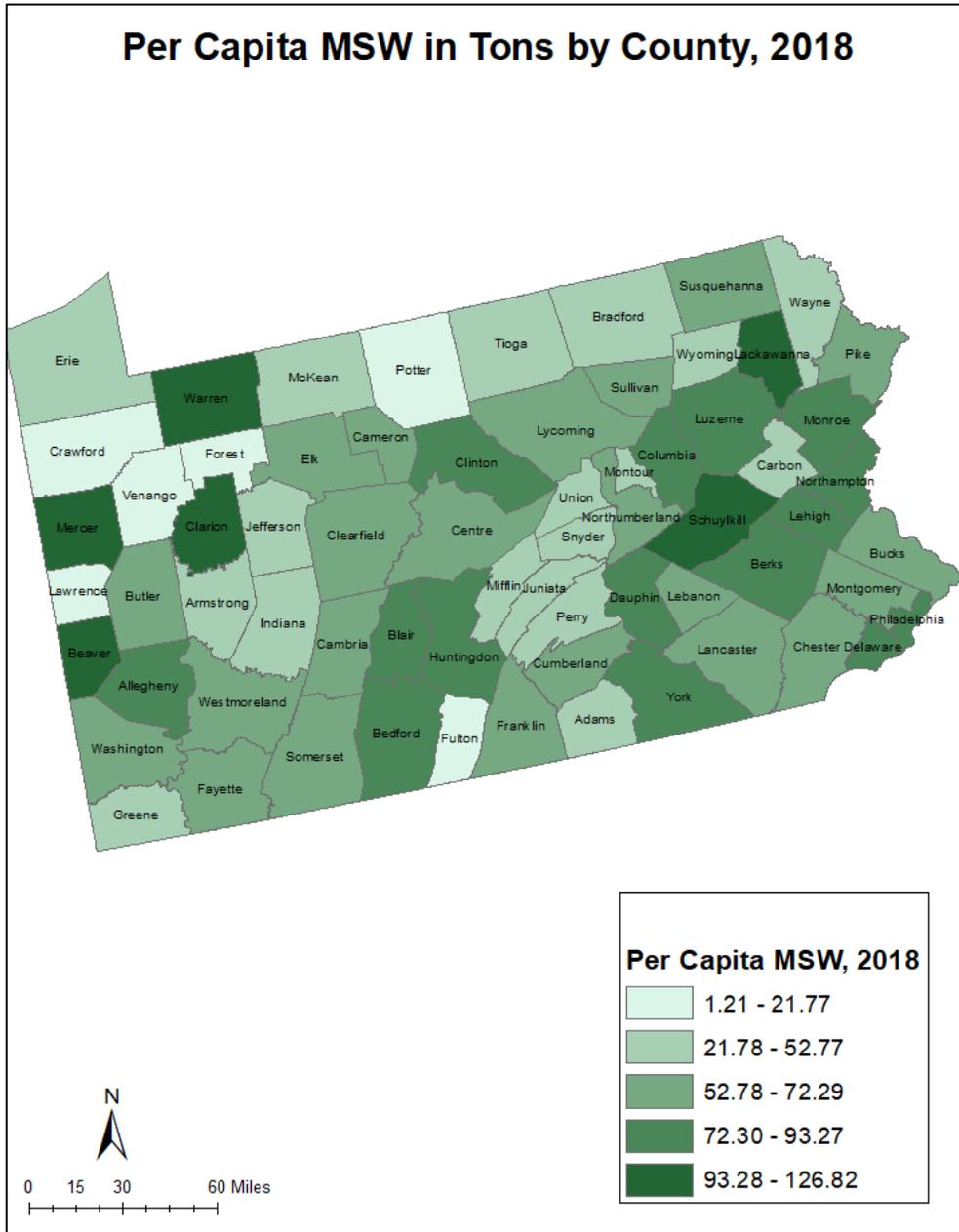
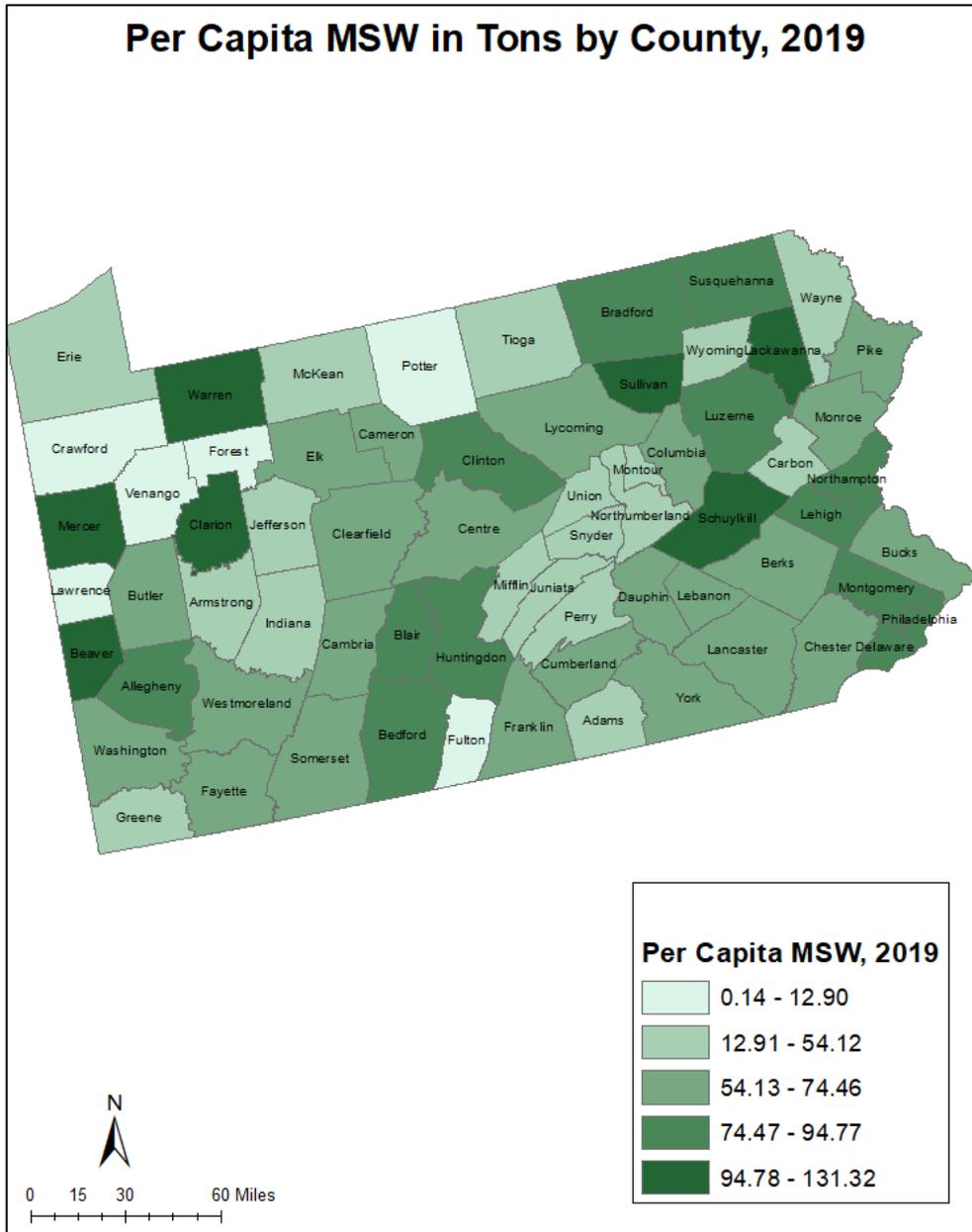


Figure 22: Per Capita of MSW Generated by County, 2019



Appendix 7: County Trends in Recycling

Table 1: Rural County Total Residential Recycling in Tons, 2010-2014

| County | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Adams | 5,176.02 | 6,071.95 | 7,509.09 | 7,045.09 | 8,397.33 |
| Armstrong | 2,345.07 | 1,634.44 | 1,541.70 | 1,489.27 | 1,226.58 |
| Bedford | 1,118.48 | 1,049.68 | 1,078.80 | 1,430.20 | 757.27 |
| Blair | 21,432.96 | 9,571.21 | 16,326.94 | 27,029.94 | 17,649.88 |
| Bradford | 3,940.46 | 4,078.36 | 4,153.18 | 3,527.05 | 3,265.95 |
| Butler | 13,586.99 | 22,033.52 | 34,892.69 | 23,923.02 | 20,570.59 |
| Cambria | 6,005.75 | 5,829.73 | 6,745.83 | 16,888.95 | 4,880.50 |
| Cameron | 187.00 | 183.19 | 180.89 | 297.64 | 191.73 |
| Carbon | 5,123.75 | 3,473.81 | 3,234.60 | 3,145.44 | 3,111.91 |
| Centre | 58,370.93 | 59,123.55 | 59,910.64 | 60,622.89 | 63,863.65 |
| Clarion | 7,178.68 | 7,290.67 | 855.62 | 685.87 | 960.21 |
| Clearfield | 20,082.81 | 41,625.98 | 19,473.33 | 16,404.53 | 21,650.09 |
| Clinton | 4,466.26 | 4,875.56 | 5,597.64 | 4,425.85 | 4,963.24 |
| Columbia | 10,787.86 | 10,573.78 | 9,182.54 | 10,210.92 | 10,911.31 |
| Crawford | 23,406.56 | 33,150.97 | 3,549.34 | 4,118.55 | 3,277.05 |
| Elk | 1,524.60 | 3,935.32 | 2,652.68 | 4,408.61 | 1,314.18 |
| Fayette | 13,177.52 | 8,602.51 | 7,141.63 | 8,605.21 | 7,947.53 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 36,753.68 | 11,333.25 | 15,405.90 | 13,322.11 | 12,998.09 |
| Fulton | 312.57 | 312.69 | 338.20 | 349.84 | 377.09 |
| Greene | 275.20 | 179.92 | 227.15 | 251.33 | 341.13 |
| Huntingdon | 4,363.00 | 3,842.92 | 4,283.77 | 4,395.71 | 1,307.49 |
| Indiana | 4,752.91 | 4,832.00 | 4,192.80 | 4,273.93 | 3,985.22 |
| Jefferson | 12,816.00 | 15,533.41 | 22,964.80 | 11,860.50 | 8,168.94 |
| Juniata | 581.63 | 391.76 | 298.66 | 472.02 | 351.20 |
| Lawrence | 13,811.94 | 13,399.25 | 12,607.65 | 10,278.03 | 6,078.48 |
| Lycoming | 19,629.34 | 20,208.24 | 22,115.39 | 21,181.77 | 22,282.56 |
| McKean | NA | 348.24 | 1,118.22 | 340.41 | 433.00 |
| Mercer | 10,095.00 | 9,430.64 | 8,478.61 | 16,259.52 | 11,500.86 |
| Mifflin | 7,375.61 | 6,196.41 | 7,052.30 | 6,373.97 | 5,327.25 |
| Monroe | 21,860.81 | 21,230.33 | 26,221.48 | 15,824.02 | 26,273.21 |
| Montour | 950.36 | 958.40 | 405.70 | 90.48 | 330.42 |
| Northumberland | 4,142.59 | 3,535.25 | 4,915.08 | 4,303.98 | 5,257.71 |
| Perry | 543.54 | 708.42 | 807.94 | 567.28 | 766.02 |

| | | | | | |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Pike | 2,937.91 | 3,218.19 | 4,510.74 | 7,074.66 | 3,914.47 |
| Potter | 702.42 | 694.92 | 605.98 | 740.43 | 408.40 |
| Schuylkill | 44,392.50 | 48,306.81 | 61,495.49 | 48,672.71 | 48,519.05 |
| Snyder | 1,752.92 | 1,894.38 | 9,256.89 | 2,523.14 | 7,038.41 |
| Somerset | 1,218.02 | 1,089.91 | 1,214.02 | 1,214.49 | 860.74 |
| Sullivan | 372.40 | 309.49 | 455.20 | 390.09 | 374.68 |
| Susquehanna | 1,633.82 | 1,286.30 | 1,351.38 | 1,504.42 | 1,408.87 |
| Tioga | 9,133.04 | 5,439.03 | 2,003.60 | 1,730.10 | 1,573.20 |
| Union | 1,591.38 | 3,667.33 | 17,822.96 | 10,143.35 | 7,369.12 |
| Venango | 1,796.51 | 1,726.41 | 2,018.35 | 1,636.38 | 1,336.40 |
| Warren | 2,069.63 | 1,674.02 | 2,047.41 | 1,806.55 | 1,553.11 |
| Washington | 10,232.50 | 10,991.07 | 7,167.48 | 8,772.48 | 7,640.14 |
| Wayne | 5,860.26 | 2,364.34 | 2,571.25 | 2,029.13 | 1,794.26 |
| Wyoming | 1,723.45 | 1,733.15 | 1,665.98 | 1,714.82 | 1,732.41 |
| TOTAL RURAL RECYCLING | 421,592.64 | 419,940.71 | 429,647.52 | 394,356.68 | 366,240.93 |
| TOTAL COUNTY RECYCLING | 1,611,913.63 | 1,828,260.01 | 2,628,046.06 | 2,045,796.86 | 1,656,620.32 |
| % OF RECYCLING THAT IS RURAL | 26.15 | 22.97 | 16.35 | 19.28 | 22.11 |

Table 2: Urban County Total Residential Recycling in Tons, 2010-2014

| County | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------|------------|------------|------------|------------|------------|
| Allegheny | 92,810.34 | 97,829.19 | 104,355.84 | 104,931.83 | 112,231.28 |
| Beaver | 66,405.13 | 63,013.51 | 14,300.76 | 13,230.14 | 11,807.00 |
| Berks | 42,456.54 | 46,304.29 | 53,167.34 | 52,252.67 | 40,756.87 |
| Bucks | 89,459.10 | 93,833.92 | 166,621.11 | 87,622.43 | 91,126.67 |
| Chester | 58,527.91 | 138,279.23 | 475,486.93 | 486,871.50 | 124,707.15 |
| Cumberland | 43,835.20 | 44,334.15 | 44,723.78 | 45,641.72 | 43,839.07 |
| Dauphin | 42,815.55 | 36,064.47 | 32,744.55 | 34,867.36 | 46,930.35 |
| Delaware | 112,607.19 | 121,205.54 | 111,779.09 | 106,519.13 | 91,172.66 |
| Erie | 106,698.80 | 52,993.13 | 54,361.72 | 37,164.16 | 25,560.72 |
| Lackawanna | 7,701.31 | 23,921.74 | 14,420.34 | 28,012.81 | 58,465.62 |
| Lancaster | 49,804.14 | 45,996.24 | 48,922.17 | 47,774.10 | 50,088.70 |
| Lebanon | 17,801.36 | 21,038.30 | 23,124.22 | 25,801.27 | 24,367.76 |
| Lehigh | 62,168.90 | 69,297.83 | 78,371.95 | 75,020.41 | 76,640.78 |
| Luzerne | 39,234.92 | 63,862.44 | 69,970.55 | 58,524.66 | 73,796.95 |
| Montgomery | 156,703.11 | 157,977.19 | 629,717.90 | 165,789.68 | 167,119.78 |
| Northampton | 50,729.97 | 54,729.86 | 82,096.68 | 87,997.91 | 55,064.79 |
| Philadelphia | 90,990.81 | 214,174.70 | 130,391.96 | 127,076.36 | 126,540.50 |

| | | | | | |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Westmoreland | 13,415.99 | 14,934.37 | 17,865.38 | 15,917.19 | 15,288.16 |
| York | 46,154.72 | 48,529.20 | 45,976.27 | 50,424.85 | 54,874.58 |
| TOTAL URBAN RECYCLING | 1,190,320.99 | 1,408,319.30 | 2,198,398.54 | 1,651,440.18 | 1,290,379.39 |
| TOTAL COUNTY RECYCLING | 1,611,913.63 | 1,828,260.01 | 2,628,046.06 | 2,045,796.86 | 1,656,620.32 |
| % OF RECYCLING THAT IS URBAN | 73.85 | 77.03 | 83.65 | 80.72 | 77.89 |

Table 3: Rural County Total Residential Recycling in Tons, 2015-2019

| County | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|-------------|-------------|-------------|-------------|-------------|
| Adams | 3,916.40 | 7,178.19 | 3,883.82 | 5,272.30 | 10,896.09 |
| Armstrong | 1,244.08 | 1,118.91 | 1,264.59 | 1,461.53 | X |
| Bedford | 679.00 | 861.73 | 731.70 | 623.89 | 119.57 |
| Blair | 9,571.94 | 14,022.02 | 11,629.51 | 11,720.61 | X |
| Bradford | 3,799.80 | 3,277.80 | 2,783.60 | 2,738.40 | X |
| Butler | 18,718.26 | 19,086.28 | 18,456.95 | 13,503.29 | 15,120.32 |
| Cambria | 5,974.94 | 4,695.47 | 5,651.54 | 5,649.71 | 3,546.61 |
| Cameron | 186.95 | 217.43 | 168.43 | 182.16 | 215.23 |
| Carbon | 3,763.08 | 3,974.29 | 3,935.16 | 4,168.67 | 3,000.80 |
| Centre | 59,596.46 | 59,888.57 | 65,586.62 | 65,589.47 | 77,319.95 |
| Clarion | 828.18 | 730.04 | 544.29 | 778.77 | 871.36 |
| Clearfield | 14,586.64 | 6,500.41 | 3,083.25 | 3,246.30 | 3,070.58 |
| Clinton | 5,890.82 | 6,024.09 | 6,969.95 | 7,057.75 | 7,301.79 |
| Columbia | 11,121.39 | 11,836.10 | 11,597.45 | 11,810.24 | 11,015.93 |
| Crawford | 3,561.22 | 6,376.62 | 2,433.47 | 1,533.47 | X |
| Elk | 1,352.86 | 1,642.29 | 7,250.82 | 11,335.31 | 11,725.69 |
| Fayette | 14,955.22 | 8,466.62 | 10,705.17 | 12,007.11 | 23,487.73 |
| Forest | 13.55 | 16.85 | 15.60 | 4.85 | 9.05 |
| Franklin | 11,490.68 | 11,739.49 | 22,929.68 | 25,098.49 | 26,360.90 |
| Fulton | 538.66 | 522.05 | 536.84 | 261.53 | 7,170.00 |
| Greene | 316.05 | 341.76 | 366.53 | 367.54 | X |
| Huntingdon | 1,238.22 | 1,316.31 | 1,767.58 | 2,546.05 | 1,161.56 |
| Indiana | 3,778.54 | 3,953.55 | 3,518.86 | 3,296.93 | 3,182.85 |
| Jefferson | 8,542.50 | 10,030.80 | 11,619.50 | 14,860.33 | 16,773.91 |
| Juniata | 559.70 | 364.23 | 12.52 | 30.08 | 4.16 |
| Lawrence | 5,167.66 | 10,460.86 | 14,993.75 | 20,218.43 | 17,403.97 |
| Lycoming | 20,972.92 | 13,377.69 | 15,390.55 | 9,284.46 | 13,414.22 |
| McKean | 2,397.01 | 1,426.07 | 1,263.15 | 840.93 | X |
| Mercer | 11,334.52 | 11,226.65 | 15,484.73 | 19,193.93 | 14,511.54 |

| | | | | | |
|-------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Mifflin | 3,983.34 | 4,253.70 | 4,321.00 | 4,313.35 | 5,331.67 |
| Monroe | 24,184.28 | 21,155.27 | 16,887.56 | 20,233.44 | 21,628.31 |
| Montour | 2,225.65 | 267.01 | 414.80 | 642.79 | 469.36 |
| Northumberland | 4,399.78 | 4,149.66 | 6,724.14 | 5,632.77 | 3,248.97 |
| Perry | 641.71 | 1,142.40 | 121.81 | 766.13 | 604.54 |
| Pike | 4,440.69 | 6,054.64 | 4,033.81 | 17,182.96 | 8,450.78 |
| Potter | 541.69 | 289.89 | 988.28 | 361.90 | 251.38 |
| Schuylkill | 17,739.13 | 33,699.74 | 38,015.04 | 44,127.71 | 49,065.64 |
| Snyder | 2,141.48 | 3,017.98 | 6,765.15 | 3,001.06 | 1,857.60 |
| Somerset | 786.36 | 161.13 | 297.05 | 328.25 | 270.35 |
| Sullivan | 363.92 | 358.10 | 347.40 | 360.40 | X |
| Susquehanna | 1,423.20 | 1,366.42 | 1,148.76 | 1,127.07 | 1,215.63 |
| Tioga | 1,472.76 | 1,409.57 | 2,048.84 | 2,300.60 | X |
| Union | 9,071.12 | 7,172.52 | 5,529.70 | 4,253.40 | 12,339.68 |
| Venango | 1,952.78 | 1,372.51 | 1,601.03 | 1,430.58 | 2,722.80 |
| Warren | 1,411.51 | 1,591.79 | 1,561.74 | 1,507.53 | 1,557.26 |
| Washington | 8,573.90 | 15,566.06 | 10,211.13 | 10,243.54 | 6,839.49 |
| Wayne | 1,301.44 | 1,092.12 | 965.45 | 860.71 | 936.83 |
| Wyoming | 1,691.82 | 1,598.81 | 1,711.16 | 1,678.50 | 1,539.95 |
| TOTAL RURAL RECYCLING | 314,443.81 | 326,392.49 | 348,269.46 | 375,035.22 | 386,014.05 |
| TOTAL COUNTY RECYCLING | 1,549,371.02 | 1,656,884.42 | 1,522,875.43 | 1,729,124.12 | 1,730,320.08 |
| % OF RECYCLING THAT IS RURAL | 20.29 | 19.70 | 22.87 | 21.69 | 22.31 |

Table 4: Urban County Total Residential Recycling in Tons, 2015-2019

| County | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|-------------|-------------|-------------|-------------|-------------|
| Allegheny | 99,229.09 | 135,310.76 | 100,421.60 | 95,201.16 | 91,670.14 |
| Beaver | 20,088.90 | 27,760.65 | 26,540.21 | 27,192.65 | 115,661.96 |
| Berks | 55,291.12 | 51,616.87 | 40,759.18 | 51,093.39 | 54,366.79 |
| Bucks | 90,804.14 | 92,711.87 | 95,304.61 | 92,871.02 | 209,066.73 |
| Chester | 77,695.86 | 65,949.87 | 78,034.59 | 90,331.00 | 77,319.95 |
| Cumberland | 45,722.07 | 49,100.49 | 48,785.73 | 49,874.11 | 48,373.77 |
| Dauphin | 35,183.85 | 36,237.77 | 38,749.11 | 37,151.24 | 47,359.50 |
| Delaware | 65,482.69 | 107,980.62 | 61,620.89 | 62,354.26 | 53,886.22 |
| Erie | 28,657.08 | 41,082.92 | 41,232.98 | 41,295.94 | 36,548.27 |
| Lackawanna | 58,066.73 | 61,687.96 | 61,409.43 | 42,328.57 | 41,224.59 |
| Lancaster | 64,273.18 | 97,482.04 | 56,561.79 | 45,859.31 | 45,866.93 |
| Lebanon | 24,158.46 | 22,796.45 | 24,681.24 | 34,517.28 | 37,421.50 |

| | | | | | |
|-------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Lehigh | 84,400.96 | 61,215.33 | 57,872.89 | 66,892.45 | 70,244.76 |
| Luzerne | 46,642.99 | 45,258.18 | 42,038.63 | 44,021.13 | 47,952.19 |
| Montgomery | 177,091.81 | 160,220.85 | 151,497.06 | 151,509.74 | 156,203.68 |
| Northampton | 73,260.50 | 88,299.73 | 70,028.35 | 89,060.37 | 67,815.04 |
| Philadelphia | 117,954.84 | 118,367.62 | 110,881.44 | 258,441.19 | 109,762.63 |
| Westmoreland | 13,957.88 | 14,158.09 | 13,435.50 | 15,952.62 | 13,354.51 |
| York | 56,965.06 | 53,253.86 | 54,750.74 | 58,141.47 | 54,157.76 |
| TOTAL URBAN RECYCLING | 1,234,927.21 | 1,330,491.93 | 1,174,605.97 | 1,354,088.90 | 1,378,256.92 |
| TOTAL COUNTY RECYCLING | 1,549,371.02 | 1,656,884.42 | 1,522,875.43 | 1,729,124.12 | 1,730,320.08 |
| % OF RECYCLING THAT IS URBAN | 79.71 | 80.30 | 77.13 | 78.31 | 79.65 |

Table 5: Rural County Total Residential Recycling in Tons, 2010-2019

| County | Recycling (2010-19) |
|---------------|----------------------------|
| Adams | 65,346.28 |
| Armstrong | 13,326.17 |
| Bedford | 8,450.32 |
| Blair | 138,955.01 |
| Bradford | 31,564.60 |
| Butler | 199,891.91 |
| Cambria | 65,869.03 |
| Cameron | 2,010.65 |
| Carbon | 36,931.51 |
| Centre | 629,872.73 |
| Clarion | 20,723.69 |
| Clearfield | 149,723.92 |
| Clinton | 57,572.95 |
| Columbia | 109,047.52 |
| Crawford | 81,407.25 |
| Elk | 47,142.36 |
| Fayette | 115,096.25 |
| Forest | 59.90 |
| Franklin | 187,432.27 |
| Fulton | 10,719.47 |
| Greene | 2,666.61 |
| Huntingdon | 26,222.61 |
| Indiana | 39,767.59 |
| Jefferson | 133,170.69 |

| | |
|-------------------------------------------------|----------------------|
| Juniata | 3,065.96 |
| Lawrence | 124,420.02 |
| Lycoming | 177,857.14 |
| McKean | 8,167.03 |
| Mercer | 127,516.00 |
| Mifflin | 54,528.60 |
| Monroe | 215,498.71 |
| Montour | 6,754.97 |
| Northumberland | 46,309.93 |
| Perry | 6,669.79 |
| Pike | 61,818.85 |
| Potter | 5,585.29 |
| Schuylkill | 434,033.82 |
| Snyder | 39,249.01 |
| Somerset | 7,440.32 |
| Sullivan | 3,331.68 |
| Susquehanna | 13,465.87 |
| Tioga | 27,110.74 |
| Union | 78,960.56 |
| Venango | 17,593.75 |
| Warren | 16,780.55 |
| Washington | 96,237.79 |
| Wayne | 19,775.79 |
| Wyoming | 16,790.05 |
| TOTAL RURAL RECYCLING | 3,781,933.51 |
| TOTAL COUNTY RECYCLING | 17,993,162.84 |
| % OF RECYCLING THAT IS RURAL | 21.02 |

Table 6: Urban County Total Residential Recycling in Tons, 2010-2019

| County | Recycling (2010-19) |
|---------------|----------------------------|
| Allegheny | 1,033,991.23 |
| Beaver | 386,000.91 |
| Berks | 488,065.06 |
| Bucks | 1,109,421.60 |
| Chester | 1,673,203.99 |
| Cumberland | 464,230.09 |
| Dauphin | 388,103.75 |

| | |
|-------------------------------------|----------------------|
| Delaware | 894,608.29 |
| Erie | 465,595.72 |
| Lackawanna | 397,239.10 |
| Lancaster | 552,628.60 |
| Lebanon | 255,707.84 |
| Lehigh | 702,126.26 |
| Luzerne | 531,302.64 |
| Montgomery | 2,073,830.80 |
| Northampton | 719,083.20 |
| Philadelphia | 1,404,582.05 |
| Westmoreland | 148,279.69 |
| York | 523,228.51 |
| TOTAL URBAN RECYCLING | 14,211,229.33 |
| TOTAL COUNTY RECYCLING | 17,993,162.84 |
| % OF RECYCLING THAT IS URBAN | 78.98 |

Table 7: County Total Residential Recycling by DEP Region in Tons, 2010-2019

| DEP Region | Counties | Recycling (2010-19) |
|-------------------|-----------------------|----------------------------|
| Southeast | Bucks | 1,109,421.60 |
| | Chester | 1,673,203.99 |
| | Delaware | 894,608.29 |
| | Montgomery | 2,073,830.80 |
| | Philadelphia | 1,404,582.05 |
| | REGION TOTAL | 7,155,646.73 |
| | % OF TOTAL MSW | 39.77 |
| Northeast | Carbon | 36,931.51 |
| | Lackawanna | 397,239.10 |
| | Lehigh | 702,126.26 |
| | Luzerne | 531,302.64 |
| | Monroe | 215,498.71 |
| | Northampton | 719,083.20 |
| | Pike | 61,818.85 |
| | Schuylkill | 434,033.82 |
| | Susquehanna | 13,465.87 |

| | | | |
|---------------------|-----------------------|-----------------------|---------------------|
| | Wayne | 19,775.79 | |
| | Wyoming | 16,790.05 | |
| | REGION TOTAL | 3,148,065.80 | |
| | % OF TOTAL MSW | 17.50 | |
| Southcentral | Adams | 65,346.28 | |
| | Bedford | 8,450.32 | |
| | Berks | 488,065.06 | |
| | Blair | 138,955.01 | |
| | Cumberland | 464,230.09 | |
| | Dauphin | 388,103.75 | |
| | Franklin | 187,432.27 | |
| | Fulton | 10,719.47 | |
| | Huntingdon | 26,222.61 | |
| | Juniata | 3,065.96 | |
| | Lancaster | 552,628.60 | |
| | Lebanon | 255,707.84 | |
| | Mifflin | 54,528.60 | |
| | Perry | 6,669.79 | |
| | York | 523,228.51 | |
| | | REGION TOTAL | 3,173,354.16 |
| | | % OF TOTAL MSW | 17.64 |
| Northcentral | Bradford | 31,564.60 | |
| | Cameron | 2,010.65 | |
| | Centre | 629,872.73 | |
| | Clearfield | 149,723.92 | |
| | Clinton | 57,572.95 | |
| | Columbia | 109,047.52 | |
| | Lycoming | 177,857.14 | |
| | Montour | 6,754.97 | |
| | Northumberland | 46,309.93 | |
| | Potter | 5,585.29 | |
| | Snyder | 39,249.01 | |
| | Sullivan | 3,331.68 | |
| | Tioga | 27,110.74 | |
| | Union | 78,960.56 | |
| | | REGION TOTAL | 1,364,951.69 |
| | | % OF TOTAL MSW | 7.59 |
| | Southwest | Allegheny | 1,033,991.23 |
| Beaver | | 386,000.91 | |

| | | |
|-----------------------|-----------------------|---------------------|
| | Cambria | 65,869.03 |
| | Fayette | 115,096.25 |
| | Greene | 2,666.61 |
| | Somerset | 7,440.32 |
| | Washington | 96,237.79 |
| | Westmoreland | 148,279.69 |
| | REGION TOTAL | 1,855,581.83 |
| | % OF TOTAL MSW | 10.31 |
| Northwest | Armstrong | 13,326.17 |
| | Butler | 199,891.91 |
| | Clarion | 20,723.69 |
| | Crawford | 81,407.25 |
| | Elk | 47,142.36 |
| | Erie | 465,595.72 |
| | Forest | 59.90 |
| | Indiana | 39,767.59 |
| | Jefferson | 133,170.69 |
| | Lawrence | 124,420.02 |
| | McKean | 8,167.03 |
| | Mercer | 127,516.00 |
| | Venango | 17,593.75 |
| | Warren | 16,780.55 |
| | REGION TOTAL | 1,295,562.63 |
| % OF TOTAL MSW | 7.20 | |

Table 8: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2010

| County | Single-Stream ⁶ | Commingled ⁷ | Glass ⁸ | Paper ⁹ | Plastic ¹⁰ |
|-----------|----------------------------|-------------------------|--------------------|--------------------|-----------------------|
| Adams | 1,522.98 | 0.00 | 164.89 | 1,264.41 | 69.09 |
| Armstrong | 0.00 | 0.00 | 268.29 | 1,013.65 | 144.23 |

⁶ Includes all recyclables, including fiber, collected together

⁷ Includes two or more recyclables collected together, with fiber separate

⁸ Includes clear, mixed, green, and brown glass bottles and jars, as well as plate glass and other glass

⁹ Includes corrugated cardboard, brown bags and sacks, gabled/aseptic cartons (milk, juice, etc.), magazines and catalogs, newsprint/newspaper, mixed/other paper grades (junk mail, paper board, computer paper, chipboard), office paper (all high grades), phone books, and drum fiber

¹⁰ Includes #1 plastic (PET) Polyethylene Terephthalate, #2 plastic (HDPE) High Density Polyethylene, #3 plastic (PVC) Unplasticised and Plasticised Polyvinyl Chloride, #4 plastic (LDPE) Low Density Polyethylene, #5 plastic (PP) Polypropylene, #6 plastic (PS) Polystyrene and Expanded Polystyrene, mixed/other plastic, film plastic, and drum plastics (HMW HDPE) and (Mixed Bulky Rigid)

| | | | | | |
|----------------|----------|-----------|----------|-----------|----------|
| Bedford | 329.71 | 0.00 | 23.14 | 117.82 | 19.65 |
| Blair | 0.00 | 1,507.09 | 62.76 | 2,048.35 | 107.89 |
| Bradford | 0.00 | 43.16 | 298.50 | 861.50 | 178.80 |
| Butler | 3,891.82 | 635.91 | 309.76 | 3,883.47 | 715.72 |
| Cambria | 0.00 | 824.99 | 0.00 | 1,814.23 | 227.24 |
| Cameron | 0.00 | 0.00 | 12.07 | 3.42 | 2.94 |
| Carbon | 286.00 | 667.67 | 455.47 | 1,176.26 | 270.97 |
| Centre | 0.00 | 0.00 | 2,160.38 | 16,242.20 | 1,137.83 |
| Clarion | 0.00 | 0.00 | 60.20 | 25.30 | 16.10 |
| Clearfield | 0.00 | 0.00 | 360.60 | 454.51 | 47.40 |
| Clinton | 0.00 | 994.66 | 0.00 | 377.23 | 207.96 |
| Columbia | 33.27 | 0.00 | 431.32 | 1,196.08 | 208.54 |
| Crawford | 1,745.70 | 196.56 | 0.00 | 0.11 | 0.00 |
| Elk | 0.00 | 425.80 | 11.00 | 28.40 | 15.70 |
| Fayette | 70.00 | 946.61 | 6.99 | 773.04 | 26.00 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 2,093.90 | 13,439.59 | 1,162.94 | 9,927.74 | 957.27 |
| Fulton | 240.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 0.00 | 61.68 | 146.06 | 18.63 |
| Huntingdon | 737.55 | 0.00 | 25.30 | 56.76 | 4.71 |
| Indiana | 0.00 | 0.00 | 520.82 | 1,271.00 | 137.59 |
| Jefferson | 0.00 | 412.70 | 176.20 | 362.10 | 19.50 |
| Juniata | 0.00 | 0.00 | 30.96 | 424.22 | 26.30 |
| Lawrence | 668.71 | 1,031.24 | 0.00 | 824.52 | 0.00 |
| Lycoming | 0.00 | 0.00 | 1,447.96 | 3,902.21 | 832.92 |
| McKean | NA | NA | NA | NA | NA |
| Mercer | 1,072.46 | 1,451.18 | 0.00 | 515.98 | 0.00 |
| Mifflin | 80.94 | 0.00 | 107.26 | 453.90 | 62.19 |
| Monroe | 1,726.69 | 846.47 | 942.84 | 4,717.51 | 840.52 |
| Montour | 0.00 | 0.00 | 187.30 | 529.44 | 53.20 |
| Northumberland | 17.99 | 0.00 | 566.40 | 1,532.29 | 272.18 |
| Perry | 0.00 | 0.00 | 27.60 | 363.80 | 66.53 |
| Pike | 2,489.41 | 203.53 | 0.00 | 54.12 | 0.00 |
| Potter | 298.53 | 0.00 | 8.88 | 84.16 | 1.25 |
| Schuylkill | 346.36 | 2,830.88 | 1,209.38 | 5,771.42 | 765.77 |
| Snyder | 0.00 | 12.00 | 137.47 | 492.49 | 60.50 |
| Somerset | 0.00 | 116.40 | 103.91 | 429.90 | 62.42 |
| Sullivan | 0.00 | 0.00 | 70.50 | 147.50 | 30.60 |
| Susquehanna | 0.00 | 405.98 | 0.00 | 738.83 | 0.00 |
| Tioga | 0.00 | 7,147.10 | 189.84 | 385.10 | 105.00 |
| Union | 0.00 | 0.00 | 396.12 | 754.12 | 104.87 |
| Venango | 0.00 | 110.94 | 225.22 | 479.42 | 72.74 |
| Warren | 0.00 | 27.79 | 349.06 | 155.14 | 92.52 |
| Washington | 2,690.43 | 0.00 | 164.08 | 1,750.80 | 88.18 |
| Wayne | 3,389.18 | 0.00 | 496.52 | 1,198.50 | 139.42 |

| | | | | | |
|-------------------------------------|-------------------|-------------------|------------------|-------------------|------------------|
| Wyoming | 0.00 | 789.50 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 23,732.30 | 35,067.75 | 13,233.61 | 68,749.01 | 8,210.87 |
| TOTAL COUNTY RECYCLING | 355,370.17 | 118,492.40 | 19,864.20 | 197,235.28 | 11,582.49 |
| % OF RECYCLING THAT IS RURAL | 6.68 | 29.59 | 66.62 | 34.86 | 70.89 |

Table 9: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2010

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------|----------------------|-------------------|------------------|-------------------|------------------|
| Allegheny | 35,829.17 | 5,009.44 | 2,586.00 | 8,231.53 | 1,147.93 |
| Beaver | 1,686.48 | 888.30 | 525.28 | 3,101.71 | 372.89 |
| Berks | 2,097.84 | 9,210.14 | 578.10 | 10,750.21 | 67.14 |
| Bucks | 8,199.51 | 15,407.69 | 20.23 | 23,953.08 | 11.30 |
| Chester | 23,694.58 | 7,160.44 | 76.15 | 11,987.84 | 145.73 |
| Cumberland | 15,140.31 | 296.31 | 0.00 | 63.72 | 0.00 |
| Dauphin | 10,697.08 | 2,781.25 | 240.50 | 1,393.60 | 183.89 |
| Delaware | 26,142.29 | 1,388.72 | 169.82 | 8,705.02 | 23.20 |
| Erie | 12,823.58 | 1,848.21 | 93.94 | 581.29 | 106.51 |
| Lackawanna | 49.34 | 2,560.94 | 0.00 | 3,451.33 | 0.00 |
| Lancaster | 17,261.32 | 2,732.38 | 0.00 | 3,307.83 | 0.03 |
| Lebanon | 2,704.83 | 878.37 | 25.09 | 1,517.52 | 212.31 |
| Lehigh | 10,930.32 | 7,276.59 | 164.80 | 9,420.06 | 80.40 |
| Luzerne | 191.49 | 8,252.08 | 0.00 | 8,318.64 | 3.42 |
| Montgomery | 37,721.89 | 11,289.34 | 1,087.49 | 18,933.88 | 712.89 |
| Northampton | 8,713.92 | 4,344.24 | 413.40 | 8,622.62 | 237.84 |
| Philadelphia | 88,389.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Westmoreland | 4,305.08 | 1,261.42 | 360.69 | 3,844.57 | 61.14 |
| York | 25,059.84 | 838.79 | 289.10 | 2,301.82 | 5.00 |
| TOTAL URBAN RECYCLING | 331,637.87 | 83,424.65 | 6,630.59 | 128,486.27 | 3,371.62 |
| TOTAL COUNTY RECYCLING | 355,370.17 | 118,492.40 | 19,864.20 | 197,235.28 | 11,582.49 |
| % OF RECYCLING | 93.32 | 70.41 | 33.38 | 65.14 | 29.11 |

| | | | | | |
|--------------------------|--|--|--|--|--|
| THAT IS URBAN | | | | | |
|--------------------------|--|--|--|--|--|

Table 10: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2010

| County | Metal¹¹ | HHW¹² | Other¹³ | Organics¹⁴ |
|---------------|---------------------------|-------------------------|---------------------------|------------------------------|
| Adams | 68.97 | 666.60 | 239.56 | 1,179.52 |
| Armstrong | 61.19 | 259.15 | 31.06 | 567.50 |
| Bedford | 26.51 | 476.29 | 20.37 | 104.99 |
| Blair | 12,644.37 | 1,861.08 | 302.31 | 2,899.11 |
| Bradford | 654.80 | 160.20 | 422.90 | 1,320.60 |
| Butler | 376.12 | 749.38 | 170.00 | 2,854.81 |
| Cambria | 81.74 | 317.90 | 5.65 | 2,734.00 |
| Cameron | 18.00 | 11.57 | 20.00 | 119.00 |
| Carbon | 375.01 | 51.35 | 21.77 | 1,819.25 |
| Centre | 4,091.79 | 2,733.85 | 7,844.96 | 24,159.92 |
| Clarion | 6,470.98 | 275.10 | 0.00 | 331.00 |
| Clearfield | 16,331.73 | 379.68 | 152.14 | 2,356.75 |
| Clinton | 263.93 | 333.82 | 285.97 | 2,002.69 |
| Columbia | 189.35 | 74.06 | 5.84 | 8,649.40 |
| Crawford | 19,328.88 | 208.72 | 0.00 | 1,926.59 |
| Elk | 119.40 | 208.70 | 41.60 | 674.00 |
| Fayette | 52.35 | 0.00 | 261.28 | 11,041.25 |
| Forest | NA | NA | NA | NA |
| Franklin | 821.86 | 605.62 | 418.26 | 7,326.50 |
| Fulton | 30.61 | 11.40 | 29.89 | 0.00 |
| Greene | 43.85 | 0.00 | 4.98 | 0.00 |
| Huntingdon | 45.68 | 178.65 | 15.85 | 3,298.50 |
| Indiana | 145.64 | 312.93 | 25.50 | 2,339.43 |
| Jefferson | 3,669.10 | 484.90 | 6,021.90 | 1,669.60 |
| Juniata | 64.48 | 23.48 | 7.39 | 4.80 |
| Lawrence | 9,332.00 | 772.76 | 742.71 | 440.00 |
| Lycoming | 379.08 | 312.26 | 133.00 | 12,621.91 |
| McKean | NA | NA | NA | NA |
| Mercer | 4,088.76 | 294.64 | 845.91 | 1,826.07 |

¹¹ Includes aluminum cans, steel and bimetallic (tin) cans, mixed cans, aluminum scrap, ferrous metal, non-ferrous metal, copper, brass, lead, stainless steel, nickel, wire/cable, mixed metals (includes drum steel), and white goods

¹² Includes anti-freeze, batteries (lead-acid and other household), e-waste (includes televisions), fluorescent tubes and CFLs, used oil, oil filters, and other HHW (including paints, varnishes, pesticides, etc.)

¹³ Includes asphalt, rubber tires, construction and demolition, clothing/textiles, furniture and furnishings, mattresses, and miscellaneous/other consumer items

¹⁴ Includes source-separated foods, wood waste, and yard and leaf waste

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Mifflin | 5,358.83 | 231.57 | 35.67 | 1,045.25 |
| Monroe | 656.02 | 151.89 | 33.47 | 11,945.40 |
| Montour | 50.42 | 0.00 | 0.00 | 130.00 |
| Northumberland | 239.93 | 57.69 | 831.63 | 624.48 |
| Perry | 54.31 | 9.00 | 22.30 | 0.00 |
| Pike | 83.86 | 57.29 | 14.20 | 35.50 |
| Potter | 176.88 | 122.58 | 8.34 | 1.80 |
| Schuylkill | 30,126.02 | 564.16 | 21.60 | 2,756.91 |
| Snyder | 83.76 | 109.40 | 7.30 | 850.00 |
| Somerset | 253.08 | 15.80 | 93.51 | 143.00 |
| Sullivan | 65.50 | 12.50 | 31.80 | 14.00 |
| Susquehanna | 93.40 | 14.91 | 0.00 | 380.70 |
| Tioga | 176.40 | 170.30 | 155.30 | 804.00 |
| Union | 59.97 | 0.00 | 12.19 | 264.11 |
| Venango | 63.91 | 29.88 | 17.60 | 796.80 |
| Warren | 109.04 | 146.08 | 0.00 | 1,190.00 |
| Washington | 124.56 | 16.21 | 0.00 | 5,398.24 |
| Wayne | 405.71 | 230.93 | 0.00 | 0.00 |
| Wyoming | 14.59 | 50.28 | 15.08 | 854.00 |
| TOTAL RURAL RECYCLING | 117,972.37 | 13,754.56 | 19,370.79 | 121,501.38 |
| TOTAL COUNTY RECYCLING | 291,601.12 | 43,312.82 | 53,385.41 | 521,069.74 |
| % OF RECYCLING THAT IS RURAL | 40.46 | 31.76 | 36.28 | 23.32 |

Table 11: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2010

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Allegheny | 1,290.58 | 3,479.83 | 141.71 | 35,094.15 |
| Beaver | 52,943.40 | 715.57 | 74.83 | 6,096.67 |
| Berks | 2,613.85 | 1,257.27 | 59.45 | 15,822.54 |
| Bucks | 685.28 | 1,267.92 | 3,024.70 | 36,889.39 |
| Chester | 156.53 | 2,391.80 | 477.32 | 12,437.52 |
| Cumberland | 4.10 | 2,041.81 | 0.00 | 26,288.95 |
| Dauphin | 259.08 | 420.52 | 14.48 | 26,825.15 |
| Delaware | 46,951.87 | 8,681.77 | 2,598.15 | 17,946.35 |
| Erie | 66,292.91 | 607.05 | 290.99 | 24,054.32 |
| Lackawanna | 31.47 | 41.28 | 200.00 | 1,366.95 |
| Lancaster | 249.91 | 1,862.54 | 1,745.86 | 22,644.27 |
| Lebanon | 164.12 | 1,151.02 | 93.44 | 11,054.66 |
| Lehigh | 389.57 | 208.40 | 42.91 | 33,655.85 |
| Luzerne | 164.15 | 2,446.09 | 39.16 | 19,819.89 |
| Montgomery | 971.74 | 860.89 | 23,132.11 | 61,992.88 |
| Northampton | 134.73 | 556.55 | 359.11 | 27,347.56 |
| Philadelphia | 0.00 | 152.81 | 1,380.00 | 1,069.00 |
| Westmoreland | 147.99 | 577.52 | 15.00 | 2,842.58 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| York | 177.47 | 837.62 | 325.40 | 16,319.68 |
| TOTAL URBAN RECYCLING | 173,628.75 | 29,558.26 | 34,014.62 | 399,568.36 |
| TOTAL COUNTY RECYCLING | 291,601.12 | 43,312.82 | 53,385.41 | 521,069.74 |
| % OF RECYCLING THAT IS URBAN | 59.54 | 68.24 | 63.72 | 76.68 |

Table 12: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2010

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 3,090.34 | 59.70 |
| Armstrong | 1,487.36 | 63.42 |
| Bedford | 516.83 | 46.21 |
| Blair | 16,370.46 | 76.38 |
| Bradford | 2,036.76 | 51.69 |
| Butler | 9,812.80 | 72.22 |
| Cambria | 2,948.20 | 49.09 |
| Cameron | 36.43 | 19.48 |
| Carbon | 3,231.38 | 63.07 |
| Centre | 23,632.20 | 40.49 |
| Clarion | 6,572.58 | 91.56 |
| Clearfield | 17,194.24 | 85.62 |
| Clinton | 1,843.78 | 41.28 |
| Columbia | 2,058.56 | 19.08 |
| Crawford | 21,271.25 | 90.88 |
| Elk | 600.30 | 39.37 |
| Fayette | 1,874.99 | 14.23 |
| Forest | NA | NA |
| Franklin | 28,403.30 | 77.28 |
| Fulton | 271.28 | 86.79 |
| Greene | 270.22 | 98.19 |
| Huntingdon | 870.00 | 19.94 |
| Indiana | 2,075.05 | 43.66 |
| Jefferson | 4,639.60 | 36.20 |
| Juniata | 545.96 | 93.87 |
| Lawrence | 11,856.47 | 85.84 |
| Lycoming | 6,562.17 | 33.43 |
| McKean | NA | NA |
| Mercer | 7,128.38 | 70.61 |
| Mifflin | 6,063.12 | 82.20 |
| Monroe | 9,730.05 | 44.51 |
| Montour | 820.36 | 86.32 |
| Northumberland | 2,628.79 | 63.46 |
| Perry | 512.24 | 94.24 |
| Pike | 2,830.92 | 96.36 |

| | | |
|-------------------------------------|-------------------|--------------|
| Potter | 569.70 | 81.11 |
| Schuylkill | 41,049.83 | 92.47 |
| Snyder | 786.22 | 44.85 |
| Somerset | 965.71 | 79.29 |
| Sullivan | 314.10 | 84.34 |
| Susquehanna | 1,238.21 | 75.79 |
| Tioga | 8,003.44 | 87.63 |
| Union | 1,315.08 | 82.64 |
| Venango | 952.23 | 53.00 |
| Warren | 733.55 | 35.44 |
| Washington | 4,818.05 | 47.09 |
| Wayne | 5,629.33 | 96.06 |
| Wyoming | 804.09 | 46.66 |
| TOTAL RURAL RECYCLING | 266,965.91 | |
| TOTAL COUNTY RECYCLING | 994,145.66 | 61.67 |
| % OF RECYCLING THAT IS RURAL | 26.85 | |

Table 13: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2010

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Allegheny | 54,094.65 | 58.29 |
| Beaver | 59,518.06 | 89.63 |
| Berks | 25,317.28 | 59.63 |
| Bucks | 48,277.09 | 53.97 |
| Chester | 43,221.27 | 73.85 |
| Cumberland | 15,504.44 | 35.37 |
| Dauphin | 15,555.40 | 36.33 |
| Delaware | 83,380.92 | 74.05 |
| Erie | 81,746.44 | 76.61 |
| Lackawanna | 6,093.08 | 79.12 |
| Lancaster | 23,551.47 | 47.29 |
| Lebanon | 5,502.24 | 30.91 |
| Lehigh | 28,261.74 | 45.46 |
| Luzerne | 16,929.78 | 43.15 |
| Montgomery | 70,717.23 | 45.13 |
| Northampton | 22,466.75 | 44.29 |
| Philadelphia | 88,389.00 | 97.14 |
| Westmoreland | 9,980.89 | 74.40 |
| York | 28,672.02 | 62.12 |
| TOTAL URBAN RECYCLING | 727,179.75 | |
| TOTAL COUNTY RECYCLING | 994,145.66 | 61.67 |

| | |
|-------------------------------------|--------------|
| % OF RECYCLING THAT IS URBAN | 73.15 |
|-------------------------------------|--------------|

Table 14: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2011

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 2,521.88 | 217.28 | 157.26 | 938.59 | 88.58 |
| Armstrong | 0.00 | 0.00 | 206.18 | 685.19 | 113.59 |
| Bedford | 339.52 | 0.00 | 144.47 | 172.65 | 17.22 |
| Blair | 0.00 | 1,635.10 | 50.00 | 2,202.05 | 115.12 |
| Bradford | 0.00 | 40.00 | 386.70 | 1,107.20 | 176.80 |
| Butler | 3,544.61 | 785.85 | 704.04 | 4,415.57 | 652.61 |
| Cambria | 0.00 | 737.58 | 56.00 | 1,659.36 | 299.42 |
| Cameron | 0.00 | 0.00 | 24.55 | 22.91 | 6.55 |
| Carbon | 0.00 | 887.08 | 337.02 | 1,273.24 | 169.73 |
| Centre | 0.00 | 0.00 | 2,182.60 | 16,410.45 | 1,149.52 |
| Clarion | 0.00 | 0.00 | 55.20 | 24.72 | 14.90 |
| Clearfield | 0.00 | 0.00 | 483.52 | 526.29 | 44.40 |
| Clinton | 0.00 | 957.55 | 0.00 | 379.33 | 207.83 |
| Columbia | 88.61 | 0.00 | 426.75 | 1,128.64 | 194.02 |
| Crawford | 1,832.36 | 205.66 | 0.00 | 20.98 | 6.73 |
| Elk | 0.00 | 335.40 | 132.00 | 298.50 | 29.60 |
| Fayette | 0.00 | 762.30 | 16.22 | 1,069.57 | 26.04 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 1,667.94 | 1,327.11 | 287.30 | 798.03 | 57.24 |
| Fulton | 248.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 0.00 | 45.51 | 98.78 | 13.86 |
| Huntingdon | 834.83 | 0.00 | 0.00 | 51.98 | 4.37 |
| Indiana | 0.00 | 0.00 | 463.31 | 1,096.46 | 159.06 |
| Jefferson | 0.00 | 256.60 | 222.90 | 541.10 | 54.60 |
| Juniata | 0.00 | 0.00 | 21.36 | 225.15 | 7.67 |
| Lawrence | 1,622.10 | 968.28 | 0.00 | 687.86 | 0.00 |
| Lycoming | 0.00 | 1,285.37 | 1,423.22 | 2,812.96 | 910.03 |
| McKean | 0.00 | 0.00 | 22.14 | 136.05 | 0.00 |
| Mercer | 1,561.45 | 1,248.70 | 0.00 | 496.47 | 0.00 |
| Mifflin | 107.41 | 0.00 | 121.39 | 439.64 | 62.36 |
| Monroe | 3,056.57 | 1,731.01 | 865.56 | 4,274.10 | 216.35 |
| Montour | 0.00 | 0.00 | 171.80 | 517.20 | 48.00 |
| Northumberland | 11.40 | 0.00 | 621.84 | 1,792.27 | 302.77 |
| Perry | 298.86 | 0.00 | 21.40 | 281.14 | 12.80 |
| Pike | 2,885.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Potter | 352.94 | 0.00 | 0.53 | 9.13 | 3.68 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|------------------|
| Schuylkill | 2,078.19 | 974.25 | 1,324.29 | 6,071.32 | 850.03 |
| Snyder | 0.00 | 14.22 | 139.76 | 506.05 | 62.06 |
| Somerset | 0.00 | 114.36 | 88.50 | 380.20 | 61.05 |
| Sullivan | 0.00 | 0.00 | 63.30 | 153.00 | 36.00 |
| Susquehanna | 0.00 | 382.67 | 0.00 | 764.37 | 0.00 |
| Tioga | 0.00 | 0.00 | 87.50 | 427.50 | 83.40 |
| Union | 0.00 | 1.88 | 352.29 | 782.64 | 111.28 |
| Venango | 0.00 | 138.21 | 198.03 | 406.05 | 54.38 |
| Warren | 0.00 | 0.00 | 344.31 | 216.05 | 77.54 |
| Washington | 2,923.44 | 0.00 | 269.94 | 2,741.30 | 151.24 |
| Wayne | 252.60 | 0.00 | 424.95 | 1,158.12 | 139.27 |
| Wyoming | NA | 784.08 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 26,228.09 | 15,790.54 | 12,943.64 | 60,200.16 | 6,791.70 |
| TOTAL COUNTY RECYCLING | 538,939.62 | 81,540.49 | 19,097.44 | 171,745.01 | 11,918.19 |
| % OF RECYCLING THAT IS RURAL | 4.87 | 19.37 | 67.78 | 35.05 | 56.99 |

Table 15: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2011

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|--------------|---------------|------------|----------|-----------|----------|
| Allegheny | 39,658.23 | 3,761.36 | 3,725.89 | 7,393.14 | 1,799.16 |
| Beaver | 2,496.15 | 971.52 | 220.24 | 2,451.06 | 165.84 |
| Berks | 5,163.63 | 7,452.71 | 219.97 | 7,214.54 | 44.70 |
| Bucks | 30,810.06 | 3,741.30 | 119.65 | 8,536.93 | 62.03 |
| Chester | 34,233.73 | 6,965.93 | 40.73 | 10,172.44 | 138.37 |
| Cumberland | 16,181.79 | 315.13 | 0.00 | 43.08 | 0.00 |
| Dauphin | 11,780.02 | 1,893.23 | 241.70 | 1,634.00 | 180.87 |
| Delaware | 29,135.44 | 1,611.74 | 18.80 | 9,676.72 | 31.94 |
| Erie | 13,936.16 | 755.40 | 192.56 | 444.52 | 114.28 |
| Lackawanna | 0.00 | 4,799.24 | 0.00 | 7,907.81 | 1,873.46 |
| Lancaster | 20,058.19 | 2,421.72 | 13.50 | 3,258.41 | 13.51 |
| Lebanon | 3,474.44 | 649.88 | 73.36 | 1,388.72 | 128.51 |
| Lehigh | 12,428.64 | 6,591.49 | 130.60 | 8,591.38 | 65.38 |
| Luzerne | 670.14 | 8,437.97 | 0.00 | 8,786.52 | 56.40 |
| Montgomery | 46,184.02 | 7,820.56 | 136.76 | 16,352.11 | 148.09 |
| Northampton | 7,445.67 | 4,901.78 | 361.50 | 8,265.03 | 230.20 |
| Philadelphia | 206,789.64 | 0.00 | 0.00 | 3,692.28 | 0.00 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|------------------|
| Westmoreland | 5,222.79 | 1,717.04 | 366.49 | 3,985.11 | 68.75 |
| York | 27,042.79 | 941.95 | 292.05 | 1,751.05 | 5.00 |
| TOTAL URBAN RECYCLING | 512,711.53 | 65,749.95 | 6,153.80 | 111,544.85 | 5,126.49 |
| TOTAL COUNTY RECYCLING | 538,939.62 | 81,540.49 | 19,097.44 | 171,745.01 | 11,918.19 |
| % OF RECYCLING THAT IS URBAN | 95.13 | 80.63 | 32.22 | 64.95 | 43.01 |

Table 16: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, Organics, 2011

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Adams | 15.08 | 659.91 | 188.58 | 1,284.79 |
| Armstrong | 49.27 | 253.34 | 28.87 | 298.00 |
| Bedford | 26.01 | 330.93 | 18.88 | 0.00 |
| Blair | 55.42 | 2,078.18 | 7.30 | 3,428.04 |
| Bradford | 685.80 | 438.64 | 309.92 | 933.30 |
| Butler | 935.81 | 7,700.13 | 231.61 | 3,063.29 |
| Cambria | 106.07 | 287.80 | 0.00 | 2,683.50 |
| Cameron | 2.15 | 14.03 | 0.00 | 113.00 |
| Carbon | 88.62 | 66.44 | 42.13 | 609.55 |
| Centre | 4,133.90 | 2,762.13 | 7,925.74 | 24,559.21 |
| Clarion | 6,750.03 | 166.62 | 0.00 | 279.20 |
| Clearfield | 38,178.17 | 361.27 | 292.58 | 1,739.75 |
| Clinton | 429.60 | 265.08 | 339.10 | 2,297.07 |
| Columbia | 91.75 | 59.50 | 151.30 | 8,433.21 |
| Crawford | 29,770.68 | 290.07 | 0.00 | 1,024.49 |
| Elk | 95.80 | 330.92 | 24.10 | 2,689.00 |
| Fayette | 54.90 | 0.00 | 330.48 | 6,343.00 |
| Forest | NA | NA | NA | NA |
| Franklin | 416.49 | 212.65 | 117.78 | 6,448.71 |
| Fulton | 20.14 | 7.39 | 36.78 | 0.00 |
| Greene | 19.96 | 0.00 | 1.81 | 0.00 |
| Huntingdon | 22.56 | 204.06 | 13.12 | 2,712.00 |
| Indiana | 130.30 | 301.27 | 13.94 | 2,667.66 |
| Jefferson | 6,956.45 | 881.06 | 5,452.60 | 1,168.10 |
| Juniata | 59.87 | 57.98 | 6.80 | 12.93 |
| Lawrence | 8,084.90 | 1,012.77 | 489.01 | 534.33 |
| Lycoming | 381.08 | 679.20 | 0.00 | 12,716.38 |
| McKean | 18.25 | 0.00 | 0.00 | 171.80 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Mercer | 2,435.73 | 623.89 | 1,304.53 | 1,759.87 |
| Mifflin | 4,074.14 | 209.39 | 33.13 | 1,148.95 |
| Monroe | 318.23 | 210.91 | 35.07 | 10,522.53 |
| Montour | 44.00 | 7.40 | 0.00 | 170.00 |
| Northumberland | 284.55 | 43.37 | 6.95 | 472.10 |
| Perry | 49.80 | 20.72 | 23.70 | 0.00 |
| Pike | 112.19 | 0.00 | 221.00 | 0.00 |
| Potter | 147.79 | 171.88 | 8.77 | 0.20 |
| Schuylkill | 34,802.56 | 463.40 | 276.35 | 1,466.42 |
| Snyder | 90.20 | 213.86 | 12.00 | 856.23 |
| Somerset | 210.24 | 72.24 | 36.32 | 127.00 |
| Sullivan | 31.89 | 25.30 | 0.00 | 0.00 |
| Susquehanna | 58.29 | 21.04 | 0.00 | 59.93 |
| Tioga | 159.60 | 357.23 | 141.80 | 4,182.00 |
| Union | 59.43 | 155.48 | 12.08 | 2,192.25 |
| Venango | 99.10 | 30.04 | 0.00 | 800.60 |
| Warren | 120.32 | 85.80 | 0.00 | 830.00 |
| Washington | 146.24 | 63.45 | 0.54 | 4,694.92 |
| Wayne | 301.56 | 87.84 | 0.00 | 0.00 |
| Wyoming | 4.69 | 59.29 | 18.09 | 867.00 |
| TOTAL RURAL RECYCLING | 141,129.61 | 22,343.90 | 18,152.76 | 116,360.31 |
| TOTAL COUNTY RECYCLING | 298,215.90 | 70,111.18 | 74,978.32 | 561,713.86 |
| % OF RECYCLING THAT IS RURAL | 47.32 | 31.87 | 24.21 | 20.72 |

Table 17: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, Organics, 2011

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Allegheny | 1,899.95 | 5,014.42 | 40.04 | 34,537.00 |
| Beaver | 51,341.63 | 1,104.80 | 731.29 | 3,530.98 |
| Berks | 1,383.24 | 2,131.41 | 19.85 | 22,674.24 |
| Bucks | 383.38 | 839.51 | 4,426.39 | 44,914.67 |
| Chester | 28,286.93 | 19,496.20 | 22,273.56 | 16,671.34 |
| Cumberland | 4.04 | 1,376.32 | 48.32 | 26,365.47 |
| Dauphin | 243.97 | 312.86 | 14.59 | 19,763.23 |
| Delaware | 54,223.33 | 4,257.14 | 1,431.05 | 20,819.38 |
| Erie | 12,074.19 | 1,404.00 | 118.96 | 23,953.06 |
| Lackawanna | 4,390.90 | 1,376.46 | 149.00 | 3,424.87 |
| Lancaster | 816.28 | 2,292.24 | 214.76 | 16,907.63 |
| Lebanon | 142.98 | 1,448.49 | 92.02 | 13,639.90 |
| Lehigh | 342.70 | 1,008.86 | 1,160.23 | 38,978.55 |
| Luzerne | 179.08 | 2,241.62 | 18.17 | 43,472.54 |
| Montgomery | 623.93 | 841.92 | 24,112.44 | 61,757.36 |
| Northampton | 235.39 | 532.83 | 559.90 | 32,197.56 |
| Philadelphia | 159.74 | 432.38 | 982.92 | 2,117.74 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Westmoreland | 176.94 | 329.13 | 125.28 | 2,942.84 |
| York | 177.69 | 1,326.69 | 306.79 | 16,685.19 |
| TOTAL URBAN RECYCLING | 157,086.29 | 47,767.28 | 56,825.56 | 445,353.55 |
| TOTAL COUNTY RECYCLING | 298,215.90 | 70,111.18 | 74,978.32 | 561,713.86 |
| % OF RECYCLING THAT IS URBAN | 52.68 | 68.13 | 75.79 | 79.28 |

Table 18: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2011

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 3,938.67 | 64.87 |
| Armstrong | 1,054.23 | 64.50 |
| Bedford | 699.87 | 66.67 |
| Blair | 4,057.69 | 42.39 |
| Bradford | 2,396.50 | 58.76 |
| Butler | 11,038.49 | 50.10 |
| Cambria | 2,858.43 | 49.03 |
| Cameron | 56.16 | 30.66 |
| Carbon | 2,755.69 | 79.33 |
| Centre | 23,876.47 | 40.38 |
| Clarion | 6,844.85 | 93.89 |
| Clearfield | 39,232.38 | 94.25 |
| Clinton | 1,974.31 | 40.49 |
| Columbia | 1,929.77 | 18.25 |
| Crawford | 31,836.41 | 96.03 |
| Elk | 891.30 | 22.65 |
| Fayette | 1,929.03 | 22.42 |
| Forest | NA | NA |
| Franklin | 4,554.11 | 40.18 |
| Fulton | 268.52 | 85.87 |
| Greene | 178.11 | 98.99 |
| Huntingdon | 913.74 | 23.78 |
| Indiana | 1,849.13 | 38.27 |
| Jefferson | 8,031.65 | 51.71 |
| Juniata | 314.05 | 80.16 |
| Lawrence | 11,363.14 | 84.80 |
| Lycoming | 6,812.66 | 33.71 |
| McKean | 176.44 | 50.67 |
| Mercer | 5,742.35 | 60.89 |
| Mifflin | 4,804.94 | 77.54 |
| Monroe | 10,461.82 | 49.28 |
| Montour | 781.00 | 81.49 |
| Northumberland | 3,012.83 | 85.22 |

| | | |
|-------------------------------------|---------------------|--------------|
| Perry | 664.00 | 93.73 |
| Pike | 2,997.19 | 93.13 |
| Potter | 514.07 | 73.98 |
| Schuylkill | 46,100.64 | 95.43 |
| Snyder | 812.29 | 42.88 |
| Somerset | 854.35 | 78.39 |
| Sullivan | 284.19 | 91.83 |
| Susquehanna | 1,205.33 | 93.71 |
| Tioga | 758.00 | 13.94 |
| Union | 1,307.52 | 35.65 |
| Venango | 895.77 | 51.89 |
| Warren | 758.22 | 45.29 |
| Washington | 6,232.16 | 56.70 |
| Wayne | 2,276.50 | 96.28 |
| Wyoming | 788.77 | 45.51 |
| TOTAL RURAL RECYCLING | 263,083.74 | |
| TOTAL COUNTY RECYCLING | 1,121,456.65 | 61.34 |
| % OF RECYCLING THAT IS RURAL | 23.46 | |

Table 19: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2011

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|---------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Allegheny | 58,237.73 | 59.53 |
| Beaver | 57,646.44 | 91.48 |
| Berks | 21,478.79 | 46.39 |
| Bucks | 43,653.35 | 46.52 |
| Chester | 79,838.13 | 57.74 |
| Cumberland | 16,544.04 | 37.32 |
| Dauphin | 15,973.79 | 44.29 |
| Delaware | 94,697.97 | 78.13 |
| Erie | 27,517.11 | 51.93 |
| Lackawanna | 18,971.41 | 79.31 |
| Lancaster | 26,581.61 | 57.79 |
| Lebanon | 5,857.89 | 27.84 |
| Lehigh | 28,150.19 | 40.62 |
| Luzerne | 18,130.11 | 28.39 |
| Montgomery | 71,265.47 | 45.11 |
| Northampton | 21,439.57 | 39.17 |
| Philadelphia | 210,641.66 | 98.35 |
| Westmoreland | 11,537.12 | 77.25 |
| York | 30,210.53 | 62.25 |

| | | |
|-------------------------------------|---------------------|--------------|
| TOTAL URBAN RECYCLING | 858,372.91 | |
| TOTAL COUNTY RECYCLING | 1,121,456.65 | 61.34 |
| % OF RECYCLING THAT IS URBAN | 76.54 | |

Table 20: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2012

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 2,676.28 | 161.78 | 138.34 | 963.51 | 50.78 |
| Armstrong | 0.00 | 0.00 | 164.87 | 662.05 | 132.94 |
| Bedford | 345.41 | 70.93 | 20.14 | 105.00 | 20.16 |
| Blair | 902.45 | 1,144.54 | 0.00 | 1,792.60 | 134.87 |
| Bradford | 0.00 | 156.90 | 364.30 | 1,017.90 | 201.40 |
| Butler | 9,674.19 | 224.79 | 826.90 | 3,266.97 | 764.65 |
| Cambria | 156.52 | 539.55 | 53.00 | 1,605.03 | 297.19 |
| Cameron | 0.00 | 0.00 | 21.65 | 14.89 | 6.71 |
| Carbon | 596.97 | 370.72 | 346.07 | 1,111.49 | 182.34 |
| Centre | 0.00 | 0.00 | 2,205.09 | 16,578.54 | 1,161.37 |
| Clarion | 0.00 | 0.00 | 56.80 | 17.60 | 10.20 |
| Clearfield | 0.00 | 0.00 | 469.97 | 519.15 | 47.00 |
| Clinton | 0.00 | 906.26 | 0.00 | 371.02 | 916.21 |
| Columbia | 118.43 | 0.00 | 363.25 | 1,154.52 | 178.65 |
| Crawford | 1,925.35 | 230.89 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 89.70 | 269.38 | 481.57 | 46.97 |
| Fayette | 11.07 | 583.27 | 150.56 | 596.31 | 0.00 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 1,862.45 | 1,627.52 | 752.40 | 821.55 | 111.50 |
| Fulton | 243.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 0.00 | 50.14 | 133.60 | 18.55 |
| Huntingdon | 876.27 | 0.00 | 117.22 | 70.07 | 12.39 |
| Indiana | 0.00 | 0.00 | 521.63 | 1,059.37 | 147.75 |
| Jefferson | 0.00 | 73.10 | 224.20 | 479.60 | 127.40 |
| Juniata | 0.00 | 0.00 | 36.06 | 156.54 | 16.52 |
| Lawrence | 1,510.96 | 942.10 | 0.00 | 667.33 | 0.00 |
| Lycoming | 0.00 | 1,454.18 | 1,458.23 | 2,648.50 | 1,027.05 |
| McKean | 816.82 | 0.00 | 49.90 | 69.00 | 0.00 |
| Mercer | 2,397.02 | 273.62 | 0.00 | 235.02 | 0.00 |
| Mifflin | 217.42 | 0.00 | 108.22 | 385.94 | 97.05 |
| Monroe | 3,236.30 | 1,524.06 | 1,082.17 | 3,980.13 | 249.58 |
| Montour | 0.00 | 0.00 | 84.50 | 271.70 | 27.80 |
| Northumberland | 21.30 | 0.00 | 703.69 | 1,903.76 | 376.82 |
| Perry | 210.26 | 86.45 | 40.56 | 341.45 | 52.62 |
| Pike | 4,145.75 | 0.00 | 0.00 | 211.40 | 0.00 |
| Potter | 339.88 | 0.00 | 1.35 | 1.76 | 0.73 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|------------------|
| Schuylkill | 3,211.94 | 2,092.23 | 7,669.97 | 11,185.68 | 965.24 |
| Snyder | 36.70 | 7.34 | 125.60 | 396.77 | 60.14 |
| Somerset | 82.90 | 92.52 | 89.03 | 454.20 | 58.34 |
| Sullivan | 0.00 | 0.00 | 97.80 | 157.10 | 48.40 |
| Susquehanna | 44.45 | 364.74 | 0.00 | 656.77 | 0.00 |
| Tioga | 0.00 | 10.20 | 156.20 | 432.00 | 90.60 |
| Union | 31.54 | 8.27 | 215.34 | 574.71 | 77.86 |
| Venango | 0.00 | 127.70 | 229.41 | 511.95 | 56.08 |
| Warren | 134.88 | 0.00 | 292.52 | 187.22 | 50.97 |
| Washington | 3,011.88 | 0.00 | 184.98 | 2,064.66 | 108.13 |
| Wayne | 689.73 | 0.00 | 398.94 | 936.16 | 106.62 |
| Wyoming | 20.38 | 756.81 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 39,549.28 | 13,920.17 | 20,140.38 | 61,252.09 | 8,039.58 |
| TOTAL COUNTY RECYCLING | 499,085.25 | 66,402.22 | 25,080.39 | 170,487.11 | 11,216.55 |
| % OF RECYCLING THAT IS RURAL | 7.92 | 20.96 | 80.30 | 35.93 | 71.68 |

Table 21: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2012

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|--------------|---------------|------------|----------|-----------|----------|
| Allegheny | 44,233.87 | 2,090.70 | 3,321.87 | 7,169.48 | 1,835.72 |
| Beaver | 2,159.89 | 1,040.87 | 180.60 | 2,230.32 | 124.74 |
| Berks | 9,302.67 | 6,322.33 | 111.96 | 6,662.22 | 51.79 |
| Bucks | 39,882.78 | 1,116.64 | 44.07 | 5,112.04 | 31.81 |
| Chester | 30,274.84 | 4,267.83 | 38.00 | 18,159.71 | 154.79 |
| Cumberland | 16,238.10 | 259.33 | 0.00 | 42.32 | 0.00 |
| Dauphin | 13,758.76 | 60.84 | 175.37 | 1,566.69 | 139.86 |
| Delaware | 31,134.59 | 1,601.17 | 0.10 | 4,893.28 | 29.00 |
| Erie | 13,835.10 | 1,696.74 | 165.19 | 315.57 | 142.14 |
| Lackawanna | 237.94 | 4,720.02 | 0.00 | 5,728.38 | 0.00 |
| Lancaster | 19,550.43 | 2,398.63 | 0.00 | 3,505.09 | 0.00 |
| Lebanon | 3,716.19 | 867.16 | 63.14 | 1,404.40 | 140.44 |
| Lehigh | 17,925.89 | 6,126.95 | 126.30 | 8,703.87 | 51.50 |
| Luzerne | 7,198.75 | 5,634.67 | 60.02 | 5,958.07 | 63.64 |
| Montgomery | 44,868.11 | 6,855.01 | 161.90 | 21,508.75 | 195.58 |
| Northampton | 8,783.56 | 5,935.18 | 152.30 | 9,304.03 | 146.86 |
| Philadelphia | 120,875.35 | 0.00 | 0.00 | 1,190.55 | 0.00 |

| | | | | | |
|-------------------------------------------------|-------------------|------------------|------------------|-------------------|------------------|
| Westmoreland | 7,883.21 | 858.01 | 336.20 | 4,579.48 | 64.10 |
| York | 27,675.94 | 629.97 | 2.99 | 1,200.77 | 5.00 |
| TOTAL URBAN RECYCLING | 459,535.97 | 52,482.05 | 4,940.01 | 109,235.02 | 3,176.97 |
| TOTAL COUNTY RECYCLING | 499,085.25 | 66,402.22 | 25,080.39 | 170,487.11 | 11,216.55 |
| % OF RECYCLING THAT IS URBAN | 92.08 | 79.04 | 19.70 | 64.07 | 28.32 |

Table 22: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2012

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Adams | 36.34 | 766.41 | 117.10 | 2,598.55 |
| Armstrong | 53.71 | 214.69 | 37.44 | 276.00 |
| Bedford | 141.41 | 360.80 | 14.95 | 0.00 |
| Blair | 432.30 | 1,227.61 | 322.57 | 10,370.00 |
| Bradford | 536.53 | 428.75 | 482.30 | 965.10 |
| Butler | 549.45 | 8,421.01 | 12.50 | 11,152.23 |
| Cambria | 72.67 | 557.31 | 13.31 | 3,451.25 |
| Cameron | 3.83 | 16.81 | 0.00 | 117.00 |
| Carbon | 73.13 | 59.89 | 19.99 | 474.00 |
| Centre | 4,176.47 | 2,790.35 | 8,007.38 | 24,991.44 |
| Clarion | 10.91 | 275.11 | 0.00 | 485.00 |
| Clearfield | 15,752.51 | 414.05 | 104.70 | 2,165.95 |
| Clinton | 339.79 | 220.82 | 305.35 | 2,538.19 |
| Columbia | 126.19 | 93.70 | 0.00 | 7,147.80 |
| Crawford | 0.00 | 409.33 | 0.00 | 983.77 |
| Elk | 124.25 | 693.91 | 54.90 | 892.00 |
| Fayette | 0.63 | 22.50 | 10.71 | 5,766.58 |
| Forest | NA | NA | NA | NA |
| Franklin | 368.38 | 89.20 | 73.27 | 9,699.63 |
| Fulton | 11.60 | 50.76 | 32.06 | 0.00 |
| Greene | 22.29 | 0.00 | 2.57 | 0.00 |
| Huntingdon | 16.83 | 468.68 | 11.31 | 2,711.00 |
| Indiana | 120.54 | 343.41 | 32.71 | 1,967.39 |
| Jefferson | 13,173.80 | 1,559.40 | 6,100.40 | 1,226.90 |
| Juniata | 46.31 | 43.23 | 0.00 | 0.00 |
| Lawrence | 6,233.00 | 999.09 | 490.17 | 1,765.00 |
| Lycoming | 363.33 | 680.03 | 139.92 | 14,344.15 |
| McKean | 12.50 | 0.00 | 0.00 | 170.00 |

| | | | | |
|-------------------------------------|-------------------|-------------------|------------------|---------------------|
| Mercer | 2,343.93 | 260.75 | 1,081.22 | 1,887.05 |
| Mifflin | 4,513.25 | 277.98 | 280.95 | 1,171.49 |
| Monroe | 298.51 | 311.97 | 44.52 | 15,494.24 |
| Montour | 21.70 | 0.00 | 0.00 | 0.00 |
| Northumberland | 338.88 | 75.87 | 18.26 | 1,476.50 |
| Perry | 37.60 | 27.10 | 11.90 | 0.00 |
| Pike | 64.60 | 40.19 | 13.10 | 35.70 |
| Potter | 151.73 | 69.95 | 39.58 | 1.00 |
| Schuylkill | 34,067.62 | 591.94 | 52.05 | 1,658.82 |
| Snyder | 41.12 | 218.54 | 11.18 | 8,359.50 |
| Somerset | 324.83 | 9.85 | 51.03 | 51.32 |
| Sullivan | 43.10 | 28.70 | 65.10 | 15.00 |
| Susquehanna | 55.68 | 39.39 | 0.00 | 190.35 |
| Tioga | 228.10 | 200.10 | 166.40 | 720.00 |
| Union | 55.48 | 3.94 | 15.50 | 16,840.32 |
| Venango | 111.58 | 26.73 | 1.80 | 953.10 |
| Warren | 62.34 | 77.48 | 0.00 | 1,242.00 |
| Washington | 94.51 | 117.21 | 42.59 | 1,543.52 |
| Wayne | 249.12 | 182.06 | 8.62 | 0.00 |
| Wyoming | 4.49 | 29.21 | 21.09 | 834.00 |
| TOTAL RURAL RECYCLING | 85,906.87 | 23,795.81 | 18,310.50 | 158,732.84 |
| TOTAL COUNTY RECYCLING | 160,092.37 | 457,610.92 | 46,050.22 | 1,192,021.03 |
| % OF RECYCLING THAT IS RURAL | 53.66 | 5.20 | 39.76 | 13.32 |

Table 23: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2012

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Allegheny | 1,840.46 | 4,972.70 | 70.52 | 38,820.52 |
| Beaver | 495.47 | 1,293.53 | 191.79 | 6,583.55 |
| Berks | 2,499.68 | 1,393.25 | 895.76 | 25,927.68 |
| Bucks | 179.66 | 629.86 | 4,323.37 | 115,300.88 |
| Chester | 1,303.45 | 402,514.85 | 531.83 | 18,241.63 |
| Cumberland | 4.97 | 1,323.65 | 0.00 | 26,855.41 |
| Dauphin | 199.77 | 366.37 | 39.78 | 16,437.11 |
| Delaware | 47,615.35 | 3,479.18 | 24.60 | 23,001.82 |
| Erie | 13,774.95 | 973.91 | 166.37 | 23,291.75 |
| Lackawanna | 11.69 | 330.66 | 50.95 | 3,340.70 |
| Lancaster | 725.35 | 2,597.05 | 197.74 | 19,947.88 |
| Lebanon | 3,372.74 | 1,976.06 | 12.84 | 11,571.25 |
| Lehigh | 211.60 | 862.60 | 1,314.24 | 43,049.00 |
| Luzerne | 105.91 | 2,235.82 | 25.92 | 48,687.75 |
| Montgomery | 835.98 | 1,047.55 | 17,155.19 | 537,089.83 |
| Northampton | 577.35 | 768.41 | 1,363.42 | 55,065.57 |

| | | | | |
|-------------------------------------|-------------------|-------------------|------------------|---------------------|
| Philadelphia | 156.69 | 5,659.37 | 1,230.00 | 1,280.00 |
| Westmoreland | 119.23 | 365.47 | 78.72 | 3,580.96 |
| York | 155.20 | 1,024.82 | 66.68 | 15,214.90 |
| TOTAL URBAN RECYCLING | 74,185.50 | 433,815.11 | 27,739.72 | 1,033,288.19 |
| TOTAL COUNTY RECYCLING | 160,092.37 | 457,610.92 | 46,050.22 | 1,192,021.03 |
| % OF RECYCLING THAT IS URBAN | 46.34 | 94.80 | 60.24 | 86.68 |

Table 24: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2012

| County | Source-separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|---------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 4,027.03 | 53.63 |
| Armstrong | 1,013.57 | 65.74 |
| Bedford | 703.05 | 65.17 |
| Blair | 4,406.76 | 26.99 |
| Bradford | 2,277.03 | 54.83 |
| Butler | 15,306.95 | 43.87 |
| Cambria | 2,723.96 | 40.38 |
| Cameron | 47.08 | 26.03 |
| Carbon | 2,680.72 | 82.88 |
| Centre | 24,121.47 | 40.26 |
| Clarion | 95.51 | 11.16 |
| Clearfield | 16,788.63 | 86.21 |
| Clinton | 2,533.28 | 45.26 |
| Columbia | 1,941.04 | 21.14 |
| Crawford | 2,156.24 | 60.75 |
| Elk | 1,011.87 | 38.15 |
| Fayette | 1,341.84 | 18.79 |
| Forest | NA | NA |
| Franklin | 5,543.80 | 35.98 |
| Fulton | 255.38 | 75.51 |
| Greene | 224.58 | 98.87 |
| Huntingdon | 1,092.78 | 25.51 |
| Indiana | 1,849.29 | 44.11 |
| Jefferson | 14,078.10 | 61.30 |
| Juniata | 255.43 | 85.53 |
| Lawrence | 9,353.39 | 74.19 |
| Lycoming | 6,951.29 | 31.43 |
| McKean | 948.22 | 84.80 |
| Mercer | 5,249.59 | 61.92 |
| Mifflin | 5,321.88 | 75.46 |
| Monroe | 10,370.75 | 39.55 |
| Montour | 405.70 | 100.00 |

| | | |
|-------------------------------------|-------------------|--------------|
| Northumberland | 3,344.45 | 68.04 |
| Perry | 768.94 | 95.17 |
| Pike | 4,421.75 | 98.03 |
| Potter | 495.45 | 81.76 |
| Schuylkill | 59,192.68 | 96.26 |
| Snyder | 667.67 | 7.21 |
| Somerset | 1,101.82 | 90.76 |
| Sullivan | 346.40 | 76.10 |
| Susquehanna | 1,121.64 | 83.00 |
| Tioga | 917.10 | 45.77 |
| Union | 963.20 | 5.40 |
| Venango | 1,036.72 | 51.36 |
| Warren | 727.93 | 35.55 |
| Washington | 5,464.16 | 76.24 |
| Wayne | 2,380.57 | 92.58 |
| Wyoming | 781.68 | 46.92 |
| TOTAL RURAL RECYCLING | 228,808.37 | |
| TOTAL COUNTY RECYCLING | 932,363.89 | 35.48 |
| % OF RECYCLING THAT IS RURAL | 24.54 | |

Table 25: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2012

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|---------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Allegheny | 60,492.10 | 57.97 |
| Beaver | 6,231.89 | 43.58 |
| Berks | 24,950.65 | 46.93 |
| Bucks | 46,367.00 | 27.83 |
| Chester | 54,198.62 | 11.40 |
| Cumberland | 16,544.72 | 36.99 |
| Dauphin | 15,901.29 | 48.56 |
| Delaware | 85,273.49 | 76.29 |
| Erie | 29,929.69 | 55.06 |
| Lackawanna | 10,698.03 | 74.19 |
| Lancaster | 26,179.50 | 53.51 |
| Lebanon | 9,564.07 | 41.36 |
| Lehigh | 33,146.11 | 42.29 |
| Luzerne | 19,021.06 | 27.18 |
| Montgomery | 74,425.33 | 11.82 |
| Northampton | 24,899.28 | 30.33 |
| Philadelphia | 122,222.59 | 93.73 |
| Westmoreland | 13,840.23 | 77.47 |

| | | |
|-------------------------------------|-------------------|--------------|
| York | 29,669.87 | 64.53 |
| TOTAL URBAN RECYCLING | 703,555.52 | |
| TOTAL COUNTY RECYCLING | 932,363.89 | 35.48 |
| % OF RECYCLING THAT IS URBAN | 75.46 | |

Table 26: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2013

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 2,787.62 | 110.22 | 168.73 | 1,036.84 | 72.26 |
| Armstrong | 0.00 | 0.00 | 215.62 | 703.15 | 113.78 |
| Bedford | 346.87 | 65.92 | 20.09 | 114.04 | 20.00 |
| Blair | 550.33 | 909.54 | 96.24 | 2,211.40 | 155.32 |
| Bradford | 221.60 | 0.00 | 350.60 | 937.45 | 207.90 |
| Butler | 8,029.17 | 23.20 | 0.00 | 2,229.58 | 0.00 |
| Cambria | 104.72 | 606.14 | 55.00 | 1,423.92 | 307.13 |
| Cameron | 0.00 | 0.00 | 27.44 | 10.41 | 9.99 |
| Carbon | 1,298.64 | 297.49 | 194.84 | 673.81 | 62.44 |
| Centre | 0.00 | 0.00 | 2,227.54 | 16,747.66 | 1,175.20 |
| Clarion | 0.00 | 0.00 | 62.30 | 19.74 | 8.19 |
| Clearfield | 0.00 | 0.00 | 379.77 | 536.08 | 41.53 |
| Clinton | 0.00 | 904.65 | 0.00 | 429.62 | 692.32 |
| Columbia | 89.80 | 0.00 | 278.45 | 1,089.30 | 217.27 |
| Crawford | 1,901.09 | 202.38 | 0.00 | 658.68 | 2.65 |
| Elk | 0.00 | 94.80 | 266.80 | 352.80 | 88.80 |
| Fayette | 11.04 | 716.76 | 10.75 | 1,114.70 | 6.25 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 2,476.24 | 798.35 | 595.70 | 444.76 | 139.83 |
| Fulton | 244.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 0.00 | 47.56 | 115.56 | 31.40 |
| Huntingdon | 1,065.94 | 0.00 | 11.55 | 66.70 | 10.20 |
| Indiana | 0.00 | 0.00 | 454.58 | 1,001.22 | 166.43 |
| Jefferson | 11.30 | 2.30 | 212.60 | 449.40 | 190.70 |
| Juniata | 0.00 | 0.00 | 64.03 | 177.00 | 16.78 |
| Lawrence | 1,558.66 | 1,083.66 | 0.00 | 491.62 | 0.00 |
| Lycoming | 86.96 | 1,567.84 | 1,358.86 | 2,467.97 | 961.90 |
| McKean | 0.00 | 0.00 | 22.21 | 119.32 | 0.09 |
| Mercer | 2,298.16 | 343.44 | 0.00 | 212.39 | 0.00 |
| Mifflin | 101.32 | 0.00 | 124.37 | 571.38 | 88.58 |
| Monroe | 4,428.80 | 1,394.83 | 993.01 | 3,108.03 | 249.98 |
| Montour | 90.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| Northumberland | 53.56 | 0.00 | 672.62 | 2,251.17 | 375.34 |
| Perry | 205.95 | 67.89 | 39.22 | 191.09 | 8.20 |
| Pike | 6,784.76 | 98.44 | 0.00 | 125.63 | 0.00 |
| Potter | 358.72 | 0.00 | 1.40 | 1.76 | 0.73 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Schuylkill | 3,383.86 | 894.80 | 1,567.35 | 7,616.36 | 766.11 |
| Snyder | 200.00 | 0.00 | 146.14 | 756.66 | 63.50 |
| Somerset | 25.62 | 150.65 | 93.73 | 450.53 | 57.88 |
| Sullivan | 0.00 | 0.00 | 80.10 | 186.69 | 33.80 |
| Susquehanna | 75.43 | 399.58 | 0.00 | 685.29 | 0.00 |
| Tioga | 70.80 | 0.00 | 153.00 | 492.20 | 130.80 |
| Union | 544.12 | 14.71 | 185.67 | 607.17 | 80.71 |
| Venango | 0.00 | 391.60 | 84.40 | 398.00 | 27.90 |
| Warren | 476.60 | 0.00 | 195.23 | 241.96 | 61.25 |
| Washington | 4,536.60 | 0.00 | 78.81 | 2,296.21 | 25.51 |
| Wayne | 400.35 | 0.00 | 332.18 | 775.88 | 101.48 |
| Wyoming | 77.76 | 710.61 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 44,896.87 | 11,849.80 | 11,868.49 | 56,591.13 | 6,770.13 |
| TOTAL COUNTY RECYCLING | 551,597.24 | 60,797.18 | 14,677.14 | 142,050.82 | 8,174.80 |
| % OF RECYCLING THAT IS RURAL | 8.14 | 19.49 | 80.86 | 39.84 | 82.82 |

Table 27: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2013

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|---------------|----------------------|-------------------|--------------|--------------|----------------|
| Allegheny | 57,872.52 | 1,121.89 | 744.77 | 3,861.30 | 356.55 |
| Beaver | 2,486.09 | 593.43 | 29.65 | 1,849.84 | 16.20 |
| Berks | 13,239.38 | 5,003.63 | 156.98 | 5,669.47 | 9.88 |
| Bucks | 52,226.97 | 1,759.99 | 103.63 | 1,856.23 | 34.38 |
| Chester | 33,776.05 | 5,625.64 | 0.00 | 8,814.57 | 160.06 |
| Cumberland | 17,305.55 | 248.31 | 0.00 | 16.65 | 0.00 |
| Dauphin | 12,556.59 | 0.00 | 0.00 | 2,377.33 | 124.90 |
| Delaware | 30,608.57 | 2,052.00 | 0.00 | 6,022.66 | 112.62 |
| Erie | 13,021.23 | 184.00 | 153.08 | 438.15 | 79.40 |
| Lackawanna | 802.55 | 4,636.65 | 433.00 | 5,746.63 | 0.00 |
| Lancaster | 19,011.16 | 2,369.65 | 0.00 | 3,388.40 | 0.00 |
| Lebanon | 3,448.22 | 946.37 | 43.05 | 1,259.66 | 52.94 |
| Lehigh | 17,826.40 | 5,412.30 | 118.00 | 6,656.71 | 87.70 |
| Luzerne | 8,316.28 | 5,347.41 | 70.34 | 4,846.29 | 65.34 |
| Montgomery | 51,198.15 | 7,029.63 | 321.80 | 16,412.47 | 158.23 |
| Northampton | 11,234.39 | 4,877.70 | 112.40 | 9,516.56 | 85.30 |
| Philadelphia | 125,257.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| Westmoreland | 7,231.40 | 955.02 | 169.42 | 4,145.81 | 42.47 |
| York | 29,281.51 | 783.76 | 352.53 | 2,580.96 | 18.70 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| TOTAL URBAN RECYCLING | 506,700.37 | 48,947.38 | 2,808.65 | 85,459.69 | 1,404.67 |
| TOTAL COUNTY RECYCLING | 551,597.24 | 60,797.18 | 14,677.14 | 142,050.82 | 8,174.80 |
| % OF RECYCLING THAT IS URBAN | 91.86 | 80.51 | 19.14 | 60.16 | 17.18 |

Table 28: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2013

| County | Metal | HHW | Other | Organics |
|---------------|--------------|------------|--------------|-----------------|
| Adams | 43.55 | 1,664.39 | 602.85 | 558.63 |
| Armstrong | 35.71 | 162.90 | 21.11 | 237.00 |
| Bedford | 441.48 | 225.30 | 1.44 | 195.06 |
| Blair | 11,787.28 | 260.18 | 1,004.65 | 10,055.00 |
| Bradford | 572.60 | 230.40 | 398.60 | 607.90 |
| Butler | 122.18 | 1,296.31 | 206.28 | 12,016.30 |
| Cambria | 7,022.27 | 295.25 | 3,910.86 | 3,163.66 |
| Cameron | 2.25 | 17.55 | 0.00 | 230.00 |
| Carbon | 38.04 | 111.81 | 15.37 | 453.00 |
| Centre | 4,219.08 | 2,819.88 | 8,089.05 | 25,344.48 |
| Clarion | 8.08 | 8.56 | 0.00 | 579.00 |
| Clearfield | 13,351.48 | 371.86 | 90.81 | 1,633.00 |
| Clinton | 253.72 | 351.91 | 199.12 | 1,594.51 |
| Columbia | 37.15 | 190.40 | 0.00 | 8,308.55 |
| Crawford | 303.75 | 28.58 | 0.00 | 1,021.42 |
| Elk | 160.50 | 829.71 | 63.20 | 2,552.00 |
| Fayette | 9.79 | 0.00 | 0.00 | 6,735.92 |
| Forest | NA | NA | NA | NA |
| Franklin | 519.35 | 258.40 | 52.88 | 8,036.60 |
| Fulton | 31.02 | 40.82 | 34.00 | 0.00 |
| Greene | 29.36 | 0.00 | 27.45 | 0.00 |
| Huntingdon | 8.38 | 516.43 | 0.00 | 2,716.51 |
| Indiana | 120.07 | 303.36 | 43.24 | 2,185.03 |
| Jefferson | 4,852.10 | 577.80 | 4,369.90 | 1,194.40 |
| Juniata | 54.94 | 0.00 | 159.27 | 0.00 |
| Lawrence | 5,490.00 | 556.65 | 507.44 | 590.00 |
| Lycoming | 351.52 | 714.09 | 0.00 | 13,672.63 |
| McKean | 17.43 | 0.57 | 0.79 | 180.00 |
| Mercer | 6,608.37 | 3,111.44 | 0.01 | 3,685.71 |
| Mifflin | 4,386.35 | 311.64 | 111.67 | 678.66 |

| | | | | |
|-------------------------------------|-------------------|-------------------|------------------|-------------------|
| Monroe | 344.96 | 385.66 | 17.00 | 4,901.75 |
| Montour | 0.00 | 0.00 | 0.00 | 0.00 |
| Northumberland | 210.14 | 91.37 | 13.88 | 635.90 |
| Perry | 54.93 | 0.00 | 0.00 | 0.00 |
| Pike | 65.83 | 0.00 | 0.00 | 0.00 |
| Potter | 140.72 | 67.91 | 40.58 | 128.61 |
| Schuylkill | 31,280.47 | 407.49 | 55.01 | 2,701.26 |
| Snyder | 57.69 | 64.15 | 10.00 | 1,225.00 |
| Somerset | 321.87 | 9.66 | 49.13 | 55.42 |
| Sullivan | 27.80 | 17.90 | 28.80 | 15.00 |
| Susquehanna | 45.56 | 62.38 | 0.00 | 236.18 |
| Tioga | 201.90 | 67.70 | 98.70 | 515.00 |
| Union | 45.36 | 27.00 | 43.09 | 8,595.52 |
| Venango | 76.20 | 38.60 | 3.20 | 616.48 |
| Warren | 66.51 | 0.00 | 0.00 | 765.00 |
| Washington | 33.36 | 202.21 | 51.84 | 1,547.94 |
| Wayne | 238.18 | 177.58 | 3.48 | 0.00 |
| Wyoming | 4.60 | 31.51 | 25.34 | 865.00 |
| TOTAL RURAL RECYCLING | 94,093.88 | 16,907.31 | 20,350.04 | 131,029.03 |
| TOTAL COUNTY RECYCLING | 173,082.43 | 466,714.69 | 51,680.28 | 577,022.28 |
| % OF RECYCLING THAT IS RURAL | 54.36 | 3.62 | 39.38 | 22.71 |

Table 29: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2013

| County | Metal | HHW | Other | Organics |
|--------------|-----------|------------|-----------|-----------|
| Allegheny | 1,823.20 | 1,165.26 | 61.55 | 37,924.79 |
| Beaver | 74.88 | 1,784.40 | 279.82 | 6,115.83 |
| Berks | 1,079.40 | 2,583.91 | 3,578.44 | 20,931.58 |
| Bucks | 2,898.40 | 1,002.92 | 5,569.78 | 22,170.13 |
| Chester | 4,621.63 | 416,721.33 | 688.00 | 16,464.22 |
| Cumberland | 3.86 | 1,571.35 | 0.00 | 26,496.00 |
| Dauphin | 104.91 | 637.09 | 475.43 | 18,591.11 |
| Delaware | 43,796.98 | 1,396.01 | 35.56 | 22,494.73 |
| Erie | 8,528.15 | 983.25 | 117.96 | 13,658.94 |
| Lackawanna | 8,220.42 | 2,394.20 | 1,216.33 | 4,563.03 |
| Lancaster | 467.33 | 2,278.63 | 186.27 | 20,072.66 |
| Lebanon | 5,627.11 | 1,936.70 | 87.48 | 12,399.74 |
| Lehigh | 148.18 | 1,643.85 | 70.83 | 43,056.44 |
| Luzerne | 72.78 | 2,232.49 | 63.41 | 37,510.32 |
| Montgomery | 892.12 | 6,785.34 | 17,795.21 | 65,196.73 |
| Northampton | 363.91 | 3,121.74 | 514.56 | 58,171.35 |
| Philadelphia | 0.00 | 474.30 | 505.80 | 838.90 |
| Westmoreland | 50.99 | 241.44 | 62.85 | 3,017.79 |

| | | | | |
|-------------------------------------|-------------------|-------------------|------------------|-------------------|
| York | 214.30 | 853.17 | 20.96 | 16,318.96 |
| TOTAL URBAN RECYCLING | 78,988.55 | 449,807.38 | 31,330.24 | 445,993.25 |
| TOTAL COUNTY RECYCLING | 173,082.43 | 466,714.69 | 51,680.28 | 577,022.28 |
| % OF RECYCLING THAT IS URBAN | 45.64 | 96.38 | 60.62 | 77.29 |

Table 30: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2013

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 4,219.22 | 59.89 |
| Armstrong | 1,068.26 | 71.73 |
| Bedford | 1,008.40 | 70.51 |
| Blair | 15,710.11 | 58.12 |
| Bradford | 2,290.15 | 64.93 |
| Butler | 10,404.13 | 43.49 |
| Cambria | 9,519.18 | 56.36 |
| Cameron | 50.09 | 16.83 |
| Carbon | 2,565.26 | 81.55 |
| Centre | 24,369.48 | 40.20 |
| Clarion | 98.31 | 14.33 |
| Clearfield | 14,308.86 | 87.23 |
| Clinton | 2,280.31 | 51.52 |
| Columbia | 1,711.97 | 16.77 |
| Crawford | 3,068.55 | 74.51 |
| Elk | 963.70 | 21.86 |
| Fayette | 1,869.29 | 21.72 |
| Forest | NA | NA |
| Franklin | 4,974.23 | 37.34 |
| Fulton | 275.02 | 78.61 |
| Greene | 223.88 | 89.08 |
| Huntingdon | 1,162.77 | 26.45 |
| Indiana | 1,742.30 | 40.77 |
| Jefferson | 5,718.40 | 48.21 |
| Juniata | 312.75 | 66.26 |
| Lawrence | 8,623.94 | 83.91 |
| Lycoming | 6,795.05 | 32.08 |
| McKean | 159.05 | 46.72 |
| Mercer | 9,462.36 | 58.20 |
| Mifflin | 5,272.00 | 82.71 |
| Monroe | 10,519.61 | 66.48 |
| Montour | 90.48 | 100.00 |
| Northumberland | 3,562.83 | 82.78 |

| | | |
|-------------------------------------|-------------------|--------------|
| Perry | 567.28 | 100.00 |
| Pike | 7,074.66 | 100.00 |
| Potter | 503.33 | 67.98 |
| Schuylkill | 45,508.95 | 93.50 |
| Snyder | 1,223.99 | 48.51 |
| Somerset | 1,100.28 | 90.60 |
| Sullivan | 328.39 | 84.18 |
| Susquehanna | 1,205.86 | 80.15 |
| Tioga | 1,048.70 | 60.61 |
| Union | 1,477.74 | 14.57 |
| Venango | 978.10 | 59.77 |
| Warren | 1,041.55 | 57.65 |
| Washington | 6,970.49 | 79.46 |
| Wayne | 1,848.07 | 91.08 |
| Wyoming | 792.97 | 46.24 |
| TOTAL RURAL RECYCLING | 226,070.30 | |
| TOTAL COUNTY RECYCLING | 950,379.61 | 46.46 |
| % OF RECYCLING THAT IS RURAL | 23.79 | |

Table 31: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2013

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|---------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Allegheny | 65,780.23 | 62.69 |
| Beaver | 5,050.09 | 38.17 |
| Berks | 25,158.74 | 48.15 |
| Bucks | 58,879.60 | 67.20 |
| Chester | 52,997.95 | 10.89 |
| Cumberland | 17,574.37 | 38.51 |
| Dauphin | 15,163.73 | 43.49 |
| Delaware | 82,592.83 | 77.54 |
| Erie | 22,404.01 | 60.28 |
| Lackawanna | 19,839.25 | 70.82 |
| Lancaster | 25,236.54 | 52.82 |
| Lebanon | 11,377.35 | 44.10 |
| Lehigh | 30,249.29 | 40.32 |
| Luzerne | 18,718.44 | 31.98 |
| Montgomery | 76,012.40 | 45.85 |
| Northampton | 26,190.26 | 29.76 |
| Philadelphia | 125,257.36 | 98.57 |
| Westmoreland | 12,595.11 | 79.13 |
| York | 33,231.76 | 65.90 |

| | | |
|-------------------------------------|-------------------|--------------|
| TOTAL URBAN RECYCLING | 724,309.31 | |
| TOTAL COUNTY RECYCLING | 950,379.61 | 46.46 |
| % OF RECYCLING THAT IS URBAN | 76.21 | |

Table 32: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2014

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 3,018.01 | 0.00 | 124.95 | 829.62 | 44.27 |
| Armstrong | 0.00 | 85.51 | 178.70 | 643.77 | 30.93 |
| Bedford | 343.30 | 65.71 | 17.99 | 215.50 | 12.53 |
| Blair | 852.83 | 559.33 | 169.56 | 3,331.58 | 173.45 |
| Bradford | 270.00 | 0.00 | 322.37 | 1,019.37 | 235.13 |
| Butler | 7,910.31 | 33.71 | 0.00 | 2,138.56 | 0.00 |
| Cambria | 508.96 | 141.53 | 40.47 | 1,401.84 | 284.89 |
| Cameron | 0.00 | 0.00 | 38.97 | 20.31 | 7.16 |
| Carbon | 2,085.63 | 0.00 | 120.20 | 350.62 | 44.10 |
| Centre | 0.00 | 0.00 | 2,250.26 | 16,918.40 | 1,207.92 |
| Clarion | 19.07 | 0.00 | 60.90 | 210.41 | 6.63 |
| Clearfield | 0.00 | 6.15 | 227.00 | 618.50 | 39.00 |
| Clinton | 14.36 | 858.19 | 0.00 | 454.55 | 367.94 |
| Columbia | 982.65 | 90.00 | 234.60 | 1,014.63 | 173.38 |
| Crawford | 1,935.75 | 352.44 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 93.88 | 220.94 | 465.52 | 120.55 |
| Fayette | 34.38 | 636.65 | 0.00 | 884.80 | 155.90 |
| Forest | NA | NA | NA | NA | NA |
| Franklin | 1,693.26 | 1,629.11 | 515.40 | 370.31 | 109.45 |
| Fulton | 279.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 0.00 | 56.56 | 156.92 | 47.33 |
| Huntingdon | 1,087.42 | 47.27 | 17.20 | 48.00 | 11.05 |
| Indiana | 0.00 | 0.00 | 470.40 | 1,049.50 | 154.19 |
| Jefferson | 23.30 | 297.40 | 212.20 | 212.20 | 138.00 |
| Juniata | 0.00 | 0.00 | 20.13 | 215.13 | 24.94 |
| Lawrence | 3,005.01 | 0.00 | 0.00 | 429.51 | 0.00 |
| Lycoming | 199.32 | 0.00 | 1,254.30 | 3,816.40 | 970.89 |
| McKean | 269.10 | 0.00 | 15.60 | 142.10 | 0.00 |
| Mercer | 2,278.14 | 332.23 | 0.00 | 234.07 | 0.00 |
| Mifflin | 108.04 | 0.00 | 104.57 | 538.43 | 122.40 |
| Monroe | 3,661.87 | 992.38 | 941.45 | 3,296.93 | 262.41 |
| Montour | 147.65 | 0.00 | 41.34 | 105.40 | 20.88 |
| Northumberland | 157.17 | 0.61 | 566.95 | 1,823.39 | 353.43 |
| Perry | 246.19 | 2.51 | 20.13 | 361.52 | 24.94 |
| Pike | 3,726.49 | 0.00 | 0.00 | 120.90 | 0.00 |
| Potter | 240.12 | 0.00 | 0.10 | 22.17 | 1.50 |
| Schuylkill | 3,058.37 | 853.67 | 973.26 | 6,943.85 | 405.84 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Snyder | 453.54 | 6.95 | 159.49 | 523.05 | 82.54 |
| Somerset | 0.00 | 132.90 | 171.38 | 307.25 | 0.00 |
| Sullivan | 0.00 | 0.00 | 84.02 | 161.17 | 34.56 |
| Susquehanna | 79.24 | 304.68 | 0.00 | 670.63 | 0.00 |
| Tioga | 29.24 | 0.00 | 208.09 | 476.21 | 153.16 |
| Union | 556.60 | 2.00 | 194.66 | 506.92 | 79.78 |
| Venango | 383.22 | 8.42 | 135.74 | 123.84 | 24.93 |
| Warren | 272.86 | 0.00 | 186.00 | 233.69 | 45.28 |
| Washington | 4,230.89 | 28.87 | 67.04 | 2,035.86 | 19.54 |
| Wayne | 422.32 | 0.00 | 226.66 | 648.77 | 69.77 |
| Wyoming | 140.50 | 647.36 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 44,724.11 | 8,209.46 | 10,649.58 | 56,092.10 | 6,060.59 |
| TOTAL COUNTY RECYCLING | 575,843.16 | 61,606.29 | 13,254.04 | 167,754.27 | 7,858.41 |
| % OF RECYCLING THAT IS RURAL | 7.77 | 13.33 | 80.35 | 33.44 | 77.12 |

Table 33: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2014

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Allegheny | 55,310.34 | 1,787.38 | 747.12 | 5,592.32 | 331.87 |
| Beaver | 4,502.66 | 760.59 | 135.10 | 1,663.42 | 11.93 |
| Berks | 9,814.66 | 7,832.67 | 31.96 | 7,472.81 | 5.95 |
| Bucks | 45,120.07 | 1,113.20 | 12.40 | 5,138.68 | 2.47 |
| Chester | 47,470.34 | 5,123.98 | 0.00 | 20,415.44 | 47.87 |
| Cumberland | 17,022.36 | 166.56 | 0.00 | 25.04 | 0.00 |
| Dauphin | 13,986.16 | 0.00 | 105.92 | 8,144.52 | 178.20 |
| Delaware | 31,440.40 | 1,465.49 | 10.47 | 1,696.05 | 330.42 |
| Erie | 9,355.58 | 3,617.79 | 136.42 | 360.05 | 177.97 |
| Lackawanna | 5,836.00 | 9,966.24 | 0.00 | 26,704.60 | 262.45 |
| Lancaster | 21,896.50 | 2,325.20 | 0.10 | 3,248.60 | 11.10 |
| Lebanon | 3,013.00 | 1,298.70 | 87.87 | 1,358.98 | 44.50 |
| Lehigh | 24,321.14 | 5,286.65 | 87.90 | 6,144.16 | 77.90 |
| Luzerne | 13,843.30 | 2,605.95 | 63.54 | 3,636.75 | 73.29 |
| Montgomery | 53,645.33 | 6,726.66 | 438.99 | 12,937.49 | 93.40 |
| Northampton | 13,369.41 | 1,591.52 | 125.58 | 3,158.07 | 69.68 |
| Philadelphia | 123,029.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Westmoreland | 6,608.42 | 1,094.88 | 260.20 | 2,829.68 | 65.75 |
| York | 31,534.38 | 633.37 | 360.89 | 1,135.51 | 13.07 |
| TOTAL URBAN RECYCLING | 531,119.05 | 53,396.83 | 2,604.46 | 111,662.17 | 1,797.82 |
| TOTAL COUNTY RECYCLING | 575,843.16 | 61,606.29 | 13,254.04 | 167,754.27 | 7,858.41 |

| | | | | | |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|
| % OF RECYCLING THAT IS URBAN | 92.23 | 86.67 | 19.65 | 66.56 | 22.88 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|

Table 34: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2014

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 484.23 | 458.44 | 2,246.24 | 1,191.57 |
| Armstrong | 61.86 | 4.81 | 0.00 | 221.00 |
| Bedford | 10.29 | 21.67 | 22.05 | 48.23 |
| Blair | 780.12 | 376.68 | 1,095.03 | 10,311.30 |
| Bradford | 623.87 | 204.82 | 434.63 | 155.76 |
| Butler | 590.04 | 104.46 | 310.75 | 9,482.76 |
| Cambria | 160.86 | 151.70 | 0.00 | 2,190.25 |
| Cameron | 7.54 | 15.75 | 0.00 | 102.00 |
| Carbon | 42.34 | 23.22 | 31.80 | 414.00 |
| Centre | 8,763.59 | 926.57 | 8,163.95 | 25,632.96 |
| Clarion | 3.20 | 0.00 | 0.00 | 660.00 |
| Clearfield | 18,604.41 | 113.96 | 102.07 | 1,939.00 |
| Clinton | 529.73 | 157.09 | 218.35 | 2,363.03 |
| Columbia | 89.40 | 198.30 | 247.95 | 7,880.40 |
| Crawford | 0.00 | 0.00 | 0.00 | 988.86 |
| Elk | 194.83 | 123.32 | 52.14 | 43.00 |
| Fayette | 0.00 | 0.00 | 20.80 | 6,215.00 |
| Forest | NA | NA | NA | NA |
| Franklin | 527.64 | 68.41 | 18.58 | 8,065.93 |
| Fulton | 17.95 | 44.09 | 36.05 | 0.00 |
| Greene | 36.03 | 0.00 | 44.29 | 0.00 |
| Huntingdon | 19.54 | 12.16 | 14.85 | 50.00 |
| Indiana | 133.99 | 147.81 | 29.91 | 1,999.42 |
| Jefferson | 2,314.94 | 60.60 | 3,591.00 | 1,319.30 |
| Juniata | 91.00 | 0.00 | 0.00 | 0.00 |
| Lawrence | 1,679.00 | 40.03 | 500.00 | 424.93 |
| Lycoming | 330.65 | 0.00 | 0.00 | 15,711.00 |
| McKean | 6.20 | 0.00 | 0.00 | 0.00 |
| Mercer | 6,633.85 | 120.06 | 0.00 | 1,902.51 |
| Mifflin | 3,901.32 | 160.33 | 70.87 | 321.29 |
| Monroe | 423.66 | 585.32 | 17.44 | 16,091.75 |
| Montour | 15.15 | 0.00 | 0.00 | 0.00 |
| Northumberland | 363.55 | 0.00 | 1,539.41 | 453.20 |
| Perry | 91.00 | 0.00 | 19.73 | 0.00 |
| Pike | 67.08 | 0.00 | 0.00 | 0.00 |
| Potter | 89.14 | 36.97 | 18.40 | 0.00 |
| Schuylkill | 33,501.66 | 249.13 | 49.83 | 2,483.44 |
| Snyder | 35.49 | 0.00 | 3.14 | 5,774.21 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Somerset | 208.45 | 4.23 | 1.29 | 35.24 |
| Sullivan | 26.89 | 16.29 | 26.75 | 25.00 |
| Susquehanna | 45.04 | 51.95 | 0.00 | 257.33 |
| Tioga | 205.27 | 122.89 | 13.34 | 365.00 |
| Union | 62.94 | 45.72 | 0.23 | 5,920.27 |
| Venango | 23.67 | 5.56 | 0.00 | 631.02 |
| Warren | 33.28 | 0.00 | 0.00 | 782.00 |
| Washington | 32.12 | 59.79 | 26.31 | 1,139.72 |
| Wayne | 190.57 | 220.36 | 15.81 | 0.00 |
| Wyoming | 7.85 | 19.48 | 36.22 | 881.00 |
| TOTAL RURAL RECYCLING | 82,061.23 | 4,951.97 | 19,019.21 | 134,472.68 |
| TOTAL COUNTY RECYCLING | 148,612.75 | 21,405.58 | 45,995.14 | 614,290.68 |
| % OF RECYCLING THAT IS RURAL | 55.22 | 23.13 | 41.35 | 21.89 |

Table 35: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2014

| County | Metal | HHW | Other | Organics |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Allegheny | 2,289.48 | 520.63 | 134.56 | 45,517.58 |
| Beaver | 292.86 | 293.35 | 264.38 | 3,882.71 |
| Berks | 146.61 | 784.11 | 26.11 | 14,641.99 |
| Bucks | 762.91 | 374.02 | 1,795.25 | 36,807.67 |
| Chester | 18,399.59 | 1,840.19 | 1,380.61 | 30,029.13 |
| Cumberland | 14.30 | 57.70 | 0.19 | 26,552.92 |
| Dauphin | 100.27 | 5,800.00 | 0.17 | 18,615.11 |
| Delaware | 27,168.02 | 462.32 | 1,759.39 | 26,840.10 |
| Erie | 2,559.78 | 284.30 | 209.03 | 8,859.80 |
| Lackawanna | 6,475.55 | 624.73 | 391.05 | 8,205.00 |
| Lancaster | 1,110.70 | 1,456.90 | 222.90 | 19,816.70 |
| Lebanon | 5,522.31 | 545.72 | 72.14 | 12,424.54 |
| Lehigh | 24.45 | 180.98 | 66.19 | 40,451.41 |
| Luzerne | 107.65 | 75.63 | 615.29 | 52,775.55 |
| Montgomery | 780.85 | 896.20 | 18,302.98 | 73,297.88 |
| Northampton | 542.50 | 667.32 | 98.89 | 35,441.82 |
| Philadelphia | 0.00 | 402.00 | 1,500.10 | 1,609.40 |
| Westmoreland | 57.01 | 0.00 | 0.00 | 4,372.22 |
| York | 196.68 | 1,187.51 | 136.70 | 19,676.47 |
| TOTAL URBAN RECYCLING | 66,551.52 | 16,453.61 | 26,975.93 | 479,818.00 |
| TOTAL COUNTY RECYCLING | 148,612.75 | 21,405.58 | 45,995.14 | 614,290.68 |
| % OF RECYCLING THAT IS URBAN | 44.78 | 76.87 | 58.65 | 78.11 |

Table 36: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2014

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 4,501.08 | 53.60 |
| Armstrong | 1,000.77 | 81.59 |
| Bedford | 665.32 | 87.86 |
| Blair | 5,866.87 | 33.24 |
| Bradford | 2,470.74 | 75.65 |
| Butler | 10,672.62 | 51.88 |
| Cambria | 2,538.55 | 52.01 |
| Cameron | 73.98 | 38.59 |
| Carbon | 2,642.89 | 84.93 |
| Centre | 29,140.17 | 45.63 |
| Clarion | 300.21 | 31.27 |
| Clearfield | 19,495.06 | 90.05 |
| Clinton | 2,224.77 | 44.82 |
| Columbia | 2,584.66 | 23.69 |
| Crawford | 2,288.19 | 69.82 |
| Elk | 1,095.72 | 83.38 |
| Fayette | 1,711.73 | 21.54 |
| Forest | NA | NA |
| Franklin | 4,845.17 | 37.28 |
| Fulton | 296.95 | 78.75 |
| Greene | 296.84 | 87.02 |
| Huntingdon | 1,230.48 | 94.11 |
| Indiana | 1,808.08 | 45.37 |
| Jefferson | 3,198.04 | 39.15 |
| Juniata | 351.20 | 100.00 |
| Lawrence | 5,113.52 | 84.12 |
| Lycoming | 6,571.56 | 29.49 |
| McKean | 433.00 | 100.00 |
| Mercer | 9,478.29 | 82.41 |
| Mifflin | 4,774.76 | 89.63 |
| Monroe | 9,578.70 | 36.46 |
| Montour | 330.42 | 100.00 |
| Northumberland | 3,265.10 | 62.10 |
| Perry | 746.29 | 97.42 |
| Pike | 3,914.47 | 100.00 |
| Potter | 353.03 | 86.44 |
| Schuylkill | 45,736.65 | 94.27 |
| Snyder | 1,261.06 | 17.92 |
| Somerset | 819.98 | 95.26 |

| | | |
|-------------------------------------|-------------------|--------------|
| Sullivan | 306.64 | 81.84 |
| Susquehanna | 1,099.59 | 78.05 |
| Tioga | 1,071.97 | 68.14 |
| Union | 1,402.90 | 19.04 |
| Venango | 699.82 | 52.37 |
| Warren | 771.11 | 49.65 |
| Washington | 6,414.32 | 83.96 |
| Wayne | 1,558.09 | 86.84 |
| Wyoming | 795.71 | 45.93 |
| TOTAL RURAL RECYCLING | 207,797.07 | |
| TOTAL COUNTY RECYCLING | 974,928.92 | 58.85 |
| % OF RECYCLING THAT IS RURAL | 21.31 | |

Table 37: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2014

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Allegheny | 66,058.51 | 58.86 |
| Beaver | 7,366.56 | 62.39 |
| Berks | 25,304.66 | 62.09 |
| Bucks | 52,149.73 | 57.23 |
| Chester | 91,457.22 | 73.34 |
| Cumberland | 17,228.26 | 39.30 |
| Dauphin | 22,515.07 | 47.98 |
| Delaware | 62,110.85 | 68.12 |
| Erie | 16,207.59 | 63.41 |
| Lackawanna | 49,244.84 | 84.23 |
| Lancaster | 28,592.20 | 57.08 |
| Lebanon | 11,325.36 | 46.48 |
| Lehigh | 35,942.20 | 46.90 |
| Luzerne | 20,330.48 | 27.55 |
| Montgomery | 74,622.72 | 44.65 |
| Northampton | 18,856.76 | 34.24 |
| Philadelphia | 123,029.00 | 97.22 |
| Westmoreland | 10,915.94 | 71.40 |
| York | 33,873.90 | 61.73 |
| TOTAL URBAN RECYCLING | 767,131.85 | |
| TOTAL COUNTY RECYCLING | 974,928.92 | 58.85 |
| % OF RECYCLING THAT IS URBAN | 78.69 | |

Table 38: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2015

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 1,878.96 | 276.06 | 63.94 | 966.70 | 40.90 |
| Armstrong | 0.00 | 0.00 | 211.02 | 616.77 | 194.78 |
| Bedford | 366.20 | 82.48 | 17.09 | 70.79 | 10.64 |
| Blair | 1,110.49 | 45.48 | 156.45 | 2,564.84 | 154.73 |
| Bradford | 281.82 | 0.00 | 341.21 | 1,065.29 | 197.30 |
| Butler | 6,912.99 | 29.51 | 2.00 | 1,255.65 | 2.00 |
| Cambria | 648.11 | 254.66 | 0.00 | 1,362.98 | 212.14 |
| Cameron | 0.00 | 0.00 | 34.75 | 21.71 | 8.79 |
| Carbon | 1,981.93 | 8.17 | 179.99 | 406.23 | 42.34 |
| Centre | 0.00 | 0.00 | 2,273.24 | 17,090.80 | 1,197.29 |
| Clarion | 22.00 | 10.30 | 27.36 | 52.09 | 4.64 |
| Clearfield | 0.00 | 0.00 | 374.15 | 509.53 | 43.62 |
| Clinton | 0.00 | 851.51 | 0.00 | 442.27 | 242.51 |
| Columbia | 1,380.99 | 14.17 | 260.48 | 907.08 | 163.84 |
| Crawford | 1,880.58 | 331.00 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 104.17 | 192.50 | 374.16 | 33.70 |
| Fayette | 39.91 | 520.33 | 40.29 | 1,080.92 | 3.13 |
| Forest | 0.00 | 0.00 | 7.16 | 5.00 | 1.33 |
| Franklin | 2,047.30 | 1,146.14 | 443.01 | 1,289.82 | 67.97 |
| Fulton | 265.00 | 0.00 | 0.00 | 0.00 | 5.94 |
| Greene | 0.00 | 53.54 | 49.30 | 133.05 | 51.92 |
| Huntingdon | 901.02 | 0.00 | 14.30 | 257.27 | 13.50 |
| Indiana | 0.00 | 0.00 | 407.01 | 974.98 | 190.35 |
| Jefferson | 22.80 | 0.00 | 213.60 | 476.00 | 179.80 |
| Juniata | 0.00 | 0.00 | 38.54 | 273.59 | 54.84 |
| Lawrence | 2,275.34 | 828.64 | 0.00 | 427.67 | 0.00 |
| Lycoming | 0.00 | 0.00 | 1,129.09 | 4,730.10 | 1,388.93 |
| McKean | 1,591.42 | 11.33 | 114.12 | 323.60 | 0.00 |
| Mercer | 2,435.36 | 291.77 | 0.00 | 178.20 | 0.00 |
| Mifflin | 126.34 | 0.00 | 78.75 | 644.96 | 70.50 |
| Monroe | 6,005.67 | 727.93 | 886.11 | 2,631.45 | 215.31 |
| Montour | 571.99 | 0.00 | 44.22 | 1,431.54 | 83.49 |
| Northumberland | 619.83 | 22.06 | 711.14 | 1,874.37 | 318.73 |
| Perry | 223.66 | 0.00 | 38.54 | 265.49 | 23.10 |
| Pike | 3,289.94 | 1,112.31 | 0.00 | 0.00 | 0.00 |
| Potter | 333.46 | 0.00 | 3.00 | 5.63 | 0.50 |
| Schuylkill | 3,937.54 | 464.12 | 437.25 | 3,433.78 | 1,709.15 |
| Snyder | 378.83 | 0.00 | 203.08 | 484.18 | 114.64 |
| Somerset | 0.00 | 65.83 | 182.22 | 287.79 | 0.00 |
| Sullivan | 0.00 | 0.00 | 101.74 | 162.43 | 30.42 |
| Susquehanna | 80.12 | 287.48 | 0.00 | 658.70 | 0.00 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Tioga | 8.70 | 0.00 | 204.52 | 444.97 | 114.73 |
| Union | 983.89 | 0.00 | 275.93 | 678.60 | 112.30 |
| Venango | 614.60 | 127.54 | 0.00 | 95.51 | 0.00 |
| Warren | 270.76 | 0.00 | 224.02 | 226.24 | 48.60 |
| Washington | 4,582.15 | 1,304.95 | 13.21 | 1,158.84 | 5.85 |
| Wayne | 0.00 | 0.00 | 162.39 | 607.92 | 101.31 |
| Wyoming | 208.33 | 553.29 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 48,278.03 | 9,524.77 | 10,156.72 | 52,949.49 | 7,455.56 |
| TOTAL COUNTY RECYCLING | 568,546.32 | 66,506.08 | 12,436.85 | 140,491.99 | 9,121.84 |
| % OF RECYCLING THAT IS RURAL | 8.49 | 14.32 | 81.67 | 37.69 | 81.73 |

Table 39: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2015

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------------|----------------------|-------------------|------------------|-------------------|-----------------|
| Allegheny | 59,322.92 | 1,007.80 | 368.22 | 3,219.85 | 325.64 |
| Beaver | 5,363.56 | 635.30 | 135.94 | 8,445.45 | 12.19 |
| Berks | 10,919.37 | 7,692.67 | 12.60 | 7,294.42 | 31.71 |
| Bucks | 43,346.34 | 1,389.12 | 11.90 | 4,460.73 | 10.84 |
| Chester | 41,979.35 | 9,645.70 | 0.00 | 8,113.69 | 343.39 |
| Cumberland | 18,383.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dauphin | 14,405.45 | 15.35 | 271.54 | 1,352.12 | 177.00 |
| Delaware | 34,071.82 | 735.24 | 0.00 | 2,929.27 | 32.33 |
| Erie | 8,040.29 | 3,749.42 | 56.67 | 480.99 | 335.89 |
| Lackawanna | 7,663.48 | 11,091.04 | 462.00 | 17,874.58 | 1.10 |
| Lancaster | 23,310.76 | 2,216.46 | 0.02 | 3,488.53 | 0.05 |
| Lebanon | 3,516.66 | 1,065.66 | 75.60 | 1,126.72 | 53.27 |
| Lehigh | 15,446.32 | 4,108.89 | 79.31 | 4,788.09 | 167.10 |
| Luzerne | 15,427.70 | 2,664.66 | 47.40 | 2,076.46 | 0.00 |
| Montgomery | 48,537.69 | 6,756.09 | 115.05 | 14,211.60 | 61.14 |
| Northampton | 16,231.83 | 2,197.43 | 106.40 | 5,067.04 | 64.10 |
| Philadelphia | 113,726.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| Westmoreland | 6,800.49 | 1,319.53 | 171.48 | 1,352.35 | 7.53 |
| York | 33,773.52 | 690.95 | 366.00 | 1,260.61 | 43.00 |
| TOTAL URBAN RECYCLING | 520,268.29 | 56,981.31 | 2,280.13 | 87,542.50 | 1,666.28 |
| TOTAL COUNTY RECYCLING | 568,546.32 | 66,506.08 | 12,436.85 | 140,491.99 | 9,121.84 |
| % OF RECYCLING THAT IS URBAN | 91.51 | 85.68 | 18.33 | 62.31 | 18.27 |

Table 40: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2015

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 151.86 | 0.33 | 151.80 | 385.85 |
| Armstrong | 38.57 | 6.94 | 0.00 | 176.00 |
| Bedford | 16.82 | 96.21 | 18.77 | 0.00 |
| Blair | 275.39 | 152.11 | 11.46 | 5,100.99 |
| Bradford | 641.58 | 204.75 | 431.48 | 636.37 |
| Butler | 608.76 | 105.64 | 325.21 | 9,476.50 |
| Cambria | 84.66 | 174.64 | 0.00 | 3,237.75 |
| Cameron | 2.69 | 16.01 | 0.00 | 103.00 |
| Carbon | 58.46 | 408.77 | 41.35 | 635.84 |
| Centre | 4,115.78 | 753.03 | 8,270.17 | 25,896.15 |
| Clarion | 10.57 | 11.47 | 0.00 | 689.75 |
| Clearfield | 12,066.22 | 318.71 | 96.19 | 1,178.22 |
| Clinton | 382.20 | 150.06 | 254.04 | 3,568.23 |
| Columbia | 52.33 | 223.40 | 0.00 | 8,119.10 |
| Crawford | 172.89 | 23.79 | 0.00 | 1,152.96 |
| Elk | 71.01 | 114.57 | 4.00 | 458.75 |
| Fayette | 1.25 | 0.00 | 8.44 | 13,260.95 |
| Forest | 0.06 | 0.00 | 0.00 | 0.00 |
| Franklin | 511.25 | 210.39 | 64.71 | 5,710.09 |
| Fulton | 124.52 | 93.10 | 50.10 | 0.00 |
| Greene | 28.24 | 0.00 | 0.00 | 0.00 |
| Huntingdon | 6.38 | 9.28 | 11.47 | 25.00 |
| Indiana | 129.52 | 243.96 | 39.76 | 1,792.96 |
| Jefferson | 3,077.30 | 27.70 | 3,170.00 | 1,375.30 |
| Juniata | 90.92 | 0.00 | 101.81 | 0.00 |
| Lawrence | 1,228.00 | 16.73 | 0.00 | 391.28 |
| Lycoming | 328.55 | 0.00 | 0.00 | 13,396.25 |
| McKean | 20.19 | 0.00 | 0.35 | 336.00 |
| Mercer | 6,369.06 | 158.25 | 24.30 | 1,877.58 |
| Mifflin | 2,358.97 | 160.60 | 115.07 | 428.15 |
| Monroe | 430.45 | 500.77 | 41.61 | 12,744.98 |
| Montour | 61.88 | 32.53 | 0.00 | 0.00 |
| Northumberland | 187.62 | 115.13 | 11.44 | 539.46 |
| Perry | 90.92 | 0.00 | 0.00 | 0.00 |
| Pike | 21.90 | 14.54 | 2.00 | 0.00 |
| Potter | 109.06 | 49.91 | 40.13 | 0.00 |
| Schuylkill | 5,173.43 | 374.30 | 171.78 | 2,037.78 |
| Snyder | 65.19 | 44.56 | 1.00 | 850.00 |
| Somerset | 170.52 | 0.00 | 0.00 | 80.00 |
| Sullivan | 28.19 | 15.22 | 14.92 | 11.00 |
| Susquehanna | 58.25 | 56.65 | 0.00 | 282.00 |

| | | | | |
|-------------------------------------|------------------|------------------|------------------|-------------------|
| Tioga | 204.26 | 67.37 | 13.21 | 415.00 |
| Union | 59.98 | 2,074.26 | 16.55 | 4,869.61 |
| Venango | 20.00 | 18.74 | 6.36 | 1,070.03 |
| Warren | 77.89 | 0.00 | 0.00 | 564.00 |
| Washington | 0.53 | 10.68 | 0.01 | 1,497.68 |
| Wayne | 242.58 | 162.75 | 24.49 | 0.00 |
| Wyoming | 6.98 | 17.45 | 39.77 | 866.00 |
| TOTAL RURAL RECYCLING | 40,033.63 | 7,235.30 | 13,573.75 | 125,236.56 |
| TOTAL COUNTY RECYCLING | 90,149.60 | 18,341.69 | 45,705.80 | 598,070.85 |
| % OF RECYCLING THAT IS RURAL | 44.41 | 39.45 | 29.70 | 20.94 |

Table 41: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2015

| County | Metal | HHW | Other | Organics |
|-------------------------------------|------------------|------------------|------------------|-------------------|
| Allegheny | 315.45 | 1,188.40 | 166.08 | 33,314.73 |
| Beaver | 375.96 | 299.39 | 145.12 | 4,675.99 |
| Berks | 2,302.84 | 921.49 | 40.31 | 26,075.71 |
| Bucks | 400.68 | 357.57 | 2,386.37 | 38,440.59 |
| Chester | 187.37 | 210.19 | 454.35 | 16,761.82 |
| Cumberland | 0.00 | 306.75 | 1.32 | 27,030.09 |
| Dauphin | 151.37 | 1,048.49 | 6.42 | 17,756.11 |
| Delaware | 1,378.57 | 623.82 | 208.61 | 25,503.03 |
| Erie | 7,219.25 | 264.12 | 69.36 | 8,441.09 |
| Lackawanna | 5,785.25 | 713.06 | 4,062.66 | 10,413.56 |
| Lancaster | 5,942.53 | 1,555.05 | 188.39 | 27,571.39 |
| Lebanon | 4,781.44 | 510.13 | 130.23 | 12,898.75 |
| Lehigh | 19,301.60 | 193.93 | 330.59 | 39,985.13 |
| Luzerne | 73.87 | 12.21 | 99.25 | 26,241.44 |
| Montgomery | 865.09 | 434.29 | 21,616.82 | 84,494.04 |
| Northampton | 733.89 | 119.47 | 413.56 | 48,326.78 |
| Philadelphia | 13.00 | 444.00 | 1,790.60 | 1,980.41 |
| Westmoreland | 43.34 | 403.07 | 0.00 | 3,860.09 |
| York | 244.47 | 1,500.96 | 22.01 | 19,063.54 |
| TOTAL URBAN RECYCLING | 50,115.97 | 11,106.39 | 32,132.05 | 472,834.29 |
| TOTAL COUNTY RECYCLING | 90,149.60 | 18,341.69 | 45,705.80 | 598,070.85 |
| % OF RECYCLING THAT IS URBAN | 55.59 | 60.55 | 70.30 | 79.06 |

Table 42: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2015

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 3,378.42 | 86.26 |
| Armstrong | 1,061.14 | 85.30 |
| Bedford | 4,307.38 | 45.00 |
| Blair | 2,527.20 | 66.51 |
| Bradford | 8,810.91 | 47.07 |
| Butler | 2,562.55 | 42.89 |
| Cambria | 67.94 | 36.34 |
| Cameron | 2,677.12 | 71.14 |
| Carbon | 24,677.11 | 41.41 |
| Centre | 126.96 | 15.33 |
| Clarion | 12,993.52 | 89.08 |
| Clearfield | 1,918.49 | 32.57 |
| Clinton | 2,778.89 | 24.99 |
| Columbia | 2,384.47 | 66.96 |
| Crawford | 775.54 | 57.33 |
| Elk | 1,685.83 | 11.27 |
| Fayette | 13.55 | 100.00 |
| Forest | 5,505.49 | 47.91 |
| Franklin | 395.46 | 73.42 |
| Fulton | 316.05 | 100.00 |
| Greene | 1,192.47 | 96.31 |
| Huntingdon | 1,701.86 | 45.04 |
| Indiana | 3,969.50 | 46.47 |
| Jefferson | 457.89 | 81.81 |
| Juniata | 4,759.65 | 92.10 |
| Lawrence | 7,576.67 | 36.13 |
| Lycoming | 2,060.66 | 85.97 |
| McKean | 9,274.39 | 81.82 |
| Mercer | 3,279.52 | 82.33 |
| Mifflin | 10,896.92 | 45.06 |
| Monroe | 2,193.12 | 98.54 |
| Montour | 3,733.75 | 84.86 |
| Northumberland | 641.71 | 100.00 |
| Perry | 4,424.15 | 99.63 |
| Pike | 451.65 | 83.38 |
| Potter | 15,155.27 | 85.43 |
| Schuylkill | 1,245.92 | 58.18 |
| Snyder | 706.36 | 89.83 |
| Somerset | 322.78 | 88.70 |

| | | |
|-------------------------------------|-------------------|--------------|
| Sullivan | 1,084.55 | 76.21 |
| Susquehanna | 977.18 | 66.35 |
| Tioga | 2,110.70 | 23.27 |
| Union | 857.65 | 43.92 |
| Venango | 847.51 | 60.04 |
| Warren | 7,065.53 | 82.41 |
| Washington | 1,114.20 | 85.61 |
| Wayne | 768.60 | 45.43 |
| Wyoming | 3,378.42 | 86.26 |
| TOTAL RURAL RECYCLING | 171,212.60 | |
| TOTAL COUNTY RECYCLING | 887,252.68 | 57.27 |
| % OF RECYCLING THAT IS RURAL | 19.30 | |

Table 43: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2015

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Allegheny | 64,559.88 | 65.06 |
| Beaver | 14,968.40 | 74.51 |
| Berks | 28,253.61 | 51.10 |
| Bucks | 49,619.61 | 54.64 |
| Chester | 60,269.50 | 77.57 |
| Cumberland | 18,383.91 | 40.21 |
| Dauphin | 16,372.83 | 46.54 |
| Delaware | 39,147.23 | 59.78 |
| Erie | 19,882.51 | 69.38 |
| Lackawanna | 42,877.45 | 73.84 |
| Lancaster | 34,958.35 | 54.39 |
| Lebanon | 10,619.35 | 43.96 |
| Lehigh | 43,891.31 | 52.00 |
| Luzerne | 20,290.09 | 43.50 |
| Montgomery | 70,546.66 | 39.84 |
| Northampton | 24,400.69 | 33.31 |
| Philadelphia | 113,739.83 | 96.43 |
| Westmoreland | 9,694.72 | 69.46 |
| York | 36,378.55 | 63.86 |
| TOTAL URBAN RECYCLING | 718,854.48 | |
| TOTAL COUNTY RECYCLING | 887,252.68 | 57.27 |
| % OF RECYCLING THAT IS URBAN | 81.02 | |

Table 44: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2016

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|---------------|------------|----------|-----------|----------|
| Adams | 2,200.04 | 255.89 | 28.69 | 1,176.69 | 93.38 |
| Armstrong | 0.00 | 0.00 | 253.55 | 492.98 | 153.11 |
| Bedford | 396.45 | 59.81 | 17.98 | 192.35 | 0.00 |
| Blair | 643.50 | 808.20 | 169.06 | 6,072.05 | 291.96 |
| Bradford | 199.60 | 0.00 | 319.00 | 838.90 | 197.00 |
| Butler | 7,334.78 | 34.01 | 3.00 | 824.84 | 4.00 |
| Cambria | 405.36 | 371.95 | 0.00 | 1,309.02 | 227.63 |
| Cameron | 0.00 | 0.00 | 38.21 | 20.49 | 10.16 |
| Carbon | 2,512.98 | 209.68 | 43.21 | 226.83 | 0.00 |
| Centre | 0.00 | 0.00 | 2,296.82 | 17,269.70 | 1,218.27 |
| Clarion | 29.93 | 10.30 | 22.71 | 60.62 | 2.72 |
| Clearfield | 0.00 | 0.00 | 309.94 | 341.19 | 51.63 |
| Clinton | 0.00 | 546.88 | 0.00 | 474.50 | 268.28 |
| Columbia | 1,505.30 | 18.39 | 225.84 | 1,179.87 | 202.57 |
| Crawford | 2,238.41 | 3,192.30 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 99.86 | 200.32 | 309.35 | 57.81 |
| Fayette | 8.71 | 623.15 | 9.10 | 768.92 | 2.84 |
| Forest | 0.00 | 0.00 | 9.72 | 5.41 | 1.67 |
| Franklin | 2,929.06 | 1,446.55 | 16.92 | 747.95 | 4.66 |
| Fulton | 289.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 60.28 | 35.61 | 88.45 | 32.62 |
| Huntingdon | 934.92 | 0.00 | 14.30 | 279.95 | 14.22 |
| Indiana | 0.00 | 0.00 | 496.02 | 816.11 | 193.83 |
| Jefferson | 0.00 | 140.30 | 213.50 | 308.80 | 209.40 |
| Juniata | 0.00 | 0.00 | 0.00 | 226.56 | 22.31 |
| Lawrence | 2,537.81 | 770.94 | 0.00 | 411.48 | 0.00 |
| Lycoming | 719.96 | 0.00 | 1,123.66 | 3,500.61 | 1,010.54 |
| McKean | 642.65 | 0.00 | 111.14 | 317.79 | 0.00 |
| Mercer | 2,428.78 | 359.56 | 0.00 | 235.84 | 4.38 |
| Mifflin | 121.68 | 0.00 | 107.70 | 782.57 | 89.95 |
| Monroe | 4,212.67 | 510.55 | 935.43 | 2,515.82 | 289.38 |
| Montour | 228.97 | 0.00 | 18.64 | 4.52 | 10.18 |
| Northumberland | 292.61 | 0.00 | 647.37 | 2,191.10 | 285.41 |
| Perry | 319.03 | 202.53 | 0.00 | 226.56 | 22.31 |
| Pike | 405.60 | 0.00 | 0.00 | 84.04 | 0.00 |
| Potter | 0.00 | 208.60 | 2.00 | 4.08 | 0.00 |
| Schuylkill | 2,675.87 | 162.99 | 0.00 | 579.70 | 72.00 |
| Snyder | 513.87 | 0.00 | 167.54 | 570.15 | 110.94 |
| Somerset | 0.00 | 0.00 | 68.82 | 0.25 | 0.00 |
| Sullivan | 0.00 | 0.00 | 100.30 | 160.70 | 40.90 |
| Susquehanna | 77.31 | 339.98 | 0.00 | 600.26 | 0.00 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Tioga | 7.80 | 0.00 | 190.10 | 461.20 | 149.40 |
| Union | 1,081.50 | 0.00 | 175.03 | 442.59 | 75.34 |
| Venango | 185.01 | 12.28 | 66.09 | 228.43 | 20.20 |
| Warren | 245.81 | 0.00 | 192.69 | 222.62 | 47.63 |
| Washington | 4,351.08 | 5.62 | 6.67 | 846.18 | 3.43 |
| Wayne | 0.00 | 0.00 | 182.55 | 526.10 | 50.38 |
| Wyoming | 172.88 | 502.38 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 42,849.81 | 10,952.98 | 8,819.23 | 48,944.12 | 5,542.44 |
| TOTAL COUNTY RECYCLING | 597,557.23 | 60,030.84 | 36,329.12 | 137,485.13 | 7,071.22 |
| % OF RECYCLING THAT IS RURAL | 7.17 | 18.25 | 24.28 | 35.60 | 78.38 |

Table 45: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2016

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Allegheny | 60,567.70 | 233.09 | 25,562.27 | 2,168.07 | 84.40 |
| Beaver | 4,577.34 | 801.91 | 137.48 | 16,070.48 | 139.67 |
| Berks | 15,933.38 | 5,896.48 | 16.78 | 4,851.98 | 12.13 |
| Bucks | 49,852.72 | 791.30 | 145.45 | 2,728.51 | 90.01 |
| Chester | 37,594.56 | 6,601.12 | 27.00 | 8,178.24 | 49.02 |
| Cumberland | 19,006.15 | 0.00 | 0.00 | 14.85 | 0.00 |
| Dauphin | 14,814.33 | 0.00 | 0.00 | 1,528.33 | 290.59 |
| Delaware | 34,274.78 | 1,349.17 | 0.66 | 2,957.39 | 27.82 |
| Erie | 9,231.22 | 4,301.36 | 151.20 | 429.43 | 69.80 |
| Lackawanna | 11,553.33 | 11,552.11 | 573.48 | 19,052.16 | 509.86 |
| Lancaster | 25,747.56 | 2,239.67 | 37.91 | 3,285.07 | 13.50 |
| Lebanon | 3,811.25 | 1,129.85 | 63.00 | 1,208.59 | 43.27 |
| Lehigh | 21,810.63 | 1,842.72 | 17.50 | 3,508.82 | 60.10 |
| Luzerne | 17,197.74 | 1,487.02 | 45.49 | 1,648.56 | 0.20 |
| Montgomery | 56,935.82 | 7,258.90 | 91.58 | 12,837.17 | 39.99 |
| Northampton | 19,425.21 | 2,128.81 | 155.20 | 5,386.59 | 90.30 |
| Philadelphia | 112,148.65 | 0.00 | 0.00 | 549.00 | 0.00 |
| Westmoreland | 8,184.28 | 757.30 | 115.89 | 943.64 | 0.00 |
| York | 32,040.77 | 707.05 | 369.00 | 1,194.13 | 8.12 |
| TOTAL URBAN RECYCLING | 554,707.42 | 49,077.86 | 27,509.89 | 88,541.01 | 1,528.78 |
| TOTAL COUNTY RECYCLING | 597,557.23 | 60,030.84 | 36,329.12 | 137,485.13 | 7,071.22 |
| % OF RECYCLING THAT IS URBAN | 92.83 | 81.75 | 75.72 | 64.40 | 21.62 |

Table 46: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2016

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 223.88 | 7.47 | 316.39 | 2,875.76 |
| Armstrong | 53.09 | 8.18 | 0.00 | 158.00 |
| Bedford | 171.08 | 4.96 | 19.10 | 0.00 |
| Blair | 648.28 | 301.91 | 70.52 | 5,016.54 |
| Bradford | 560.90 | 172.10 | 250.50 | 739.80 |
| Butler | 1,118.67 | 94.61 | 342.43 | 9,329.94 |
| Cambria | 141.75 | 215.26 | 0.00 | 2,024.50 |
| Cameron | 5.69 | 16.78 | 13.10 | 113.00 |
| Carbon | 11.25 | 48.30 | 15.29 | 906.75 |
| Centre | 4,309.57 | 456.23 | 8,349.43 | 25,988.55 |
| Clarion | 15.78 | 11.48 | 0.00 | 576.50 |
| Clearfield | 4,287.50 | 154.87 | 185.28 | 1,170.00 |
| Clinton | 380.16 | 139.73 | 114.00 | 4,100.54 |
| Columbia | 72.47 | 0.00 | 19.58 | 8,612.08 |
| Crawford | 0.00 | 0.00 | 0.00 | 945.91 |
| Elk | 141.38 | 130.09 | 17.48 | 686.00 |
| Fayette | 4.32 | 19.90 | 9.69 | 7,019.99 |
| Forest | 0.05 | 0.00 | 0.00 | 0.00 |
| Franklin | 1,460.89 | 84.37 | 164.55 | 4,884.54 |
| Fulton | 140.26 | 42.78 | 49.13 | 0.00 |
| Greene | 33.37 | 91.43 | 0.00 | 0.00 |
| Huntingdon | 10.57 | 23.64 | 13.71 | 25.00 |
| Indiana | 156.37 | 296.54 | 45.55 | 1,949.13 |
| Jefferson | 2,615.80 | 17.10 | 5,028.10 | 1,497.80 |
| Juniata | 107.87 | 0.00 | 7.49 | 0.00 |
| Lawrence | 6,152.69 | 147.19 | 0.00 | 440.75 |
| Lycoming | 320.58 | 0.00 | 0.00 | 6,702.34 |
| McKean | 14.49 | 0.00 | 0.00 | 340.00 |
| Mercer | 6,135.34 | 114.72 | 0.00 | 1,948.03 |
| Mifflin | 2,537.90 | 137.23 | 43.51 | 433.16 |
| Monroe | 565.06 | 258.83 | 57.96 | 11,809.57 |
| Montour | 4.70 | 0.00 | 0.00 | 0.00 |
| Northumberland | 92.11 | 78.68 | 125.71 | 436.67 |
| Perry | 98.97 | 13.00 | 0.00 | 260.00 |
| Pike | 115.00 | 1,450.00 | 0.00 | 4,000.00 |
| Potter | 19.29 | 47.00 | 8.92 | 0.00 |
| Schuylkill | 28,821.98 | 0.00 | 2.00 | 1,385.20 |
| Snyder | 166.70 | 40.62 | 17.47 | 1,430.69 |
| Somerset | 12.06 | 0.00 | 0.00 | 80.00 |
| Sullivan | 27.50 | 13.10 | 15.60 | 0.00 |
| Susquehanna | 41.70 | 7.54 | 0.00 | 299.63 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Tioga | 240.37 | 99.10 | 86.60 | 175.00 |
| Union | 47.63 | 11.52 | 14.23 | 5,324.68 |
| Venango | 97.71 | 45.53 | 22.13 | 695.13 |
| Warren | 82.84 | 16.95 | 0.00 | 783.25 |
| Washington | 16.43 | 8,906.98 | 19.77 | 1,409.90 |
| Wayne | 285.09 | 35.22 | 12.78 | 0.00 |
| Wyoming | 9.79 | 10.97 | 27.79 | 875.00 |
| TOTAL RURAL RECYCLING | 62,576.88 | 13,771.91 | 15,485.79 | 117,449.33 |
| TOTAL COUNTY RECYCLING | 136,879.82 | 28,933.83 | 57,238.83 | 595,358.40 |
| % OF RECYCLING THAT IS RURAL | 45.72 | 47.60 | 27.05 | 19.73 |

Table 47: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2016

| County | Metal | HHW | Other | Organics |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Allegheny | 221.96 | 984.66 | 4,131.68 | 41,356.93 |
| Beaver | 206.24 | 622.21 | 131.05 | 5,074.27 |
| Berks | 2,852.16 | 890.35 | 33.95 | 21,129.66 |
| Bucks | 914.04 | 516.10 | 1,981.55 | 35,692.19 |
| Chester | 102.15 | 308.24 | 298.73 | 12,790.81 |
| Cumberland | 0.64 | 40.46 | 0.00 | 30,038.39 |
| Dauphin | 853.22 | 1,261.51 | 90.74 | 17,399.05 |
| Delaware | 40,781.33 | 583.40 | 8,885.91 | 19,120.16 |
| Erie | 5,119.94 | 302.03 | 62.81 | 21,415.13 |
| Lackawanna | 6,523.19 | 597.20 | 386.14 | 10,940.49 |
| Lancaster | 5,640.99 | 1,420.69 | 4,549.46 | 54,547.19 |
| Lebanon | 3,376.59 | 432.34 | 116.53 | 12,615.03 |
| Lehigh | 8.57 | 4,459.43 | 52.45 | 29,455.11 |
| Luzerne | 89.40 | 5.92 | 17.46 | 24,766.39 |
| Montgomery | 5,955.44 | 419.56 | 19,035.74 | 57,646.65 |
| Northampton | 1,231.01 | 218.25 | 500.69 | 59,163.67 |
| Philadelphia | 100.00 | 1,745.36 | 1,298.21 | 2,526.40 |
| Westmoreland | 130.51 | 23.22 | 152.00 | 3,851.25 |
| York | 195.56 | 330.99 | 27.94 | 18,380.30 |
| TOTAL URBAN RECYCLING | 74,302.94 | 15,161.92 | 41,753.04 | 477,909.07 |
| TOTAL COUNTY RECYCLING | 136,879.82 | 28,933.83 | 57,238.83 | 595,358.40 |
| % OF RECYCLING THAT IS URBAN | 54.28 | 52.40 | 72.95 | 80.27 |

Table 48: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2016

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 3,978.57 | 55.43 |
| Armstrong | 952.73 | 85.15 |
| Bedford | 837.67 | 97.21 |
| Blair | 8,633.05 | 61.57 |
| Bradford | 2,115.40 | 64.54 |
| Butler | 9,319.30 | 48.83 |
| Cambria | 2,455.71 | 52.30 |
| Cameron | 74.55 | 34.29 |
| Carbon | 3,003.95 | 75.58 |
| Centre | 25,094.36 | 41.90 |
| Clarion | 142.06 | 19.46 |
| Clearfield | 4,990.26 | 76.77 |
| Clinton | 1,669.82 | 27.72 |
| Columbia | 3,204.44 | 27.07 |
| Crawford | 5,430.71 | 85.17 |
| Elk | 808.72 | 49.24 |
| Fayette | 1,417.04 | 16.74 |
| Forest | 16.85 | 100.00 |
| Franklin | 6,606.03 | 56.27 |
| Fulton | 430.14 | 82.39 |
| Greene | 250.33 | 73.25 |
| Huntingdon | 1,253.96 | 95.26 |
| Indiana | 1,662.33 | 42.05 |
| Jefferson | 3,487.80 | 34.77 |
| Juniata | 356.74 | 97.94 |
| Lawrence | 9,872.92 | 94.38 |
| Lycoming | 6,675.35 | 49.90 |
| McKean | 1,086.07 | 76.16 |
| Mercer | 9,163.90 | 81.63 |
| Mifflin | 3,639.80 | 85.57 |
| Monroe | 9,028.91 | 42.68 |
| Montour | 267.01 | 100.00 |
| Northumberland | 3,508.60 | 84.55 |
| Perry | 869.40 | 76.10 |
| Pike | 604.64 | 9.99 |
| Potter | 233.97 | 80.71 |
| Schuylkill | 32,312.54 | 95.88 |
| Snyder | 1,529.20 | 50.67 |
| Somerset | 81.13 | 50.35 |

| | | |
|-------------------------------------|-------------------|--------------|
| Sullivan | 329.40 | 91.99 |
| Susquehanna | 1,059.25 | 77.52 |
| Tioga | 1,048.87 | 74.41 |
| Union | 1,822.09 | 25.40 |
| Venango | 609.72 | 44.42 |
| Warren | 791.59 | 49.73 |
| Washington | 5,229.41 | 33.59 |
| Wayne | 1,044.12 | 95.60 |
| Wyoming | 685.05 | 42.85 |
| TOTAL RURAL RECYCLING | 179,685.46 | |
| TOTAL COUNTY RECYCLING | 975,353.36 | 58.87 |
| % OF RECYCLING THAT IS RURAL | 18.42 | |

Table 49: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2016

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Allegheny | 88,837.49 | 65.65 |
| Beaver | 21,933.12 | 79.01 |
| Berks | 29,562.91 | 57.27 |
| Bucks | 54,522.03 | 58.81 |
| Chester | 52,552.09 | 79.68 |
| Cumberland | 19,021.64 | 38.74 |
| Dauphin | 17,486.47 | 48.25 |
| Delaware | 79,391.15 | 73.52 |
| Erie | 19,302.95 | 46.99 |
| Lackawanna | 49,764.13 | 80.67 |
| Lancaster | 36,964.70 | 37.92 |
| Lebanon | 9,632.55 | 42.25 |
| Lehigh | 27,248.34 | 44.51 |
| Luzerne | 20,468.41 | 45.23 |
| Montgomery | 83,118.90 | 51.88 |
| Northampton | 28,417.12 | 32.18 |
| Philadelphia | 112,797.65 | 95.29 |
| Westmoreland | 10,131.62 | 71.56 |
| York | 34,514.63 | 64.81 |
| TOTAL URBAN RECYCLING | 795,667.90 | |
| TOTAL COUNTY RECYCLING | 975,353.36 | 58.87 |
| % OF RECYCLING THAT IS URBAN | 81.58 | |

Table 50: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2017

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 2,444.02 | 0.00 | 0.00 | 698.98 | 119.94 |
| Armstrong | 0.00 | 0.00 | 349.85 | 685.36 | 173.93 |
| Bedford | 397.38 | 103.66 | 17.96 | 41.58 | 13.74 |
| Blair | 407.95 | 237.54 | 148.06 | 4,022.45 | 150.86 |
| Bradford | 91.20 | 0.00 | 321.30 | 778.80 | 125.60 |
| Butler | 7,580.51 | 23.00 | 4.00 | 132.90 | 5.00 |
| Cambria | 504.52 | 424.69 | 0.00 | 1,315.82 | 228.98 |
| Cameron | 0.00 | 2.95 | 35.83 | 3.12 | 6.66 |
| Carbon | 2,858.67 | 81.55 | 36.51 | 92.76 | 20.98 |
| Centre | 0.00 | 0.00 | 2,337.05 | 17,444.69 | 1,222.02 |
| Clarion | 26.36 | 0.00 | 24.80 | 56.04 | 3.35 |
| Clearfield | 0.00 | 0.00 | 251.33 | 302.18 | 62.13 |
| Clinton | 0.00 | 490.59 | 0.00 | 495.88 | 365.31 |
| Columbia | 250.31 | 710.41 | 216.50 | 1,055.19 | 222.20 |
| Crawford | 2,399.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 6.32 | 187.81 | 395.05 | 43.45 |
| Fayette | 35.20 | 657.95 | 9.25 | 677.87 | 2.85 |
| Forest | 0.00 | 0.00 | 7.45 | 4.15 | 2.15 |
| Franklin | 2,733.58 | 1,654.95 | 0.00 | 137.98 | 21.96 |
| Fulton | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 5.83 | 88.40 | 43.04 | 119.24 | 66.96 |
| Huntingdon | 1,083.36 | 232.83 | 2.60 | 9.07 | 0.75 |
| Indiana | 0.00 | 0.00 | 422.90 | 743.44 | 224.13 |
| Jefferson | 0.00 | 238.00 | 205.00 | 192.80 | 165.90 |
| Juniata | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 |
| Lawrence | 2,313.55 | 645.71 | 0.00 | 410.76 | 0.00 |
| Lycoming | 948.72 | 0.00 | 1,063.92 | 3,363.36 | 1,041.96 |
| McKean | 638.19 | 0.00 | 96.12 | 262.96 | 0.00 |
| Mercer | 2,770.82 | 338.40 | 0.00 | 220.15 | 0.00 |
| Mifflin | 129.01 | 0.00 | 45.08 | 652.59 | 92.11 |
| Monroe | 4,661.80 | 417.54 | 629.89 | 2,278.37 | 192.34 |
| Montour | 352.86 | 0.00 | 13.27 | 33.57 | 10.88 |
| Northumberland | 526.60 | 8.00 | 450.49 | 4,370.86 | 369.60 |
| Perry | 0.00 | 0.00 | 0.00 | 121.81 | 0.00 |
| Pike | 80.52 | 506.23 | 0.00 | 0.00 | 0.00 |
| Potter | 752.42 | 0.00 | 2.50 | 9.70 | 0.00 |
| Schuylkill | 5,494.17 | 239.94 | 451.31 | 746.21 | 541.81 |
| Snyder | 620.11 | 0.00 | 151.59 | 515.73 | 102.68 |
| Somerset | 125.79 | 0.00 | 41.59 | 0.00 | 0.00 |
| Sullivan | 0.00 | 0.00 | 99.00 | 157.00 | 42.20 |
| Susquehanna | 161.44 | 317.93 | 0.00 | 540.63 | 0.00 |

| | | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|-----------------|
| Tioga | 0.00 | 0.00 | 199.20 | 398.84 | 159.10 |
| Union | 1,265.80 | 0.00 | 159.57 | 461.20 | 83.79 |
| Venango | 616.68 | 147.02 | 0.00 | 97.32 | 0.00 |
| Warren | 288.09 | 0.00 | 249.68 | 195.22 | 61.98 |
| Washington | 5,225.50 | 8.70 | 38.50 | 924.08 | 17.40 |
| Wayne | 0.00 | 0.00 | 156.60 | 497.53 | 51.86 |
| Wyoming | 240.33 | 538.24 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 48,330.99 | 8,120.55 | 8,469.55 | 45,663.34 | 6,016.56 |
| TOTAL COUNTY RECYCLING | 597,012.46 | 50,354.60 | 10,073.39 | 127,547.30 | 6,869.98 |
| % OF RECYCLING THAT IS RURAL | 8.10 | 16.13 | 84.08 | 35.80 | 87.58 |

Table 51: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2017

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------------|----------------------|-------------------|------------------|-------------------|-----------------|
| Allegheny | 60,939.51 | 279.03 | 192.07 | 1,073.04 | 98.96 |
| Beaver | 3,818.22 | 856.71 | 170.77 | 15,793.08 | 52.18 |
| Berks | 18,600.62 | 1,763.93 | 49.05 | 2,864.67 | 69.10 |
| Bucks | 46,339.13 | 2,595.97 | 36.88 | 378.57 | 13.00 |
| Chester | 38,448.86 | 7,268.95 | 0.00 | 7,829.36 | 21.12 |
| Cumberland | 18,454.88 | 0.00 | 0.00 | 16.51 | 0.00 |
| Dauphin | 16,600.18 | 105.16 | 0.00 | 2,127.88 | 247.29 |
| Delaware | 35,436.38 | 1,248.92 | 0.00 | 2,639.60 | 23.00 |
| Erie | 11,832.10 | 1,509.15 | 141.26 | 782.41 | 103.67 |
| Lackawanna | 12,588.36 | 11,510.55 | 572.69 | 22,965.81 | 0.00 |
| Lancaster | 20,776.11 | 2,167.42 | 0.00 | 3,286.63 | 0.00 |
| Lebanon | 3,395.35 | 1,204.63 | 66.03 | 1,081.58 | 88.25 |
| Lehigh | 21,686.24 | 927.88 | 38.48 | 2,374.54 | 51.80 |
| Luzerne | 18,492.98 | 1,247.50 | 38.77 | 1,285.26 | 0.20 |
| Montgomery | 55,468.17 | 6,156.60 | 60.95 | 11,104.17 | 50.28 |
| Northampton | 17,017.34 | 2,260.65 | 62.00 | 4,184.57 | 0.00 |
| Philadelphia | 105,799.41 | 0.00 | 0.00 | 135.00 | 0.00 |
| Westmoreland | 9,499.94 | 268.84 | 127.44 | 772.55 | 5.88 |
| York | 33,487.69 | 862.16 | 47.45 | 1,188.73 | 28.69 |
| TOTAL URBAN RECYCLING | 548,681.47 | 42,234.05 | 1,603.84 | 81,883.96 | 853.42 |
| TOTAL COUNTY RECYCLING | 597,012.46 | 50,354.60 | 10,073.39 | 127,547.30 | 6,869.98 |
| % OF RECYCLING THAT IS URBAN | 91.90 | 83.87 | 15.92 | 64.20 | 12.42 |

Table 52: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2017

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 78.49 | 19.91 | 196.84 | 325.64 |
| Armstrong | 55.45 | 0.00 | 0.00 | 0.00 |
| Bedford | 127.63 | 20.00 | 9.75 | 0.00 |
| Blair | 720.13 | 512.46 | 338.23 | 5,091.83 |
| Bradford | 520.50 | 74.40 | 226.60 | 645.20 |
| Butler | 564.85 | 175.87 | 336.00 | 9,634.82 |
| Cambria | 67.89 | 156.72 | 0.00 | 2,952.92 |
| Cameron | 3.87 | 0.00 | 0.00 | 116.00 |
| Carbon | 26.22 | 53.31 | 14.16 | 751.00 |
| Centre | 4,390.95 | 597.61 | 8,442.23 | 31,152.07 |
| Clarion | 15.35 | 7.89 | 0.00 | 410.50 |
| Clearfield | 1,201.06 | 98.90 | 61.80 | 1,105.85 |
| Clinton | 671.90 | 138.18 | 191.83 | 4,616.26 |
| Columbia | 80.34 | 0.00 | 0.00 | 9,062.50 |
| Crawford | 0.00 | 0.00 | 0.00 | 33.77 |
| Elk | 240.88 | 122.38 | 37.93 | 6,217.00 |
| Fayette | 6.77 | 2.90 | 5.00 | 9,307.38 |
| Forest | 1.85 | 0.00 | 0.00 | 0.00 |
| Franklin | 12,702.76 | 289.34 | 173.57 | 5,215.54 |
| Fulton | 153.54 | 50.60 | 32.70 | 0.00 |
| Greene | 43.06 | 0.00 | 0.00 | 0.00 |
| Huntingdon | 9.58 | 6.75 | 22.64 | 400.00 |
| Indiana | 131.12 | 129.42 | 49.88 | 1,817.97 |
| Jefferson | 2,888.40 | 18.40 | 6,700.60 | 1,210.40 |
| Juniata | 0.00 | 0.00 | 12.42 | 0.00 |
| Lawrence | 11,127.07 | 278.58 | 0.00 | 218.08 |
| Lycoming | 311.24 | 189.60 | 0.00 | 8,471.75 |
| McKean | 43.18 | 38.69 | 31.01 | 153.00 |
| Mercer | 10,202.16 | 136.92 | 0.00 | 1,816.28 |
| Mifflin | 2,599.26 | 187.58 | 47.43 | 567.94 |
| Monroe | 512.24 | 361.63 | 172.94 | 7,660.81 |
| Montour | 4.22 | 0.00 | 0.00 | 0.00 |
| Northumberland | 362.17 | 1.00 | 106.66 | 528.76 |
| Perry | 0.00 | 0.00 | 0.00 | 0.00 |
| Pike | 0.00 | 13.06 | 0.00 | 3,434.00 |
| Potter | 162.38 | 45.83 | 15.45 | 0.00 |
| Schuylkill | 28,298.61 | 99.00 | 36.18 | 2,107.81 |
| Snyder | 32.34 | 32.70 | 0.00 | 5,310.00 |
| Somerset | 9.67 | 0.00 | 0.00 | 120.00 |
| Sullivan | 30.20 | 12.50 | 6.50 | 0.00 |
| Susquehanna | 42.39 | 0.00 | 0.00 | 86.37 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Tioga | 313.00 | 61.50 | 107.20 | 810.00 |
| Union | 46.85 | 6.22 | 15.24 | 3,491.03 |
| Venango | 15.82 | 48.20 | 27.29 | 648.70 |
| Warren | 66.75 | 26.27 | 0.00 | 673.75 |
| Washington | 18.98 | 73.45 | 5.92 | 3,898.60 |
| Wayne | 232.00 | 0.00 | 27.46 | 0.00 |
| Wyoming | 8.19 | 16.95 | 25.45 | 882.00 |
| TOTAL RURAL RECYCLING | 79,141.31 | 4,104.72 | 17,476.91 | 130,945.53 |
| TOTAL COUNTY RECYCLING | 120,001.33 | 23,247.38 | 47,796.46 | 539,972.53 |
| % OF RECYCLING THAT IS RURAL | 65.95 | 17.66 | 36.57 | 24.25 |

Table 53: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2017

| County | Metal | HHW | Other | Organics |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Allegheny | 94.99 | 1,193.11 | 2,401.39 | 34,149.50 |
| Beaver | 210.96 | 591.68 | 295.13 | 4,751.48 |
| Berks | 77.57 | 978.97 | 78.30 | 16,276.97 |
| Bucks | 1,281.66 | 107.08 | 3,652.67 | 40,899.65 |
| Chester | 505.82 | 582.71 | 1,636.37 | 21,741.40 |
| Cumberland | 0.76 | 197.85 | 8.93 | 30,106.80 |
| Dauphin | 7,841.20 | 1,065.49 | 94.95 | 10,666.96 |
| Delaware | 1,055.15 | 718.20 | 26.34 | 20,473.30 |
| Erie | 7,310.56 | 388.74 | 66.46 | 19,098.63 |
| Lackawanna | 1,942.03 | 400.73 | 451.27 | 10,977.99 |
| Lancaster | 14,946.30 | 1,462.74 | 288.09 | 13,634.50 |
| Lebanon | 4,358.85 | 397.40 | 16.36 | 14,072.79 |
| Lehigh | 19.43 | 8,867.04 | 32.54 | 23,874.94 |
| Luzerne | 92.33 | 5.55 | 37.92 | 20,838.12 |
| Montgomery | 461.56 | 251.36 | 19,047.67 | 58,896.30 |
| Northampton | 42.93 | 217.20 | 104.25 | 46,139.41 |
| Philadelphia | 175.00 | 1,011.23 | 2,046.80 | 1,714.00 |
| Westmoreland | 163.77 | 96.09 | 19.60 | 2,481.39 |
| York | 279.15 | 609.49 | 14.51 | 18,232.87 |
| TOTAL URBAN RECYCLING | 40,860.02 | 19,142.66 | 30,319.55 | 409,027.00 |
| TOTAL COUNTY RECYCLING | 120,001.33 | 23,247.38 | 47,796.46 | 539,972.53 |
| % OF RECYCLING THAT IS URBAN | 34.05 | 82.34 | 63.43 | 75.75 |

Table 54: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2017

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 3,341.43 | 86.03 |
| Armstrong | 1,264.59 | 100.00 |
| Bedford | 701.95 | 95.93 |
| Blair | 5,686.99 | 48.90 |
| Bradford | 1,837.40 | 66.01 |
| Butler | 8,310.26 | 45.03 |
| Cambria | 2,541.90 | 44.98 |
| Cameron | 52.43 | 31.13 |
| Carbon | 3,116.69 | 79.20 |
| Centre | 25,394.71 | 38.72 |
| Clarion | 125.90 | 23.13 |
| Clearfield | 1,816.70 | 58.92 |
| Clinton | 2,023.68 | 29.03 |
| Columbia | 2,534.95 | 21.86 |
| Crawford | 2,399.70 | 98.61 |
| Elk | 873.51 | 12.05 |
| Fayette | 1,389.89 | 12.98 |
| Forest | 15.60 | 100.00 |
| Franklin | 17,251.23 | 75.24 |
| Fulton | 453.54 | 84.48 |
| Greene | 366.53 | 100.00 |
| Huntingdon | 1,338.19 | 75.71 |
| Indiana | 1,521.59 | 43.24 |
| Jefferson | 3,690.10 | 31.76 |
| Juniata | 0.10 | 0.80 |
| Lawrence | 14,497.09 | 96.69 |
| Lycoming | 6,729.20 | 43.72 |
| McKean | 1,040.45 | 82.37 |
| Mercer | 13,531.53 | 87.39 |
| Mifflin | 3,518.05 | 81.42 |
| Monroe | 8,692.18 | 51.47 |
| Montour | 414.80 | 100.00 |
| Northumberland | 6,087.72 | 90.54 |
| Perry | 121.81 | 100.00 |
| Pike | 586.75 | 14.55 |
| Potter | 927.00 | 93.80 |
| Schuylkill | 35,772.05 | 94.10 |
| Snyder | 1,422.45 | 21.03 |
| Somerset | 177.05 | 59.60 |

| | | |
|-------------------------------------|-------------------|--------------|
| Sullivan | 328.40 | 94.53 |
| Susquehanna | 1,062.39 | 92.48 |
| Tioga | 1,070.14 | 52.23 |
| Union | 2,017.21 | 36.48 |
| Venango | 876.84 | 54.77 |
| Warren | 861.72 | 55.18 |
| Washington | 6,233.16 | 61.04 |
| Wayne | 937.99 | 97.16 |
| Wyoming | 786.76 | 45.98 |
| TOTAL RURAL RECYCLING | 195,742.30 | |
| TOTAL COUNTY RECYCLING | 911,859.06 | 59.88 |
| % OF RECYCLING THAT IS RURAL | 21.47 | |

Table 55: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2017

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Allegheny | 62,677.60 | 62.41 |
| Beaver | 20,901.92 | 78.76 |
| Berks | 23,424.94 | 57.47 |
| Bucks | 50,645.21 | 53.14 |
| Chester | 54,074.11 | 69.30 |
| Cumberland | 18,472.15 | 37.86 |
| Dauphin | 26,921.71 | 69.48 |
| Delaware | 40,403.05 | 65.57 |
| Erie | 21,679.15 | 52.58 |
| Lackawanna | 49,579.44 | 80.74 |
| Lancaster | 41,176.46 | 72.80 |
| Lebanon | 10,194.69 | 41.31 |
| Lehigh | 25,098.37 | 43.37 |
| Luzerne | 21,157.04 | 50.33 |
| Montgomery | 73,301.73 | 48.38 |
| Northampton | 23,567.49 | 33.65 |
| Philadelphia | 106,109.41 | 95.70 |
| Westmoreland | 10,838.42 | 80.67 |
| York | 35,893.87 | 65.56 |
| TOTAL URBAN RECYCLING | 716,116.76 | |
| TOTAL COUNTY RECYCLING | 911,859.06 | 59.88 |
| % OF RECYCLING THAT IS URBAN | 78.53 | |

Table 56: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2018

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|----------------------|-------------------|--------------|--------------|----------------|
| Adams | 1,264.52 | 848.31 | 0.00 | 636.22 | 48.47 |
| Armstrong | 320.14 | 0.00 | 108.26 | 939.66 | 64.50 |
| Bedford | 405.39 | 70.06 | 8.94 | 66.57 | 18.05 |
| Blair | 400.40 | 794.92 | 140.76 | 4,045.15 | 243.45 |
| Bradford | 0.00 | 0.00 | 224.70 | 719.80 | 143.60 |
| Butler | 7,806.83 | 23.19 | 6.00 | 1,015.08 | 5.00 |
| Cambria | 529.02 | 741.80 | 0.00 | 1,284.22 | 239.07 |
| Cameron | 0.00 | 0.00 | 27.27 | 27.62 | 10.94 |
| Carbon | 2,490.69 | 205.16 | 66.52 | 339.00 | 19.55 |
| Centre | 0.00 | 0.00 | 2,343.18 | 17,621.46 | 1,234.45 |
| Clarion | 108.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| Clearfield | 0.00 | 0.00 | 173.05 | 293.87 | 56.39 |
| Clinton | 0.00 | 478.36 | 0.00 | 539.13 | 316.34 |
| Columbia | 2,206.80 | 0.00 | 169.66 | 968.81 | 175.26 |
| Crawford | 1,469.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| Elk | 0.00 | 0.00 | 194.43 | 478.81 | 60.99 |
| Fayette | 12.20 | 859.10 | 66.56 | 318.78 | 1.06 |
| Forest | 0.00 | 4.85 | 0.00 | 0.00 | 0.00 |
| Franklin | 3,049.10 | 1,084.37 | 0.00 | 26.81 | 23.50 |
| Fulton | 227.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | 0.00 | 22.93 | 19.83 | 257.84 | 43.50 |
| Huntingdon | 1,207.78 | 233.00 | 1.20 | 9.07 | 0.00 |
| Indiana | 0.00 | 0.00 | 401.91 | 723.31 | 197.04 |
| Jefferson | 0.00 | 125.40 | 166.50 | 288.60 | 82.00 |
| Juniata | 0.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| Lawrence | 2,509.40 | 660.88 | 0.00 | 521.38 | 0.00 |
| Lycoming | 982.02 | 0.00 | 1,010.21 | 3,288.01 | 1,105.59 |
| McKean | 406.47 | 0.00 | 28.79 | 230.69 | 0.00 |
| Mercer | 3,058.71 | 385.45 | 0.00 | 253.38 | 0.00 |
| Mifflin | 190.02 | 0.00 | 105.90 | 682.10 | 95.30 |
| Monroe | 5,764.38 | 0.00 | 310.87 | 727.03 | 211.25 |
| Montour | 552.15 | 0.00 | 22.05 | 49.85 | 12.04 |
| Northumberland | 359.21 | 0.00 | 470.18 | 3,464.67 | 488.91 |
| Perry | 441.93 | 201.13 | 0.00 | 108.94 | 0.00 |
| Pike | 4,189.36 | 0.00 | 0.00 | 507.26 | 2.00 |
| Potter | 243.48 | 0.00 | 2.75 | 10.07 | 1.00 |
| Schuylkill | 7,248.65 | 232.21 | 381.65 | 1,005.20 | 247.43 |
| Snyder | 716.31 | 0.00 | 140.30 | 602.10 | 104.96 |
| Somerset | 97.84 | 9.29 | 54.50 | 0.00 | 0.00 |
| Sullivan | 0.00 | 0.00 | 94.20 | 154.80 | 50.50 |
| Susquehanna | 287.24 | 266.74 | 0.00 | 450.08 | 0.00 |
| Tioga | 0.00 | 0.00 | 200.80 | 439.10 | 154.70 |
| Union | 1,227.79 | 0.00 | 162.61 | 429.66 | 87.47 |

| | | | | | |
|-------------------------------------|-------------------|------------------|-----------------|-------------------|-----------------|
| Venango | 686.40 | 21.12 | 0.00 | 3.80 | 0.00 |
| Warren | 322.16 | 0.00 | 242.25 | 155.97 | 85.13 |
| Washington | 4,665.44 | 140.04 | 13.85 | 1,319.05 | 8.62 |
| Wayne | 0.00 | 0.00 | 90.21 | 497.25 | 49.90 |
| Wyoming | 250.84 | 510.89 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 55,698.01 | 7,919.20 | 7,449.89 | 45,503.20 | 5,687.96 |
| TOTAL COUNTY RECYCLING | 685,749.60 | 53,206.44 | 8,413.18 | 114,871.07 | 7,085.38 |
| % OF RECYCLING THAT IS RURAL | 8.12 | 14.88 | 88.55 | 39.61 | 80.28 |

Table 57: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2018

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------------|-------------------|------------------|-----------------|-------------------|-----------------|
| Allegheny | 64,293.98 | 438.96 | 36.74 | 730.90 | 29.39 |
| Beaver | 4,528.88 | 576.01 | 170.00 | 15,800.26 | 13.60 |
| Berks | 16,612.64 | 2,173.37 | 12.48 | 1,974.85 | 26.33 |
| Bucks | 37,086.23 | 6,117.18 | 9.66 | 1,023.38 | 34.42 |
| Chester | 52,968.90 | 8,829.50 | 0.00 | 7,066.37 | 464.18 |
| Cumberland | 19,663.72 | 0.00 | 0.00 | 17.33 | 0.00 |
| Dauphin | 18,459.40 | 0.00 | 199.00 | 1,845.54 | 230.51 |
| Delaware | 37,433.34 | 1,952.04 | 76.21 | 1,743.35 | 37.28 |
| Erie | 13,269.41 | 362.39 | 45.22 | 856.18 | 139.48 |
| Lackawanna | 7,134.95 | 8,278.01 | 0.00 | 16,280.83 | 0.00 |
| Lancaster | 28,911.18 | 1.80 | 0.00 | 1,272.04 | 0.00 |
| Lebanon | 3,518.74 | 1,129.77 | 75.46 | 1,027.87 | 46.54 |
| Lehigh | 25,526.80 | 467.47 | 33.10 | 1,109.52 | 28.60 |
| Luzerne | 19,675.09 | 956.94 | 25.42 | 1,450.07 | 0.00 |
| Montgomery | 52,294.21 | 9,846.06 | 0.00 | 10,909.79 | 33.18 |
| Northampton | 16,870.37 | 2,572.50 | 69.00 | 3,817.45 | 43.70 |
| Philadelphia | 168,082.64 | 103.25 | 0.00 | 20.00 | 0.00 |
| Westmoreland | 9,285.66 | 516.87 | 114.75 | 1,229.32 | 222.89 |
| York | 34,435.45 | 965.12 | 96.25 | 1,192.82 | 47.32 |
| TOTAL URBAN RECYCLING | 630,051.59 | 45,287.24 | 963.29 | 69,367.87 | 1,397.42 |
| TOTAL COUNTY RECYCLING | 685,749.60 | 53,206.44 | 8,413.18 | 114,871.07 | 7,085.38 |
| % OF RECYCLING THAT IS URBAN | 91.88 | 85.12 | 11.45 | 60.39 | 19.72 |

Table 58: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2018

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 1,463.94 | 129.21 | 167.11 | 714.52 |
| Armstrong | 28.97 | 0.00 | 0.00 | 0.00 |
| Bedford | 23.96 | 21.52 | 9.40 | 0.00 |
| Blair | 726.20 | 176.00 | 7.80 | 5,185.93 |
| Bradford | 574.70 | 175.10 | 264.20 | 636.30 |
| Butler | 89.84 | 23.41 | 36.00 | 4,497.94 |
| Cambria | 68.67 | 205.70 | 0.00 | 2,581.23 |
| Cameron | 1.33 | 0.00 | 0.00 | 115.00 |
| Carbon | 27.68 | 45.37 | 8.40 | 966.30 |
| Centre | 4,435.43 | 667.43 | 8,527.47 | 30,760.05 |
| Clarion | 119.92 | 22.27 | 0.00 | 528.00 |
| Clearfield | 1,383.73 | 156.49 | 62.77 | 1,120.00 |
| Clinton | 398.78 | 60.71 | 81.27 | 5,183.16 |
| Columbia | 60.86 | 7.35 | 0.00 | 8,221.50 |
| Crawford | 0.00 | 0.00 | 0.00 | 63.86 |
| Elk | 150.66 | 124.42 | 279.00 | 10,047.00 |
| Fayette | 2.41 | 0.00 | 0.00 | 10,747.00 |
| Forest | 0.00 | 0.00 | 0.00 | 0.00 |
| Franklin | 14,217.54 | 307.20 | 569.82 | 5,820.15 |
| Fulton | 0.00 | 34.38 | 0.00 | 0.00 |
| Greene | 23.44 | 0.00 | 0.00 | 0.00 |
| Huntingdon | 0.72 | 62.28 | 0.00 | 1,032.00 |
| Indiana | 133.34 | 70.02 | 24.51 | 1,746.80 |
| Jefferson | 3,224.03 | 30.50 | 9,839.20 | 1,104.10 |
| Juniata | 20.30 | 0.10 | 6.68 | 0.00 |
| Lawrence | 15,255.85 | 261.98 | 668.94 | 340.00 |
| Lycoming | 324.18 | 247.95 | 0.00 | 2,326.50 |
| McKean | 15.41 | 6.57 | 0.00 | 153.00 |
| Mercer | 13,341.08 | 209.98 | 390.69 | 1,554.64 |
| Mifflin | 2,419.00 | 167.18 | 48.85 | 605.00 |
| Monroe | 442.32 | 91.25 | 33.34 | 12,653.00 |
| Montour | 5.20 | 1.50 | 0.00 | 0.00 |
| Northumberland | 305.93 | 0.00 | 14.64 | 529.23 |
| Perry | 0.00 | 14.13 | 0.00 | 0.00 |
| Pike | 72.70 | 35.43 | 119.71 | 12,256.50 |
| Potter | 79.13 | 22.04 | 3.43 | 0.00 |
| Schuylkill | 33,785.13 | 11.02 | 34.90 | 1,181.52 |
| Snyder | 40.88 | 16.91 | 0.00 | 1,379.60 |
| Somerset | 14.37 | 0.00 | 0.00 | 152.25 |
| Sullivan | 33.30 | 12.50 | 9.10 | 6.00 |
| Susquehanna | 34.88 | 0.00 | 0.00 | 88.13 |

| | | | | |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Tioga | 298.70 | 128.20 | 179.10 | 900.00 |
| Union | 38.71 | 0.00 | 24.20 | 2,282.96 |
| Venango | 1.60 | 22.13 | 13.50 | 682.03 |
| Warren | 134.62 | 23.90 | 0.00 | 543.50 |
| Washington | 3.75 | 125.02 | 23.99 | 3,943.78 |
| Wayne | 196.66 | 0.00 | 26.69 | 0.00 |
| Wyoming | 9.01 | 19.01 | 18.75 | 870.00 |
| TOTAL RURAL RECYCLING | 94,028.86 | 3,736.16 | 21,493.46 | 133,518.48 |
| TOTAL COUNTY RECYCLING | 168,038.66 | 24,702.64 | 71,706.32 | 595,350.83 |
| % OF RECYCLING THAT IS RURAL | 55.96 | 15.12 | 29.97 | 22.43 |

Table 59: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2018

| County | Metal | HHW | Other | Organics |
|-------------------------------------|-------------------|------------------|------------------|-------------------|
| Allegheny | 122.53 | 946.17 | 47.62 | 28,554.87 |
| Beaver | 210.66 | 561.52 | 169.35 | 5,162.37 |
| Berks | 16.24 | 1,005.70 | 806.61 | 28,465.17 |
| Bucks | 11,985.67 | 143.45 | 307.30 | 36,163.73 |
| Chester | 1,123.24 | 105.18 | 88.10 | 19,685.53 |
| Cumberland | 0.25 | 235.49 | 0.04 | 29,957.28 |
| Dauphin | 165.55 | 950.94 | 104.80 | 15,195.50 |
| Delaware | 1,478.76 | 1,044.26 | 27.30 | 18,561.72 |
| Erie | 6,260.48 | 334.85 | 104.39 | 19,923.54 |
| Lackawanna | 93.79 | 278.52 | 137.84 | 10,124.63 |
| Lancaster | 1,143.88 | 1,304.28 | 0.00 | 13,226.13 |
| Lebanon | 4,238.04 | 407.23 | 14.24 | 24,059.39 |
| Lehigh | 20.84 | 10,078.58 | 105.25 | 29,522.29 |
| Luzerne | 73.84 | 20.63 | 26.20 | 21,792.94 |
| Montgomery | 486.70 | 188.02 | 5,079.60 | 72,672.18 |
| Northampton | 295.07 | 181.17 | 367.30 | 64,843.81 |
| Philadelphia | 45,880.22 | 749.90 | 42,574.53 | 1,030.65 |
| Westmoreland | 191.12 | 1,107.87 | 238.79 | 3,045.35 |
| York | 222.92 | 1,322.72 | 13.60 | 19,845.27 |
| TOTAL URBAN RECYCLING | 74,009.80 | 20,966.48 | 50,212.86 | 461,832.35 |
| TOTAL COUNTY RECYCLING | 168,038.66 | 24,702.64 | 71,706.32 | 595,350.83 |
| % OF RECYCLING THAT IS URBAN | 44.04 | 84.88 | 70.03 | 77.57 |

Table 60: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2018

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 4,261.46 | 80.83 |
| Armstrong | 1,461.53 | 100.00 |
| Bedford | 592.97 | 95.04 |
| Blair | 6,350.88 | 54.19 |
| Bradford | 1,662.80 | 60.72 |
| Butler | 8,945.94 | 66.25 |
| Cambria | 2,862.78 | 50.67 |
| Cameron | 67.16 | 36.87 |
| Carbon | 3,148.60 | 75.53 |
| Centre | 25,634.52 | 39.08 |
| Clarion | 228.50 | 29.34 |
| Clearfield | 1,907.04 | 58.75 |
| Clinton | 1,732.61 | 24.55 |
| Columbia | 3,581.39 | 30.32 |
| Crawford | 1,469.61 | 95.84 |
| Elk | 884.89 | 7.81 |
| Fayette | 1,260.11 | 10.49 |
| Forest | 4.85 | 100.00 |
| Franklin | 18,401.32 | 73.32 |
| Fulton | 227.15 | 86.85 |
| Greene | 367.54 | 100.00 |
| Huntingdon | 1,451.77 | 57.02 |
| Indiana | 1,455.60 | 44.15 |
| Jefferson | 3,886.53 | 26.15 |
| Juniata | 23.30 | 77.46 |
| Lawrence | 18,947.51 | 93.71 |
| Lycoming | 6,710.01 | 72.27 |
| McKean | 681.36 | 81.02 |
| Mercer | 17,038.62 | 88.77 |
| Mifflin | 3,492.32 | 80.97 |
| Monroe | 7,455.85 | 36.85 |
| Montour | 641.29 | 99.77 |
| Northumberland | 5,088.90 | 90.34 |
| Perry | 752.00 | 98.16 |
| Pike | 4,771.32 | 27.77 |
| Potter | 336.43 | 92.96 |
| Schuylkill | 42,900.27 | 97.22 |
| Snyder | 1,604.55 | 53.47 |
| Somerset | 176.00 | 53.62 |

| | | |
|-------------------------------------|---------------------|--------------|
| Sullivan | 332.80 | 92.34 |
| Susquehanna | 1,038.94 | 92.18 |
| Tioga | 1,093.30 | 47.52 |
| Union | 1,946.24 | 45.76 |
| Venango | 712.92 | 49.83 |
| Warren | 940.13 | 62.36 |
| Washington | 6,150.75 | 60.05 |
| Wayne | 834.02 | 96.90 |
| Wyoming | 770.74 | 45.92 |
| TOTAL RURAL RECYCLING | 216,287.12 | |
| TOTAL COUNTY RECYCLING | 1,037,364.33 | 59.99 |
| % OF RECYCLING THAT IS RURAL | 20.85 | |

Table 61: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2018

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Allegheny | 65,652.50 | 68.96 |
| Beaver | 21,299.41 | 78.33 |
| Berks | 20,815.91 | 40.74 |
| Bucks | 56,256.54 | 60.57 |
| Chester | 70,452.19 | 77.99 |
| Cumberland | 19,681.30 | 39.46 |
| Dauphin | 20,900.00 | 56.26 |
| Delaware | 42,720.98 | 68.51 |
| Erie | 20,933.16 | 50.69 |
| Lackawanna | 31,787.58 | 75.10 |
| Lancaster | 31,328.90 | 68.32 |
| Lebanon | 10,036.42 | 29.08 |
| Lehigh | 27,186.33 | 40.64 |
| Luzerne | 22,181.36 | 50.39 |
| Montgomery | 73,569.94 | 48.56 |
| Northampton | 23,668.09 | 26.58 |
| Philadelphia | 214,086.11 | 82.84 |
| Westmoreland | 11,560.61 | 72.47 |
| York | 36,959.88 | 63.57 |
| TOTAL URBAN RECYCLING | 821,077.21 | |
| TOTAL COUNTY RECYCLING | 1,037,364.33 | 59.99 |
| % OF RECYCLING THAT IS URBAN | 79.15 | |

Table 62: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2019

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|----------------|---------------|------------|----------|-----------|----------|
| Adams | 1,550.16 | 893.52 | 0.00 | 127.51 | 0.00 |
| Armstrong | NA | NA | NA | NA | NA |
| Bedford | 16.33 | 38.01 | 8.84 | 24.91 | 14.42 |
| Blair | NA | NA | NA | NA | NA |
| Bradford | NA | NA | NA | NA | NA |
| Butler | 6,542.45 | 628.31 | 0.00 | 728.47 | 0.00 |
| Cambria | 925.93 | 157.28 | 0.00 | 1,172.96 | 231.78 |
| Cameron | 0.00 | 0.00 | 44.56 | 28.22 | 9.30 |
| Carbon | 2,350.33 | 0.00 | 51.71 | 100.55 | 17.26 |
| Centre | 0.00 | 0.00 | 4,052.45 | 20,783.87 | 1,370.63 |
| Clarion | 116.23 | 0.00 | 0.00 | 39.76 | 0.00 |
| Clearfield | 0.00 | 0.00 | 195.85 | 279.35 | 73.26 |
| Clinton | 0.00 | 434.33 | 0.00 | 570.69 | 250.36 |
| Columbia | 1,191.87 | 59.50 | 181.20 | 787.66 | 116.60 |
| Crawford | NA | NA | NA | NA | NA |
| Elk | 0.00 | 0.00 | 198.47 | 685.18 | 61.60 |
| Fayette | 12.20 | 429.47 | 97.93 | 444.03 | 1.68 |
| Forest | 7.64 | 0.00 | 0.00 | 0.33 | 0.15 |
| Franklin | 3,019.03 | 1,048.54 | 0.00 | 36.74 | 0.57 |
| Fulton | 7,170.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | NA | NA | NA | NA | NA |
| Huntingdon | 949.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| Indiana | 0.00 | 0.00 | 405.51 | 589.62 | 221.91 |
| Jefferson | 0.00 | 98.80 | 159.80 | 199.10 | 27.51 |
| Juniata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lawrence | 2,008.36 | 94.70 | 0.00 | 701.04 | 0.00 |
| Lycoming | 1,136.16 | 0.00 | 993.47 | 3,108.57 | 1,080.68 |
| McKean | NA | NA | NA | NA | NA |
| Mercer | 2,856.03 | 28.25 | 0.00 | 163.83 | 1.94 |
| Mifflin | 147.96 | 0.00 | 112.01 | 565.04 | 109.01 |
| Monroe | 6,992.70 | 250.25 | 292.35 | 649.64 | 174.60 |
| Montour | 388.75 | 0.00 | 24.09 | 39.16 | 15.08 |
| Northumberland | 454.47 | 0.00 | 365.33 | 1,140.78 | 304.12 |
| Perry | 593.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pike | 6,068.66 | 0.00 | 0.00 | 4.00 | 0.00 |
| Potter | 201.05 | 0.00 | 0.50 | 3.56 | 0.00 |
| Schuylkill | 8,773.38 | 94.67 | 284.48 | 1,299.76 | 0.19 |
| Snyder | 735.36 | 0.00 | 148.20 | 467.08 | 110.64 |
| Somerset | 112.07 | 14.14 | 41.04 | 0.00 | 0.00 |
| Sullivan | NA | NA | NA | NA | NA |
| Susquehanna | 262.36 | 264.52 | 0.00 | 481.57 | 0.00 |

| | | | | | |
|-------------------------------------|-------------------|------------------|-----------------|------------------|-----------------|
| Tioga | NA | NA | NA | NA | NA |
| Union | 1,128.27 | 0.00 | 137.14 | 395.31 | 85.72 |
| Venango | 762.27 | 15.02 | 0.00 | 20.33 | 0.00 |
| Warren | 295.51 | 0.00 | 230.59 | 150.83 | 80.60 |
| Washington | 3,260.77 | 226.32 | 7.48 | 948.06 | 28.73 |
| Wayne | 0.00 | 0.00 | 112.98 | 483.05 | 50.03 |
| Wyoming | 441.31 | 468.25 | 0.00 | 0.00 | 0.00 |
| TOTAL RURAL RECYCLING | 60,470.30 | 5,243.88 | 8,145.98 | 37,220.56 | 4,438.37 |
| TOTAL COUNTY RECYCLING | 544,304.66 | 38,166.29 | 9,214.10 | 84,081.68 | 5,842.17 |
| % OF RECYCLING THAT IS RURAL | 11.11 | 13.74 | 88.41 | 44.27 | 75.97 |

Table 63: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Single-Stream, Commingled, Glass, Paper, and Plastic, 2019

| County | Single-Stream | Commingled | Glass | Paper | Plastic |
|-------------------------------------|----------------------|-------------------|-----------------|------------------|-----------------|
| Allegheny | 54,152.63 | 0.00 | 10.24 | 492.33 | 0.00 |
| Beaver | 4,934.17 | 651.93 | 35.40 | 1,502.34 | 51.76 |
| Berks | 19,103.22 | 1,252.48 | 16.41 | 2,383.30 | 33.10 |
| Bucks | 49,673.66 | 347.19 | 3.75 | 699.47 | 13.60 |
| Chester | 17,644.29 | 8,403.02 | 0.00 | 5,418.66 | 3.52 |
| Cumberland | 18,175.60 | 0.00 | 0.00 | 13.17 | 0.00 |
| Dauphin | 16,182.74 | 0.00 | 247.72 | 1,992.81 | 205.11 |
| Delaware | 27,266.65 | 1,526.53 | 0.00 | 2,442.91 | 43.27 |
| Erie | 14,063.77 | 300.90 | 0.00 | 85.34 | 27.01 |
| Lackawanna | 12,700.92 | 7,285.41 | 316.16 | 9,469.78 | 782.25 |
| Lancaster | 26,388.00 | 0.00 | 0.00 | 1,485.90 | 0.00 |
| Lebanon | 4,511.46 | 877.76 | 59.13 | 1,003.21 | 34.56 |
| Lehigh | 23,945.30 | 1,484.63 | 0.00 | 1,247.50 | 2.30 |
| Luzerne | 18,557.51 | 1,990.47 | 18.08 | 1,391.51 | 0.00 |
| Montgomery | 56,859.79 | 5,902.44 | 0.00 | 10,982.67 | 69.63 |
| Northampton | 16,150.77 | 1,937.36 | 79.20 | 3,637.71 | 77.30 |
| Philadelphia | 66,321.88 | 8.54 | 0.00 | 357.56 | 0.00 |
| Westmoreland | 8,363.64 | 261.75 | 124.71 | 1,035.07 | 0.00 |
| York | 28,838.36 | 692.00 | 157.32 | 1,219.88 | 60.39 |
| TOTAL URBAN RECYCLING | 483,834.36 | 32,922.41 | 1,068.12 | 46,861.12 | 1,403.80 |
| TOTAL COUNTY RECYCLING | 544,304.66 | 38,166.29 | 9,214.10 | 84,081.68 | 5,842.17 |
| % OF RECYCLING THAT IS URBAN | 88.89 | 86.26 | 11.59 | 55.73 | 24.03 |

Table 64: Rural County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2019

| County | Metal | HHW | Other | Organics |
|----------------|--------------|------------|--------------|-----------------|
| Adams | 177.52 | 67.49 | 7,035.51 | 1,044.38 |
| Armstrong | NA | NA | NA | NA |
| Bedford | 9.19 | 0.00 | 7.87 | 0.00 |
| Blair | NA | NA | NA | NA |
| Bradford | NA | NA | NA | NA |
| Butler | 657.35 | 101.82 | 185.00 | 6,276.92 |
| Cambria | 68.49 | 0.00 | 8.99 | 981.18 |
| Cameron | 4.05 | 15.10 | 0.00 | 114.00 |
| Carbon | 26.56 | 17.18 | 8.46 | 428.75 |
| Centre | 4,631.28 | 505.25 | 8,484.09 | 37,492.38 |
| Clarion | 0.00 | 0.00 | 0.00 | 715.37 |
| Clearfield | 1,577.68 | 23.83 | 90.41 | 830.20 |
| Clinton | 413.60 | 53.09 | 81.15 | 5,498.57 |
| Columbia | 38.20 | 0.00 | 0.00 | 8,640.90 |
| Crawford | NA | NA | NA | NA |
| Elk | 115.41 | 118.68 | 12.35 | 10,534.00 |
| Fayette | 11.42 | 0.00 | 0.00 | 22,491.00 |
| Forest | 0.51 | 0.34 | 0.00 | 0.08 |
| Franklin | 14,008.49 | 279.31 | 89.06 | 7,879.16 |
| Fulton | 0.00 | 0.00 | 0.00 | 0.00 |
| Greene | NA | NA | NA | NA |
| Huntingdon | 0.00 | 0.00 | 0.00 | 212.17 |
| Indiana | 105.02 | 53.78 | 30.83 | 1,776.18 |
| Jefferson | 2,892.40 | 28.40 | 12,210.00 | 1,157.90 |
| Juniata | 0.00 | 0.00 | 4.16 | 0.00 |
| Lawrence | 13,385.00 | 239.87 | 660.00 | 315.00 |
| Lycoming | 302.21 | 216.13 | 0.00 | 6,577.00 |
| McKean | NA | NA | NA | NA |
| Mercer | 9,529.73 | 128.23 | 129.29 | 1,674.24 |
| Mifflin | 3,948.06 | 130.72 | 59.44 | 259.43 |
| Monroe | 445.21 | 111.87 | 44.39 | 12,667.30 |
| Montour | 2.28 | 0.00 | 0.00 | 0.00 |
| Northumberland | 175.34 | 0.00 | 15.43 | 793.50 |
| Perry | 0.00 | 11.24 | 0.00 | 0.00 |
| Pike | 37.30 | 72.74 | 33.46 | 2,234.62 |
| Potter | 22.25 | 20.89 | 3.13 | 0.00 |
| Schuylkill | 37,562.90 | 0.00 | 66.26 | 984.00 |
| Snyder | 342.03 | 11.31 | 0.00 | 42.98 |
| Somerset | 8.10 | 0.00 | 0.00 | 95.00 |
| Sullivan | NA | NA | NA | NA |
| Susquehanna | 63.22 | 55.83 | 0.00 | 88.13 |

| | | | | |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Tioga | NA | NA | NA | NA |
| Union | 77.68 | 0.00 | 13.40 | 10,502.16 |
| Venango | 44.50 | 37.86 | 15.71 | 1,827.11 |
| Warren | 123.43 | 23.30 | 0.00 | 653.00 |
| Washington | 1.01 | 109.72 | 0.00 | 2,257.40 |
| Wayne | 262.33 | 0.00 | 28.44 | 0.00 |
| Wyoming | 3.67 | 26.72 | 0.00 | 600.00 |
| TOTAL RURAL RECYCLING | 91,073.42 | 2,460.70 | 29,316.83 | 147,644.01 |
| TOTAL COUNTY RECYCLING | 154,737.89 | 147,984.61 | 154,059.83 | 591,928.85 |
| % OF RECYCLING THAT IS RURAL | 58.86 | 1.66 | 19.03 | 24.94 |

Table 65: Urban County Comparison of Recyclable Materials (In Total Tons) by Category: Metal, HHW, Other, and Organics, 2019

| County | Metal | HHW | Other | Organics |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Allegheny | 44.55 | 1,043.20 | 3,152.45 | 32,774.74 |
| Beaver | 209.12 | 287.02 | 101,225.99 | 6,764.23 |
| Berks | 6.37 | 931.17 | 36.99 | 30,603.75 |
| Bucks | 104.20 | 128,053.27 | 67.71 | 30,103.88 |
| Chester | 56.04 | 322.58 | 76.30 | 11,444.65 |
| Cumberland | 0.00 | 211.79 | 0.04 | 29,973.17 |
| Dauphin | 45.36 | 10.24 | 10,372.36 | 18,303.16 |
| Delaware | 2,063.18 | 863.13 | 957.18 | 18,723.37 |
| Erie | 323.06 | 252.25 | 108.21 | 21,387.73 |
| Lackawanna | 701.79 | 67.52 | 143.26 | 9,757.50 |
| Lancaster | 5,946.19 | 1,617.36 | 234.86 | 10,194.62 |
| Lebanon | 4,450.70 | 353.96 | 17.68 | 26,113.04 |
| Lehigh | 4.10 | 9,269.83 | 37.76 | 34,253.34 |
| Luzerne | 67.82 | 62.04 | 35.36 | 25,829.40 |
| Montgomery | 10,820.29 | 211.67 | 5,557.88 | 65,799.31 |
| Northampton | 423.75 | 167.90 | 266.42 | 45,074.63 |
| Philadelphia | 38,033.00 | 135.00 | 2,376.53 | 2,530.12 |
| Westmoreland | 101.11 | 1,247.35 | 60.03 | 2,160.85 |
| York | 263.84 | 416.63 | 15.99 | 22,493.35 |
| TOTAL URBAN RECYCLING | 63,664.47 | 145,523.91 | 124,743.00 | 444,284.84 |
| TOTAL COUNTY RECYCLING | 154,737.89 | 147,984.61 | 154,059.83 | 591,928.85 |
| % OF RECYCLING THAT IS URBAN | 41.14 | 98.34 | 80.97 | 75.06 |

Table 66: Rural County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2019

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|----------------|----------------------------------------------------------|----------------------------------------------------------------------|
| Adams | 2,748.71 | 25.23 |
| Armstrong | NA | NA |
| Bedford | 111.70 | 93.42 |
| Blair | NA | NA |
| Bradford | NA | NA |
| Butler | 8,556.58 | 56.59 |
| Cambria | 2,556.44 | 72.08 |
| Cameron | 86.13 | 40.02 |
| Carbon | 2,546.41 | 84.86 |
| Centre | 30,838.23 | 39.88 |
| Clarion | 155.99 | 17.90 |
| Clearfield | 2,126.14 | 69.24 |
| Clinton | 1,668.98 | 22.86 |
| Columbia | 2,375.03 | 21.56 |
| Crawford | NA | NA |
| Elk | 1,060.66 | 9.05 |
| Fayette | 996.73 | 4.24 |
| Forest | 8.63 | 95.36 |
| Franklin | 18,113.37 | 68.71 |
| Fulton | 7,170.00 | 100.00 |
| Greene | NA | NA |
| Huntingdon | 949.39 | 81.73 |
| Indiana | 1,322.06 | 41.54 |
| Jefferson | 3,377.61 | 20.14 |
| Juniata | 0.00 | 0.00 |
| Lawrence | 16,189.10 | 93.02 |
| Lycoming | 6,621.09 | 49.36 |
| McKean | NA | NA |
| Mercer | 12,579.78 | 86.69 |
| Mifflin | 4,882.08 | 91.57 |
| Monroe | 8,804.75 | 40.71 |
| Montour | 469.36 | 100.00 |
| Northumberland | 2,440.04 | 75.10 |
| Perry | 593.30 | 98.14 |
| Pike | 6,109.96 | 72.30 |
| Potter | 227.36 | 90.44 |
| Schuylkill | 48,015.38 | 97.86 |
| Snyder | 1,803.31 | 97.08 |
| Somerset | 175.35 | 64.86 |

| | | |
|-------------------------------------|-------------------|--------------|
| Sullivan | NA | NA |
| Susquehanna | 1,071.67 | 88.16 |
| Tioga | NA | NA |
| Union | 1,824.12 | 14.78 |
| Venango | 842.12 | 30.93 |
| Warren | 880.96 | 56.57 |
| Washington | 4,472.37 | 65.39 |
| Wayne | 908.39 | 96.96 |
| Wyoming | 913.23 | 59.30 |
| TOTAL RURAL RECYCLING | 206,592.51 | |
| TOTAL COUNTY RECYCLING | 836,346.79 | 48.33 |
| % OF RECYCLING THAT IS RURAL | 24.70 | |

Table 67: Urban County Comparison of Recyclable Materials: Single-Stream, Commingled, Glass, Paper, Plastic, and Metal, 2019

| County | Source-Separated Recyclable Material (Total Tons) | Percent of Residential - Source-Separated Recyclable Material |
|-------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
| Allegheny | 54,699.75 | 59.67 |
| Beaver | 7,384.72 | 6.38 |
| Berks | 22,794.88 | 41.93 |
| Bucks | 50,841.87 | 24.32 |
| Chester | 31,525.53 | 72.69 |
| Cumberland | 18,188.77 | 37.60 |
| Dauphin | 18,673.74 | 39.43 |
| Delaware | 33,342.54 | 61.88 |
| Erie | 14,800.08 | 40.49 |
| Lackawanna | 31,256.31 | 75.82 |
| Lancaster | 33,820.09 | 73.74 |
| Lebanon | 10,936.82 | 29.23 |
| Lehigh | 26,683.83 | 37.99 |
| Luzerne | 22,025.39 | 45.93 |
| Montgomery | 84,634.82 | 54.18 |
| Northampton | 22,306.09 | 32.89 |
| Philadelphia | 104,720.98 | 95.41 |
| Westmoreland | 9,886.28 | 74.03 |
| York | 31,231.79 | 57.67 |
| TOTAL URBAN RECYCLING | 629,754.28 | |
| TOTAL COUNTY RECYCLING | 836,346.79 | 48.33 |
| % OF RECYCLING THAT IS URBAN | 75.30 | |

Appendix 8: County Trends in Single-Stream Collection

Figure 1: Percent of Residential Recyclables that are Single-Stream, 2010

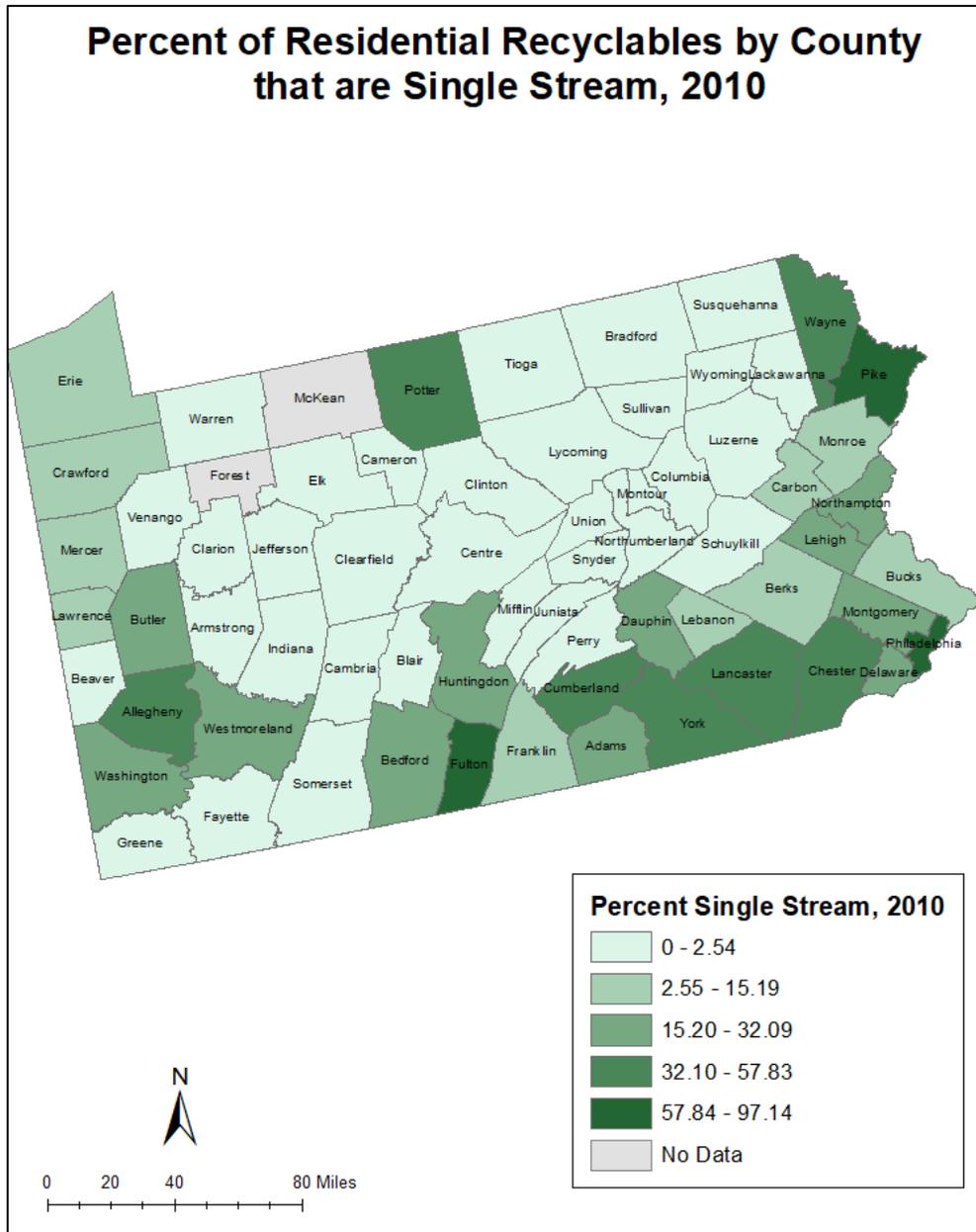


Figure 2: Percent of Residential Recyclables that are Single-Stream, 2011

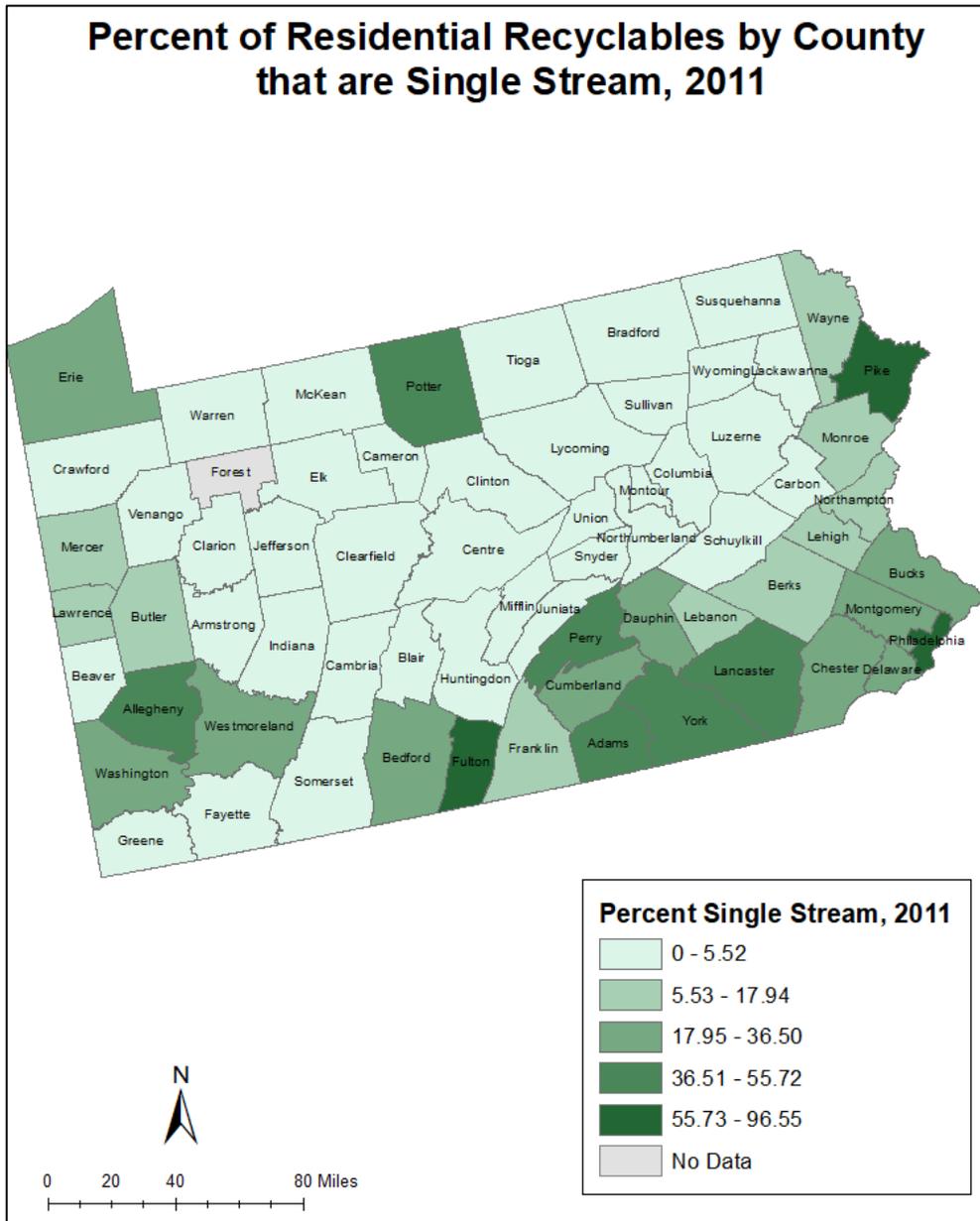


Figure 3: Percent of Residential Recyclables that are Single-Stream, 2012

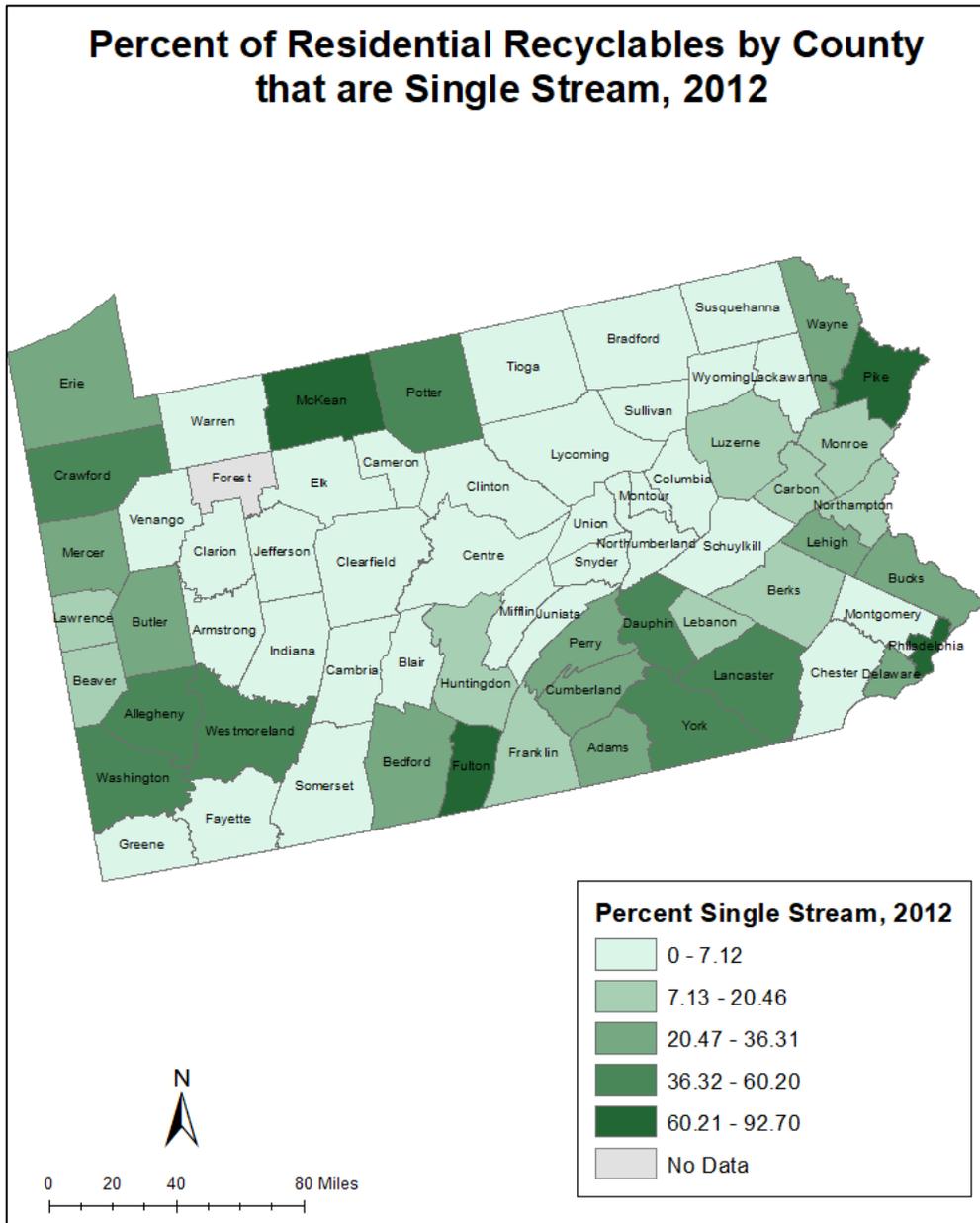


Figure 4: Percent of Residential Recyclables that are Single-Stream, 2013

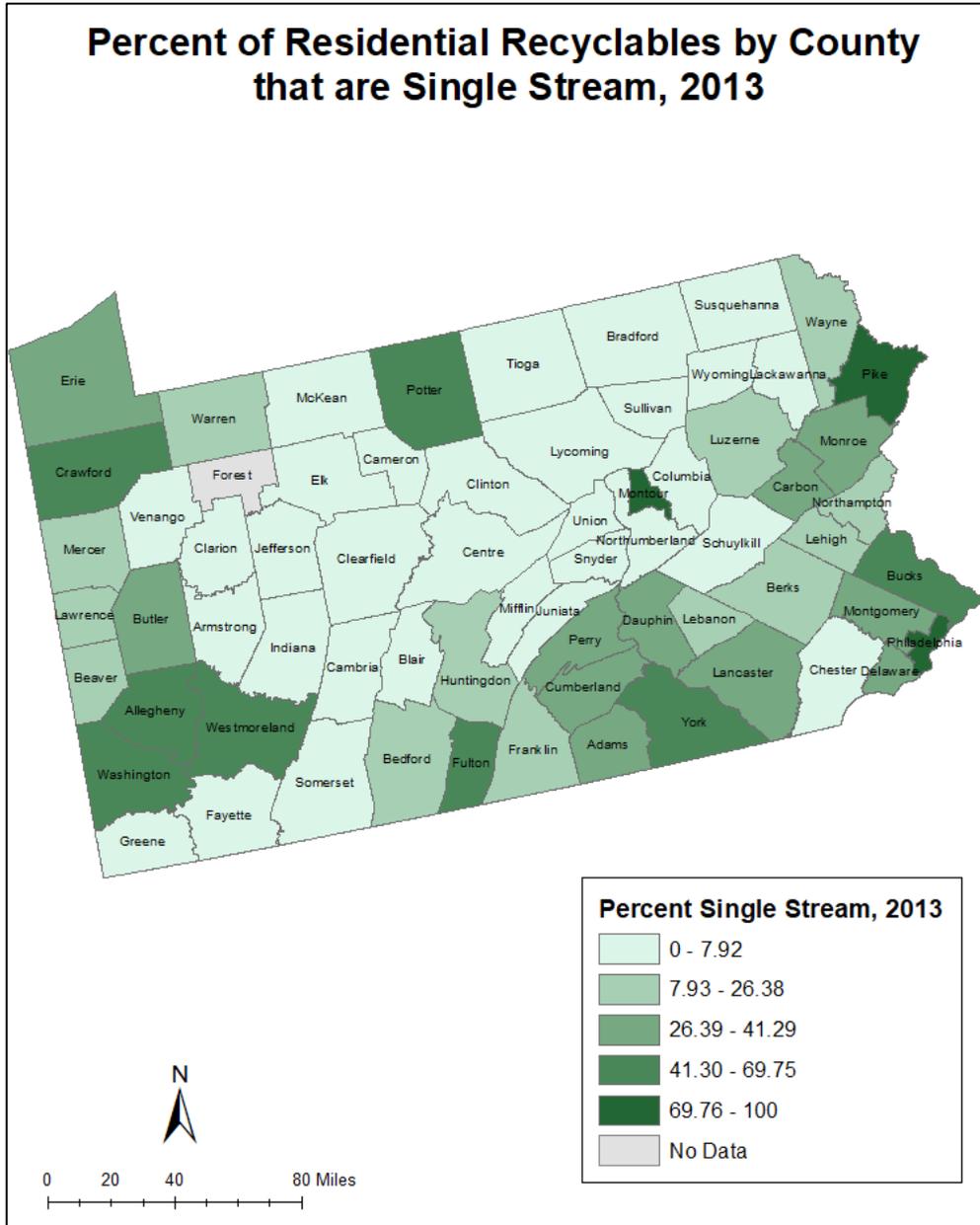


Figure 5: Percent of Residential Recyclables that are Single-Stream, 2014

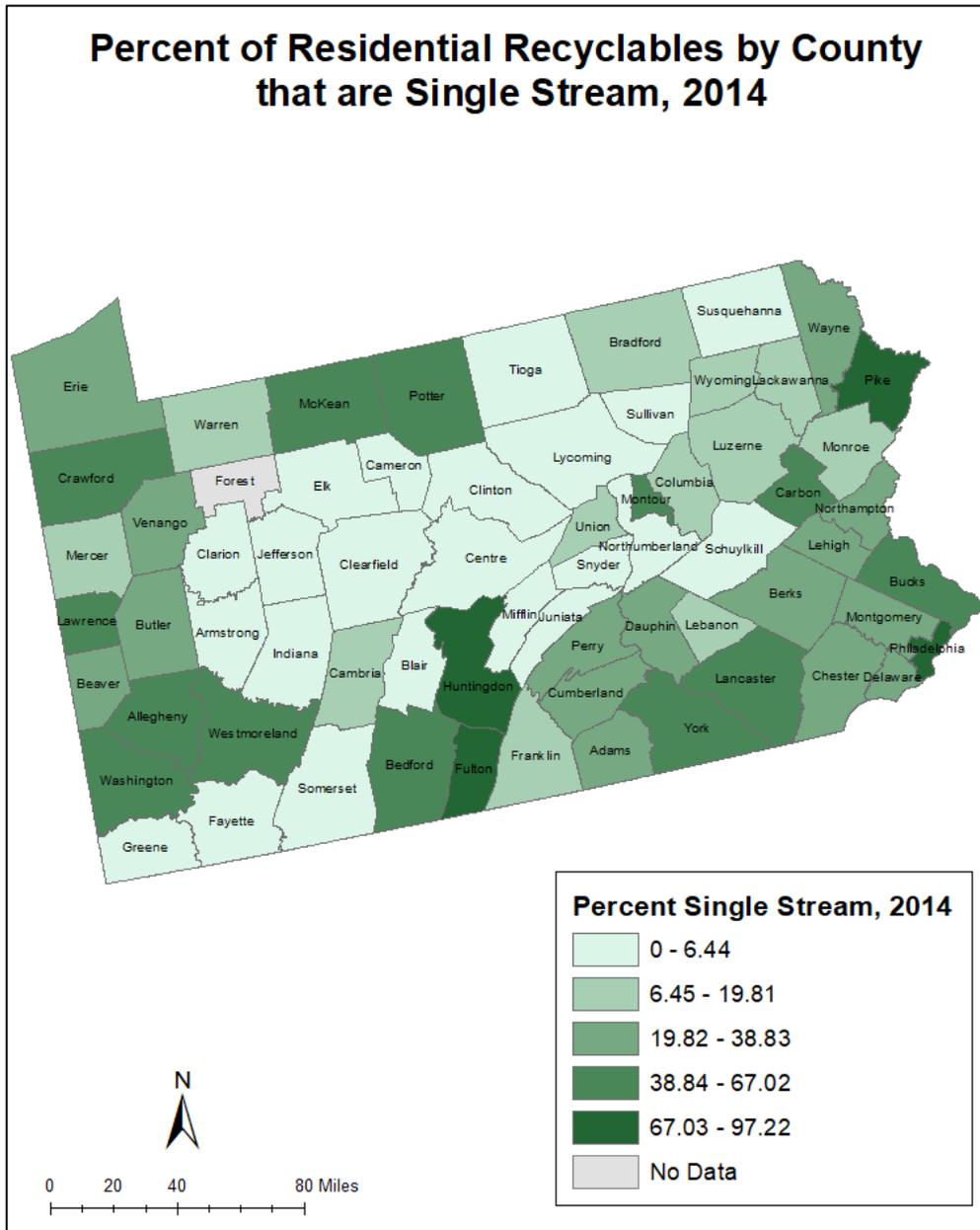


Figure 6: Percent of Residential Recyclables that are Single-Stream, 2015

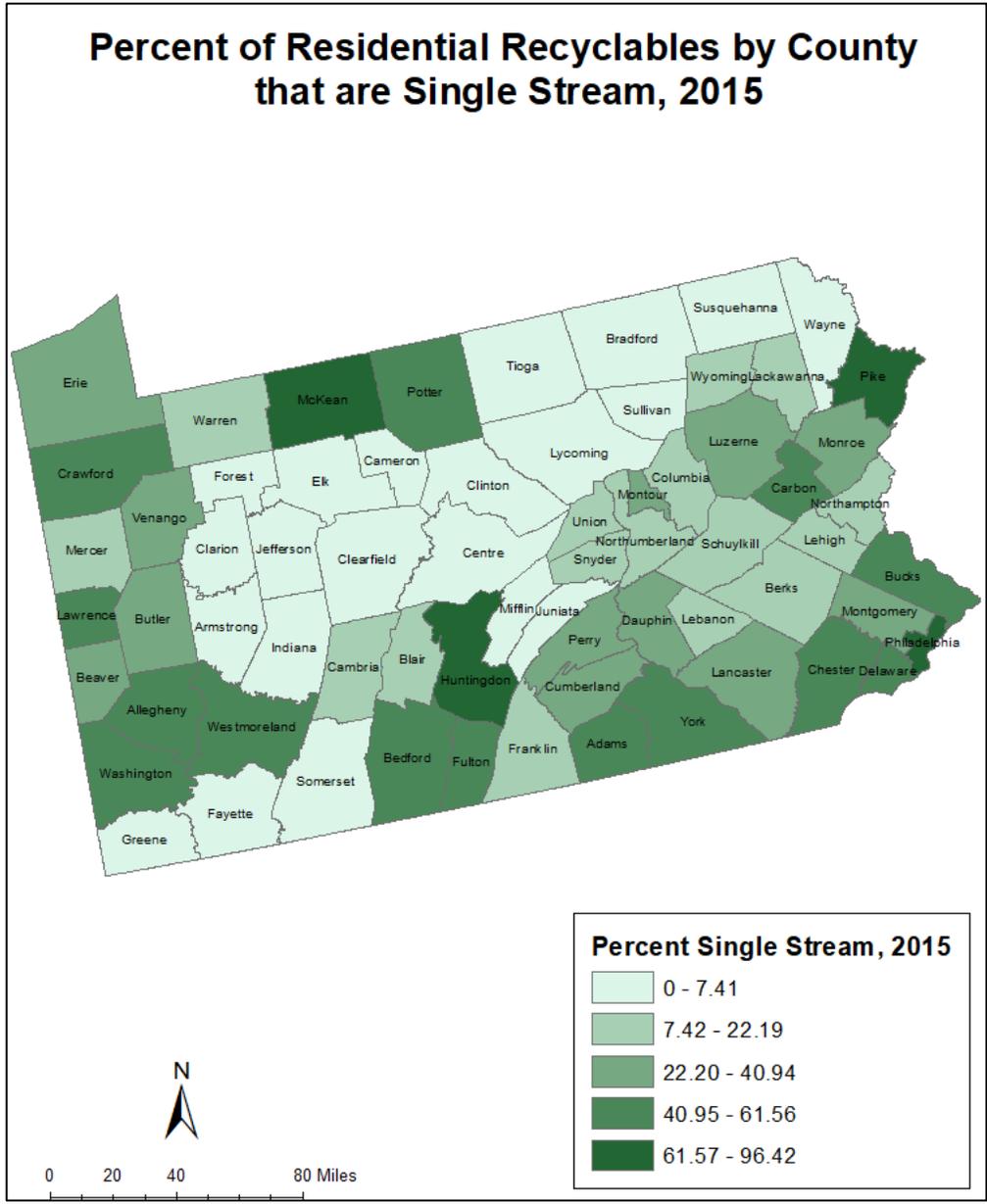


Figure 7: Percent of Residential Recyclables that are Single-Stream, 2016

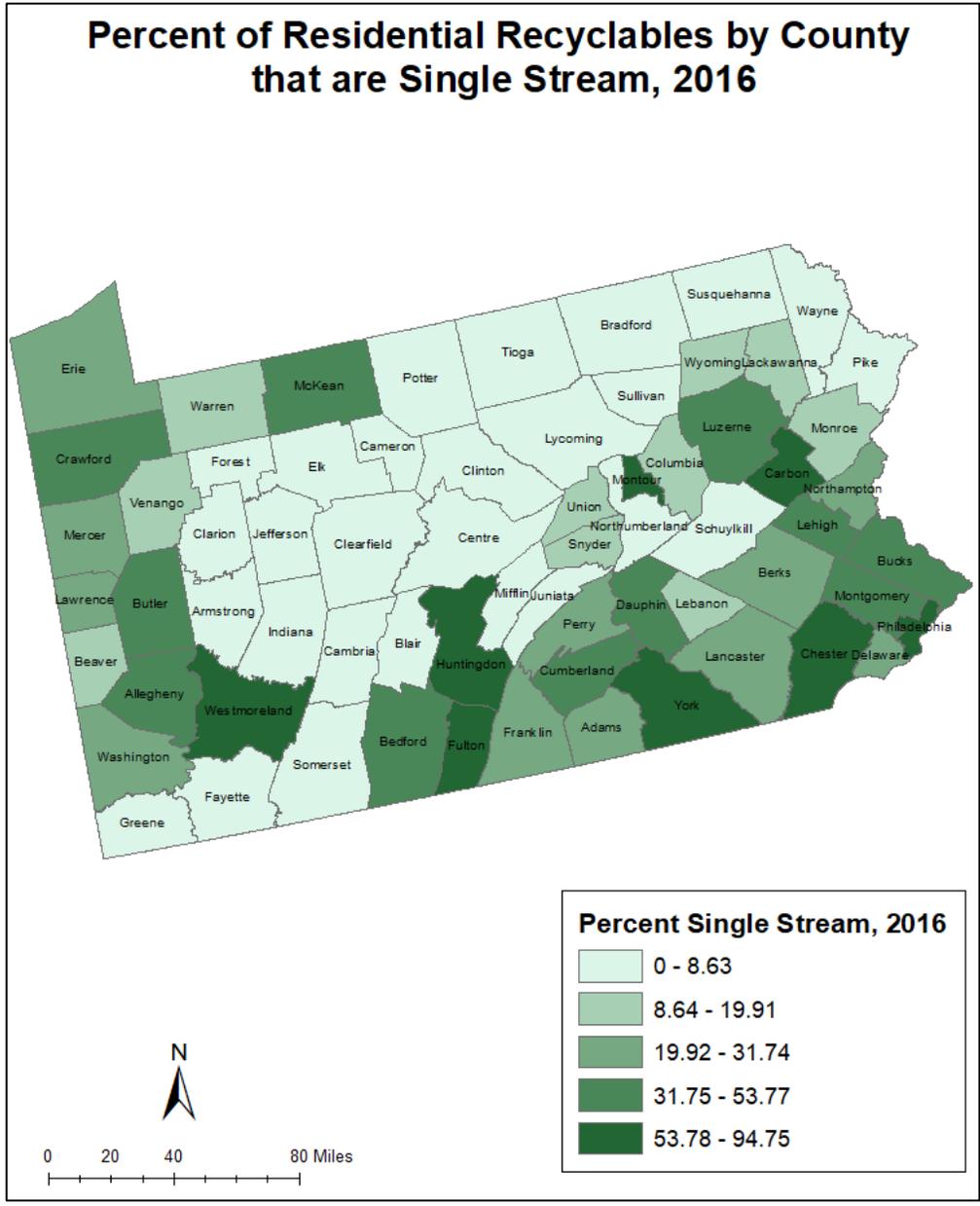


Figure 8: Percent of Residential Recyclables that are Single-Stream, 2017

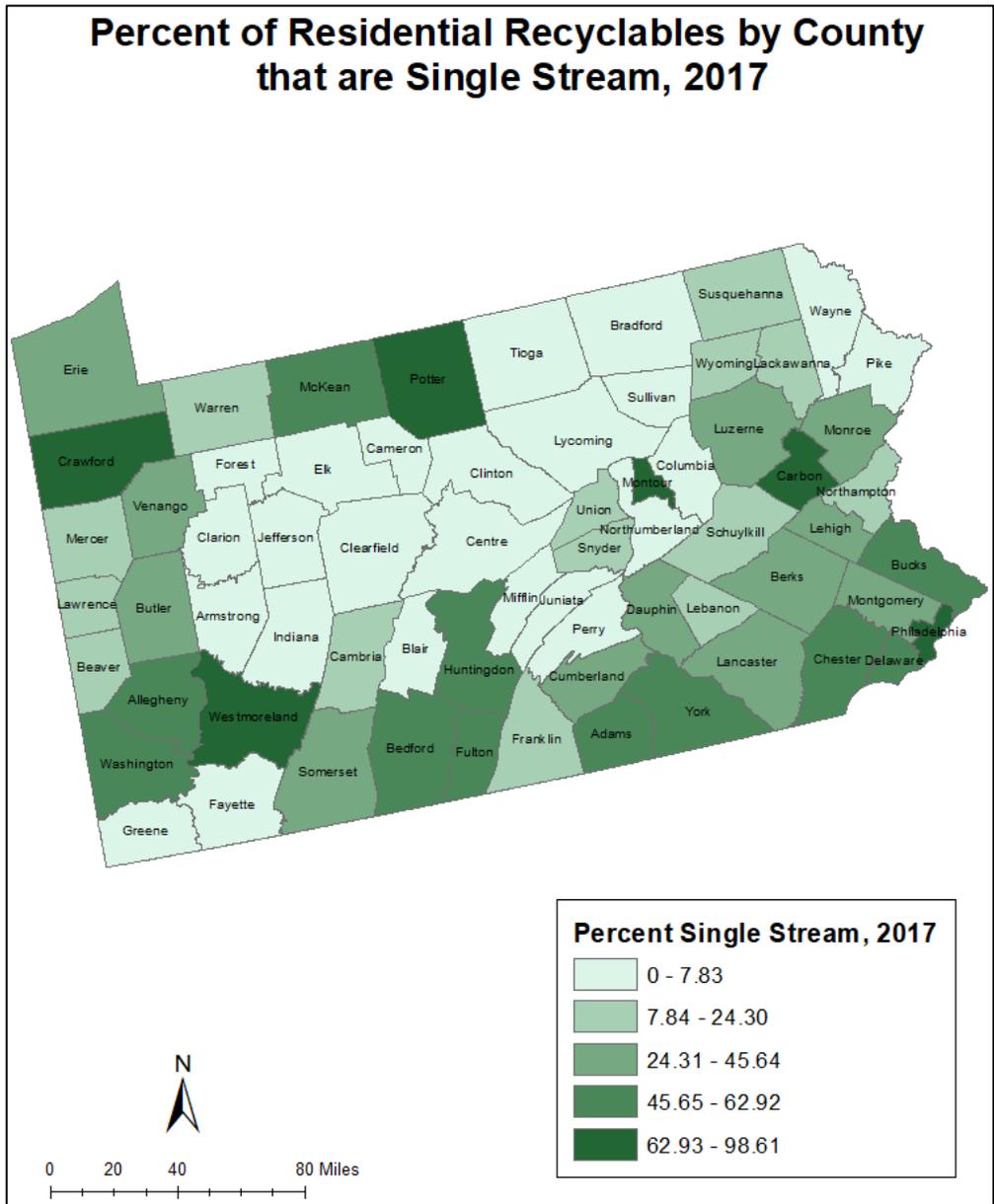


Figure 9: Percent of Residential Recyclables that are Single-Stream, 2018

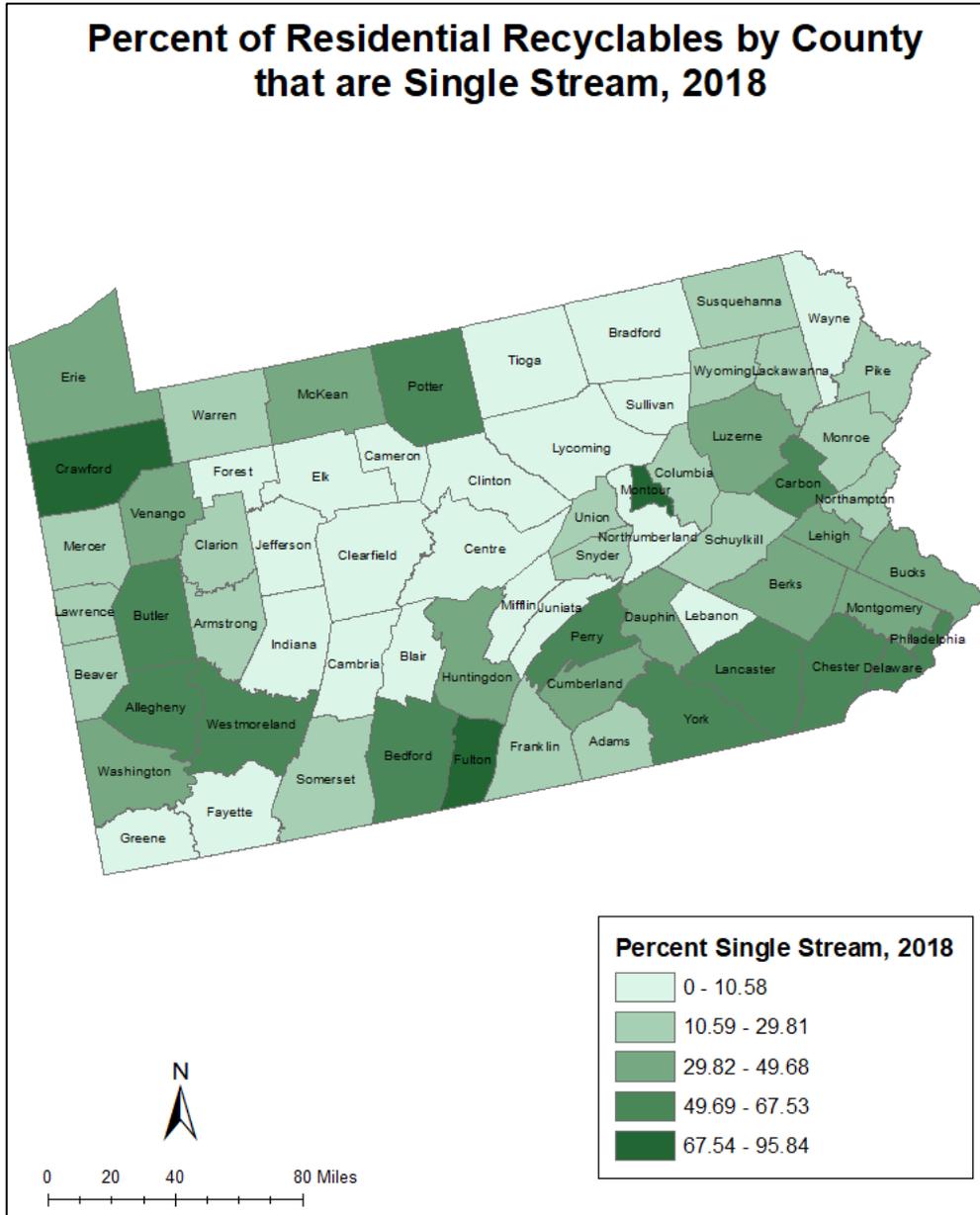
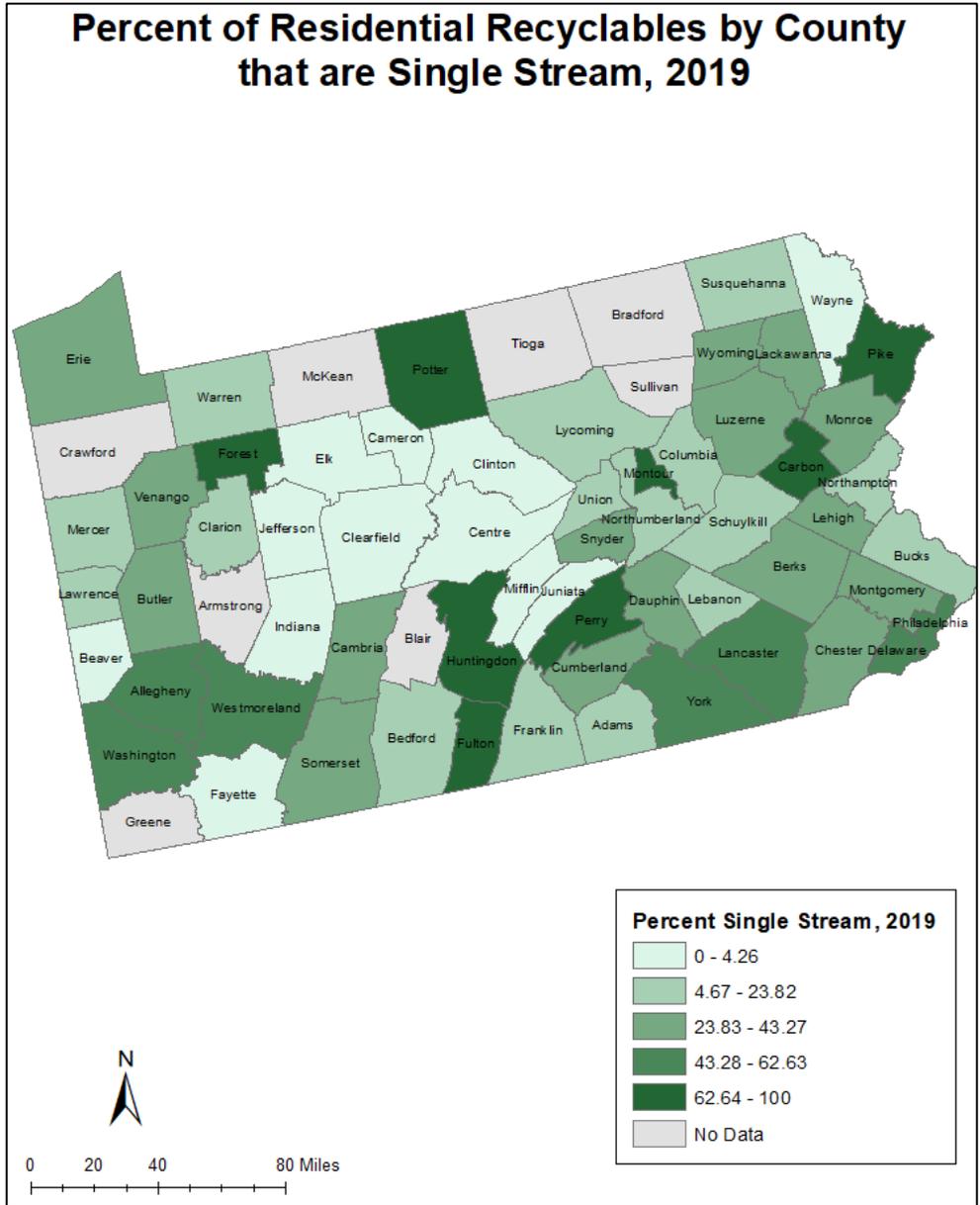


Figure 10: Percent of Residential Recyclables that are Single-Stream, 2019



Appendix 9: County Trends in Total Residential Recycling Collection

Figure 1: Percent of Residential Recyclables by County, 2010

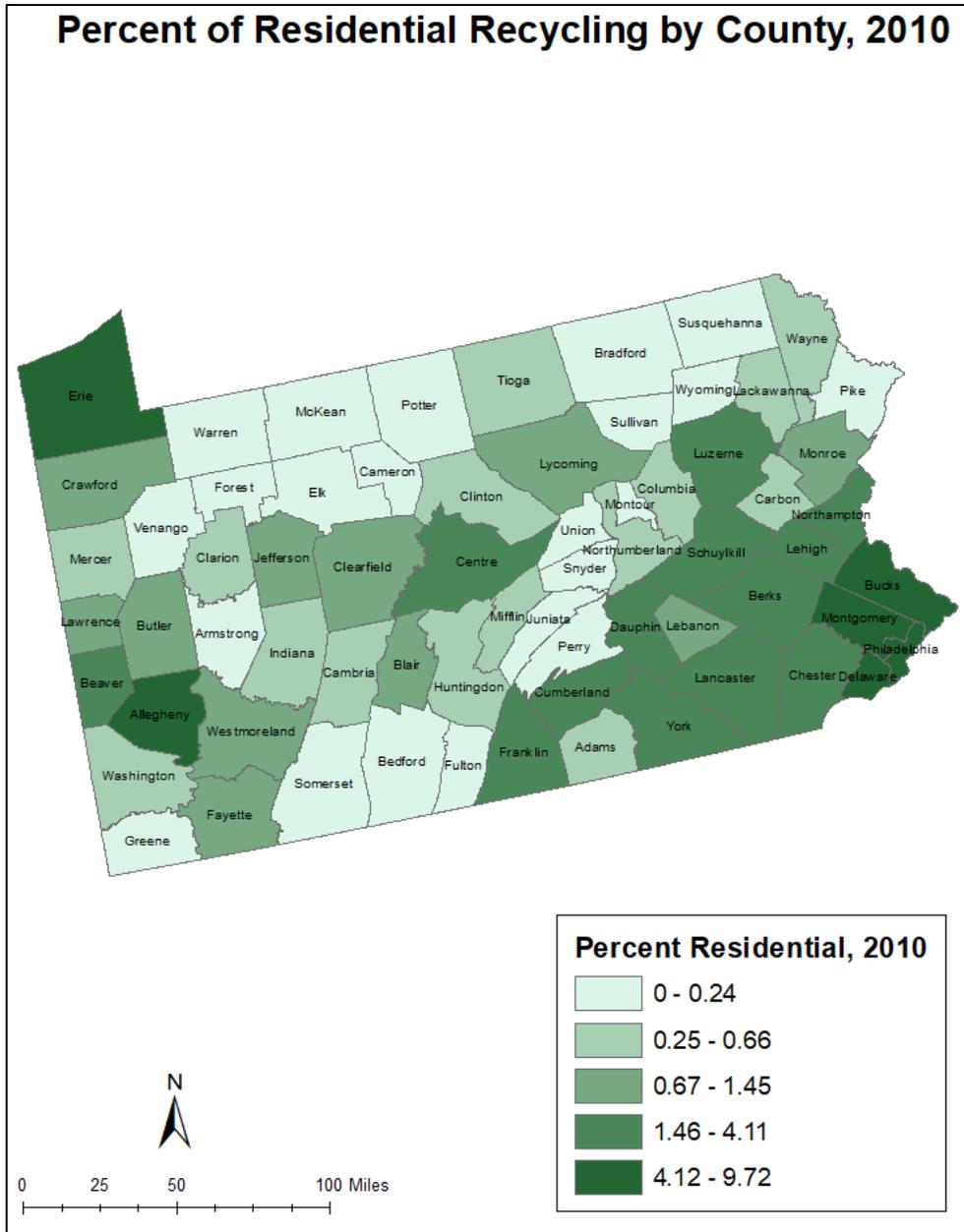


Figure 3: Percent of Residential Recyclables by County, 2012

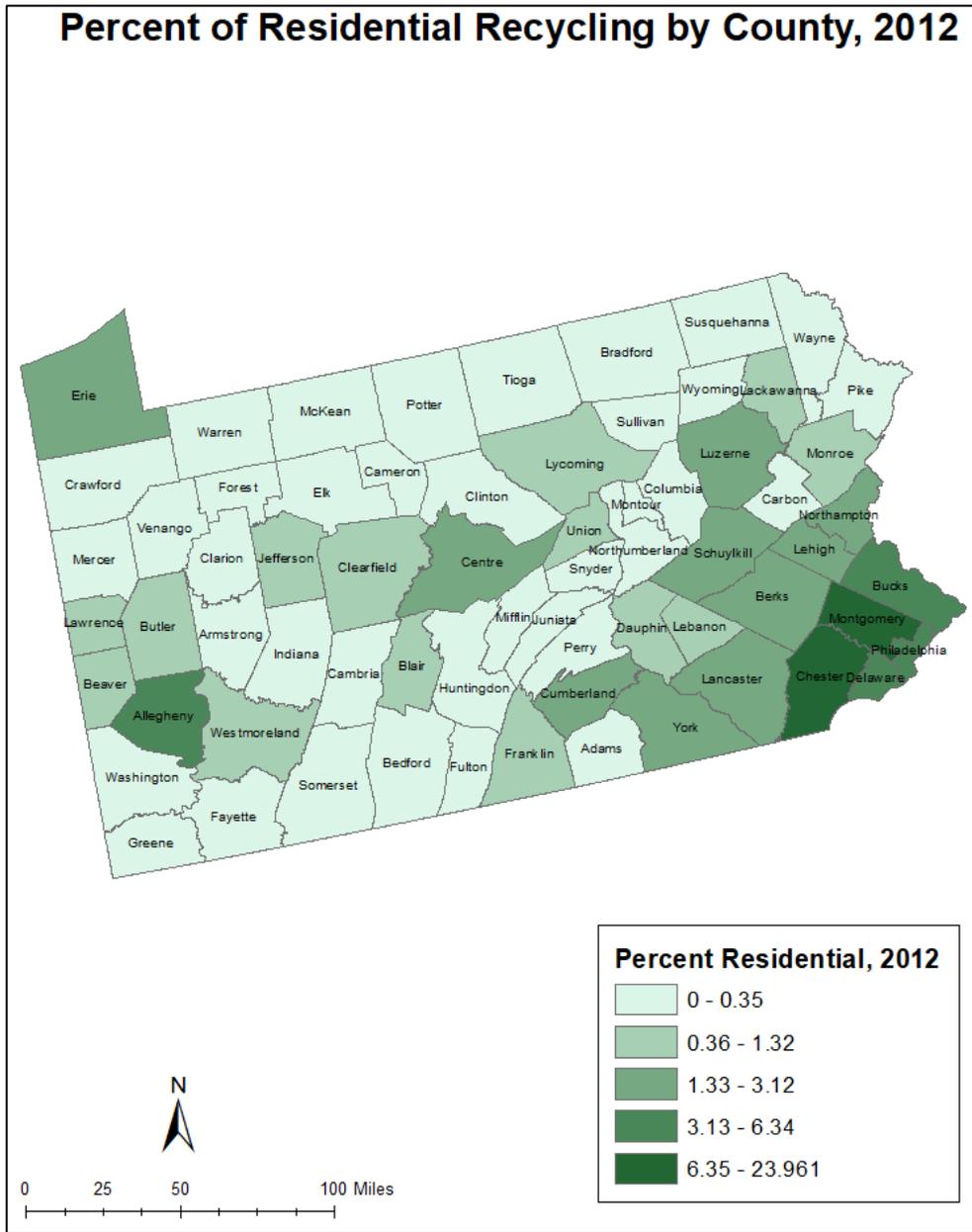


Figure 4: Percent of Residential Recyclables by County, 2013

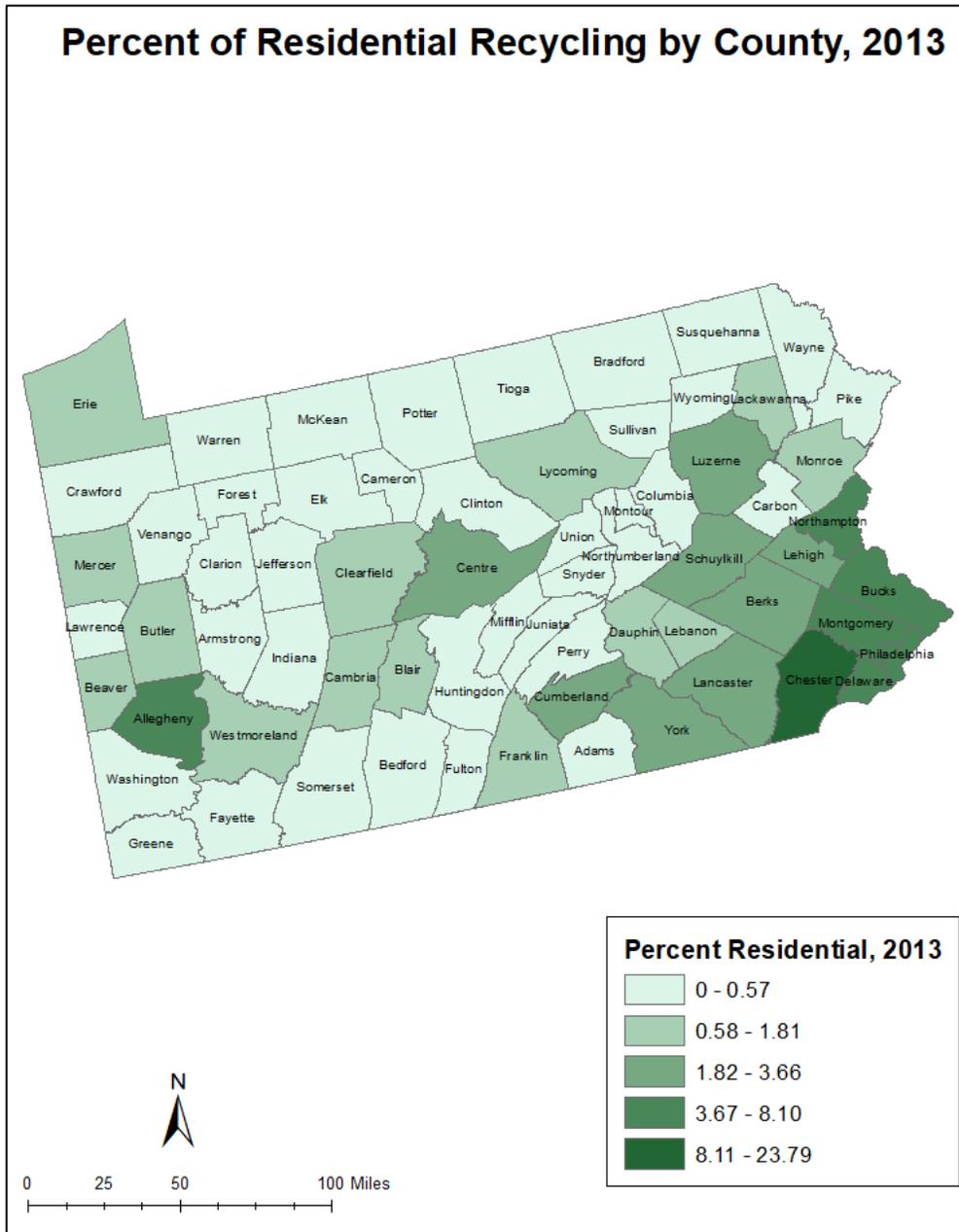


Figure 6: Percent of Residential Recyclables by County, 2015

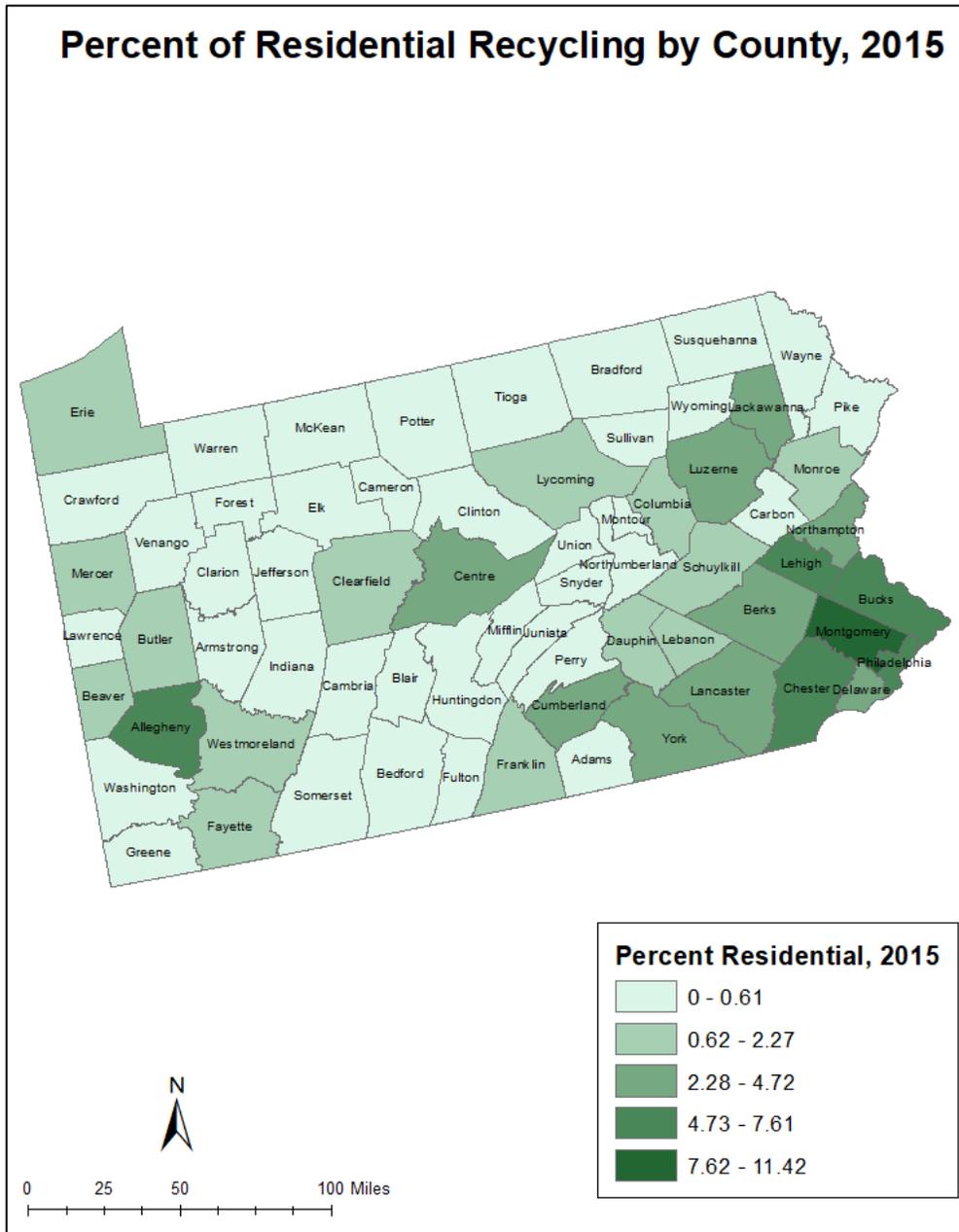


Figure 8: Percent of Residential Recyclables by County, 2017

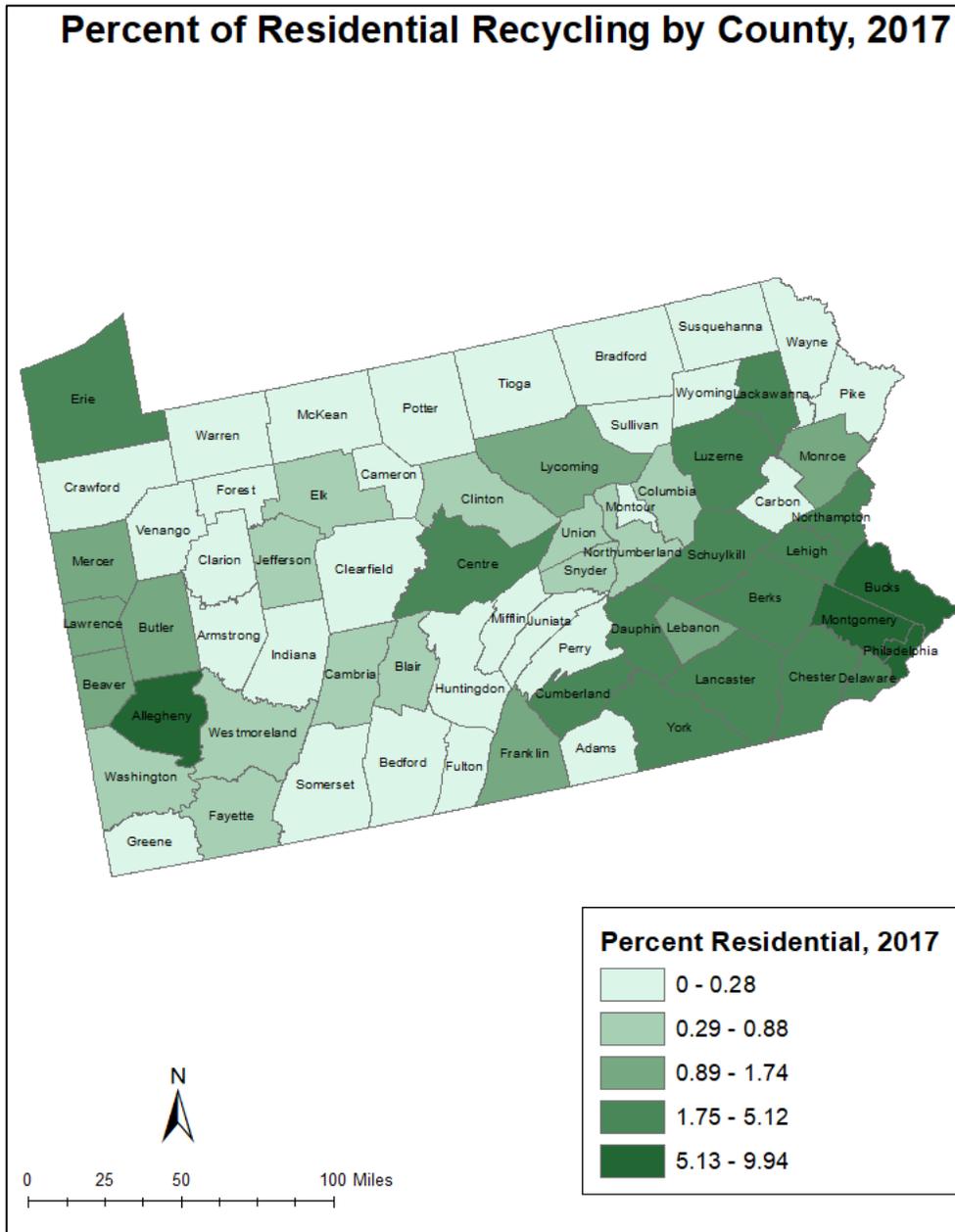


Figure 9: Percent of Residential Recyclables by County, 2018

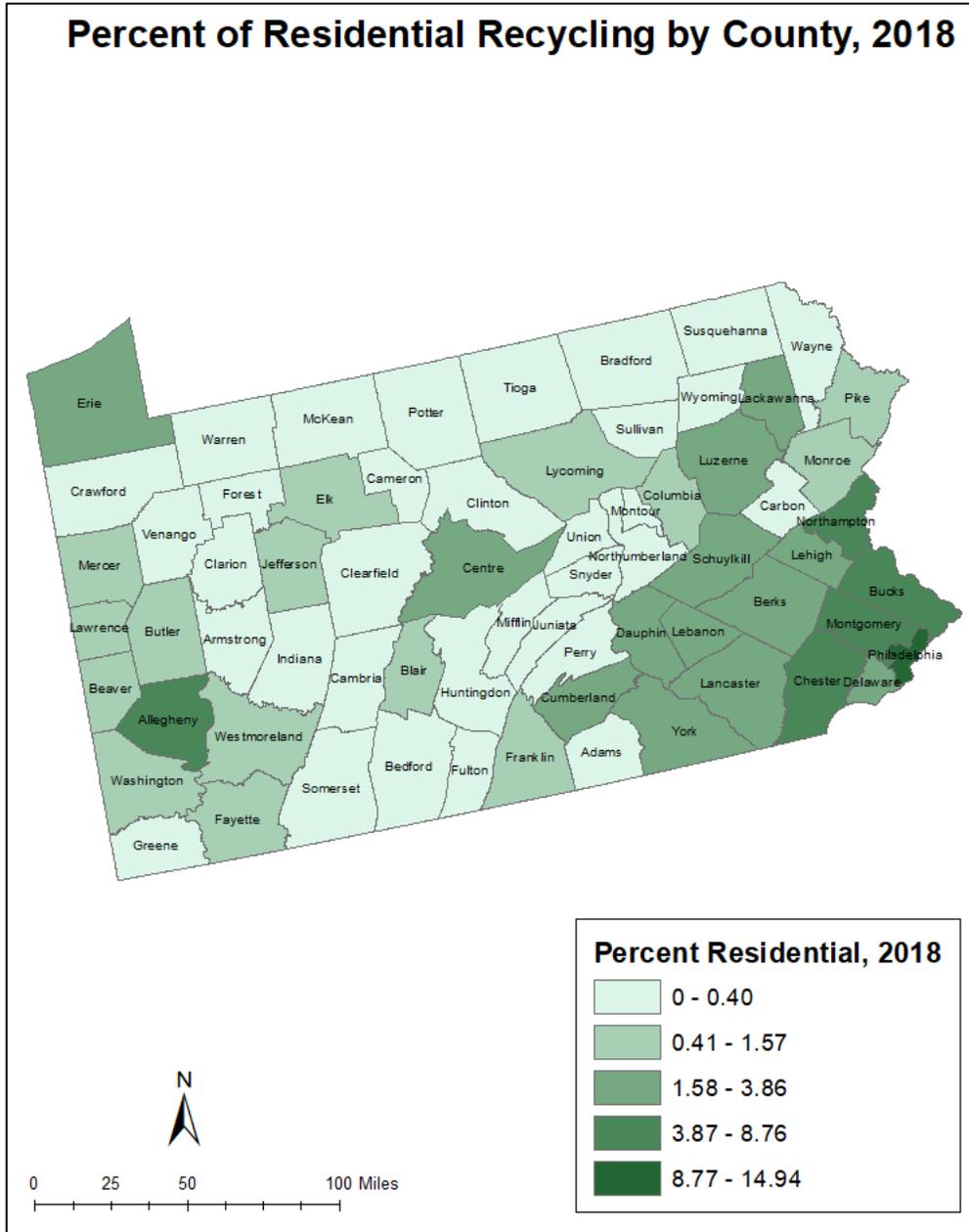
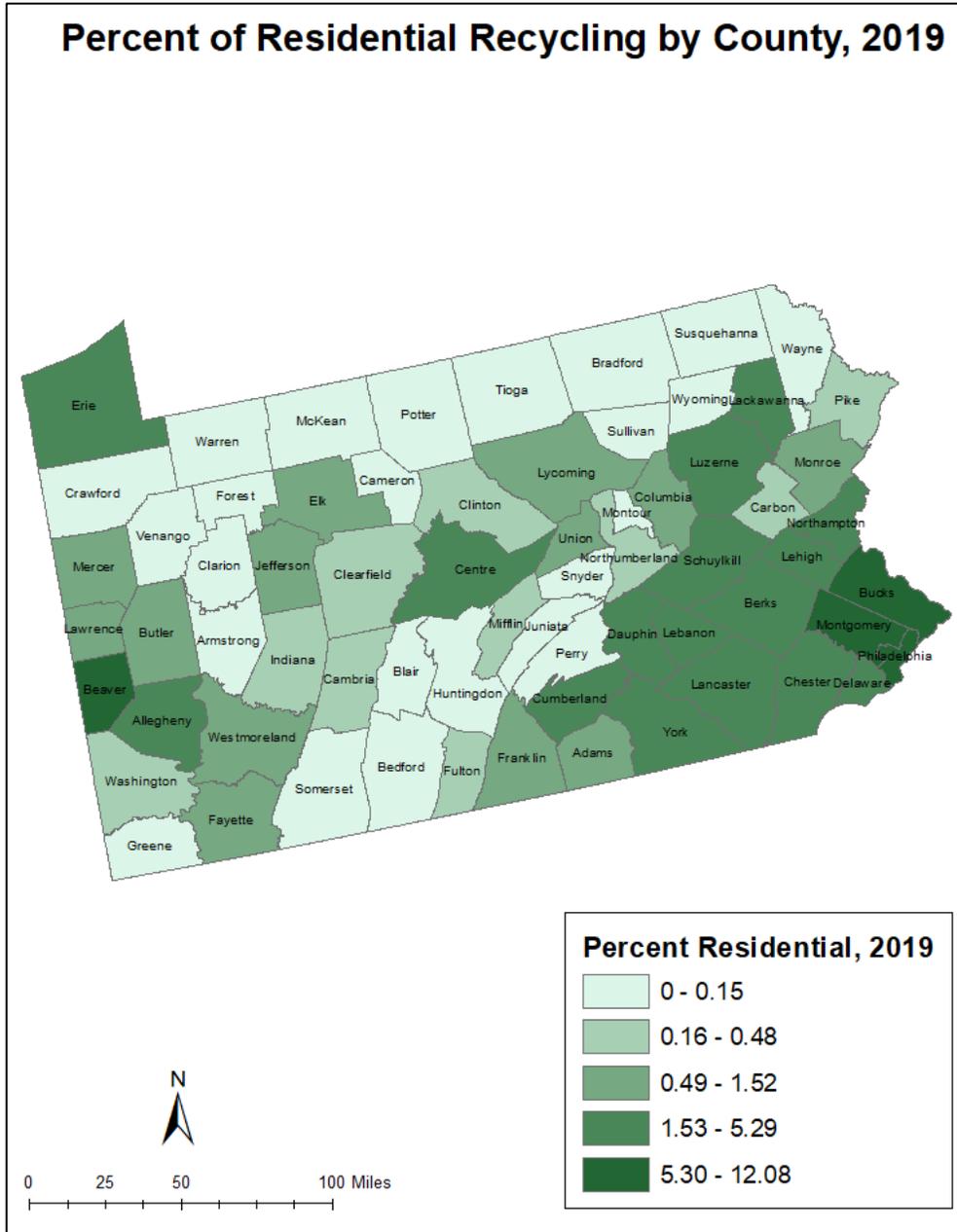


Figure 10: Percent of Residential Recyclables by County, 2019



Appendix 10: County Trends in Demographics

Figure 1: Total Population by County, 2014-18

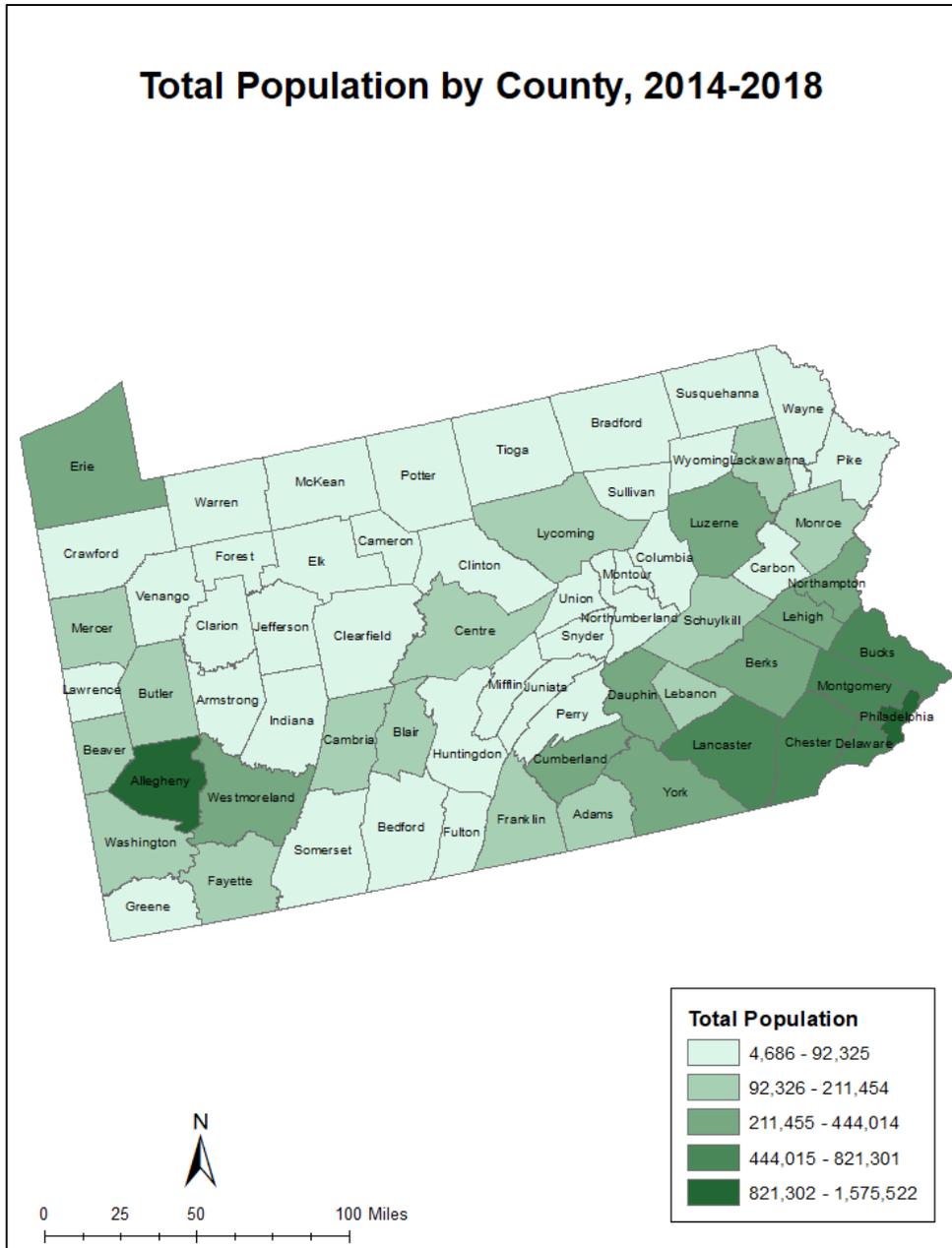


Figure 2: Percent of Population Age 18 and Over, 2014-18

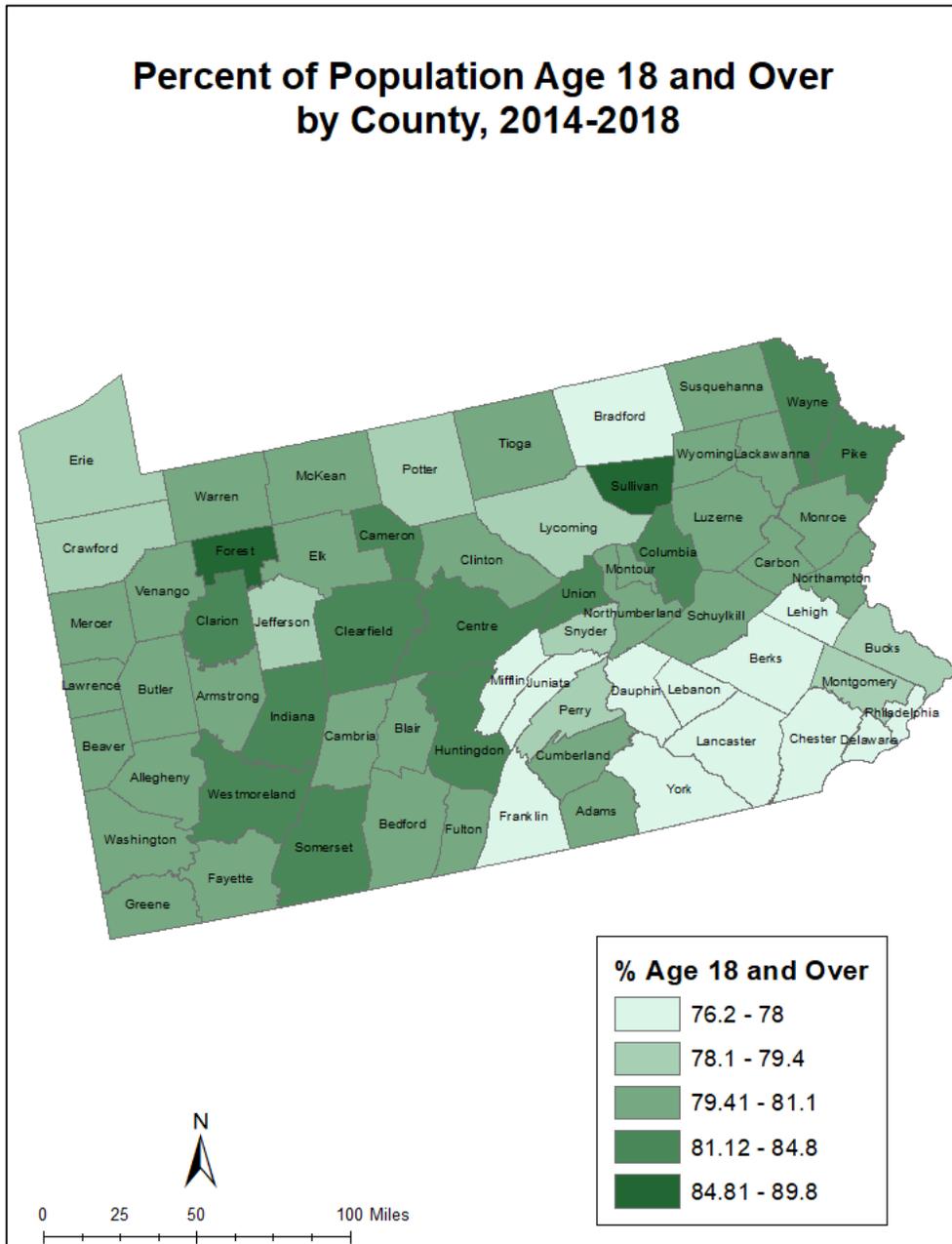


Figure 3: Percent of Population Age 65 and Over, 2014-18

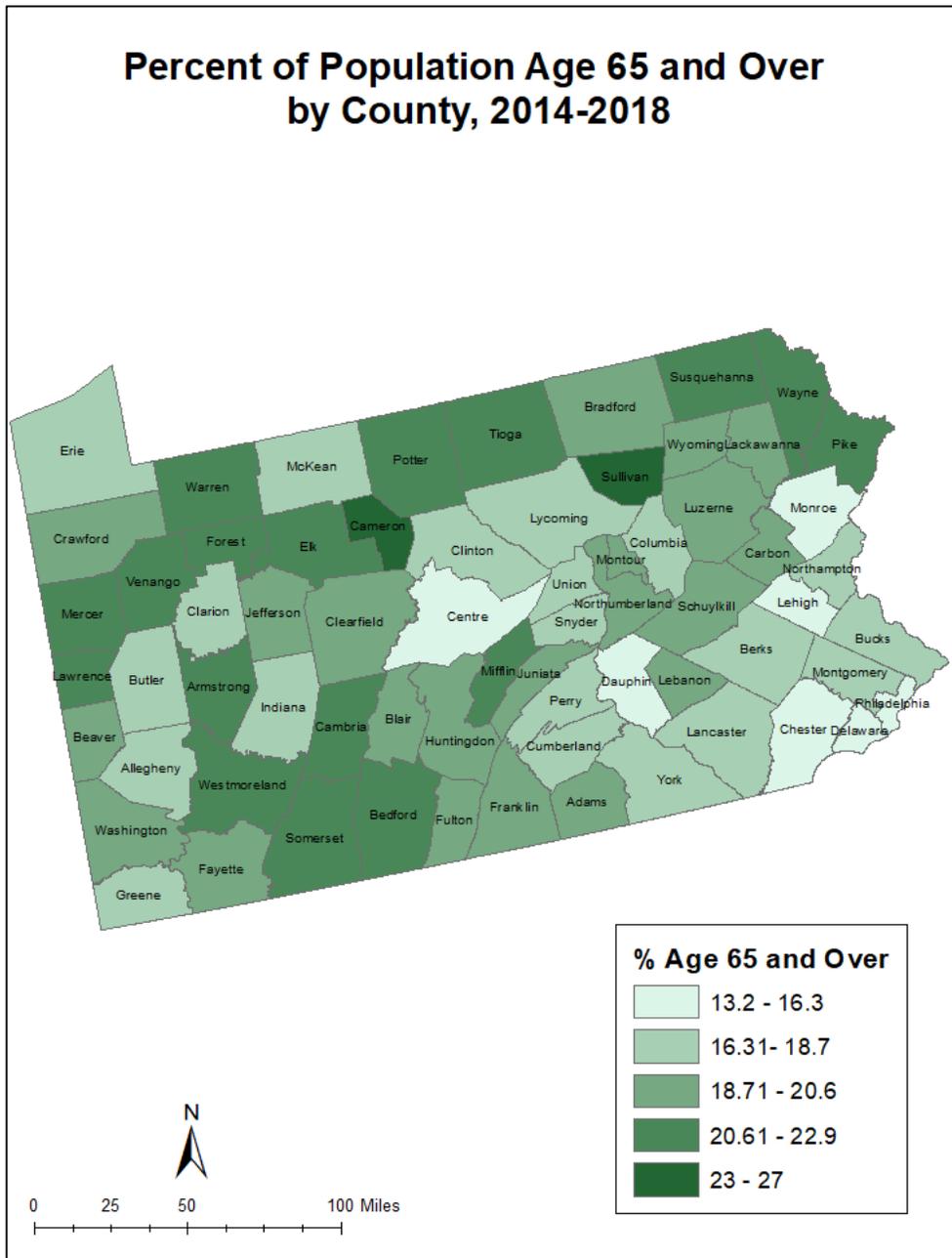


Figure 4: Median Age of Population, 2014-18

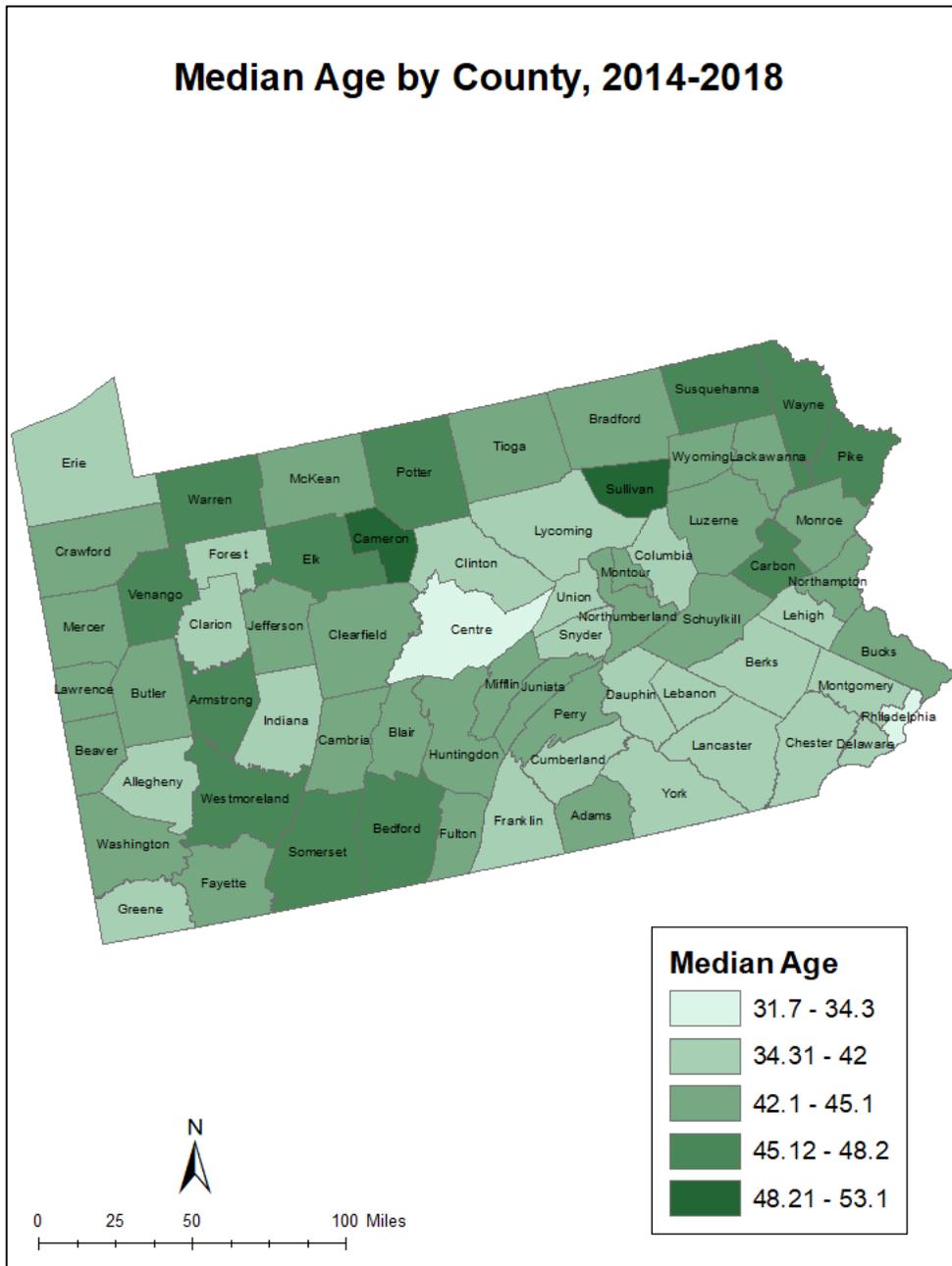


Figure 5: Total Housing Units by County, 2014-18

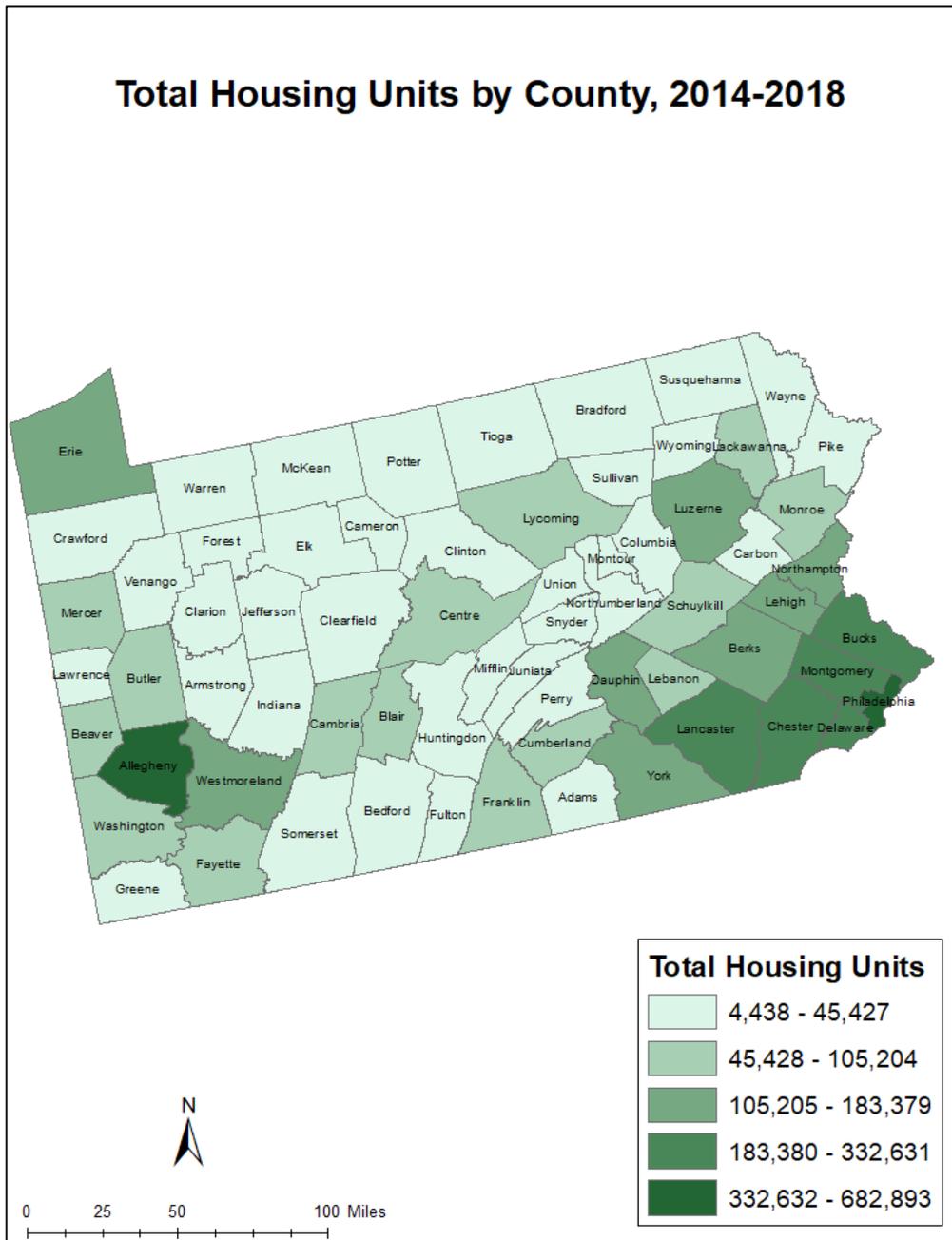


Figure 6: Percent of Total Occupied Housing Units, 2014-18

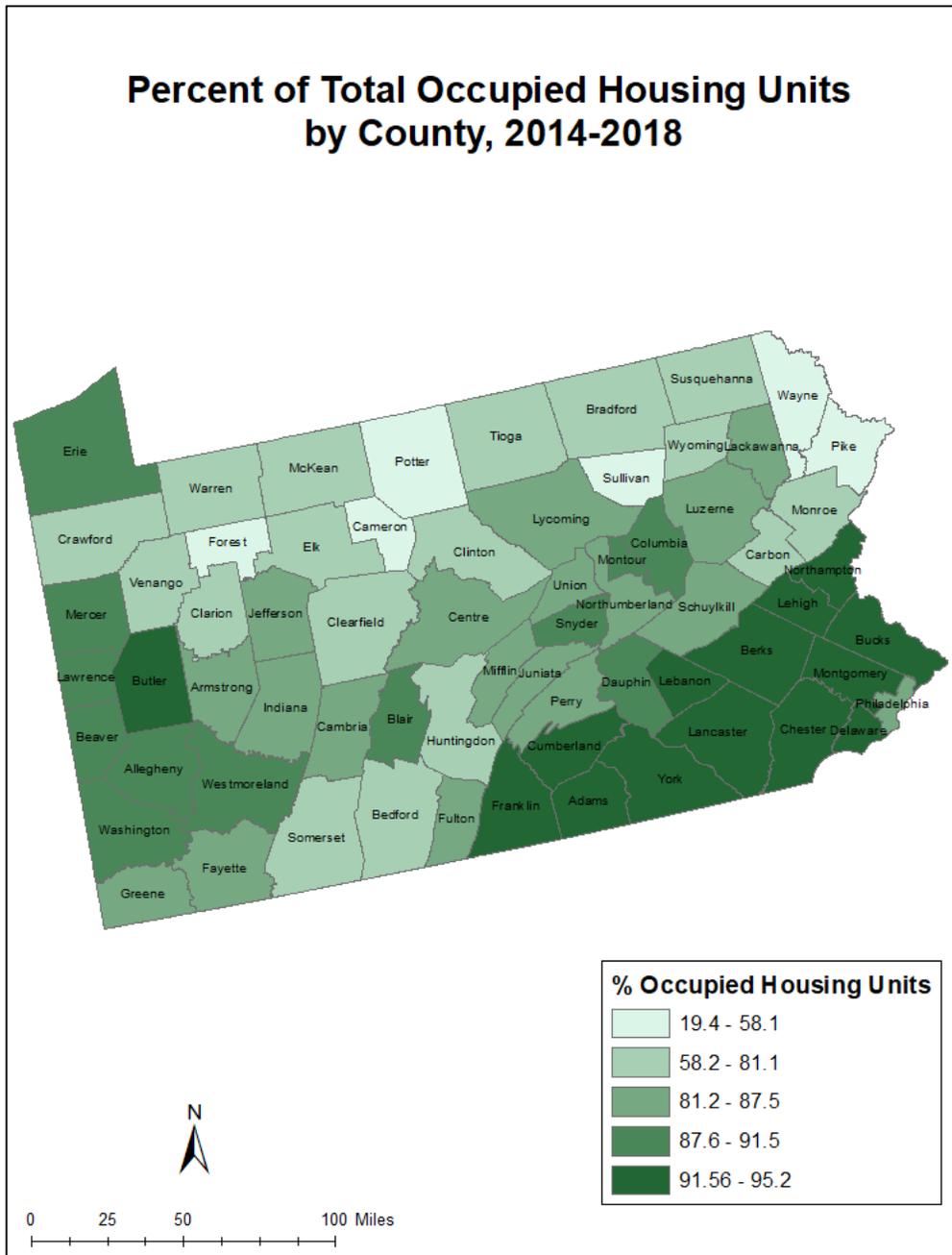


Figure 7: Percent of Occupied Housing Units with No Vehicles Available, 2014-18

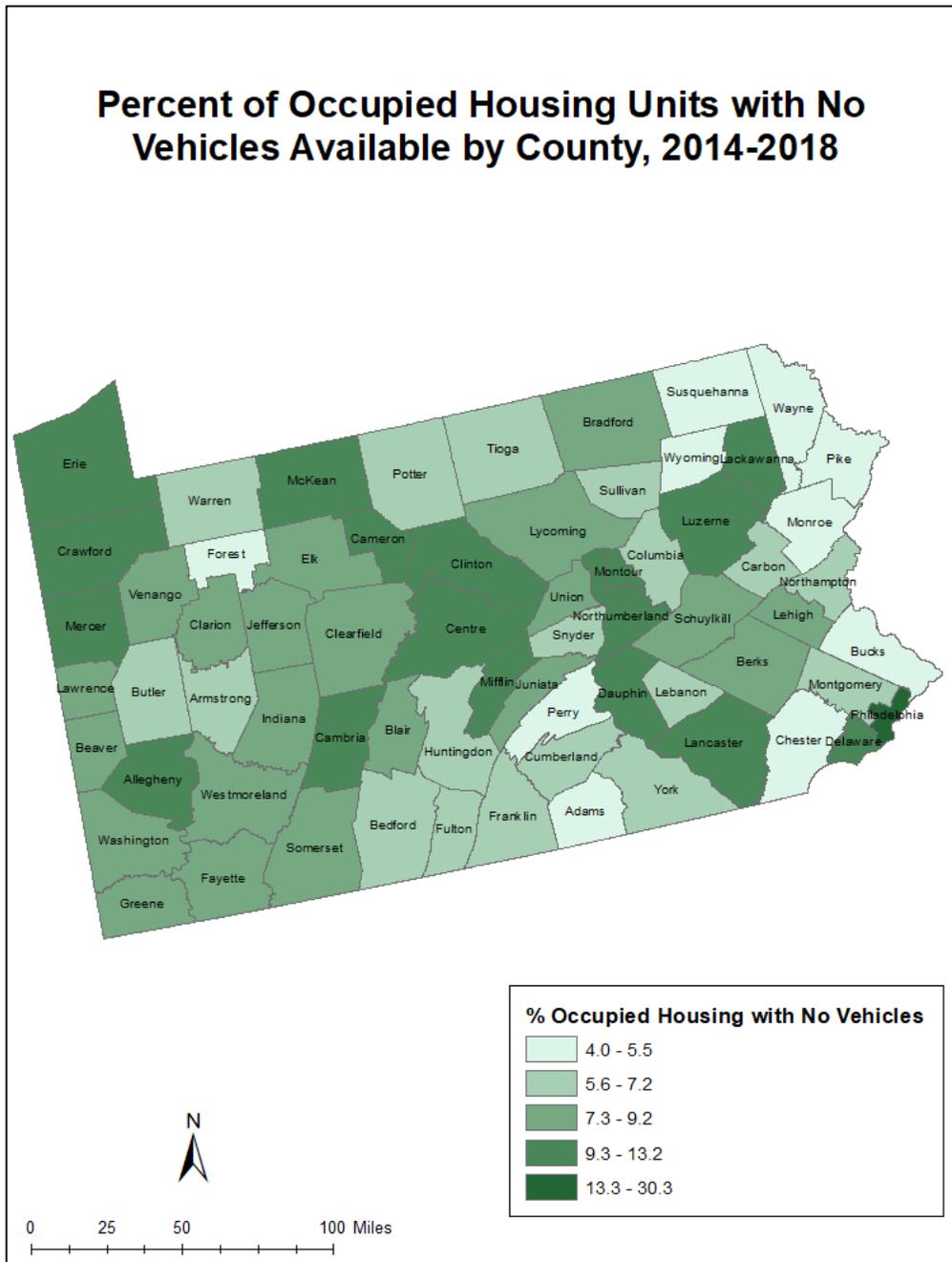


Figure 9: Percent of Families Whose Income in the Past 12 Months is Below Poverty Level, 2014-18

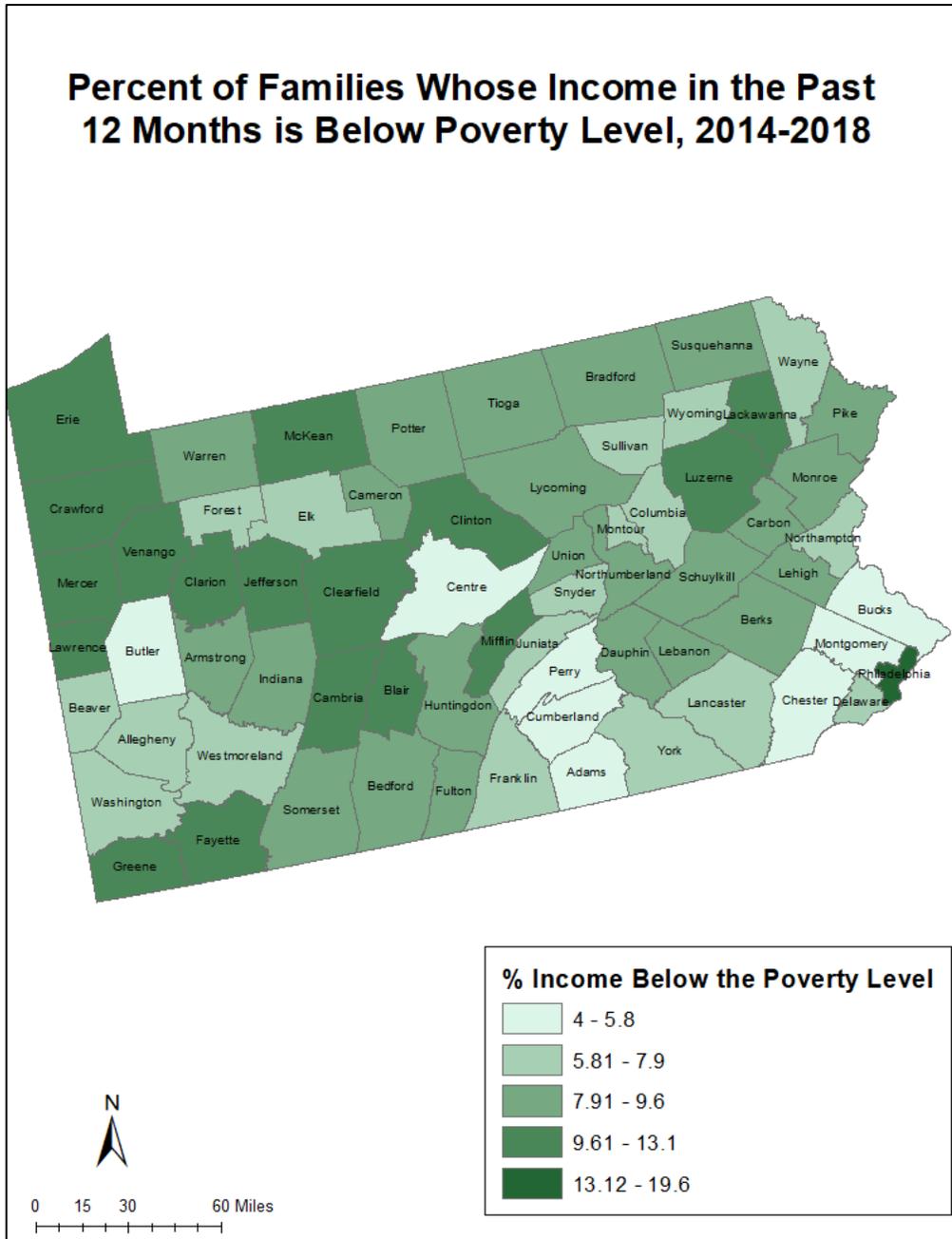


Figure 10: Percent of People in Families Whose Income in the Past 12 Months is Below Poverty Level, 2014-18

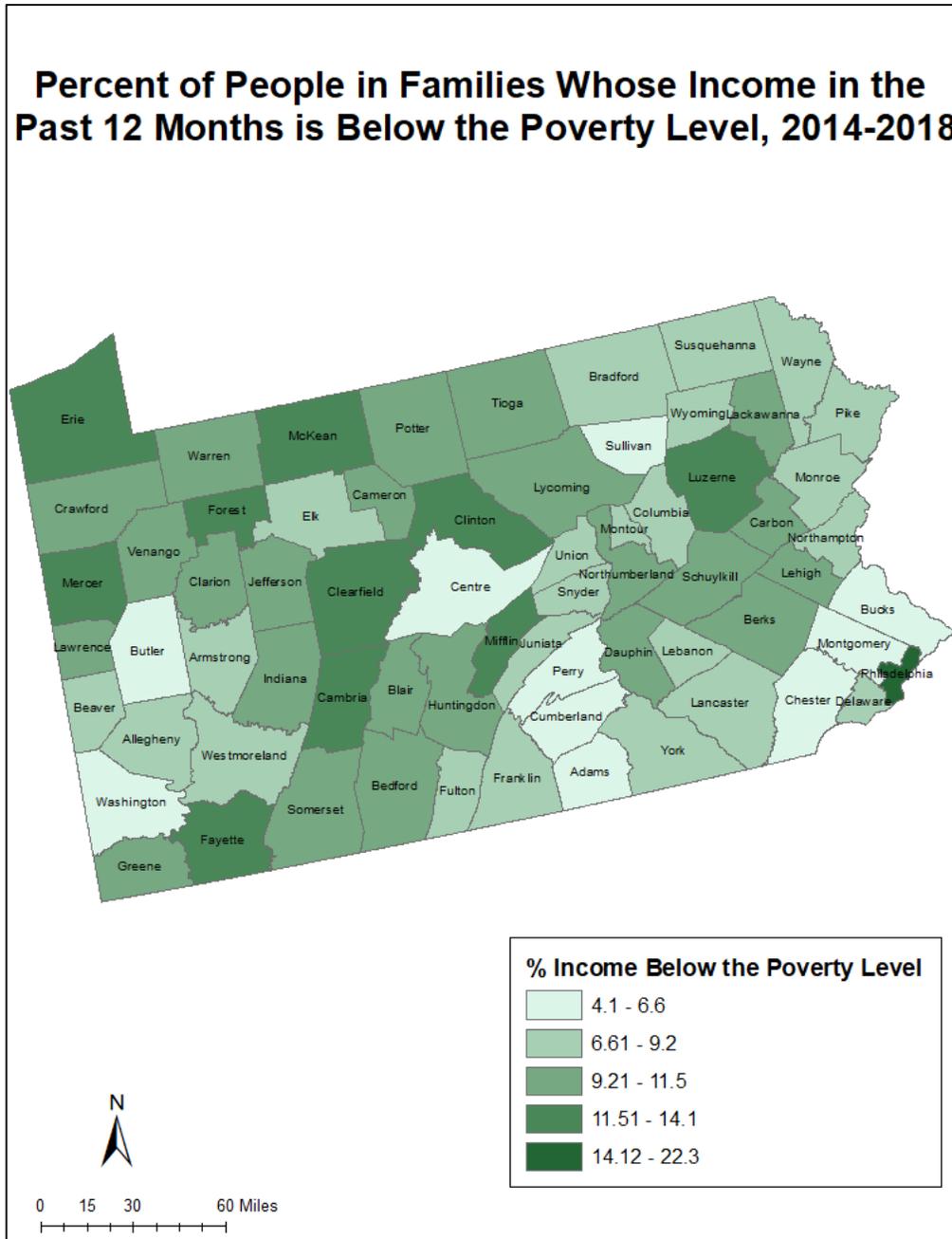


Figure 11: Percent of People Age 18 and Over Whose Income in the Past 12 Months is Below Poverty Level, 2014-18

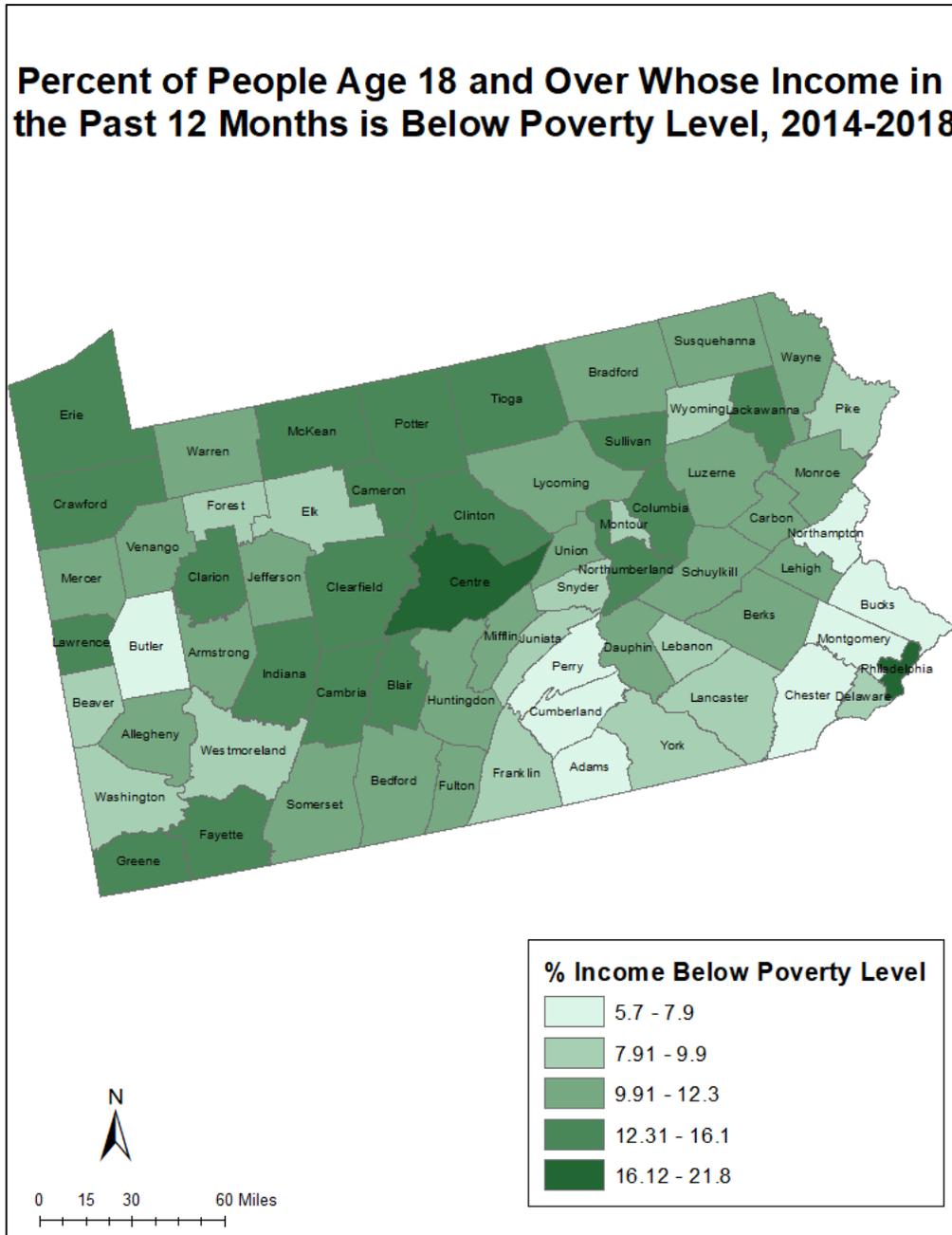


Figure 12: Percent of Population Age 16 and Over in Labor Force, 2014-18

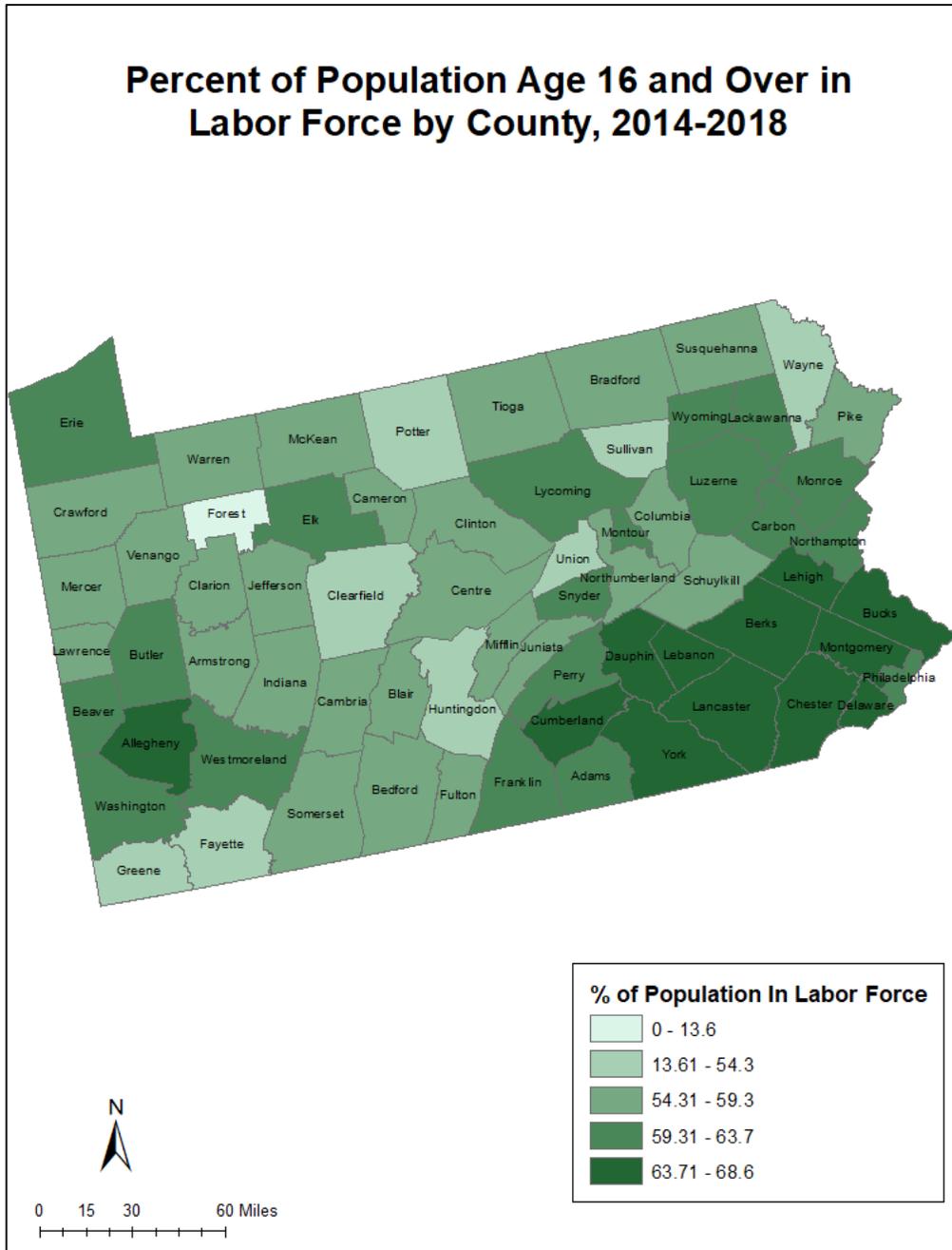


Figure 13: Civilian Labor Force Unemployment Rate, 2014-18

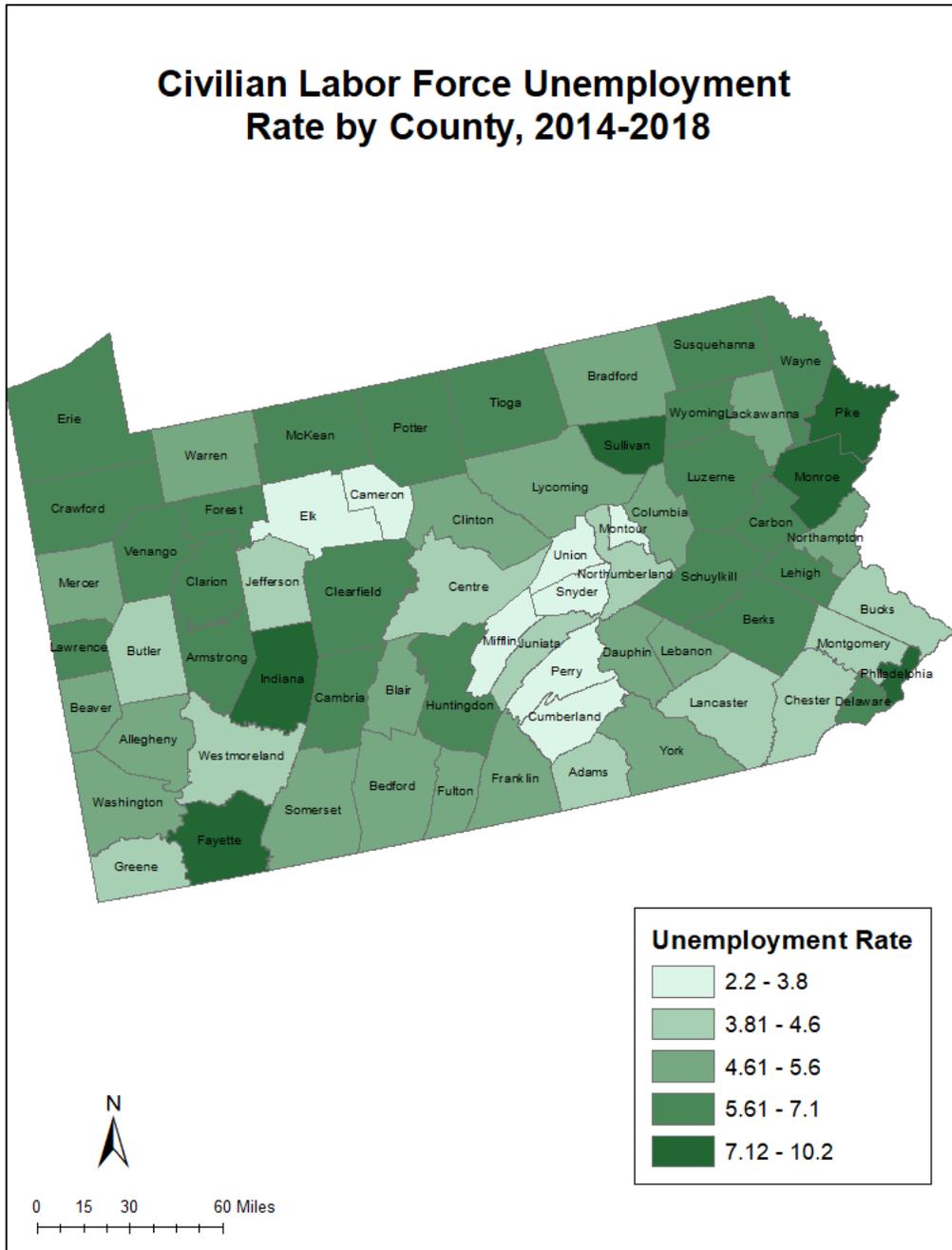


Figure 14: Total Number of Households by County, 2014-18

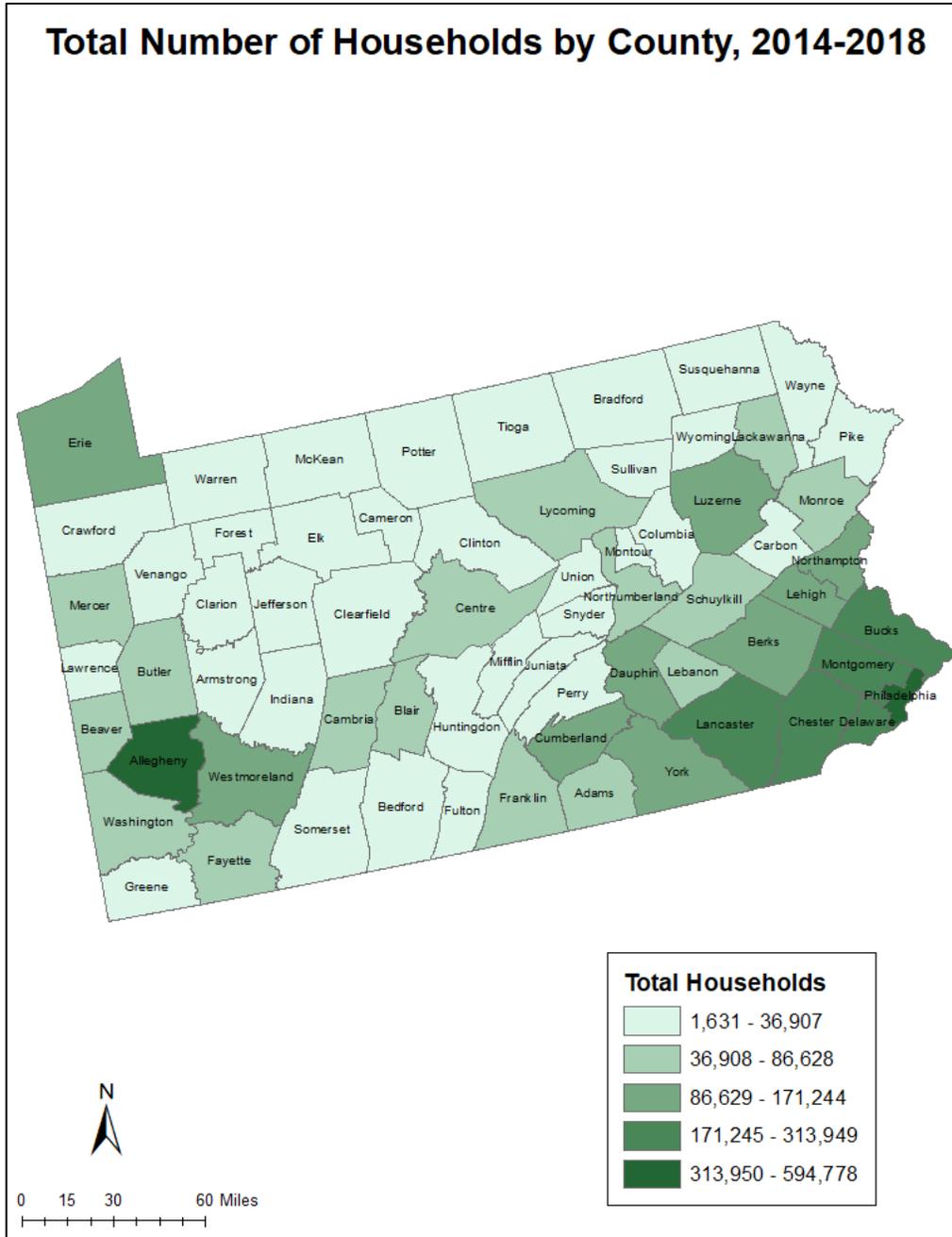


Figure 15: Percent of Family Households by County, 2014-18

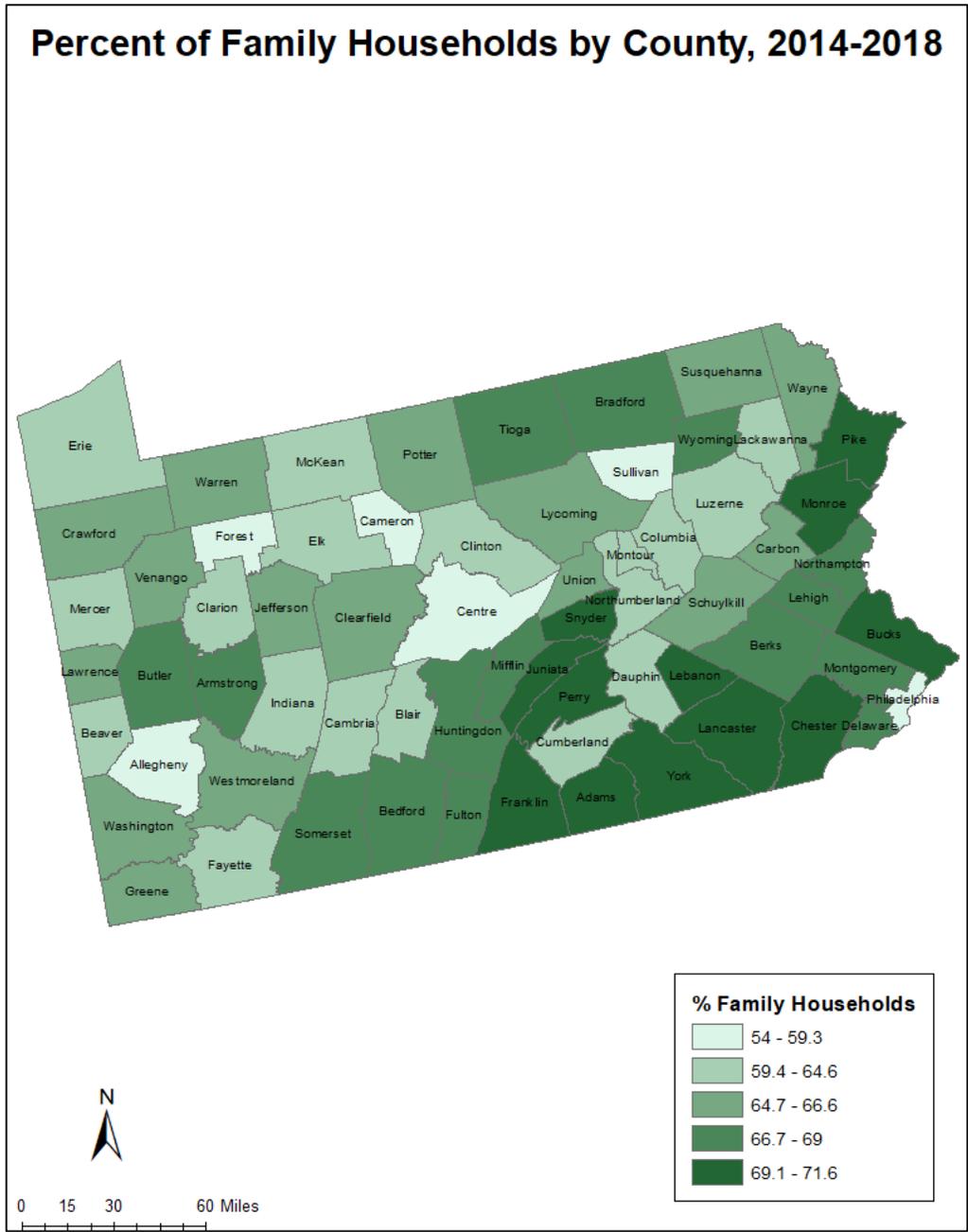


Figure 16: Percent of Family Households: Married Couple Family with Own Children of Householder Under Age 18, 2014-18

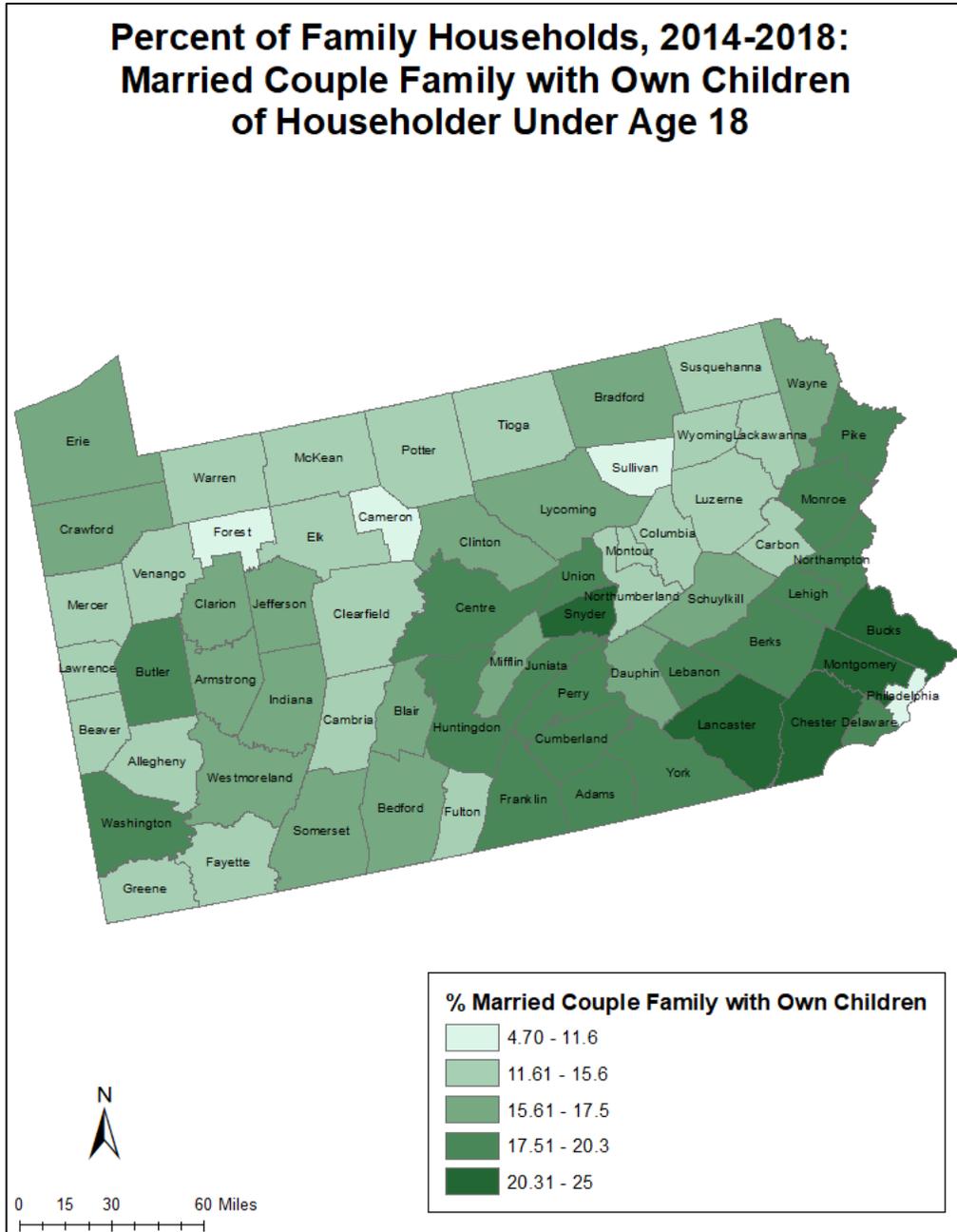


Figure 17: Percent of Population 25 Years and Over that is a High School Graduate (or Equivalent) or Higher, 2014-18

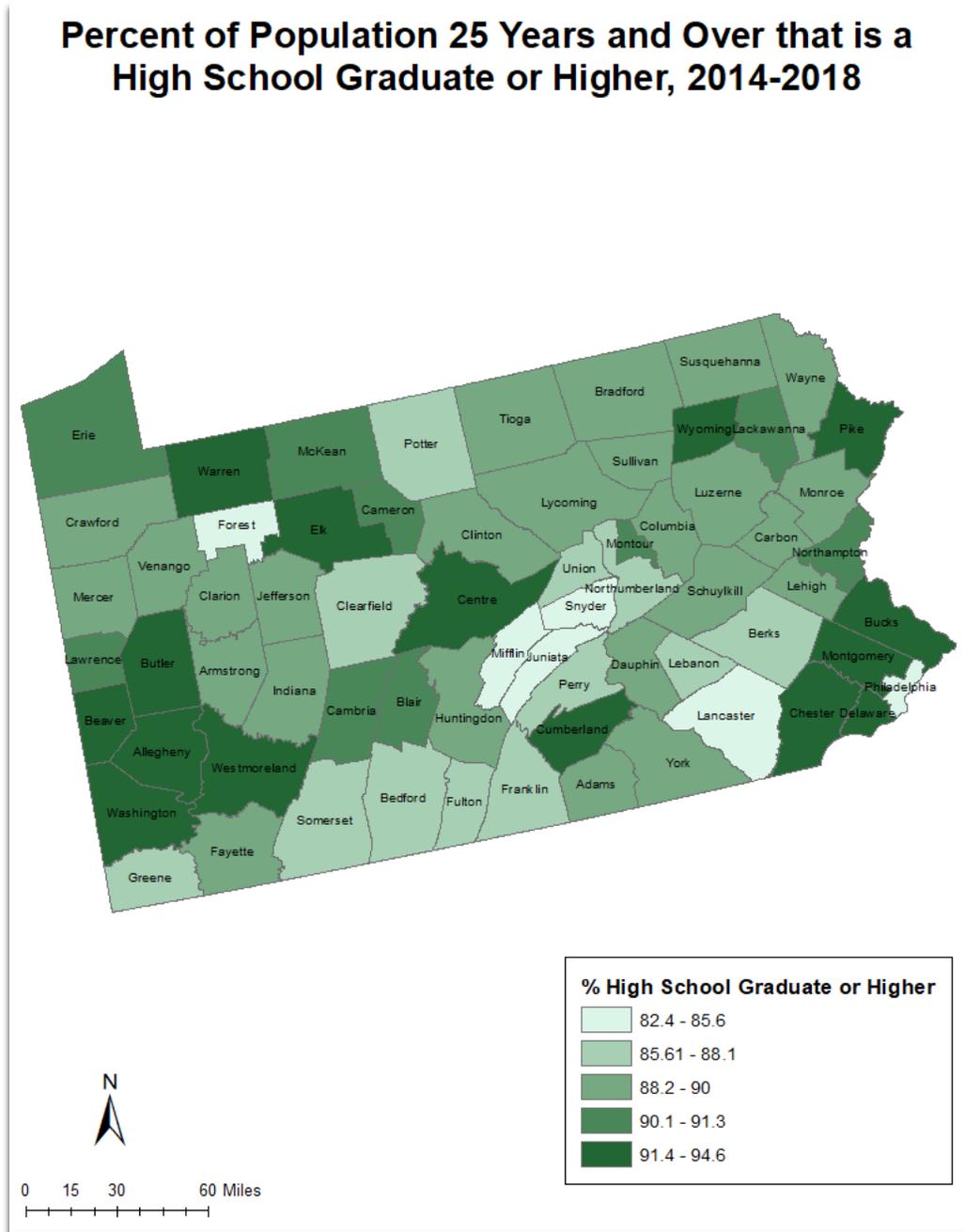


Figure 18: Percent of Population 25 Years and Over Holding a Bachelor's Degree or Higher, 2014-18

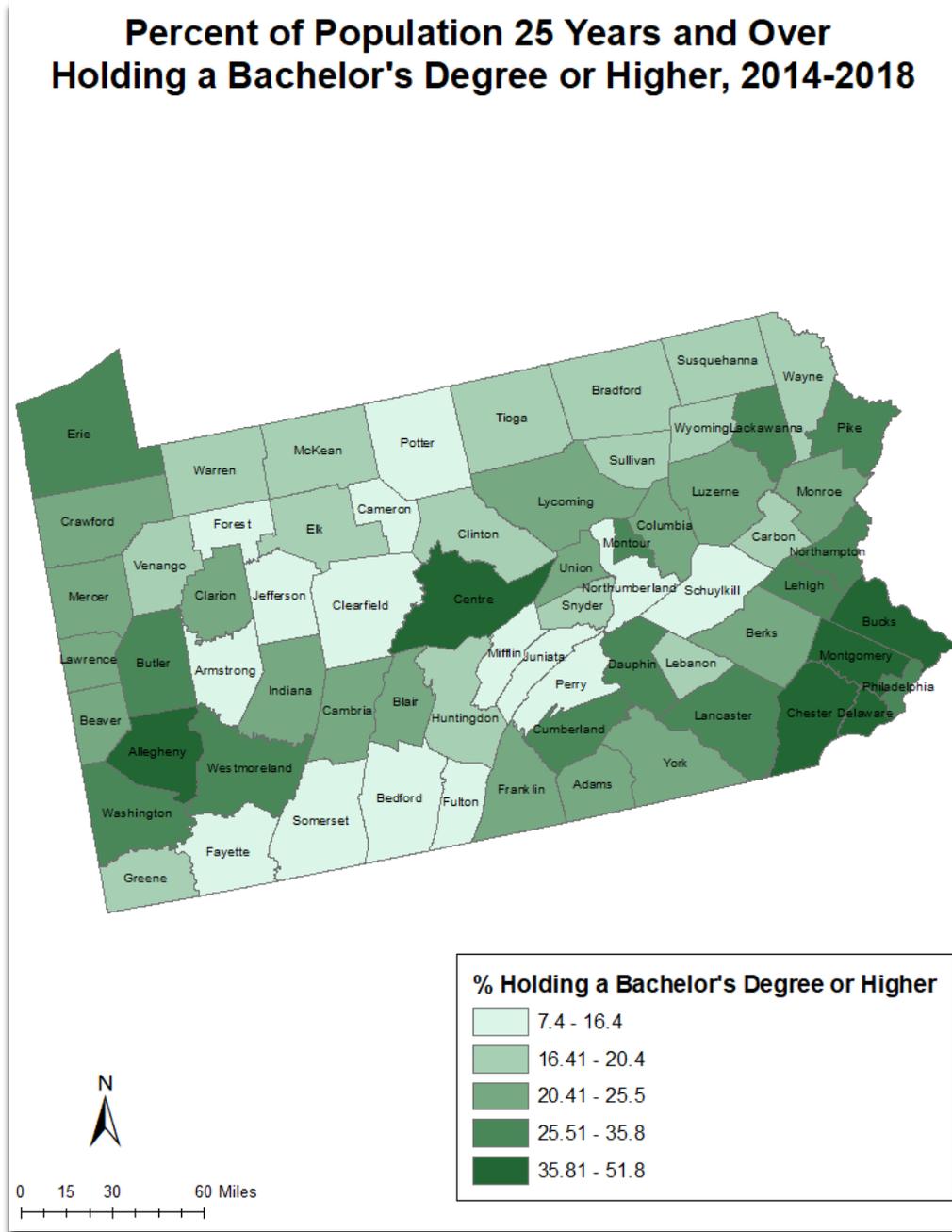


Figure 19: Percent of Total Households with a Computer, 2014-18

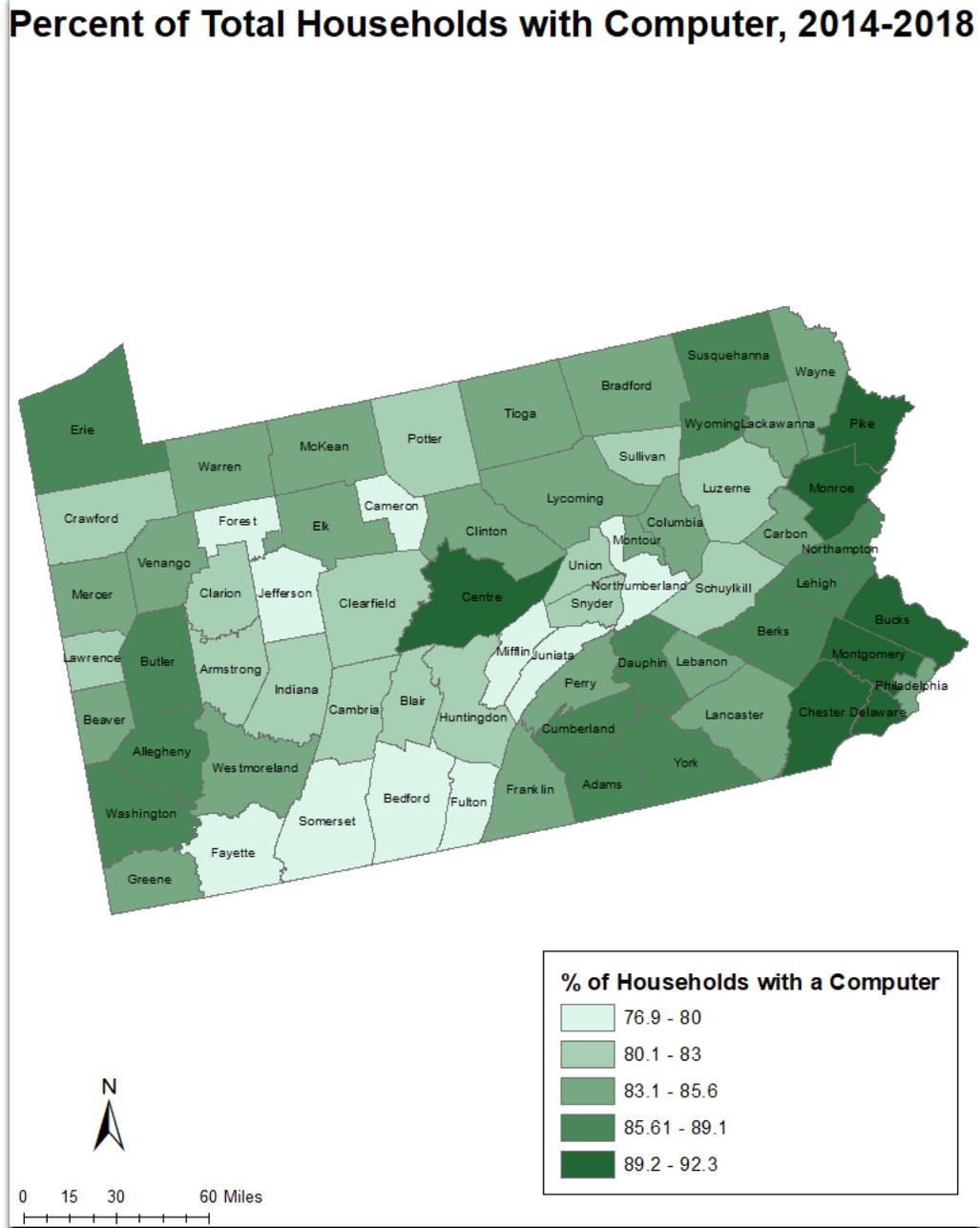
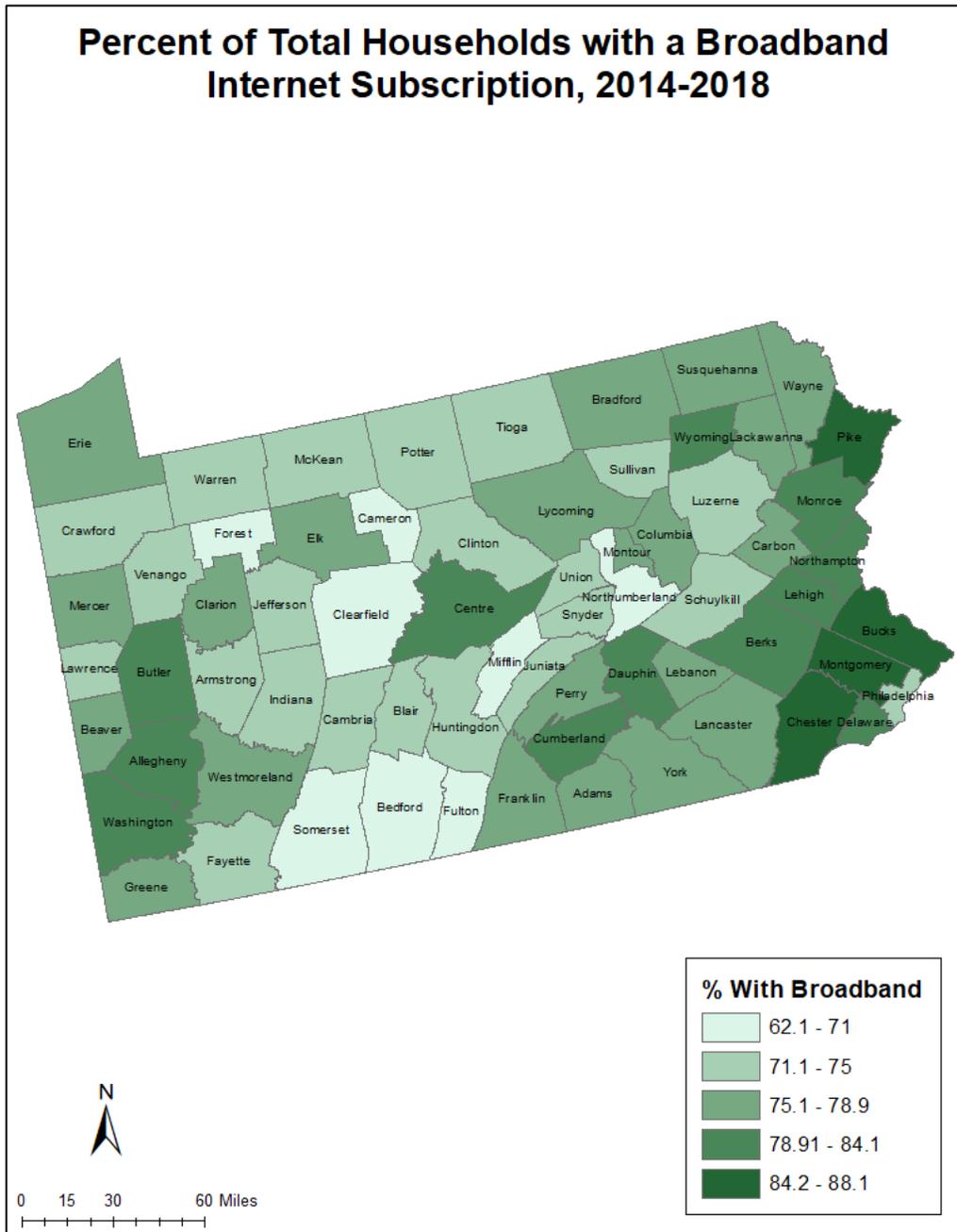


Figure 20: Percent of Total Households with a Broadband Internet Subscription, 2014-18



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