Butler County
RECYCLING & SOLID WASTE

SOLID WASTE PLAN UPDATE

January 2024

PLANNING PERIOD
2025 - 2040

Prepared by: GT ENVIRONMENTAL

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Table i-1. Solid Waste Management District Information

SWMD Name	**Butler County Solid Waste Management District**
Member Counties	Butler County
Coordinator's Name (main contact)	Anne Fiehrer Flaig
Job Title	Executive Director
Street Address	130 High Street, 5th Floor
City, State, Zip Code	Hamilton, Ohio 45011
Phone	513-887-3963
E-mail address	anne.fiehrerflaig@bcohio.us
Webpage	https://www.recycle.bcohio.us

Table i-2. Members of the Policy Committee/Board of Trustees

Member Name	Representing
Butler County	
Judi Boyko	County Commissioners
Ben Mann	Public Interest
Jeff Kolb	Township Trustee
Steven Schulte	Health Department
James Williams	Municipal (City of Hamilton)
Louise Jewett	Butler County Citizens
Matt Pfirman	Industrial/Commercial/ Institutional

Table i-3. Chairperson of the Policy Committee or Board of Trustees

Name	James Williams
Street Address	2210 S. Erie Blvd
City, State, Zip Code	Hamilton, Ohio, 45011
Phone	513-785-7056
E-mail address	James.williams@hamilton-oh.gov

Table i-4. Board of County Commissioners/Board of Directors

Commissioner Name	County
Cindy Carpenter	Butler
Donald L. Dixon	
T.C. Rogers	

Technical Advisory Committee

The District did not establish a technical advisory committee (TAC) for the preparation of this *Plan Update.*

CHAPTER 1. INTRODUCTION

A. Brief Introduction to Solid Waste Planning in Ohio

In 1988, Ohio faced a combination of solid waste management problems, including rapidly declining disposal capacity at existing landfills, increasing quantities of waste being generated and disposed, environmental problems at many existing solid waste disposal facilities, and increasing quantities of waste being imported into Ohio from other states. These issues combined with Ohio's outdated and incomplete solid waste regulations caused Ohio's General Assembly to pass House Bill (H.B.) 592. H.B. 592 dramatically revised Ohio's solid waste regulatory program and established a comprehensive solid waste planning process.

There are three overriding purposes of this planning process: to reduce the amount of waste Ohioans generate and dispose of; to ensure that Ohio has adequate capacity at landfills to dispose of its waste; and to reduce Ohio's reliance on landfills.

B. Requirements of County and Joint Solid Waste Management Districts

1. Structure

Because of H.B. 592, each of the 88 counties in Ohio must be a member of a solid waste management district (SWMD). A SWMD is formed by county commissioners. A board of county commissioners has the option of forming a single county SWMD or joining with the board(s) of county commissioners from one or more other counties to form a multi county SWMD. Ohio currently has 52 SWMDs. Of these, 37 are single county SWMDs and 15 are multi county SWMDs.[1]

A SWMD is governed by two bodies. The first is the board of directors which consists of the county commissioners from all counties in the SWMD. The second is a policy committee. The policy committee is responsible for developing a solid waste management plan for the SWMD. The board of directors is responsible for implementing the policy committee's solid waste management plan.[2] Policy committees prepare/monitor plans and create details and authorities to spend toward implementation, while the Board carries out the day-to-day implementation.

[1]Counties have the option of forming either a SWMD or a regional solid waste management authority (Authority). The majority of planning districts in Ohio are SWMDs, and Ohio EPA generally uses "solid waste management district", or "SWMD", to refer to both SWMDs and Authorities.

[2]In the case of an Authority, it is a board of trustees that prepares, adopts, and submits the solid waste management plan. Whereas a SWMD has two governing bodies, a policy committee and board of directors, an Authority has one governing body, the board of trustees. The board of trustees performs all of the duties of a SWMD's board of directors and policy committee.

2. Solid Waste Management Plan

In its solid waste management plan, the policy committee must, among other things, demonstrate that the SWMD will have access to at least 10 years of landfill capacity to manage all of the SWMD's solid wastes that will be disposed. The solid waste management plan must also show how the SWMD will meet the waste reduction and recycling goals established in Ohio's state solid waste management plan and present a budget for implementing the solid waste management plan.

Solid waste management plans must contain the information and data prescribed in Ohio Revised Code (ORC) 3734.53, Ohio Administrative Code (OAC) Rule 3745-27-90. Ohio EPA prescribes the format that details the information that is provided and the manner in which that information is presented. This format is very similar in concept to a permit application for a solid waste landfill.

The policy committee begins by preparing a draft of the solid waste management plan. After completing the draft version, the policy committee submits the draft to Ohio EPA. Ohio EPA reviews the draft and provides the policy committee with comments. After revising the draft to address Ohio EPA's comments, the policy committee makes the plan available to the public for comment, holds a public hearing, and revises the plan as necessary to address the public's comments.

Next, the policy committee ratifies the plan. Ratification is the process that the policy committee must follow to give the SWMD's communities the opportunity to approve or reject the draft plan. Once the plan is ratified, the policy committee submits the ratified plan to Ohio EPA for review and approval or disapproval. From start to finish, preparing a solid waste management plan can take up to 33 months.

The policy committee is required to submit periodic updates to its solid waste management plan to Ohio EPA. How often the policy committee must update its plan depends upon the number of years in the planning period. For an approved plan that covers a planning period of between 10 and 14 years, the policy committee must submit a revised plan to Ohio EPA within three years of the date the plan was approved. For an approved plan that covers a planning period of 15 or more years, the policy committee must submit a revised plan to Ohio EPA within five years of the date the plan was approved.

C. District Overview

The Butler County Recycling and Solid Waste District, a division of Butler County Water and Sewer Department, was formed on March 23, 1989. The District

operates from one centralized location in the city of Hamilton, Ohio. It is a single county district that relies on neighboring districts for landfill, transfer facility, and recycling processing infrastructure. The District operates in an open market system, which means customers have a choice of any waste hauler because the system is open to competition.

Butler County's SWMD has as its mission to provide opportunities for residents to recycle and to learn best practices for waste reduction. Butler County consists of large rural areas with lower population density, former manufacturing centers such as Hamilton and Middletown, and large urbanized townships such as West Chester and Liberty townships. About two-thirds of the county is rural, while developed land comprises the remaining third. In 2021, the largest population body was Hamilton, with nearly 63,000 residents. The total population of the District in 2021 was 391,496. Butler County has multiple densely populated cities; however, the overall rural setting of the District influences the opportunities and barriers for the District's waste and recycling programs. Approximately 45% of the District's population live in townships.

The District's role is to administer the programs in the solid waste management plan. These programs reduce reliance on landfills through diversion. Equally important is ensuring the landfills used will have adequate capacity for the waste that does not get diverted. There is competition in the region with waste directed to multiple landfills within neighboring Ohio counties, as well as to landfills in Kentucky and Indiana. This competition also is a factor for low landfill tip fees, which add to the economic challenge of recycling. The majority of the District's waste is disposed at Rumpke Sanitary landfill in neighboring Hamilton County.

The District offers numerous recycling programs designed to assist and educate the residential, commercial, and industrial sectors in diverting solid waste from the landfill. The District continues to work towards being a key resource for disposal and recycling information for its residents and commercial businesses.

The District attempts to work in the most cost conscious manner for residents. In 2014 the District passed legislation to reduce the solid waste generation fee from $1.00 per ton to $0.82 per ton in 2015. With rising costs and inflation, the District raised the generation fee back to $1.00 per ton in 2020.

One of the District's strongest programs is its promotion of curbside recycling collection. The District promotes recycling to all 13 townships with a combination of non-subscription and subscription curbside recycling. Residential recycling collection results in 20% of total material diverted in Butler County. In addition, the District offers 26 drop-off recycling locations contracted by Rumpke. However, this program has seen a decline in the number of sites over the years due to illegal dumping and high rates of contamination.

The District provided education and outreach programs with a focus on reaching underserved population demographics. In 2021 the District developed education/outreach materials in Spanish to better reach the growing Hispanic population in Butler County. COVID-19 limited the District's ability to reach the local schools, however, in the second half of 2021 the District was able to resume education/outreach programs with this sector as restrictions lifted.

D. Waste Reduction and Recycling Goals

As explained earlier, a SWMD must achieve goals established in the state solid waste management plan. The current state solid waste management plan is the *2020 Solid Waste Management Plan* (2020 State Plan), which established ten goals as follows:

1. The SWMD shall provide its residents and commercial businesses with access to opportunities to recycle solid waste. At a minimum, the SWMD must provide access to recycling opportunities to 80% of its residential population in each county and ensure that commercial generators have access to adequate recycling opportunities.

2. The SWMD shall reduce and recycle at least 25% of the solid waste generated by the residential/commercial sector.

3. The SWMD shall provide the following required elements: a website; a comprehensive resource guide; an inventory of available infrastructure; and a speaker or presenter.

4. The SWMD shall provide education, outreach, marketing and technical assistance regarding reduction, recycling, composting, reuse and other alternative waste management methods to identified target audiences using best practices.

5. The SWMD shall incorporate a strategic initiative for the industrial sector into its solid waste management plan.

6. The SWMD shall provide strategies for managing scrap tires, yard waste, lead-acid batteries, household hazardous waste and obsolete/end-of-life electronic devices.

7. The SWMD shall explore how to incorporate economic incentives into source reduction and recycling programs.

8. The SWMD will use U.S. EPA's Waste Reduction Model (WARM) or an equivalent model to evaluate the impact of recycling programs on reducing greenhouse gas emissions.

9. The SWMD has the option of providing programs to develop markets for recyclable materials and the use of recycled-content materials.

10. The SWMD shall report annually to Ohio EPA regarding implementation of the SWMD's solid waste management plan.

SWMDs are encouraged but not required to demonstrate it will achieve both Goal 1 and Goal 2. Instead, SWMDs have the option of meeting either Goal 1 or Goal 2 for their solid waste management plans. This affords SWMDs with two methods of demonstrating compliance with the State's solid waste reduction and recycling goals. Many of the programs and services that a SWMD uses to achieve Goal 1 help the SWMD make progress toward achieving Goal 2 and vice versa.

A SWMD's solid waste management plan will provide programs to meet up to eight of the goals. Goal 9 (market development) is an optional goal. Goal 10 requires submitting annual reports to Ohio EPA, providing evidence the approved Solid Waste Plan is implemented each year.

See Chapter 5 and Appendix I for descriptions of the programs the District will use to achieve the ten goals.

CHAPTER 2. District Profile

Purpose of Chapter 2 (Content in this box is authored by Ohio EPA)
This chapter provides context for the SWMD's solid waste management plan by providing an overview of general characteristics of the SWMD. Characteristics discussed in this chapter include:

- The communities and political jurisdictions within the SWMD;
- The SWMD's population in the reference year and throughout the planning period;
- The available infrastructure for managing waste and recyclable materials within the SWMD;
- The commercial businesses and institutional entities located within the SWMD;
- The industrial businesses located within the SWMD; and
- Any other characteristics that are unique to the SWMD and affect waste management within the SWMD or provide challenges to the SWMD.

Understanding these characteristics helps the policy committee make decisions about the types of programs that will most effectively address the needs of residents, businesses, and other waste generators within the SWMD's jurisdiction.

Population distribution, density, and change affect the types of recycling opportunities that make sense for a particular community and for the SWMD as a whole.

The make-up of the commercial and industrial sectors within the SWMD influences the types of wastes generated and the types of programs the SWMD provides to assist those sectors with their recycling and waste reduction efforts.

Unique circumstances, such as hosting an amusement park, a large university, or a coal burning power plant present challenges, particularly for providing waste reduction and recycling programs.

The policy committee must take into account all of these characteristics when developing its overall waste management strategy.

A. Profile of Political Jurisdictions

1. Counties in the Solid Waste Management District

The District is a single county District located in Butler County. Geographically located in southwest Ohio, sharing its western border with Indiana. Butler County encompasses approximately 467 square miles. The Office of Research generally

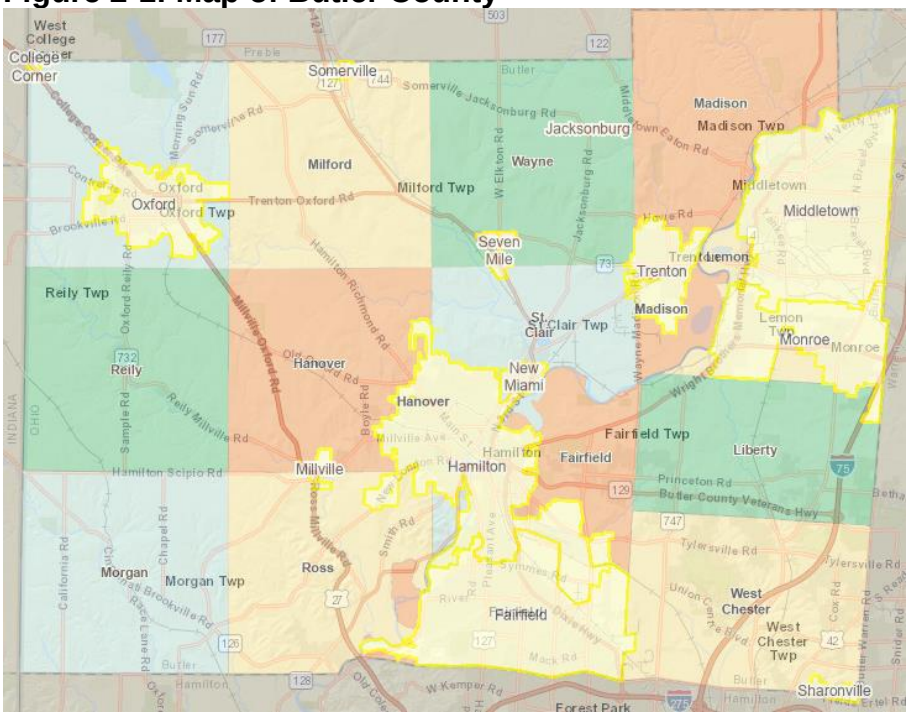
defines the District as predominantly rural [1]. The land use/cover is broken down into the following categories:

- Developed, Low Intensity: 24.8%
- Developed, High Intensity: 7.3%
- Barren: 0.2%
- Forrest: 21.7%
- Shrub/ Grassland: 0.3%
- Pasture/ Hay: 24.1%
- Cropland: 20.3%
- Wetlands: 0.1%
- Open Water: 1.2%

2. County Overview

Southwestern Ohio is one of the top growth areas in the State. In 2021, Butler County was the seventh largest Ohio county by population and is expected to continue to experience growth. The Ohio Department of Development projects 8.85% population growth through 2040. Two major roadways go through Butler County, I-75 to the eastern side of the County and US-129 passes through the center. These transportation thoroughfares give both businesses and residents easy access to the metropolitan centers of nearby Dayton and Cincinnati.

Figure 2-1: Map of Butler County



Source: Butler County Engineer's Office

[1] Ohio County Profiles, Butler County. Office of Research, 2021. https://devresearch.ohio.gov/files/research/C1010.pdf

The majority of Butler County residents live in centralized areas with high population density in the major cities of Hamilton, Fairfield, and Middletown. The western half of the county is predominately rural and less densely populated. Fairfield, Liberty, and West Chester townships are the most densely populated townships and continue to show growth and development. All three townships are located in the southeastern portion of the County and share borders. This area's development is boosted by its geographic position, situated between the three largest cities.

The largest employment sectors of Butler County are trade, transportation and utilities, manufacturing, and education and health services. Together these three sectors comprise 60% of the employment in Butler County.

B. Population

1. Reference Year Population

Ohio law requires that the entire population of a municipality located in more than one solid waste management district be added to the solid waste management district containing the largest portion of the jurisdiction's population. The District has five communities located in more than one solid waste management district. These are Fairfield, Middletown, Monroe, College Corner, and Sharonville. The majority of Fairfield, Middletown and, Monroe reside in Butler County; however, the majority of population for College Corner and Sharonville is outside of Butler County. Adjustments were made to add the portion of Fairfield, Middletown and Monroe located outside of Butler County to Butler County's population. Conversely, College Corner and Sharonville populations were subtracted from Butler County as a majority of their population reside in a different solid waste management district.

Table 2-1 presents the adjusted population, the largest city, and the population of the largest city in the SWMD during the 2021 reference year:

Table 2-1. Population of the District in 2021

County		Largest Political Jurisdiction		
Name	**Population**	**Community Name**	**Population**	**Percent of County Population**
Butler County	391,496	Hamilton City	62,947	16%

Source(s) of information: Ohio Development Services Agency, "2021 Population Estimates by County, City, Village, and Township.".

2. Population Distribution

Butler County has 13 townships, seven municipalities, and five villages. The largest city and county seat is Hamilton. The largest township is West Chester. **Table 2-2** below presents the District's population of its largest communities.

Table 2-2: Population of Largest Communities

Largest Communities	Population	Percent of County Population
Hamilton City	62,947	16%
West Chester Township	62,408	16%
Middletown City	47,178	12%
Fairfield City	44,562	11%
Liberty Township	43,334	11%
Fairfield Township	22,651	6%
Oxford City	22,625	6%
Monroe City	15,328	4%
Trenton City	13,305	3%
Madison Township	8,554	2%

Butler County's population is fairly equally distributed among cities/villages and townships. **Table 2-3** below outlines this distribution. Of the 13 townships, Fairfield, West Chester, and Liberty are growing and urban. The remaining 10 are predominantly rural.

Table 2-3: Population Distribution

County	Percent of Population in Cities	Percent of Population in Villages	Percent of Population in Unincorporated Township
Butler County	54%	1%	45%

3. Population Change

According to the Ohio Department of Development, Butler County has been growing for decades. Since 2000, Butler County's population has grown by nearly 60,000 residents. The District's population is expected to continue to grow, reaching 430,000 by 2040.

The majority of the growth occurred in the townships. Major housing development growth began in the early 1980's for Fairfield, West Chester, and Liberty Townships with improvements to utility, sewer, and highway infrastructure. To complement the rapidly growing population, commercial development became a focus of future growth in these townships. Growth slowed after the 2008 housing market crash, then paused with COVID pandemic in 2020, but is picking back up. As recently as April 2021, Butler County approved $2.2 million for projects, demonstrating continued growth and investment in the County. Furthermore, Butler County's cities are expected to continue to grow at a steady rate.

Statewide, Ohio is expected to experience economic growth. From 2018 through 2028, the Department of Job and Family Services[2] expects Ohio to grow by 1.5%. The southwestern region of Ohio, where Butler County is located, is expected to grow faster than the state average with 2.5% projected growth through 2028. This is second only to central Ohio. Butler County's population is projected to grow by 10% from 2020 to 2040 based on Ohio Development Services Agency (ODSA) Planning Research and Strategic Planning Office projected estimates for 2020, 2025, 2030, 2035, and 2040. To determine population estimates between these years, straight-line interpolation was used.

Population projections can gauge future demand for services. As projected by ODSA, population is expected to increase.

4. Implications for Solid Waste Management

The District's population is projected to increase through the planning period, but per capita waste generation is projected to decrease slightly. In 2021, per capita waste generation was 6.93 pounds per person per day. This is projected to drop to 6.63 pounds per person per day in 2039. Population affects waste generation rates but factors of population growth such as income, people per family, and economic activity are also contributing factors. Higher income households typically produce more waste; however, they also tend to participate in recycling activities more often than lower income households. These factors are all simultaneously involved and affect each other, creating a dynamic system.

The District has generated between 424,000 tons and 495,000 tons of waste historically over the last five years. The District experienced a large increase to 495,000 in the reference year. Prior to this, the range was between 424,000 and 448,000. Population increases are not expected to cause significant increases in waste generation; however, the population will continue to have growing recycling needs.

C. Profile of Commercial and Institutional Sector

The District includes nearly 6,296 total commercial and institutional entities. The total number of establishments within each primary category in the North American Industry Classification System (NAICS) is shown in **Table 2-4**. As indicated in the table, retail trade comprises the largest category, with health care and social assistance, accommodation/food service, and other services also having a high number of companies or organizations. ("other services" is essentially a category for types of businesses, etc. not included elsewhere).

[2] Department of Job and Family Services, https://ohiolmi.com/Home/Projections/ProjectionsHome#C1

Table 2-4 Major Commercial/Institutional Sector Employers in District

NAICS Code	NAICS Description	Number of Commercial/Institutional Establishments
42	Wholesale Trade	536
44-45	Retail Trade	1,033
48-49	Transportation and Warehousing	304
51	Information	155
52	Finance and Insurance	391
53	Real Estate and Rental/Leasing	331
54	Professional, Scientific, and Technical	596
55	Management of Companies and Enterprises	80
56	Administrative and Support and Waste Management and Remediation Services	407
61	Educational Services	89
62	Health Care and Social Assistance	788
71	Arts, Entertainment, and Recreation	109
72	Accommodation /Food Service	737
81	Other Services (Except Public Administration)	740
	Total	6,296

Source: U.S. Business Database

With the County's location along a major interstate highway, it is in a prominent position for commercial regional activity. Commercial businesses continue to grow and expand throughout Butler County. The most prominent areas for commercial businesses are the major cities and towns like Hamilton though there are other clusters of concentrated commercial businesses, amusement attractions, entertainment, etc. throughout the county.

D. Profile of Industrial Sector

The following table presents the major industrial sector employers in the District.

Table 2.5-Top Industrial Sector Employers

Company	Employee Size
Cleveland Cliffs (formerly AK Steel)	2,400
Tyson	892
Deceuninck N.A	600
Koch Foods	600
ThyssenKrupp Bilstein	580
Pacific Manufacturing Inc	576

Company	Employee Size
Molson Coors	510
Totes Isotoner	459

E. Other Characteristics

In 2021, West Chester township in the southeastern corner of Butler County is one of the largest townships in Ohio by population. Just north of West Chester is Liberty Township which is also among the biggest in Ohio by population. In 2021 these two townships had populations of 62,408 and 43,334 respectively. These townships are populous because they represent a high commuter population. The road infrastructure provides easy access to Cincinnati and Dayton.

The District has one major university, Miami University of Ohio, located in Oxford in the northwestern portion of the county. The university has over 20,000 students enrolled, and the campus moved to single-stream recycling in 2012, making it the largest commingled community in the County. The District maintains a relationship with Miami and often partners on recycling programs and education/outreach.

CHAPTER 3. Waste Generation

Purpose of Chapter 3 (The language in this box is authored by Ohio EPA)
This chapter of the Solid Waste Management Plan provides a summary of the SWMD's historical and projected solid waste generation. The District's Policy Committee needs to understand the amounts and types of waste the SWMD will generate before it can make decisions regarding how to manage the waste. Thus, the District analyzed the amounts and types of waste that were generated within the SWMD in the past and that could be generated in the future.

The District's policy committee calculated how much solid waste was generated for the residential/commercial and industrial sectors. Residential/commercial waste is essentially municipal solid waste and is the waste that is generated by a typical community. Industrial solid waste is generated by manufacturing operations. In order to calculate how much waste was generated, the District added the quantities of waste disposed of in landfills and reduced/recycled.

Reduction and recycling data was obtained by surveying communities, recycling service providers, collection and processing centers, commercial and industrial businesses, owners and operators of composting facilities, and other entities that recycle. Responding to a survey is voluntary, meaning that the District relies upon an entity's ability and willingness to provide data. When entities do not respond to surveys, only a partial picture of recycling activity can be developed. How much data the District obtains has a direct effect on the SWMD's waste reduction and recycling and generation rates.

The policy committee obtained disposal data from Ohio EPA. Owners/operators of solid waste facilities submit annual reports to Ohio EPA. In these reports, owners/operators summarize the types, origins, and amounts of waste that were accepted at their facilities. Ohio EPA adjusts the reported disposal data by adding in waste disposed in out-of-state landfills. The District also obtains disposal information from facilities that are under contract, authorizing them to receive waste generated within Butler County.

The policy committee analyzed historic quantities of waste generated to project future waste generation. The details of this analysis are presented in Appendix G. The Policy Committee used the projections to make decisions on how best to manage waste and to ensure future access to adequate waste management capacity, including recycling infrastructure and disposal facilities.

A. Solid Waste Generated in Reference Year

Waste generation is the total amount of waste generated in a given year. It includes the amount of waste disposed of in landfills as well as the amount of waste that is diverted away from landfills, such as composted waste, recycled waste, etc. The sum of waste disposed, and waste diverted is the total amount of waste generated.

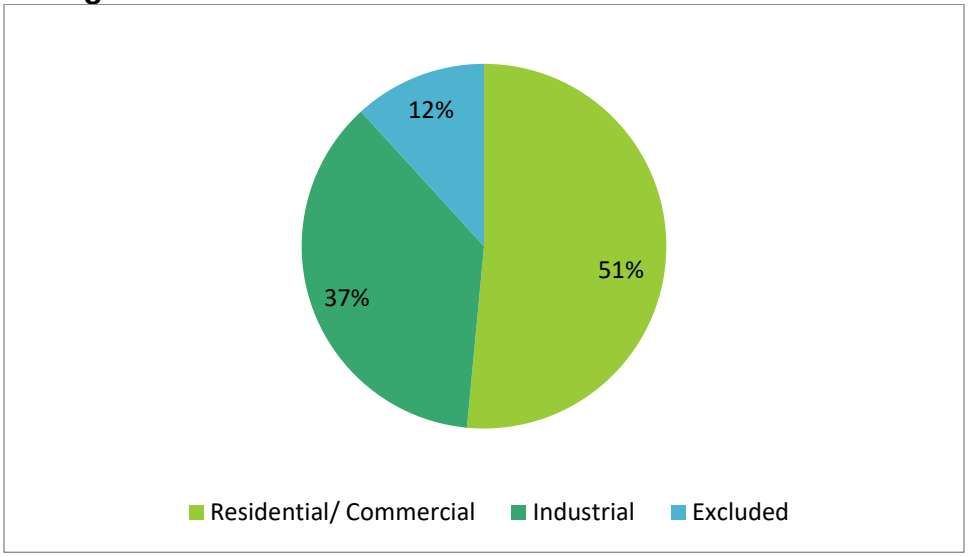
Waste Generation = Total Wastes Disposed + Total Wastes Diverted

Table 3-1 and **Figure 3-1** below present the District's waste generated in the reference year. The amount generated is defined by the tons disposed of in landfills plus the tons recycled, composted, and otherwise diverted from landfill disposal.

Table 3-1: Solid Waste Generated in the Reference Year

Type of Waste	**Quantity Generated** (tons)
Residential/ Commercial	495,311
Industrial	353,506
Excluded	113,340
Total	962,158

Figure 3-1: Solid Waste Generated in the Reference Year



1. Residential/Commercial Waste Generated in Reference Year

The residential/commercial sector generated 495,311 tons of solid waste during the reference year. This sector is the largest generator in the District, generating over half of all the waste in 2021. With a population of 391,496, the per capita waste generation rate is 6.93 pounds per person per day (PPD).

Figure 3-1. Benchmarked Residential/Commercial Generation Rate

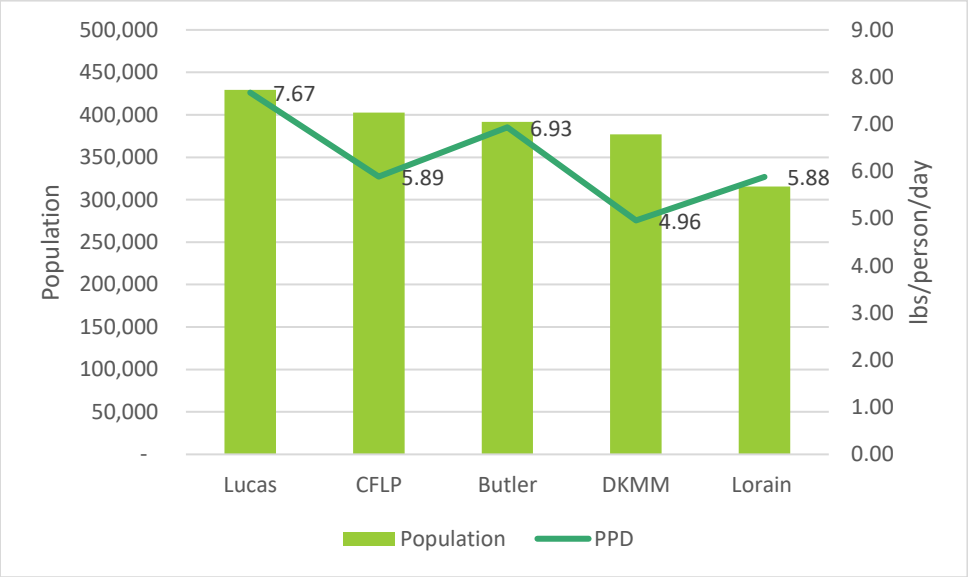


Figure 3-1 benchmarks five Districts with similar-sized population. The statewide residential/commercial generation for 2021 was approximately 7.09 PPD. The District's 6.93 per capita generation rate is the second highest among the benchmarked Districts with similar population sizes.

Figure 3-2 Benchmarked Residential/Commercial Waste Generation

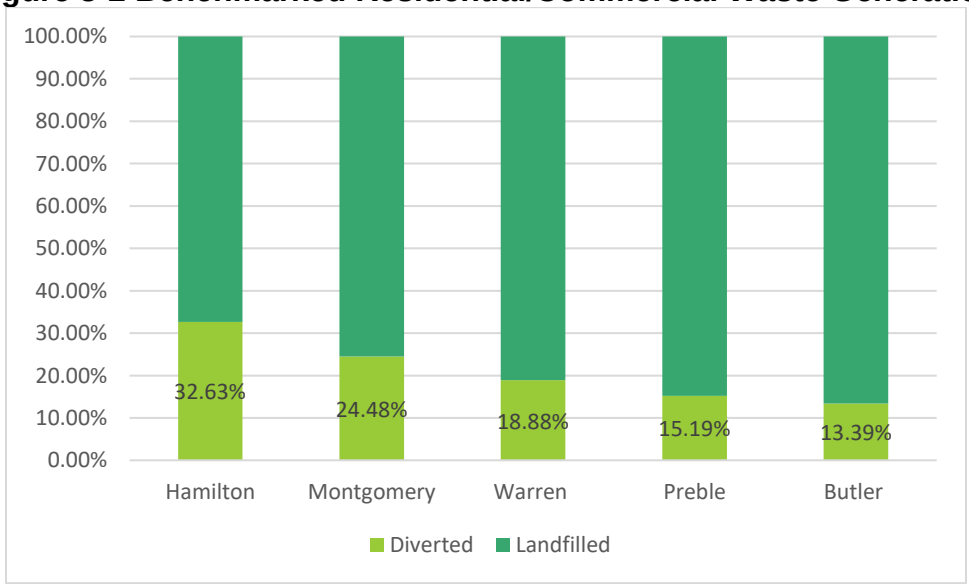


Figure 3-2 benchmarks Butler County to the four neighboring Districts in the region. About 13% of waste generated in Butler County was diverted in the reference year, which is about 66,300 tons. More than three-quarters of the residential/commercial solid waste was sent for disposal. Roughly 72% of waste disposed is sent to Rumpke Sanitary Landfill in neighboring Hamilton County. About 20% of waste was disposed out of state in at Bavarian Landfill in Kentucky and New Paris Pike Landfill in Indiana. The remaining 8% was sent to various other landfills in Ohio.

The District sent 11% of waste to a transfer facility before being disposed. The Hamilton Transfer Facility transferred the majority of transferred waste (46%). The Evendale Transfer Facility in Hamilton County, Ohio also made up a large portion of waste transferred at 41% of the total.

The District's major points of diversion are the commercial survey (27%), curbside collection (20%), Ohio EPA commercial retail data (15%), and data from other recycling facilities (15%).

2. Industrial Waste Generated in Reference Year

The industrial sector generated 353,506 tons of waste in the reference year. This equates to roughly 37% of the total waste generated. In 2021, approximately 41% of industrial waste was diverted from landfills.

3. Excluded Waste Generated in Reference Year

Excluded waste accounted for about 12% of the total waste generated in Butler County in 2021. A total of 113,340 tons of excluded waste was generated. The majority, roughly 85% of the excluded waste was sent to Bavarian Landfill in Kentucky.

B. Historical Waste Generated

1. Historical Residential/Commercial Waste Generated

Over the past five years the residential/commercial sector disposed an average of 390,000 tons annually while diverting about 61,500 tons annually. Over this time period, the District’s diversion rate hovered between 12% and 18%. The District is predicting increases in both waste disposal and recycling as the County’s population continues to grow. It is expected that the recycling rate will increase faster than the disposal rate, leading to an overall decrease in per capita generation. The per capita generation in 2021 was 6.93 pounds/person/day and is expected to fall to 6.63 pounds/person/day at the end of the planning period.

Figure 3-3. Historical Residential/Commercial Generation: 2017 – 2021

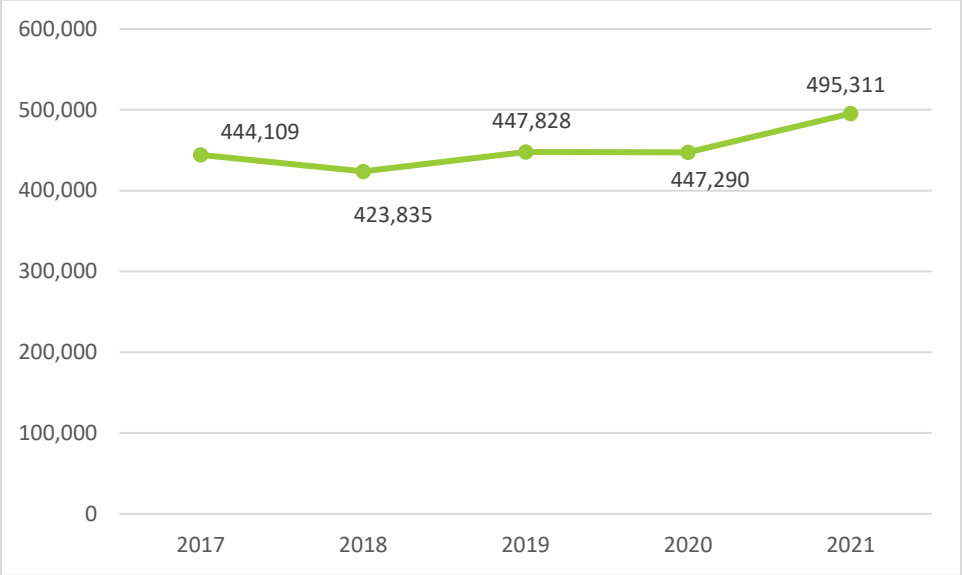
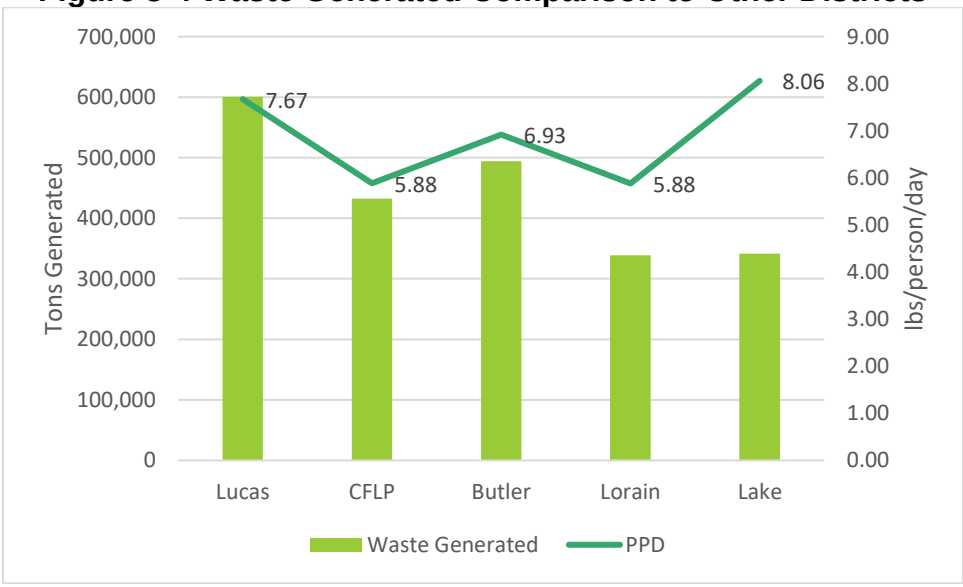


Figure 3-3 shows an uptick in residential/commercial waste generation in 2021 of about 50,000. While both disposal and recycling increased in 2021, the larger contributor to the increase was the waste tonnage disposed in landfills.

When compared to other solid waste management Districts in Ohio, Butler County has the third highest residential/commercial waste generation per capita. The Districts compared below in **Figure 3-4** are all of similar sized populations to Butler County.

Figure 3-4 Waste Generated Comparison to Other Districts

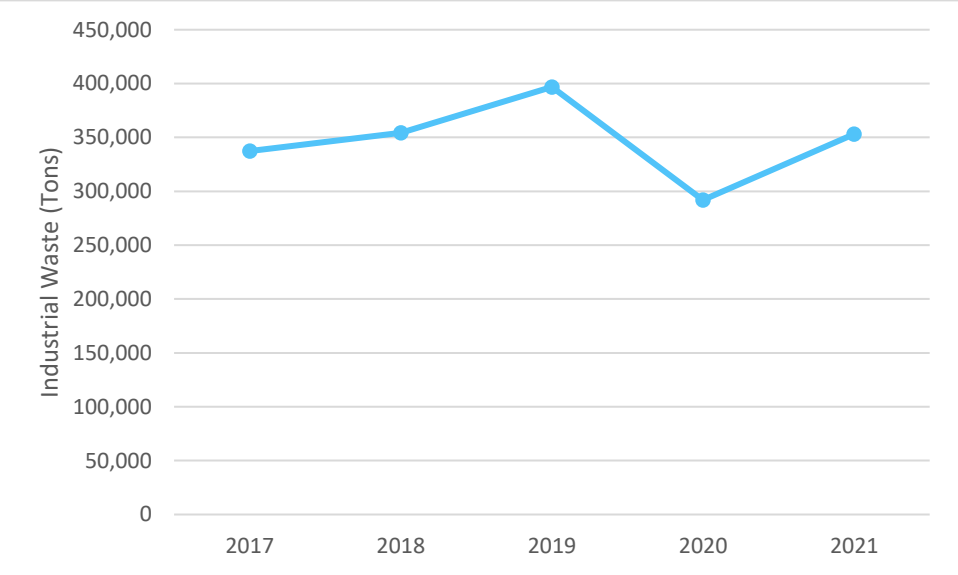


Note: CFLP is the Coshocton-Fairfield-Licking-Perry joint solid waste management district

2. Historical Industrial Waste Generated

Following consecutive increases from 2017 to 2019, industrial generation saw a large decrease in 2020. The following year in 2021 the District's industrial sector generation increased back to previous levels. The COVID-19 pandemic and its associated national restrictions likely had a significant impact on the amount of waste generated in 2020 as many manufacturing facilities were closed or had fewer hours. In 2020, the industrial sector recycled 100,000 fewer tons than it did in the previous year. However, in 2021 the industrial recycling began to return to pre-pandemic levels.

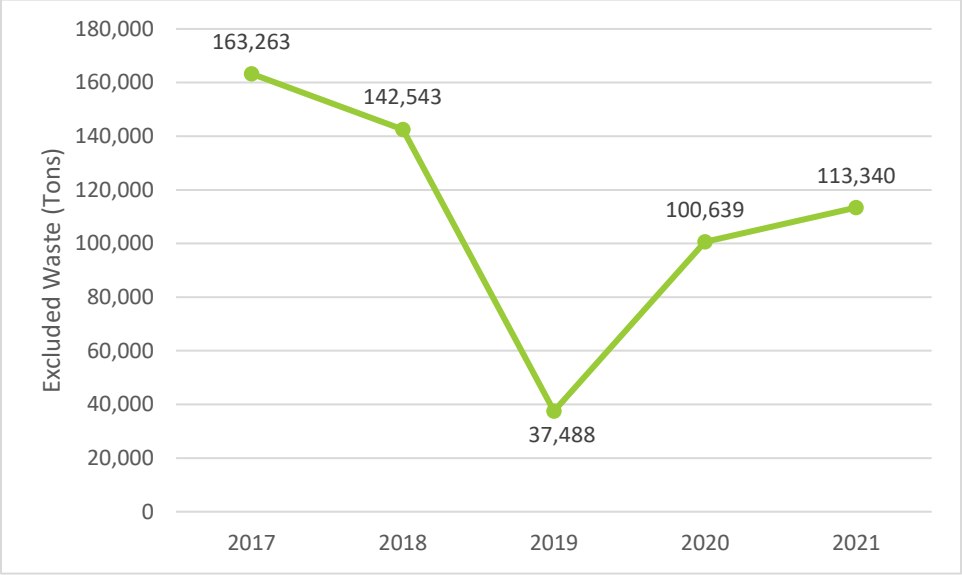
Figure 3-5 Historical Industrial Generation: 2017 – 2021



3. Historical Excluded Waste Generated

Excluded waste fluctuated significantly over the last five years. The high was 163,000 tons of excluded waste in 2017 and the low was 37,500 tons in 2019. As a result of the variation, it is difficult to predict excluded waste generation during the planning period.

Figure 3-6 Historical Excluded Waste Generation



C. *Waste Generation Projections*

Table 3-2 shown below demonstrates that waste generation during the first six years of the planning period within the District is expected to remain at similar levels as waste generation for the reference year 2021.

Table 3-2. Waste Generation Projections

Year	Residential Commercial Waste	Industrial Waste	Excluded Waste	Total
	Waste (tons)	Waste (tons)	Waste (tons)	Waste (tons)
2025	499,119	346,037	113,340	958,496
2026	500,393	344,410	113,340	958,144
2027	501,670	342,792	113,340	957,802
2028	502,950	341,180	113,340	957,471
2029	504,234	339,577	113,340	957,151
2030	505,520	338,625	113,340	957,486

Residential/Commercial Waste Projections

Waste generation projections were estimated by analyzing historical trends in the District's waste generation, disposal, and recycling. The District's programs are forecasted to increase recycling in Butler County and were also taken into account. The waste disposal analysis in Appendix D projects an annual increase of 0.27% for the residential/commercial sector. This was based on a 10-year historical

summary where the average percent change over that time period was applied. Using this model, the District's residential/ commercial sector is projected to reach 450,000 tons of disposed material.

The analysis in Appendix E looks at the various recycling activities done in Butler County and the reported totals. After projecting all recycling activities separately, the cumulative projection for recycling is expected to remain at similar levels seen historically, increasing slightly through the planning period (2039).

The total projected residential/commercial waste generation (disposal plus recycling) for the District is expected to reach roughly 517,000 tons by the end of the planning period. A majority (450,000 tons) is expected to be from the waste disposed, with the remainder (~66,800 tons) expected to come from recycling activities.

Industrial Waste Projections

Waste generation projections were estimated using historical trends for waste generation, disposal, and recycling. The District also considered the Ohio manufacturing employment projections in the region from the Ohio Jobs Outlook, Southwest Ohio report by the Department of Jobs and Family Services. As indicated in the report, southwest Ohio manufacturing is projected to decrease 4.7% from 2018 to 2028, or 0.47% annually. This was applied to the disposal projections for industrial waste and recycling.

Excluded Waste Projections

Due to the high volatility of excluded waste, a flat line approach to waste generation forecasts was taken.

CHAPTER 4. Waste Management

Purpose of Chapter 4

Chapter 3 provided a summary of how much waste the District generated in the reference year and how much waste the Policy Committee estimates the District will generate during the planning period. This Chapter summarizes the Policy Committee's strategy for how the District will manage that waste during the planning period.

A District must have access to facilities that can manage the waste the District will generate. This includes landfills, transfer facilities, incinerator/waste-to-energy facilities, compost facilities, and facilities to process recyclable materials. This Chapter describes the Policy Committee's strategy for managing the waste that will be generated within the District during the planning period.

To ensure the District has access to facilities, the solid waste management plan identifies the facilities the District expects will take the District's trash, compost, and recyclables. Those facilities must be adequate to manage all of the District's solid waste. The District does not have to own or operate the identified facilities. In fact, most solid waste facilities in Ohio are owned and operated by entities other than the District. Further, identified facilities can be any combination of facilities located within and outside of the District (including facilities located in other states).

Although the Policy Committee needs to ensure that the District will have access to all types of needed facilities, Ohio law emphasizes access to disposal capacity. In the solid waste management plan, the District must demonstrate that the District will have access to enough landfill capacity for all of the waste the District will need to dispose of. If there isn't adequate landfill capacity, then the Policy Committee develops a strategy for obtaining adequate capacity.

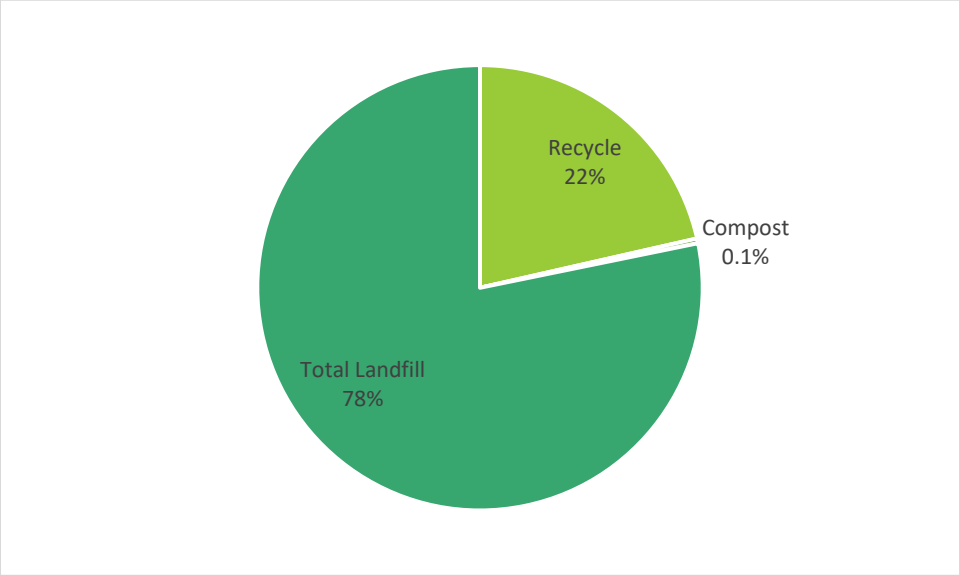
As of 2021, Ohio has more than 40 years of remaining landfill capacity. That is more than enough capacity to dispose of all of Ohio's waste. However, landfills are not located in a manner to geographically serve all areas of the state. Therefore, there is still the potential for a regional shortage of available landfill capacity, particularly if an existing landfill closes. If that happens, then the Districts in that region would likely rely on transfer facilities to transport waste to an existing landfill instead of building a new landfill.

Finally, the District has the ability to control which landfill and transfer facilities can, and by extension cannot, accept waste that was generated within the District. The District accomplishes this by designating solid waste facilities (often referred to as flow control). A District's authority to designate facilities is explained in more detail later in this chapter.

A. Waste Management Overview

Butler County manages waste through a combination of landfills, recycling programs and facilities, transfer stations, and composting facilities. **Figure 4-1** below depicts total waste generation management in the reference year. The majority of the total waste generated by Butler County is managed through landfill disposal. The majority of waste generation in Butler County is derived from the residential/commercial sector at 51%, with industrial waste comprising 37% of total generation and excluded waste at 12%.

Figure 4-1. Waste Mangement Method



Based on historical analysis the future waste projections, shown for the first five years of the planning period in **Table 4-1** below, demonstrate an initial decrease in recycling tonnages and minor increases in the total waste landfilled. Overall waste generation is projected to minimally decrease through the first five years of the planning period.

Table 4-1 Methods for Managing Waste

Year	Generate	Recycle	Compost	Transfer Landfill	Direct Haul Landfill
Reference Year					
2021	*962,157*	*206,279*	*3,329*	*58,235*	*694,314*
Planning Period					
2025	958,496	201,913	3,329	58,289	694,965
2026	958,144	201,365	3,329	58,304	695,145
2027	957,802	200,820	3,329	58,320	695,333
2028	957,471	200,278	3,329	58,336	695,527
2029	957,151	199,739	3,329	58,353	695,729
2030	957,486	199,848	3,329	58,371	695,938

Source:
Generate: Appendix G-1 and G-2
Recycle: Appendix G-1 and G-2
Compost: Appendix E-7 and E-8
Transfer: Appendix: D-2 and D-6
Landfill: Appendix D-1 And D-6

Landfill capacity, demonstrated in Appendix M, remains abundant and exceeds the available volume of waste generated locally. Consequently, tipping fees are low, and landfills continue to be the most economically feasible disposal option. The District is not expecting changes in the structure of the waste management system throughout the planning period. Following historical trends, it is expected waste will be similarly managed with minor changes in tonnages throughout the planning period.

B. Profile of Waste Management Infrastructure

1) Solid Waste Management Facilities

Landfills

There are no active permitted solid waste disposal facilities in Butler County. Fortunately, affordable disposal capacity is available within close proximity to Butler County. The volume of waste each landfill receives is dependent on its own collection and transport capabilities or upon its relationships with independent haulers, and its permit to accept approved daily waste tons.

As discussed in Appendix D, the District used seven out-of-district landfills and six out-of-state landfills. The out-of-state landfills consisted of two in Indiana and four in Kentucky. A majority of waste sent to these landfills was from the industrial sector. Most landfills are owned and operated by the private sector. There were no captive landfills used.

Transfer Facilities

Four in-state transfer facilities accepted waste from the District in the reference year. One facility, the Hamilton Transfer Facility, is located in-district and three are located out-of-district. There are also two facilities located in Indiana that accepted a small amount of waste from Butler County. Most of the waste was transferred

out of the Evendale Transfer Facility which is privately operated by Republic Services. The waste from Evendale Transfer facility gets deposited at Rumpke Sanitary Landfill. Hamilton Transfer Facility located in the District accepted 18% of waste tonnage. A recently permitted transfer station is anticipated to be operating by 2024year end in Middletown, Ohio. This new transfer station may result in higher waste tons for the District.

Compost Facilities

There are six compost facilities that accepted organic waste from the District in the reference year. Three of these facilities were Class IV facilities, one was a Class III facility, and one was a Class II facility. The remaining compost facility classification was not on Ohio EPA's registered facility list. Of the six facilities, two are located in Butler County.

Residents who live in the cities of Fairfield and Hamilton have access to a chipper drop-off and brush dumpster program that is serviced by the respective cities. Residents of Fairfield, Hamilton, Oxford, and Trenton all have access to curbside leaf hauling. In the reference year, Fairfield and Oxford also had yard waste pick-up.

2) Waste Collection

Municipal solid waste is collected from residents, businesses and institutions and transported to landfills by a number of private waste operators. Collection of municipal solid waste is predominantly handled by three large companies, Best Way Disposal, Rumpke, and Republic. These companies are the main competitors for residential and commercial waste collection. Based on available data, Rumpke services the majority of residential customers. In all townships except for Ross, individual homeowners and commercial establishments contract directly with a waste hauler of choice. Municipalities secure waste collection and recycling services for their residents through a competitive bidding process. Waste collection service is widely available throughout Butler County.

C. Solid Waste Facilities Used in the Reference Year

1) Landfill Facilities

Table 4-2 contains the information concerning waste that was landfilled.

Table 4-2 Landfill Facilities Used by the District in the Reference Year

Facility Name	Location		Waste Accepted from District (tons)	Percent of all District Waste Disposed	Remaining Capacity (years)
	County	State			
In-District					
NA					
Out-of-District					
SWACO Franklin County Landfill	Franklin	Ohio	2	0%	**46**
Pine Grove Regional Facility	Fairfield	Ohio	1,202	0%	**88**
Preble County Landfill	Preble	Ohio	2,128	0%	**44**
Rumpke Sanitary Landfill	Hamilton	Ohio	507,816	73%	**37**
Rumpke Waste Brown County Landfill	Brown	Ohio	34,558	5%	**64**
Carbon Limestone Landfill	Mahoning	Ohio	10	0%	**47**
Stoney Hollow Landfill	Montgomery	Ohio	6,331	1%	**4**
Out-of-State					
New Paris Pike Landfill	Wayne	Indiana	32,294	5%	Data Not Reported
Bavarian Trucking Landfill	Boone	Kentucky	101,793	15%	Data Not Reported
Pendleton County Landfill	Pendleton	Kentucky	6,878	1%	Data Not Reported
Valley View Landfill	Trimble	Kentucky	165	0%	Data Not Reported
WM of Kentucky	Boone	Kentucky	123	0%	Data Not Reported
Caldwell Landfill	Shelby	Indiana	752	0%	Data Not Reported
Total			**694,053**	**100%**	**330**

Note: Table does not include transferred waste that was landfilled.

2) Transfer Facilities

Table 4-3 contains the information concerning waste that was transferred.

Table 4-3 Transfer Facilities Used by the District in the Reference Year

Facility Name	Location		Waste Accepted from District (tons)	Percent of all District Waste Transferred	Landfill Where Waste was Taken for Disposal
	County	State			
In-District					
Hamilton Transfer Facility	Butler	Ohio	10,555	18%	Rumpke Sanitary Landfill
Out-of-District					
Montgomery County South Transfer	Montgomery	Ohio	3,926	7%	Rumpke Sanitary Landfill
Rumpke Waste Greenville Transfer Facility	Darke	Ohio	144	0%	Rumpke Sanitary Landfill
Republic Services Evendale Transfer Facility	Hamilton	Ohio	36,355	62%	Rumpke Sanitary Landfill
Out-of-State					
Dearborn Transfer Facility	Dearborn	Indiana	7,205	12%	Data not reported
NA - Multiple Facilities	NA	Indiana	49	0%	Data not reported
Total			**58,235**	**100%**	**NA**

3) Composting Facilities

Table 4-4 contains the information concerning waste that was composted.

Table 4-4 Composting Facilities Used by the District in the Reference Year

Facility Name	Location (County)	Material Composted (tons)	Percent of all Material Composted
In District			
City of Trenton Composting Facility	Butler	423	5%
Hauler/Grocer Data	Butler	802	9%
Oxford Collins Run Composting Facility	Butler	1,219	13%
City of Fairfield Chipper Drop-off & Brush Dumpster Program	Butler	786	9%
City of Fairfield Curbside Yard Waste Pickup and Leaf Collection	Butler	1,983	22%
City of Hamilton Chipper Drop-off	Butler	13	0%
City of Hamilton Leaf Collection	Butler	982	11%
City of Oxford Curbside Yard Waste Pickup and Leaf Collection	Butler	Included in Collins Run Facility	N/A
Miami University Compost Facility	Butler	2,099	23%
City of Trenton Leaf Collection	Butler	Included in Trenton Composting Facility	N/A
City of Oxford Residential Drop Off Compost Program	Butler	15	0%
Out-of-District			
London Correctional Institution	Madison	40	0%
Melena Organic Compost	Warren	36	0%
Mad River Topsoil, Inc.	Clark	1	0%
NPK Composting	Hamilton	808	9%
	Total	**9,207**	**100%**

4) Processing Facilities

Table 4-5 Processing Facilities Used by the District in the Reference Year

Name of Facility	Location		Facility Type	Recyclables Accepted from District (tons)
	County	State		
In-District				
NA				
Out-of-District				
Rumpke Center City Recycling	Hamilton	Ohio	MRF	23,158
Rumpke Elmwood Recycling Cincinnati	Hamilton	Ohio	MRF	673

Name of Facility	Location		Facility Type	Recyclables Accepted from District (tons)
	County	State		
Rumpke Recycling - Dayton	Montgomery	Ohio	MRF	12
Out-of-State				
NA				
			Total	**23,843**

D. Use of Solid Waste Facilities During the Planning Period

An estimated 670,000 tons of municipal solid waste (not including excluded waste) is expected on average annually from 2022 through the end of the planning period. An estimated net disposal of about 12 million tons is needed in landfill capacity for the duration of the planning period.

E. Siting Strategy

The solid waste management plan must demonstrate that the District will have access to enough capacity at landfill facilities to accept all of the waste the District will need to dispose of during the planning period. If existing facilities cannot provide that capacity, then the policy committee must develop a plan for obtaining additional disposal capacity. Although unlikely, the policy committee could conclude that it is in the District's best interest to construct a new solid waste landfill facility to secure disposal capacity. In that situation, Ohio law (ORC Section 3734.53(A)(8)) requires the policy committee to develop a strategy for identifying a suitable location for the facility. The policy committee must include its siting strategy in the solid waste management plan. The solid waste management plan includes a siting strategy, presented in full in Appendix S.

F. Designation

Ohio law gives each District the ability to control where waste generated from within the District can be taken. This provision for disposal is generally referred to as flow control. In Ohio, Districts establish flow control by designating facilities. Districts can designate any type of solid waste facility, including recycling, transfer, and landfill facilities.

Even though a District has the legal right to designate, it cannot do so until the policy committee specifically conveys that authority to the board of directors. The policy committee does this through a solid waste management plan. If it wants the District to have the ability to designate facilities, then the policy committee includes a clear statement in the solid waste management plan giving the designation authority to the board of directors. The policy committee can also prevent the board of directors from designating facilities by withholding that authority in the solid waste management plan.

Even if the policy committee grants the board of directors the authority to designate facilities in a solid waste management plan, the board of directors decides whether or not

to act on that authority. If it chooses to designate facilities, then the board of directors must follow the process prescribed in ORC Section 343.014. If it chooses not to designate facilities, then the board of directors simply takes no action.

Once the board of directors designates facilities, only designated facilities are permitted to receive the District's waste. That means, no one can legally take waste from the District to undesignated facilities and undesignated facilities cannot legally accept waste from the District. The only exception is in a situation where, the board of directors grants a waiver to allow an undesignated facility to take the District's waste. Ohio law prescribes the criteria that the board must consider when deciding whether to grant a waiver and how long the board has to issue a waiver request.

If the board of directors designates facilities, then the next section will provide a summary of the designation process and **Table 4-6** will list currently designated facilities.

1) Description of the District's Designation Process

   The Board is authorized to establish facility designations in accordance with Sections 343.013 and 343.014 of the Ohio Revised Code. In addition, facility designation will be established and governed by applicable District rules.

2) List of Designated Facilities

   The District is not designating any facilities in this Plan Update.

Table 4-6 Facilities Currently Designated

Facility Name	Location		Facility Type
	County	State	
In-District			
NA			
Out-of-District			
NA			
Out-of-State			
NA			

CHAPTER 5. Waste Reduction and Recycling

Purpose of Chapter 5

As was explained in Chapter 1, a District must have programs and services to achieve reduction and recycling goals established in the state solid waste management plan. A District must also ensure that there are programs and services available to meet local needs. The District may directly provide some of these programs and services, may rely on private companies and non-profit organizations to provide programs and services, and may act as an intermediary between the entity providing the program or service and the party receiving the program or service.

Through achieving the goals of the *State Plan* and meeting local needs, the District ensures that a wide variety of stakeholders have access to reduction and recycling programs. These stakeholders include residents, businesses, institutions, schools, and community leaders. Programs and services collectively represent the District's strategy for furthering reduction and recycling within its jurisdiction.

Before deciding upon the programs and services that are necessary and will be provided, the Policy Committee performed a strategic, in-depth review of the District's existing programs and services, recycling infrastructure, recovery efforts, finances, and overall operations. This review consisted of a series of 13 analyses that allowed the Policy Committee to obtain a holistic understanding of the District by answering questions
such as:

- Is the District adequately serving all waste-generating sectors?
- Is the District recovering high volume wastes such as yard trimmings and cardboard?
- How well is the District's recycling infrastructure being used, and how well is it performing?
- What is the District's financial situation and ability to fund programs?

Using what it learned, the policy committee drew conclusions about the District's abilities, strengths and weaknesses, operations, existing programs and services, outstanding needs, available resources, etc. The policy committee then compiled a list of actions the District could take, programs the District could implement, or other things the District could do to address its conclusions. The policy committee used that list to make decisions about the programs and services that will be available in the District during the upcoming planning period.

After deciding on programs and services, the policy committee projected the quantities of recyclable materials that would be collected through those programs and services. This in turn allowed the policy committee to project its waste reduction and recycling rates for both the residential/commercial sector and the industrial sector (see appendix E for the residential/commercial sector and Appendix F for the industrial sector).

A. Program Evaluation and Priorities

1) Strategic Analysis

During these analyses, the Policy Committee completed a strategic process of evaluating its reduction and recycling efforts. To do this, the status of the reduction and recycling efforts were evaluated in the context of factors presented in the 13 analyses described in Format 4.1. This strategic program evaluation was performed on the following analyses:

- Residential Recycling Infrastructure Analysis
- Commercial/Institutional Sector Analysis
- Industrial Sector Analysis
- Waste Composition Analysis
- Economic Incentive Analysis
- Restricted and Difficult to Manage Waste Analysis
- Diversion Analysis
- Special Program Needs Analysis
- Financial Analysis
- Regional Analysis
- Data Collection Analysis
- Education/Outreach Analysis
- Processing Capacity Analysis

Appendix H contains the full strategic evaluation, which uses historical comparisons, performance, weaknesses, participation, impacts, costs, etc. where applicable. For the full evaluation turn to Appendix H, where the full analysis is captured.

2) Priorities

After evaluating the programs and strategies the list of opportunities was categorized as priorities depending on timeframe for when the District plans to implement. However, not all opportunities were selected for implementation during this 2025 Plan and thus were not prioritized. For the list of prioritized opportunities, please visit Appendix I.

Priorities align to keep the generation fee at the minimum level needed to provide sufficient funding for programming planned. The District will continue to outreach and provide education through all programs, provide support to expand recycling activities, and offer assistance when feasible for managing difficult waste streams. The District will focus on creating behavior change rather than just informing residents about available programs. Furthermore, the District's education and outreach will place emphasis on underserved populations such as multi-family housing, minority groups, and lower socio-economic status populations in order to

create a diverse population of recyclers and ensure the District reaches all of its residents.

B. Program Descriptions

This section briefly describes major programs and services available during the planning period.

Curbside Recycling Services

Table 5-1 Curbside Recycling Services

ID	Name of Curbside Service/Community Served	Service Provider	When Service Was/Will be Available
Non-Subscription	Fairfield City	Rumpke	Ongoing
Non-Subscription	Hamilton City	Rumpke	Ongoing
Non-Subscription	Middletown City	Rumpke	Ongoing
Non-Subscription	Monroe City	Rumpke	Ongoing
Non-Subscription	Oxford City	Rumpke	Ongoing
Non-Subscription	Ross Township	Rumpke	Ongoing
Non-Subscription	Trenton City	Rumpke	Ongoing
Subscription	Fairfield Township	Rumpke	Ongoing
Subscription	Hanover Township	Rumpke	Ongoing
Subscription	Lemon Township	Rumpke	Ongoing
Subscription	Liberty Township	Rumpke	Ongoing
Subscription	Madison Township	Rumpke	Ongoing
Subscription	Milford Township	Rumpke	Ongoing
Subscription	Morgan Township	Rumpke	Ongoing
Subscription	West Chester Township	Rumpke	Ongoing
Subscription	Oxford Township	Rumpke	Ongoing
Subscription	St. Clair Township	Rumpke	Ongoing
Subscription	Wayne Township	Rumpke	Ongoing
Subscription	Reily Township	Rumpke	Ongoing

Six cities and one township have non-subscription curbside recycling achieved through contracts between the political jurisdiction and the hauler. Political jurisdictions take proposals/quotes from private sector service providers to deliver the specified services. Some contracting approaches still leave the billing of customers up to the service providers while others do their own billing and pay the hauler independently. Public-private contracts determine collection frequency, materials collected, size of containers, and type of collection.

Twelve out of 13 townships (with the exception of Ross Township which has non-subscription curbside) have access to subscription curbside recycling through a hauler. In the reference year, the District received recycling totals from eight of the townships that have subscription recycling.

In 2021, all curbside materials were collected single stream (commingled) using a cart based system. The end market for recyclables drives the ability of processors to collect different materials. The recyclables collected in 2021 were Paper & Cardboard; Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; and Cartons. The District maintains a list of acceptable materials on its website.

Drop-off Recycling Locations

Table 5-2 Drop-off Recycling Locations

ID	Name of Drop-off/Community Served	Service Provider	When Service was/will be Available
FTU1	Fairfield City, Community Arts Center	Rumpke	Ongoing
FTU2	Fairfield City, Fairfield Aquatic Center	Rumpke	Ongoing
FTU3	Fairfield City, Gilbert Park	Rumpke	Ongoing
FTU4	Fairfield City, Municipal Building	Rumpke	Ongoing
FTU5	Fairfield City, Justice Center	Rumpke	Ongoing
FTU6	Fairfield Township, Fire Station	Rumpke	Ongoing
FTU7	Fairfield Township, Fire Station No. 2	Rumpke	Ongoing
FTU8	Hamilton City, Fire Station No. 1	Rumpke	Ongoing
FTU9	Hamilton City, Fire Station No. 2	Rumpke	Ongoing
FTU10	Hamilton City, Fire Station No. 5	Rumpke	Ongoing
FTU11	Hanover Township, Memorial Park	Rumpke	Ongoing
FTU12	Liberty Township, Fire Station No. 1	Rumpke	Ongoing
FTU13	Liberty Township, Fire Station No. 2	Rumpke	Ongoing
FTU14	Liberty Township, Fire Station No. 3	Rumpke	Ongoing
FTU15	Madison Township, Township Administration Building	Rumpke	Ongoing
FTU16	Middletown City, Fire Station No 5	Rumpke	Ongoing
FTU17	Middletown City, Fire Station Headquarters	Rumpke	Ongoing
FTU18	Morgan Township, Administration Building	Rumpke	Ongoing
FTU19	Morgan Township, Shandon Fire Station	Rumpke	Ongoing
FTU20	Oxford City, Miami University Culinary Support Center	Rumpke	Ongoing
FTU21	Oxford City, Miami University Police Station	Rumpke	Ongoing

FTU22	St. Clair Township, Administration Building	Rumpke	Ongoing
FTU23	West Chester Township, Beckett Park	Rumpke	Discontinued in 2022
FTU24	West Chester Township, Keehner Park	Rumpke	Discontinued in 2022
FTU25	West Chester Township, Activity Center	Rumpke	Discontinued in 2022
FTR1	Milford Township, Darrtown Hitching Post	Rumpke	Ongoing
FTR2	Reily Township, Community Center Parking	Rumpke	Ongoing
FTR3	Seven Mile Village, Fire Station	Rumpke	Discontinued in 2022

All drop-offs are available to the public at least 40 hours per week. The end market for recyclables drives the ability of processors to collect different materials. The recyclables collected in 2021 were Paper & Cardboard; Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; and Cartons. The District maintains a list of acceptable materials on its website.

The District directly contracts with a private hauler to provide and service drop-off locations in the townships. The municipalities contract with a private hauler to provide and service drop-off locations in the municipalities. The District contract costs include processing, transportation, and any other management related costs of operating the drop-off locations. The District coordinates placement of drop-offs with hosting community or private sector entity.

Commercial/Institutional/Industrial Source Reduction and Recycling Programs

Commercial/Industrial Technical Assistance
Technical assistance to area businesses, institutions, and industries including performing waste assessments, waste audits and assistance in establishing effective recycling programs is a focus through the planning period. The District will identify and contact at least five businesses utilizing brokers for recycling in attempts to capture additional recycling data.

Southwest Ohio P2 Internship Program
The P2 Internship Program is a collaborative partnership between Butler County District, Hamilton County District, Montgomery County District, and TechSolve. In 2022 the program reach expanded in including Adams Clermont District into the collaborative partnership. The P2 Program provides undergraduate level interns to local industries for a 12-week summer internship. U.S. EPA has been a key partner underwriting a full week of Pollution Prevention training for each intern since the program's inception. The rationale for the P2 internship is to assist manufacturers in reducing waste, conserving energy, and improving operations while providing outstanding engineering students with professional work experience to help them consider working in Ohio as part of their career plan. The Solid Waste Districts serve as coordinators and recruiters of industries and

select and match skilled interns to place with partner industries based on P2 project needs.

County Office Recycling Program
Contracted paper shredding and recycling collection is offered at county offices, buildings, and courts throughout the District. The District will annually review the infrastructure and contracts to provide the best and most economically effective program.

Multi-Family Housing Cooperative
Multi-family housing assistance to expand recycling services is a continued priority for the District. The District is setting a goal to reach at least one multi-family complex annually to subscribe for recycling dumpster service. Inconvenience is a barrier to households living in multi-family complexes without recycling dumpsters on site. In cluster multi-family housing the District will explore drop-offs, ordinance requirements, and grants to help multi-family build infrastructure enclosures on site as solutions.

Special Event Recycling
The District encourages organizations to consider recycling at high attendance community events such as County Fair, Clean Up Events, etc. Referrals will also be made to private haulers who have the capacity to set up recycling collection stations and remove recyclables for short-term events and programs. The District can potentially assist with these services in terms of grant funding for service cost, recycling signage, and advising on suitable set up.

School Recycling Enhancement Program
The District focuses efforts on providing technical assistance to set up recycling in school classrooms, cafeterias, teacher workrooms with an emphasis on educating students, faculty, and kitchen personnel about how to recycle, including presentations with faculty, administrators. Continued efforts plan to work with school campuses to expand to stadiums and make sure containers are right sized for crowd events.

School/Business Drop-Off Recycling Program
The District assists schools and businesses with drop off recycling programs and provides bins for collection.
School/Business Drop-Off Recycling Program

Restricted/Difficult to Manage Waste Programs

Curbside Freon Appliance Collection
Curbside Freon Appliance collection service costs doubled in 2021 resulting in a pause in the program because it was more costly than allowed within the budget. The District cannot continue with the program offered as historically implemented because the vendor costs were too high. The program was paused in 2022 and 2023. In 2024, the District plans to explore other options for curbside appliance curbside collection service opportunities possibly one day a week for a couple of months, or five days a week for two

months a year, or some alternative option. The goal is to evaluate how to bring the service offering back that is cost-effective and convenient.

Household Hazardous Waste Program
The District plans to continue to offer a semi-permanent one-day-a-week HHW drop-off option for households. Households can bring a variety of HHW materials to the drop-off including oil-based paint, antifreeze, gasoline, pesticides, fertilizers, cleaners, batteries, propane, mercury thermometers, and more. Residents may drop off their HHW here at no cost. The District monitors the collection data for participation, tonnages, and costs. All of these parameters factor into the availability and duration of the program.

Lead Acid Battery Program
Locations where households may dispose of lead-acid batteries, are listed on the District's web page. The District continues to accept lead-acid batteries at HHW collection events.

Scrap Tire Collection Program
Locations that accept waste tires are listed on the District's web page. In addition, the District continues to provide a one-day Waste Tire Amnesty Day for households to dispose of unwanted tires at no charge. The District also continues to look for partnership opportunities to increase scrap tire recovery.

Electronics Collection Program
The District maintains a list of outlets that accept E-waste and distributes educational information to residents. The District also offers a semi-permanent E-waste drop-off option for households. Households can bring tube and flat screen TVs, monitors, computer tower, laptops, printers, fax machines, scanners, cell phones, batteries, calculators, video game consoles, DVD players, computer peripherals (keyboard, mice, speakers). The District plans to continue the program through the planning period and will continue to offer electronics collection for at least one month of the year. Program costs will be monitored to evaluate costs and need for providing this service offering beyond one month a year.

Food Waste Management Program
The District plans to continue to support food waste diversion infrastructure development by providing education when requested. Existing education resources to promote food waste reduction through source-reduction efforts and behavior change will be utilized.

Yard Waste Collection Program
Yard waste management is decentralized. The District does not fund or operate yard waste management collection or facilities. Haulers in the District do not offer curbside separate yard waste collection hauling. The Public Works Departments in the municipalities of Fairfield and Oxford provide separate curbside yard waste collection hauling for residents. The Public Works Departments in the municipalities of Fairfield, Hamilton, Oxford, and Trenton provide separate curbside leaf collection hauling for their residents. In addition, the City of Fairfield operates Operation Dump Truck to collect

quantities of brush and limbs too large for the city's curbside pickup service. The District actively promotes the curbside leaf collection program and the collection schedule to communities with access to those convenient curbside programs.

Grant Programs

Business and Institutional Recycling Grant Program
Business and Institutional Grants are offered to businesses, government entities, non-profit organizations and education institutions interested in implementing a new recycling program or improving an existing program to support long-term recycling goals. Grants are awarded on a competitive basis. Business Recycling Grants will continue to be offered annually as long as funding permits.

Recycle Ohio Grants / Ohio EPA and Others
The District serves as a resource to new businesses or those looking to expand that support the diversion supply chain and close the loop in recycling. The District assists with grant writing and serves as the pass-through agency for grants received.

Other Programs

Roadside Litter Collection
The District provides funding to the Butler County Sheriff to utilize work release prisoners from the county jail to collect roadside litter. The program operates 30-40 hours a week with the crew patrolling townships roads and collecting litter. Any materials that can be recycled are recycled, in addition to collecting roadside litter. The Sheriff also helps support the District's efforts to educate the public about state litter laws with the goal of decreasing litter within Butler County.

Disaster Debris Management
A Disaster Debris Management Plan was developed to identify the services and resources required in the event of a natural or man-made disaster or emergency event. Role of the District includes:

- Serve as co-chair of the Debris Management Planning Team together with county EMA officer.
- Coordinate all disaster-related debris management activities and serve as Technical Advisor to local jurisdictions during debris generating events.

Road superintendents, elected officials, and county EMA staff collaborated on this project and the Plan was completed in 2014.

Data Collection
The District surveys commercial and industrial businesses to determine diversion efforts from businesses within the District.

Education, Outreach, Awareness, and Technical Assistance

District Website

The District continues to maintain a website. The website updates are completed on an ongoing and as-needed basis, often weekly. The webpage provides an inventory of the infrastructure and serves as a comprehensive resource guide. The website offers dedicated pages to residents, businesses, special collections and available education and outreach opportunities. The website uses ReCollect Systems as a searchable database for materials. Recollect developed a software application which provides a customizable algorithm and searchable database for residents and businesses to search for outlets for specific materials. The District also uses Google Analytics to track visitors, most searched materials, pages visited, and more. This tool also allows residents and businesses to inform the SWMD of materials they need information about. Thus, providing a two-way communication tool on the webpage. This tool enhances Butler County Recycles webpage as a "go-to" source for recycling and reuse information to residents and businesses.

Resource Guide
The District maintains a Resource Guide on the website and in this plan to identify materials and locations where materials may be taken for recycling.

Inventory
Infrastructure inventory can be found in the Solid Waste Management Plan Update Plan, which is updated every five years, and specific information is identified on the District's website.

Speaker/ Presenter
The District Director is available to speak or present when needed. Presentations are often shared at community meetings, with school administrators and faculty, businesses, and with elected officials when requested.

Social Media
The District maintains a Facebook page and keeps content up to date with seasonal and special event information. Inquiries occur periodically via Facebook messenger and the District responds directly to disposal and recycling queries.

District Program Promotions
The District website is updated frequently to announce upcoming events and seasonal programs serving residents and businesses. Print materials are distributed to all political subdivisions and to attendees at summer festivals and fairs. The District also uses the following media outlet for distributing information regarding services and opportunities:

- Facebook
- Direct mail
- Utility bill inserts
- Flyers
- Newspaper advertisement
- Community newsletters

- Website

District Newsletters
The District plans to continue to partner with community publications to expand the education and advertisement outreach.

Backyard Composting Education and Awareness
The District plans to continue to partner with the local Soil & Water Conservation District to promote composting classes to area educators and consumers. The District periodically partners with the Soil & Water Conservation District to conduct joint presentations on recycling and composting.

Curbside Participation Education and Awareness
This program is designed to increase curbside recycling participation and spread awareness on how to properly recycle. The District uses many strategies to implement this program and will continue to explore opportunities to increase curbside participation.

Resident Outreach
The District plans to continue to develop recycling outreach to improve knowledge and competence of recycling methods and materials; and work to increase participation in both curbside and drop-off programs.

Electronics Recycling Information
The District plans to continue providing print/digital flyer listing year-round outlets for E-waste, including televisions. The flyer lists Butler County's residential E-Waste Recycling Program at Cohen Hamilton and Middletown. The content is distributed to area subdivisions, at public events, and electronically through local news channels.

Scrap Tire Information
The District directs residents to manage scrap tires at the annual Waste Tire Amnesty Drop Off event through flyers, and print/digital advertising. Residents are also directed to the Hamilton Transfer Station or to return waste tires to retailers when purchasing new tires.

Lead Acid Battery Information
The District directs residents to bring LABs to the HHW program or return LABs to retailers. Battery disposal information is searchable on the District's website and there is a flyer with guidance for battery disposal also on the website.

School Outreach
Obtaining top-level support from school administration, operation and maintenance staff, and custodial staff is a focus of school outreach. The District plans to continue providing technical assistance and offer to give presentations to schools upon request.

Industry Outreach

A resource on the District's webpage is the Ohio Materials Marketplace for businesses to find outlets for unwanted surplus materials, and source specific types of materials that are needed.

Business Outreach
The District provides a variety of services to assist small businesses with recycling technical assistance and grants as described in Appendix I.

Township Trustee Outreach
The District communicates with township elected officials through the Township Trustee Association which meets throughout the year. This frequent engagement keeps the District interacting with the Townships for ongoing discussions around waste and diversion.

City Council Outreach
The District developed recycling outreach to improve knowledge and competence of recycling methods and materials and work to increase participation in both curbside and drop-off programs at the city level.

Outreach and Marketing Plan
Over this planning period, the District selected to overhaul its current outreach campaign to put increased emphasis on underserved populations or sectors to create a more diverse community of recyclers in Butler County. The goals of the strategy are equity and inclusion in recycling programs, measured participation, and overcoming barriers to recycling across all demographics in Butler County.

C. Waste Reduction and Recycling Rate

1) Residential/Commercial Recycling in the District

Table 5-3 Residential/ Commercial Waste Reduction and Recycling Rate

Year	**Projected Quantity Collected** (tons)	**Residential/ Commercial** WRR[1] **(%)**
2021	***66,324***	***13.39%***
2025	65,502	13.12%
2026	65,611	13.11%
2027	65,720	13.10%
2028	65,828	13.09%
2029	65,937	13.08%
2030	66,046	13.06%

2) Industrial Recycling in the District

Table 5-4 Industrial Waste Reduction and Recycling Rate

Year	Projected Quantity Collected (tons)	Industrial WRR[1] (%)
2021	***143,285***	***41%***
2025	139,740	40%
2026	139,083	40%
2027	138,430	40%
2028	137,779	40%
2029	137,131	40%
2030	137,131	41%

CHAPTER 6. BUDGET

Purpose of Chapter 6

Ohio Revised Code Section 3734.53(B) requires a solid waste management plan to present a budget. This budget accounts for how the District will obtain money to pay for operating the District programs and how the District will spend that money. For revenue, the solid waste management plan identifies the sources of funding the District will use to implement its approved solid waste management plan. The plan also provides estimates of how much revenue the District expects to receive from each source. For expenses, the solid waste management plan identifies the programs the District intends to fund during the planning period and estimates how much the District will spend on each program. The plan must also demonstrate that planned expenses will made in accordance with ten allowable uses that are prescribed in ORC Section 3734.57(G).

Ultimately, the solid waste management plan must demonstrate that the District will have adequate money to implement the approved solid waste management plan. The plan does this by providing annual projections for revenues, expenses, and cash balances.

If projections show that the District will not have enough money to pay for all planned expenses or if the District has reason to believe that uncertain circumstances could change its future financial position, then the plan must demonstrate how the District will balance its budget. This can be done by increasing revenues, decreasing expenses, or some combination of both.

This Chapter of the solid waste management plan provides an overview of the District's budget. Detailed information about the budget and District budget policies are provided in Appendix O.

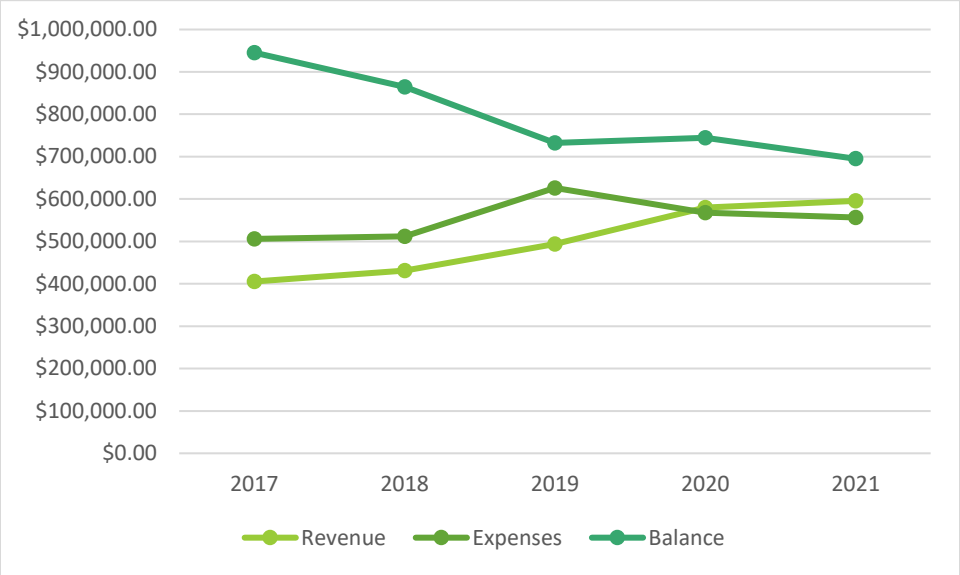
A. Overview of the District's Budget

The District's primary funding source is revenue earned through generation fees. Generation fees are collected on each ton of solid waste that is generated within the levying District and accepted at either a transfer facility or landfill located in Ohio. The fee is collected at the first facility that accepts the District's waste. The statute does not set minimum or maximum limits on the per ton amount for generation fees.

Historically the District operates from one of the lowest generation fees in Ohio. From 1995 to 2006 the District was funded by a $1.00 per ton generation fee. This fee was raised in 2006 to $2.00 per ton specifically to build a reserve fund for procuring land and building an in-district transfer station to ensure the SWMD had adequate infrastructure for handling waste. At the time, the disposed capacity at the closest landfill, the landfill receiving over 90 percent of the SWMD's waste was seeking approval for expansion. Opposition to the expansion and eventual litigation action made it difficult for the SWMD

to project sufficient disposal capacity in the region. It was deemed prudent to plan for a potential in-District facility. As the reserve fund accumulated, the capacity issue was resolved and the SWMD has not needed to implement plans to develop an in-district transfer station. The generation fee was amended to $1.00 per ton in 2013 and then further reduced to $0.82 per ton in 2014. It remained $0.82 per ton until January 2020 where it was written in the previous plan that a $1.00 per ton generation fee would be implemented. **Figure 6-1** shows the District's cash balance over the last five years.

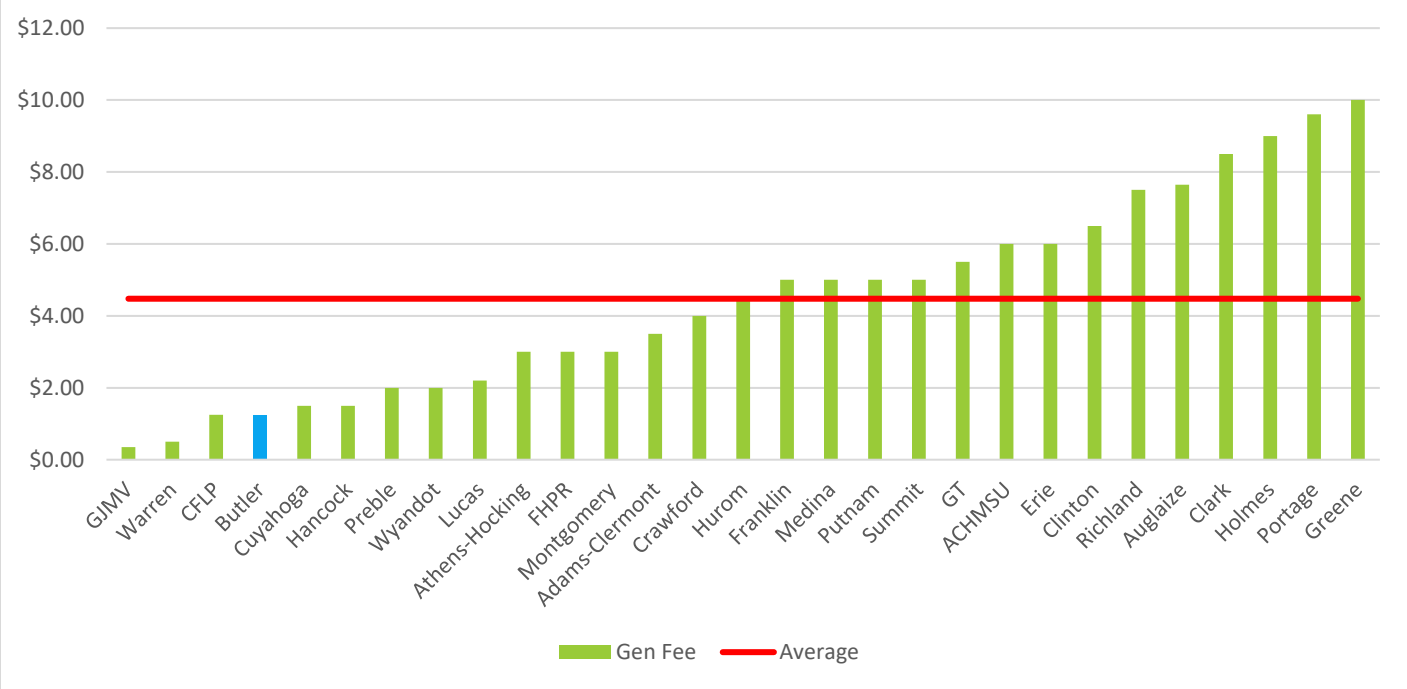
Figure 6-1 Historic Revenues, Expenses, and Balance



Note: There was a reconciliation made in 2021 to match auditor reports, there was a discrepancy between the District budget and auditor budget. See Appendix O for more information.

The budget set forth in this plan projects a generation fee increase to $1.25 per ton in 2031 will be needed to keep the District's budget balanced. The $1.00 per ton generation fee will remain in effect until the District must revisit its next solid waste management plan update. The District will assess whether the projected fee increase will be needed in this next plan update process. The District is not committing to a generation fee increase in 2031 for this plan period. However, at $1.25 per ton, Butler County's generation fees would remain one of the lowest in the State of Ohio, as shown in **Figure 6-2** below.

Figure 6-2 Ohio SWMD Generation Fees 2021



Note: Assumes a generation fee of $1.25 for the District. Current generation fee remains $1.00 per ton.

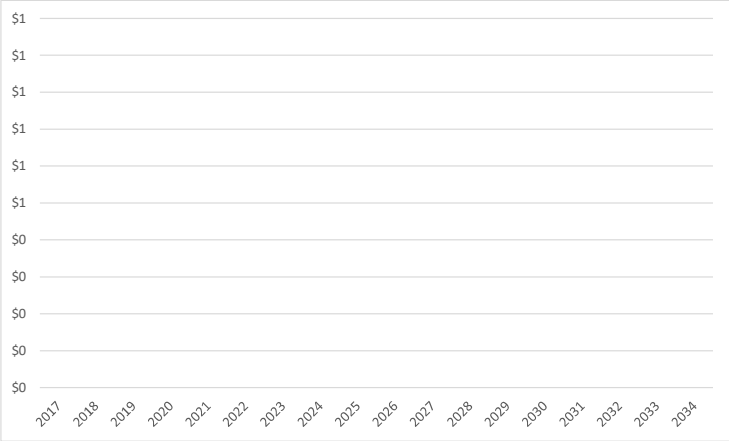
The projected increase in generation fee revenue required to keep the budget balanced is based on historic expenses, planned future expenditures, and an inflation rate to reflect the state of the economy as of this plan update. The increase would help support the household hazardous waste collection, scrap tire collection, multi-family and business/institution, technical assistance, P2 internship, litter collection, electronics recycling, and rising costs of the contracted drop-off recycling programs.

Figure 6-3 Projected District Budget Attachment (Below)

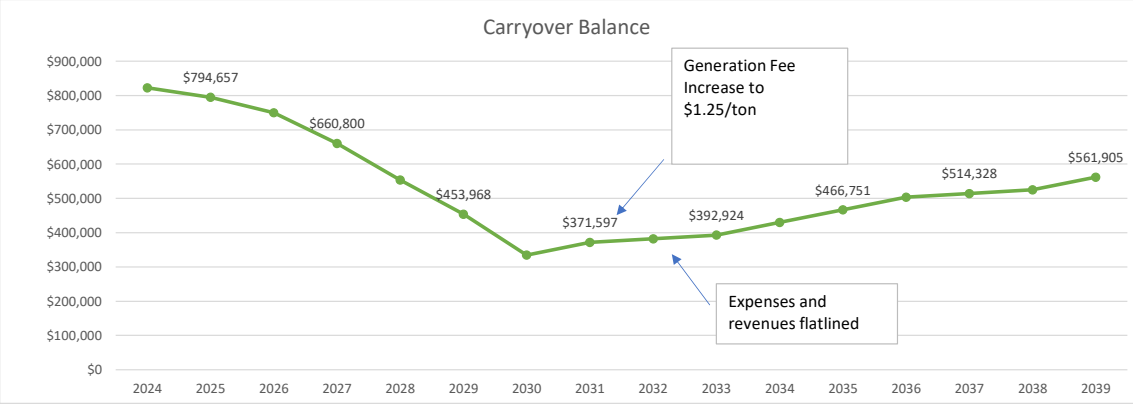
SWMP BUDGET

Current Generation Fee $1.00

EXPENSES



Programs	2021 Expenses have a 3% annual inflation factor 2023 - 2031 and are flatlined until 2039 unless otherwise noted	
Plan Prep/Monitoring	$ 51,945.94	$64,300 divided between 2 years every 5 years
Administrative Costs	$ 135,573.21	Staffing at 4% increase first 2 years then 2% increase for the remainder. Additional $30,000 added in 2024.
Drop-Off	$ 116,126.35	
Business/Institutional	$ 32,986.67	
Other	$ 42,081.89	
Tire Collection	$ 29,306.37	
HHW Collection	$ 56,522.38	Expected increase in program cost, rises to $80,000 in 2022 with a 3% inflation through 2031
Electronics Collection	$ 49,428.87	
Appliance Collection	$ 828.00	Program removed, not budgeted through planning period
Education/Awareness	$ 24,194.30	
Litter Collection	$ 17,362.50	
Total	**$ 556,356.48**	



Note: The slight variation in expenses seen after 2031 in the projections is a result of a fluctuating Plan Monitoring/ Preparation line item. This line item has been flatlined but operates on a five year pattern coinciding with SWMD Plan Updates.

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	$676,805	$680,866	$684,951	$689,061	$693,195	$697,354	$701,538	$882,185	$882,185	$882,185	$882,185	$882,185	$882,185	$882,185	$882,185	$882,185
Expenses	$688,386	$708,860	$729,949	$777,920	$800,293	$797,088	$820,823	$845,271	$871,521	$871,521	$845,271	$845,271	$845,271	$871,521	$871,521	$845,271
Cash Flow	-$11,580	-$27,994	-$44,998	-$88,860	-$107,098	-$99,733	-$119,285	$36,914	$10,664	$10,664	$36,914	$36,914	$36,914	$10,664	$10,664	$36,914
Balance	$822,651	$794,657	$749,659	$660,800	$553,701	$453,968	$334,683	$371,597	$382,260	$392,924	$429,837	$466,751	$503,664	$514,328	$524,992	$561,905

B. Revenue

There are a number of mechanisms SWMDs can use to raise the revenue necessary to finance their solid waste management plans. Two of the most commonly used mechanisms are disposal fees and generation fees. These fees are often referred to as "statutory fees" because SWMDs' authority to levy the fees is established in Ohio law.

A SWMD's policy committee has the authority to establish fees. Before a SWMD can collect a generation or disposal fee, the SWMD's policy committee must first obtain approval from local communities through a ratification process, per ORC Section 3734.57. Ratification allows communities in the SWMD to vote on whether they support levying the proposed fee. If enough communities ratify (i.e., approve) the proposed fee, then the SWMD can collect the fee.

Types of Fees:
Disposal Fees: (See Ohio Revised Code Section 3734.57(B))
Disposal fees are collected on each ton of solid waste that is disposed at landfills within the levying SWMD. There are three components, or tiers, to the fee. The tiers correspond to where waste was generated: in-district, out-of-district, and out-of-state. In-district waste is solid waste generated by counties within the levying SWMD and disposed at landfills in that SWMD. Out of district waste is solid waste generated in Ohio counties that are not part of the SWMD and disposed at landfills in the SWMD. Out-of-state waste is solid waste generated in other states and disposed at landfills in the SWMD.

Ohio's law prescribes the following limits on disposal fees:

- The in-district fee must be ≥ $1.00 and ≤ $2.00;
- The out-of-district fee must be ≥ $2.00 and ≤ $4.00; and
- The out-of-state fee must be equal to the in-district fee.

Butler County SWMD does not have any landfills inside its borders, therefore it does not levy disposal fees.

Generation Fees: (See Ohio Revised Code Section 3734.573)
Generation fees are collected on each ton of solid waste that is generated within the levying SWMD and accepted at either a transfer facility or landfill located in Ohio. The fee is collected at the first facility that accepts the SWMD's waste. The statute does not set minimum or maximum limits on the per ton amount for generation fees.

As mentioned previously, the District's generation fee is $1.00 per ton as of this plan update.

Rates and Charges: (See Ohio Revised Code Section 343.08)
The board of directors can collect money for a SWMD through what are called rates and charges. The board can require anyone that receives solid waste services from the

SWMD to pay for those services. The board does this by establishing and collecting rates and charges on behalf of the SWMD. Rates and charges must be paid by anyone that owns an improved lot or parcel that receives services from the SWMD. Qualifying services include solid waste collection, transfer, disposal, recycling, and processing services.

Rate and charges can be collected in two ways:

1) Through periodic billings made by the SWMD. The SWMD can bill for services through either a direct bill or through a utility bill issued by a county waste district, a county sewer district, or another political jurisdiction that provides a public utility service.
2) Through an improved parcel assessment (collected as a property tax).

The District does not collect any rates and charges.

Contracts: (See Ohio Revised Code Sections 343.02 and 343.03)
The board of directors can enter into contracts with owners/operators of solid waste facilities or transporters of solid waste to collect generation or disposal fees on behalf of a SWMD.

Other Sources of Revenue:

- Revenue from sale of recyclables
- User fees (such as fees charged to participate in scrap tire and appliance collections)
- County contributions (such as from the general revenue fund or revenues from publicly operated solid waste facilities (i.e., landfills, transfer facilities)
- Interest earned on cash balances
- Grants, loans, or bonds

Other Funding Mechanisms

The District may receive funding from other sources. Other sources as described below are typically five percent or less of contributing funding.

Reimbursements:
Reimbursement revenues are miscellaneous monies resulting from refunds and reimbursements. Reimbursement revenue is not projected during the planning period.

Grants:
Funds received from Ohio EPA grants and other grants as applied for by the SWMD. Grant funds are not projected during the planning period.

Other:
Other revenue is not projected during the planning period.

Summary of Revenue

Table 6-1 shows projected revenues for the first five years of the planning period.

Year	Disposal Fees	Generation Fees	Designation Fees	Other Revenue			Total Revenue
				Reimbursements	Grants	Other	
Reference Year							
2021	$0	$584,192	$0	$1,362	$10,000	$45.96	$595,600
Planning Period							
2025	$0	$680,866	$0	$0	$0	$0	$680,866
2026	$0	$684,951	$0	$0	$0	$0	$684,951
2027	$0	$689,061	$0	$0	$0	$0	$689,061
2028	$0	$693,195	$0	$0	$0	$0	$693,195
2029	$0	$697,354	$0	$0	$0	$0	$697,354
2030	$0	$701,538	$0	$0	$0	$0	$701,538

C. Expenses

Ohio's law authorizes SWMDs to spend revenue on 10 specified purposes (often referred to as the 10 allowable uses). All of the uses are directly related to solid waste district management or for dealing with the effects of hosting a solid waste facility. The 10 uses are as follows:

1. Preparing, monitoring, and reviewing implementation of a solid waste management plan.
2. Implementing the approved solid waste management plan.
3. Financial assistance to approved boards of health to enforce Ohio's solid waste laws and regulations.
4. Financial assistance to counties for the added costs of hosting a solid waste facility.
5. Sampling public or private wells on properties adjacent to a solid waste facility.
6. Inspecting solid wastes generated outside of Ohio and disposed within the SWMD.
7. Financial assistance to boards of health for enforcing open burning and open dumping laws, and to law enforcement agencies for enforcing anti-littering laws and ordinances.
8. Financial assistance to approved boards of health for operator certification training.
9. Financial assistance to municipal corporations and townships for the added costs of hosting a solid waste facility that is not a landfill.
10. Financial assistance to communities adjacent to and affected by a publicly-owned landfill when those communities are not located within the SWMD or do not host the landfill.

In most cases, the majority of a SWMD's budget is used to implement the approved solid waste management plan (allowable use 2). Allowable use 2 authorizes SWMDs to spend money for a wide range of purposes. Furthermore, there are many types of expenses that a solid waste management district incurs to implement a solid waste management plan. Examples include: salaries and benefits; purchasing and operating equipment (such as collection vehicles and drop-off containers); operating facilities (such as recycling centers, solid waste transfer facilities, and composting facilities); offering collection programs (such as HHW and scrap tires); providing outreach and education; providing services (such as curbside recycling services); and paying for community clean-up programs.

Conversely, Ohio's law provides narrow definitions for how a SWMD can spend money in accordance with the other nine uses. For example, allowable use 4 authorizes a SWMD to give a county money to compensate the county for costs it incurs because it hosts a solid waste facility. The SWMD can give the county money for maintaining roads and public facilities impacted by the solid waste facility and for providing emergency and other public services. Those are the only ways a SWMD can spend money under allowable use 4.

Table 6-2 below summarizes the expected expenses for this solid waste management plan update. Further information regarding expenses can be found in Appendix O.

Table 6-2 Summary of Expenses

Expense Category	Reference	Planning Period					
	2021	2025	2026	2027	2028	2029	2030
Plan Preparation/Monitoring	$51,946	$5,900	$5,900	$32,150	$32,150	$5,900	$5,900
Personnel	$121,107	$198,889	$204,856	$211,001	$217,331	$223,851	$230,567
Office Overhead	$14,466	$53,967	$55,586	$57,253	$58,971	$60,740	$62,562
Drop-Off Program	$116,126	$172,207	$177,373	$182,694	$188,175	$193,820	$199,635
Business/Institutional	$32,987	$28,299	$29,148	$30,023	$30,923	$31,851	$32,806
Tire Collection	$29,306	$37,132	$38,245	$39,393	$40,575	$41,792	$43,046
HHW Collection	$56,522	$87,418	$90,041	$92,742	$95,524	$98,390	$101,342
Electronics Collection	$49,429	$42,436	$43,709	$45,020	$46,371	$47,762	$49,195
Appliance Collection	$828	$0	$0	$0	$0	$0	$0
Advertisement / Promotion	$24,194	$26,523	$27,318	$28,138	$28,982	$29,851	$30,747
Litter Collection/Education	$17,363	$18,121	$18,664	$19,224	$19,801	$20,395	$21,007
Other	$42,082	$37,970	$39,109	$40,282	$41,490	$42,735	$44,017
Total Expenses	**$556,356**	**$708,860**	**$729,949**	**$777,920**	**$800,293**	**$797,088**	**$820,823**

D. Budget Summary

Table 6-3 Budget Summary

Year	Revenue	Expenses	Net Difference	Ending Balance
Reference Year				
2021	$595,600	$556,356	$39,244	$695,050
Planning Period				
2025	$ 680,865.93	$ 708,860.08	-$27,994	$ 794,656.88
2026	$ 684,951.13	$ 729,948.88	-$44,998	$ 749,659.13
2027	$ 689,060.84	$ 777,920.35	-$88,860	$ 660,799.62
2028	$ 693,195.20	$ 800,293.46	-$107,098	$ 553,701.36
2029	$ 697,354.37	$ 797,087.76	-$99,733	$ 453,967.98
2030	$ 701,538.50	$ 820,823.39	-$119,285	$ 334,683.08

APPENDIX A

REFERENCE YEAR, PLANNING PERIOD, GOAL STATEMENT, MATERIAL CHANGE IN CIRCUMSTANCES, EXPLANATIONS OF DIFFERENCES IN DATA

Appendix A Miscellaneous Information

Appendix A establishes the reference year used for this plan update, planning period, goal statement, material change in circumstances and explanations of differences in data.

A. Reference Year

The reference year for this solid waste management plan is **2021**.

B. Planning Period (First and Last Years)

The planning period for this solid waste management plan is: **2025 to 2039.**

C. Goal Statement

The SWMD will achieve the following Goal(s): **Goal 1**

D. Explanations of Differences Between Data Previously Reported and Data Used in the Solid Waste Management Plan

1. Differences in quantities of materials recovered between the annual district report and the solid waste management plan

Table A.1 Residential/Commercial Sector Data Differences

Material	Quantity (tons)	2021 ADR (tons)	Difference (tons)
Appliances/ "White Goods"	4,000	4,000	-
Household Hazardous Waste	51	51	-
Used Motor Oil	21	23	(2)
Electronics	76	76	-
Scrap Tires	4,640	4,640	-
Dry Cell Batteries	1	1	-
Lead-Acid Batteries	177	115	62
Food	842	842	-
Glass	2,870	2,907	(36)
Ferrous Metals	421	441	(21)
Non-Ferrous Metals	374	413	(40)
Corrugated Cardboard	21,094	21,360	(266)

Material	Quantity (tons)	2021 ADR (tons)	Difference (tons)
All Other Paper	16,030	16,348	(318)
Plastics	1,787	1,891	(104)
Textiles	3,720	4,166	(446)
Wood	188	213	(26)
Rubber	0		-
Commingled Recyclables (Mixed)	706	733	(27)
Yard Waste	8,752	6,400	2,353
Other (Aggregated)	573	573	-
Total	**66,324**	**65,194**	**1,130**

This report calculated a total residential/commercial survey recovery of 66,324 tons compared to the ADR's reported tons of 65,194. During the ADR process the District assumed a placeholder value for some of the businesses and categories based on 2018 reports as these were the most recent survey responses. Some of the businesses never responded to the District in the 2021 ADR process. The 2018 historical values are now beyond the timeframe for inclusion in the data, resulting in the differences seen above.

Table A.2 Industrial Sector Data Differences

Material	Quantity (tons)	2021 ADR (tons)	Difference (tons)
Food	97,787	-	97,787
Glass	1,734	1,983	(249)
Ferrous Metals	24,407	52,058	(27,651)
Non-Ferrous Metals	1,778	3,350	(1,572)
Corrugated Cardboard	7,838	8,725	(887)
All Other Paper	104	1,947	(1,843)
Plastics	3,028	3,027	0
Textiles	0	17	(17)
Wood	4,910	1,901	3,009

Material	Quantity (tons)	2021 ADR (tons)	Difference (tons)
Rubber	0	0	-
Commingled Recyclables (Mixed)	212	51	161
Ash	0	262	(262)
Non-Excluded Foundry Sand	0	0	-
Flue Gas Desulfurization	0	0	-
Other (Aggregated)	1,486	98,822	(97,336)
Total	**143,285**	**172,144**	**(28,859)**

This report calculated a total industrial survey recovery of 143,285 tons compared to the ADR's reported tons of 172,144. During the ADR process the District assumed a placeholder value for some of the businesses and categories based on 2018 reports as these were the most recent survey responses. Some of the businesses never responded to the District in the 2021 ADR process. The 2018 historical values are now beyond the timeframe for inclusion in the data, resulting in the differences seen above.

There is a large difference in the food totals and the other (aggregated) totals. This is because in the 2020 ADR process, food totals from a business were incorrectly recorded in another category. This was adjusted in the 2021 ADR process.

2. Differences in financial information reported in quarterly fee reports and the financial data used in the solid waste management plan

See explanation provided in Appendix O.

E. Material Change in Circumstances/Contingencies

Ohio law [ORC Section 3734.56(D)] requires the District's *Solid Waste Management Plan* to be updated when the Butler County Solid Waste Management District (District) Board of Directors (Board) determines that there has been a material change in circumstances from the circumstances addressed in the approved *Plan.* If a plan update is required due to a material change in circumstances, the plan update must address those portions of the plan that need to be modified due to the material change in circumstances.

In the event that a new or undesignated solid waste transfer, disposal, recycling or resource recovery facility is subsequently designated by the Board, or a new or undesignated facility is granted a waiver which permits the undesignated facility to accept solid waste generated within the District, and such designation or waiver is documented in a designation or waiver agreement, the Board may determine that a material change in circumstances has occurred. The Board, as part of the consideration of its assessment of a new or undesignated facility on the Plan, may consider whether to change its tiered disposal fees, establish a generation fee or modify its contract fee.

In determining whether a material change in circumstances has occurred, the Board will consider the following:

a. An assessment of changes in waste generation;
b. Capacity availability for disposal, transfer, composting, and management of restricted waste streams;
c. Strategies for waste reduction and/or recycling;
d. Substantial changes in the availability of waste reduction and recycling opportunities available to District residents;
e. The availability of revenues for plan implementation;
f. Procedures to be followed for plan implementation;
g. Timetable for implementation of programs and/or activities;
h. Facility designations and the flow of waste (the addition or removal of a facility from the designated list is not a material change in circumstances); and
i. Any other factor that the Board considers relevant.

The Determination Criteria will be evaluated on the basis of the District Policy Committee's annual review of the approved Plan, and/or information obtained through the District Staff monitoring program. The staff monitoring program includes the following:

a. Quarterly analysis of District revenues;
b. Analysis of information acquired by District Staff for preparation of the Annual District Report;
c. Information acquired by District Staff through follow-up investigations of citizen complaints which indicate the existence of deviations from or noncompliance with the District Plan; and
d. Analysis of information voluntarily provided to the District Staff by state or local officials and employees, or owners and operators of solid waste collection, disposal, transfer, recycling activities, or resource recovery facilities, which indicate the existence of major deviations from and/or noncompliance with the District's Plan.

The Policy Committee or District Staff will immediately notify the Board of any reliable information that suggests that a change in circumstances has occurred that warrants the Board's consideration.

Within 10 days from receipt of notification from the Policy Committee or the District Staff that there may be a material change in circumstances, the District's Board of Directors will request the District Staff to prepare a report which discusses the events or conditions that have changed as identified in the notice to the Board and apply the criteria listed in paragraph 1, above. The District Staff will prepare the report and submit it to the Board of Directors within 30 days of the Board's request. Within 10 days after the receipt of the District Staff's report, the Board will determine whether additional information is necessary for the Board to determine whether a material change has occurred. If the Board determines that additional information is required, the District Staff will revise its report to include such additional information and submit its revised report within 20 days of the Board's request for additional information.

Within 60 days after the Board's receipt of the District Staff's revised and final report, the Board will decide whether the changed circumstances are material pursuant to the criteria listed in paragraph 1, above. The Board may obtain such additional information from sources other than the District Staff as the Board deems necessary and appropriate to assist the Board in its determination of whether a material change in circumstances has occurred.

Upon the Board's determination that a material change in circumstances has occurred, the Board shall notify the District Policy Committee and the Director of the Ohio Environmental Protection Agency, in writing, within 10 days of the Board's determination. The Board's notice to the Policy Committee shall request the District Policy Committee to prepare a draft amended solid waste plan, pursuant to ORC 3734.56 (D), that addresses those portions of the District's Plan that the Board has determined may be affected, directly or indirectly, by the material change in circumstances.

APPENDIX B

RECYCLING INFRASTRUCTURE INVENTORY

Appendix B. Recycling Infrastructure Inventory

This appendix provides a review of the recycling infrastructure available in the reference year (2021), which includes curbside recycling programs, recycling drop-off sites, collection service providers, and compost facilities/activities.

A. Curbside Recycling Services, Drop-off Recycling Locations, and Mixed Solid Waste Materials Recovery Facilities

1. Curbside Recycling Services

Table B-1a. Inventory of Non-Subscription Curbside Recycling Services Available in the Reference Year

ID #	Name of Curbside Service	Service Provider	County	How Service is Provided	Collection Frequency	Materials Collected	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
NSC1	Fairfield City	Rumpke	Butler	Contract with Hauler	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	1,953	Y
NSC2	Hamilton City	Rumpke	Butler	Contract with Hauler	Every Other Week	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	2,510	Y
NSC3	Middletown City	Rumpke	Butler	Contract with Hauler	Every Other Week	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	1,445	Y
NSC4	Monroe City	Rumpke	Butler	Contract with Hauler	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	504	Y
NSC5	Oxford City	Rumpke	Butler	Contract with Hauler	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	898	Y

ID #	Name of Curbside Service	Service Provider	County	How Service is Provided	Collection Frequency	Materials Collected	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
NSC6	Ross Township	Rumpke	Butler	Contract with Hauler	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	523	Y
NSC7	Trenton City	Rumpke	Butler	Contract with Hauler	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	681	Y
Total									8,514	

Source: 2021 Annual District Report

Seven non-subscription curbside recycling programs operated in the reference year. These seven services collected just over 8,500 tons of recyclable material from residents of Butler County. A total of 69,359 households were served in the reference year. Rumpke serviced all seven non-subscription curbside recycling programs.

Table B-1b: Inventory of Subscription Curbside Recycling Services Available in the Reference Year

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
SC1	Fairfield Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	566	Y
SC2	Hanover Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	195	Y
SC3	Liberty Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	1,586	Y
SC4	Morgan Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	143	Y
SC5	West Chester Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics	Single Stream	N	2,300	Y

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
					Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons				
SC6	Oxford Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	13	Y
SC7	Reily Township	Butler	Rumpke	Weekly	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Single Stream	N	52	Y
Total								**4,855**	

Source: 2021 Annual District Report
Note: All Townships in Butler County had access to subscription curbside recycling. Only townships that had reported curbside totals were included above.

Seven subscription curbside recycling programs operated in the reference year. A total of about 4,900 tons of curbside recycling was collected from 43,771 households. Rumpke serviced all seven subscription curbside recycling programs through single stream, Every Other Week collection.

2. Drop-off Recycling Locations

Table B-2a. Inventory of Full-Time, Urban Drop-Off Sites Available in Reference Year

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
FTU1	Fairfield City, Community Arts Center	Fairfield contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	34	Y
FTU2	Fairfield City, Fairfield Aquatic Center	Fairfield contracted with Rumpke	Butler	Single Stream	Limited Hours, Day Light to Dark	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU3	Fairfield City, Gilbert Park	Fairfield contracted with Rumpke	Butler	Single Stream	Limited Hours, Day Light to Dark	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU4	Fairfield City Municipal Building	Fairfield contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
FTU5	Fairfield City Justice Center	Fairfield contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU6	Fairfield Township, Fire Station	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU7	Fairfield Township, Fire Station No. 2	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	49	Y
FTU8	Hamilton City, Fire Station No. 1	Hamilton contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	10	Y
FTU9	Hamilton City, Fire Station No. 2	Hamilton contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU10	Hamilton City, Fire Station No. 5	Hamilton contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU11	Hanover Township, Memorial Park	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	124	Y
FTU12	Liberty Township, Fire Station No. 1	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	217	Y
FTU13	Liberty Township, Fire Station No. 2	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU14	Liberty Township, Fire Station No. 3	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU15	Madison Township, Township Administration Building	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	38	Y
FTU16	Middletown City, Fire Station No 5	Middletown contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	16	Y
FTU17	Middletown City, Fire	Middletown contracted	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars;	Y	Included in total	Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
	Station Headquarters	with Rumpke				Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons			
FTU18	Morgan Township, Administration Building	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	65	Y
FTU19	Morgan Township, Shandon Fire Station	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU20	Oxford City, Miami University Culinary Support Center	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	111	Y
FTU21	Oxford City, Miami University Police Station	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	Included in total	Y
FTU22	St. Clair Township, Administration Building	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	9	Y
FTU23	West Chester Township, Beckett Park	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	N	325	N
FTU24	West Chester Township, Keehner Park	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	N	Included in total	N
FTU25	West Chester Township, Activity Center	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	N	Included in total	N
Total								997	

Source: 2021 Annual District Report

The District contracted service (provision of container and collection) for 15 full time urban drop off sites for residents. There was a total of 25 drop-off sites throughout the District. These sites are open 24/7 for residents to drop off recycling using a single stream method (all recyclables are commingled together). The District reported collecting nearly 1,000 tons from full-time urban sites. Some of the collected tonnages could not be separated by unique drop-off sites and instead were captured under one community hosting multiple drop-off sites.

The District provided targeted outreach to the drop off sites located in West Chester as these sites were facing contamination issues. The outreach methods focused on a

Recycle Right campaign to better educate residents on proper recycling. The District developed a series of educational videos in partnership with the West Chester Communications team that was broadcast on television and created a trifold brochure that was placed at the drop off locations with details about proper recycling. This information was also shared on the Butler County SWMD and West Chester social media platforms. Despite these efforts contamination continued to be an ongoing issue and West Chester Township requested the drop-off containers be removed at end of 2022.

Table B-2b. Inventory of Part-Time, Urban Drop-Off Sites Available in Reference Year

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
NA									
Total								0	

Source: 2021 Annual District Report

There were no part-time urban drop off locations available to residents in the reference year.

Table B-2c. Inventory of Full-Time, Rural Drop-Off Sites Available in Reference Year

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
FTR1	Milford Township, Darrtown Hitching Post	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	109	N
FTR2	Reily Township, Community Center Parking	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	38	N
FTR3	Seven Mile Village, Fire Station	SWMD contracted with Rumpke	Butler	Single Stream	24/7	Paper & Cardboard, Glass Bottles & Jars; Plastics Bottles, Jugs & Tubs, Metal Cans & Cups; Cartons	Y	4	N
Total								**151**	

Source: 2021 Annual District Report

Three full-time rural drop-off recycling locations were available to residents of the District in the reference year. These three locations collected a total of 151 tons of material.

The District continued to experience contamination issues at the full-time rural drop off recycling locations. Due to this, the Seven Mile location was taken out of service in 2022. The 151 tons collected at these three sites accounted for 13% of all material collected at drop off sites.

Table B-2d. Inventory of Part-Time, Rural Drop-Off Sites Available in Reference Year

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
None									
Total								0	

Source: 2021 Annual District Report

There were no part-time rural drop-off recycling locations available to residents in the reference year.

3. Mixed Municipal Solid Waste Material Recovery Facility

Table B-3. Mixed Municipal Solid Waste Material Recovery Facility

Name of Facility	Location	Communities Served	Types of Materials Recovered	Weight of Materials Recovered (tons)	Waste Processed (tons)	Bypass Waste (tons)	Total Waste (tons)	Recovery Rate in Reference Year (percent)
None								0%
Total				**0**	**0**	**0**	**0**	**0%**

A mixed solid waste materials recovery facility (MRF) gives residents access to recycling opportunities by removing recyclables from trash for residents. In 2021, there were no mixed solid waste material recovery facilities in the District.

B. Curbside Recycling and Trash Collection Service Providers

Table B-4. Inventory of Curbside Recycling and Trash Collection Service Providers in the Reference Year

Name of Provider	Counties Served	Trash Collection Services				Curbside Recycling Services		
		PAYT (Y/N)	**Residential**	**Commercial**	**Industrial**	**Residential**	**Commercial**	**Industrial**
Rumpke	Butler	N	X	X	X	X	X	X
Republic	Butler	N	X	X	X	X	X	X
Best Way Disposal	Butler	N		X	X		X – OCC only	X – OCC only

Source(s): 2021 Annual District Report
Notes: PAYT = Pay-As-You-Throw

There are three haulers that operate in the District: Rumpke, Best Way Disposal, and Republic. Trash and recycling collection for both residents and businesses are provided by Republic and Rumpke. Best Way Disposal serves commercial businesses with trash removal and also collects cardboard to recycle. The District utilizes Rumpke as the hauler for the drop off collection program. Best Way Disposal does not service the residential sector.

C. Composting Facilities

Table B-5. Inventory of Composting/Yard Trimmings Management Activities Available in the Reference Year

Facility Name	Compost Facility Classification	Publicly Accessible (Y/N)	Location	Food Waste (tons)	Yard Waste (tons)	Total
London Correctional Institute	2	N	1580 St Rte. 56, London, OH	40		40
Malena Organic Compost	N/A	N/A	N/A		36	36
City of Trenton Composting Facility	4	Y	Corner of Sal Blvd and E State St, Trenton, Ohio		423	423
Mad River Topsoil	N/A	N/A	5625 Old Lower Valley Pike, Springfield, OH		1	1
NPK Composting	4	Y	10795 Hughes Rd, Cincinnati, Ohio		808	808
Oxford Collins Run Composting Facility	4	Y	945 S Main St, Oxford, Ohio		1,219	1,219
Total				**40**	**2,487**	**2,527**

Source(s): 2021 Ohio EPA Compost Facility Report

Organic waste is valuable material that has beneficial uses such as soil conditioners, erosion control, improved soil nutrient retention, etc. **Table B-5** identifies the yard waste management facilities and activities which received yard waste and other organic waste during the reference year. This table includes the facilities and programs that manage

food waste and yard waste. As shown in the table, the District sent 2,527 tons of material to six different composting facilities in the reference year. A majority, 98% of this was yard waste while food waste made up the remaining 2%.

D. Other Food Waste and Yard Waste Management Programs

Table B-6. Inventory of Other Food and Yard Waste Management Activities Used in Reference Year

Facility or Activity Name	Activity Type	Location	Food Waste (tons)	Yard Waste (tons)
Hauler/Grocer Food Waste Data	Collection	Butler	802	0
Total			802	0

Source(s): 2021 Ohio EPA Compost Facility Report

The District reported a total of 802 tons of material from hauler/grocer food waste data in the refence year.

E. Material Handling Facilities Used by the SWMD in the Reference Year

Table B-7. Inventory of Material Handling Facilities Used by the District in the Reference Year

Facility Name	County	State	Type of Facility	Weight of Material Accepted from SWMD (tons)
Rumpke Center City Recycling	Hamilton	Ohio	MRF	23,158
Rumpke Elmwood Recycling Cincinnati	Hamilton	Ohio	MRF	673
Rumpke Recycling - Dayton	Montgomery	Ohio	MRF	12
Dayton Glass Plant	Montgomery	Ohio		1,109
Total				23,843

Source(s): Ohio EPA 2021 Material Recovery Facility Report

As indicated in **Table B-7** above, four material handling facilities reported receiving waste from the District in the reference year. Nearly all the material sent to handling facilities is processed at a Rumpke facility.

APPENDIX C

POPULATION DATA

APPENDIX C. Population Data

A. Reference Year Population

Table C-1a. Reference Year Population Adjustments

	Population
Before Adjustment	**390,234**
Additions	
Fairfield City	0
Middletown City	3,280
Monroe City	120
Subtractions	
College Corner Village	147
Sharonville City	2,531
After Adjustment	**391,496**

Source(s):
"2021 Population Estimates for Cities, Villages, and Townships" prepared by Ohio Development Services Agency, Office of Research
"Population and Households: 2020, 2010, and 2000" prepared by Ohio Development Services Agency, Office of Research

Table C-1b: Total Reference Year Population

Unadjusted Population	Adjusted Population
390,234	**391,496**

Reference year population is taken from Ohio Development Services Agency Office of Statistical Research (ODSA, OSR). OSR provided population numbers for 2020 based on the 2020 U.S. Census data by governmental unit. Note: Ohio law requires that the entire population of a municipality located in more than one solid waste management district be added to the solid waste management district containing the largest portion of the jurisdiction's population.

The District has five communities that are located in more than one solid waste management District. Three of these communities, Fairfield City, Middletown City, and Monroe City have a majority of their populations in the District and were therefore added to the District's population. The remaining two communities, College Corner Village and Sharonville City, have a majority of their populations outside of the District boundaries. The portion of population within District boundary was subtracted from the District's population. The total change from the adjustments is an added 1,262 residents.

B. Population Projections

Table C-2: Population Projections

Year	Butler	Total District
2021	391,496	391,496
2022	395,280	395,280
2023	397,234	397,234
2024	399,188	399,188
2025	401,142	401,142
2026	403,358	403,358
2027	405,574	405,574
2028	407,790	407,790
2029	410,006	410,006
2030	412,222	412,222
2031	414,010	414,010
2032	415,798	415,798
2033	417,586	417,586
2034	419,374	419,374
2035	421,162	421,162
2036	423,254	423,254
2037	425,346	425,346
2038	427,438	427,438
2039	429,530	429,530

Source: Ohio Development Services Agency, "2010 to 2040 Projected Population for Ohio Counties - Summary 2010 to 2040 Projected," April 2018.
Sample Calculations:

Adjusted population in Butler 2021 = 391,496
Projected population in Butler 2030 = 414,010
10-year population change in Butler = (414,010-391,496) / 414,010= 6%

Population projections for the entire planning period are shown above in **Table C-2**. The District population calculated for 2025, 2030, 2035, and 2040 are projection estimates from the Ohio Development Services Agency. Linear interpolation was used to develop the population estimates for years between the five-year intervals listed above.

Population projections gauge future demand for services, but in projection calculations there are room for errors given the difficulty associated with forecasting. **Table C-2** shows a steady growth in the population throughout the planning period. The population is expected to increase by 8.43% from 2021 through the planning period (year 2039). This is an annual growth rate of 0.4%. The population is estimated to increase by almost 21,000 residents through the fifth year of the planning period (2030), a 5% increase.

APPENDIX D

DISPOSAL DATA

Appendix D. Disposal Data

A. Reference Year Waste Disposed

This appendix focuses only on waste that is disposed of in landfills. This appendix does not include waste diversion or waste generation. For more information on these, please see Appendix E and Appendix G respectively.

Table D-1a. Waste Disposed in Reference Year – Publicly-Available Landfills (Direct Haul)

	Location		Waste Accepted from the SWMD			
Facility Name	**County**	**State**	**Residential/ Commercial (tons)**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
SWACO Franklin County Landfill	Franklin	Ohio	2	-	-	**2**
Pine Grove Regional Facility	Fairfield	Ohio	-	1,202	-	**1,202**
Preble County Landfill	Preble	Ohio	2,128	-	-	**2,128**
Rumpke Sanitary Landfill	Hamilton	Ohio	332,466	159,608	15,742	**507,816**
Rumpke Waste Brown County Landfill	Brown	Ohio	22	34,530	5	**34,558**
Carbon Limestone Landfill	Mahoning	Ohio	-	10	-	**10**
Stoney Hollow Landfill	Montgomery	Ohio	4,271	1,898	162	**6,331**
New Paris Pike Landfill	Wayne	Indiana	32,294	-	-	**32,294**
Bavarian Trucking Landfill	Boone	Kentucky	1,591	4,764	95,438	**101,793**
Pendleton County Landfill	Pendleton	Kentucky	13	6,866	-	**6,878**
Valley View Landfill	Trimble	Kentucky	-	165	-	**165**
WM of Kentucky	Boone	Kentucky	-	123	-	**123**
Caldwell Landfill	Shelby	Indiana		752		
Total			**372,788**	**209,918**	**111,347**	**694,053**

Source(s)**:** Ohio Environmental Protection Agency, "2021 Ohio EPA Waste Flow Report"
Note: Excluded wastes are classified as slag, uncontaminated earth, non-toxic fly ash, spend non-toxic foundry sand and material from mining, construction, or demolition operations.

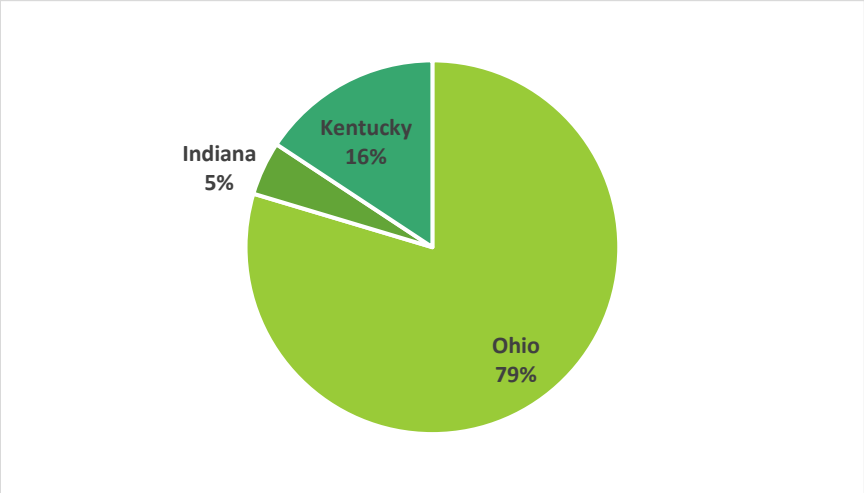
A wide variety of waste is disposed in municipal solid waste landfills. Material disposed at these facilities includes waste from households, businesses, institutions, and industrial activities. If permitted, asbestos construction and demolition debris, dewatered sludge, soil, and incinerated ash may also be disposed in landfills. Industrial waste includes excluded waste. Waste flows to landfills either by direct haul or through a transfer facility.

The majority (73%) of the District's waste which was direct-hauled for disposal in the reference year was sent to the Rumpke Sanitary Landfill located in Hamilton County (see **Table D-1a**). The Bavarian Trucking landfill in Kentucky, the New Paris Pike Landfill in Indiana, and the Rumpke Waste Brown County Landfill also accepted substantial

amounts of the District's waste at 15%, 5%, and 5% respectively. The remaining 2% of materials are sent to other landfills listed above.

The District used 12 publicly available landfills to dispose direct hauled waste. Five of these landfills were located out of state. Four locations were in Kentucky and one location was in Indiana. **Figure D-1** below shows the distribution of direct hauled waste disposed by state.

Figure D-1 Total Waste Flow – Direct Haul



Source(s): Table D-1a

A majority of the direct hauled waste is being disposed of at in-state landfills. A total of 21% of the waste is being hauled out-of-state to neighboring states, 5% to Indiana and 16% to Kentucky.

Table D-1b. Reference Year Waste Disposed – Captive Landfills

	Location		Waste Accepted from the District		
Facility Name	**County**	**State**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
None					0
Total			0	0	0

Source(s): Ohio Environmental Protection Agency, "2021 Ohio EPA Waste Flow Report"

There were no captive landfills located within the District during the reference year. In addition, no captive landfills located outside the District were used to manage waste generated by the District.

Table D-1c. Total Waste Disposal in Landfills (Direct Haul)

Residential/Commercial (tons)	Industrial (tons)	Excluded (tons)	Total
372,788	209,918	111,347	694,053

Source(s): Ohio Environmental Protection Agency, "2021 Ohio EPA Waste Flow Report"
Note: Excluded wastes are classified as slag, uncontaminated earth, non-toxic fly ash, spend non-toxic foundry sand and material from mining, construction, or demolition operations.

In the reference year, a total of 693,301 tons of waste was directly hauled from the District. Approximately 54% of the direct hauled waste is from the residential/commercial sector, 30% from the industrial sector, and 16% is classified as excluded waste.

Table D-2. Reference Year Waste Transferred

	Location		Waste Received from the SWMD			
Facility Name	**County**	**State**	**Residential/ Commercial (tons)**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
Hamilton Transfer Facility	Hamilton	Ohio	10,443		112	**10,555**
Montgomery County South Transfer	Montgomery	Ohio	3,926			**3,926**
Rumpke Waste Greenville Transfer Facility	Darke	Ohio	113		32	**144**
Republic Services Evendale Transfer Facility	Hamilton	Ohio	36,355			**36,355**
Dearborn Transfer Facility	Dearborn	Indiana	5,356		1,849	**7,205**
NA - Multiple Facilities	NA	Indiana	7	42		**49**
Total			**56,200**	**42**	**1,993**	**58,235**

Source(s)**:**
Ohio EPA "2021 Analytics Waste Flow Report"
Ohio EPA "2021 Facility Data Report"
Note: Excluded wastes are classified as slag, uncontaminated earth, non-toxic fly ash, spend non-toxic foundry sand and material from mining, construction, or demolition operations.

Transfer facilities accept solid waste deliveries from waste haulers and residents. The waste loads are consolidated, temporarily stored, and loaded for transport. The waste is then delivered to a processing facility or disposal site. In instances where waste flows from a transfer facility to a landfill, the county of origin is not recorded at the landfill. When received at a landfill, the load of trash from a transfer facility could include waste from multiple counties. As a result, it is difficult to track and record the County of origin for transferred waste tons.

Transfer facilities processed 58,235 tons of material from the District in the reference year. The majority of the transferred waste is transferred through the Republic Services Evendale Transfer Facility, approximately 62% of the District's transferred waste. Some of the District's transferred waste is transferred to out-of-state facilities in Indiana. The Dearborn Transfer Facility transferred roughly 12% of the waste and unnamed "multiple facilities" transferred a very small amount of waste.

Table D-3 Waste Incinerated/Burned for Energy Recovery in Reference Year

		Location		Waste Accepted from the SWMD			
Facility Name	**Facility Type**	**County**	**State**	**Residential/ Commercial (tons)**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
Covanta	Waste to Energy	Marion	Indiana	0	262	0	**262**
Total				0	262	0	**262**

Source(s)**:**
Ohio EPA "2021 Analytics Waste Flow Report"
Ohio EPA "2021 Facility Data Report"
Annual District Report 2021

The District had one business utilize a waste-to-energy facility in the reference year. A total of 262 tons of industrial waste was sent to Covanta in Indiana to be incinerated.

Table D-4. Reference Year Total Waste Disposed

	Residential/ Commercial (tons)	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**	**Percent of Total Waste Disposed**
Direct Hauled	372,788	209,166	111,347	**694,053**	92%
Transferred	56,200	42	1,993	**58,235**	8%
Incinerated	0	262	0	**262**	0%
Total	**428,988**	**210,221**	**113,340**	**752,549**	100%

Percent of Total	57%	28%	15%	100%	

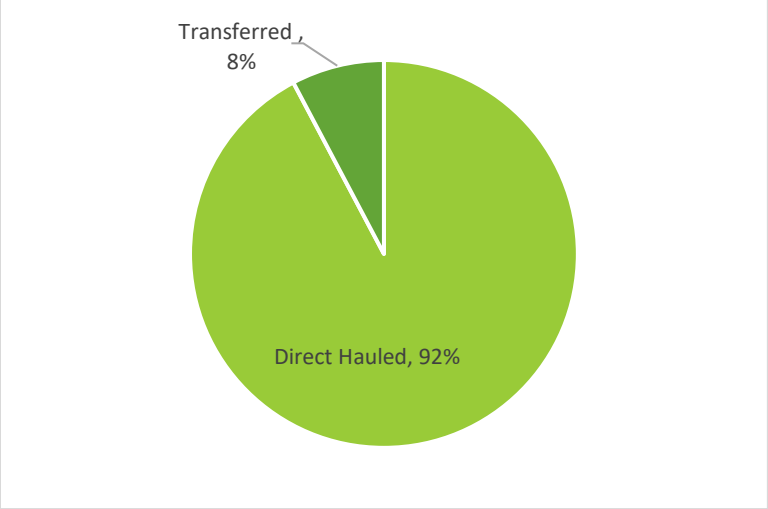
Source(s)**:**
Ohio EPA "2021 Analytics Waste Flow Report"
Ohio EPA "2021 Facility Data Report"
Note: Excluded wastes are classified as slag, uncontaminated earth, non-toxic fly ash, spend non-toxic foundry sand and material from mining, construction, or demolition operations.

According to Ohio EPA Format 4.1, if excluded waste is 10% or less of total disposal in the reference year, then Districts are not required to account for excluded waste in the solid waste management plan. For the District, excluded waste accounts for 15% of the total disposal in 2021 and will be included in this solid waste management plan.

Approximately 92% of the total waste was direct hauled, meaning a disposal truck picked up waste from clients and directly hauled that waste to a landfill for disposal. As discussed previously, direct hauled waste was disposed in landfills in Ohio, Kentucky, and Indiana. The remaining 8% of waste was hauled through a transfer facility before reaching the landfill for disposal.

Roughly 57% of the District's waste was derived from the residential/commercial sector, 28% from the industrial sector, and 15% was excluded waste. The District manages most of its waste in-state but does utilize two neighboring states to manage waste. **Figure D-2** details the total waste flow from direct haul and transferred waste.

Figure D-2 Total Waste Flow



B. Historical Waste Analysis

Table D-5. Historical Disposal Data

Year	Population	Residential/ Commercial Solid Waste		Industrial Solid Waste	Excluded Waste	Total Waste
		Rate (ppd)	Weight (tons)	Weight (tons)	Weight (tons)	Weight (tons)
2017	380,604	5.27	366,113	168,972	163,263	698,348
2018	382,378	5.35	373,629	179,663	142,543	695,835
2019	383,134	5.62	392,725	222,123	37,488	652,336
2020	390,110	5.48	389,821	219,439	100,639	709,899
2021	391,496	6.00	428,988	210,221	113,340	752,549

Source(s): Ohio EPA ADR Review Forms for 2017, 2018, 2019, 2020, and 2021 for population and waste disposal data.
Sample Calculation: Residential/Commercial + Industrial + Excluded = Total Waste
((Residential/Commercial tons * 2,000 pounds per ton) / 365 days) / Population = Residential/Commercial disposal rate

Table D-5a Annual Percentage Change

	Residential / Commercial	Industrial Solid Waste	Excluded Waste	Total Waste
2017				
2018	2%	6%	-13%	0%
2019	5%	24%	-74%	-6%
2020	-1%	-1%	168%	9%
2021	10%	-4%	13%	6%

Table D-5b Annual Change in Tons Disposed

	Residential / Commercial	Industrial Solid Waste	Excluded Waste	Total Waste
2017				
2018	7,516	10,691	-20,720	-2,513
2019	19,096	42,460	-105,055	-43,499
2020	-2,904	-2,684	63,151	57,563
2021	39,167	-9,218	12,701	42,650

Table D-5c Average Annual Percentage Change

Average Annual Percentage Change	
Residential/Commercial	4.12%
Industrial Waste	6.14%
Excluded Waste	23.67%

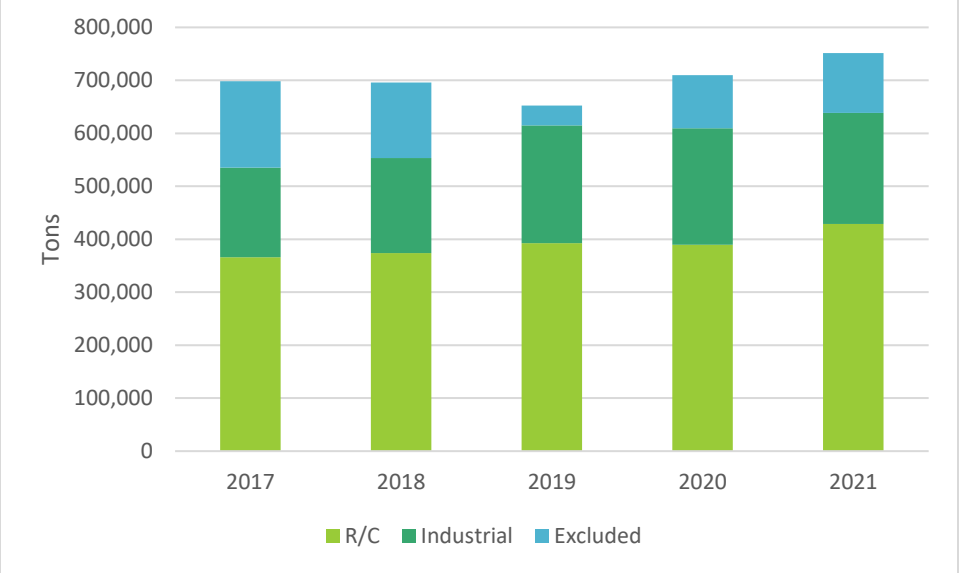
Table D-5d Average Annual Change in Tons Disposed

Average Annual Change in Tons Disposed	
Residential/Commercial	15,719
Industrial	10,312
Excluded	-12,481

Table D-5e Average Per Capita Disposal Over Time

Average Per Capita Disposal Over Time (5 Years)	
Residential/Commercial	5.54

Figure D-3 Historical Waste Disposal



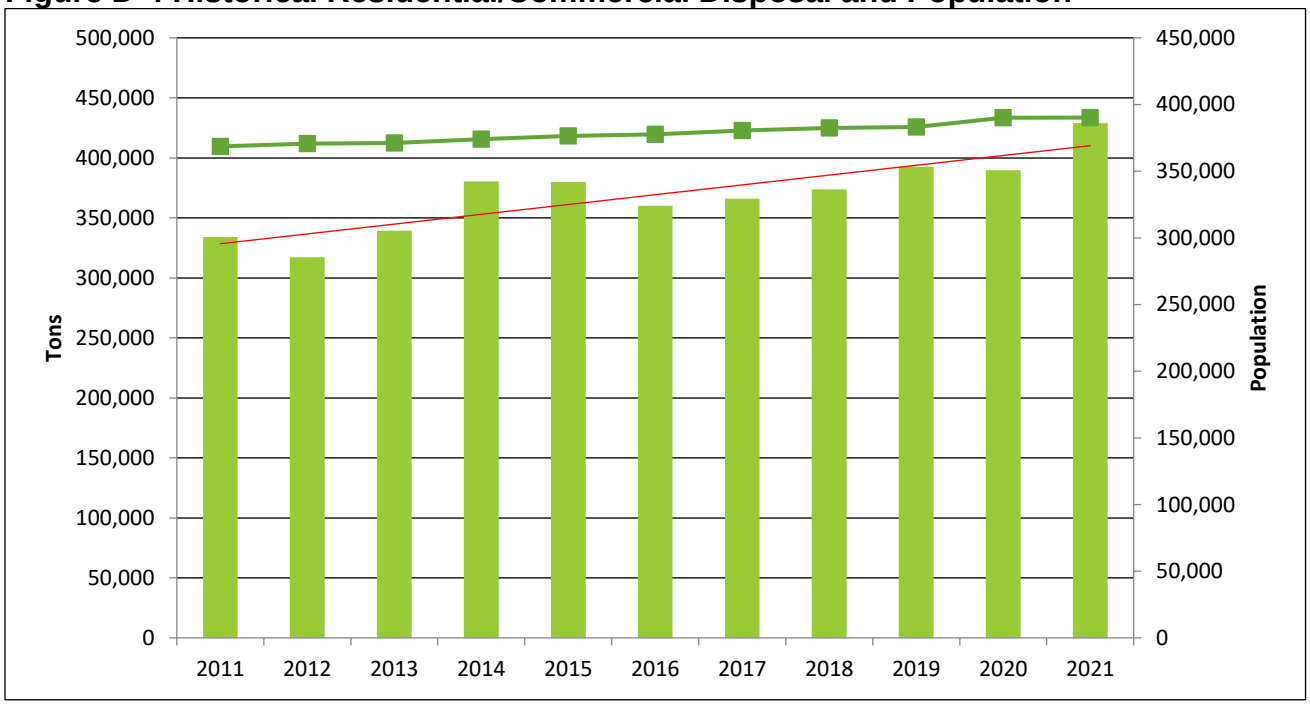
The disposal tonnages for the residential/commercial sector, industrial sector, excluded waste, and total disposal are shown graphically above. As seen in **Figure D-3**, total waste

disposed demonstrated a relatively flat trend over the 2017 to 2021 timeframe. In 2019, waste disposal dipped to about 652,000 tons, but otherwise held near 700,000 tons annually. A notable increase occurred in 2021, with over 750,000 tons disposed, which is nearly a 10% increase over the previous year.

Residential/commercial waste accounts for the largest share of total waste disposed of in the District historically. **Figure D-3** shows an increase in residential/commercial waste disposed each year. During the five-year span, residential/commercial waste increased from 366,000 tons in 2017 to 429,000 tons in 2020. Industrial disposal increased for the first three years of the period before observing small decreases in 2020 and 2021. Excluded waste disposal over this same period saw an unusually low reported disposal of 37,500 tons in 2019 about a 65% decrease from historical tonnages. The following analysis will explore these patterns in more detail.

1. Residential/Commercial Disposal

Figure D-4 Historical Residential/Commercial Disposal and Population



Historical waste disposal is following an upward trend even though the data graphed shows fluctuations over the 10-year period. The previous 2018 Plan projected approximately 392,542 tons in 2021 which is lower than actual recorded tonnages. This previous plan projected the District's waste disposal would be following a downward trend from the 2014 tonnage of 380,446 tons. Instead of a gradual decline, in 2016 waste tonnage fell by 5% then gradually increased from 2017 to 2019. The COVID 19 pandemic in 2020 resulted in a slight decline in waste landfilled in the residential/commercial sector. Waste landfilled rebounded with a 10% increase in disposal in 2021, an all-time historical high for the District.

Figure D-5 Historical Residential/Commercial Disposal and Disposal Rate

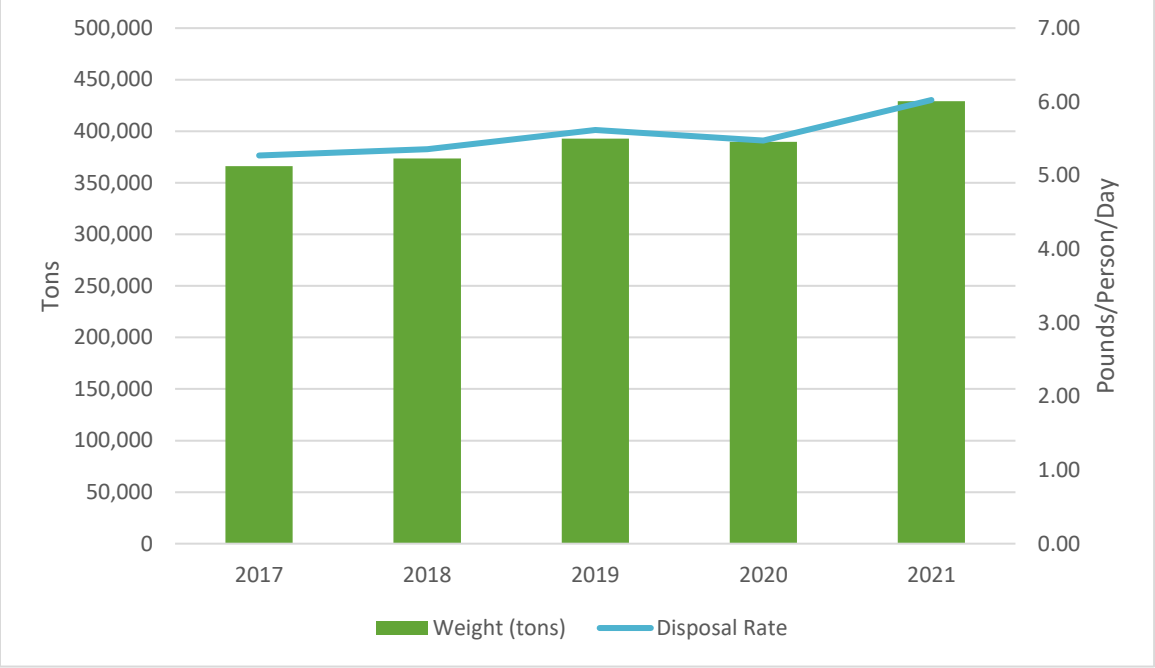
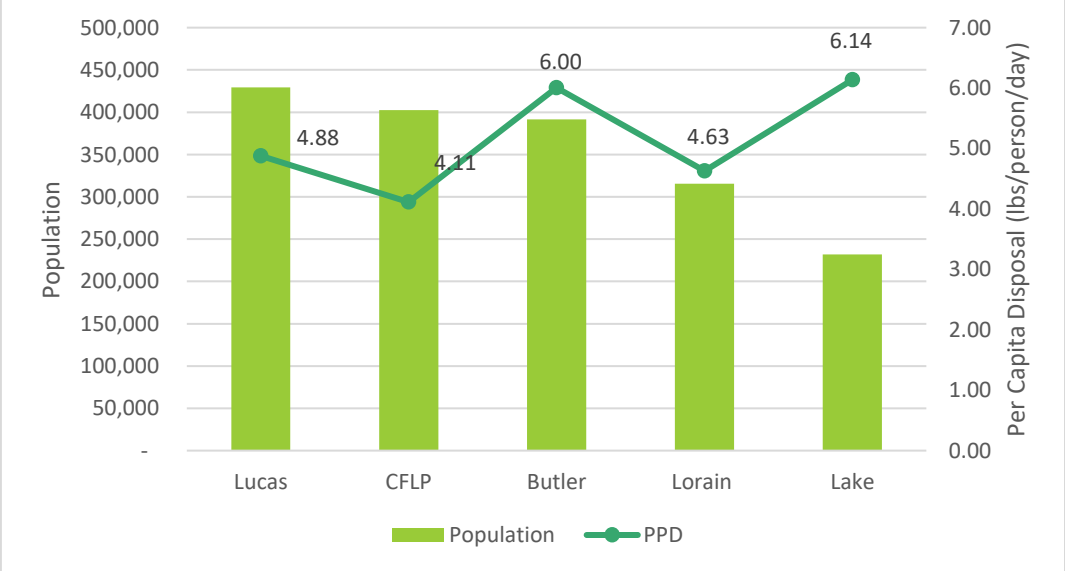


Figure D-5 shows the total amount of residential/commercial waste disposed and the rate of disposal in pounds per person per day. The population of the District continued to increase over the 5-year period. The residential/ commercial waste disposal and per capita disposal rate also followed an increasing trend. The waste disposed increased by an average annual rate of 4%, beginning at around 366,000 tons and ending at approximately 429,000 tons in 2021.

Figure D-6 Benchmark Per Capita Disposal



Source(s): OEPA Disposal, Recycling, and Generation Report 2021
Note: CFLP is the Coshocton-Fairfield-Licking-Perry Joint SWMD

Figure D-6 compares the District's residential and commercial disposal rate to other districts in Ohio with similar populations. Of the Districts in the comparison, Butler County is the second highest in terms of disposal rate. Households in Butler County are disposing of approximately 6 pounds per person per day. Lake County is higher at 6.14 pounds per person per day.

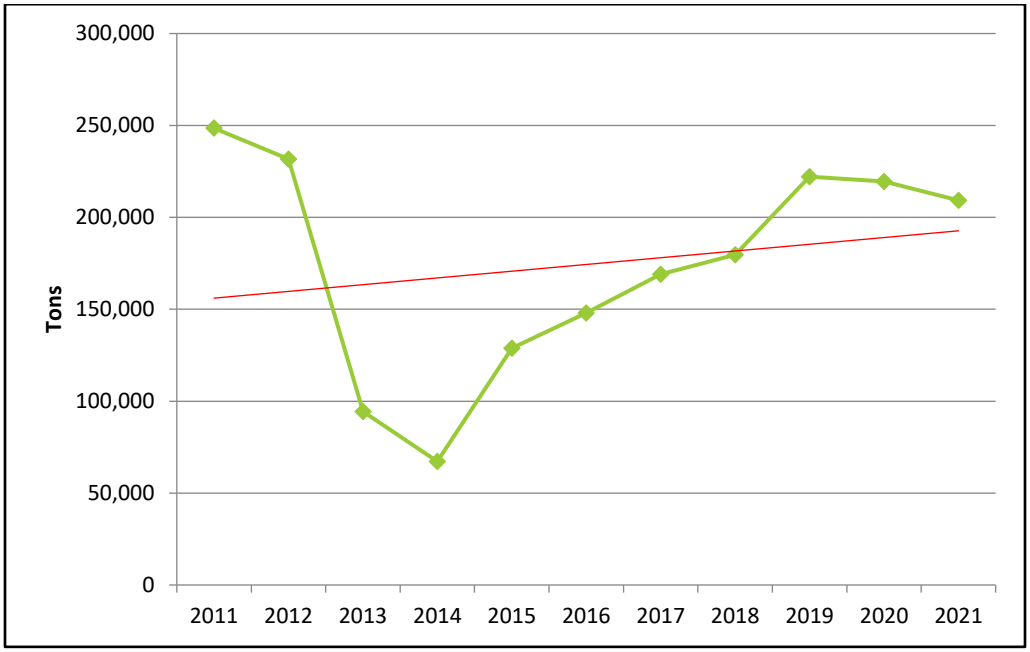
Figure D-7 Benchmark Per Capita Disposal - Regional

Source(s): OEPA Disposal, Recycling, and Generation Report 2021

Figure D-7 presents the District and its neighboring counties' disposal rate and population. Butler county sits in the middle of the five counties at 6 pounds per person per day. Hamilton County has the highest disposal rate of 6.34 pounds per person per day and Preble County has the lowest disposal rate at 3.58 pounds per person per day.

2. Industrial Sector Disposal

Figure D-8. Historical Industrial Sector Disposal

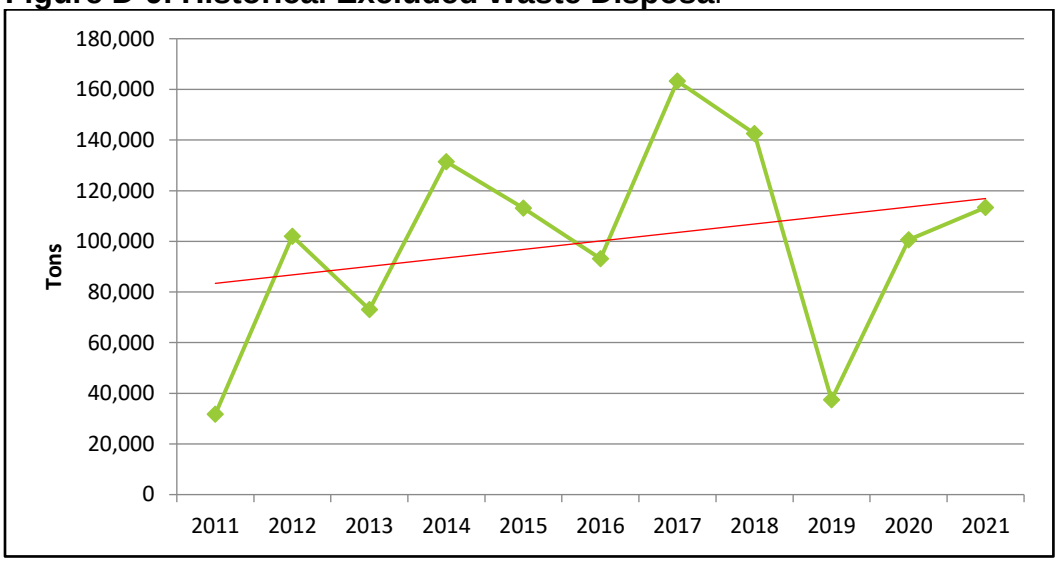


Industrial waste accounts for approximately 28% of the waste disposed in the reference year. The District has overall seen an increasing trendline for industrial disposal over the past five years from 2016 to 2021. However, after peaking in 2019 at just over 222,000 the District has seen consecutive years where industrial disposal has decreased. The last two years the District saw a modest 1% decrease in 2020 and a 4% decrease in 2021.

Looking at the historical data from the last 10 years, including the reference year, the general trend of an increasing industrial sector remains true. The District averaged 5% annual increases over this time. However, the District saw two years with steep declines before seeing steady increases. Industrial disposal decreased by 59% and 29% consecutively in 2013 and 2014. Research confirmed a major industry within the District reported scaling down operations in these years in addition to multiple paper mill closures. Since 2014, the District reported increases every year until 2020. Despite the trendline, the District has not reached the same levels of industrial disposal as documented in 2011.

3. Excluded Waste Disposal

Figure D-9. Historical Excluded Waste Disposal



Excluded wastes includes slag, uncontaminated earth, non-toxic fly ash, spent non-toxic foundry sand and material from mining, construction, or demolition operations.

Excluded waste represents as much as 23% of total waste disposed and as low as 6% of total waste disposed. As seen above, 2019 seems to be an outlier year. It is unclear what caused this significant drop. Excluding this outlier, excluded waste accounted for 18% of total waste disposed on average. Because 2019 is an outlier, it has not been included in the projection calculations in this section or subsequent sections.

The record of 10-year historical excluded waste disposal is volatile and often fluctuates. Excluded waste disposed was the near same low tonnage in 2019 as it was in 2011. In 2011, the District reported around 31,000 tons of excluded waste, 6,000 tons lower than the 2019 value. As shown, both lows were followed by large increases rebounding excluded waste totals above 100,000 tons. This seems to be the trend for the District, significant decreases followed by significant increases. The District is unsure what causes the tonnage volatility in excluded waste.

C. Disposal Projections

There are several methods that can be used for projecting waste disposal through the planning period. These include historical per capita, historical averages, and historical trends. After conducting the historical analysis and considering factors that could change historical trends, waste disposal is projected in **Table D-6** below. For residential/commercial projections this analysis calculated the 10-year average percent change the District observed and divided this number by 10 to get annual change of 0.27%. For the industrial sector, the District used the Ohio Job Outlook Projections Southwest Ohio data. The projected average annual percent change for Ohio's

Southwest industrial sector is a decrease of 0.47%. This declining percentage is used for the District's industrial waste generation projection. Finally, for excluded waste the District fixed waste generation at the reference year value of 113,340 tons. Due to volatility in the District's excluded waste, projections remain static.

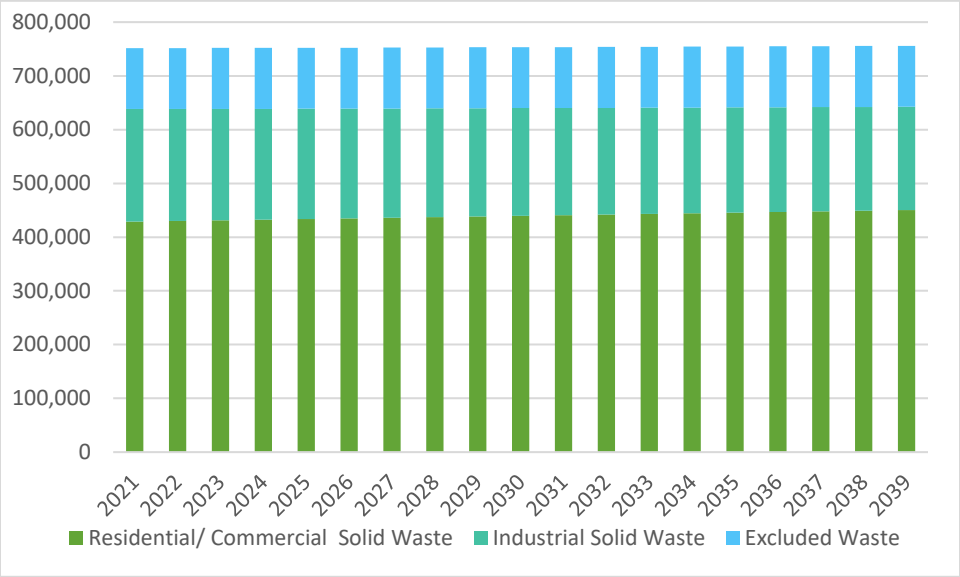
A total of 8% waste in the reference year was taken to a transfer facility prior to being disposed of at a landfill. Based on analysis of available disposal capacity, the District does not identify any reasons the amount of transferred waste will change. Therefore, annual transferred waste projections are calculated at a rate of 8% of the total waste disposed.

Table D-6. Waste Disposal Projections

Year	Residential/ Commercial Solid Waste	Industrial Solid Waste	Excluded Waste	Total Waste	Waste Transferred (as part of Total Disposal)	Waste Transferred (as part of Total Disposal)
	Weight	Weight	Weight	Weight	Weight	Percent
	(tons)	(tons)	(tons)	(tons)	(tons)	8%
2021	428,988	210,221	113,340	752,549	58,235	8%
2022	430,140	209,233	113,340	752,713	58,247	8%
2023	431,296	208,249	113,340	752,886	58,261	8%
2024	432,455	207,271	113,340	753,066	58,275	8%
2025	433,617	206,297	113,340	753,254	58,289	8%
2026	434,782	205,327	113,340	753,449	58,305	8%
2027	435,950	204,362	113,340	753,653	58,321	8%
2028	437,122	203,401	113,340	753,864	58,337	8%
2029	438,296	202,445	113,340	754,082	58,354	8%
2030	439,474	201,494	113,340	754,308	58,372	8%
2031	440,655	200,547	113,340	754,542	58,390	8%
2032	441,839	199,604	113,340	754,784	58,409	8%
2033	443,026	198,666	113,340	755,033	58,428	8%
2034	444,217	197,732	113,340	755,289	58,448	8%
2035	445,410	196,803	113,340	755,554	58,468	8%
2036	446,607	195,878	113,340	755,826	58,490	8%
2037	447,807	194,958	113,340	756,105	58,511	8%
2038	449,010	194,041	113,340	756,392	58,534	8%
2039	450,217	193,129	113,340	756,686	58,556	8%

Source(s):
2021 Ohio EPA ADR Review Form
Ohio JFS 2028 Ohio Job Outlook Northeast Ohio Projections.

Figure D-10 Waste Generated Projections



1. Residential/Commercial Sector

The District used the 10-year average percent change of 2.7% and divided by 10 to get the average annual growth rate of 0.27%. This growth rate was then applied to the subsequent years to project the disposal tonnages.

Sample Calculation:

2022 Value = (2021 value * annual growth rate) + 2021 value
2022 Value = (428,988 * 0.27%) + 428,988 = **430,140**

2. Industrial Sector

The Ohio Department of Jobs and Family Services projected industry decreases of 4.7% in manufacturing employment over the next ten years. Annualizing this over ten years calculates to a 0.47% annual decrease. Expecting decreased employment to mirror waste disposal, the District used this annual rate of decline to project the annual tonnage changes for industrial waste disposal in the District.

The Ohio Department of Jobs and Family Services expects the Southwest region to experience a decline in both plastics manufacturing and metal manufacturing by 4.6% and 5.4% respectively. Both of these materials are in the estimated top five materials landfilled per the EPA Advancing Sustainable Materials Management report from 2018.

Sample Calculation:

2022 Value = (2021 value * annual growth rate) + 2021 value
2022 value = (210,221 * -0.47%) + 210,221 = **209,233**

3. Excluded Waste

The District's excluded waste numbers for the previous 10 years have shown extremely high volatility. The numbers follow a peak and valley trend of high numbers in one-year, low numbers the following, and back up to high values the next year. Due to this volatility, the District has held the reference year value of 113,340 tons constant throughout the planning period.

D. Waste Imports

The District does not have an active landfill located inside its county, and therefore has no data on waste imports. Furthermore, there are no plans currently to develop a landfill in the District boundaries. As a result, there are no projections for waste imports.

Table D-7. Waste Imports

	Year																						
Facility Name	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
None																							
Total Imported	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX E

RESIDENTIAL/COMMERCIAL REDUCTION AND RECYCLING DATA

APPENDIX E. Residential/Commercial Reduction and Recycling Data

This Appendix presents the reduction and recycling data for the residential and commercial sectors in the 2021 reference year. To avoid double-counting tonnages, adjustments were made to tonnages reported by different types of entities, such as programs, brokers, and scrap yards. An item is "double counted" if the quantities from both respondents are calculated in the total recovery. A historic analysis of the residential/commercial sector's recycling is included in this Appendix. Information in this section as well as information from other sources was used to calculate the recycling projections from 2021 to 2039 which are included at the end of this Appendix.

A. Reference Year Recovery Data

Table E-1. Commercial Survey Results

NAICS	Appliances/ "White Goods"	Electronics	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste	Dry-Cell Batteries	Used Motor Oil	Other: Anti-Freeze	Other: Reusables	Other: Metal Rotors	Other: Styrofoam	Totals
42								420														
44							0		0													
45	4,000		9					331	8,931													
48			168			3	3	13		0	3,720	2			140		21	1		9	10	
52														3								
71														653	247				97			
72		1														1						
81								60	0	0				0		0						
Unadjusted Total	4,000	1	177	0	0	3	3	824	8,931	0	3,720	2	0	657	387	1	21	1	97	9	10	18,844
Adjustments		**1**						751														-752
Adjusted Total	**4,000**	**0**	**177**	**0**	**0**	**3**	**3**	**73**	**8,931**	**0**	**3,720**	**2**	**0**	**657**	**387**	**1**	**21**	**1**	**97**	**9**	**10**	**18,092**

NAICS stands for The North American Industry Classification System and is used by the United States, Canada, and Mexico to classify businesses by industry
Source(s) of Information: District surveys conducted to gather 2021 recycling data.
Note: Numbers are rounded to the nearest whole number.

Table E-1 shows commercial data obtained from the District's survey efforts. The District issued a survey to capture 2021 diversion data for the commercial sector. Adjustments were needed to avoid double counted data that was reported by other sources such as processors and transporters. The District recorded a total of 18,092 tons of material diverted from the commercial survey responses. An adjustment was made to prevent double counting of corrugated cardboard by 751 tons. The survey respondent identified Rumpke as the hauler who collected these materials, at the same time Rumpke also reported the data to Ohio EPA. An adjustment was made to electronics to remove 1 ton to prevent double counting.

Table E-2. Data from Other Recycling Facilities

Source of Materials	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Wood	Commingled Recyclables (Mixed)	Yard Waste	*Other*	*Total*
Buybacks											
None											
Scrap Yards											
None											
Brokers											
None											
Processor/ MRF's											
PR1	704	110	94	8,621	1,875	386					
PR2	1,935	303	259	2,670	5,156	1,045					
PR3				480	46	78	70				
PR4	223	0	0	10		0					
Total	2,862	413	353	11,782	7,076	1,509	70				24,065
Adj.	2,434	382	223	3,667	6,601	1,309					14,616
Adj.Total	**427**	**32**	**130**	**8,115**	**475**	**200**	**70**				**9,449**

Source(s) of Information: 2021 Ohio EPA Material Recovery Facility and Commercial Recycling Data.
Note: Numbers are rounded to the nearest whole number

Table E-2 contains tonnage information collected from the buyback surveys and Ohio EPA reports. Processors, buybacks, and MRFs capture recyclables and process them for recycling. The adjustments made above were to prevent material from being double counted by the District and Ohio EPA. The District reported 14,616 commingled materials that was also reported by a hauler to Ohio EPA. The District used the percentage of materials that comprises commingled recycling, as reported by Rumpke, to estimate how much of each material above comprised the commingled recycling. These percentage values were then applied to the amount of material, 14,616 tons and adjusted to prevent

further double counting. After adjustment, the District reported 9,449 tons of material diverted from other recycling facilities.

Table E-3. Data Reported to Ohio EPA by Commercial Businesses

Ohio EPA Data Source	Glass	Plastic	Newspaper	Cardboard	Mixed Paper	Nonferrous	Ferrous	Other	Wood	Food	Commingled	Total
Walmart		60		2,620		5		206				
Home Depot		1		127				25	116			
Target		14		575		12					6	
Dollar General		3		505	0							
Kohls		9		205		0		2				
Kroger		186		5,156				57				
CVS				30							43	
Advanced Auto Parts		0		8			3	167				
Unadjusted Total	0	273	0	9,227	0	16	3	456	116	0	49	**10,141**
Adjustments												
Adjusted Total	**0**	**273**	**0**	**9,227**	**0**	**16**	**3**	**456**	**116**	**0**	**49**	**10,141**

Source(s) of Information: 2021 Ohio EPA Material Recovery Facility and Commercial Recycling Data
Assumptions**:** No adjustments were made to the data reported to Ohio EPA.
Note: Numbers are rounded to the nearest whole number.

Quantities reported in **Table E-3** were obtained from the Ohio EPA Material Recovery Facility and Commercial Recycling Data Report. There were no adjustments needed to account for double counting. The Ohio EPA reported a total of 10,141 tons of material diverted from commercial businesses in the reference year.

Table E-4. Other Recycling Programs/Other Sources of Data

Other Programs or Sources of Data	HHW	Electronics	Scrap Tires	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	Mixed Paper	Plastics	Yard Waste	Total
Ohio EPA Scrap Tire Data			4,640									
Ohio EPA Yard Waste Data				842							2,487	
HHW Program	51											

Other Programs or Sources of Data	HHW	Electronics	Scrap Tires	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	Mixed Paper	Plastics	Yard Waste	Total
Scrap Tire Programs			135									
Electronics Recycling Program		76										
Yard Waste Programs											5,878	
Appliance Collection												
Curbside Collection					2,219	348	203	3,342	6,016	1,193		
Drop-Off Collection					216	34	20	325	585	116		
Unadjusted Total	**51**	**76**	**4,775**	**842**	**2,423**	**382**	**223**	**3,667**	**6,601**	**1,309**		**28,725**
Adjustments			135									**135**
Adjusted Total	**51**	**76**	**4,640**	**842**	**2,434**	**382**	**223**	**3,667**	**6,601**	**1,309**		**28,590**

Source(s) of Information: 2021 Ohio EPA Scrap Tire Report, 2021 Ohio EPA Compost Report, Survey Data
Note: Numbers are rounded to the nearest whole number.

Table E-4 presents tonnages diverted through programs and services the District offers in the reference year. This table includes all residential and commercial programs/services through which materials being credited to total diversion were recovered. Some materials may be collected from programs, processors, and haulers discussed above (see tables above) and therefore have been adjusted as such. The only adjustment made above was to scrap tire collection. The District recorded 135 tons of scrap tires diverted at collection events. This number is also reported to the Ohio EPA and has therefore been adjusted. The District reported 28,590 tons of material diverted from other recycling programs and sources.

Table E-5. Residential/Commercial Material Recovered in Reference Year

Material	Quantity (tons)
Appliances/ "White Goods"	4,000
Household Hazardous Waste	51
Used Motor Oil	21
Electronics	76
Scrap Tires	4,640
Dry Cell Batteries	1
Lead-Acid Batteries	177
Food	842
Glass	2,862
Ferrous Metals	419

Material	Quantity (tons)
Non-Ferrous Metals	373
Corrugated Cardboard	21,081
All Other Paper	16,007
Plastics	1,782
Textiles	3,720
Wood	188
Rubber	0
Commingled Recyclables (Mixed)	706
Yard Waste	8,752
Other (Aggregated)	573
Total	66,272

Source(s) of Information: 2021 ADR Calculation Spreadsheets, 2021 Ohio EPA MRF Reports, 2021 Ohio EPA Scrap Tire Report, 2021 District program and survey data, 2021 Ohio EPA Compost Report, 2021 ADR Review Forms
Note: All numbers are rounded to the nearest whole number.

The District diverted 66,672 tons from the residential/commercial sector. **Table E-5** reports quantities of each material diverted. The largest recycling categories in the reference year were cardboard, paper, and yard waste. These materials accounted for 69% of all materials diverted from this sector.

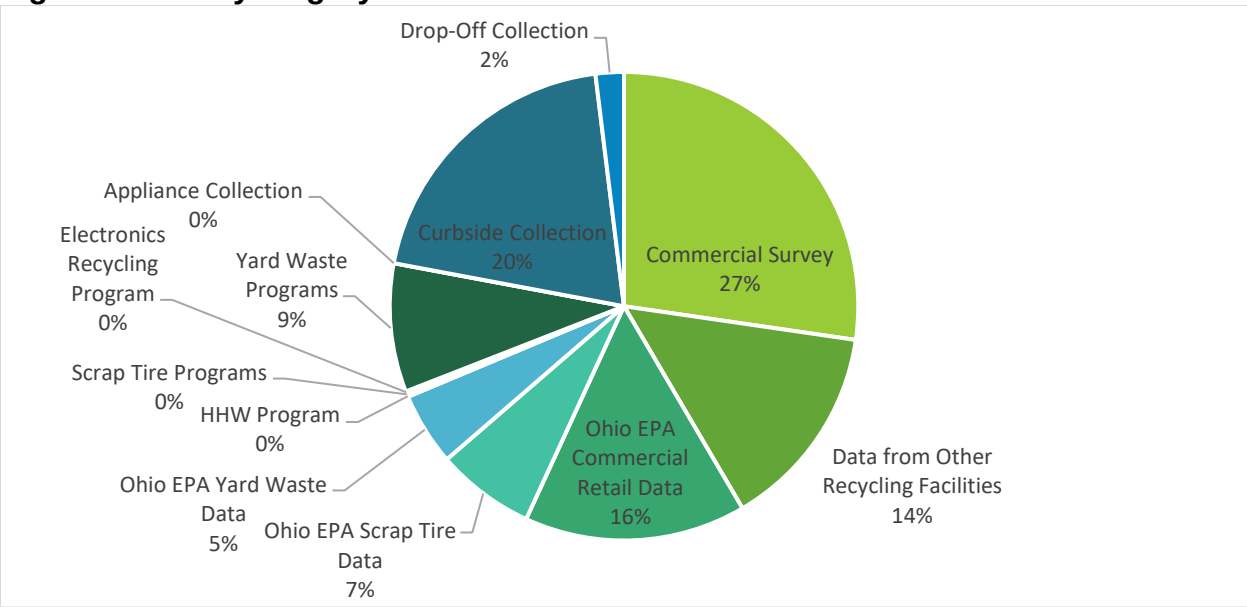
Table E-6. Quantities Recovered by Program/Source

Program/Source of R/C Recycling Data	Quantities (Tons)
Commercial Survey	18,092
Data from Other Recycling Facilities	9,449
Ohio EPA Commercial Retail Data	10,141
Ohio EPA Scrap Tire Data	4,505
Ohio EPA Yard Waste Data	3,329
HHW Program	51
Scrap Tire Programs	135
Electronics Recycling Program	76
Yard Waste Programs	5,878
Appliance Collection	0
Curbside Collection	13,321
Drop-Off Collection	1,294
Total	**66,272**

Source(s) of Information: Tables E-1 E-2, E-3, and E-4.

Table E-6 reports tonnages diverted for each program/source in the reference year using information from the **Tables E-1** to **E-4** above. **Figure E-1** below displays this information by the percentage of recovered materials from the programs detailed.

Figure E-1. Recycling By Source



Sources: 2017, 2018, 2019, 2020, 2021 Annual District Report
Commercial Survey Results 2017-2021
Ohio EPA Material Recovery Facility Report 2017-2021
Ohio EPA Scrap Tire Report 2017-2021

B. Historical Recovery

In the reference year, the three largest sources of recycling data were the commercial survey, curbside collection, and the Ohio EPA commercial retail data. Together, these three sources accounted for 63% of all recycling data reported. The remaining information came from a variety of other sources that can be seen above in **Figure E-1**.

Table E-7 Historical Residential/Commercial Recovery by Program/Source

Year	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	Ohio EPA Yard Waste Data	HHW Program	Scrap Tire Programs	Electronics Recycling Program	Yard Waste Programs	Appliance Collection	Curbside Collection	Drop-Off Collection	Totals
2017	30,916	9,118	10,722	3,734	6,052	49	97	0	1,958	75	13507	1,769	**77,996**
2018	8,702	7,344	10,379	2,395	2,496	44	134	55	3,991	28	12,950	1,688	**50,206**
2019	7,187	8,322	11,248	5,668	3,525	44	135	51	5064	56	12,300	1,503	**55,103**
2020	8,822	7,271	12,800	4,106	4,681	51	206	43	4,425	53	13,772	1,240	**57,469**
2021	***18,092***	***9,501***	***10,141***	***4,505***	***3,329***	***51***	***135***	***76***	***5,878***	***0***	***13,321***	***1,294***	***66,324***

Table E-7a1 Annual Percent Change in Tons Recovered

2017													
2018	-72%	-19%	-3%	-36%	-59%	-10%	38%	#DIV/0!	104%	-63%	-4%	-5%	-36%
2019	-17%	13%	8%	137%	41%	0%	1%	-7%	27%	100%	-5%	-11%	10%
2020	23%	-13%	14%	-28%	33%	17%	52%	-16%	-13%	-5%	12%	-18%	4%
2021	***105%***	***31%***	***-21%***	***10%***	***-29%***	***-1%***	***-34%***	***77%***	***33%***	-100%	-3%	4%	***15%***

Table E-7a2 Average Percentage Change in Tons Recovered

	10%	3%	0%	21%	-3%	5%	14%	18%	38%	-17%	0%	-7%	-2%

Table E-7a3 Annual Change in Tons Recovered

2017													
2018	-22,214	-1,774	-344	-1,339	-3,555	-5	37	55	2,034	-47	-557	-81	-27,789
2019	-1,515	978	869	3,273	1,029	0	1	-4	1,073	28	-651	-184	4,897
2020	1,635	-1,051	1,552	-1,562	1,156	7	71	-8	-639	-3	1,472	-264	2,366
2021	***9,270***	***2,230***	***-2,659***	***399***	***-1,352***	***0***	***-71***	***33***	***1,454***	-53	-450	55	***8,855***

Table E-7a4 Annual Per Capita Recovery Rate (pounds/person/day)

2017	0.45	0.13	0.15	0.05	0.09	0.00	0.00	0.00	0.03	0.00	0.19	0.03	1.12
2018	0.12	0.11	0.15	0.03	0.04	0.00	0.00	0.00	0.06	0.00	0.19	0.02	0.72
2019	0.10	0.12	0.16	0.08	0.05	0.00	0.00	0.00	0.07	0.00	0.18	0.02	0.79
2020	0.12	0.10	0.18	0.06	0.07	0.00	0.00	0.00	0.06	0.00	0.19	0.02	0.81
2021	***0.25***	***0.13***	***0.14***	***0.06***	***0.05***	***0.00***	***0.00***	***0.00***	***0.08***	***0.00***	***0.19***	***0.02***	***0.93***

Table E-7a5 Average Per Capita Recovery Rate

0.21	0.12	0.16	0.06	0.06	0.00	0.00	0.00	0.06	0.00	0.19	0.02	0.87

Table E-7a6 Average Tons of Material Recovered

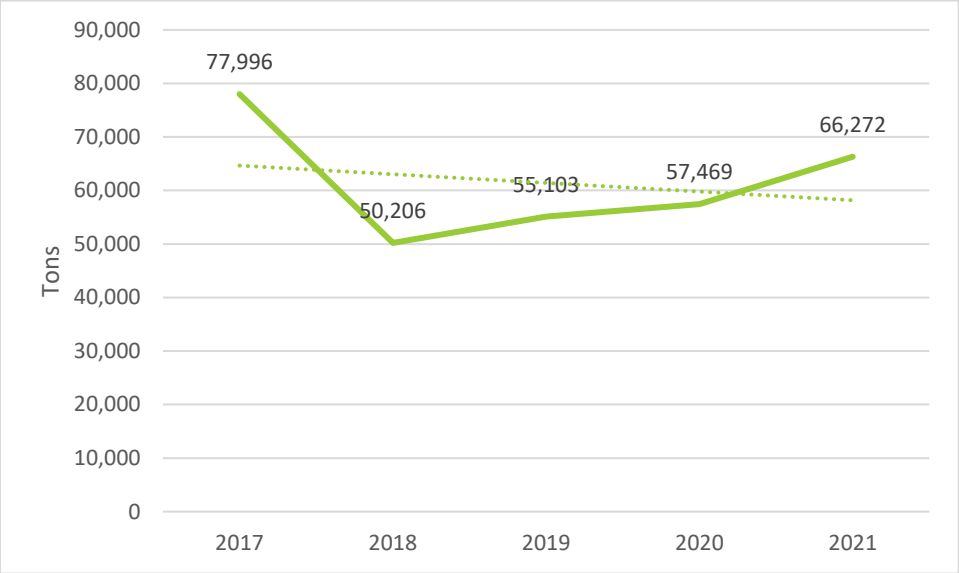
14,744	8,311	11,058	4,082	4,017	48	141	45	4,263	42	13,086	1,499	61,420

Tables E-7 through **E-7a6** show historical recycling data collected from the District. The challenge with analyzing programmatic data such as above is that each year there are differences in how the data is recorded. These differences can result in fluctuations between recording years and can present challenges for data analysis. Survey responses from commercial businesses such as these impact the overall data and cause fluctuations between years. Responses are often inconsistent and there are a significant number of non-respondents.

As seen in the tables above, the five-year average tons of material recovered was 61,409 with a 2% declining average annual percent change. However, this average is misleading as the District has observed increases in their reported residential/commercial recovery every year save for 2017. In 2017, the District reported a high recovery total of nearly 78,000 tons. The District changed the data collection method in 2017 that resulted in a positive return from commercial businesses, this is likely the reason for the inflated number. The District recorded nearly 31,000 tons of materials recovered from the commercial survey responses alone. The District surveys every plan update year and updates the program and Ohio EPA data on the years in between. A challenge for this method is surveyed business data that is older than 3 years cannot be used. The loss of data from those businesses results in lower recovery tonnages.

This is observed in 2018, the District reported a decrease of nearly 28,000 tons less than 2017 despite the District receiving a higher response rate to surveys. After this decrease, the District saw increases in materials recovered by an annual average of 10%.

Figure E-2: Historical Residential/Commercial Total Recovery



As mentioned above, the District recorded a significant decrease from 2017 to 2018 but from 2018 to 2021 the District recorded recycling increases every year. The majority of the decrease came from commercial business data becoming older than 3 years, which could no longer be counted. A survey was conducted to gather 2021 data, however, a low response rate resulted in less reported diversion.

After the dip in 2018, the District saw steady growth in tons recovered. Yard waste programs, saw the largest average annual percent increase of 38%. Appliance collection decreased about 17% on average annually, which is a result of the program discontinuing and collecting the data from other sources. The 9,000-ton increase from 2020 to 2021 was resulted primarily from data collected through the commercial survey.

C. Residential/Commercial Recovery Projections

Table E-8 Residential/Commercial Recovery Projections by Source

Year	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	Ohio EPA Yard Waste Data	HHW Program	Scrap Tire Programs	Electronics Recycling Program	Yard Waste Programs	Appliance Collection	Curbside Collection	Drop-Off Collection	Totals
2021	***18,092***	***9,501***	***10,141***	***4,505***	***3,329***	***51***	***135***	***76***	***5,878***	***0***	***13,321***	***1,294***	***66,324***
2022	18,092	9,501	10,141	4,505	3,329	48	141	56	4,340	0	13,439	1,532	**65,125**
2023	18,092	9,501	10,141	4,505	3,329	48	141	56	4,362	0	13,506	1,540	**65,221**
2024	18,092	9,501	10,141	4,505	3,329	48	141	56	4,383	0	13,573	1,547	**65,316**
2025	18,092	9,501	10,141	4,505	3,329	48	141	56	4,425	0	13,702	1,562	**65,502**
2026	18,092	9,501	10,141	4,505	3,329	48	141	56	4,449	0	13,778	1,571	**65,611**
2027	18,092	9,501	10,141	4,505	3,329	48	141	56	4,474	0	13,853	1,579	**65,720**
2028	18,092	9,501	10,141	4,505	3,329	48	141	56	4,498	0	13,929	1,588	**65,828**
2029	18,092	9,501	10,141	4,505	3,329	48	141	56	4,523	0	14,005	1,596	**65,937**
2030	18,092	9,501	10,141	4,505	3,329	48	141	56	4,547	0	14,080	1,605	**66,046**
2031	18,092	9,501	10,141	4,505	3,329	48	141	56	4,567	0	14,141	1,612	**66,134**
2032	18,092	9,501	10,141	4,505	3,329	48	141	56	4,587	0	14,202	1,619	**66,222**
2033	18,092	9,501	10,141	4,505	3,329	48	141	56	4,606	0	14,264	1,626	**66,309**
2034	18,092	9,501	10,141	4,505	3,329	48	141	56	4,626	0	14,325	1,633	**66,397**
2035	18,092	9,501	10,141	4,505	3,329	48	141	56	4,646	0	14,386	1,640	**66,485**
2036	18,092	9,501	10,141	4,505	3,329	48	141	56	4,669	0	14,457	1,648	**66,587**
2037	18,092	9,501	10,141	4,505	3,329	48	141	56	4,692	0	14,529	1,656	**66,690**
2038	18,092	9,501	10,141	4,505	3,329	48	141	56	4,715	0	14,600	1,664	**66,793**
2039	18,092	9,501	10,141	4,505	3,329	48	141	56	4,738	0	14,672	1,673	**66,896**

Sources: Year 2021 Data Sources: Commercial Survey from District survey efforts, Data from other recycling facilities from Ohio EPA MRF report, Ohio EPA commercial retail data from Ohio EPA MRF report, Ohio EPA compost data from Ohio EPA Compost report (includes food waste), Ohio EPA scrap tire data from Ohio EPA reports, Specific program data from historical Annual District Reports

Table E-8 above details the projected residential/commercial recovery by program/source. The District is projecting a decrease in 2022 compared to 2021. However, from 2022 throughout the planning period the District is expected to increase slightly each year. See below for how each source was projected.

Commercial Survey Projections:

Due to the volatility observed in recent years, the District held these projections constant at the reference year value throughout the planning period per Format 4.1 recommendations.

Data From Other Recycling Facilities Projections:

Due to the volatility observed in recent years, the District held these projections constant at the reference year value throughout the planning period per Format 4.1 recommendations.

Ohio EPA Commercial Retail Data Projections:

These projections were held constant throughout the planning period as this data is independently acquired from Ohio EPA.

Ohio EPA Scrap Tire Data Projections:

These projections were held constant throughout the planning period as this data is independently acquired from Ohio EPA.

Ohio EPA Yard Waste Data

Due to the volatility observed in recent years, the District held these projections constant at the reference year value throughout the planning period per Format 4.1 recommendations.

HHW Collection Projections

These projections were held at the five-year historical average of 48 tons. This category has remained flat with only minor fluctuation throughout the historic period.

Scrap Tire Projections

These projections were held at the five-year historical average of 141 tons. This category has remained flat with only minor fluctuation throughout the historic period.

Electronic Recycling Projections

These projections were held at the four-year historic average of 56 tons. There was an outlier year in 2017 that recorded no electronic collection that has been excluded from the projection.

Yard Waste Program Projections

These projections were calculated based on the historical per capita recovery rate. The average annual per capita recovery rate was 0.06 pounds per person per day.

This number was multiplied by the respective year's projected population and converted into tons per year.

Sample Calculation 2022: ((0.06 * 393,450) / 2000) * 365 = 4,340 tons

Appliance Collection

This program was discontinued by the District. As such, the projected values are held at 0 tons.

Curbside Collection Projections

These projections were calculated based on the historical per capita recovery rate. The average annual per capita recovery rate was 0.19 pounds per person per day. This number was multiplied by the respective year's projected population and converted into tons per year.

Sample Calculation 2022: ((0.19 * 393,450) / 2000) * 365 = 13,439 tons

Drop-Off Collection Projections

These projections were calculated based on the historical per capita recovery rate. The average annual per capita recovery rate was 0.02 pounds per person per day. This number was multiplied by the respective year's projected population and converted into tons per year.

Sample Calculation 2022: ((0.02 * 393,450) / 2000) * 365 = 1,532 tons

APPENDIX F

INDUSTRIAL SECTOR REFERENCE YEAR RECYCLING

APPENDIX F Industrial Reduction and Recycling Data

Appendix F contains an inventory of materials recovered from the industrial sector in the reference year. The following tables show adjusted quantities to prevent double counting, calculate the total adjusted quantities of materials recovered, and analyze industrial material recovery using historical data.

A. Reference Year Recovery Data

Tables F-1 through **F-4** account for all material being credited to the waste reduction and recycling rate for the industrial sector.

Table F-1. Industrial Survey Results

NAICS	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Wood	Commingled Recyclables (Mixed)	Food	Other: Sludge	Other: Lime	Other: E waste	Other: Toner	Other: Copper Wire	Total
31	811		339	1,650	27	191	547		97,787	3,611	1,032				
32		457	2	5,949	22	2,655						1			
33	37	23,951	1,437	239	55	182	4,363	212		2,083	0	14	436	3	
Unadjusted Total	848	24,407	1,778	7,838	104	3,028	4,910	212	97,787	5,694	1,032	15	436	3	148,092
Adjustments										5,694					5,694
Adjusted Total	**848**	**24,407**	**1,778**	**7,838**	**104**	**3,028**	**4,910**	**212**	**97,787**	**0**	**1032**	**15**	**436**	**3**	**142,398**

NAICS stands for The North American Industry Classification System and is used by the United States, Canada, and Mexico to classify businesses by industry.
Source(s) of Information: Calendar year 2021 survey data as reported by industrial businesses.
Note: Numbers are rounded to the nearest whole number.

Table F-1 accounts for material recovered as reported by industrial businesses from the 2021 surveys. In some cases, businesses chose not to respond to the reference year but did respond to a prior year's survey. In these cases, the analysis used data from up to two previous years. The only adjustment made to the above table was for sludge. Though the District received survey responses accounting for this material, it is not accepted as recyclable and has been adjusted to a total of 0 tons.

The data presented in **Table F-1** is organized by the North American Industry Classification System (NAICS). Manufacturing industries are classified under sectors 31-33. **Table F-1** sums all the quantities of reported material for each NAICS code.

Table F-2. Data from Other Recycling Facilities

Program and/or Source of Materials/Data	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Ash	Non-Excluded Foundry Sand	Flue-Gas Desulfurization Waste	Total
Brokers															
None															
Processor/MRFs															
PR1		887													
Unadjusted Total		887													
Adjustments		0													
Adjusted Total		887													887

Source(s) of Information: Calendar year 2021 survey data as reported by industrial businesses.
Ohio EPA Material Recovery Facility data 2021.
Note: Numbers are rounded to the nearest whole number.

Table F-2 data is obtained from the district's industrial surveys and Ohio EPA's reports on processors/MRFs, scrap yards, and brokers. The District did not receive data from processors that reported diverting industrial materials in the reference year. There was one broker that reported diverting 887 tons of material.

Table F-3. Other Recycling Programs/Other Sources of Data

Other Recycling Programs/Other Sources of Data	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables	Ash	Non-Excluded Foundry Sand	Flue-Gas Desulfurization Waste	Total
None															
Unadjusted Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjustments															0
Adjusted Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

There was no data reported for other sources of recycling.

Table F-4. Industrial Waste Reduced/Recycled in Reference Year

Material	Quantity (tons)
Food	97,787
Glass	1,734
Ferrous Metals	24,407
Non-Ferrous Metals	1,778
Corrugated Cardboard	7,838
All Other Paper	104
Plastics	3,028
Textiles	0
Wood	4,910
Rubber	0
Commingled Recyclables (Mixed)	212
Ash	0
Non-Excluded Foundry Sand	0
Flue Gas Desulfurization	0
Other (Aggregated)	1,486
Total	**143,285**

Source(s) of Information: 2021ADR Calculation Spreadsheets, 2021 Ohio EPA MRF Reports, 2021 Ohio EPA Compost Report, 2021 ADR Review Forms
Note: Numbers are rounded to the nearest whole number.

Table F-4 records quantities for each material diverted in the District as reported by the industrial waste survey. Other (Aggregated) combines sludge, lime, e-waste, lithium batteries, toner, and copper wires. There was a total of 143,287 tons of waste diverted from the industrial sector. A majority of the industrial waste diverted was from food, more specifically spent grain. This accounted for 68% of the total industrial waste diverted. Ferrous metal was another large portion of waste diverted, accounting for 17%.

Table F-5. Quantities Recovered by Program/Source

Program/Source of Industrial Recycling Data	Quantity (Tons)
Industrial survey	142,398
Data from other recycling facilities	887
Total	**143,285**

Source(s) of Information: Tables F-1 and F-2

Table F-5 details the total quantiles diverted by program/source.

B. Historical Recovery

Table F-6. Historical and Industrial Recovery by Program/ Source

Year	Industrial survey	Data from other recycling facilities	Totals
2017	168,501	0	168,501
2018	174,707	0	174,707
2019	174,737	0	174,738
2020	72,471	1	72,472
2021	142,398	887	143,285

Table F-6a1. Annual Percentage Change in Tons Recovered

2017	NA	NA	NA
2018	4%	NA	4%
2019	0%	NA	0%
2020	-59%	67%	-59%
2021	96%	177,206%	98%

Table F-6a2. Average Annual Percentage Change in Tons Recovered

10%	88,636%	11%

Table F-6a3. Annual Change in Tons Recovered

2017	NA	NA	NA
2018	6,206	0	6,206
2019	30	0	31
2020	-102,266	0	-102,266
2021	69,927	886	70,813

Table F-6a4. Average Annual Change in Tons Recovered

-6,526	222	-6,304

Table F-6a5. Average Tons of Material Recovered

146,563	177	146,740

Source(s):
District Industrial Surveys for 2017 – 2021
"Material Recovery Facility and Commercial Recycling Data" for 2017 – 2021

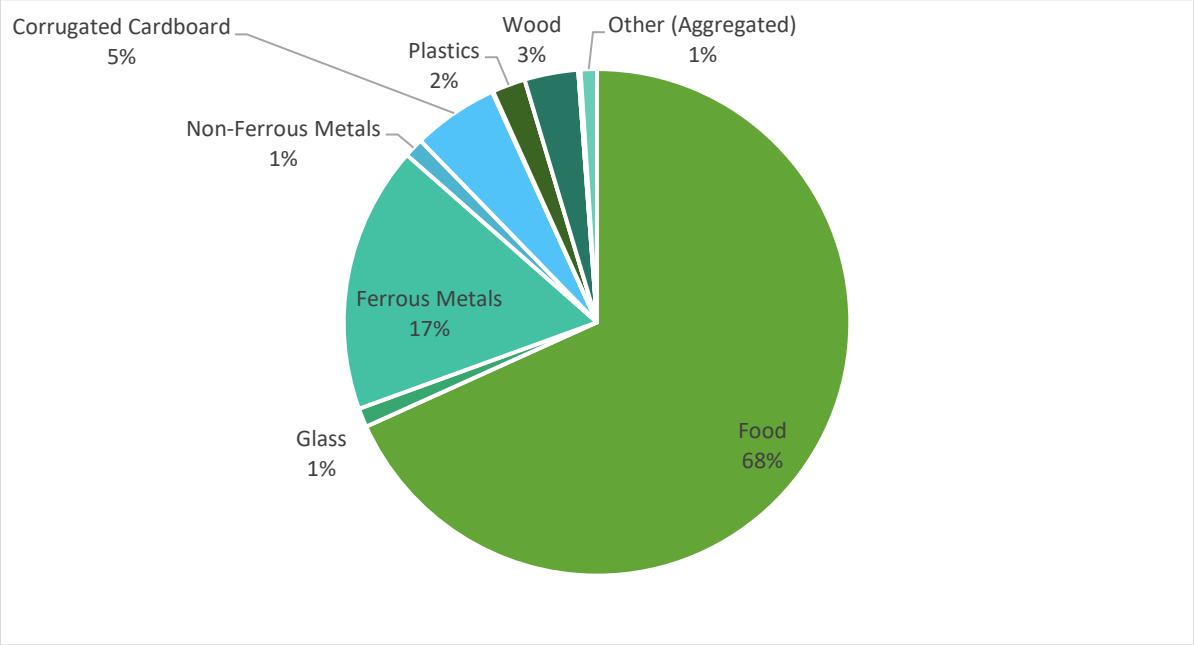
Data from the industrial sector is gathered from surveys and the Ohio EPA Material Recovery Facility data. As seen from **Table F-6**, average industrial recovery from 2017 to 2021 was 146,741 tons and has increased 11% on average annually. The data shows one fluctuation in 2020 because of industrial data falling and businesses not being surveyed during the COVID-19 pandemic year 2020. The District noted that in 2020 the pandemic caused many manufacturing and industrial businesses to slow or suspend

operations. These two factors explain the significant drop in tons recovered in 2020. Due to the unusual circumstances of that year, this report will not use year 2020 in projections going forward.

Excluding the outlier year of 2020, the District recovered an average of 165,086 tons from 2017 to 2021. The high during this period was 174,000 in 2018 and 2019 while the low was in the reference year with 142,000 tons recovered.

Most of the material diverted during the reference year was food. More specifically, spent grain from a large brewer that was used as cattle feed. Approximately 68% of the District's diverted industrial materials was food. The next largest category of material was ferrous metals, accounting for 17%. Ferrous metals saw a decrease in diversion from 2020 to 2021 of nearly 26,000 tons. This is resultant of one manufacturer non-reporting and demonstrates the dependency between diversion data and businesses responses. The last year this company reported was 2018. 2018 data now falls outside of the 3-year time frame permittable by Ohio EPA for Districts to include.

Figure F-1. Tons Industrial Materials Recovered



Note: Figure F-1 does not include Labs, mixed paper, and commingled recyclables as these materials had values that made up less than 1% of the stream. Other (aggregated) includes lime, e-waste, lithium batteries, toner, and copper wire.

C. Industrial Recovery Projections

Table F-7. Industrial Recovery Projections

Year	Industrial Survey	Data From Other Recycling Facilities	Totals
2021	**142,398**	**887**	**143,285**
2022	141,729	0	**141,729**
2023	141,063	0	**141,063**
2024	140,400	0	**140,400**
2025	139,740	0	**139,740**
2026	139,083	0	**139,083**
2027	138,429	0	**138,430**
2028	137,779	0	**137,779**
2029	137,131	0	**137,131**
2030	137,131	0	**137,131**
2031	137,131	0	**137,131**
2032	137,131	0	**137,131**
2033	137,131	0	**137,131**
2034	137,131	0	**137,131**
2035	137,131	0	**137,131**
2036	137,131	0	**137,131**
2037	137,131	0	**137,131**
2038	137,131	0	**137,131**
2039	137,131	0	**137,131**

Source(s) of information: Table F-6

The Ohio Department of Development estimates that the southwestern region of Ohio will experience a 4.7% decline in manufacturing from 2018 through 2028. Using this information, the table above projects the total tonnages of industrial recovery for the District during the planning period. The District estimates that a decline in manufacturing will also result in a decline of industrial recovery by a corresponding 4.7% through 2028. In other words, the district estimates the amount of industrial recovery will decrease by 0.047% annually until 2028. Values after 2028 flatlined as reflected in the above table. Information on industrial waste recovery is insufficient to forecast in the planning period. The projections for the data from other recycling facilities were held at the five-year average excluding the reference year as this was an outlier.

APPENDIX G

WASTE GENERATION

Appendix G Waste Generation

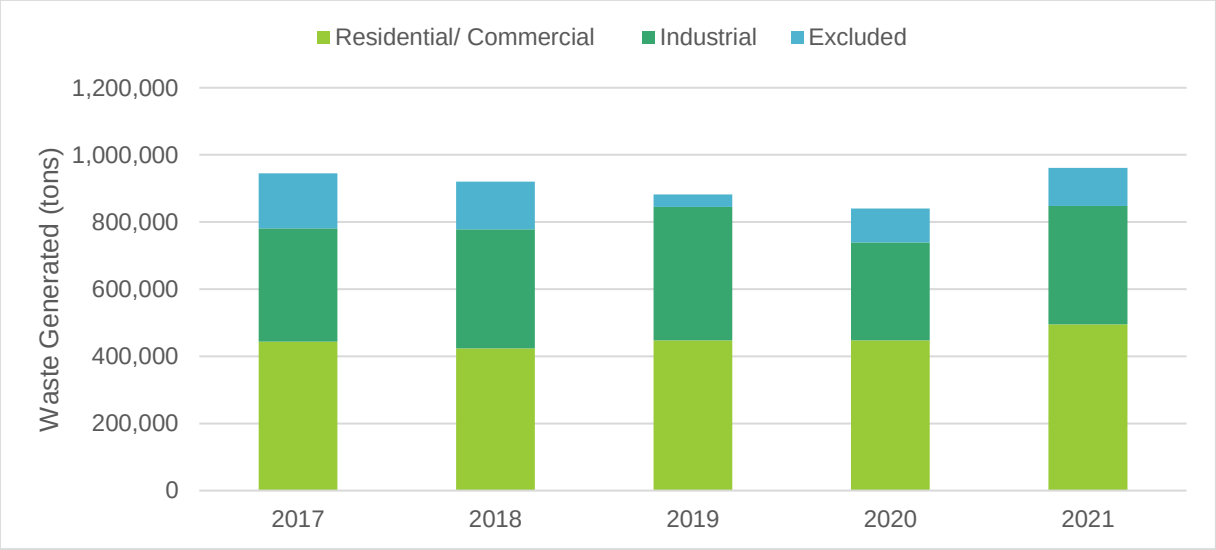
A. Historical Year Waste Generated

Table G-1 Reference Year and Historical Waste Generated

Year	Population	Residential/ Commercial				Industrial			Excluded	Total
		Disposed (tons)	Recycled (tons)	Generated (tons)	Per Capita Generated (ppd)	Disposed (tons)	Recycled (tons)	Generated (tons)		
2017	380,604	366,113	77,996	444,109	6.39	168,972	168,501	337,473	163,263	944,845
2018	382,378	373,629	50,206	423,835	6.07	179,663	174,707	354,370	142,543	920,748
2019	383,134	392,725	55,103	447,828	6.40	222,123	174,738	396,861	37,488	882,177
2020	390,110	389,821	57,469	447,290	6.28	219,439	72,472	291,911	100,639	839,840
2021	**391,496**	**428,988**	**66,324**	**495,311**	**6.93**	**210,221**	***143,285***	***353,506***	**113,340**	**962,158**

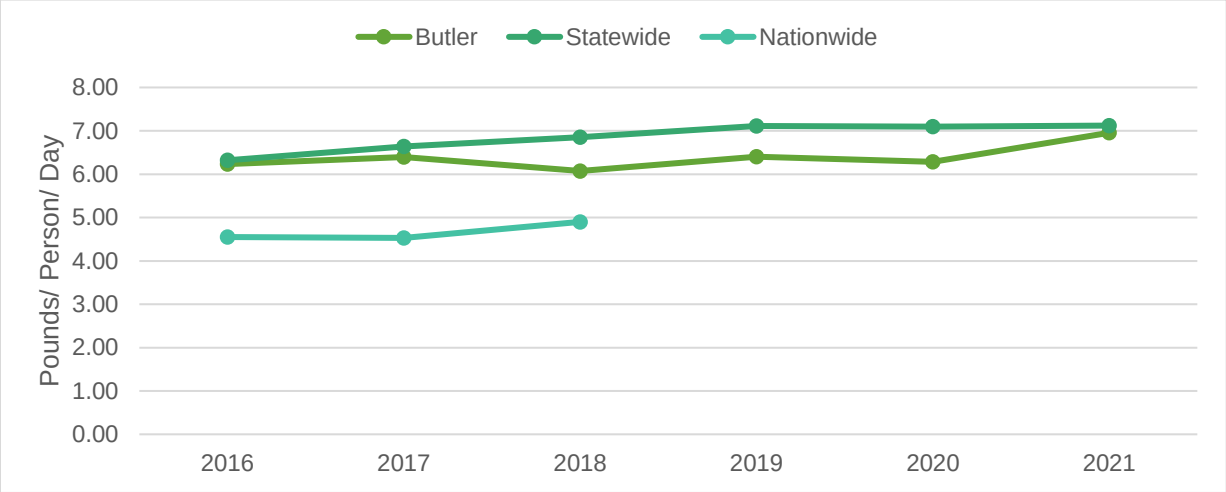
Source(s): Disposal Data from Appendix D, Recycle Data from Appendix E and F, 2017 – 2021 Annual District Reports

Figure G-1. Historical Waste Generated



Total waste generated by the District was calculated by adding the quantities of waste disposed from Appendix D and quantities of recycled materials from Appendix E and F. Quantities from disposal and recycling in the District from 2017 to 2021 are shown above in **Table G-1**. The District's waste generation peaked in the reference year at 962,158 tons. The District's lowest waste generated was in 2020 with 839,840 tons of material. This was primarily fueled by the large decrease in industrial recycling discussed in appendix F. The District also saw a sizeable decrease in excluded waste totals during 2019, though it is unclear what caused this. Even when accounting for these fluctuations, the District's total waste tons remained relatively flat throughout the past five years, averaging a 1% increase annually.

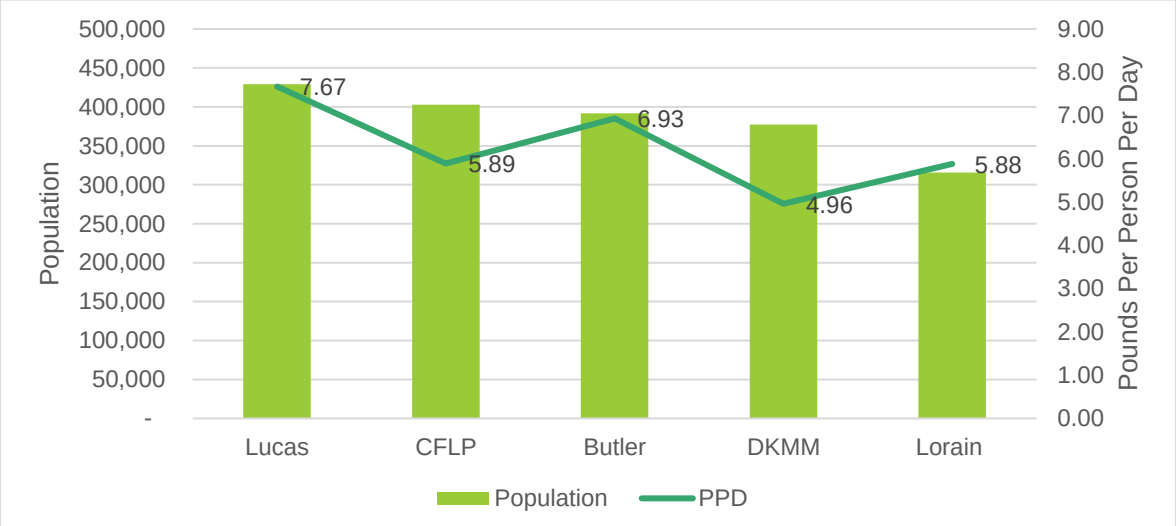
Figure G-2. Residential/ Commercial Per Capita Generation



Source(s) of Information:
National Average Per Capita Data: EPA National Overview: Facts and Figures on Materials, Wastes, and Recycling.
Ohio Per Capita Data: Ohio EPA Solid Waste Generated in Ohio – 2020
Note: National average per capita generation 2019 through 2021 was not published as of this report.

The District's historical residential/commercial generation per capita data was compared to the U.S. EPA's national average and the Ohio EPA's statewide average data. As seen in **Figure G-2**, the District's generation rate lies between the Statewide and Nationwide averages, higher than the Nation but lower than the State. The District saw a significant increase in the generation rate in the reference year to 6.93 pounds per person per day. Nationwide data was not available for the years 2019 through 2021 at the time of this report. The District approached the statewide average, falling just short by about 0.2 pounds per person per day in the reference year 2021.

Figure G-3. Benchmark Residential/Commercial Per Capita Rates

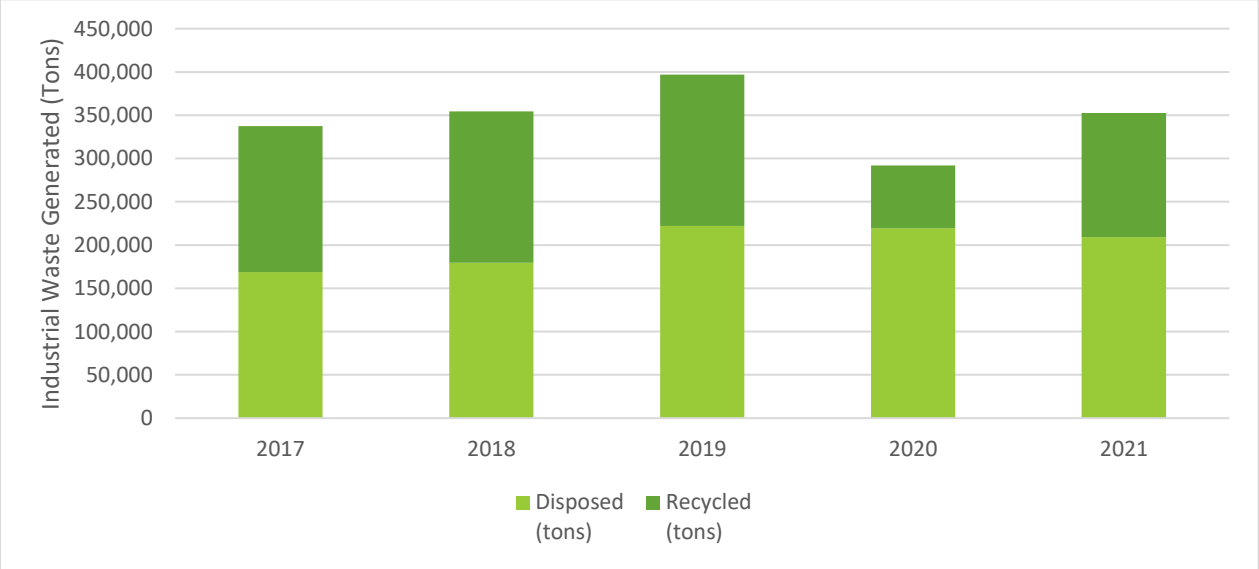


Source(s) of Information: Ohio EPA SWMD Disposal, Recycling, and Generation Report – 2021

Comparing the District to four other Districts of similar population size. **Figure G-3** above details the comparison between the five and averages all five districts in the reference year. Comparing Butler with other similar population sized Districts reveals Butler's per capita generation rate is above the average of 6.27 pounds per person per day with Lucas County being higher.

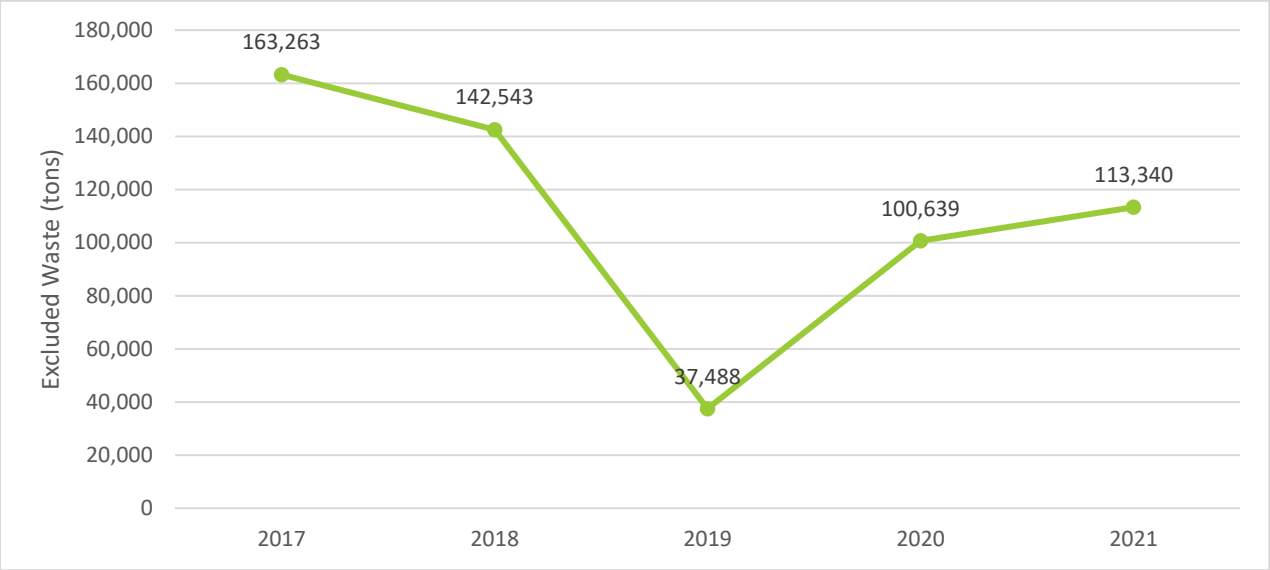
Overall, the District is on the higher end of waste generation compared to similar sized Districts. The District should continue to seek ways to reduce waste generated and reliance on landfills. Of the 6.93 pounds per person per day generation rate, less than 1 pound per person per day comes from recycling, resulting in a recycling rate of just over 13%.

Figure G-4. Historic Industrial Waste Generated



Industrial waste generation increased from 2017 to 2021 but saw a drop in industrial generation in 2020. As explained in Appendix F, this is due to a lack of reliable industrial data and businesses not surveyed in the COVID 19 pandemic year. Year 2021 saw the return of expected tonnages for industrial waste generation. The District's industrial recycling rate was 45% in the reference year. Excluding year 2020, the District documented industrial rates between 45% and 50% from 2017 to 2021.

Figure G-5. Excluded Waste Generated



The total tons of excluded waste generated by the District is shown in **Figure G-5** above. The tons of excluded waste generated decreased from 2017 to 2019. As discussed in Appendix D, it is unclear why there was such a significant drop in excluded waste generated in 2019. Excluded waste generation increased in 2020 and 2021, although not to the levels seen prior to 2019.

B. Generation Projections

Table G-2. Composition of Residential/Commercial Waste

Year	Population	Residential/ Commercial				Industrial			Excluded Waste (tons)	Total (tons)
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		
2021	***391,496***	***428,988***	***66,324***	***495,311***	***6.93***	***210,221***	***143,285***	***353,506***	***113,340***	***962,158***
2022	393,450	430,140	65,125	495,265	*6.90*	209,233	141,729	350,962	113,340	959,567
2023	395,404	431,296	65,221	496,517	*6.88*	208,249	141,063	349,312	113,340	959,169
2024	397,358	432,455	65,316	497,771	*6.86*	207,271	140,400	347,671	113,340	958,782
2025	401,142	433,617	65,502	499,119	*6.82*	206,297	139,740	346,037	113,340	958,496
2026	403,358	434,782	65,611	500,393	*6.80*	205,327	139,083	344,410	113,340	958,144
2027	405,574	435,950	65,720	501,670	*6.78*	204,362	138,430	342,792	113,340	957,802
2028	407,790	437,122	65,828	502,950	*6.76*	203,401	137,779	341,180	113,340	957,471
2029	410,006	438,296	65,937	504,234	*6.74*	202,445	137,131	339,577	113,340	957,151
2030	412,222	439,474	66,046	505,520	*6.72*	201,494	137,131	338,625	113,340	957,486
2031	414,010	440,655	66,134	506,789	*6.71*	200,547	137,131	337,678	113,340	957,807

Year	Population	Residential/ Commercial				Industrial			Excluded Waste (tons)	Total (tons)
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		
2032	415,798	441,839	66,222	508,061	*6.70*	199,604	137,131	336,736	113,340	958,137
2033	417,586	443,026	66,309	509,336	*6.68*	198,666	137,131	335,798	113,340	958,473
2034	419,374	444,217	66,397	510,614	*6.67*	197,732	137,131	334,864	113,340	958,818
2035	421,162	445,410	66,485	511,895	*6.66*	196,803	137,131	333,935	113,340	959,170
2036	423,254	446,607	66,587	513,195	*6.64*	195,878	137,131	333,010	113,340	959,545
2037	425,346	447,807	66,690	514,497	*6.63*	194,958	137,131	332,089	113,340	959,927
2038	427,438	449,010	66,793	515,803	*6.61*	194,041	137,131	331,173	113,340	960,316
2039	429,530	450,217	66,896	517,112	*6.60*	193,129	137,131	330,261	113,340	960,713

Source(s) of Information:
Disposal from Appendix D
Recycled from Appendices E and F
Populations: Ohio Development Services Agency, "2010 to 2040 Projected Population for Ohio Counties - Summary 2010 to 2040 Projected

Residential/commercial waste is projected to initially decrease in 2022 but steadily increase in the subsequent years. The total waste generated is projected to reach 963,094 tons by the end of the planning period. The increases from year to year are primarily fueled by the projected increases in residential/commercial disposal tonnages and to a lesser extent the residential/commercial recycling tonnages. Industrial generation is projected to fall as both disposal and recycling are expected to decrease for this sector. Excluded waste was held at the reference year value due to difficulties of projecting data with high volatility.

C. Waste Composition

Table G-3. Composition of Residential/Commercial Waste

Material	Percent of Total Generation[1]	2021	2022	2023	2024	2025	2026	2027	2028	2029
Paper and Paperboard	23.10%	114,417	114,406	114,695	114,985	115,297	115,591	115,886	116,182	116,478
Glass	4.20%	20,803	20,801	20,854	20,906	20,963	21,017	21,070	21,124	21,178
Ferrous	6.60%	32,691	32,687	32,770	32,853	32,942	33,026	33,110	33,195	33,279
Aluminum	1.30%	6,439	6,438	6,455	6,471	6,489	6,505	6,522	6,538	6,555
Other Nonferrous	0.90%	4,458	4,457	4,469	4,480	4,492	4,504	4,515	4,527	4,538
Plastics	12.20%	60,428	60,422	60,575	60,728	60,893	61,048	61,204	61,360	61,517
Rubber and Leather	3.10%	15,355	15,353	15,392	15,431	15,473	15,512	15,552	15,591	15,631

Material	Percent of Total Generation[1]	2021	2022	2023	2024	2025	2026	2027	2028	2029
Textiles	5.80%	28,728	28,725	28,798	28,871	28,949	29,023	29,097	29,171	29,246
Wood	6.20%	30,709	30,706	30,784	30,862	30,945	31,024	31,104	31,183	31,262
Other	1.50%	7,430	7,429	7,448	7,467	7,487	7,506	7,525	7,544	7,564
Food	21.60%	106,987	106,977	107,248	107,519	107,810	108,085	108,361	108,637	108,914
Yard Trimmings	12.10%	59,933	59,927	60,079	60,230	60,393	60,548	60,702	60,857	61,012
Misc inorganic wastes	1.40%	6,934	6,934	6,951	6,969	6,988	7,006	7,023	7,041	7,059
R/C waste generated		495,311	495,265	496,517	497,771	499,119	500,393	501,670	502,950	504,234

Material	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Paper and Paperboard	116,775	117,068	117,362	117,657	117,952	118,248	118,548	118,849	119,151	119,453
Glass	21,232	21,285	21,339	21,392	21,446	21,500	21,554	21,609	21,664	21,719
Ferrous	33,364	33,448	33,532	33,616	33,701	33,785	33,871	33,957	34,043	34,129
Aluminum	6,572	6,588	6,605	6,621	6,638	6,655	6,672	6,688	6,705	6,722
Other Nonferrous	4,550	4,561	4,573	4,584	4,596	4,607	4,619	4,630	4,642	4,654
Plastics	61,673	61,828	61,983	62,139	62,295	62,451	62,610	62,769	62,928	63,088
Rubber and Leather	15,671	15,710	15,750	15,789	15,829	15,869	15,909	15,949	15,990	16,030
Textiles	29,320	29,394	29,468	29,541	29,616	29,690	29,765	29,841	29,917	29,993
Wood	31,342	31,421	31,500	31,579	31,658	31,737	31,818	31,899	31,980	32,061
Other	7,583	7,602	7,621	7,640	7,659	7,678	7,698	7,717	7,737	7,757
Food	109,192	109,466	109,741	110,016	110,293	110,569	110,850	111,131	111,414	111,696
Yard Trimmings	61,168	61,321	61,475	61,630	61,784	61,939	62,097	62,254	62,412	62,571
Misc inorganic wastes	7,077	7,095	7,113	7,131	7,149	7,167	7,185	7,203	7,221	7,240
R/C waste generated	505,520	506,789	508,061	509,336	510,614	511,895	513,195	514,497	515,803	517,112

Source(s):
Percent of Total Generation: Advancing Sustainable Materials Management: 2018 Tables and Figures
Waste Generated: Table G-2

Table G-3 presents the residential/commercial waste generated totals from **Table G-2** and the estimated percent of total generation by material. Using the quantities of waste generated and the estimated percent of total generation, each material is projected during the planning period.

APPENDIX H

STRATEGIC EVALUATION

Appendix H. Strategic Analysis

The state solid waste management plan establishes recycling and reduction goals for solid waste management districts. At the time of the District's 2018 Plan Update, the 2009 State Plan was in effect. Ohio EPA adopted the 2020 State Plan in November 2019, making several changes to the goals that guide programming. The programs and strategies evaluated in this Appendix H, consider the changes of the State Plan, and analyze gaps in service, programs, and strategy offerings. The evaluation provides a variety of opportunities that result from identified gaps and may bolster a management or education/outreach area. These opportunities present a strategy or direction to consider.

Appendix H is divided into thirteen (13) separate analyses or sections. The status of the reduction and recycling efforts were evaluated based on criteria presented in Format 4.1. Some of the analyses are further subdivided, such as Section H-1.

The following table provides a directory for the analyses within Appendix H.

Section H-8

Special Program Needs Analysis

Section H-9

Financial Analysis

Section H-10

Regional Analysis

Section H-11

Data Collection Analysis

Section H-12

Processing Capacity Analysis

1. Residential Recycling Infrastructure Analysis

This evaluation of the District's existing residential recycling infrastructure determines whether the needs of the residential sector are being met and if the current infrastructure is adequately performing. There are many materials that can be recycled. The District's waste management system relies on various collection systems and programs to divert materials from landfill to be recycled. The residential recycling infrastructure consists of curbside programs, drop-off recycling programs, reuse centers, and thrift stores. The District's role instituting this network of available opportunities varies.

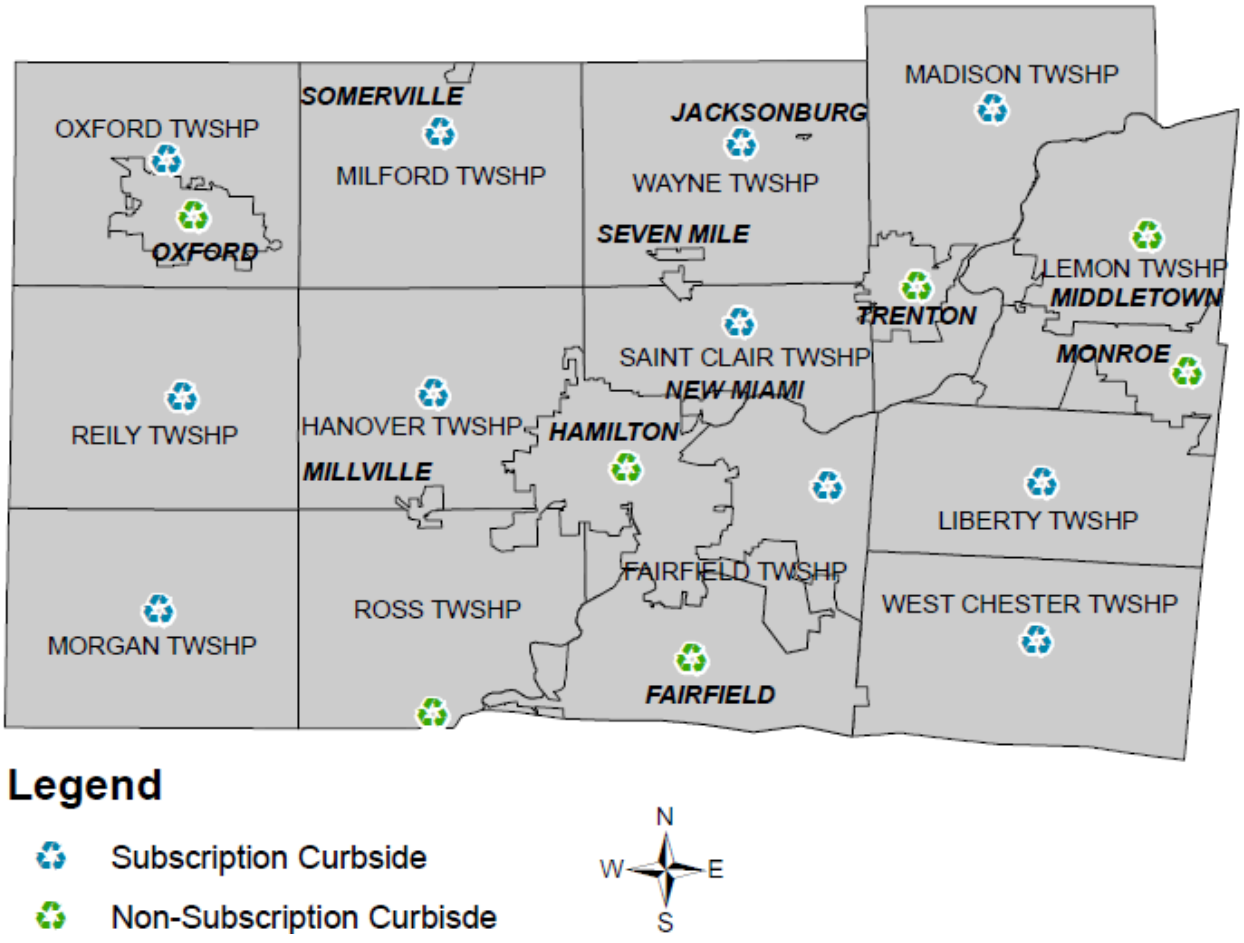
A. Curbside Evaluation

The 2018 Plan analyzed curbside recycling infrastructure and found Butler County's curbside infrastructure is available in all six of Butler County's municipalities and in eight of the 13 townships. Reported data in 2021 and 2022 shows curbside collection services continued and haulers expanded offering curbside recycling service to more of Butler County's political jurisdictions. Curbside service is available in six cities, eight townships, and two villages. Since 2018 subscription curbside service expanded into three additional townships and villages.

All six of the city curbside programs are non-subscription. In a non-subscription curbside recycling program, recycling service is available to every household whether or not households choose to participate. The largest cities Hamilton, Fairfield, and Middletown account for nearly 70% of non-subscription curbside tons recovered. Only one township, Ross Township, offers non-subscription curbside services to its residents, collecting about 6% of the total non-subscription curbside tons recovered. A total of 8,514 tons of material was collected from non-subscription curbside services.

The majority of townships and villages have subscription based curbside recycling services. In a subscription curbside recycling program, service is available to every household however the household must sign up or subscribe for the service if they want to participate. Over 40% of the County's population resides in townships. A total of 4,855 tons of material was collected from subscription curbside services. About 80% of the material recovered from the subscription program was collected from two townships, West Chester and Liberty.

Figure H-1.1 Map of Curbside Services

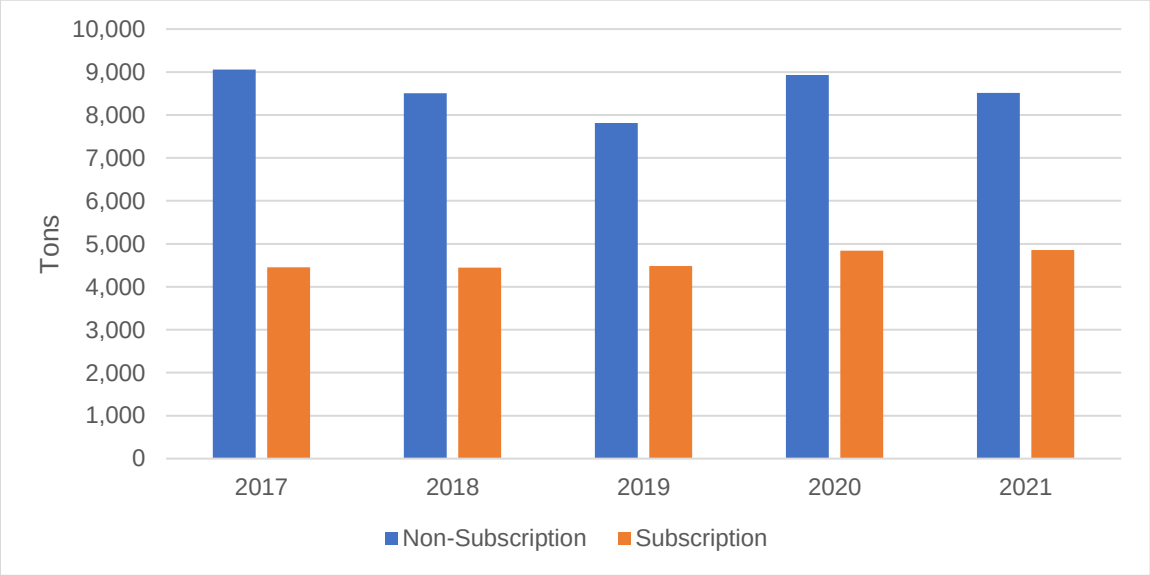


The District's largest populated city, Hamilton, provides non-subscription curbside recycling services to households and residents. This city alone accounts for 16% of the District's total population. When combined with the other cities that provide non-subscription curbside services, the population represents 44% of Butler County's total residents.

Households in the County's largest populated township, West Chester Township, have access to subscription curbside service, to 12% of the District's total population. In total, 45% of the population live in townships and all have access to curbside recycling. Of these six municipalities and 13 townships with access to curbside recycling, the District recovered a total of 13,369 tons of materials through curbside recycling programs.

Even though geographic area collection services have expanded the diversion metrics do not demonstrate an increasing trend in tonnage/ yield of material.

Figure H-1.2 Historical Curbside Recycling Recovery



Source of information: Butler County Annual District Reports (2017-2021)

Figure H-1.2 shows the trend of curbside recycling and compares non-subscription and subscription tonnages. Over the 2017 to 2021 timeframe the total diverted material fluctuated yearly. The largest decrease was seen from 2018 to 2019 and stemmed from a drop in non-subscription numbers. In non-subscription programs, even though service is provided, there is no certitude that households participate in curbside recycling. Tonnages reported are less than the average, showing potential to recover more if participation would improve. The District noticed that the three largest cities all reported lower recycling numbers. The District believes the increase in recycling yield in 2020 was largely due to the COVID-19 pandemic. Many attribute the pandemic to causing large fluctuations in recycling trends across Ohio.

In 2018, the District received a grant from Ohio EPA to partner with the city of Fairfield, Rumpke Recycling and The Recycling Partnership to reduce contamination in residential curbside recycling. The grant opportunity resulted in an almost 11% reduction in contamination in recycling following an intensive 5-week recycling education campaign.

Table H-1.1 Curbside Recycling Historical Comparison

Programs	Type	2014 Tons	2021 Tons	Percent Change
Fairfield City	Non-Subscription	2,172	1,953	-10.1%
Hamilton City	Non-Subscription	2,696	2,510	-6.9%
Middletown City	Non-Subscription	1,199	1,445	20.5%
Monroe City	Non-Subscription	654	504	-22.9%
Oxford City	Non-Subscription	958	898	-6.3%
Ross Township	Non-Subscription	116	523	350.9%
Trenton City	Non-Subscription	475	681	43.4%
Fairfield Township	Subscription	419	566	35.1%
Hanover Township	Subscription	104	195	87.5%
Lemon Township	Subscription	Not Established	NA	NA
Liberty Township	Subscription	1,291	1,586	22.9%
Morgan Township	Subscription	61	143	134.4%
West Chester Township	Subscription	1,831	2,300	25.6%
Oxford Township	Subscription	Not Established	13	NA
Reily Township	Subscription	Not Established	52	NA
Total		**11,976**	**13,369**	**11.6%**

Source(s) of information: Butler County Annual District Reports (2017-2021), Butler SWMD 2018 Plan Update

The District analyzed the growth in the curbside recycling programs from 2014 to 2021. Since 2014, the District added subscription curbside services to Lemon Township, Oxford Township, and Reily Township. In 2016 the District established Ross Township curbside services as non-subscription instead of the previously subscription-based program.

For the period 2014 to 2021, the District demonstrates an increase in curbside recycling tonnages collected. Compared to 2014, the District collected nearly 12% more in terms of tonnages in 2021. The largest increases over this time were in Ross Township, Morgan Township and Hanover Township. Ross Township had an especially large percent change over the time period, experiencing an increase in recyclable material tonnages collected by 350%. This can be directly attributed to Ross Township changing the recycling program from subscription to non-subscription. Every township saw curbside recycling services increase tons collected, suggesting there is growing desire to recycle among their populations.

Interestingly, three of the District's largest cities, Fairfield, Hamilton, and Monroe all experienced decreases in tons of recyclable material collected. Monroe City had the largest decrease among municipalities, with recycled tons declining 23% since 2014. Only two cities experienced an increase in recycling collected, Middletown and Trenton, observed increases of 21% and 43% respectively.

Overall, the District's curbside recycling programs are performing well and the trend in tons captured from curbside recycling programs – both non-subscription and subscription – demonstrate a growing yield in tonnage.

Table H-1.2 Curbside Recycling Per Household Served

Programs	Type	Households	2021 tons	Pounds / Household / Day	Pounds / Household / Year	TRP Pounds / Household / Year
Fairfield City	Non-Subscription	13,599	1,953	0.79	287	459
Hamilton City	Non-Subscription	23,849	2,510	0.58	210	459
Middletown City	Non-Subscription	17,200	1,445	0.46	168	459
Monroe City	Non-Subscription	4,733	504	0.58	213	459
Oxford City	Non-Subscription	3,278	898	1.50	548	459
Ross Township	Non-Subscription	2,680	523	1.07	390	459
Trenton City	Non-Subscription	4,020	681	0.93	339	459
Fairfield Township	Subscription	6,600	566	0.47	172	331
Hanover Township	Subscription	2,600	195	0.41	150	331
Lemon Township	Subscription	NA	NA	NA	NA	331
Liberty Township	Subscription	14,510	1,586	0.60	219	331
Morgan Township	Subscription	1,500	143	0.52	191	331
West Chester Township	Subscription	17,000	2,300	0.74	271	331
Oxford Township	Subscription	851	13	0.08	31	331
Reily Township	Subscription	710	52	0.40	146	331

Source(s) of information: Butler County Annual District Reports (2017-2021), The Recycling Partnership State of Curbside Recycling Report (2020).
Note: TRP is The Recycling Partnership
Note: Lemon Township did not report any recycling numbers in the reference year.

Evaluation of curbside recycling services per community is an important step in understanding how well recycling programs are performing. **Table H-1.1** above shows the breakdown of the per capita recycling generated per household, per day, and per year.

The District's highest performing recycling communities in terms of per household collection were Oxford City, Ross Township, and Trenton City. Importantly, these areas all provide non-subscription curbside services to residents. It is worth noting that these three communities were among the lowest in terms of total materials collected among all non-subscription curbside communities. Despite this, on a per household basis these three communities outperform the top three cities by mass of Hamilton, Fairfield, and Middletown with respect to total recycling weight/yield.

According to a study conducted across the U.S. by The Recycling Partnership, surveyed communities collect on average 440 pounds per household annually[1]. According to the Recycling Partnership, non-subscription services yield on

[1] "2020 State of Curbside Recycling Report", The Recycling Partnership. https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2020/02/2020-State-of-Curbside-Recycling.pdf

average of 459 pounds per household annually compared to the 331 pounds per household yielded annually from subscription curbside services.

Comparatively, the District's communities are collecting less recycling than the Recycling Partnership's surveyed communities' average except for Oxford City which collected 548 pounds per household annually. The District's non-subscription services perform better than communities with subscription services with 308 pounds per household annually versus the 168 pounds per household collected annually from subscription services.

There are a variety of factors that affect curbside recovery rates among communities. One of the most important is access. As mentioned, when residents must opt-in to services (commonly referred to as subscription service) there is generally less material recovered than a service that is automatically included for the community (non-subscription service). Another factor is education and awareness behind the programs available as well as the importance of recycling for the environment. Education and awareness campaigns targeted specifically at how to recycle right and its importance can also yield improved tonnages. Lastly, economic incentives have been successful for some communities in establishing curbside recycling programs and/or increasing collected tonnages. Whichever methods are used, it is important to work with communities to generate interest in curbside recycling programs and to ensure established programs remain successful.

To better understand how other regional districts work with communities to generate interest in curbside recycling services, the District analyzed neighboring Hamilton County's SWMD (R3Source) curbside recycling programs. The District found two methods that help Hamilton County increase and maintain interest in curbside recycling among its communities. The first is a recycling economic incentive. This program awards communities with variable funding based on the recycling rate of that community. The higher the recycling rate, the more money is awarded. R3Source allocates a portion of its annual budget to this program and requires that awarded funds be used on recycling or waste reduction-related expenses such as curbside recycling, drop-offs, leaf collection, etc. This program is extremely well received by communities in Hamilton County, with 47 of 48 communities regularly participating. The District had a similar program but found the incentive was not positively impacting participation or diversion tonnages.

The other program R3Source uses to establish and maintain curbside recycling programs is targeted community outreach. Each year, R3Source works with several communities to improve recycling infrastructure and participation. This is a very time-intensive process and includes meeting with community members/leadership, developing an outreach plan, and providing technical assistance in implementing said plan. The primary goal of this program is to improve curbside participation rates and raise awareness of the importance of recycling.

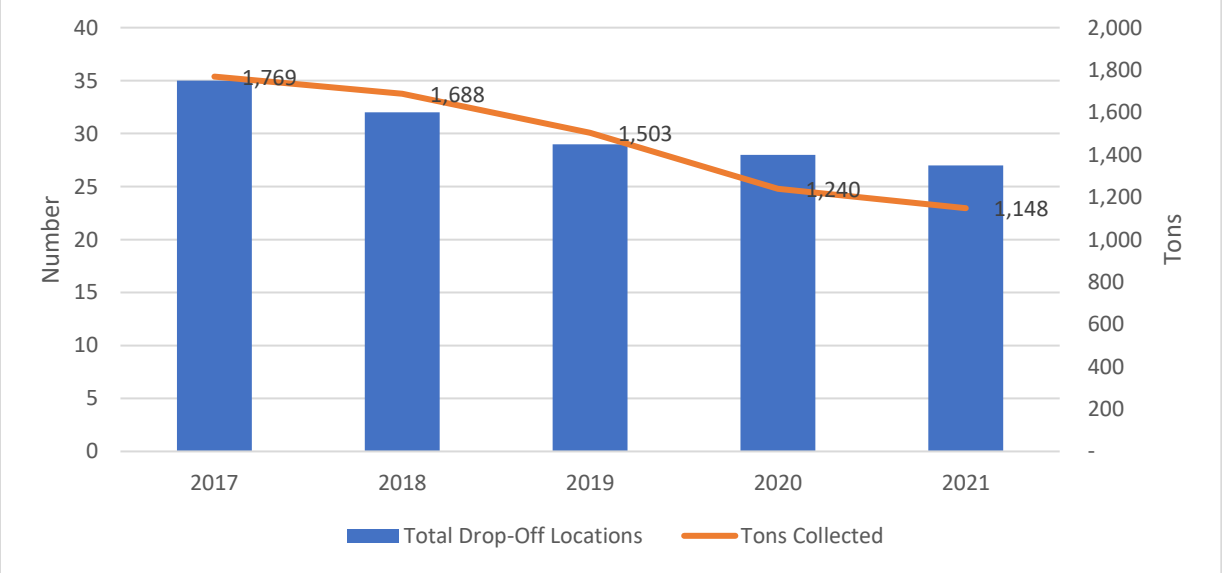
These two programs are pivotal in R3Source's ability to recover recyclables from the curb. As of their most recent plan update, R3Source reports collecting over 30,000 tons of recyclables from non-subscription curbside programs alone. The District does have a curbside participation and awareness program in place that has proven to be successful, generating over 300 new subscriptions to curbside recycling in West Chester Township in 2022. The District offered an economic incentive by paying for the first three months of service to all residents who signed up.

The District has seen success recently by pairing education and awareness with economic incentives to generate interest in curbside recycling. However, the District has more communities without non-subscription curbside recycling than not. With seven communities having access to a non-subscription curbside recycling program, there is an opportunity for the District to explore methods to increase the number of non-subscription programs throughout Butler County using education & awareness, economic incentives, and working with local community leaders.

B. Drop-Off Evaluation

The District contracts with a private service provider to collect and process materials from community drop-off recycling programs. In 2021, 26 full-time drop-offs were available. Full-time drop-offs are open for at least 40 hours per week. Drop-offs collected the same types of materials as curbside recycling programs – plastic containers, mixed paper, glass, aluminum cans, and steel cans.

Figure H-1.3 Recycling Drop-Off Sites



Source: Butler County Annual District Reports 2017 - 2021

Since 2017, the number of site locations for community recycling drop-offs decreased. **Figure H-1.3** shows the number of drop-off recycling locations from 2017 to 2021. The primary reason for the decline is due to problems with illegal dumping and contamination, particularly in the West Chester and Fairfield Township locations. It is costly to remove trash materials and it adversely impacts the District's annual budgeted cost for the program. As a result, several township drop-off locations were permanently closed. In addition, cleanup of nuisance material is time consuming and often falls on township personnel.

Figure H-1.3 also shows drop-off tonnage trends from 2017 to 2021. The total recycling numbers for each year represent the combined total of all drop-off recycling sites. The average percent change is a 10% decrease year to year with an average of 1,395 tons of material recovered over this time span.

The decreases shown above are consistent with the number of sites operated. The District saw its drop-off locations decrease over the last five years and as would be expected, so did the total tonnage collected. Every year decreases in both drop-off locations and tons collected are tracked.

Figure H-1.4 Map of Drop-Off Locations (2021)

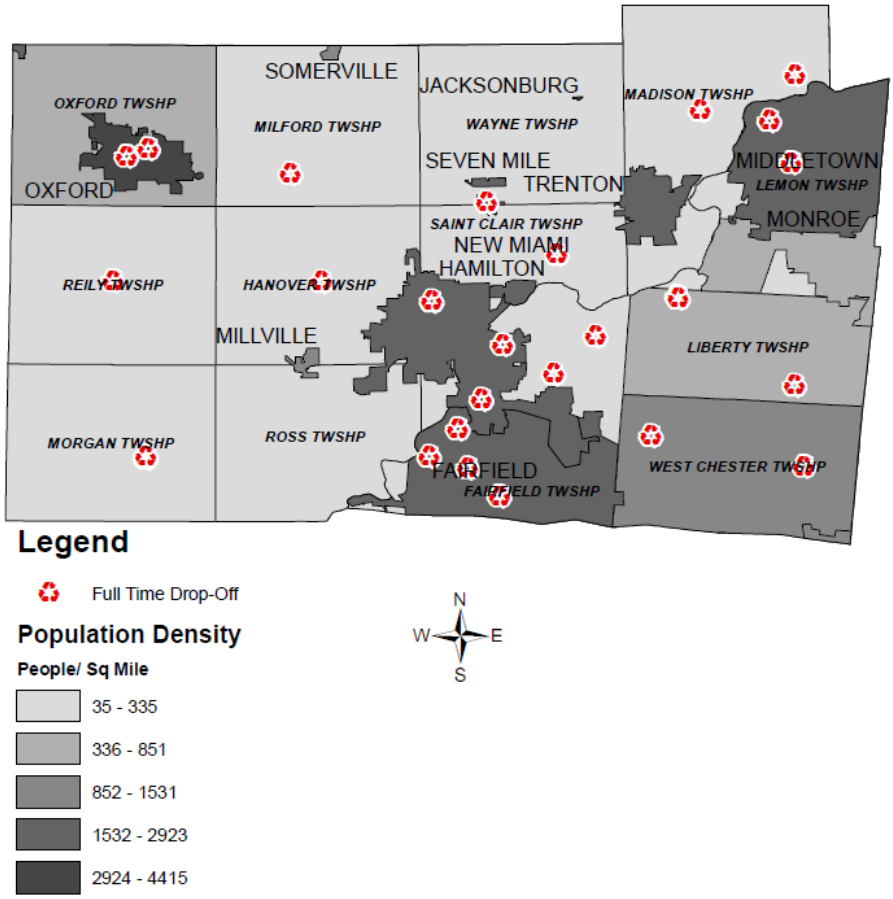


Figure H-1.4 above shows where recycling drop-off locations are located throughout the District as well as the population density of the various townships and municipalities.

Table H-1.4 Benchmarked Drop-Off Programs

Solid Waste Management District	Total Spent on Drop-Off	Cost per Ton	Tons Collected	Number of Drop-Offs
Butler County[1]	$116,126.35	$101.16	1,148	27
CFLP Joint SWMD	$1,538,924.00	$376.36	4,089	43
Lucas County	$1,657,311.78	$196.39	8,439	33

Note:
[1] Butler County cost per ton is based on the costs in 2021 for the District servicing the drop-off containers.
Source:
Coshocton-Fairfield-Licking-Perry 2019 data obtained from the District.
Lucas 2021 data obtained from the District.

For comparison purposes, the District's program cost per ton for drop-off service was compared to other programs in similar sized Districts in the State of Ohio as shown in **Table H-1.4**. The cost per ton for service is less in Butler County than in the other Districts that were benchmarked.

Of the three Districts compared above, Butler County has the lowest cost per ton of service. However, the District also has the least number of tons collected. Lucas County collects nearly eight times the number of materials from their drop-off programs than Butler County. Lucas County had 33 drop-off locations in 2021 of which 6 are cardboard only collection locations. While Lucas has a comparable number of locations, the program services over 250 recycling containers, which is considerably larger than Butler County's program. Lucas County prioritizes recycling contamination education and outreach to residents by tracking contamination rates, giving public presentations, highlighting businesses who recycle, participate in community events, and partnering with local organizations like Keep Toledo/Lucas County Beautiful. The strong education and awareness programs for recycling paired with a plethora of recycling drop-offs is likely the reason behind Lucas County's drop-off success.

The Coshocton Fairfield Licking Perry (CFLP) Joint SWMD also has a comparable population size to the District's. The CFLP Joint SMWD prioritizes drop-off recycling and does not have any curbside services available. This District has 43 drop-off locations and collected nearly 4,100 tons. The primary reason this District has significant drop-off recycling collection totals is because this is the only method available for residents to recycle, there are no other recycling programs/services.

C. Conclusions/Findings

The District is averaging about a 13% residential/commercial diversion rate. Contamination is an issue at many of the drop-off locations. As a result, some drop-

off locations have been discontinued. One area of focus for improvement is education on how to properly recycle. Education/outreach are significant components of any program's success. The District has seen success with education/outreach initiatives in the past when partnering with The Recycling Partnership to increase awareness and decrease contamination for curbside collection. This resulted in an 11% decrease in contamination over a 5-week period, though the long-term effects have not been measured.

There are several methods for relaying information about recycling properly at District drop-offs. These include ads in the media, visiting and giving presentations to neighborhood associations, schools, churches, and civic organizations to promote the program. Issuing flyers and/or newsletters, improved signage at drop-off locations, and hosting training sessions are also effective strategies. Regardless of the method used, best practice must include the following: communicate accepted material, identify unwanted items not accepted in recycling, identify drop-off recycling locations, and who to contact with questions and how to report abuse of service. Easy to understand instructions and language are very important. Continuous education is critical to long term success of the drop-off program.

Another area of opportunity is collection - getting materials from generators to the MRF for processing. An open market system is serving the District well. This infrastructure analysis demonstrates many communities have taken steps to ensure curbside recycling is available. This analysis also detailed the challenges the District faces with its drop-off locations. As mentioned previously, curbside recycling is more convenient and almost always demonstrates a higher return of tons recycled. As demonstrated in this analysis the District drop-offs collected 1,148 tons across its 27 locations while curbside services collected 13,369 tons across the areas where this service is available.

There is room for diversion to improve in residential recycling programs. Non-subscription curbside recycling is available to over 69,000 households. If all 69,000 households participate and yield an average of 459 pounds per household, more than 15,800 tons would be collected.

This demonstration includes commercial as well as residential tonnage thus may inflate the estimation. However, the point is more recyclables could be diverted. To improve participation the District could look at targeted education and outreach using social interventions. Understanding the barrier between having access and using access include identifying where populations are underserved with recycling service.

Continued conversations with stakeholders and strategically analyzing areas where improvements could be made would be a great start to exploring increased diversion. The District could assist community stakeholders with curbside services to help improve diversion numbers. There is also an opportunity to expand non-

subscription curbside to subscription curbside areas to increase tonnages recovered as more households participate.

Another strategy to encourage diversion is to incorporate incentives for recycling such as variable rate garbage collection fees. Example: The household has the option of using a 30-, 60- or 90-gallon trash can, with the cost of service for each being $20, $30, and $40, respectively. If you recycle, you may only need the use of the smallest trash bin, thereby saving on your monthly trash disposal bill. The District could help communities perform rate analysis to determine costs for service and a rate schedule to encourage incentives.

Opportunities to explore as programs for this 2025 Plan Update:

- City Council Outreach (ongoing program) – Outreach targeted to households specific to non-subscription programs.
    - Engage with Miami University for partnership. Students in the Institute for the Environment and Sustainability are required to complete a service project, this presents an opportunity for the District to partner with this program.
    - Understand the barrier between having access and using access and identify whether marginalized populations encounter barriers to recycling.
    - Design specific campaign and outreach strategy and implement.
- Resident Outreach (ongoing program) – Set a goal to increase materials recovered per capita.
    - Develop an outreach plan to encourage recycling.
    - Use a variety of methods to reach different audiences including website, regular column entries in newspaper, cable, and television ads, press releases, and brochures.
    - Partner with local organizations to help spread awareness.
    - Explore social media campaign feasibility.
- Resident Outreach (ongoing program) – Set a goal to decrease contamination.
    - Engage in a recycling right campaign for drop-offs.
- Township Trustee Outreach (ongoing program) – Set a goal to expand subscription programs to non-subscription.
    - Engage in meetings with trustees to establish or change curbside program models.
- Multi-Family Cooperative (ongoing program) – Set a goal to engage with multi-family residents in at least 1 complex to reduce barriers to recycling.
    - Consider locating a drop-off at or near a multi-family complex.
    - Work with city officials to require haulers to provide service to multi-family complexes.
    - Work with multi-family complexes to establish recycling programs on-site for tenants to use.
    - The District provides one-time grant funds to establish infrastructure such as enclosures, concrete pads, recycling bins, etc.

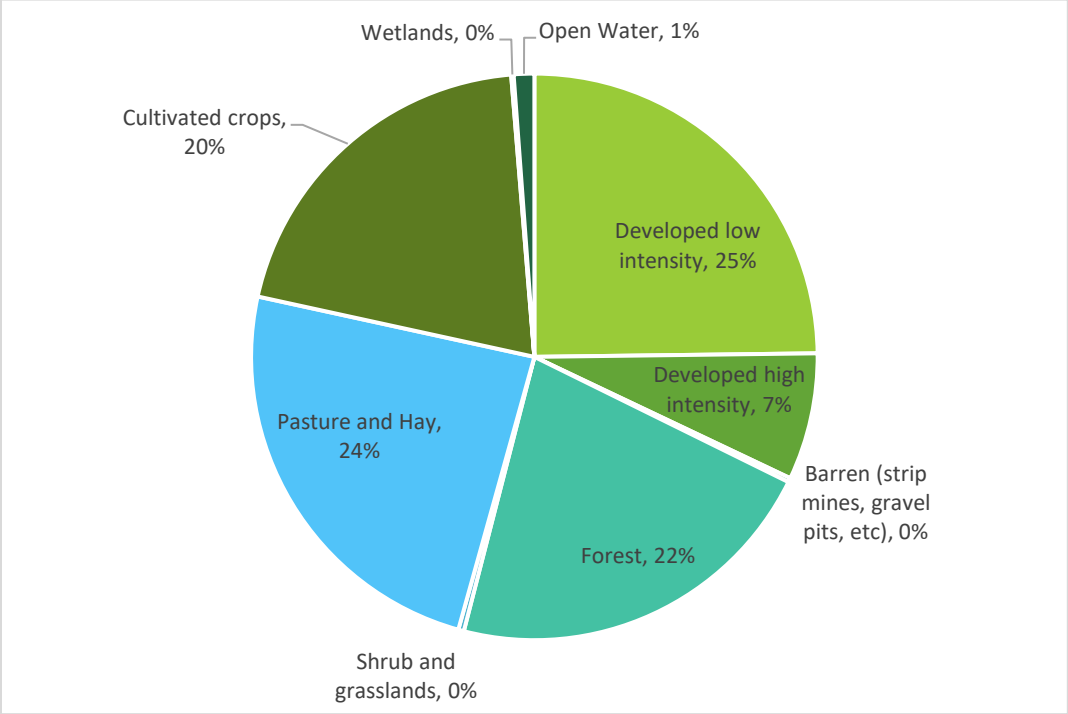
2. Commercial /Institutional Sector Analysis

This evaluation of the District's existing commercial/institutional recycling determines if existing programs are adequate to serve the sector. The analysis conducted for this plan update evaluates the strengths and weaknesses of existing programs. The goal is to identify service gaps and determine steps the District can take to further address the commercial/ institutional sector. The commercial/institutional sector within the District consists of the following (non-exhaustive list): commercial businesses, schools and universities, government agencies, office buildings, stadiums, amusement parks, event venues (stadiums, concert halls), hospitals and non-profit organizations.

A. Geographical

Defining rural and urban areas is based on decennial census criteria related to population thresholds, density, distance, and land use. In general, rural areas are sparsely populated, have low housing density, and are far from urban centers. **Figure H-2.1** shows the breakdown of land cover for Butler County.

Figure H-2.1 Land Cover

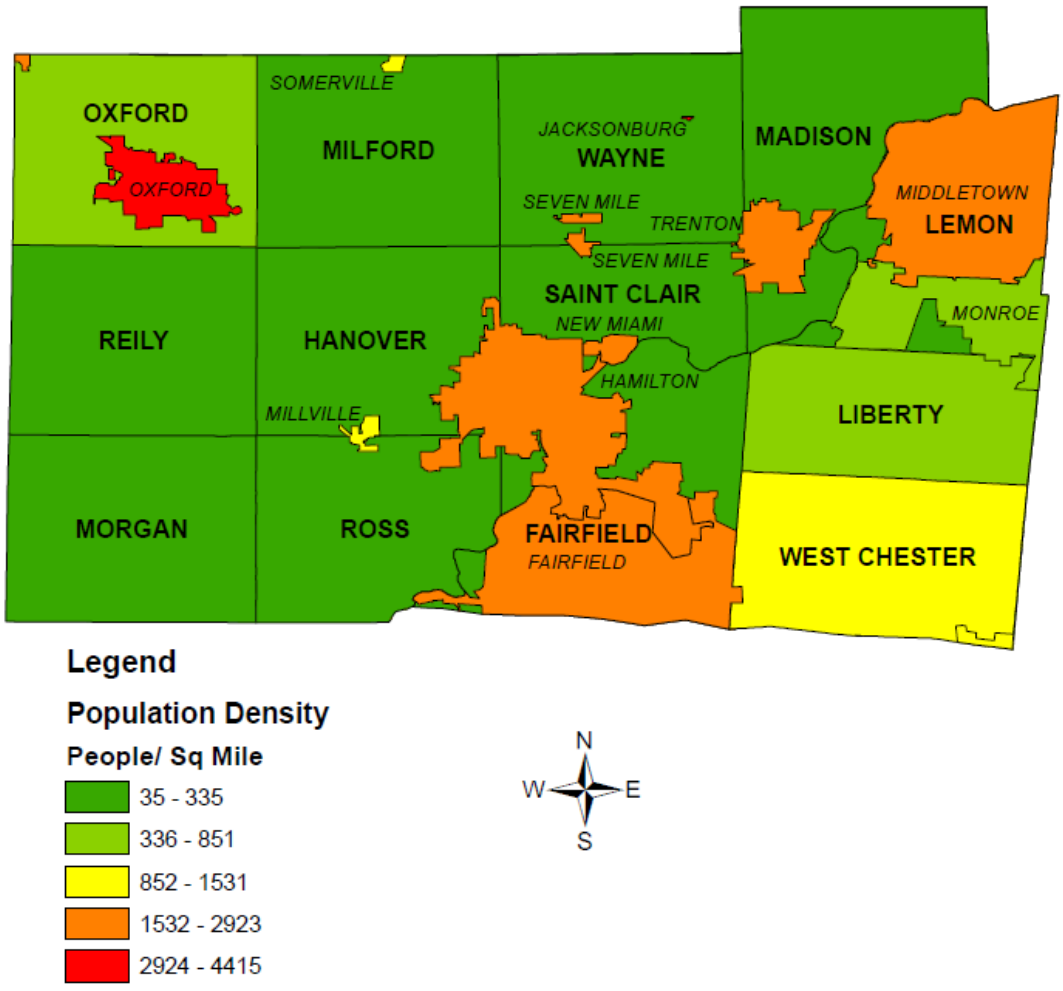


Source: Ohio Department of Development County Profile

About one-third of Butler County is developed land. Roughly 66% of the land area is rural, with 20% of land area being cropland, 24% pastureland, and 22% forested. Butler County does not have a lot of open water, with around 1% of total land area being lakes, ponds, or rivers.

Six major municipalities within the District make up most of the County's population. Oxford, Hamilton, Fairfield, Monroe, Middletown, and Trenton together make up 54% of the District's population. The City of Hamilton, the county seat, with about 63,000 residents is the largest municipality. The most densely populated areas in Butler counties are the cities. The City of Oxford has the highest population density in the District at about 4,400 people per square mile. Miami University is located in Oxford, enrolling about 19,500 students annually. The District is made up of 13 townships with West Chester being the largest by population with an estimated 62,500 residents.

Figure H-2.2 Population Density Map



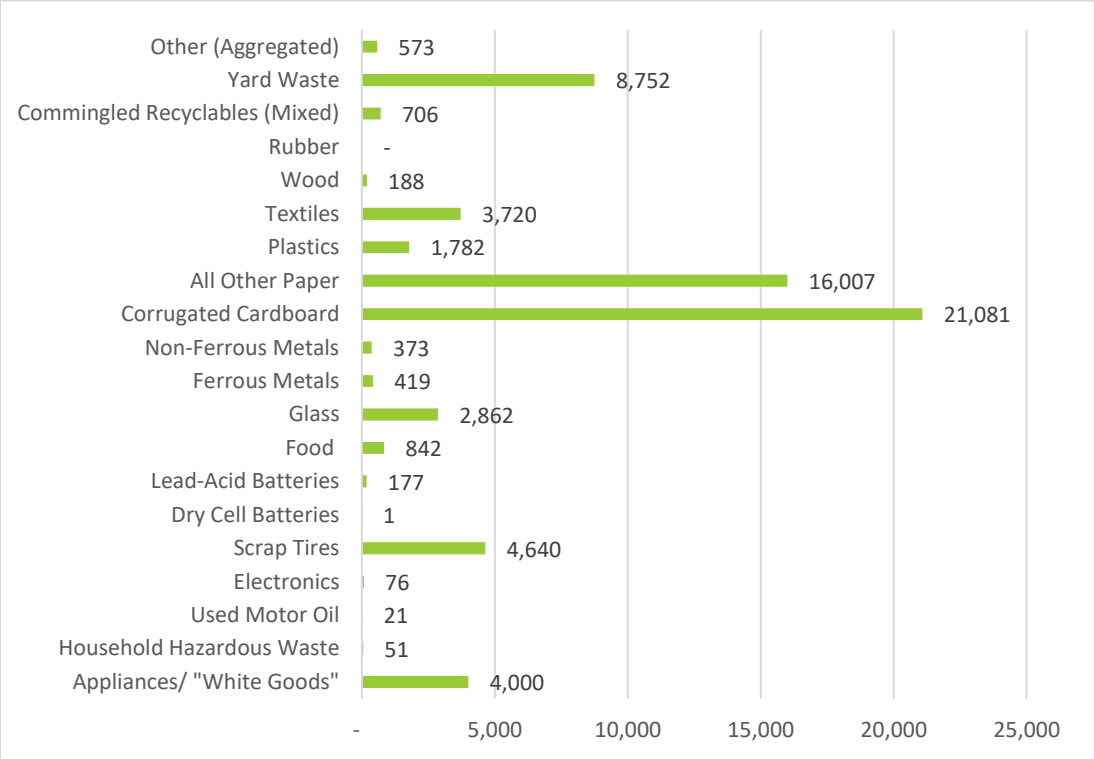
The private sector of Butler County employs about 140,000 people. Among this sector the largest employment categories by number of establishments are trade, transportation, and utilities (28%), manufacturing (17%), and education and health services (15%).

Overall, the private sector of the District has experienced an 11% growth in employment since 2013. Trade, transportation, and utilities has grown 6.2%, manufacturing increased by 18%, and education and health services grew by 10% over that same period. Other notable changes in employment since 2013 include a 28% increase in construction, a 19% increase in leisure and hospitality services, and an 8% increase in professional and business services. The only area of employment that saw a decrease since 2013 was financial services by less than 1%. As the District's population is growing, so too are the number of establishments and employees in the private sector.

B. Diversion

A total of 66,324 tons of material was diverted from the residential/commercial sector. **Figure H-2.3** graphs the residential/commercial diversion by material in the 2021 reference year. The most notable materials diverted are cardboard, mixed paper, and yard waste.

Figure H-2.3 Butler County Materials Diverted



Source: Appendix E

The District reports residential and commercial recycling as a commingled data point. To separate out commercial sector diversion from residential diversion, the District reviewed the data by source: commercial surveys, brokers, haulers, and Ohio EPA sourced data from commercial businesses and material recovery facilities (MRFs).

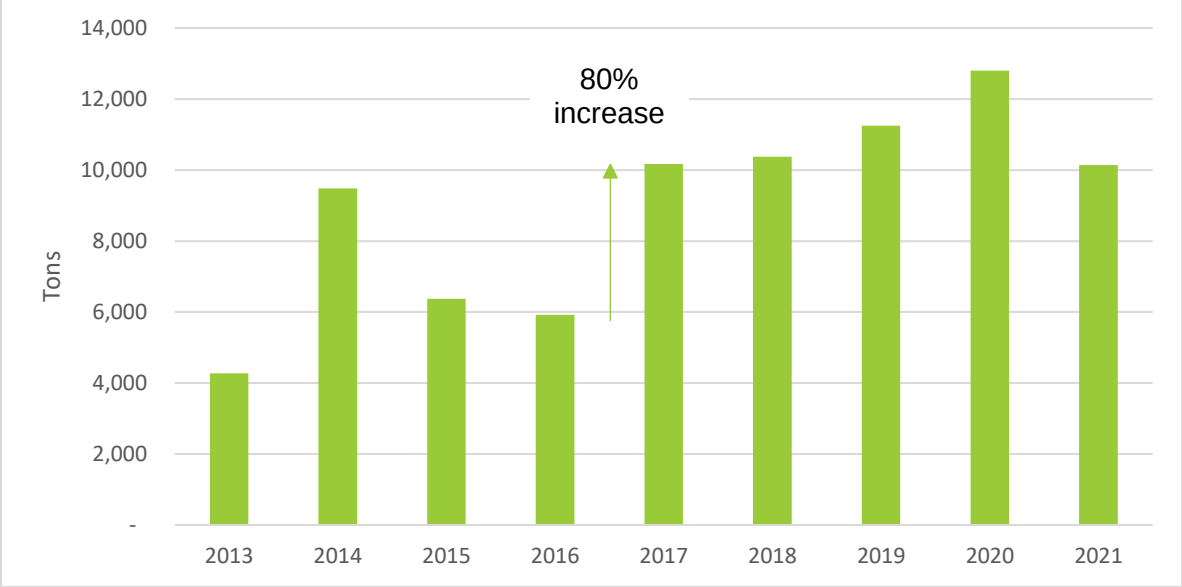
Table H-2.1 Estimated Commercial Stream Recycling (2021)

Source of Commercial Recycling Data	Quantities (Tons)
Commercial Survey	18,092
Ohio EPA Commercial Data	10,141
Data from other Recycling Facilities	9,449
Commercial Total	**37,682**
Residential/Commercial Total	**66,234**
% Commercial (estimated)	**57%**

Using this method for estimation, the District calculates roughly 57% of diversion can be attributed to the commercial sector.

In 2017, Ohio EPA targeted the commercial sector and took significant steps to directly survey and collect the commercial big box store recycling data. Data from those efforts resulted in higher reports of commercial tonnages for the District. **Figure H-2.4** below shows data in 2017 increased about 80% from the year prior. There are about 17 commercial retailers reporting data to Ohio EPA, however not all 17 consistently report each year. On average about 10 commercial retailers report their data to Ohio EPA. The retailers are still in business, but reporting is inconsistent. If all 17 commercial retailers reported data, the result would be an additional 1,000 tons or more potential diversion.

Figure H-2.4 Historical Commercial Big Box Store Data Collected From Ohio EPA



C. Commercial/institutional Establishments

The top sectors for employment for Butler County are manufacturing, retail trade and health care and social assistance[2]. While the county documents a decline in manufacturing employment since 2004, manufacturers continue to be to be a major employer for Butler County. Excluding manufacturing, health care and social assistance, and retail trade employ a significant number of people in the county and have a large share in the number of businesses.

Table H-2.2 Commercial/Institutional Establishments

NAICS Code	NAICS Description	Number of Commercial/Institutional Establishments
42	Wholesale Trade	536
44-45	Retail Trade	1,033
48-49	Transportation and Warehousing	304
51	Information	155
52	Finance and Insurance	391
53	Real Estate and Rental/Leasing	331
54	Professional, Scientific, and Technical	596
55	Management of Companies and Enterprises	80
56	Administrative and Support and Waste Management and Remediation Services	407
61	Educational Services	89
62	Health Care and Social Assistance	788
71	Arts, Entertainment, and Recreation	109
72	Accommodation /Food Service	737
81	Other Services (Except Public Administration)	740
	Total	6,296

Source: *2020 County Business Patterns. U.S. Census Data.*
Note: Data from 2021 was not available as of this report.

There were roughly 6,296 commercial/institutional establishments in Butler County in 2020. **Table H-2.2** shows the number of commercial/institutional establishments within the North American Industry Classification System (NAICS) code.

D. Functionality

Commercial businesses, schools and universities, government agencies, and event venues all rely on private sector haulers for their recycling programs. Businesses can

[2] Ohio Department of Job and Family Services Office of Workforce Development. Ohio Economic Profile Butler County, 2020.

request recycling services from local brokerage companies. The District keeps an updated list of local haulers that provide recycling services. The haulers will then transport the diverted materials to material recovery facilities where the material will be processed to sell to manufacturers. The District offers free waste audits and assessments to commercial businesses upon request. The District performed four waste assessments in the reference year.

Events/Venues and Parks

Recycling in public spaces such as parks and event venues is currently a gap for the District. The District has a large number of municipal and county operated metro parks, but recycling has not been a priority focus at these venues. However, there were significant quantities of cardboard generated at the county fair for COVID-19 vaccine clinic events that the District serviced with recycling. With funding from the solid waste district, several communities continued to offer recycling collection at large attendance events such as Fairfield's Groovin' on the Green, Hamilton's Marcum Park summer concert series, and Middletown's Broad Street Bash.

Commercial Businesses

Commercial businesses have the opportunity to contract with a private hauler for recycling services. The District provides businesses with the option to have a waste audit of their facility performed. This is a program that is actively used in the District. During the reference year, the District provided waste assessments to Finn Corporation, Univar, Crimson Cup, and Telhio Credit Union. The District provided recycling recommendations, recycling collection, signage, and containers to the commercial entities who requested support.

Due to ongoing COVID restrictions and evolving workplace protocols, the District suspended its pollution prevention (P2) program as industry partners withdrew from the program in Spring 2021. This program returned in 2022.

The District offers a variety of services to its commercial sector. However, the programs offered are reliant on businesses to reach out to the District directly. There is an opportunity for the District to increase its reach in Butler County by directly targeting businesses by the type of establishment. The District could explore this type of direct outreach by first compiling a list of the businesses located in Butler County using the Chamber of Commerce and U.S. Census data. Once established, the District could use social marketing methods such as mailers, paid advertisements, emails/phone calls, and attending in-person meetings to raise awareness of the programs the District offers.

Neighboring Hamilton County’s R3Source provides an example of this through its commercial business-targeted outreach. R3Source aims to increase its outreach/technical support effectiveness by targeting businesses by type. The goal centers around creating a host network to connect, share information, and support other local businesses by sharing results, findings, and data from working with

R3Source. Businesses also receive follow-ups after technical assistance is completed to maintain relationships and search for more ways to assist.

Schools and Institutions

Due to ongoing restrictions from the COVID-19 pandemic, access to schools and manufacturers was limited during the first half of 2021. The District adapted its outreach strategies using video education formats and communicating content about how to recycle right through area print newsletters as well as keeping up-to-date content on its website and Facebook page. The District collaborated with a team of students and teachers to improve signage, collection containers, and capacity to the Monroe Jr/Sr High School campus, cafeteria, and stadium. The District also added a recycling box and service to Monroe High School to meet growing demands of the expanding recycling program. The District provides two drop-off locations on campus at Miami University. Though Miami University has its own internal recycling program, the District could offer to collaborate on initiatives and activities going forward at Miami's main and community campuses in Middletown and Hamilton.

Not all schools in Butler County are recycling, which is a great opportunity for pursuing programs. Education in the schools that have programs is an area of opportunity to educate the students on the correct materials to recycle. Another opportunity is to educate during school events such as football games for those campuses that offer recycling. The District will need to ensure the service is right sized for the crowd and that there is sufficient capacity.

Government Agencies and Office Buildings

Some local government offices in Butler County serve as recycling drop-off collection sites. There are drop-off recycling locations at the Morgan Township, Madison Township, and St Clair Township administration buildings. Every other week a collection of mixed paper is provided by the District to all county offices and courts. 291,430 lbs. of paper were captured and shredded/recycled. Commingled recyclables (glass, cardboard, plastic, aluminum) are collected weekly from county offices, breakrooms and placed on docks/totes to be processed by Rumpke.

E. Conclusions/Findings

Commercial sector participation in recycling programs is challenging primarily due to the cost of service and that recycling is voluntary. The District diverted 13% of its total residential/commercial waste generated. This is below the Ohio EPA state goal to divert 25% of all residential/commercial waste generated. 57% of this was estimated to have been diverted through the commercial sector. Schools are typically large generators of paper, cardboard, and other materials so partnering with more schools could help increase diversion rates. School based education initiatives are proven to increase diversion.

Opportunities to explore as programs for this 2025 Plan Update:

- Commercial/Industrial Technical Assistance (ongoing program) –

  - Continue to offer waste assessments and actively reach out to local businesses to conduct these. Connect with past recipients to find out how the recycling program is going.
  - Continue working with schools and school districts on recycling programs. Target the upper management levels of schools and school districts to encourage their participation in recycling initiatives.
  - Focus on recycling service arrangements to business clusters.
  - Continue to work with school campuses, make sure containers are right sized for crowd events, consider educating on event recycling at school events.
- Business and Industry Outreach (ongoing program) - Develop educational materials for businesses such as how to set up a recycling program.
- Education and Outreach (ongoing program) – Develop retailer specific collateral that is meaningful to the retailer to divert material. For instance, clothing retailers will have different needs than grocery stores.
- Data Collection (ongoing program) - Collaborate with Ohio EPA to increase the EPA's data collection efforts with big box store commercial retailers. Consider annual surveys.
- Business and Institutional Grant Program (ongoing) – Connect with past recipients to assess how the recycling program is going.

3. Industrial Sector Analysis

The analysis of the industrial sector assesses if existing programs offered through the District are adequate to serve that sector and determines if additional programs are needed to support manufacturing entities.

A. Evaluation

There were approximately 804 industrial businesses operating in Butler County during the reference year (2021).While many large manufacturers are readily known, about 48% of the industrial businesses in Butler have 10 employees or less. **Table H-3.1** lists the top industrial businesses in Butler County by employee size.

Table H-3.1 Top Industrial Companies

Company	Employee Size
Cleveland Cliffs (formerly AK Steel)	2,400
Tyson	892
Deceuninck N.A	600
Koch Foods	600
ThyssenKrupp Bilstein	580
Pacific Manufacturing Inc	576
Molson Coors	510

Company	Employee Size
Totes Isotoner	459

The District's industrial sector businesses are largely concentrated in the West Chester Township and the Cities of Hamilton and Fairfield. The top five communities with the largest presence of industrial businesses are listed below in **Table H-3.2.**

Table H-3.2 Largest Industrial Communities

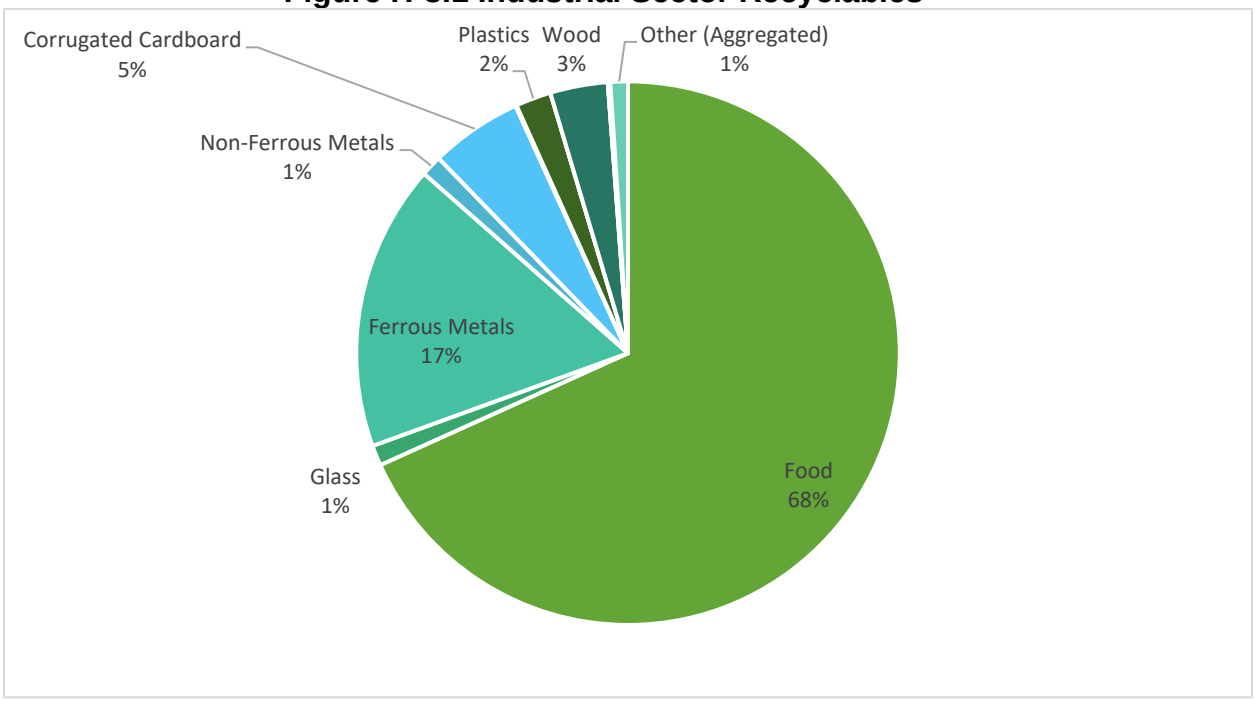
Community	Number of Industries
West Chester Township	344
Hamilton	167
Fairfield	147
Middletown	110
Monroe	33

Source: *U.S. Business Database. Rep. Reference USA.*

B. Landfill Diversion

In 2021, industrial businesses recycled approximately 143,285 tons of waste. Industrial businesses diverted 41% from the landfill. The tons of industrial waste recycled, including the types of materials recycled, are discussed in more detail in the section "*Diversion Analysis".* **Figure H-3.1** provides the percentage of each type of recyclables recovered during the reference year. Food accounted for the largest source of diverted material at 68%, with ferrous metals and corrugated cardboard being the next highest by percent with 17% and 5% respectively.

Figure H-3.1 Industrial Sector Recyclables



Source: Appendix F

Most of the recycling programs implemented by the industrial sector were implemented internally by the respective business without intervention from the District. However, should industries choose to request support, the District has existing programs that provide assistance. The District offers industrial technical assistance by meeting with specialty recyclers and sustainability specialists as well as offering financial assistance for industrial recycling infrastructure. Engagement with this sector is challenging because much of the waste generated is specialized and specific to the business. Many businesses operate with proprietary information that they do not wish to disclose to the District in annual surveys.

The Southwest Ohio P2 Internship Program is a successful partnership connecting local manufacturers with the solid waste district and engineering students. This program places the District in a one-on-one contact with industries and assists manufacturers with reducing waste, conserving energy, and improving operations. Since 2007 the P2 program has a strong record of successful collaboration among the partner solid waste district's (Hamilton County, Butler County, and Montgomery County) private sector manufacturers and talented Ohio undergraduates. The Southwest Ohio P2 program is a model in the State of Ohio and has been recognized by Ohio EPA.

C. Conclusions/Findings

The businesses who choose to report diversion information were able to divert 41% of the waste generated in the reference year. The District has seen a decline in industrial diversion over the last five years, dropping 9% from 50% in 2017 to 41% in 2021.

Opportunities to explore as programs for this Plan Update:

- Data Collection Efforts (ongoing program) - Obtain and maintain updated contact information for staff managing the industrial recycling programs and build rapport with the goal to attain yearly responses. Consider annual surveys. Continue to promote and advertise annual survey participation with a focus on newer, larger entities.
- Business and Industry Outreach (ongoing program) - Connect with local businesses and economic partners to determine the desire for materials management and reporting.
- Commercial/Industrial Technical Assistance (ongoing program) – Offer free waste audits and assessments to help industrial businesses determine what their waste flow looks like and provide technical assistance to increase recovery within this sector.
- Expand P2 industry outreach and partnerships to maximize the impact of this regional collaborative program.

4. Residential/Commercial Waste Composition Analysis

This evaluation of the SWMDs waste composition analysis describes and evaluates the waste that makes up the largest portions of the waste stream. It also describes what programs are currently being used by the District to address the waste streams and what programs should be evaluated to further address the waste stream.

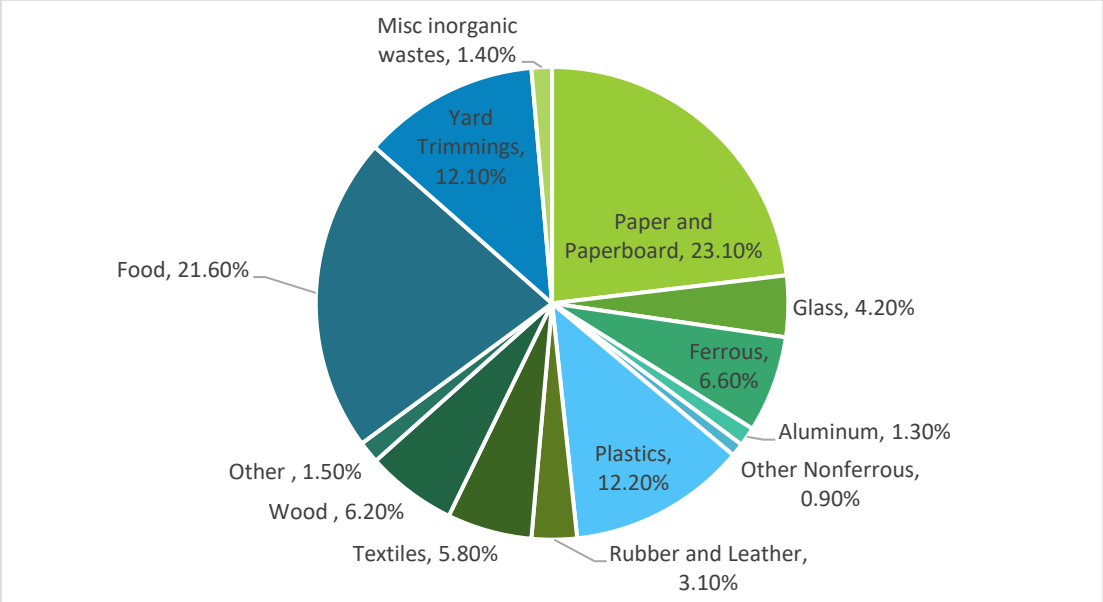
A. Residential/Commercial Sector

Waste Generation = Total Wastes Disposed + Total Wastes Diverted

The District generated 495,311 tons of residential/commercial waste in the reference year and recycled 13% of this waste. The historic average diversion for the past four prior years to the reference year (2017-2020) was 14%. The highest over the past five years was in 2017 with an 18% diversion rate. In the reference year roughly 87% of the total generated waste was sent to landfill. To better understand the composition of the material not being diverted (the amount being landfilled), waste characterization data from the Ohio EPA was applied to the district's tons disposed.

As discussed in Appendix G, an analysis of the estimated composition of residential/commercial waste generation was conducted for the reference year using the EPA's Advancing Sustainable Materials Management: 2018 Trends and Figures report. This report details EPA's estimates for the composition of waste that is generated. The District used this report and assumed the percentages listed for its own estimations and projections. **Figure H-4.1** below lists the estimated waste composition for the District in the reference year.

Figure H-4.1 Reference Year Waste Composition Percentages

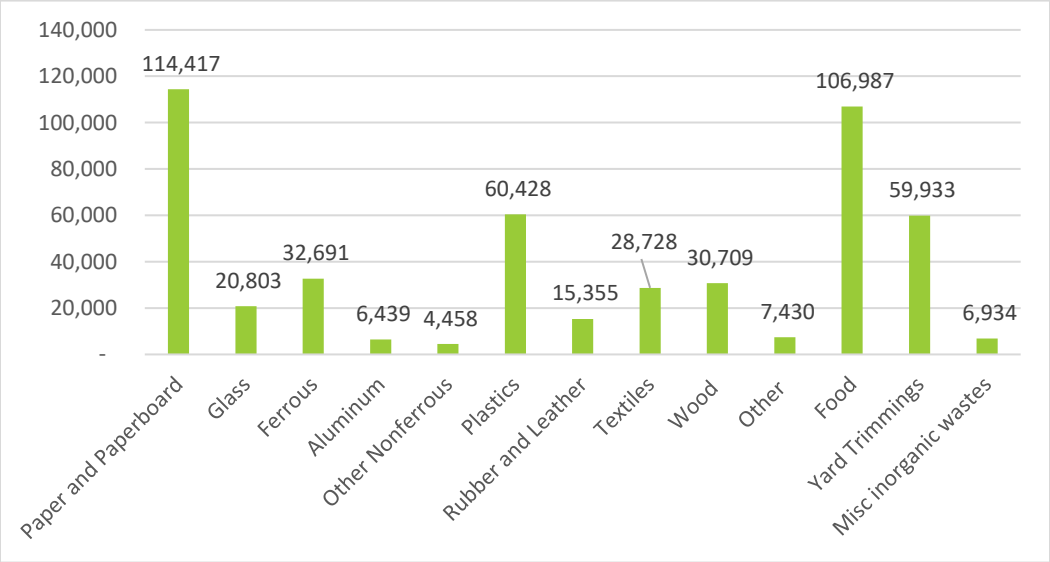


Source(s): U.S EPA, Advancing Sustainable Materials Management: 2018 Tables and Figures

As seen above, the major contributors to waste generation in the reference year are paper and paperboard (23%), food (22%), yard trimmings and plastics (12%). The composition shows how much of each material is estimated to be generated in the District. As shown in **Figure H-4.1**, the top categories of paper, food, yard trimmings, and plastic are all able to either be recycled or composted. Some plastics may be more difficult to recycle without proper infrastructure. Note the "other" stream is typically comprised of hard to recycle materials such as electronics.

Figure **H-4.2** below shows the breakdown of waste composition by weight.

Figure H-4.2 Reference Year Waste Composition by Weight



Source(s): U.S. EPA, Advancing Sustainable Materials Management: 2018 Tables and Figures

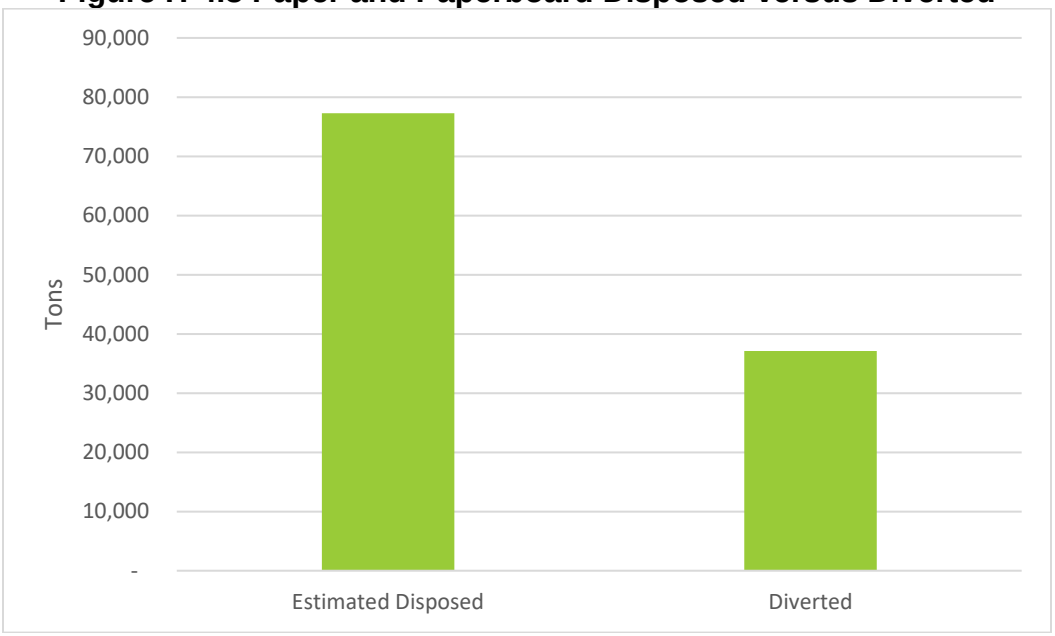
Fiber Waste Stream (Paper and Paperboard)

Using the waste estimates described above, the 23% that makes up paper and paperboard in the overall waste composition represents about 115,500 tons of paper. The District diverted 37,000 tons of paper and paperboard in the reference year, an estimated 32% diversion rate for this material category. While this is a good start, the District has the potential to divert even more. According to the American Forest and Paper Association, the U.S. recovery rate for paper and paper board was approximately 68% in 2018.

Figure H-4.3 below shows the amount of paper and paperboard disposed of in landfills and diverted. The residents of the District have sufficient access to paper and paperboard recycling opportunities. The District operates 27 drop off sites year-round for residents. These drop off sites accept newspapers and inserts, magazines, catalogs, junk mail, envelopes, phone books, paper grocery bags, cereal, and snack boxes (paperboard), cardboard and clean pizza boxes. The 19 jurisdictions with available curbside services also accept paper and paperboard.

The major challenge with these sites and programs is getting residents to participate and manage their recyclable waste properly as well as educate residents how to use the available services.

Figure H-4.3 Paper and Paperboard Disposed versus Diverted



Source(s):
U.S. EPA, Advancing Sustainable Materials Management: 2018 Tables and Figures
Appendix E

Food and Yard Waste Stream

Using the waste composition estimates above, there is approximately 107,000 tons of food waste and 60,000 tons of yard waste being generated annually by the District. Combined, the District disposed of a total of approximately 157,000 tons of organic waste. One issue with yard waste disposal is households may mix yard waste with household waste at the curb, which ultimately is disposed of at a landfill.

Figure H-4.4 shows the breakdown of the total organic waste disposed and the total organic waste diverted. Approximately 15% of total organic waste was diverted while 85% was landfilled. Of the diverted organic waste, 842 tons were from food diversion and 8,752 tons were from yard waste diversion.

About 1% of the total food waste was diverted in the reference year while approximately 14% of the total yard waste was diverted. The District has an opportunity to increase food waste recovery by encouraging and educating residents to compost their food waste. Residents with at-home composting systems for food waste will not have their food waste diversion captured or recorded. As such, compost activity that may be occurring at the household level is not being captured in this data.

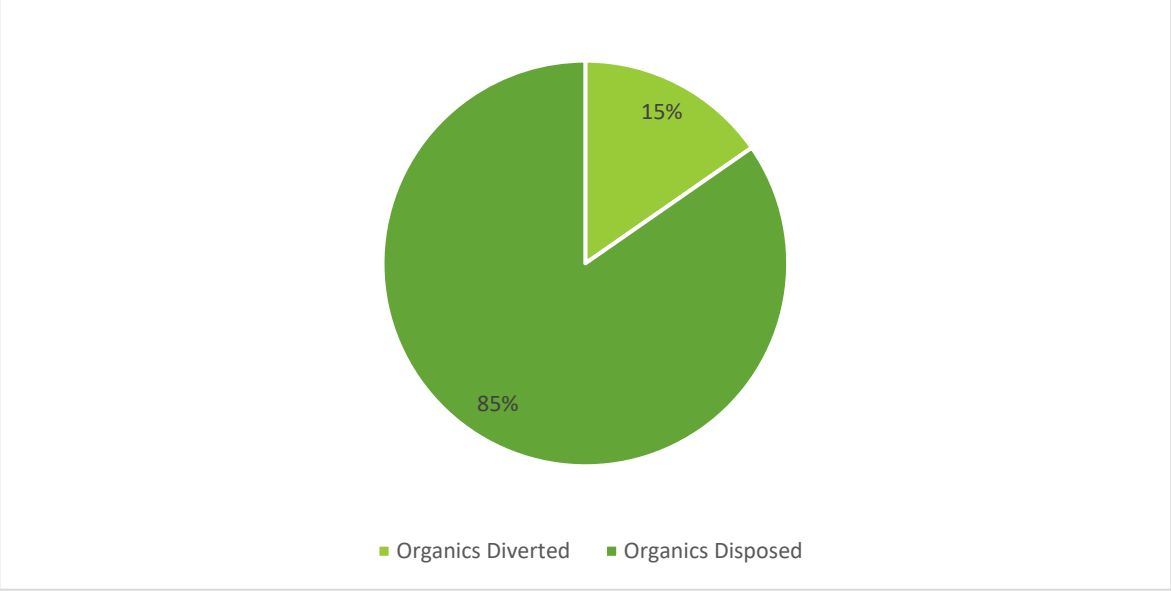
Food waste occurs for a variety of reasons, namely convenience, FDA regulations, consumer behaviors, and lack of diversion knowledge. One of the best ways to reduce food waste is through donations. This is one of the USEPA's preferred food management methods, ranking 2nd on the food recovery hierarchy. The District

could explore partnering with local restaurants and food banks to support organic diversion through awareness and reshaping consumer behavior. Creating awareness of the issues food waste causes to the environment and the socio-economic implications of wasted food that could be donated instead could help foster consumer behaviors that are rooted in diversion/donation rather than waste.

The District could also look to incorporate food diversion and donation awareness in the existing community engagement done throughout the year. Currently, the District does not have any materials provided online about food waste diversion. While there is a tool for how to recycle specific items on the District website, the tool does not provide resources for food waste diversion. The District could explore establishing a section specifically for food waste diversion that includes helpful links, local resources, methods to influence consumer behavior, and available diversion options in the District.

Hamilton County's Solid Waste District is an example of what this could look like. On their website, they provide local food waste drop-off options, links to composting businesses, and information on why food waste diversion is important. Furthermore, the website spotlights how to reduce food waste through Wasted Food Stops With Us5F[3], an initiative of Hamilton County Recycling Resource. Through this site, there are posts, videos, how-to's, and more regarding sustainable food management.

Figure H-4.4 Organic Waste Disposed and Diverted



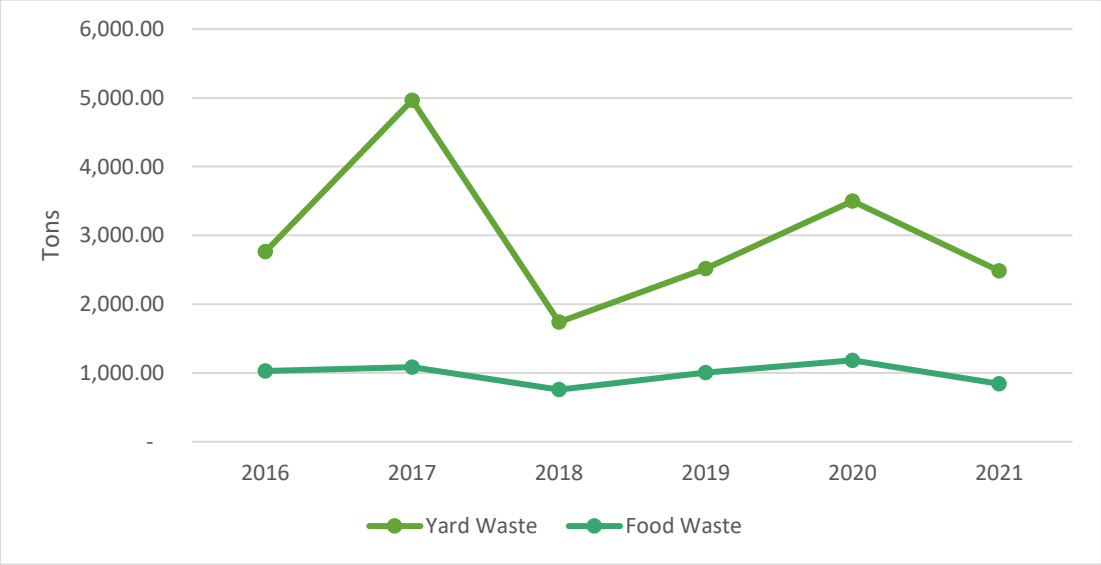
Source(s): U.S. EPA, Advancing Sustainable Materials Management: 2018 Tables and Figures Appendix E

The District reported the use of four Class IV and one Class II composting facilities in the reference year. Class IV facilities accept yard waste and agricultural plant

[3] Waste Food Stops With Us, https://www.wastedfoodstopswithus.org/

materials. Class II facilities accept food scraps, yard waste, animal waste, dead animals, and raw rendering material. These facilities, listed in Appendix B, diverted a total of 2,527 tons of yard waste in the reference year. The District also diverted 802 tons of food waste from Haulers/Grocers.

Figure H-4.5 Historic Organic Waste Diverted



Source(s): Ohio EPA Compost Facility Planning Report for years 2016, 2017, 2018, 2019, 2020, 2021

As can be seen in **Figure H-4.5** historical organic waste diverted fluctuated over the last few years. Food waste diverted remained stable, with minimal changes year to year. Yard waste demonstrates a more volatile pattern of ups and downs. Yard waste is seasonal, weather-dependent, and variable. Yard waste diverted reached a peak of about 5,000 tons in 2017 and then was immediately followed by a low of 1,700 tons. This two-year pattern from 2017 to 2018 was seen throughout Ohio, though it is unclear why this occurred.

The District offers two drop-off locations for yard waste and four communities have curbside yard waste collection. There are only two registered Class IV composting facilities in the District. The District does not have any composting facilities capable of handling food waste. One hauler, GoZero uses the London Correctional Facility in Madison County to handle food waste. This facility is nearly 90 miles from Butler County and while this is manageable for the low quantity of food waste transported, organics like food waste are heavy due to high moisture content. This may be cost prohibitive and may erode the environmental benefits to transport this material long distances. Only one community in Butler County, the city of Oxford, offers a one-day weekly residential food waste drop-off program for community composting. GoZero is the hauler for this program.

Without infrastructure to manage discarded food, the District could focus on promoting reduction of food waste and increasing food rescue. Food waste reduction and rescue are the U.S. EPA's preferred method for food waste. Food

waste landfilling can be avoided if materials are reduced at the source before entering the waste stream. ReFED[4] reports consumer education measured in the United Kingdom and elsewhere demonstrate reduced consumer food waste. Love Food Hate Waste is a national consumer awareness campaign launched by Waste and Resources Action Programme (WRAP). After six months of launching this campaign in six Boroughs of West London Waste Authority, a 14% avoidable food waste reduction was tracked.[5] While there is minimal tracking in the U.S regarding consumer education campaigns, King County, WA and Honolulu County, HI implemented pilot programs testing messages and tools to reduce food waste. Those respective campaigns measured 28% and 19.6% reduction[6].

One opportunity is the development of infrastructure such as anaerobic digesters or composting facilities, both of which could be designed on a small or large scale. Another opportunity to pair with facility infrastructure is developing food waste drop-off sites or curbside servicing. One study from BioCycle[7] details a program in Falls Church, Virginia that demonstrated high levels of recovery by implementing a food waste drop-off site. The pilot program of this site was so successful, collecting up to 125 gallons of food waste weekly, that a permanent drop-off site was built. The permanent site collected nearly 400 gallons weekly. Because of the demonstrated high demand for food waste services, Falls Church developed an innovative cost sharing curbside collection for food scraps. Residents pay $6.00 per month to participate while the city pays the rest. Costs decrease for the city as more residents participate and this has allowed the city to keep costs low. At a 15% participation rate, the city spends $20,000 annually on this program.

Things to consider for adding a similar program are the materials accepted, types of containers to provide, developing starter kits and educational materials, and whether households can opt in. The study notes that drop-off programs are a good entry point for local governments to gauge demand. Education and outreach are critical features of such programs. Engaging signage at sites, marketing the program to residents, and initiatives to encourage participation are strong methods for kick starting a program. SWACO has a similar program that the District is interested in learning more about. The District will make an effort to reach out to SWACO and explore the challenges and success they have seen with this program.

Synthetica, a commercial anaerobic digester, was recently permitted in 2023 by Ohio EPA to operate in St. Bernard. This facility has the potential to increase the

[4] https://www.refed.com/solutions/consumer-education-campaigns/
[5] "The Impact of Love Food Hate Waste".
http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf
[6] "Toolkit Implementation Guide for the Food: Too Good to Waste Pilot". July 2013. West Coast Climate and Materials Management Forum.
https://westcoastclimateforum.com/sites/westcoastclimateforum/files/related_documents/02_ToolKit_Implementation_Guide_for_the_Good_Too_Good_to_Waste_Pilot.pdf
[7] Residential Food Waste 2017 Report.
http://www.biocycle.net/17_10_06_1/0002/BioCycle_ResidentialFoodWaste_2017.pdf

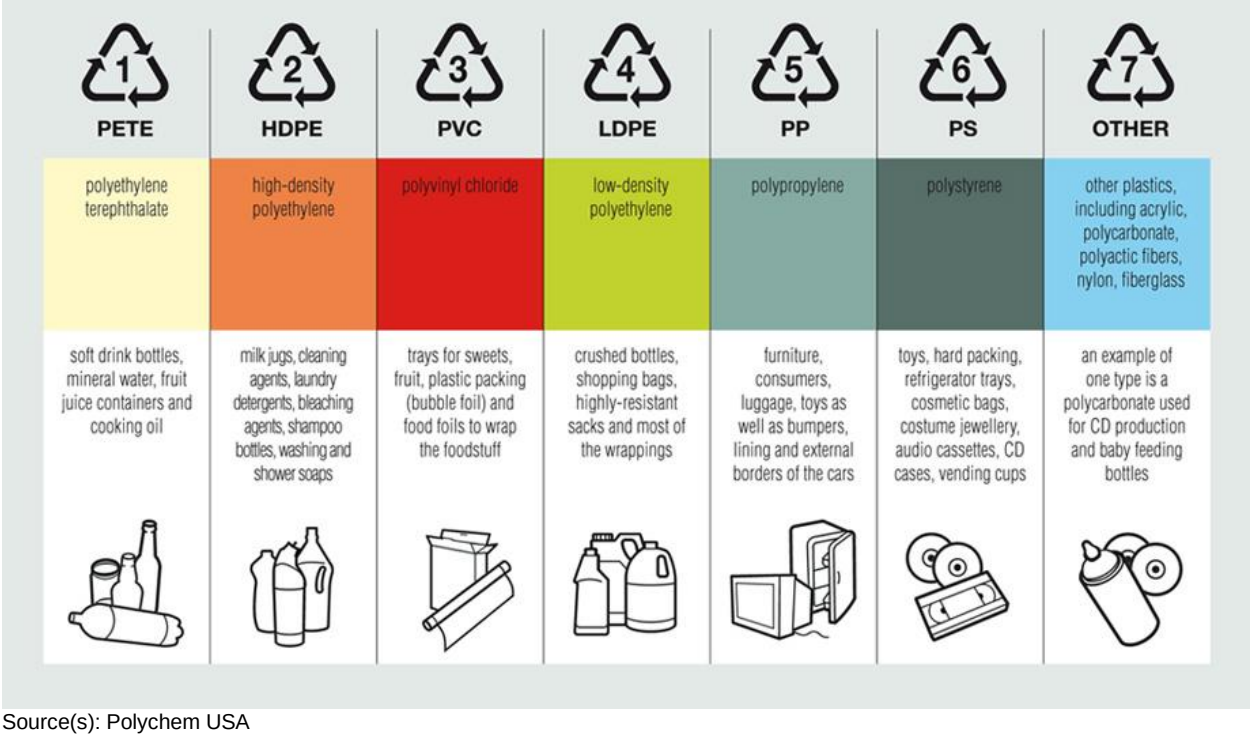
capture of organics in the southwest Ohio region and improve organics diversion in Butler County.

Plastic Waste Steam

Residential/commercial estimated waste composition forecasts plastics to be one of the larger percentages of waste streams being landfilled. Based on waste composition, it is estimated that 60,000 tons of plastics were generated in the reference year. The District diverted 1,787 tons of plastic. This is estimated to be 3% of all plastic generated. The District continues to have issues of contamination at drop-off recycling sites, likely contributing to the low diversion numbers. However, the District still has an opportunity to explore ways to increase plastic diversion such as education and outreach targeted towards where to recycle and how to properly recycle plastics.

The processor managing the plastics and securing end markets directs the acceptable material list. For a time, the District only accepted polyethylene plastics with a resin code of #1 or #2 in District programs. These materials include plastic bottles and containers for soda, water, milk, shampoo, conditioner, and other similar bottles. Recently, the processor expanded their plastic material list to accept plastic tubs and lids as well as plastic cups. This includes polyethylene plastics with a resin code of #5. **Figure H-4.6** describes the various types of resin codes for plastics below.

Figure H-4.6 Plastic Resin Codes



Source(s): Polychem USA

Plastic resin codes may confuse residents as they do not describe if something is recyclable and/or accepted in the area, they only relate to the type of plastic the item is made of. More recent packaging has #1 and #2 in different shapes, what are called non-bottle and rigids. Material recovery facilities do not always have end markets to sell the various resin grades. Working with the processor to conduct a recycling audit or monitoring the drop off sites can help determine the level of plastic contamination and the most common items that are mistakenly recycled.

B. Conclusions/Findings

The District's estimated waste composition data reveals that there are opportunities to increase diversion rates for paper and paperboard, organic waste, and plastic waste. The District diverted about 13% of the total residential/commercial waste generate in the reference year, which is below the state goal of 25%.

Opportunities to explore for this 2025 Plan Update:

- Highlight education and advertising to increase diversion rates through:
    - Social media posts, media ads, flyers, postcards, etc.
    - Increase signage and update recycling information on what is accepted and not accepted in recycling.
    - Develop an education campaign targeted at plastic recovery.
        - Increase awareness of plastic waste and associated costs to human health and environment.
        - Provide easy to understand graphics of what is acceptable in the District.
        - Provide tips on reducing plastic waste.
        - Provide drop-off locations and/or curbside recycling program information if available in the area.
- Drop-off Program- Establish goal to reduce contamination.
    - Obtain baseline data on contamination rates and the top materials that are mistakenly recycled.
    - Conduct a survey to understand the best method of reaching the target audience.
    - Develop District branded materials to be distributed through mail, email, on social media, etc. to increase awareness.
    - Develop educational campaign targeting the reduction of top material contaminants.
- Improved Compost and Food Infrastructure – The District does not have centralized, in-District infrastructure to divert food waste from landfills. Consider Class II facility, anaerobic digester. Consider de-centralized food waste management through community gardens, in-vessel digesters, etc.
- Strategies to increase food recovery and diversion include:

- Resident Outreach (ongoing program) – setting goals to change the behavior of residents and to reduce waste while also educating source reduction practices.
  - Consumer messaging – The most significant change will come from behavior change. This can be done by increasing consumer awareness and changing baseline behaviors related to purchasing, storage, and disposal.
  - Increase awareness of food waste and associated costs.
  - Provide tips to reduce food waste.
  - Promote food donation.
- Commercial/Industrial Technical Assistance (ongoing program) – setting goals to work with at least 1 restaurant or institution a year to install food waste reduction strategies.

5. Economic Incentive Analysis

Economic incentives are designed to encourage participation in recycling programs. In accordance with Goal 6 of the 2020 State Solid Waste Management Plan, the SWMD is required to explore how to incorporate economic incentives into source reduction and recycling programs.

Solid Waste Management Districts may choose to offer economic incentives to influence waste and recycling behaviors, These may include volume-based pay-as-you-throw (PAYT), grants, rewards, rebates, etc.

A. Evaluation

Pay-as-you-throw:

Pay-as-you-throw (PAYT), also called volume based, programs are a type of economic incentive used by Districts to encourage recycling efforts. These programs require residents to pay per set amount of municipal solid waste disposed of by each household. Residents can be charged for the amount of waste, or the size of the bins used. These programs incentivize residents to decrease their trash consumption and seek ways to recycle more material. This method is successful when it becomes cheaper to recycle material than it does to dispose of it. It has been proven that these programs do incentivize recycling from residents, increasing waste diversion. PAYT programs are economically viable and advantageous for residents as they are only required to pay for what they dispose of.

There are no communities within the District that operate at PAYT program. There are two haulers within the District that provide curbside recycling, so there is an opportunity to incentivize recycling.

The District could explore establishing PAYT programs to communities that offer curbside recycling. These communities often charge a flat rate based on waste consumption. This method establishes waste as a commodity and

requires residents to pay attention to how much waste is thrown out similar to how many people monitor their utility bills (water, electric and gas). A popular method for PAYT programs is to require residents to purchase custom trash bags at a cost of $2-$4. The District could consider a pilot program at one location to measure the effectiveness of the program and develop solutions to any issues that may arise before expanding to multiple locations.

The District could also consider calling attention to recycling as a way to reduce resident costs through flyers, newsletters, and other advertising methods. These marketing materials should highlight that recycling is cheaper than throwing materials away. These materials could also highlight the drop-off locations throughout the District as these are free to use.

The US EPA[8] reports that communities who implement PAYT programs often see large increases in waste reduction. Typically, communities who participate see a 25%-35% reduction in waste generation and significant increases in recycling. For analysis purposes, the District applied a conservative 25% waste reduction to the residential/commercial waste disposed in the reference year. If a District-wide PAYT program was implemented, the waste generated could drop from nearly 495,000 tons to approximately 371,000 tons using the reference year disposal numbers.

Of the 19 communities offering curbside recycling, none of them is structured as a PAYT program. There is an opportunity for the District to develop volume-based programs with PAYT fee structures. If the District incentivizes residents to recycle and establishes fees based on materials thrown out through PAYT programs, this may help to achieve higher diversion rates.

Rebates:

As consumers, it is often expected to receive points, rebates, or other rewards for purchases and behaviors desired by markets. The same can be applied to the waste industry by rewarding residents who participate in recycling programs. A recent success with this tactic was accomplished through RecycleBank. This is the most widely known system but there are many other similar programs in use. In this program, behavior changes are driven and encouraged by granting participating residents with points per set number of tons recycled. These points are redeemable at local retailers and stores. This option is likely to be received better by the public than implementing PAYT programs because residents feel they are being rewarded for their behavior instead of punished. However, PAYT programs are often more effective at diverting waste because there is a steeper price to pay if residents don't recycle.

The District does not currently offer any rebate programs, but it may be a viable opportunity to explore and pair with PAYT programs to lessen the feeling of

[8] "Pay As You Throw Success Stories" https://archive.epa.gov/wastes/conserve/tools/payt/web/pdf/paytss.pdf

punishment. Whether combined with PAYT programs or implemented alone, rebates could play a role in establishing favorable recycling habits.

Grants:

Business Grants:
The District offers business grants in collaboration with the four other southwest Ohio solid waste districts. In 2021, the US EPA awarded $40,000 dollars to support food waste reduction in the region. These funds support a 2-year technical assistance grant program with the Center for EcoTechnology, a consultant firm based in Massachusetts. Partners from Butler County include Jungle Jim's International Market, Miami University and Shared Harvest Foodbank. The District provided nearly $8,400 in grant support to purchase recycling collection containers and signage at Monroe High School, Finn Corp, Telhio, and Crimson Cup.

Pass Through Grants:
The District was awarded $272,000 in RecycleOhio state grant funding in the reference year. This money was used to benefit Rumpke Recycling's New Miami tire recycling facility and Royal Paper Stock in West Chester. These grants funds will create up to five new full-time employee positions.

B. Conclusions/Findings

Butler County SWMD has the lowest overall diversion rates of the neighboring Districts with 25% between residential/commercial and industrial sectors combined. Hamilton County has the highest diversion rate at 56%. For comparison purposes, the District analyzed the programs and economic incentives in the Hamilton County SWMD to explore opportunities going forward. A strong program Hamilton County SWMD operates is their residential recycling incentive program. This program provides funding to communities based on their residential recycling rates and tonnages that are used to improve or add to existing infrastructure. While Hamilton County seems to have success, this type of program didn't result in increased diversion when Butler County implemented a similar program. However, the District could look to implement a similar strategy of its own to help improve diversion rates.

The Hamilton SWMD also has three communities that use a volume based PAYT trash service as of its most recent plan update. The District demonstrated that these communities on average divert 25% of all waste generated. One community has a $2 sticker per 45 gallons of waste while the other two allow the first 35 gallons of waste free and charge $0.75 - $1 for additional bags.

The District is lacking structured economic incentives to help improve diversion rates. PAYT fee structures are proven to incentivize households to divert more

for a lower cost of service. PAYT systems could be explored by the District moving forward. The District could implement a pilot program to assess the effectiveness of such programs and receive community feedback before officially implementing more PAYT programs.

The District could also look into using a rebate or reward-based program to attempt to increase recycling participation and diversion rate. This method typically is not as effective as PAYT programs but is generally better received by residents. Additionally, educating and showing households how recycling will impact their waste disposal charges could improve diversion efforts.

6. Restricted and Difficult to Manage Waste Streams Analysis

Goal 5 of the 2020 State Plan requires solid waste management districts to provide strategies for managing materials that are difficult to dispose such as scrap tires, yard waste, lead-acid batteries, household hazardous waste, and obsolete/ end-of-life electronic devices. This analysis evaluates the SWMD strategies and considers other materials and programs for hard to manage waste.

A. Evaluation

Household Hazardous Waste:
Household hazardous waste (HHW) are materials that may be generated in the home and if handled improperly may cause pollution and safety risks. HHW includes used oil, gasoline, diesel and heating oil, kerosene, household batteries, lead-acid batteries, pesticides, paint and paint thinners, mercury containing devices, lights/light bulbs, and electronics.

Figure H-6.1 below details the District's historic HHW collection costs and materials recovered. The District has seen minor growth in materials recovered over the last five years. The costs associated with this program have varied, the high was just over $85,000 in 2020 and the low was about $53,000 in 2018. On average the District spends roughly $65,000 per year on this program. In the reference year it cost the District $1,108 per ton to divert HHW.

Figure H-6.1 Historic HHW Collection Program

Source(s): Annual District Reports 2017-2021

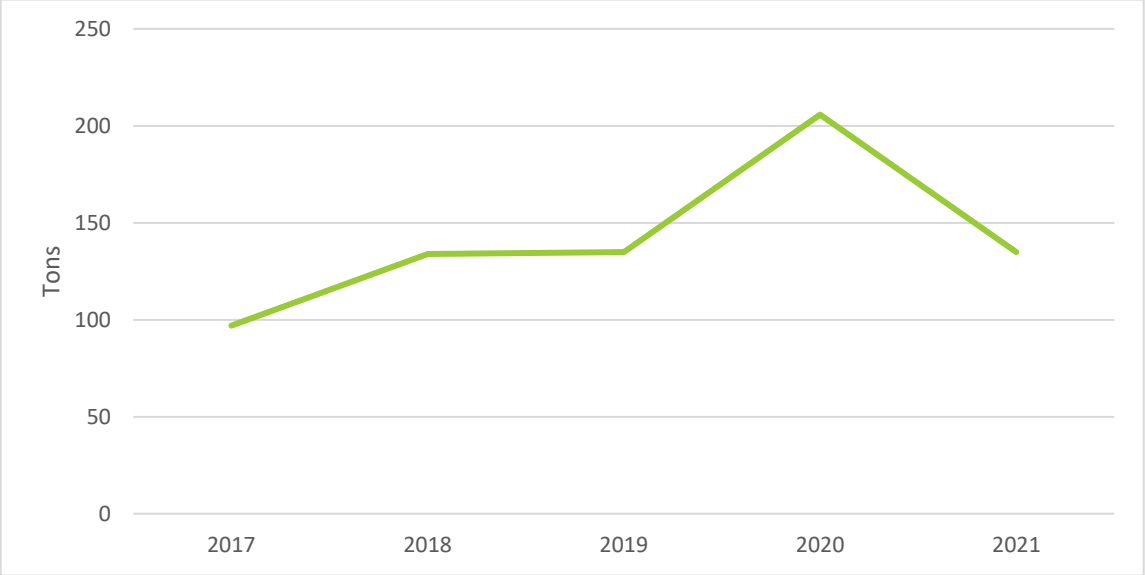
There are a variety of ways to manage HHW. For example, Preble County manages their HHW by providing a trailer specifically for these materials at their landfill and Greene County offers monthly collection events. Regionally, the District manages more waste than these two counties while keeping their cost per ton lower. Preble County and Greene County have a $1,756 per ton and $1,363 per ton cost to manage HHW. The District could investigate providing one of these services alongside the drop-off site or could look to offering more time for residents to drop-off HHW if there is enough demand. However, HHW management is expensive and varies greatly by method.

Scrap Tires:

The Ohio EPA estimates that more than 12 million scrap tires are generated in the State of Ohio every year. When not properly disposed of, these often end up in illegal dumps that create hazards to public health and the environment. The number of tires and cost associated with managing them can be challenging to track and expensive to properly manage.

The District holds an annual scrap tire collection event. This event takes place in the fall and was held at the county fairgrounds in 2021. In the reference year, 634 residents participated, and the program collected 135 tons of scrap tires.

Figure H-6.2 Historic Scrap Tire Diversion



Source(s): Annual District Reports 2017 – 2021

As seen above, the District recorded a significantly higher number of scrap tires collected in 2020 with 206 tons. Excluding this value, the District collects 125 tons per year on average. The large increase in 2020 was the result of a partnership with Madison Township, offering a drop-off collection event in conjunction with the Butler County Tire Amnesty Event. Participation was up 30% compared to the previous year of 2019 with almost 900 residents participating. Following the 2020 event totals, the District offered only one collection event and saw the numbers of tires collected return to average. Evidence of the two collection events shows more outlet opportunities lead to increased number of scrap tires collected. The District could look to partner with townships again to offer multiple drop-off locations which may increase scrap tire recovery totals.

Managing scrap tires with one day collection events is common in solid waste districts across the state. There are other methods of managing scrap tires. For comparison, the District analyzed two other SWMDs, Lucas and Montgomery, **Table H-6.1** below compares the three Districts.

Table H-6.1 Comparison of Methods to Manage Scrap Tires

District	Method of Management	Tons Collected	Cost	Cost per ton
Butler	1 Day annual event	135	$29,306.37	$217.08
Lucas	Multiple events	207	NA	NA
Montgomery	Multiple events, year-round collection at Transfer Facility	753	$141,141.92	$187.44

Sources:
Buter ADR 2021
Lucas ADR 2021
Montgomery SWMD Plan Update 2018

Montgomery has the strongest scrap tire collection program among the Districts compared. This District holds multiple events each year as well as offering residents year-round access to the transfer facility which accepts scrap tires. Residents are allowed to bring up to 10 scrap tires to the transfer facility per year at no charge. The District collected 753 tons of scrap tires at a cost of around $187 per ton.

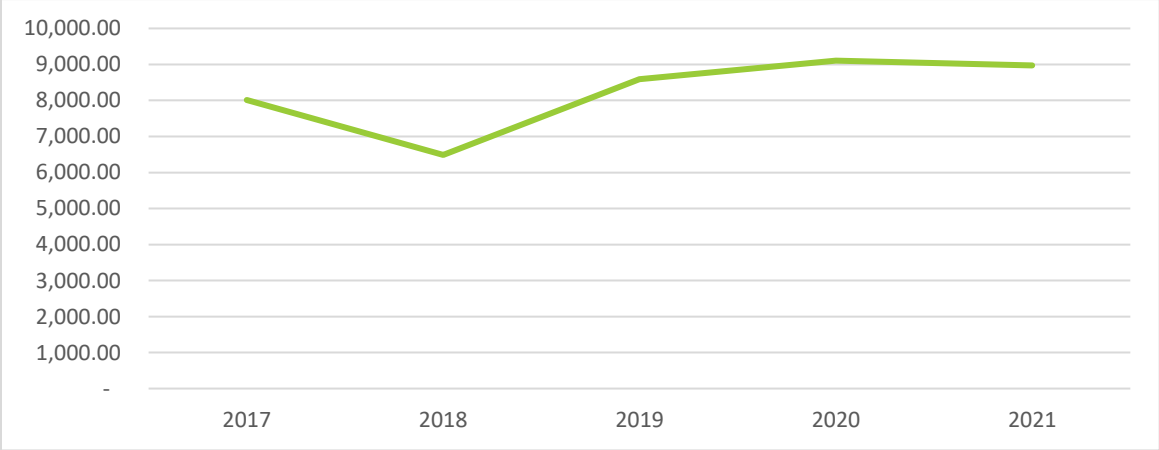
Lucas County also holds multiple events annually. This District collected 207 tons of scrap tires through their program. Lucas County often partners with local organizations and municipalities to host or help support collection events. Most collection events are made possible by Ohio EPA grants. The costs associated with scrap tires were unable to be separated from other program costs the District incurs.

There are other avenues besides the District held collection event. The District's website provides further opportunities to dispose of scrap tires including Rumpke and Liberty Tire. The website includes the company's website and contact information for residents to learn about further tire disposal. Infrastructure for scrap tires is expanding to Butler County. In 2021 an Ohio EPA market development grant was awarded to Butler County SWMD. Grant revenue was awarded, securing $272,328 for Rumpke to expand its scrap tire recovery facility. The District has an opportunity to create a public-private partnership with Rumpke to facilitate a year-round scrap tire recycling stream.

Yard Waste:

As shown in **Figure H-6.3** below, the historic yard waste diverted has remained fairly stable over the previous five years except for a dip in 2018. The District collects yard waste data from a variety of sources.

Figure H-6.3 Historic Yard Waste Diversion



The District has two Class IV composting facilities, the City of Trenton Compost Facility and Oxford Collins Run Composting Facility. There is also a compost facility at Miami University, but this is not an Ohio EPA registered facility.

The District has 4 community curbside yard waste collection. The Cities of Fairfield, Hamilton, Oxford, and Trenton offer curbside collection. The City of Oxford also offers drop-off composting to residents on the first Saturday of every month.

Based on the projected waste composition completed in Appendix G, an estimated 51,908 tons of yard waste and organics was generated in 2021. 8,968 tons of this waste was diverted by the District. Using the estimations from Appendix G, this equates to 17% of yard waste generated was diverted from landfills.

Infrastructure is de-centralized. To encourage and support a de-centralized system the District could offer backyard compost bin sales to increase awareness and the practice of backyard composting for alternative management methods. Also, more collaborations with Butler County Soil and Water could expand the audience reach for both departments.

An example of a centralized system is the Greene County Solid Waste District's Recycling Center. The facility is open for residents to drop-off branches, leaves and grass throughout the year. The grass and leaves are hauled off-site to local composters or local farmers for land application and the brush is ground on-site to make mulch. The resulting mulch is available to residents and used by Greene County Parks and Trails to landscape county buildings and recreation areas.

Batteries:

In 2008, regulations prohibiting the disposal of lead-acid batteries (LABs) became effective. LABs have a high recyclability value and Ohio has a retailer take-back law in place. The District also accepts batteries at the HHW drop-off location described above. Information about managing LABs is located on the District webpage. The District does not have a specific event for battery recycling but does track data separately for LABs as part of HHW results.

The District also accepts batteries with its electronics recycling program described below. Similarly, the District does not separate the batteries out of the total collected materials. Despite the District collecting and accepting batteries, there is no historical data on tons collected for the programs described. The District could look into options to separate batteries from these programs to get data on the number of batteries being diverted.

Although the District does not have a battery specific program, batteries are reported through their commercial survey efforts. However, because these surveys are voluntary, it is often difficult to receive adequate response rates from

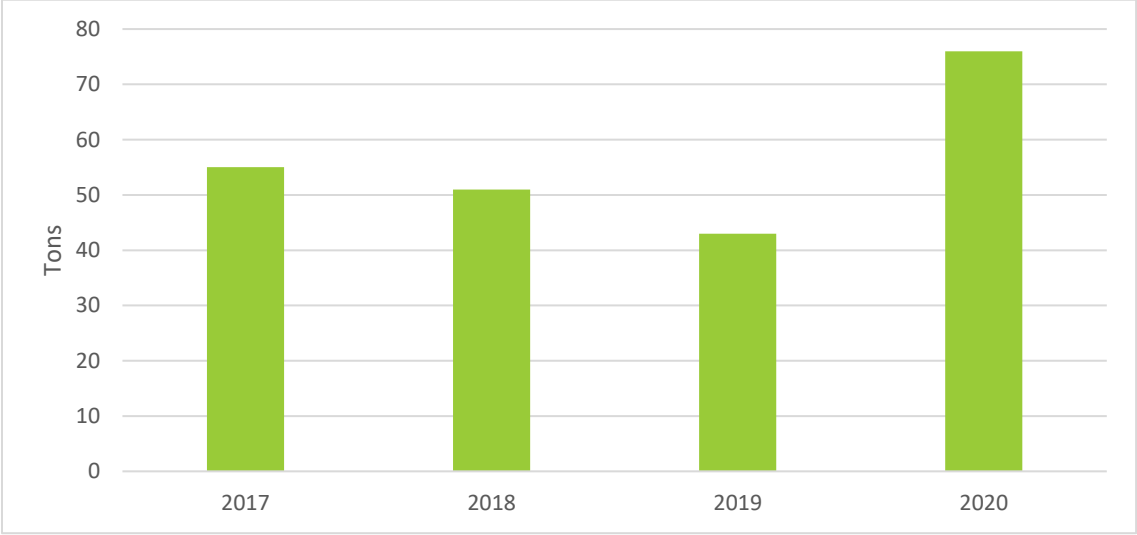
commercial surveys. Over the last five years, the District reported diverting approximately 95 tons of batteries per year on average.

Electronics:

Electronics contain hazardous materials that if improperly disposed can pose health and environmental risks. The best way to recycle electronics is by donation if the item is in working condition or by recycling items that do not work. Businesses accepting electronics either from donation or for recycling should be contacted for their list of acceptable materials.

The District hosts electronics recycling every Friday from August to October in Hamilton and Middletown at Cohen. In the reference year, the District diverted 76 tons of electronics from nearly 1,600 participants. **Figure H-6.4** below presents the total tons of electronics gathered from the District's collection events.

Figure H-6.4 Historic Electronics Collected



Note: There was no collection event held in 2016

B. Conclusions/ Findings:

The District relies on public private partnership model to manage hard to recycle materials. This provides a high level of service at minimal cost to the District. The high cost of frequent collection events is a challenge especially for scrap tires. With the Ohio EPA market development grant awarded in 2021 the District could look to develop more program offerings with Rumpke Tire Recycling. This could be expanded beyond a one day event to multiple drop-off days more closely resembling Butler County's other recycling service options.

Given the high cost of HHW, battery and electronic collection events, the District opts for public private partnerships giving more convenience throughout the year. When collection events are not happening, the District directs residents to the private sector for disposal options. The benefits of utilizing the

private sector for managing restricted waste is the private sector is generally able to provide year-round collection opportunities to residents, whereas collection efforts managed by the County are often limited. Another benefit to this model is that it frees up District funds to provide more services in other waste management areas such as the recycling drop-off program. At the same time, there are drawbacks to relying on the private sector. Businesses can close at short notice, leaving residents without disposal access. Additionally, residents are often charged by businesses for disposal, which can be a participation barrier for some residents.

Regardless of the collection approach, households produce hazardous wastes containing chemicals that pose environmental risk. Informing the public of these dangers and providing outlets for proper disposal or recycling can be a priority item. Education on using less-harmful ingredients and more environmentally friendly products can be increased on the webpage and social media outlets. The District provides a list of outlets available to residents for managing restricted or difficult to manage waste to on their website. The website could be expanded to include more educational pieces on why it is important to dispose of these materials. This helps educate and increase awareness of proper recycling and disposal for hard to manage waste streams.

Opportunities for restricted and difficult to manage waste the District could consider for this plan update:

- Scrap Tires (ongoing program)
    - Collaborate with Rumpke (recent Ohio EPA scrap tire development grant recipient) to provide year-round opportunity to households for scrap tires.
    - The District could partner with Townships and communities to offer more than one tire drop-off location similar to what was done in 2020.
    - Improve existing grant fund acquisition for scrap tire collection events.
- Resident Outreach (ongoing program
    - Include more education on why hard to dispose materials require special handling and management and identify ways consumers can minimize purchase of these materials.
- HHW Management Program (ongoing program)
    - Monitor participation.

7. Diversion Analysis

Waste diversion is defined as the amount of waste recycled, also called diverted, from entering the waste stream through source reduction activities. These are activities such as waste minimization, reuse, recycling, and composting. This analysis looks at the diversion programs, infrastructure, and trends to evaluate the District's diversion

rate over the planning period and assess any major impacts that the District has had regarding fluctuations over the years. Finally, this analysis examines the implications of the data captured.

A. Evaluation

Figure H-7.1 Residential/Commercial Diversion Rate

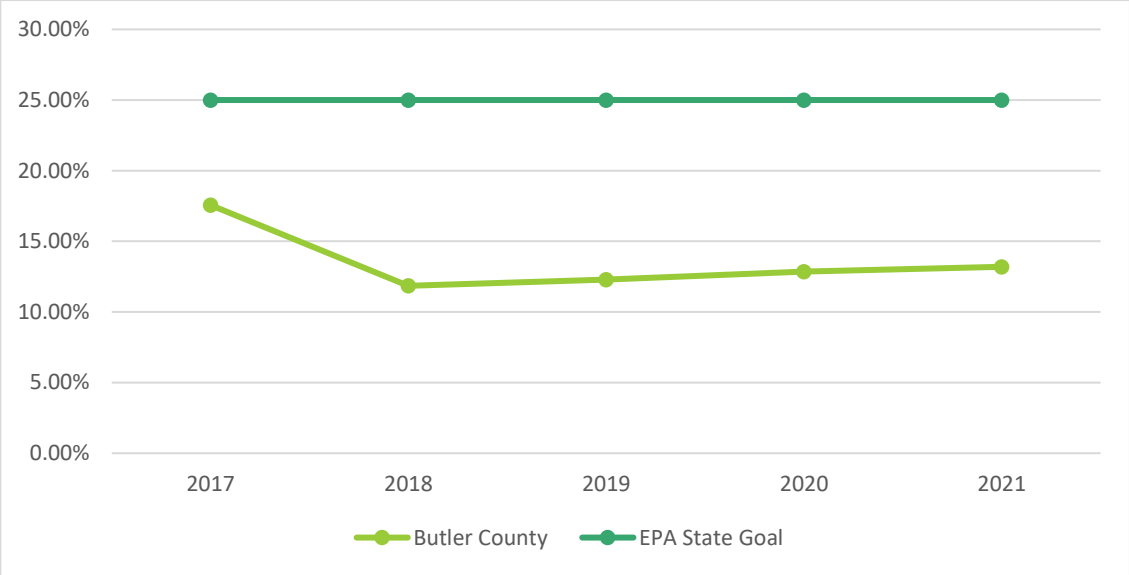
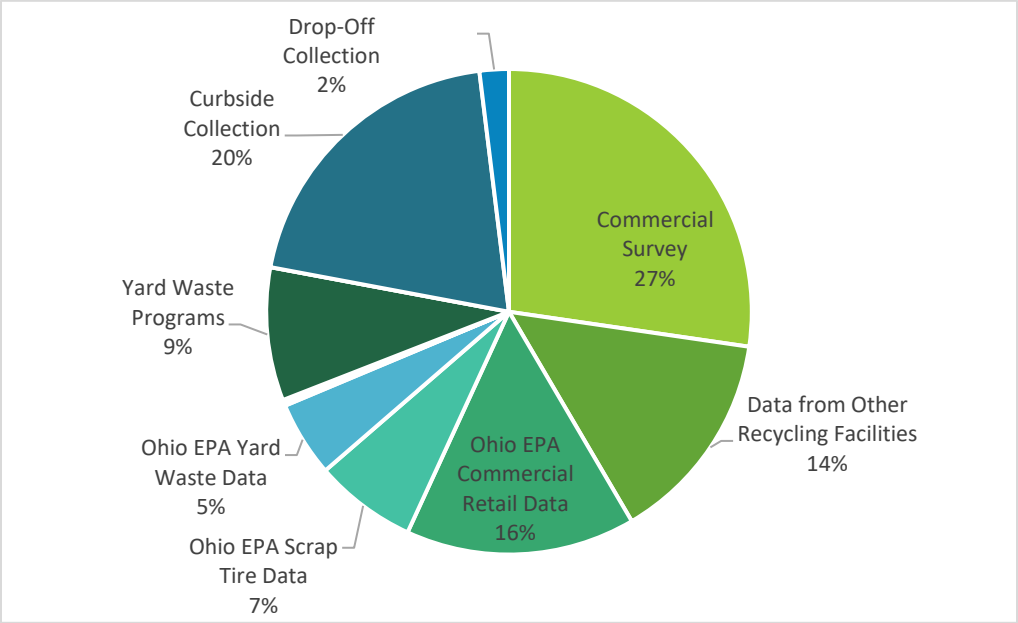


Figure H-7.1 presents the District's residential/commercial diversion rate over the past five years in comparison to the Ohio EPA's Goal 2. As shown above, the District's residential/diversion rate has fallen below the Ohio EPA's goal diversion rate every year over the past five years. During this span, the average diversion rate was 13.55%. The District has not seen the diversion rate fall at or above the five-year average since 2017.

Despite the District falling short of the goal set forth by Ohio EPA, the District has seen increases each year since 2018. Rising from 11.85% to 13.19% in the reference year. As discussed in Appendix E, it appears the District had a high response rate in 2017 from their commercial businesses, leading to the increased diversion rate.

The District collects data from several sources to track diversion. **Figure H-7.2** below shows the various sources used to track diversion. A major factor in the diversion rate is the commercial survey. Every three years the District conducts a survey sent out to its commercial businesses. Diverted tonnage reported from this survey in the reference year accounts for 27% of total diversion.

Figure H-7.2 Diversion by Source



The other major contributors to the total diversion are curbside collection (20%), Ohio EPA commercial retail data (16%), and data from other recycling facilities (14%) such as material recovery facilities. The District's survey process is voluntary, despite this, the District receives 27% of diversion data from surveys.

The District would see higher diversion rates with more commercial survey responses submitted. The District's survey process should consider annual or bi-annual surveys. Surveying more frequently will maintain an updated contact list and create a habit for businesses to complete the survey. Also, focus on repeat responders to build familiarity and yearly routine from its businesses. A low survey response or lack of reporting from one or two key businesses can have a major impact and result in diversion fluctuation. This is common and to be expected in voluntary reporting methods.

As detailed in Appendix I, in this planning period the District will explore how other Districts perform their annual surveys. Specifically, the District will analyze those with high response and diversion rates to look for ways Butler County can achieve similar results. One example District to explore further is SWACO in Franklin County. SWACO focuses less on surveying commercial businesses themselves, and more on surveying brokers, processors, and haulers directly. This method has proven to be successful for SWACO, which has recorded diversion rates of around 50% for the last few years. The District has an opportunity to explore this method further in Butler County during this planning period.

Figure H-7.3 Residential/Commercial Diversion per Commodity 2021

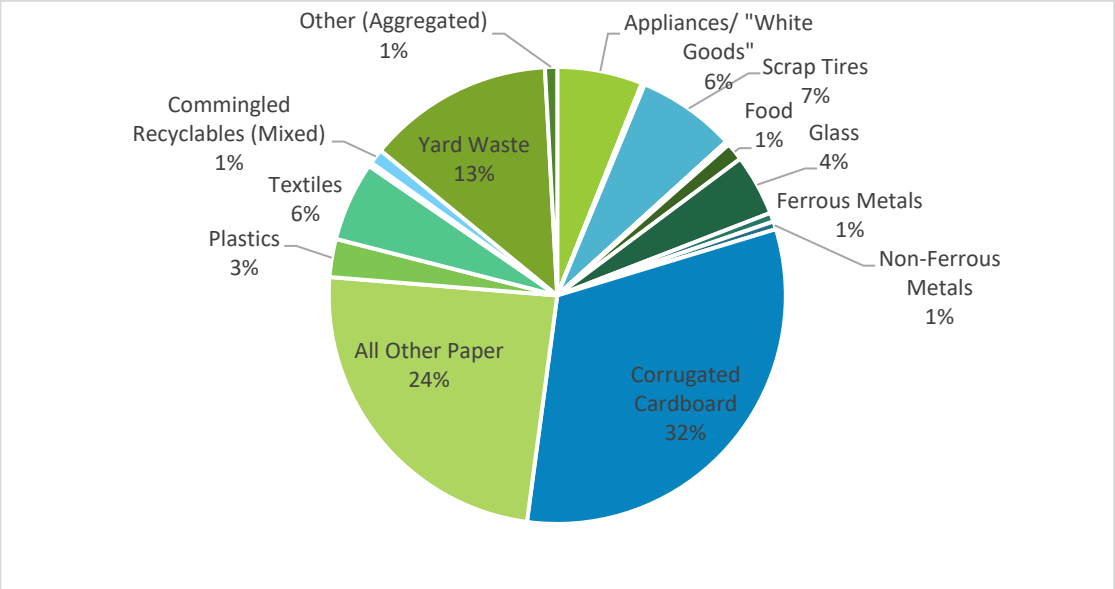
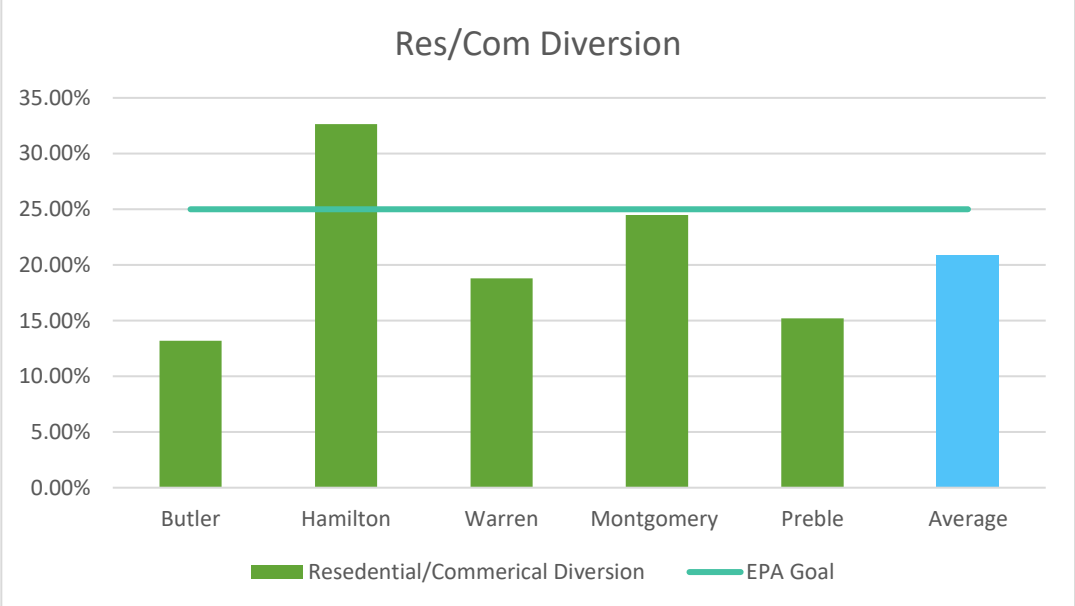


Figure H-7.3 presents the residential/commercial diversion by material for the District in the reference year. The top three materials diverted were corrugated cardboard (32%), all other paper (24%), and yard waste (13%). The following categories reported values in the survey results but were too small of a percentage to be shown graphically: used motor oil, electronics, dry-cell batteries, wood, and HHW.

Figure H-7.4 Benchmark Regional Residential/Commercial Diversion Rate



Source: Ohio EPA Waste Flow Data

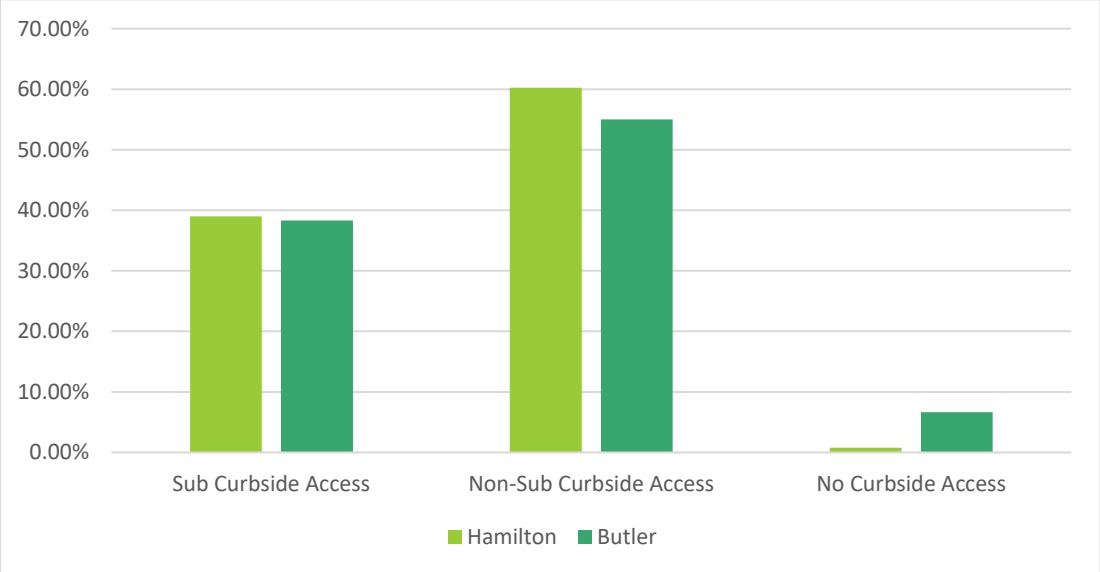
Figure H-7.4 above compares the District's residential/commercial diversion rate with that of regional District's diversion rates and the EPA goal diversion

rate of 25%. The four District's being compared are the districts that neighbor Butler County. The average of the neighboring Districts compared is about a 21% diversion rate. Of the compared Districts, Butler County has the lowest diversion rate and Hamilton County has the highest at 33%.

A major contributor to any district's recycling totals is curbside collection. Residential curbside collection is the most convenient and effective way to capture bottles, cans, paper, cardboard, and containers from homes. Typically, Districts find more success when offering non-subscription based curbside recycling as opposed to subscription based curbside recycling. Non-subscription curbside eliminates extra steps such as contacting haulers, setting up billing, etc. Any additional steps represent barriers to participation, including the extra steps for subscription recycling. Eliminating any perceived hassle yields more participation.

Often, districts offer non-subscription services in areas of high population density like cities or villages as opposed to lower population density townships. In Districts like Butler, this limits total diversion as many people live in townships. Even when subscription curbside is available, many residents may choose not to use it.

Figure H-7.5 Comparison to Hamilton County Percent of Population with Access to Curbside Recycling



Source(s):
Butler SWMD ADR 2021
Hamilton SWMD Approved Plan 2018-2032

For comparison purposes, the District analyzed Hamilton County's waste diversion practices to better understand the reasons behind their successful diversion rates. **Figure H-7.5** above compares Hamilton County and Butler County's curbside recycling services by population percentage. As can be seen, both Districts have close levels of subscription curbside services,

Hamilton at 39% and Butler at 38%. However, Hamilton County offers non-subscription curbside services to 60% of its residents, nearly 500,000 people, compared with Butler who offers a respectable 55%, about 215,000 people. Less than 1% of residents are without access to curbside recycling in Hamilton County while about 7% are without access in Butler County.

Both Districts share relatively close access to curbside services by percent of population. However, a key difference is in the number of residents living in rural township areas. **Table H-7.1** below presents a comparison between the two District's rural population.

Table H-7.1 Population in Townships

	Population	Population in Townships	Percent Population in Townships
Butler	390,234	219,242	56%
Hamilton	826,139	248,659	30%

Source(s): ODOD 2021 Cities, Villages, Townships

About 56% of Butler County's population lives in township areas, compared to Hamilton County who has 30% living in townships. As mentioned above, typically Districts only offer subscription based curbside services to rural areas which are not as effective at recovering material as non-subscription services. Based on this analysis, a strong factor for Hamilton County's high diversion rate compared to Butler County's is the number of residents who have access to non-subscription curbside services. The District could look into converting subscription services in rural areas like townships into non-subscription services. By bidding out services to haulers and providing the service without subscription, it is likely that participation would increase as 56% of the population live in townships. The District may also explore adding curbside services to all areas of Milford, Wayne, and Madison Townships. Currently these townships have only minimal access to curbside recycling in limited areas.

Figure H-7.6 Industrial Diversion Rate

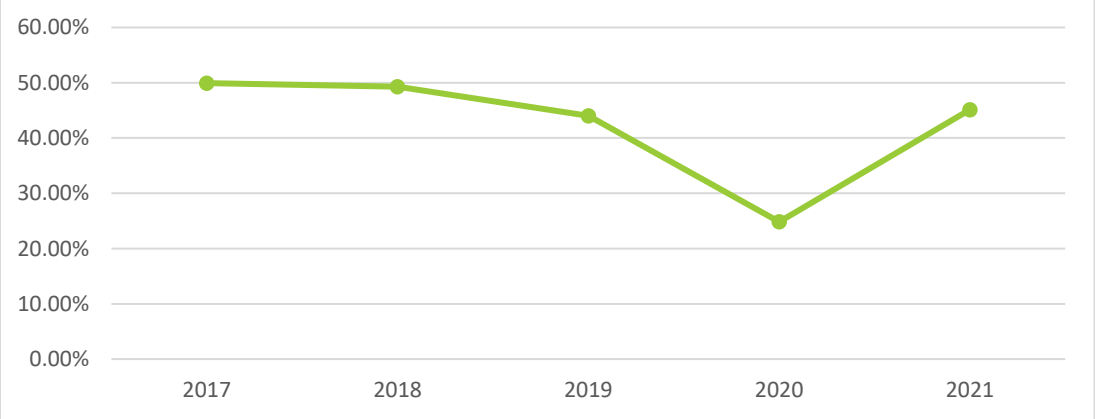


Figure H-7.6 presents the industrial diversion rate. The District's industries historically achieve an average of 47% diversion rate. 2020 is an outlier year, the District did not perform an industrial survey this year and used some data from 2019 which had time limited viability.

Figure H-7.7 Total Diversion Rates

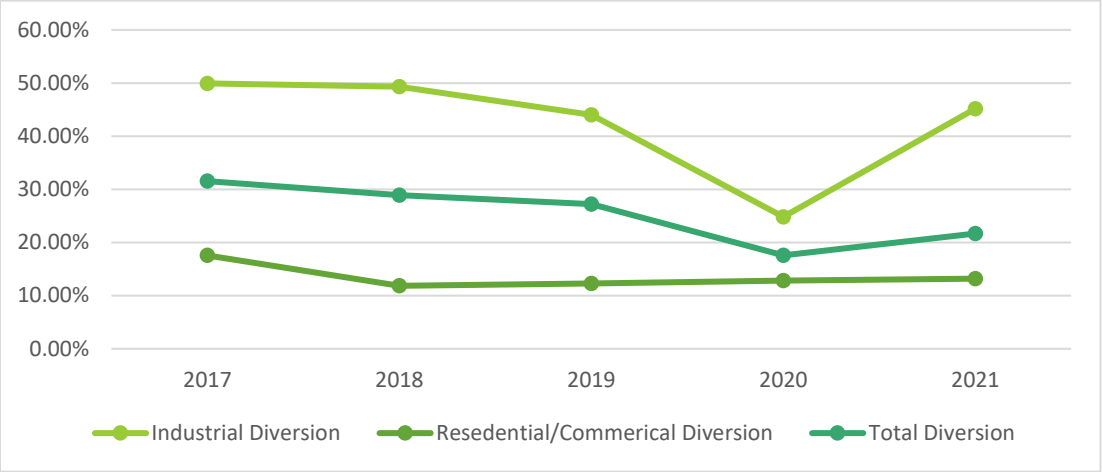


Figure H-7.7 combines residential/commercial diversion rates, industrial diversion rates, and total diversion rates for the past 5 years.

B. Conclusions/Findings

The District did not meet the Ohio EPA's Goal 2 of 25% residential/commercial diversion rates in the reference year. Over the past 5 years, the District's highest diversion rate was 17.56% in 2017. This was followed by a significant drop to 11.85% and the District has been slowly increasing its diversion rate. The diversion rate in the reference year was 13.19%. The District has shown that regionally, it struggles to maintain similar levels of diversion to its neighboring districts. As detailed above, the District may consider opportunities such as establishing more non-subscription curbside recycling as well as providing a curbside recycling option to the communities who lack it.

Consideration could be given to developing policies such as a rule to require haulers to report data.

The District can also pursue opportunities moving forward focused on education. Increasing education and outreach is an effective step the District may take. Education efforts on what is recyclable, what programs exist, and where to drop off recyclables will help to increase diversion rate. Increasing outreach and response rate for residential/commercial and industrial surveys would also be successful in improving waste diversion rates. The District could send out a survey to areas without non-subscription based curbside recycling

services to gauge public interest on establishing more of these programs for residents.

8. Special Program Needs Analysis

Ohio Revised Code 3734.57(G) gives SWMDs the authority to fund a number of activities that are not related to achieving the goals of the state solid waste management plan. In addition, there are other programs that SWMDs fund that are not addressed in either the state plan or law. This analysis evaluates the performance and status of these activities and programs and the value to the SWMD. These programs under ORC Section 3734.57 include:

- Boards of Health, Solid Waste Enforcement
- Counties, Road/Facility Maintenance
- Boards of Health, Water Well Sampling
- Out-of-State Waste Inspection
- Enforcement of Anti-Littering
- Boards of Health, Training & Certification
- Cities and Townships, Road Maintenance, Public Services, etc.

The District funded litter prevention and education assistance in the reference year. The District spent a total of $17,362.50 on this program. Over the past five years the District has allocated an average of $15,879 to litter prevention and education.

Funding litter prevention is not directly related to achieving the goals of the state solid waste management plan but does play a role in the District's partnership with local communities. Residents are often less likely to litter or illegally dump on sites that do not already have litter issues present, and litter collection helps townships maintain roadways.

9. Financial Analysis

The purpose of this analysis is to examine the District's financial position, not just in terms of its current situation but also in terms of the District's financial situation over the course of the planning period.

A. Historical Revenue

The District is currently funded through revenues from generation fees and to a lesser extent a combination of "other" revenue streams that are variable year to year.

Generation Fee

In accordance with ORC Section 3734.573, a solid waste management policy committee may levy fees on the generation of solid wastes within the district. Levying a generation fee means any landfill or transfer facility receiving district waste, regardless of where in Ohio the waste is disposed, remits the generation

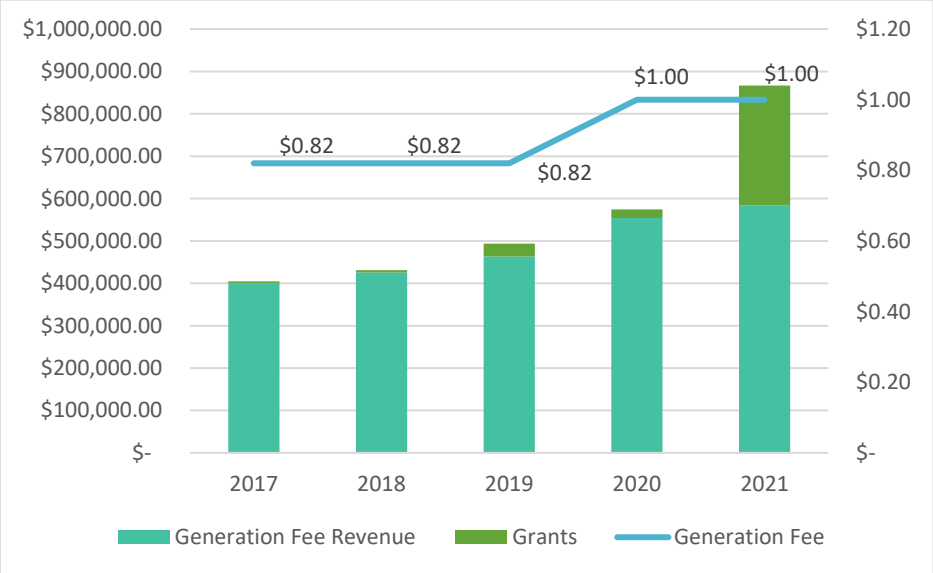
fee. From 2014 to 2019, the generation fee was $0.82 per ton before increasing to $1.00 per ton in 2020.

Historically generation fees have provided 97% of the SWMD's annual funding.

Other Revenue:
From time to time, the District will receive revenue from sources such as refunds, reimbursements, grants, and other. These funding sources are typically less than 1% of annual funding.

Increased waste disposal tonnages at Ohio landfills along with the raised generation fee is bringing in additional annual revenues. In 2020 there was a 19% increase in revenues and in 2021 a 5% increase in revenues. Historical revenues are shown in **Figure H-9.1**.

Figure H-9.1 Historic Revenue Stream

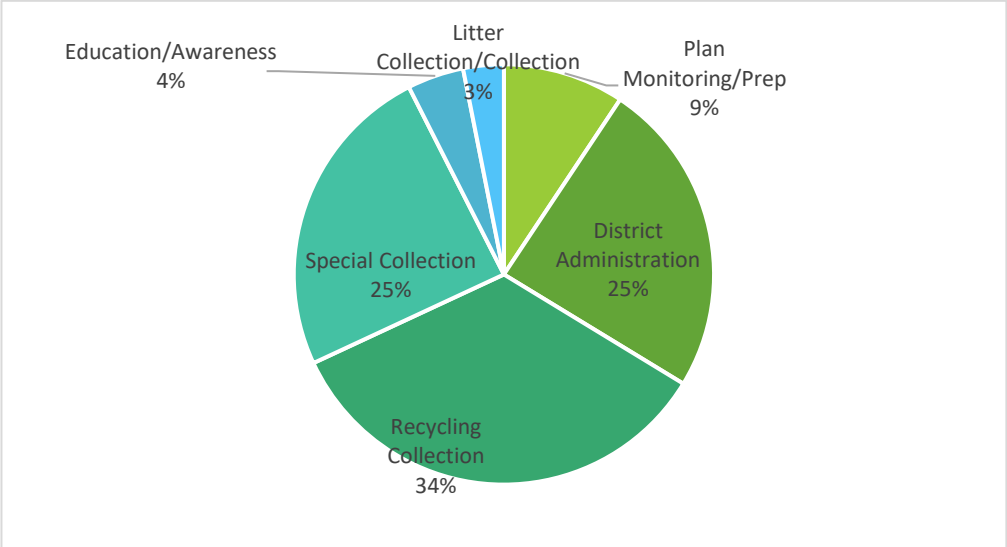


Source(s): Appendix O

B. Historical Expenses

On average over the past five years (2017-2021), the District spends about $550,000 annually. **Figure H-9.2** shows the 2021 distribution of expenses.

Figure H-9.2 Expense Distribution 2021



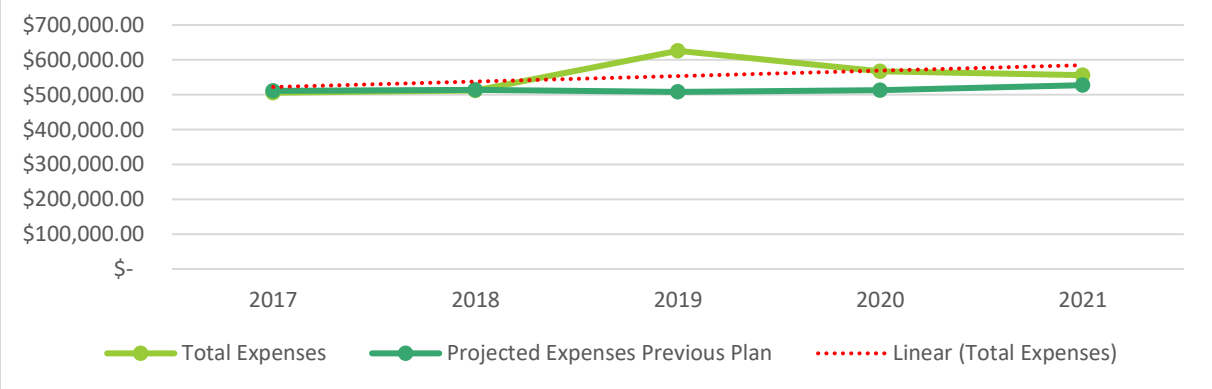
Source(s): Appendix O

The largest expenditure costs are recycling collection (specific to drop-off collection program), special collection events (specific to HHW, scrap tires, and electronics), and district administration (salaries and benefits). These combined costs account for about 84% of the District's expenses.

C. 2018 Plan versus Actual Comparison

Figure H-9.3 compares the District's five-year historical expenditures to the projected values from the previous plan update. Actual expenses elevated from projected expenses in 2019 and 2020 with the involvement needed from the District as a result of a new transfer station siting and permit. Additionally, the District incurred consulting and monitoring expenses for post closure landfill gas monitoring at the former Woodsdale Landfill. In 2021, expenses associated with commercial and industrial surveys and the 2025 Plan Update elevated costs above those projected in the current plan budget.

Figure H-9.3 Historical Expenses



Source(s): Appendix O

D. Benchmark to Other Solid Waste Districts

The District prepared **Table H-9.1** to compare expenses with other regional solid waste management districts. Calculating the expenses per person, the District's per capita expenses are second lowest in the region at $1.42 per person. Warren County was the lowest at $0.71 per person and Preble County was the highest at $13.23 per person.

Table H-9.1 Regional District Comparison of Expenses

District	Population	2021 Annual Expenses	Per Capita Expenses
Butler	391,496	$556,356	$1.42
Hamilton	818,939	$3,024,364	$3.69
Warren	246,553	$175,938	$0.71
Preble	40,867	$540,681	$13.23
Montgomery	535,840	$2,408,800	$4.50

Source(s):
Ohio EPA SWMD Disposal, Recycling, and Generation Report
Ohio EPA SWMD Fee Summary Report

In comparing the program service offerings of the regional districts, Butler County provides the most service offerings at the lowest per capita cost among the compared solid waste districts. **Table H-9.2** identifies the available services in the Districts. This table captures the service offering without identifying program frequency or service levels.

Table H-9.2 Regional District Comparison of Program Offerings

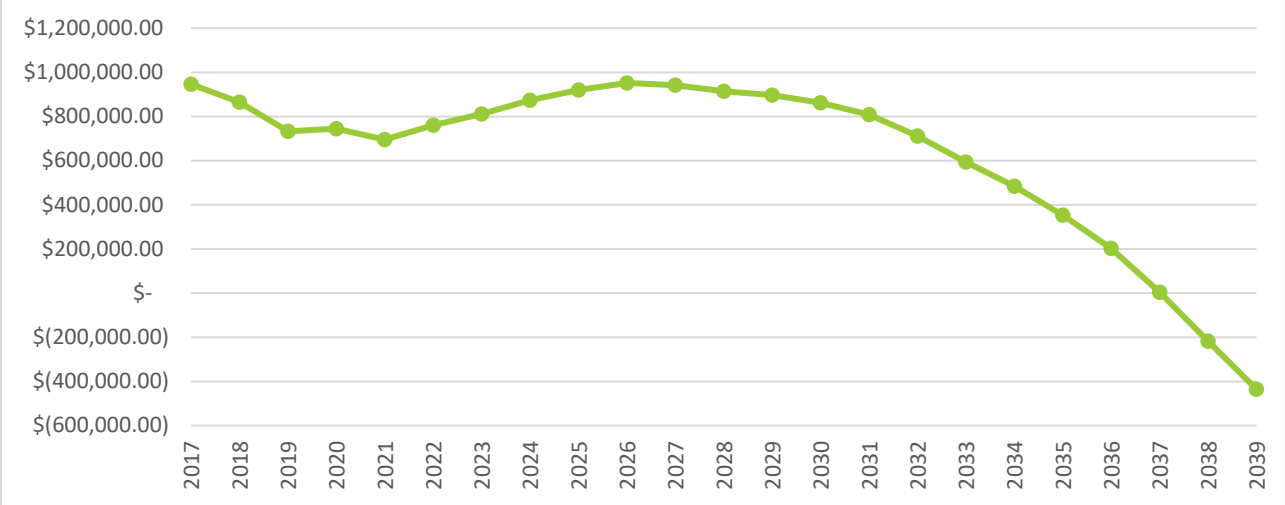
District	Program Service Offerings			
	HHW Collection	Tire Collection	E-Waste Collection	Drop-off
Butler	X	X	X	X
Hamilton	X	X	X	X
Warren				X
Preble	X	X	X	X
Montgomery	X	X	X	X

Source(s):
Solid waste management plans for each of the compared Districts.

E. Carry Over Balance

Figure H-9.4 below shows a projected fund balance maintaining a 3% annual inflation factor. Maintaining current programs with projected inflation would result in a deficit in 2037.

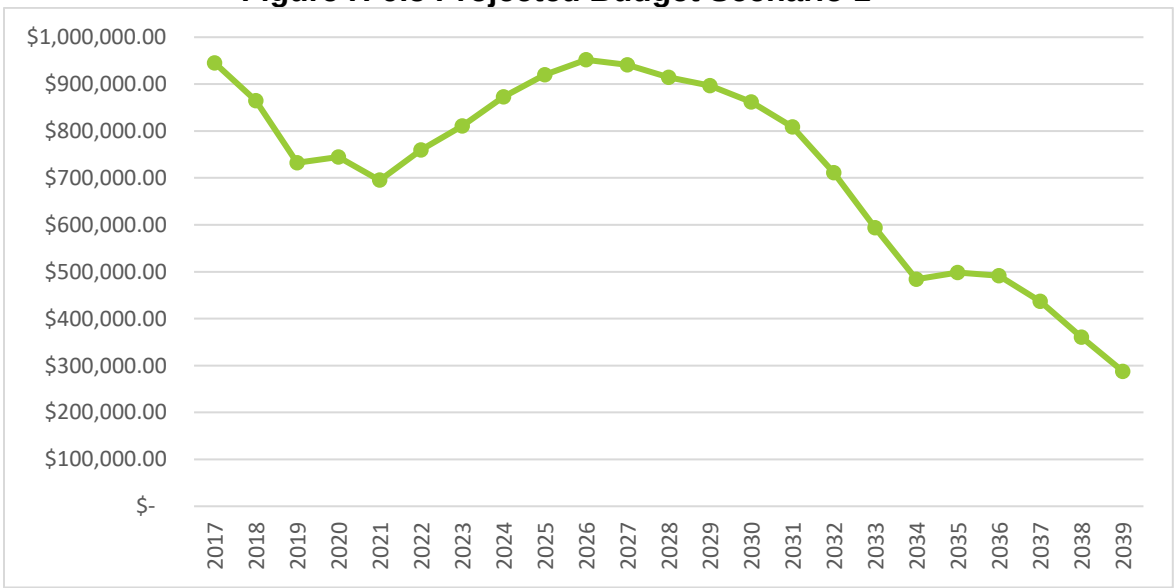
Figure H-9.4 Budget Trends



Source(s) Appendix O

In 2021 the national average inflation rate was 4.7% and the January 2022 inflation rate was 7.5%[9]. The policy committee must determine what inflation factor to apply for the planning period and what services require additional spending for the planning period. Presented here are three possible budget scenarios to consider. The three following scenarios are preliminary estimates used to gauge a direction for future planning. None of these are final projections for the District's budget. Through discussions with the Policy Committee, the selected scenario will be fine-tuned for accuracy. See Appendix O for the projections to be used for the planning period by the District.

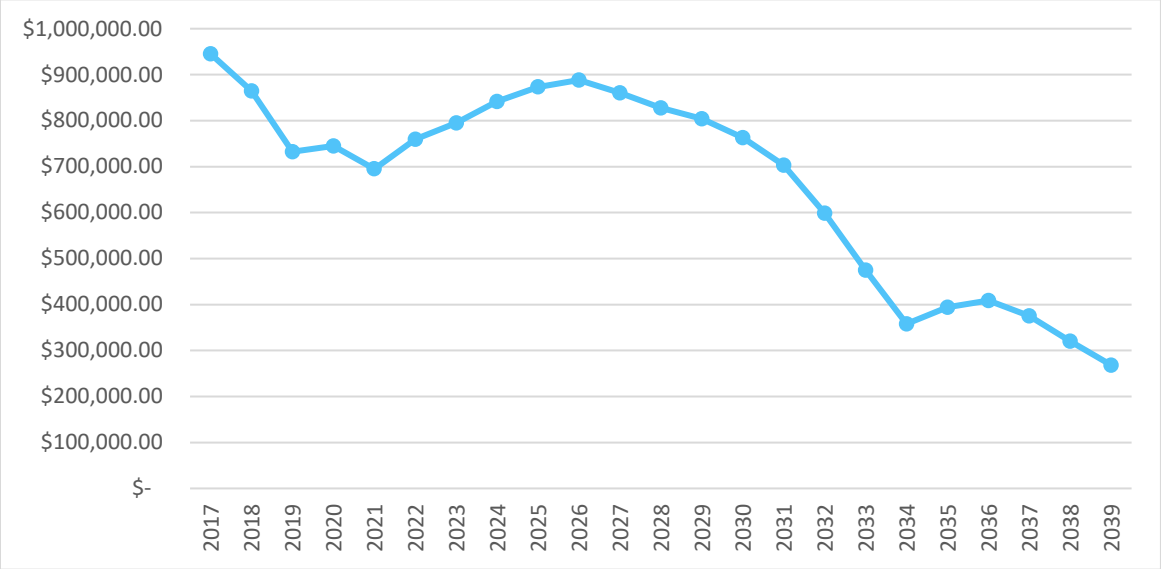
Figure H-9.5 Projected Budget Scenario 1



[9] Current U.S. Inflation Factor. https://www.usinflationcalculator.com/inflation/current-inflation-rates/#:~:text=The%20last%20column%2C%20%E2%80%9CAve%2C,year's%20actual%20rate%20of%20inflation.&text=Avail.,Feb.

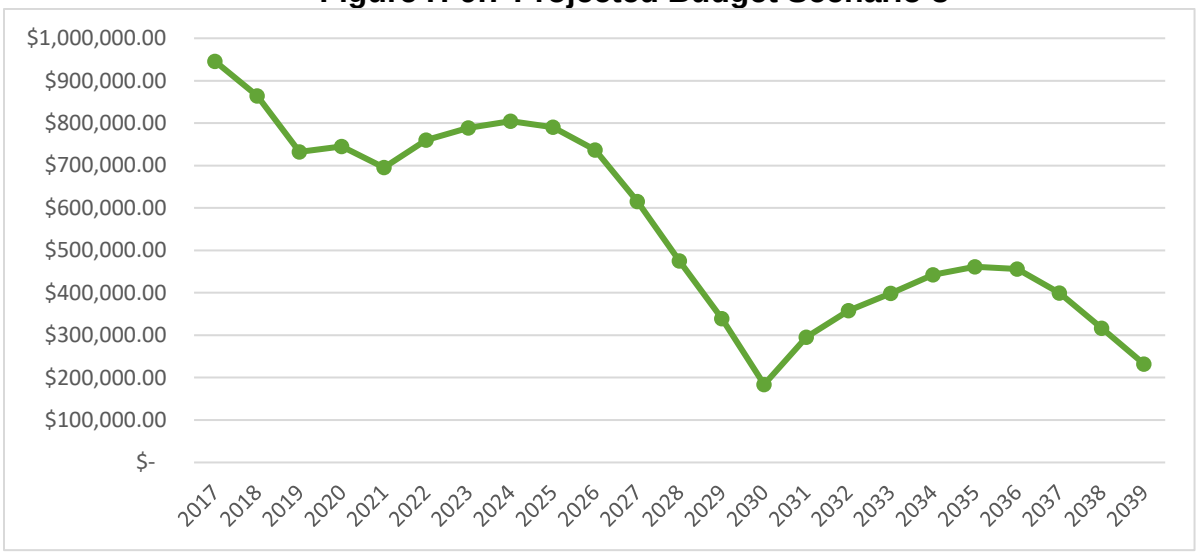
Scenario 1) Holding inflation at 3% annually will require an increase in generation fees to balance the budget. Increasing the generation fee to $1.25 in 2035 would balance the budget. Year 2035 is well into the planning period and will not require a fee change before the District prepares another plan update. **Figure H-9.5** above shows the projected fund balance with this option.

Figure H-9.6 Projected Budget Scenario 2



Scenario 2) Raising inflation to 6% from 2023 through 2027 (five years), then holding inflation at 4% for the remaining planning period. Increasing the generation fee to $1.30 in 2035 would balance the budget. **Figure H-9.6** above shows the projected fund balance with this option.

Figure H-9.7 Projected Budget Scenario 3



Scenario 3) This option looks at a raised inflation rate as well as additional program expenses. Inflation is held at 8% from 2023 through 2027 (5 years), then decreased to 3% for the remaining planning period. Additional annual expenses of $5,000 are budgeted in 2023 and 2024 for curbside program assistance. Another $5,000 for commercial/business and multi-family is added to assist with expanding programs to these sectors beginning in 2024 and projected annually. Increasing the fee to $1.50 in 2031 would balance the budget. **Figure H-9.7** above shows the projected fund balance with this option.

F. Conclusions/Findings

In all of the above scenarios, funding sources are not expected to bring in enough revenue to supplement the District's projected expenditures. The District will have to make changes to ensure the balance remains at adequate operating levels over the 15-year planning period. The options described above are opportunities the District considered to achieve this. After discussion with the policy committee, **Budget Scenario 2** was the desired budget projection to be fine-tuned for accuracy and to move forward with projections. The District's finalized budget projection is presented below. See Appendix O for more information on the District's detailed budget projections.

Figure H-9.8 Final Budget Projection

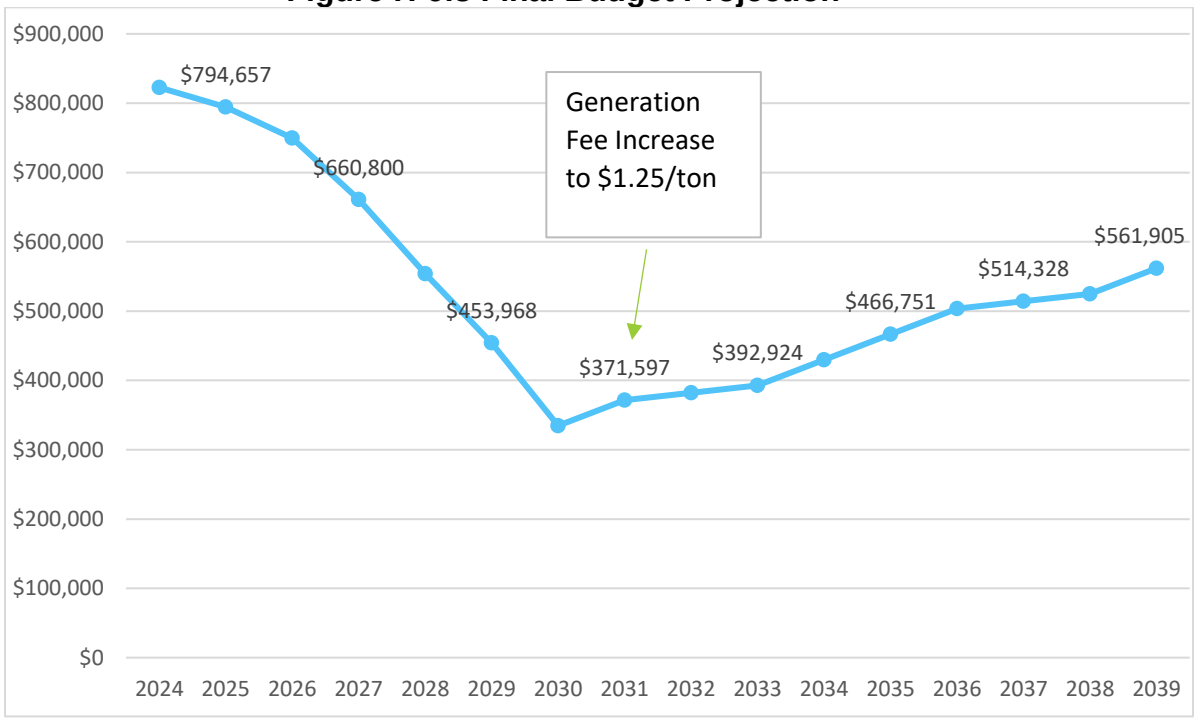


Figure H-9.8 above shows the District's fund balance is expected to decrease primarily as a result of inflation and programmatic expenditures. In 2031, the District anticipates the need to raise the generation fee from its current $1.00 per ton cost to $1.25 per ton in order to maintain the necessary funds. This minimal fee increase will allow the District to maintain programming. Planning for a generation fee increase in 2031 means the fee increase will not be enacted during this planning period, giving the District time to reassess the budget during the next plan cycle. If the District spends more than is projected in this plan update, a generation fee increase may be required sooner than currently predicted in this plan. However, the District expects to be able to maintain budgeted expenditures through the planning period and does not foresee any major implications that the current budget cannot be maintained.

10. Regional Analysis

A. Evaluation

Waste Impacts

Waste material is not confined to one location or geographic area. Instead, waste can flow along multiple channels or streams based on what is the most economically beneficial. Factors such as economic pressures, presence of facilities, distance needed to travel, road infrastructure, and contracts between haulers and processors are all drivers of where solid waste flows.

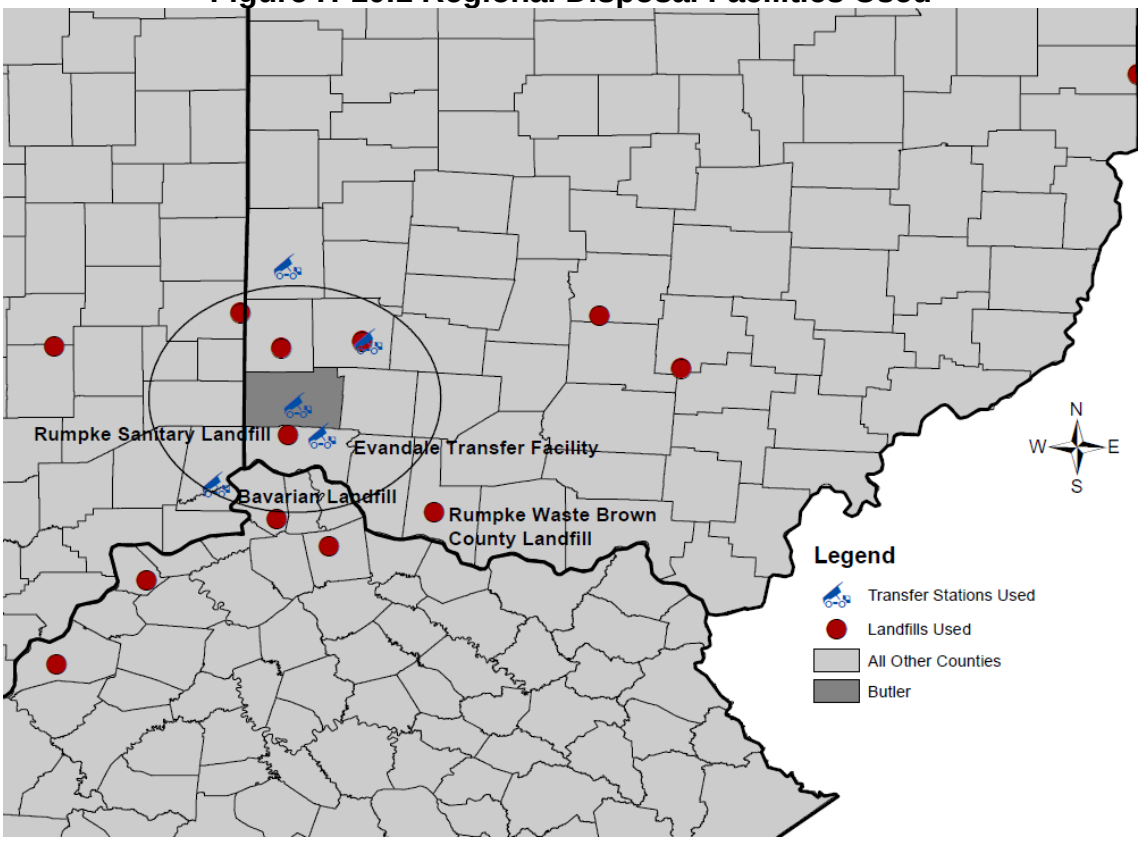
Of the neighboring five Districts, three have landfills and two have transfer facilities. The District does not have a landfill but does have the Hamilton Transfer Facility operated by Rumpke. The District directly hauls 92% of its waste and transfers 8%. A majority (73%) of the direct hauled waste goes to the Rumpke Sanitary Landfill in Hamilton County, directly south of the District. 15% of the direct hauled waste gets disposed out of state in Kentucky at the Bavarian Trucking Landfill in Boone County, a little over an hour away from the District. The last large quantity of waste goes to the Rumpke Waste Landfill in Brown County Ohio. This site accepted 5% of the District's total waste disposed.

The District's transferred waste was primarily taken to Republic Service's Evandale Transfer facility in Hamilton County, 62% of all waste transferred was taken here. Other notable transfer stations accepting waste were Hamilton Transfer Station in Butler County (18%) and Dearborn Transfer Station in Dearborn County, Indiana (16%)

The District disposed 80% of its waste at landfills located in Ohio, 15% in Kentucky and 5% in Indiana. The District used seven landfills in Ohio, four in

Kentucky, and one in Indiana. **Figure H-10.1** below maps the landfills and transfer stations used by the District in the reference year.

Figure H-10.1 Regional Disposal Facilities Used



Diversion Impacts

Local and national commodity markets play an important role in determining where recycled materials end up. When recyclable materials leave resident households, commercial businesses, or industrial businesses, it becomes a material used to create other material goods. This process varies depending on the type of material, its unique characteristics, and market demand.

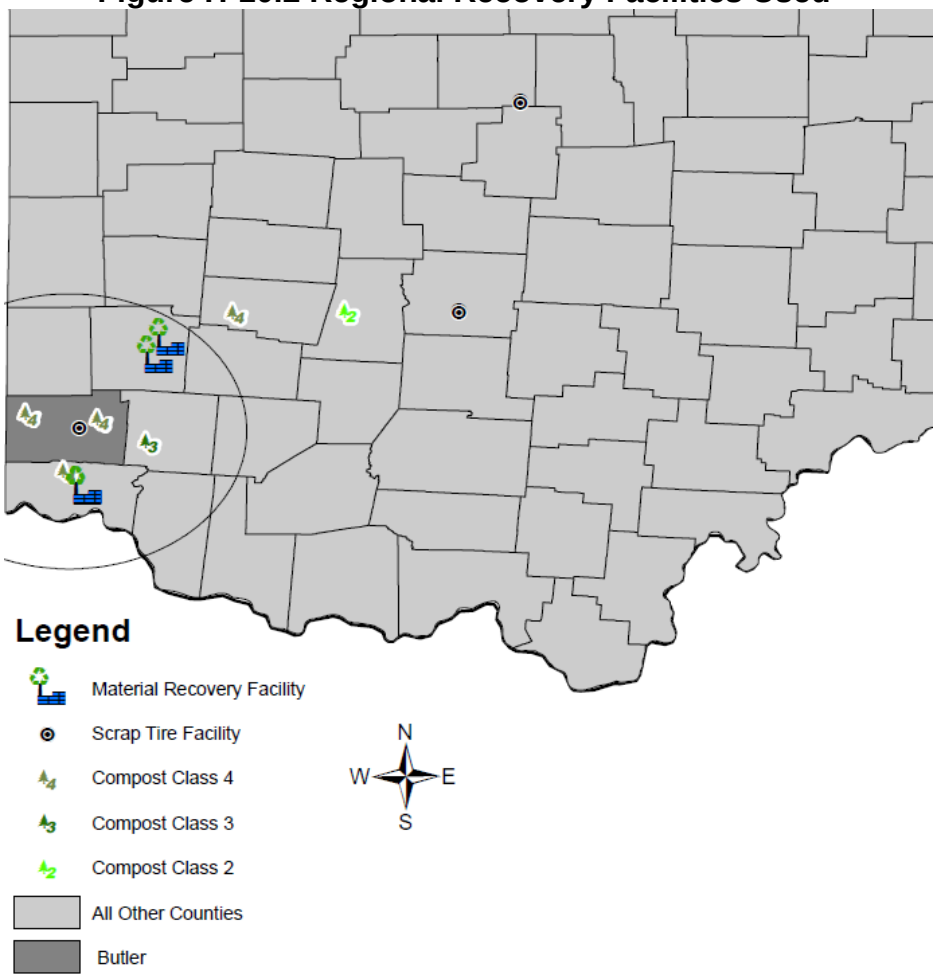
The District used six composting facilities, three material recovery facilities (MRFs), and three scrap tire recovery facilities in the reference year. As shown in **Figure H-10.2** below, the District used four compost facilities, three MRFs, and one scrap tire facility within a 75-mile radius of the District. All of the MRFS are owned and operated by Rumpke.

The District's industrial sector recycles a large quantity of organic material and yard waste. As discussed in Appendix F, organics made up 68% of diverted material in the industrial recycling survey. The District has four composting facilities within 75 miles. Three of these are Class IV and one is a Class III facility. However, none of these facilities are capable of processing food. In

order to compost food, the District uses the Class II facility in Madison County, about an hour and a half away from the District.

Transporting food waste is typically very expensive due to the high moisture content and weight. There are other Class II facilities in adjacent Counties that could offer services. Nearby Hamilton County has one Class II composting facility, Montgomery County has two class II composting facilities, and Warren County has one Class II composting facility. Additional partnerships could be explored with these close by composting outlets.

Figure H-10.2 Regional Recovery Facilities Used



B. Conclusions/Findings

The District benefits from its geographic location near large cities such as Dayton and Cincinnati. As such, there is a robust single stream processing infrastructure and a collection network to provide access to processing facilities. The District has strong regional access to facilities and economic

growth in the region will continue to expand diversion access throughout the planning period.

Food waste transportation represents a gap that could benefit from centralized processing in the region with neighboring districts. As mentioned, there are few composting facilities that are able to accept food waste that are closer than the Madison County facility currently being used. By shifting to the use of one or more of these closer facilities, the financial burden of transporting food waste could be lessened.

Scrap tire facilities are scattered throughout Ohio. The District is fortunate to have a Class II scrap tire facility located in Butler County. This makes recovery of scrap tires economically feasible and attractive for the District.

11. Data Collection Analysis

A. Analyses

Solid waste is classified into three sectors: residential, commercial, and industrial. Waste reduced, recycled, composted, incinerated, and disposed are measured to establish baselines and track changes year to year across waste generation, disposal, and recycling. Collecting data can be challenging due to a variety of factors and often takes considerable time and resources to gather and analyze. The main objective of a SWMD is to divert materials from landfills, requiring accurate measurements of diversion and disposal. The data collection process is detailed below for each sector.

The District was not able to demonstrate achieving Goal #2 of the State Plan, which requires a waste reduction and recycling rate of at least 25% for residential/commercial waste. In the reference year, the District's residential/commercial sector achieved a waste reduction and recycling rate of 13%. The 2020 State Plan no longer requires a 66% industrial waste diversion and recycling rate. The District's industrial sector achieved a 41% recycling rate.

The District devotes staff time to overseeing the data collection efforts as well as hiring a consultant to advise the District.

Residential
The District gathers data from service providers and Ohio EPA published data. Service providers operate curbside recycling, drop-off recycling, HHW collection, and scrap tire collection. Service providers typically report on a monthly basis the tonnages that occurred within the District.

Commercial/Institutional
The District gathers data from commercial businesses and Ohio EPA annual published data. An online platform JotForm, is used to collect survey data. Businesses surveyed are mailed a postcard notification detailing the survey process and providing additional

information for participation. A smaller subset of businesses surveyed are mailed a hard copy of the survey, cover letters, and a postage-paid return envelope. Survey recipients are given the opportunity to submit their completed surveys online via JotForm, via email, or via fax. Approximately two to three follow up attempts are made via email to contacts in attempts to increase participation. Phone calls are placed to entities if data has not been submitted after the final follow-up email. The quantity of phone calls to survey recipients varies on a case-by-case basis. Priority is placed on obtaining responses from entities that have not provided data within the last two surveys and to businesses who generate significant quantities of recycling and waste.

The District makes considerable effort to understand how materials are obtained and managed by entities that submit data on recycling. To avoid double counting materials, the District strives to identify any materials and respondents who may have reported to more than one entity.

The District conducts surveys every three years. In 2021, the District sent postcards to 342 commercial businesses. The District identified the top 50 largest commercial businesses as a priority target and sent hard copies in the mail. Of those 50 commercial businesses, 19 responded for a response rate of 39%. The District received nine responses online via JotForm. Even utilizing both hard copy surveys and online response options, the District finds it challenging to capture accurate diversion data from businesses. There is further opportunity to capture data from this sector.

Industrial

The District gathers data by surveying the industrial sector businesses. The same survey procedure described for the commercial sector is also used for the industrial sector.

The District mailed postcards to 146 industrial businesses in 2021. The District identified the largest industrial generators as priority targets and sent 54 of those businesses hard copy surveys. Of those 54 industrial generators, 18 responded for a response rate of 34%. The District received 10 responses from the industrial sector online via JotForm. Similar to the commercial sector, the District finds it challenging to reach this sector and collect accurate data. Mainly, as there is no regulatory requirement, many industries do not report recycling totals to the District.

B. Conclusions/Findings

Data collection is key to increasing diversion and reaching the 25% residential commercial goal set by Ohio EPA. It is recommended that the District consider annual surveys to build relationships with businesses and contacts thereby creating an annual routine with local businesses. Increased data availability will help push the District to the 25% diversion rate goal.

12. Education/Outreach Analysis

The 2009 State Plan restructured the education and awareness goals with the intention of creating minimum standards for outreach programming but still allow for flexibility for localized outreach and education. The 2009 State Plan refocused the general "awareness" of recycling to changing behavior through outreach. This was maintained in the 2020 State Plan.

The following analysis evaluates the District's existing education, outreach, and technical assistance efforts to determine:

- If the programs address all five target audiences (residents, schools, industries, institutions and commercial businesses, and communities and elected officials).
- Effectiveness and adequacy of programs.
- Strategy for incorporating Goal 4 into the programs.

A. Minimum Education Requirements - Evaluation

In accordance with Goal 3 of the 2020 State Plan, each District is required to provide four minimum education programs: website, resource guide, infrastructure inventory and speaker/presenter.

Website

The District maintains a website at http://www.butlercountyrecycles.org/. This is a website entirely focused on the Butler Solid Waste Management District. The website is a resource for residents to use as a primary source of information on waste and recycling in the District. The website provides detailed information about available programs within the District, separated by residential, businesses, special collection, and education and outreach on the homepage. This is paired with tabs detailing community drop-offs, curbside programs, HHW, and a recycling report card that breaks down recycled tonnage and percent of waste recycled for many of Butler County's jurisdictions.

The District follows best practices for a website with clear and concise information with helpful links and/or contact information. The website also includes a search function, adding an ease of access component to find information on specific items. Popular searches include how to recycle electronics, carpet, and refrigerators. The website registered over 35,000 unique users in 2021 with the most common page visited being the collection events page. The District also includes a link to its Facebook page where updates and information are updated regularly.

The website strongly focuses on District programs and helpful resources such as the programs available by Township or City. The District provides downloadable flyers with clear instructions on what is accepted for all collection of materials including recycling at drop-offs and curbside programs, electronics, appliances, and HHW.

The website is managed by Butler County and the District has access to add or adjust information as needed. The website is a resource that provides much of the information residents and businesses would require to be familiarized with the District's policies, locations, and statistics on solid waste management.

Comprehensive Resource Guide

The District's webpage includes information for businesses and households to find outlets for recycling materials. The website is a resource guide for District managed outlets and services. Additionally, the District has published a downloadable PDF detailing acceptable materials to recycle and the locations of drop-off sites with contact information included on the second page.

The District website serves as a comprehensive resource guide for residents to find information about the available programs, accepted recyclable materials, location of sites, and contact information.

Infrastructure Inventory

The inventory of solid waste management infrastructure is located in the District's plan update and is updated every five years. Additionally, the District's drop-off recycling locations and curbside recycling information is listed on the website. The District includes a link to the most recent solid waste management plan update under its "About Us" tab.

Speaker and Presentations

The District Director is available to speak or present when needed. The District Director is available to speak to communities, school administrators and faculty, students, businesses, and elected officials. The District also developed education/outreach materials in Spanish to better reach populations and households who speak it as their primary language.

The District partners with the Soil and Water Conservation District to provide composting education and outreach to residents. The Soil and Water Conservation District has resources available on their website and offers a public speaker to give presentations and workshops.

B. Goal 4 Outreach and Education - Evaluation

In accordance with Goal 4 of the State Plan, the District is required to provide education, outreach, marketing, and technical assistance to identified target audiences.

All types of behavior change initiatives, even mass-media based campaigns, can successfully employ the tools of social marketing, which include goals/commitments, feedback, prompts, and one-on-one interactions. The District offers the following outreach and education strategies:

- Website and social media
- Program promotions in newsletters, resident mail/bills, and advertisements
- Township trustee outreach
- City council outreach
- School outreach
- Resident outreach

The District uses many forms of outreach and education to teach and inform residents how to properly manage and divert waste. These programs are crucial for measuring and ensuring recycling programs are effective. The District's primary source of educational content is the website.

Target audience – Residents

The District's fundamental goal is identifying and creating relationships with this target audience. Below are the programs available in 2021 for the residential sector.

District Program Promotions: The District printed and distributed two bill inserts featuring paint disposal options, electronic waste, and freon containing appliances to 91,000 households in Hamilton, Fairfield, Monroe, Oxford, Trenton, and to Butler County Water & Sewer customers. Special collection program announcements were featured in newsletters/magazine for Southwest Regional Water customers, and Butler Rural Electric Corporation members. The District developed a trifold brochure specifically for the West Chester community. Print and digital advertising campaigns took place throughout the summer through the Journal-News.

District Newsletters: The District programs and content were featured in print and digital format on Hamilton, Middletown websites, in West Chester Township summer newsletters, and in Madison Township residential newsletters.

Curbside Participation Education and Awareness Program: In Spring 2021 the District in partnership with Liberty Township, West Chester Township, and Rumpke Recycling mailed a special curbside recycling promotion to 15,000 trash only customers to offer the first three months of curbside recycling at no charge. 409 households signed up for curbside recycling as a result of this offering and partnership.

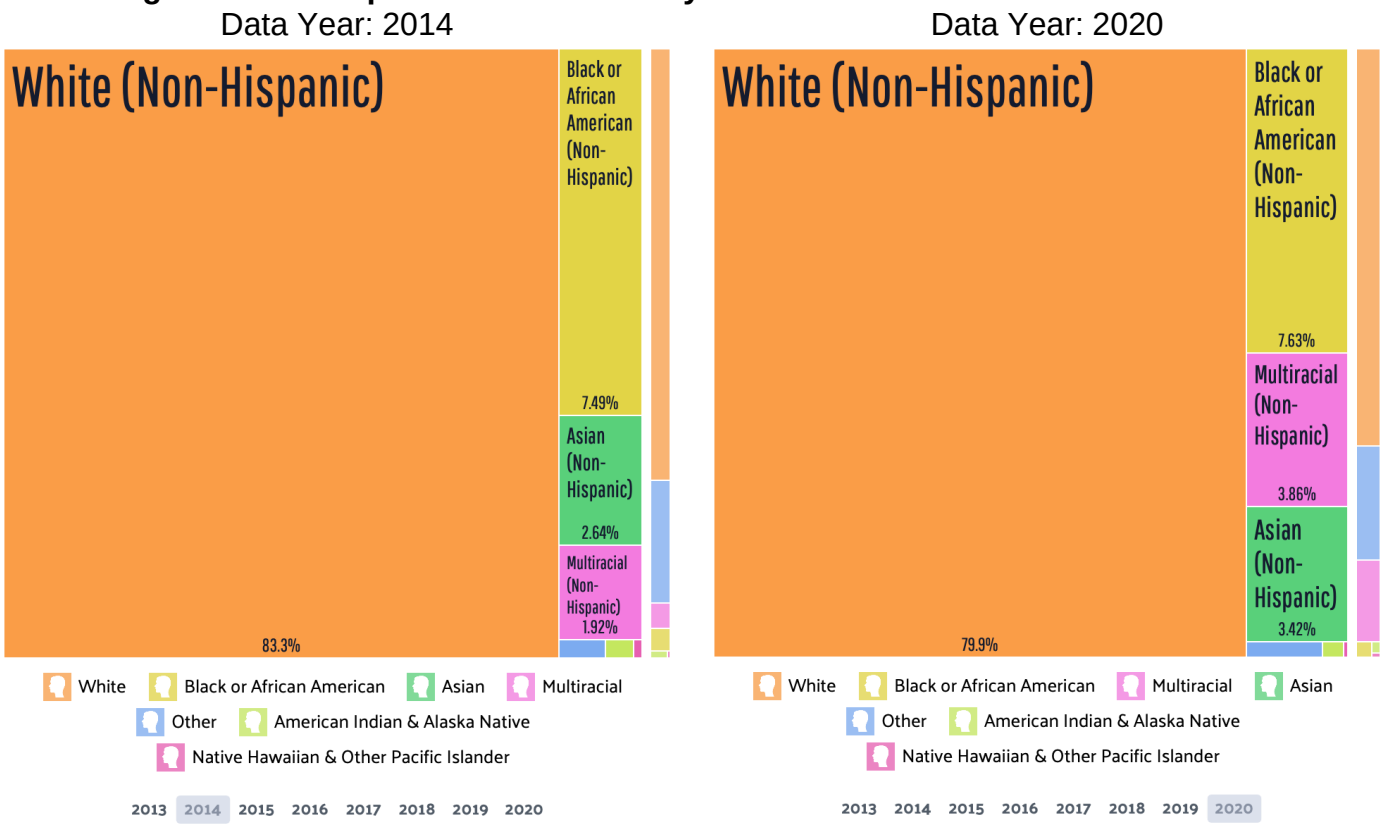
Backyard Composting Education and Awareness: The District partners and promotes backyard and in-vessel composting in workshops offered through Butler County Soil & Water Conservation District.

HHW/ Scrap Tire/ Electronics & Holiday Lights Awareness: The District distributes materials and directs residents looking to dispose of these materials to the respective site, drop-off, program, or businesses who can help.

General: The District has certain programs that provide education and outreach to residents that aren't specifically designed programs. These include the District website and social media. While these programs target the residential sector, they also provide general education and outreach to other parties.

Education and outreach programs need to reach all the audience sectors. When it comes to recycling outreach, one type of approach does not reach all. Barriers can be cultural, low socio-economic levels, and languages, to name a few. Keeping these considerations front-of-mind can go a long way to cleaner recyclable stream and more recovery. What we see from research is a slight shift in Butler County's demographics as the population grows. **Figure H-12.1** shows a shift in race and ethnicity between 2014 and 2020 (comparison between 2018 Plan reference year and 2025 Plan reference year)[10]. The Hispanic population grew from 4.2% to about 4.8%.

Figure H-12.1 Population and Diversity



[10] Race and ethnicity data was not published for 2021 so the 2020 data was used. Source: https://datausa.io/profile/geo/butler-county-oh

Is the District's current education and outreach diverse and inclusive to languages and marginalized populations? Is the District prepared for further potential race and ethnicity shifts?

Target Audience: Commercial/ Institutional Sector

Commercial sector entities are defined as commercial businesses, multifamily facilities, schools and universities, government agencies, office buildings, stadiums, amusement parks, event venues (stadiums, concert halls), hospitals and non-profit organizations that receive dumpster or compactor service for garbage. Target for this audience is administration and facilities maintenance.

The District has been successful in reaching the commercial sector. Specific programs designed to educate and reach the commercial sector include the following programs.

Multi-Family Housing Cooperative: The District partnered with Miami University Department of Residence Life to provide 5,000 magnets with updated recycling content for all student dormitories. The magnets are to remain in each room for the next year of incoming residents. The District also partnered with Miami's Department of Community Engagement to provide 300 recycling flyers to be distributed to Oxford apartment rental companies and apartment complexes. This education/outreach method is designed to reach students and continue recycling engagement among the multi-family housing units at Miami University.

Commercial Technical Assistance: The District provides commercial businesses with free technical assistance upon request. Technical assistance includes waste audits and characterization as well as aiding in implementing new recycling programs.

The District has other programs for this target sector that are not listed above. The remaining programs are not described here as they are not strictly education and outreach programs. See Appendix I for more information on the commercial sector programs.

Target Audience: Industrial Sector

An emphasis on this sector is to encourage the completion of the industrial surveys. The District's Industrial sector is recycling about 40% of the material generated. This is lower than the neighboring Counties of the region. The District's neighboring Counties average an 81% diversion rate, with Preble County demonstrating the lowest Industrial diversion and Montgomery the highest at 58% and 93% respectively.

The District does offer industrial technical assistance to businesses. However, this target audience seems to have gaps in the number of businesses reached. It is likely the true diversion number is higher than the 40% reported and the District is just not capturing the sector's recycling totals. For some businesses recycling is

not an attractive program to participate in as it requires them to build the cost to recycle into their business model. Additional education and outreach could help to establish a culture that places recovery of materials above the cost of service.

Target Audience: Schools

Education to school-age residents is concentrated through delivering school presentations on recycling. Presentations are education based and teach students about various topics such as the importance of recycling, litter prevention, and other solid waste issues.

COVID-19 limited the interaction with this audience for the first half of 2021. With pandemic restrictions and many schools operating with hybrid /online classes, visits to schools were not possible. In fall 2021, site visits resumed with Monroe schools and several planning sessions took place to prepare for an update to the recycling program, including food donation, new recycling containers, improved signage, and outdoor recycling for the stadium. Activity will continue into 2022 with the Monroe student green team.

To encourage students to realize the importance of recycling, the District provides recycling boxes and services to local schools. Participating in school recycling is a good way to encourage behavior and may push behavior changes at home as well. Rumpke offers free tours of their facilities along with educational materials and videos. The District encourages local schools to take students to these facilities. These tours supplement in-class activities with real world learning that can resonate with students.

Target Audience: Communities and Elected Officials

Elected officials are reached through two similar programs: Township Trustee Outreach and City Council Outreach. Both programs collaborate with elected officials to establish relationships and are designed to improve communications with elected officials to promote recycling programs and initiatives.

The one-on-one outreach to this sector has been successful in building relationships and establishing recycling initiatives. In 2021, the District collaborated with West Chester township administration to develop a targeted outreach campaign with online video, trifold brochures, and recycling content posted on the website. In addition, the District offered a special curbside recycling promotion for residents of Liberty Township and West Chester Township in 2020 and 2021. The District also coordinates timely communications with township elected officials through the Township Trustee Association which meets throughout the year. The District provides community cleanup sponsorships annually to Fairfield Township, Keep Middletown Beautiful, and recently sponsored the City of Fairfield community cleanup in 2022.

13. Recyclable Material Processing Capacity Analysis

A Material Recovery Facility (MRF) is a specialized facility that receives, separates, and prepares recyclable materials for marketing to end-user manufacturers. Materials collected are sent to MRFs to be processed.

Both residential and commercial curbside collection and drop-off materials are processed at Rumpke Recycling Facilities. These are the Rumpke Recycling Facility, Rumpke Center City Recycling, and Rumpke Elmwood Recycling. Rumpke's Dayton, Ohio facility is a Category III facility that pre-sorts, compacts, and transfers recyclables. This facility sorts out inbound materials, screening glass to send to a processor and sending the other materials to the Cincinnati MRF. Rumpke processes a large range of materials including glass bottles & jars, aluminum & steel cans, plastic bottles & jugs, mixed paper, and cartons. Rumpke's Cincinnati facility processes approximately 27 tons per hour.

Name	County
Rumpke Recycling – Dayton	Montgomery
Rumpke Center City Recycling	Hamilton
Rumpke Elmwood Recycling – Cincinnati	Hamilton

In 2021, the District primarily sent material to the Rumpke Center City Recycling Facility. This facility in Hamilton County handled over 23,000 tons of materials originating from the District. The District sent 673 tons of materials to the Elmwood Recycling Facility and 12 tons to Rumpke's Dayton location in Montgomery County.

APPENDIX I

CONCLUSIONS, PRIORITIES, AND PROGRAM DESCRIPTIONS

APPENDIX I. Actions, Priorities, and Program Descriptions

To fulfill the directives in Ohio Revised Code Section 3734.50, the District's Solid Waste Management Plan must demonstrate strategies and programs to address the 10 required goals listed below. This 2024 Plan is prepared to comply with the State of Ohio 2020 State Plan and ensures the District makes progress toward achieving the goals below:

Goal #1

- The SWMD shall ensure that there is adequate infrastructure to give residents and commercial businesses opportunities to recycle solid waste.

Goal #2

- The SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector.

Goal #3

- The SWMD shall provide the following required programs: a web site; a comprehensive resource guide; an inventory of available infrastructure; and a speaker or presenter.

Goal #4

- The SWMD shall provide education, outreach, marketing and technical assistance regarding reduction, recycling, composting, reuse and other alternative waste management methods to identified target audiences using best practices.

Goal #5

- The SWMD shall incorporate a strategic initiative for the industrial sector into its solid waste management plan.

Goal #6

- The SWMD shall provide strategies for managing scrap tires, yard waste, lead-acid batteries, household hazardous waste and obsolete/end-of-life electronic devices.

Goal #7

- The SWMD shall explore how to incorporate economic incentives into source reduction and recycling programs.

Goal #8

- The SWMD will use U.S. EPA's Waste Reduction Model (WARM) (or an equivalent model) to evaluate the impact of recycling programs on reducing greenhouse gas emissions.

Goal #9

- The SWMD has the option of providing programs to develop markets for recyclable materials and the use of recycled-content materials.

Goal #10

- The SWMD shall report annually to Ohio EPA regarding implementation of the SWMD's solid waste management plan.

Appendix J shows the District's progress to meeting Goal 1 of the 2020 State Plan. To obtain approval from Ohio EPA for the solid waste management plan, the District must

demonstrate being able to achieve either Goal 1 or Goal 2. The District demonstrates Goal 1 by demonstrating 84% of the population has access to recycling infrastructure. This appendix describes the accomplishments of the strategies/programs and their future direction for the 2024 Plan.

A. Actions and Priorities

1. Actions

Appendix H evaluates the District's performance of programs and strategies in offering and maintaining services. Evaluation of these programs involves determining whether the performance observed was expected or desired. If these strategies did not perform as anticipated, suggestions were presented to improve and strengthen programs and performance and increase effectiveness.

District program decisions during the planning period require valuable input and are depicted in Appendix H. The evaluation in Appendix H evaluates the District's performance of strategies/programs in offering and maintaining services. As part of this analysis a list of opportunities was created, identifying possibilities for the District's future programming. The matrix below is a list of those opportunities derived from the evaluation. A working strategy session with the Policy Committee was conducted to evaluate the priority for future programming. Suggested areas of improvement do not bind the District to commit to every action listed.

2. Priorities

As part of the planning process, the Policy Committee held a working strategy session. During this strategy session, a priority status was listed for each program and discussion was heard on goals, changes, and ways to improve or continue existing programs.

The matrix below includes the list of actions and priority status given. The following describes the priority rating:

- Priority 1: Short term, 1 – 3 years.
- Priority 2: Medium term, 3 – 5 years.
- Priority 3: Long term, 5+ years.

Priority List of District Programs	Priority		
	1	2	3
Resident Outreach (ongoing program) – Set a goal to increase materials recovered per capita. o Develop an outreach plan to encourage recycling. Pr. 1 o Use a variety of methods to reach different audiences including website, regular column entries in newspaper, cable, and television ads, press releases, and brochures. o Partner with local organizations to help spread awareness. o Explore social media campaign feasibility and website re-design.	X	X Crosses both 1 and 2	

Priority List of District Programs	Priority		
	1	2	3
Resident Outreach (ongoing program) – Set a goal to decrease contamination. o Engage in a recycling right campaign for drop-offs.		X	
Township Trustee Outreach (ongoing program) – Set a goal to expand non-subscription programs to subscription communities. o Engage in meetings with trustees to establish or change curbside program models. o Develop bid specifics suitable for competitive bidding and contracting. o Townships are looking for a solution to managing appliances again. o Explore a short term pilot program in limited geographic area to evaluate costs and demand results.	X		
Business and Industry Outreach (ongoing program) o Develop educational materials for businesses such as how to set up a recycling program. o Develop resource list of specialty recyclers for specific materials.	X		
Education and Outreach (ongoing program) o Develop retailer specific collateral that is meaningful to the retailer to divert material. For instance, clothing retailers will have different needs than grocery stores.			X
Business and Industry Outreach (ongoing program) o Connect with local businesses and manufacturers to determine the desire for materials management and reporting.	X		
Resident Outreach (ongoing program) o Include more education on why hard to dispose materials require special handling and management and identify ways consumers can minimize purchase of these materials. Explore siting a trailer for collecting Paint and directing to M25 Ministries.	X		
Education (ongoing program) o Is the District's current education and outreach diverse and inclusive in languages and accessible to marginalized populations? Is the District prepared to meet diverse audiences who participate in programs? Educate owners of rental home properties. Hamilton has 17 Strong platforms for reaching property owners, Oxford also has organized property management associations.	X		
Highlight education and advertising to increase diversion rates through: o Social media posts, media ads, flyers, postcards, etc. o Increase signage and keep current recycling information on what is accepted and not accepted in recycling. o Develop an education campaign targeted at plastic recovery. ▪ Increase awareness of plastic waste and associated costs to human health and environment. ▪ Provide easy to understand graphics of what is accepted for recycling in the District. ▪ Provide tips on reducing plastic waste. ▪ Provide drop-off locations and/or curbside recycling program information if available in the area. Rumpke released the Hefty Bag program – Hefty bags sold in grocery stores and will accept all plastic films. Bags can be placed in curbside bins. The Heft Bag Program is rolling out late 2023.	X	X	

Priority List of District Programs	Priority		
	1	2	3
Multi-Family Cooperative (ongoing program) – Set a goal to engage with multi-family residents in at least 1 complex to reduce barriers to recycling. o Consider locating a drop-off at or near a multi-family complex. o Work with city officials to require haulers to provide service to multi-family complexes. o The District provides one time grant funds to establish infrastructure such as enclosures, concrete pads, recycling bins, etc.	X		
Southwest Ohio Pollution Prevention (P2) Internship (Ongoing program) o Butler County will continue to partner with area manufacturers and place Ohio undergraduate students in industrial settings to advance waste reduction methods, increase energy efficiency, and improve operations to benefit a variety of industries in Southwest Ohio. The P2 Program is a collaboration between Hamilton, Butler, and Adams-Clermont Solid Waste Districts.	X		
Commercial/Industrial Technical Assistance (ongoing program) – o Continue to offer waste assessments and actively reach out to local businesses to conduct these. Connect with past recipients to find out how the recycling program is going. o Continue working with schools and school districts on recycling programs. Target the upper management levels of schools and school districts to encourage participation in recycling initiatives. o Focus on recycling service arrangements to business clusters. o Continue to work with school campuses, make sure containers are right sized for crowd events, consider educating on event recycling at school events (stadiums).		X	X
Data Collection (ongoing program) o Collaborate with Ohio EPA to increase the EPA's data collection efforts with big box store commercial retailers. o Obtain and maintain updated contact information for staff managing the industrial recycling programs and build rapport with the goal to attain yearly survey responses. Continue to promote and advertise annual recycling survey participation with a focus on newer, larger entities.	X		
Business and Institutional Grant Program (ongoing) o Connect with past recipients to assess how the recycling program is going.	X		
Drop-off Program - Establish goal to reduce contamination. o Obtain baseline data on contamination rates and the top materials that are mistakenly recycled. o Develop District branded materials to be distributed through mail, email, on social media, etc. to increase awareness. o Develop educational campaign targeting the reduction of top material contaminants.		X	
Decentralized Compost and Food Diversion o The District does not have centralized, in-District infrastructure to divert food waste from landfills such as Class II facility, anaerobic digester, etc. Consider de-centralized food waste management through community gardens, in-vessel digesters, etc.		X	X
Strategies to increase food recovery and diversion include: o Resident Outreach (ongoing program) – setting goals to change the behavior of residents and to reduce waste while also educating source reduction practices. ▪ Consumer messaging – The most significant change will come from behavior change. This can be done by increasing	X		

Priority List of District Programs	Priority		
	1	2	3
consumer awareness and changing baseline behaviors related to purchasing, storage, and disposal. ▪ Increase awareness of food waste and associated costs. ▪ Provide tips to reduce food waste. ▪ Promote food donation. o Commercial/Industrial Technical Assistance (ongoing program) – setting goals to work with at least 1 restaurant or institution a year to install food waste reduction strategies. Partner with soil and water on compost education workshops. o SYNTHICA – Hamilton county commercial scale AD facility targeting 2024 for operation. Food waste renewable natural gas system.			
Scrap Tires (ongoing program) o Collaborate with Rumpke (recent Ohio EPA scrap tire development grant recipient) to explore year-round drop-off opportunity to households for scrap tires. o The District could partner with jurisdictions to offer more than one tire drop-off location similar to what was done in 2020. o Continue existing grant fund acquisition to support scrap tire collection events.	X		
HHW Management Program (ongoing program) o Monitor participation beyond zip codes to determine if services are reaching diverse segments of population.	X		
E-Waste Recycling Program (ongoing) ▪ Monitor participation. ▪ Seek grants to support expanded residential programming. ▪ Explore availability and feasibility of year-round programming, program is currently available August to October. Switch to every month to be available throughout the year. Also add the computer safe destruction – protecting privacy.	X	X	
513 GREEN (New Program) • Partner with neighboring Districts. • Certification for industrial and commercial businesses. • Standardized set of sustainability criteria to measure progress. • District works in partnership with interested parties to provide support and recognition.	X	X	

The District diverted 13% of waste in the residential/commercial sector in 2021. Historically from 2016 to 2020, the District has ranged between 11% and 17% diversion. The District has adequate recycling infrastructure, one area the District will focus on is education and outreach. The District has many programs dedicated to this; however, these programs currently lack demographic participation monitoring. To maintain and improve upon existing programs, the District's short-term priorities are to improve monitored participation and reach out to current or former users to investigate how to improve the programs available. The District is focused on reaching a broader audience, including underserved populations, in order to reach a more diverse population.

Specific plan of action for the priority status programs can be found in the program descriptions section of this Appendix.

B. Program Descriptions

Residential Recycling Infrastructure

Curbside Recycling Services

Non-Subscription Curbside Recycling

ID	Name	Start Date	End Date	Goal
NCS1	Fairfield City	Ongoing	Ongoing	1 and 2
NCS2	Hamilton City	Ongoing	Ongoing	1 and 2
NCS3	Middletown City	Ongoing	Ongoing	1 and 2
NCS4	Monroe City	Ongoing	Ongoing	1 and 2
NCS5	Oxford City	Ongoing	Ongoing	1 and 2
NCS6	Ross Township	Ongoing	Ongoing	1 and 2
NCS7	Trenton City	Ongoing	Ongoing	1 and 2

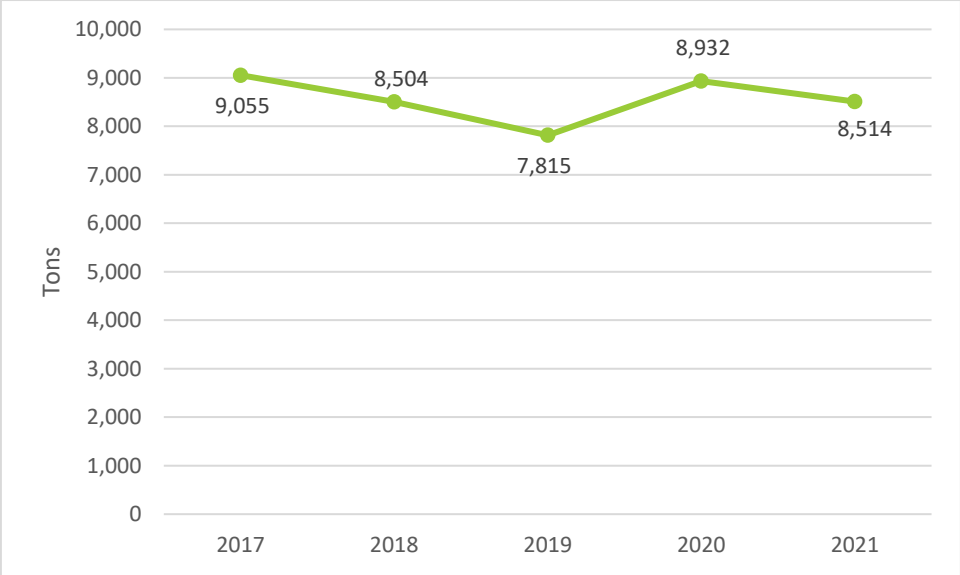
The political jurisdictions listed above are non-subscription curbside recycling collection communities. These municipalities, and Ross Township, have long term contracts with an exclusive hauler to provide trash and recycling service to all households.

In 2019, the District received a grant from the Ohio EPA to partner with the City of Fairfield, Rumpke Recycling, and The Recycling Partnership to reduce contamination in Fairfield's curbside recycling. The grant award reduced contamination in curbside recycling from 23% to 11% following an intensive 5-week recycling education campaign and recycling cart audit.

In 2020, Ross Township renewed its trash and curbside recycling contract with one hauler. Ross Township remains the sole township in Butler County with non-subscription recycling for its residents. Township officials have been reluctant to contract for recycling and prefer to leave the homeowners to select their service level, and to determine their hauler of choice.

The seven political jurisdictions listed above together collected 8,514 tons of material through a single stream, weekly collection contract with a hauler. The curbside recycling services captured paper, carboard, glass bottles/jars, plastic bottles/jugs/tubs, metals cans, and cartons. Plastic tubs were added to the accepted materials in 2021 and paper/plastic cups were added to accepted materials in 2022. All curbside materials were collected with either a bin or a wheeled cart.

Figure I-1 Historical Non-Subscription Curbside Recycling



Target for Next 5 Years: There is an opportunity to expand non-subscription curbside recycling throughout the County. The District will concentrate its outreach efforts on converting high population townships to non-subscription service models. The largest population townships are in discussions to develop approaches to contracted services.

The District is setting a target to convert two townships to non-subscription curbside recycling in this next planning cycle. Additional discussion of District outreach actions in this next planning period can be found in Appendix L "Township Trustee Outreach" program.

<u>Subscription Curbside Recycling</u>

ID	Name	Start Date	End Date	Goal
SC1	Fairfield Township	Ongoing	Ongoing	1 and 2
SC2	Hanover Township	Ongoing	Ongoing	1 and 2
SC3	Liberty Township	Ongoing	Ongoing	1 and 2
SC4	Morgan Township	Ongoing	Ongoing	1 and 2
SC5	West Chester Township	Ongoing	Ongoing	1 and 2
SC6	Oxford Township	Ongoing	Ongoing	1 and 2
SC7	Reilly Township	Ongoing	Ongoing	1 and 2
SC8	Lemon Township	Ongoing	Ongoing	1 and 2
SC9	Madison Township	Ongoing	Ongoing	1 and 2
SC10	Milford Township	Ongoing	Ongoing	1 and 2
SC11	St Clair Township	Ongoing	Ongoing	1 and 2
SC12	Wayne Township	Ongoing	Ongoing	1 and 2

Subscription curbside recycling occurs when individual households select a private hauler to provide recycling collection and processing service. Households must pay a separate additional fee to secure recycling with their trash collection. This additional cost is often a barrier to participation in curbside recycling.

In 2017 the District launched a curbside recycling campaign in Fairfield Township using direct mail and notices in township community newsletters to announce a special rate for new curbside recycling subscribers.

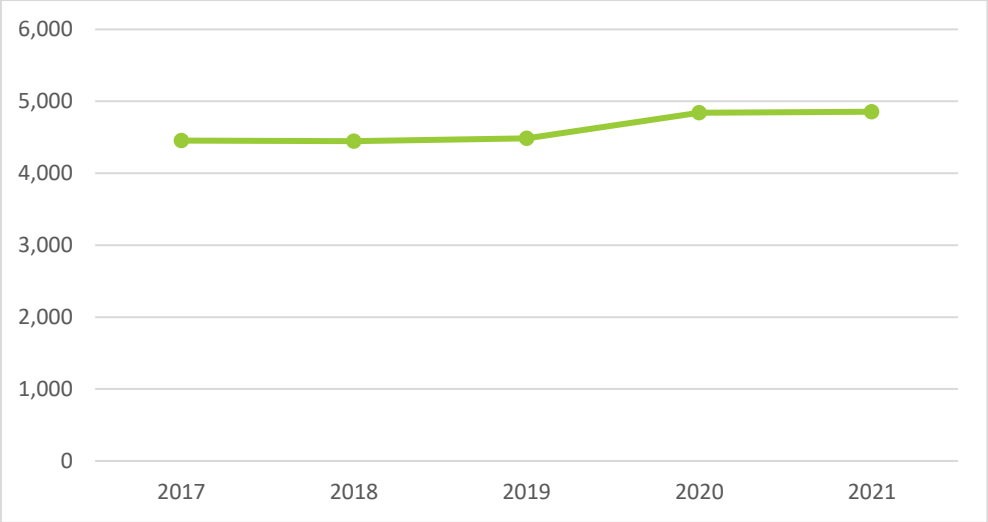
In 2018 the District added two new subscription curbside recycling services. Oxford Township and Reily Township were the additions, between the two townships, 89 tons of recyclables were collected.

In 2021, the District provided targeted outreach to West Chester Township residents with a focus on Recycle Right at the community recycling drop boxes and in curbside recycling programs. The District developed a series of educational videos in collaboration with the West Chester Communications Team to be broadcast on TV West Chester demonstrating the "how-to's" for recycling household materials. In addition, the District developed a comprehensive trifold brochure to be placed at recycling drop box locations with details about special collection programs for hard to dispose items. This content was shared via social media at the District's Facebook page and on West Chester Township's social media outlets and homepage.

In 2021, subscription curbside recycling services were available in seven political jurisdictions. Combined, the District collected a total of 4,855 tons of recyclable materials from these services. This program accepts paper, carboard, glass bottles/jars, plastic bottles/jugs/tubs, metals cans, and cartons. Plastic tubs were added to the accepted materials in 2021 and paper/plastic cups are planned to be added to accepted materials in 2022. All curbside materials were collected with either a bin or a cart.

In 2022 the number of subscribers increased adding 409 new households to subscription curbside as a result of a campaign/promotion. The District offered to cover the first three months' costs of service for new households signing up for curbside recycling with Rumpke. The campaign sign-up was offered for one month.

Figure I-2 Historical Subscription Recycling



Target for Next 5 Years: There is opportunity to expand subscription curbside recycling throughout the areas in the County where subscription curbside is available. Tracking the number of households subscribing will continue and will be used to demonstrate progress. To increase the number of subscribers recycling campaigns will be launched directly to households using direct mail and incentives for special rates.

The District is setting a target to implement a curbside recycling campaign in two political jurisdictions in this next planning cycle.

Full-Time, Urban Drop-Offs

ID #	Name	Start Date	End Date	Goal
FTU-1	Fairfield City, Community Arts Center	Ongoing	Ongoing	1 and 2
FTU-2	Fairfield City, Fairfield Aquatic Center	Ongoing	Ongoing	1 and 2
FTU-3	Fairfield City, Grange Park	Ongoing	Ongoing	1 and 2
FTU-4	Fairfield City, Water Works Park	Ongoing	Ongoing	1 and 2
FTU-5	Fairfield Township, Fire Station	Ongoing	Ongoing	1 and 2
FTU-6	Fairfield Township, Fire Station No. 2	Ongoing	Ongoing	1 and 2
FTU-7	Hamilton City, Fire Station No. 1	Ongoing	Ongoing	1 and 2
FTU-8	Hamilton City, Fire Station No. 2	Ongoing	Ongoing	1 and 2
FTU-9	Hamilton City, Fire Station No. 5	Ongoing	Ongoing	1 and 2
FTU-10	Hanover Township, Memorial Park	Ongoing	Ongoing	1 and 2
FTU-11	Liberty Township, Fire Station No. 1	Ongoing	Ongoing	1 and 2
FTU-12	Liberty Township, Fire Station No. 2	Ongoing	Ongoing	1 and 2
FTU-13	Liberty Township, Fire Station No. 3	Ongoing	Ongoing	1 and 2
FTU-14	Madison Township, Township Administration Building	Ongoing	Ongoing	1 and 2
FTU-15	Middletown City, Fire Station No 5	Ongoing	Ongoing	1 and 2

FTU-16	Middletown City, Fire Station Headquarters	Ongoing	Ongoing	1 and 2
FTU-17	Middletown City, Smith Park	Ongoing	Ongoing	1 and 2
FTU-18	Morgan Township, Administration Building	Ongoing	Ongoing	1 and 2
FTU-19	Morgan Township, Shandon Fire Station	Ongoing	Ongoing	1 and 2
FTU-20	Oxford City, Miami University Culinary Support Center	Ongoing	Ongoing	1 and 2
FTU-21	Oxford City, Miami University Police Station	Ongoing	Ongoing	1 and 2
FTU-22	St. Clair Township, Administration Building	Ongoing	Ongoing	1 and 2
FTU-23	West Chester Township, Beckett Park	Discontinued in 2022		1 and 2
FTU-24	West Chester Township, Keehner Park	Discontinued in 2022		1 and 2

Drop-off locations are available full-time, 24/7. The drop-off locations are displayed on the District's website to inform residents about specific location information and materials accepted for recycling. This program accepted paper, carboard, glass bottles/jars, plastic bottles/jugs/tubs, metals cans, and cartons. Urban locations have at least two 8-cubic yard dumpsters serviced as needed. The District directly contracts with a private hauler to provide and service drop-off locations in the townships. The municipalities contract with a private hauler to provide and service drop-off locations in the municipalities. The District contract costs include processing, transportation, and any other management-related costs of operating the drop-off locations. The District coordinates placement of drop-offs with hosting community or private sector entity.

In 2017 the District serviced 30 full time urban drop-off locations. Due to continued contamination issues, three drop off locations were removed in 2018. One drop-off was removed due to construction of a township administration building. West Chester and Fairfield Townships experienced significant contamination at sites, including illegal dumping. The District met with Fairfield Township trustees to discuss solutions to address the problem, including engaging law enforcement, placing a trash dumpster in close proximity to the recycling boxes, and options to contract combination trash and recycling service for all residents. The District worked closely with the road maintenance and zoning personnel in West Chester Township to respond to issues, and when needed, to remove trash.

Similarly, in 2019 the District closed three more drop off locations as a result of contamination and illegal dumping, bringing the total number down to 24 full time urban drop off sites. West Chester and Fairfield Townships continued to have the highest incidence of contamination and dumping. The District worked closely with roads personnel to respond to issues and engage with township police officers. The cost to remove trash materials is costly and adversely impacted the District's annual budgeted cost for the program. One drop-off was closed due to the purchase of the host location by Kroger, which planned an expansion in the area.

No sites were closed in 2020 or 2021, the District maintained the same 24 full time urban drop off sites. Collectively, the total drop-off program captured 997 tons of material to recycle.

In October 2022, the District closed two drop-off locations in West Chester Township as a result of high contamination rates and misuse. In its place, the District offered subscription curbside services through Rumpke and covered the first three months of service to all residents who signed up before November 30th, 2022. The curbside promotion resulted in 409 new households signing up for service.

Contamination has been a longstanding issue present in many of the full-time urban drop off locations over the last 5 years. In total, 7 sites were closed as a result of contamination and illegal dumping. The District is proactive in attempting to manage contamination, working with township employees and law enforcement, placing trash containers next to recycling bins, and adapting the program.

Target for Next 5 Years: Reduce contamination through targeted education and outreach for residents using the drop-off sites.

Part-Time, Urban Drop-offs

The District does not provide any part-time urban drop-off locations.

Full-Time, Rural Drop-offs

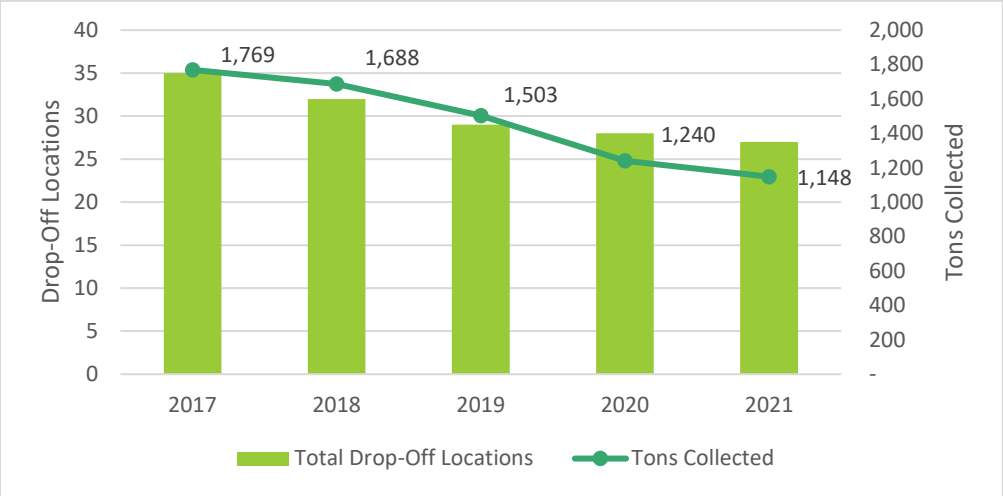
ID #	Name	Start Date	End Date	Goal
FTR-1	Milford Township, Darrtown Hitching Post	Ongoing	Ongoing	1 and 2
FTR-2	Reily Township, Community Center Parking	Ongoing	Ongoing	1 and 2
FTR-3	Seven Mile Village, Fire Station	Discontinued in 2022		1 and 2

The District maintained 5 full time rural locations from 2017 to 2019. In 2020 Wayne Township trustees asked the District to pull the recycling program from the Maintenance Building effective May 2020. The issue was largely related to space limitations at the site, and contamination occurring on a regular basis.

In 2021, the District had 3 full time rural drop-off locations. These locations collected a total of 151 tons of recyclable material in the reference year. Due to contamination issues, one rural full time drop off location was removed in 2022.

Rural locations have at least two 8-cubic yard dumpsters serviced. The District contracts with a private hauler to provide and service drop-off locations in the townships. The District contract costs include processing, transportation, and any other management related costs of operating the drop-off locations. The District coordinates placement of drop-offs with hosting community or private sector entity.

Figure I-3 Total Drop Off Locations and Tons Collected



Target for Next 5 Years: Continue through the planning period.

Commercial/Institutional Sector Reduction and Recycling Programs

Name	Start Date	End Date	Goal
Commercial/Industrial Technical Assistance	Ongoing	Ongoing	3 and 4

Technical assistance is provided to businesses, industries, and institutions. Technical assistance includes waste assessments, education, in-person meetings, presentations, etc. Previously, the District focused its efforts on providing technical assistance to set up recycling in school classrooms, cafeterias, and teacher workrooms with an emphasis on educating students and school faculty/staff, kitchen personnel about how to recycle, including presentations, print materials, and custom 3-D signage for cafeterias.

In 2017 the District conducted multiple on-site waste audits. There were four manufacturers, two businesses - including TradeGlobal with over 250 employees, three nonprofits, one federal government office, and three Middletown City Schools – Miller Ridge, Creekview, and Amanda Elementary – who participated in waste audits.

In 2018, the District met with three large manufacturers, Pacific Manufacturing, MillerCoors, and SugarCreek Food Solutions, to discuss Pollution Prevention (P2) Internship opportunities and benefits of the program.

The District met with the following manufacturers to assist with establishing and/or expanding recycling programs: PAC Worldwide (an Amazon packaging supplier), iMFLUX, Mondelez, SugarCreek, Tyson Foods, and WestRock in 2019.

Due to pandemic related restrictions, the District was not able to conduct waste assessments onsite at area businesses in 2020. However, the District assisted Butler

County DD and the city of Fairfield Parks with installing new recycling at their facilities. The West Chester Boys & Girls Club facility was set up with recycling collection containers and signage throughout their facility.

On site waste assessment activity was limited due to ongoing restrictions at many workplaces for the first half of 2021. The District conducted waste assessments at Finn Corp. Univar, Crimson Cup and Telhio Credit Union. Recycling recommendations, recycling collection, signage and services were provided.

Target for Next 5 Years: Technical assistance to area businesses, institutions and industries will continue throughout the planning period. The District will utilize the 513 GREEN regional sustainability tool developed with Hamilton County Resource as a framework for certifying business recycling achievements.

The District will target at least five additional businesses utilizing brokers for recycling in attempts to capture additional recycling data. The District will also reach out to communities with "DORA" designated districts to explore recycling promotion and infrastructure for plastic cup recycling.

Name	**Start Date**	**End Date**	**Goal**
Southwest Ohio P2 Internship Program	2007	Ongoing	3

In 2007, the Southwest Ohio P2 Internship Program was formed, a collaborative partnership between Butler County SWMD, Hamilton County SWMD and TechSolve. The P2 Program provides undergraduate level interns to local industries for a 12-week summer internship. U.S. EPA has been a key partner underwriting a full week of Pollution Prevention training for each intern since the program's inception. The rationale for the P2 internship is to assist manufacturers in reducing waste, conserving energy, and improving operations while providing outstanding engineering students with professional work experience to help them consider working in Ohio as part of their career plan. The Solid Waste Districts serve as coordinators and recruiters of industries and select and match skilled interns to place with partner industries based on P2 project needs.

In 2020 the District worked to recruit two manufacturers ThyssenKrupp and MolsonCoors to join the Southwest Ohio Pollution Prevention Internship Program. Interns were interviewed and selected for placement at the respective industries when COVID-19 disrupted the program, and the internships were cancelled. Due to health orders and restrictions at area manufacturers, Butler County had to suspend its Pollution Prevention (P2) Program as our industry partners withdrew from the program in 2020 and spring 2021.

The P2 collaborative expanded in 2022 to include Adams-Clermont SWMD, with a commitment to host an intern in 2023 at Milacron.

Target for Next 5 Years: The District will continue to offer this program and will look to expand to two industry partners in 2025.

Name	Start Date	End Date	Goal
County Office Recycling Program	Ongoing	Ongoing	2

Office paper, mixed paper, cardboard, and other recyclables are collected at county administrative buildings, courts, and cardboard was captured at the county jail. With the retirement of the county recycling technician in August of 2013, the SWMD collaborated with the county records department and gathered input from other county offices to redesign the collection system, resulting in uniform confidential document shredding for all offices, county courts, and recycling of shredded paper.

County office buildings and departments have every other week pick up of mixed office paper for shredding. The District contracts with a document shredding service to provide locked paper totes and cartage of totes for a combination of on-site and off-site shredding, depending on the court or county office requirements. Collection occurs every other week. The District contracts the county office cleaning service to collect commingled recyclable material and cardboard from break rooms and conference rooms. Recyclables are placed in recycling dumpsters and in totes located in each building. The District contracts with a private sector hauler to transport and process the recyclable.

In 2017 the program recovered 90 tons of recyclable materials. The next two years saw an increase in the total tons recovered, collecting 115 tons in 2018 and 146 tons in 2019. In 2020, this program decreased to 128 tons recovered. This was followed by another increase to 146 tons in 2021. The District collects metal cans, paperboard, cardboard, glass and plastic weekly from breakrooms, conference rooms, etc.

Target for Next 5 Years: The District will annually review the infrastructure and contracts to provide best and most economically effective program.

Name	Start Date	End Date	Goal
Multi-Family Housing Cooperative	2012	Ongoing	2

This program provides recycling opportunities to multi-family housing units in the Oxford area. These include college dorms and apartments located on Miami University of Ohio’s campus. The District partners with Miami University to provide this program.

In 2017 the District published 1,000 flyers including "Recycle Right" to be distributed to Miami University off campus student residents as part of Miami's Office of Community Engagement "Move In" Week. Large multifamily apartments were included, such as 500 flyers for Oxford West Apartments for incoming residents.

The program continued in 2018 and again published 1,000 flyers to educate incoming Miami University off campus student residents in conjunction with Miami's Office of Community Engagement "Move In" Week. Large multi-family apartments were included.

The District expanded the program in 2019, targeting large and small multi-family housing units by implementing weekly recycling service for a 12-unit Oxford apartment complex. The District continued to work with Miami University to publish 1,000 flyers to off campus students.

In 2020 the District changed the method of education slightly, working with Miami University's Office of Community Engagement to publish 300 flyers and 500 magnets. The magnets and flyers were sent to Oxford apartment rental companies and apartment complexes.

The magnets proved an effective educational tool in 2020. The District decided to focus more on this method and in 2021 partnered with Miami University's Office of Residence Life to provide 5,000 magnets with updated recycling content for all student dormitories. The magnets are to remain in each room for the next year of incoming residents. The District also partnered with Miami's Department of Community Engagement to provide 300 recycling flyers to be distributed to Oxford apartment rental companies and apartment complexes.

Target for Next 5 Years: Multi-family housing will be an immediate priority for the District. The District is setting a goal to reach at least one multi-family complex annually to reduce barriers to recycling. The District will actively work with city officials to consider requiring haulers to provide service to multi-family housing units. Furthermore, the District will explore how other larger solid waste districts address multi-family housing recycling and decide if it can adapt similar practices in Butler County.

Name	**Start Date**	**End Date**	**Goal**
Special Event Recycling	Ongoing	Ongoing	2

The District loans collection containers for special events for recycling beverage bottles and cans. The District provides funding assistance to local organizations to secure recycling containers for special event recycling. Partners include the city of Hamilton for permanent recycling containers at Rivers Edge outdoor summer concert series, and containers and recycling service at Metro Parks shelters, and city of Fairfield Groovin on the Green outdoor concerts.

The District provided recycling for a variety of public events from 2017 to 2019. Recurring events such as the Butler County Fair, Hamilpalooza, Township Community Clean Up events, and Keep America Beautiful events are all annual partners with the District.

The District did not have significant opportunities to provide recycling assistance at local events in 2020. Due to the pandemic, many events were cancelled or severely limited.

In 2021, significant quantities of cardboard were generated at the Butler County Fair during weekly COVID vaccine clinics. The District supported weekly cardboard recycling collection at fairgrounds throughout 2021. Several communities continued to offer recycling collection at large attendance events (Fairfield's Groovin' on the Green, Hamilton's Marcum Park summer concert series, Middletown's Broad street Bash). The recycling collection infrastructure/collection hardware was provided by the District.

Target for Next 5 Years: Continue throughout the planning period.

Name	Start Date	End Date	Goal
School Recycling Enhancement Program	2017	Ongoing	2

This program focuses its efforts on providing technical assistance to set up recycling in school classrooms, cafeterias, teacher workrooms with an emphasis on educating students, faculty, and kitchen personnel about how to recycle, including presentations with faculty, administrators, and students.

In 2017, recycling containers, signage, and technical assistance was provided to Creekview, Miller Ridge and Amanda Elementary Schools in Middletown City School District. The District assisted Fairfield Senior High School with an end of the year locker clean out project, designed to help students reuse school supplies that were gently used as an alternative to recycling/disposing.

The District provided recycling containers and signage to Fairfield South Elementary in early 2018. Throughout the summer 2018, the District conducted a comprehensive waste audit of Talawanda School District: three elementary schools, one middle school and Talawanda High School. The District provided updated recycling containers and signage in classrooms, breakrooms, teacher workrooms, and cafeterias. Updated recycling communications with the Talawanda logo were also supplied to be used in digital/electronic formats to inform students and staff about how to recycle. The stadium was outfitted with new recycling units to be paired with trash containers. The District collaborated with faculty, communications staff, and facilities managers at Talawanda to achieve this program.

The District procured recycling containers for Monroe Elementary School and John XXIII Elementary School for indoor/outdoor placement in 2019. The District also met with the Environmental Club at Cherokee Elementary to discuss recycling and learn about their original recycling prototype that will be entered into a regional competition.

In 2020, the District met with Monroe Local Schools to discuss updates for their recycling program at the high school and junior school cafeterias. The District also provided recycling signage to John XXIII School in Middletown.

The District collaborated with a teacher/student team for updates in signage, collection containers, and capacity building to Monroe Jr/Sr High School campus, cafeteria, and stadium in 2021.

Target for Next 5 Years: Continue to work with school campuses to expand to stadiums and ensure containers are right sized for crowd events.

Name	Start Date	End Date	Goal
School/Business Drop-Off Recycling Program	2018	Ongoing	2

The District assists schools and businesses with drop off recycling programs and provides bins for collection.

In 2018, the District assisted Edgewood and Hamilton High schools with recycling drop box service to support ongoing participation in recycling at these large campuses.

The District expanded this program in 2019 and purchased customized recycling containers featuring company branding, and embedded recycling content for several companies including Tyson Foods, Mondelez, iMFLUX, Butler Rural Electric Cooperative, Butler County Water & Sewer, PAC Worldwide, WestRock, and others.

There was no activity with this program in 2020, but in 2021 the District added recycling boxes and service to Monroe High School to meet growing demand/increase in materials.

Target for Next 5 Years: Continue throughout the planning period.

Name	Start Date	End Date	Goal
513 GREEN Program	2023	Ongoing	2 and 4

The District and Hamilton County R3Source together with neighboring solid waste districts are collaborating to advance 513 GREEN certification for interested industries and businesses. 513 GREEN strives to provide businesses with a standardized set of sustainability criteria on which to measure progress. The solid waste districts work with businesses to support these steps, evaluate progress, and provide certification and company recognition. This program is also available to the industrial sector.

Target for Next 5 Years: Partner and provide assistance/certification of at least one local business in Butler County annually.

Industrial Sector Reduction and Recycling Programs

Name	Start Date	End Date	Goal
Industrial Technical Assistance	Ongoing	Ongoing	3 and 4

Technical assistance is provided to businesses, industries, and institutions. Technical assistance includes waste assessments, education, in-person meetings, presentations, etc.

The District works with industrial businesses to establish or improve recycling from said businesses. The District typically supplies recycling bins, signage customized for the business, and guidance on launching a recycling program. The District worked with four businesses in 2017, and three in 2018, one of which had a large employee base of 850 people. In 2019 the District provided technical assistance to six industrial businesses, providing recycling infrastructure at the sites. The COVID-19 pandemic restrictions and guidelines prohibited the District from providing any technical assistance in 2020. In 2021, the District met with specialty recyclers and sustainability specialists at two businesses and provided financial assistance for new recycling infrastructure.

Target for Next 5 Years: Continue throughout the planning period.

Restricted & Difficult to Manage Waste Programs

Name	Start Date	End Date	Goal
Curbside Freon Application Collection	Ongoing	2021, will explore options and consider re-instating	1 and 2

The District previously offered curbside freon appliance collection. This “on-demand” service provided freon evacuation and the unit was removed from the curb or driveway of resident’s homes at no charge. Appliances recycled through the curbside appliance collection included refrigerators, freezers, dehumidifiers, and air conditioners. Service was available seven months (April – October) of the year with a limit of two appliances per household. The District contracted with a recycler to manage the appliances.

The District collected 847 freon containing appliances in 2017 totaling 75 tons. In 2018, the District collected over 100 more appliances, 957 total, but the total weight dropped to 55 tons despite the increase in volume. A minimal increase in tons collected in 2019 to 56 tons. 1,076 households participated in the Freon Appliance program in 2019. In 2020 despite COVID restrictions, the District collected 53 tons from 734 households.

In 2021, the District sought bids for continuing contracted service but found vendor cost more than doubled. After exploring all vendor options, the decision was made to discontinue because the costs exceeded the budgeted allowance.

Target for Next 5 Years: The District cannot continue with the program offered as historically implemented. In 2024, the District plans to explore options for curbside appliance collection service opportunities possibly one day a week service in a limited area. The goal is to evaluate how to bring the service offering back in a cost effective manner.

Name	Start Date	End Date	Goal
Household Hazardous Waste Program	1994	Ongoing	2 and 5

The District has historically offered Household Hazardous Waste (HHW) drop off programs since before 2007. Collection is available at least four consecutive months a year for one day a week. The District provides convenience to working families by offering service from afternoon to early evening.

The District offers the HHW collection program at no cost to households. The HHW processor is located in Butler County, and residents drop off materials at the HHW facility. This opportunity is available every Thursday from 2-7pm from July through November. A variety of HHW materials are accepted including oil-based paint, antifreeze, gasoline, pesticides, fertilizers, cleaners, batteries, propane, mercury thermometers, and more.

In the reference year (2021) the District collected 51 tons of HHW material from the program. Approximately 2,200 households used the service in the reference year.

Target for Next 5 Years: The District will continue to offer a semi-permanent HHW drop off option for residents. The District will also continue to monitor the collection data for participation, tonnages, and costs.

Name	Start Date	End Date	Goal
Lead-Acid Battery Program	1994	Ongoing	2 and 5

Locations where residents may dispose of lead-acid batteries are listed on the District's web page. The District also accepts lead-acid batteries at HHW collection events.

The LAB program was a separate program in 2017 when the District collected one ton of lead-acid batteries. This program merged with the HHW collection program in 2018.

Target for Next 5 Years: Continue throughout the planning period.

Name	Start Date	End Date	Goal

Scrap Tire Collection Program	1995	Ongoing	2 and 5

Locations that accept waste tires are listed on the District's web page. In addition, the District provides a one-day Waste Tire Amnesty Day for households to dispose of unwanted tires at no charge.

In 2017, 2018, and 2019 the District collected 97 tons, 134 tons, and 135 tons of scrap tires, respectively, at the annual Waste Tire Amnesty Day collection event. In 2020, the District hosted this event but also partnered with Madison Township to offer tire drop off at two locations: Ross High school and Madison Jr/Sr High school. Participation at the tire collection event grew 30% year and the District collected 206 tons from the event and drop-off sites. The District collected 135 tons from 634 residents at the annual waste tire collection event in 2021.

Target for Next 5 Years: The District will continue to look for partnership opportunities to increase scrap tire recovery. The program will continue throughout the planning period.

Name	**Start Date**	**End Date**	**Goal**
Electronics Collection Program	2018	Ongoing	2 and 5

The District maintains a list of outlets that accept E-waste year round and distributes educational information to households. In 2018 the District launched its electronics collection program, available for three months a year typically in the late summer or early fall. The program accepts tube and flat screen TVs, monitors, computer tower, laptops, printers, fax machines, scanners, cell phones, batteries, calculators, video game consoles, DVD players, computer peripherals (keyboard, mice, speakers). One scrap processor in Butler County partners with the District to provide households with one day per week drop-off E-waste.

In the first year the program was offered, 2018, the District collected 55 tons of E-waste from 957 households during the month-long drop-off event in September. The following year in 2019, the District collected 51 tons from 815 households who participated in the September E-waste drop off, which was offered Tuesday, Thursday, and Saturday at Cohen/Cobalt. In 2020, 952 households participated in the September E-Waste Drop Off program at Cohen/Cobalt at two locations: Hamilton and Middletown. In 2021, the District expanded the length of opportunity for electronics to be dropped off. The program was offered every Friday, August through October at Cohen/Cobalt at both Hamilton and Middletown locations. Approximately 1,568 households brought electronics for recycling for a total of 76 tons in 2021.

Target for Next 5 Years: The District will continue the program through the planning period and will continue to offer electronics collection for at least one month of the year. The District will continue to monitor the costs of the program evaluating costs and need for

providing this service offering more than one month a year. The expanded opportunity available for three months tracked greater participation and increased diversion.

Name	Start Date	End Date	Goal
Food Waste Management Program	2023	Ongoing	2 and 5

Organics are difficult to manage due to the costs associated with inadequate local infrastructure for commercial composting.

The lack of commercial recycling infrastructure in southwest Ohio and the high cost of transporting organic material to compost facilities prevented many businesses and institutions from initiating food waste diversion programs. Efforts were made in 2017 in the region to survey organic and food waste generators to determine quantities of available material in the region to support an anaerobic digester or other infrastructure and future investment.

The District does not have centralized, in-District infrastructure to divert food waste from landfills such as Class II facility, anaerobic digester, etc. The District will use approaches for decentralized food waste management through community gardens, in-vessel digesters, etc. as needed. SWACO has a food waste drop-off program that program has performed well. The District is interested in learning more about this program and will make an effort to reach out to SWACO to explore the challenges and success they have seen with this program.

Target for Next 5 Years: The District will explore how other solid waste management districts handle food waste recovery and diversion. Using the findings, the District will look to implement similar strategies in Butler County.

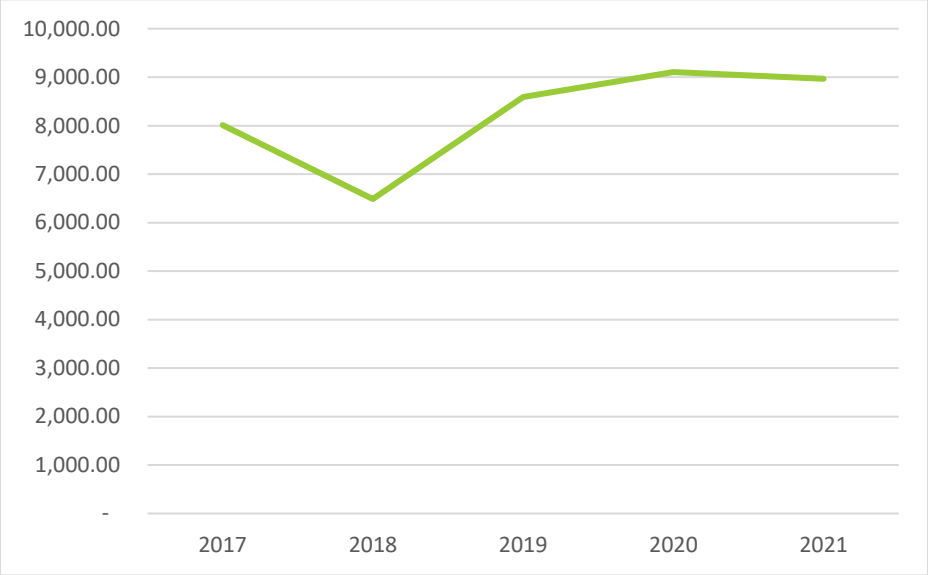
Name	Start Date	End Date	Goal
Yard Waste Collection Program	Ongoing	Ongoing	2 and 5

The District does not fund or operate yard waste management collection or facilities. Haulers in the District do not offer separate yard waste collection hauling. The Public Works Departments in the municipalities of Fairfield and Oxford provide separate curbside yard waste collection hauling for residents. The Public Works Departments in the municipalities of Fairfield, Hamilton, Oxford, and Trenton provide separate curbside leaf collection hauling for their residents. In addition, the City of Fairfield operates Operation Dump Truck to collect quantities of brush and limbs too large for the city's curbside pickup service. The District actively promotes the curbside leaf collection program and the collection schedule to communities with access to those convenient curbside programs. There are four in-district registered compost facilities. All four of these are public sector owned facilities and are not available for public use. The District's

website guides residents to the city, village, and township websites for information about their programs.

The District reported 8,232 tons of yard waste recovered on average annually from the various sources of yard waste collection. Figure I-4 below details the annual yard waste collected.

Figure I-4 Historic Yard Waste Collected



Target for Next 5 Years: Continue throughout the planning period.

Grant Programs

Name	Start Date	End Date	Goal
Business and Institutional Recycling Grant Program (previously Business Recycling Grant Program)	Ongoing	Ongoing	2

Business and Institutional Grants are offered to businesses, government entities, non-profit organizations and education institutions interested in implementing a new recycling program or improving an existing program to support long-term recycling goals. Grants are awarded on a competitive basis. The District gives priority for grant funding based on the following criteria:

- Demonstration of Need – Applicant clearly defines funding need.
- Strength of Program – Proposed activities are innovative and attempt to enlist new behavior.
- Evaluation – Applicant has the means and mechanisms for tracking results and measuring success.

- Sustainability – Applicant demonstrates a commitment to long-term recycling.

In 2017, $9,000 in recycling supplies and technical support was provided to the following five industries: Trade Global, Howden Fan, Pacific Industries, Graphel and Quality Gold. The District also provided supplies and signage to two Middletown elementary schools, and Fairfield High School. Recycling containers were provided to Oxford Seniors, Social Security Administration and Living Waters Ministry.

In 2018, the District provided technical guidance, signage, and recycling collection containers with a value of $6,800 to Pacific Manufacturing, Graphel Corporation, and Barnes Aerospace for onsite recycling at their facilities. The District provided grant funding to purchase recycling containers and signage for Talawanda Schools totaling $5,400. The District also assisted Hamilton and Edgewood Highschool with recycling service costs of $1,800.

In 2019, the District provided technical guidance, signage, and customized recycling collection containers with a value of $20,360 to Tyson Foods, iMFLUX, WestRock, Mondelez, PAC Worldwide, Butler Rural Electric Co-Op, MillerCoors, and the Butler County Water & Sewer plant. Monroe Elementary and John XXIII Elementary received a grant with a value of $2,775.

In collaboration with four other southwest Ohio solid waste districts, USEPA awarded $40,000 to support Food Waste Reduction in the region in 2020. The funds will support a 2-year technical assistance grant with the Center for Ecotechnology (CET), a Massachusetts based nonprofit. Butler County institutional and commercial partners in the Food Waste Reduction grant include Jungle Jim's International Market, 80 Acres Farm, SugarCreek, Miami University and Shared Harvest Foodbank. The District provided $10,664 in recycling grants to Butler DD, West Chester Boys & Girls Club, and the City of Fairfield Parks for customized recycling containers in their facilities.

In 2021, the District continued to work in collaboration with four other southwest Ohio solid waste districts on the USEPA awarded Food Waste Reduction grant. This is the second and final year the funds were used to support the technical assistance with the Center for Ecotechnology consultancy. The District provided $8,373 in grant support to purchase recycling collection containers and signage at Monroe Sr. High School, Finn Corporation, Telhio, and Crimson Cup.

Target for Next 5 Years: Continue throughout the planning period as long as funding permits.

Name	**Start Date**	**End Date**	**Goal**
RecycleOhio Grants / Ohio EPA and Others	2021	Ongoing	2

The District serves as a resource to businesses seeking funds for equipment to expand diversion and close the loop in recycling. The District assists with grant writing and serves as the pass-through agency for grants received.

In 2021, the District was awarded $272,000 in RecycleOhio state grant funding for market development to support two Butler County material processors, Rumpke Recycling (New Miami tire recycling facility) and Royal Paper Stock (West Chester). The grant funds will make possible up to five new full-time employee positions.

Target for Next 5 Years: Continue throughout the planning period.

Other Programs

Name	Start Date	End Date	Goal
Roadside Litter Collection	Ongoing	Ongoing	NA

Since 2002 work release prisoners from the county jail conduct collection of roadside litter with supervision by a Butler County Sheriff's deputy. The program operates 10-20 hours a week with the crew patrolling townships roads and collecting litter. Any materials that can be recycled are recycled, in addition to collecting roadside litter. The Sheriff's Department also helps support the District's efforts to educate the public about state litter laws with the goal of decreasing litter within Butler County. The number of road miles serviced, the number of parks served, bags of trash, tires, etc. collected and total hours worked by employee and community service worker are recorded annually by the Sheriff's office.

In 2017, this program logged 487 hours cleaning 252 miles of roadways within the District. The program recorded nearly 13 tons of trash removed from the roads. Increases were seen in 2018, about 900 hours cleaning on 380 miles of roadways collecting 11 tons. In 2019 there were nearly 11 tons collected from 498 miles of roadways.

COVID-19 limited this program in 2021 and 2022. The program collected only 6 tons and 8 tons in 2021 and 2022 respectively. In both years the District provided $500 in sponsorship funds to support community clean up events in Fairfield Township and the city of Middletown.

Target for Next 5 Years: Continue throughout the planning.

Name	Start Date	End Date	Goal
Disaster Debris Management	2014	Ongoing	NA

A Disaster Debris Management Plan was developed to identify the services and resources required in the event of a natural or man-made disaster or emergency event. Role of the District includes:

- Serve as co-chair of the Debris Management Planning Team together with county EMA officer.
- Coordinate all disaster-related debris management activities and serve as Technical Advisor to local jurisdictions during debris generating events.

Road superintendents, elected officials, and county EMA staff collaborated on this project and the Plan was completed in 2014.

There was no new activity reported on this program from 2017 to 2021.

Target for Next 5 Years: Continue throughout the planning.

Name	Start Date	End Date	Goal
Data Collection	Ongoing	Ongoing	2

The District collects data to document local diversion efforts in Butler County. Data is acquired from bi-annual surveys, commercial businesses, residential surveys, haulers, and Ohio EPA.

Target for Next 5 Years: The District will continue to collect data on diversion and will collaborate with Ohio EPA to increase the EPA's data collection efforts with big box store commercial retailers. Furthermore, the District will maintain updated contact information for staff managing commercial and industrial recycling efforts to build rapport with local businesses. The District will consider annual surveys.

The District will also explore how other Districts perform annual surveys. Specifically, the District will analyze other districts with high response rates and diversion rates to look for common best practices and methods to achieve similar results.

APPENDIX J

REFERENCE YEAR OPPORTUNITY TO RECYCLE AND DEMONSTRATION OF ACHIEVING GOAL I

Appendix J. Reference Year Opportunity to Recycle and Demonstration of Achieving Goal 1

A. Residential Sector Opportunity to Recycle

The 2020 State Solid Waste Management Plan requires SWMD's to demonstrate adequate infrastructure to provide at least 80% of the residential population in a County with convenient opportunities to recycle. The SWMD must demonstrate one of the following:

a. Demonstrate that there was adequate infrastructure in the reference year to provide at least 80% of the residential population within Butler County the opportunity to recycle.
b. Demonstrate that the SWMD will implement new and/or upgraded recycling infrastructure sufficient to provide at least 80% of the residential population within Butler county the opportunity to recycle.
c. Apply for a waiver from Ohio EPA to provide less than 80% of the residential population with opportunities to recycle.

Additionally, the SWMD must:

1) Demonstrate that the SWMD will meet the applicable standards established in the Format for the remainder of the planning period.
2) Calculate the solid waste reduction and recycling rate for the residential/commercial sector. If less than 25% in the reference year, then demonstrate achieving annual increases during the planning period in the solid waste reduction and recycling rate for the residential/commercial sector.
3) Demonstrate that commercial and institutional generators of solid waste have adequate opportunities to recycle solid waste.
4) Demonstrate that the SWMD will encourage participation in available recycling infrastructure.
5) Demonstrate that the SWMD will maintain the required infrastructure throughout the entire planning period.

Technical elements of the demonstration include:

1) Components of the residential recycling infrastructure must collect at least 5 materials from the list of materials specified in Solid Waste Plan Format 4.1.
2) The SWMD must demonstrate that the commercial sector has adequate opportunities to collect at least 5 materials from a specified list in Solid Waste Plan Format 4.1.
3) Solid Waste Plan Format 4.1 will specify the "credits" for various types of infrastructure. The amount of the credit assigned is dependent upon the type of recycling service being provided.
    - Non-Subscription Curbside Recycling: Credit the entire population of each community.

- Subscription Curbside Recycling: Credit 25% of the community population.
- Full-Time Urban Drop-off Recycling: Credit 5,000.
- Full-Time Rural Drop-off Recycling: Credit 2,500.
- Part-Time Urban Drop-off Recycling: Credit 2,500.
- Part-Time Rural Drop-off Recycling: Credit 2,500.

4) The following minimum standards apply to drop-offs:
   - Residents can easily find and access the recycling site.
   - All drop-off sites must provide a minimum of 6-cubic yards of recycling capacity.
   - There are signs that are adequate to, at a minimum:
     i. Direct the public to the recycling site or indicates the location of the site;
     ii. Lists the materials that are accepted for recycling; and
     iii. Provide days and hours of operation.
   - The SWMD has made a reasonable attempt to meet the demand of the population to use drop-off recycling sites.
5) "Credit" for infrastructure is limited to the total population of a township or city.

Table J-1. Opportunity to Recycle

ID #	Butler	2021		2024		2040	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
Non-subscription curbside							
NCS1	Fairfield City	44,562	44,562	45,271	45,271	49,247	49,247
NCS2	Hamilton City	62,947	62,947	63,948	63,948	69,565	69,565
NCS3	Middletown City	50,998	50,998	51,809	51,809	56,360	56,360
NCS4	Monroe City	15,448	15,448	15,694	15,694	17,072	17,072
NCS5	Oxford City	22,625	22,625	22,985	22,985	25,004	25,004
NCS6	Ross Township	8,346	8,346	8,479	8,479	9,223	9,223
NCS7	Trenton City	13,305	13,305	13,517	13,517	14,704	14,704
Subscription curbside							
SC1	Fairfield Township	22,651	5,663	23,011	5,753	25,032	6,258
SC2	Hanover Township	7,931	1,983	8,057	2,014	8,765	2,191
SC3	Liberty Township	43,334	10,834	44,023	11,006	47,890	11,972
SC4	Morgan Township	5,354	1,339	5,439	1,360	5,917	1,479
SC5	West Chester Township	62,408	15,602	63,401	15,850	68,969	17,242
SC6	Oxford Township	2,284	571	2,320	580	2,524	631
SC7	Reilly Township	2,669	667	2,711	678	2,950	737
SC8	Village of Seven Mile	711	0	722	181	786	196
SC9	Madison Township	8,554	0	8,690	2,173	9,453	2,363
SC10	Milford Township	3,524	0	3,580	895	3,895	974
SC11	Wayne Township	3,871	0	3,933	983	4,278	1,069

ID #	Butler	2021		2024		2040	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
SC12	Village of New Miami	2,217	0	2,252	563	2,450	613
SC13	St. Clair Township	4,228	0	4,295	Not Creditable	4,624	Not Creditable
SC14	Lemon Township	2,372	0	2,410	602	2,621	655
Full-time, urban drop-off							
FTU1	Fairfield City, Community Arts Center	44,562	Not Creditable	45,271	Not Creditable	49,247	Not Creditable
FTU2	Fairfield City, Fairfield Aquatic Center	44,562	Not Creditable	45,271	Not Creditable	49,247	Not Creditable
FTU3	Fairfield City, Grange Park	44,562	Not Creditable	45,271	Not Creditable	49,247	Not Creditable
FTU4	Fairfield City, Water Works Park	44,562	Not Creditable	45,271	Not Creditable	49,247	Not Creditable
FTU5	Fairfield Township, Fire Station	22,651	5,000	23,011	5,000	25,032	5,000
FTU6	Fairfield Township, Fire Station No. 2	22,651	5,000	23,011	5,000	25,032	5,000
FTU7	Hamilton City, Fire Station No. 1	62,947	Not Creditable	63,948	Not Creditable	69,565	Not Creditable
FTU8	Hamilton City, Fire Station No. 2	62,947	Not Creditable	63,948	Not Creditable	69,565	Not Creditable
FTU9	Hamilton City, Fire Station No. 5	62,947	Not Creditable	63,948	Not Creditable	69,565	Not Creditable
FTU10	Hanover Township, Memorial Park	7,931	5,000	8,057	5,000	8,765	5,000
FTU11	Liberty Township, Fire Station No. 1	43,334	5,000	44,023	5,000	47,890	5,000
FTU12	Liberty Township, Fire Station No. 2	43,334	5,000	44,023	5,000	47,890	5,000
FTU13	Liberty Township, Fire Station No. 3	43,334	5,000	44,023	5,000	47,890	5,000
FTU14	Madison Township, Township Administration Building	8,554	5,000	8,690	5,000	9,354	5,000
FTU15	Middletown City, Fire Station No 5	50,998	Not Creditable	51,809	Not Creditable	56,360	Not Creditable
FTU16	Middletown City, Fire Station Headquarters	50,998	Not Creditable	51,809	Not Creditable	56,360	Not Creditable
FTU17	Middletown City, Smith Park	50,998	Not Creditable	51,809	-	56,360	-
FTU18	Morgan Township, Administration Building	5,354	5,000	5,439	5,000	5,917	5,000
FTU19	Morgan Township, Shandon Fire Station	5,354	5,000	5,439	5,000	5,917	5,000

ID #	Butler	2021		2024		2040	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
FTU20	Oxford City, Miami University Culinary Support Center	22,625	Not Creditable	22,985	Not Creditable	25,004	Not Creditable
FTU21	Oxford City, Miami University Police Station	22,625	Not Creditable	22,985	Not Creditable	25,004	Not Creditable
FTU22	St. Clair Township, Administration Building	4,228	5,000	4,295	5,000	4,673	5,000
FTU23	West Chester Township, Beckett Park	62,408	5,000	63,401	-	68,969	-
FTU24	West Chester Township, Keehner Park	62,408	5,000	63,401	-	68,969	-
Part-time, urban drop-off							
	NONE						
Full-time, rural drop-off							
FTR1	Milford Township, Darrtown Hitching Post	3,524	2,500	3,580	2,500	3,895	2,500
FTR2	Reilly Township, Community Center Parking	2,669	2,500	2,711	2,500	2,950	2,500
FTR3	Seven Mile Village, Fire Station	711	2,500	722	-	786	-
Part-time, rural drop-off							
	NONE						
Mixed municipal waste material recovery facility							
	NONE						
Total County Population		391,496		397,358		427,438	
Total Population Credit		322,389		332,938		357,349	
Percent of Population		82%		84%		84%	

Note: County population adjusted per Ohio EPA Format 4.1 Guidelines (see Appendix C for explanation).

Per Ohio EPA, “credit” for infrastructure in a community is limited to the population of an entire community, up to and including the entire credit for a drop-off that would be needed to achieve providing 100 percent of the residential population with access to recycling infrastructure. In other words, once a community achieves 100% of the population recycling infrastructure credit no additional population credit can be added. Communities with non-subscription curbside recycling count for 100% of population credit. Adding additional drop-off recycling does not result in additional population credits for those areas with 100% access.

The District gathered subscription recycling numbers from two haulers, Rumpke and Republic, to analyze the percentage of population served per community. Per Ohio EPA, subscription curbside services results in credit of 25% percent of the population for the community served. According to the hauler data, the District has three subscription programs that have more than 25% of the population subscribing.

Table J-1.2 below demonstrates District's subscription recycling programs and the population reached.

Table J-1.2 Subscription Curbside Recycling Participation

Community	Population	Ohio EPA Credit Population Serviced	Population Serviced from Hauler Reports	Difference	Percent Population Serviced
Village of New Miami	2,217	-	-	-	0%
St. Clair Township	4,228	-	32	32	1%
Fairfield Township	22,651	5,663	6,069	407	**27%**
Hanover Township	7,931	1,983	1,542	(441)	19%
Liberty Township	43,334	10,834	16,687	5,854	**39%**
Morgan Township	5,354	1,339	847	(491)	16%
West Chester Township	62,408	15,602	22,274	6,672	**36%**
Village of Seven Mile	711	-	66	66	9%
Lemon Township	2,372	-	-	-	0%
Madison Township	8,554	-	24	24	0%
Milford Township	3,524	-	140	140	4%
Oxford Township	2,284	571	568	(3)	25%
Reilly Township	2,669	667	351	(316)	13%
Wayne Township	3,871	-	100	100	3%
Totals	**172,108**	**36,658**	**48,700**	**12,042**	**28%**

Source: Rumpke and Republic subscriber counts
Note: All values are for year 2022

The three services above the 25% threshold are Fairfield Township (27%), Liberty Township (39%), and West Chester Township (36%). The District was given hauler data for each service above by household participation. To calculate the number of individuals participating, the District multiplied the number of households by the US Census' record of Butler County people per household which was 2.64. The three programs above 25% of the population credit were projected in **Table J-1** through the planning period using the 2022 percent population served per hauler reports.

The SWMD demonstrates at least 80% of the residential population in the SWMD has the opportunity to recycle in the reference year and through the planning period. The data from the hauler reports results in a projected total population served of 83% in 2024 and 82% in 2040. In late fall of 2022, the District engaged with both West Chester Township and Liberty Township to explore a consortium for waste services that would include non-subscription curbside recycling. Both townships are conducting outreach engagement research via social media surveys and town hall conversations for household feedback. The District expects this engagement with township elected officials to continue with the objective to issue a competitive bid and long-term contract for combination trash and recycling collection for all resident households in Liberty and West Chester townships.

B. Commercial Sector Opportunity to Recycle

Table J-2 Demonstration of Commercial Opportunity to Recycle

Service Provider	Type of Recycling Service Provided	Cardboard	Newspaper	Mixed Paper	Steel Containers	Aluminum Containers
Rumpke	Hauler Collection	X	X	X	X	X
Republic	Hauler Collection	X	X	X	X	X
Best Way Disposal	Hauler Collection	X				

The SWMD obtains data for commercial infrastructure to meet Goal 1 from recycling services that offer collection to commercial/industrial generators throughout the county. Two of the three service providers above met the minimum material requirements: cardboard, newspaper, mixed paper, steel containers, aluminum cans.

C. Demonstration of Meeting Other Requirements for Achieving Goal 1

1. Residential/Commercial Waste Reduction and Recycling Rate

   To achieve Goal 1 the SWMD must demonstrate that the District achieved 25% residential/commercial waste reduction and recycling rate or that the District will achieve annual reduction rate increases during the planning period. Appendix K calculates the residential/commercial solid waste reduction and recycling rate for the reference year and planning period. The reference year recycling rate is 13.39%. The District is projecting future recycling rates will increase throughout the planning.

   The District has several densely populated townships where access to recycling could be provided through non-subscription curbside service. Converting those townships to non-subscription programs instead of drop-off programs will increase the diversion rate. Data analysis in Appendix H shows curbside recycling programs achieve a higher per capita diversion rate when compared to drop-off programs. As discussed in Appendix I and L the District will continue to offer technical support and stakeholder outreach to support non-subscription curbside recycling.

   The District continues to struggle with a gap in data collection from the commercial sector. It is estimated approximately 57% of recycling is attributed to the commercial sector. The District believes recycling activity is occurring without being reported. Over the years and previous Plan Updates, the District has utilized a variety of strategies for obtaining data. Despite these strategy changes, survey responses from businesses are not improving.

   The commercial diversion rate is not the only indicator of waste reduction and recycling efforts. The residential drop-off and curbside programs demonstrate recycling compliance which meets the access goal.

Butler County's leading employment sector is retail trade. The total number of retail business establishments in the county is 1,033[1]. During this planning period a targeted survey effort will be needed to capture additional commercial sector business information. Programs are described in Appendices I and L.

2. Encouraging Participation

   The District will continue to encourage residents and commercial generators to participate in existing recycling infrastructure. Appendices I and L provide more detail on education and outreach programs anticipated within the planning period.

[1] U.S. Census Bureau. County Business Patterns: 2021.

APPENDIX K

WASTE REDUCTION AND RECYCLING RATES AND DEMONSTRATION OF ACHIEVING GOAL

Appendix K. Waste Reduction Rates and Demonstration of Achieving Goal 2

Goal 2: Waste Reduction and Recycling Rates states the SWMD shall reduce and recycle at least 25% of the solid waste generated by the residential/commercial sector. This appendix demonstrates the SWMD's progress toward achieving the waste reduction and recycling rates established in Goal 2 of the 2009 State Plan.

Table K-1 below shows the waste reduction and recycling (WRR) rates for the residential/commercial sector in the reference year and projected for the planning period. The District does not meet the state's WRR goal for the residential/commercial sector for each year of the planning period.

Table K-1. Annual Rate of Waste Reduction: Residential/Commercial Solid Waste

Year	Population	Recycled	Disposed	Total Generated	Waste Reduction & Recycling Rate (%)	Per Capita Waste Reduction & Recycling Rate (ppd)
2021	***391,496***	66,324	428,988	495,311	13.39%	0.93
2022	393,450	65,125	430,140	495,265	13.15%	0.91
2023	395,404	65,221	431,296	496,517	13.14%	0.90
2024	397,358	65,316	432,455	497,771	13.12%	0.90
2025	401,142	65,502	433,617	499,119	13.12%	0.89
2026	403,358	65,611	434,782	500,393	13.11%	0.89
2027	405,574	65,720	435,950	501,670	13.10%	0.89
2028	407,790	65,828	437,122	502,950	13.09%	0.88
2029	410,006	65,937	438,296	504,234	13.08%	0.88
,2030	412,222	66,046	439,474	505,520	13.06%	0.88
2031	414,010	66,134	440,655	506,789	13.05%	0.88
2032	415,798	66,222	441,839	508,061	13.03%	0.87
2033	417,586	66,309	443,026	509,336	13.02%	0.87
2034	419,374	66,397	444,217	510,614	13.00%	0.87
2035	421,162	66,485	445,410	511,895	12.99%	0.86
2036	423,254	66,587	446,607	513,195	12.98%	0.86
2037	425,346	66,690	447,807	514,497	12.96%	0.86
2038	427,438	66,793	449,010	515,803	12.95%	0.86
2039	429,530	66,896	450,217	517,112	12.94%	0.85

Sources of Information: Data for this table is taken from the following portions of the solid waste management plan:

- Waste reduced and recycled: Appendix E, Table E-4 (for reference year) and Table E-5 (for planning period)
- Waste Disposed: Appendix D, Table D-3 (for reference year) and Table D-5 (for planning period)

- Waste Generated: Appendix G, Table G-1 (for reference year) and Table G-2 (for planning period)
- Population: Appendix C, Table C-1 (for reference year) and Table C-2 (for planning period)

Sample Calculations:

2021 Waste Generated = 2021 Waste reduced and recycled + 2021 waste disposed
495,311 tons = 66,234 tons + 428,988 tons

2021 Waste Reduction & Recycling Rate = (2021 Waste Reduced & Recycled ÷ 2021 Waste Generated) x 100
13.39% = (66,234 tons ÷ 495,311 tons) x 100

2021 Per Capita Waste Reduction & Recycling Rate = (2021 tons recycled x 2,000) ÷ 365) ÷ population
0.93 PPD = ((66,234 tons x 2,000) ÷ 365 days/year) ÷ 391,496 residents

Table K-1 demonstrates that the District does not meet the requirements of Goal 2 of the State Plan. The goal rate is 25% diversion, the District had a diversion rate of 13.39% in the reference year and is expected to decrease over the planning period.

The approved 2018 Plan Update projected the 2021 waste reduction rate would be 12.99%. The 2018 Plan Update projected waste reduction rate increasing for the last planning period The District observed increases in both diversion and disposal tonnages over the last five years. However, the diversion rate decreased because the disposal rate increased at a higher rate than diversion.

Even though attaining a specific recycling rate for the industrial sector is no longer required by Ohio EPA, the District surveyed the industrial sector and therefore was able to document the industrial sector diversion data and made projections for waste reduction.

Table K-2 shows the District's industrial sector's annual rate of waste reduction.

Table K-2. Annual Rate of Waste Reduction: Industrial Solid Waste

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Non-Recyclable Waste	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2021	***143,285***	210,221		353,506	40.53%
2022	141,729	209,233		350,962	40.38%
2023	141,063	208,249		349,312	40.38%
2024	140,400	207,271		347,671	40.38%
2025	139,740	206,297		346,037	40.38%
2026	139,083	205,327		344,410	40.38%
2027	138,430	204,362		342,792	40.38%
2028	137,779	203,401		341,180	40.38%
2029	137,131	202,445		339,577	40.38%
2030	137,131	201,494		338,625	40.50%
2031	137,131	200,547		337,678	40.61%

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Non-Recyclable Waste	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2032	137,131	199,604		336,736	40.72%
2033	137,131	198,666		335,798	40.84%
2034	137,131	197,732		334,864	40.95%
2035	137,131	196,803		333,935	41.07%
2036	137,131	195,878		333,010	41.18%
2037	137,131	194,958		332,089	41.29%
2038	137,131	194,041		331,173	41.41%
2039	137,131	193,129		330,261	41.52%

Sources of Information: Data for this table is taken from the following portions of the solid waste management plan:

- Waste reduced and recycled: Appendix F, Table F-4 (for reference year) and Table F-5 (for planning period)
- Waste Disposed: Appendix D, Table D-3 (for reference year) and Table D-5 (for planning period)
- Waste Generated: Appendix G, Table G-1 (for reference year) and Table G-2 (for planning period)

Sample Calculations:
2021 Waste Generated = 2021 Waste reduced and recycled + 2021 waste disposed
353,506 tons = 143,285 tons + 210,221 tons

2021 Waste Reduction & Recycling Rate = (2021 Waste Reduced & Recycled ÷ 2021 Waste Generated) x 100
40.56% = (143,28/5 tons ÷ 353,506 tons) x 100

The industrial waste reduction rate in the reference year demonstrates a 40.53% percent diversion. The approved 2018 Plan Update projected 2021 waste reduction rate would be 37.47%. The 2025 Plan Update projects an increase over the planning period.

To attempt to improve the WRR rate for the industrial sector for each year of the planning period, the District will implement the programs and/or initiatives detailed in Appendix I.

The combined WRR rate for residential/commercial and industrial sectors is shown in **Table K-3**. Overall, the WRR rate is projected to decrease slightly to 24.31% by the end of the planning period from 24.70% in 2021.

Table K-3. Annual Rate of Waste Reduction: Total Solid Waste

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2021	***209,608***	***639,209***	***848,817***	***24.69%***
2022	206,854	639,373	846,227	24.44%
2023	206,284	639,546	845,829	24.39%
2024	205,716	639,726	845,442	24.33%
2025	205,242	639,914	845,156	24.28%
2026	204,694	640,109	844,803	24.23%
2027	204,149	640,312	844,462	24.18%
2028	203,607	640,523	844,131	24.12%
2029	203,069	640,742	843,811	24.07%
2030	203,177	640,968	844,146	24.07%
2031	203,265	641,202	844,467	24.07%
2032	203,353	641,443	844,796	24.07%
2033	203,441	641,692	845,133	24.07%
2034	203,529	641,949	845,478	24.07%
2035	203,616	642,213	845,830	24.07%
2036	203,719	642,485	846,204	24.07%
2037	203,822	642,765	846,586	24.08%
2038	203,924	643,052	846,976	24.08%
2039	204,027	643,346	847,373	24.08%

Sources: Tables K-1 and K-2

Sample Calculations:
2021 Waste Generated = 2021 Waste reduced and recycled + 2021 waste disposed
848,817 tons = 209,608 tons + 639,209 tons

2021 Waste Reduction & Recycling Rate = (2021 Waste Reduced & Recycled ÷ 2021 Waste Generated) x 100
24.69% = (209,608 tons ÷ 848,817 tons) x 100

The District has seen increases in the total materials diverted from landfills. During the reference year of the previous plan, the District diverted about 18% of material across all sectors. In this plan's reference year, the District diverted nearly 25% of materials from landfills. The last plan projected a decrease in residential diversion, in 2021 it was projected the District would have a 12.99% diversion rate. The actual rate was 13.39%. The industrial sector was projecting a 37.47% diversion rate as opposed to the 40.53% that was observed. Both waste recycled and waste disposed has increased since the last plan's projections.

The main barrier to achieving Goal 2 is the lack of reporting from commercial and industrial business surveys. Survey responses are critical to achieving Goal 2, without proper representation of commercial and industrial recycling activity the District will not

have accurate numbers on recycling rate. Efforts are to be made to collect more data in the planning period, see Appendix H for more information. Greater diversion rates can be achieved if more data can be collected. While the residential sector can help increase diversion rates, but the greatest impact will come from the commercial and industrial sector activity.

Specific programs to target in order to increase diversion rates are as follows:

1) Data collection efforts
2) Drop-off recycling
3) Curbside recycling

APPENDIX L

MINIMUM REQUIRED EDUCATION PROGRAMS: OUTREACH AND MARKETING PLAN AND GENERAL EDUCATION REQUIREMENTS

Appendix L. MINIMUM REQUIRED EDUCATION PROGRAMS: OUTREACH AND MARKETING PLAN AND GENERAL EDUCATION REQUIREMENTS

A. Minimum Required Education Programs

In accordance with Goal 3 of the 2020 State Plan, the District is required to provide four minimum education programs:

1. A website,
2. A comprehensive resource list,
3. An inventory of available infrastructure, and
4. A speaker or presenter.

The District met these requirements in the reference year.

1. Website

Name	Start Date	End Date	Goal
District Website	Ongoing	Ongoing	3

The District maintains a website address at www.butlercountyrecycles.org. Website updates are completed on an ongoing and as-needed basis, often weekly. The webpage provides an inventory of the recycling infrastructure and serves as a comprehensive resource guide. The website offers dedicated pages to residents, businesses, special collections and available education and outreach opportunities. The website uses ReCollect Systems as a searchable database for specific materials. Recollect developed a software application which provides a customizable algorithm and searchable database for residents and businesses to search for outlets for specific materials. The District also uses Google Analytics to track visitors, most searched materials, pages visited, and more. This feature also allows residents and businesses to inform the SWMD of materials they need information about, thus, providing a two-way communication tool on the webpage. This searchable database enhances Butler County Recycles webpage as the “go to” source for recycling and reuse information for residents and businesses.

Maintaining and updating the District website is the responsibility of the District.

In 2021 the District registered over 35,665 unique visitors. The most popular searched page was "Collection Events" at 19,953 views. Nearly 60% of searches were done on mobile devices.

Target for Next 5 Years: The District’s webpage will receive an overhaul to align with Butler County branding. The webpage is housed on the Butler County Commissioners webpage and Butler County Information Services technical

assistance for the District's website. The District will continue to fine tune current features and add visual enhancements to ensure the website is current and reliable.

2. Comprehensive Resource Guide

Name	Start Date	End Date	Goal
District Website	Ongoing	Ongoing	3

The District maintains an inventory of available infrastructure on the webpage and in the District Plan (also posted on the webpage). Maintaining and updating the residential recycling guides and the guide for businesses is the responsibility of the District.

Target for the Next 5 years: Continue throughout the planning period.

3. Inventory

Infrastructure inventory can be found in the Solid Waste Management Plan Update Plan, which is updated every five years, and specific information is identified on the District's website.

4. Speaker/Presenter

Name	Start Date	End Date	Goal
SWMD Director	Ongoing	Ongoing	3

The District Director provides presentations to multiple stakeholder groups when needed Presentations include, school administrators and faculty, businesses, elected officials, and community groups.

Target for the Next 5 years: Continue throughout the planning period.

B. Outreach and Education – Outreach Plan and General Education Requirements

As the 2020 State Plan prescribes, each District will provide education, outreach, marketing, and technical assistance regarding reduction and reuse through an outreach and marketing plan. Per *Format 4.1*, the Outreach and Marketing Plan requires the following components:

- Address five target audiences such as residents, commercial businesses, industrial businesses, schools/institutions, and elected officials.

- Follow basic best practices when developing and selecting outreach programs.
- Select an outreach priority and provide education and outreach programs to all appropriate audiences in the context of the priority using social marketing principles and tools.

The Outreach and Marketing Plan must demonstrate these best practices:

- Demonstrate how District will address all five target audiences.
- Explains how the District will align its outreach and education programs with recycling opportunities (both existing and needed).
- Explain how the District will incorporate principles and tools for changing behavior into the outreach and marketing plan.

Outreach and education are essential components to the success of a recycling program. Strategic communications campaigns provide some of the most powerful results in creating position behavior change. See Appendix H for the evaluation of the programs. The District's outreach and marketing plan uses print communications, electronic media, and in person outreach methods.

To align with *Format 4.1*, the District's existing programs were organized by target audience or general customer groups. Education and outreach programs and activities can also be grouped by type of waste (HHW, Scrap Tires, etc.); by desired behavior outcome (waste prevention, recycling, reuse, etc.); and by outreach venues (community events, workshops, etc.).

1. Audience: Residents

Name	**Start Date**	**End Date**	**Goal**
Social Media	Ongoing	Ongoing	Goal 4

The District maintains a Facebook page and keeps content up to date with seasonal and special event info. Inquiries occur periodically via Facebook messenger and the District responds directly to disposal and recycling queries. During collection events the District attempts to make weekly posts. The Facebook account has over 400 followers.

The District posts information regarding special event programs and seasonal recycling opportunities such as: HHW collection, scrap tire collection, medication drop off, etc.

Target for Next 5 years: The District website has more activity from visitors than the District's social media outlets. However, the District realizes the opportunity to grow its audience will come from increasing followers on social media. To improve the District outreach, a goal to increase followers by five percent over the next three years is planned. To accomplish this the District will research social media campaigns and the feasibility of conducting a campaign. A partnership with Miami

University's department of communications and marketing could design a plan and participate in implementing the campaign. Many cities and townships use Twitter and Nextdoor App. These apps have the potential to increase followers and audience share. The District will explore these options in the next one to three years (short-term strategy).

Name	Start Date	End Date	Goal
District Program Promotions	2018	Ongoing	2, 4, and 5

The District website is updated frequently to announce upcoming events and seasonal programs serving residents and businesses. Print materials are distributed to all political subdivisions and to attendees at summer festivals and fairs. The District also uses the following media outlet for distributing information regarding services and opportunities:

- Facebook
- Direct mail
- Utility bill inserts
- Flyers
- Newspaper advertisement/ digital and print formats
- Community newsletters
- Website

In 2017 and 2018 print materials were distributed to all political subdivisions and to attendees at summer festivals and fairs on the following topics: Freon Appliance Collection, Latex Paint Management Guide, Computer & Television Recycling, and Recycle Right - a flyer/guide to residential recycling.

In 2019, a direct mail utility bill insert was sent to 92,000 households in Butler County announcing details for the HHW and Freon Appliance Collection programs. Print materials were also sent to all political subdivisions and shared with attendees at summer festivals and fairs on the following topics: Latex paint management, Freon Appliance Collection, Computer & Television Recycling Program.

Print flyers promoting the District's special collection programs were distributed to area subdivisions, and local utility companies in 2020 including Butler Co. Water & Sewer, Butler Rural Electric, and Hamilton utility customer service desk.

In 2021, the District printed and distributed 2 bill inserts featuring an HHW disposal option and an E-Waste/Freon memo to 91,000 households in Hamilton, Fairfield, Monroe, Oxford Trenton, and to Butler County Water & Sewer customers. Special collection program announcements were featured in newsletters/magazine for Southwest Regional Water customers, and Butler Rural Electric Coop members. The District developed a trifold brochure specifically for the West Chester community. Print and digital advertising campaigns took place throughout the summer through the Journal-News.

Target for Next 5 years: When possible QR codes will be used to direct audiences to more in-depth information on the webpage.

Name	Start Date	End Date	Goal
District Newsletters	Ongoing	Ongoing	3, 4, and 5

Prior to 2013, Butler County Water & Sewer allocated a portion of a full-time marketing staff to assist the District with outreach including featuring content regarding solid waste and recycling in a quarterly newsletter entitled Environmental Elements. These publications were time intensive to develop and expensive to produce and distribute. In 2013, the SWMD modified its approach and developed an e-newsletter using Constant Contact for current email contacts, usually with a report of the past year's programs, and a look ahead at recycling programs.

Since 2013, the District programs and content are featured in print and digital publications on city websites of Hamilton, Fairfield, Middletown, Madison, and Wayne Townships print newsletters as well as Butler Rural Electric Magazine. In 2021 the District featured extensive content regarding recycling and District programs in West Chester Township's April and October newsletters.

Target for Next 5 years: Continue to partner with community jurisdictions and area utilities to expand District content in media and publications.

Name	Start Date	End Date	Goal
Backyard Composting Education and Awareness	Ongoing	Ongoing	Goal 3 and 5

The District partners with the local Soil & Water Conservation District to promote composting classes to area educators and consumers. The District periodically partners with the Soil & Water Conservation District to conduct joint presentations on recycling and composting.

Target for Next 5 years: Continue through planning period

Name	Start Date	End Date	Goal
Curbside Participation Education and Awareness Program	Ongoing	Ongoing	Goal 2 and 4

Formerly called the Curbside Creation/Enhancement Outreach Program. Elements of the old program fused with this program. It is designed to increase curbside recycling participation and spread awareness on how to properly recycle. The District uses many strategies to implement this program.

In 2017 and 2018, The District promoted curbside recycling "Do's and Don'ts" in the Recycle Right flyer to participants at high attendance events such as Butler County Fair, Race for Global Water, Keep Middletown Beautiful Spring Clean Up Event, Fairfield Township Clean Up Event, Wayne Township Spring Clean Up. In

2018 the District also partnered with Miami University office of community engagement to provide over 1,000 flyers about curbside recycling available to off campus student residents in rental houses and apartments.

In 2018, The District engaged in an intensive curbside recycling anti-contamination campaign in partnership with the City of Fairfield & Rumpke Recycling. Ohio EPA and The Recycling Partnership provided grant funding for the outreach program impacting over 42,000 residents. The District promoted curbside recycling "Do's and Don'ts" in the "Recycle These" flyers to participants at high attendance events such as Butler County Fair, Keep Middletown Beautiful Spring Clean Up, Fairfield Township Spring Clean Up, Wayne Township Clean Up.

In Spring 2021 the District in partnership with Liberty Township, West Chester Township and Rumpke Recycling mailed a special curbside recycling promo to 15,000 "trash only" customers to offer the first 3 months of curbside recycling at no charge. The curbside promo resulted in 409 households signing up for curbside recycling.

Target for Next 5 years: Outreach and direct mail will be included as part of a West Chester and Liberty Township trash and recycling consortium. Planning is underway to contract for residential service with combination service expected to begin in early 2025.

Name	Start Date	End Date	Goal
Resident Outreach	2017	Ongoing	1, 2, and 4

In 2018 the District worked with Rumpke to develop a uniform set of recycling images, and content to inform residents about what to recycle in curbside and drop off recycling. A special focus was allotted to contaminants commonly found in recycling yields, plastic grocery bags, batteries, etc. This content was distributed in print and digital format to local jurisdictions. The District monitored curbside and drop off recycling data and held meetings with Fairfield and Liberty Townships to engage officials in improving recycling curbside service. Messages were placed on the District homepage to emphasize recycling right with links to supporting documents.

The District continued to collaborate with Rumpke Recycling in 2019 and also added partnerships with other Districts in the region to promote know-how about household recycling. For America Recycles Day, Butler County teamed up with Rumpke and Local 12 News for 4 hours at the Fairfield Aquatic Center to answer questions about recycling and generate awareness about what does and doesn't belong in recycling.

In 2020 the District participated in the city of Fairfield's Festival of Trees and decorated a Christmas tree with ornaments made from upcycled materials. Since 2019, the District promotes holiday light recycling at Metroparks in partnership with

Cohen. Light drop-off is available inside designated park areas from November to January.

The District partnered with Rumpke Recycling in November 2020 to plan outreach to educate consumers about No. 5 Plastics Tubs - such as yogurt, margarine, and cottage cheese containers with lids. Efforts were made to align graphic content/images and messages in our region to promote new materials accepted in curbside recycling - effective January 1, 2021. The District updated "Recycle These" flyers with the new materials and uploaded these to the District website. The District partnered with West Chester Township in 2021 to develop a series of educational videos which aired throughout the summer about how to recycle right when recycling at home, and at the community recycling drop box.

The district developed all education/outreach materials in Spanish language to reach underserved populations in the city of Hamilton's diverse neighborhoods.

Target for Next 5 years: Single hauler dominance makes material collected education consistent. Rumpke announced their curbside material list is again expanding. The District is prepared to collaborate with Rumpke to update collateral and educate households. The District expects this to occur in the next one to three years (short-term strategy).

Name	Start Date	End Date	Goal
Electronics Recycling Information	2018	Ongoing	1 and 2

The District provides a print/digital flyer listing year-round outlets for E-waste, including televisions. The flyer lists Butler County's residential E-Waste Recycling Program at Cohen Hamilton and Middletown. The content is distributed to area subdivisions, at public events, and electronically through local news channels.

Target for Next 5 years: Continue throughout planning period.

Name	Start Date	End Date	Goal
Scrap Tire Information	2018	Ongoing	1 and 2

The District directs residents to manage scrap tires at the annual Waste Tire Amnesty Drop Off event through flyers, and print/digital advertising. Residents are also directed to the Hamilton Transfer Station or to return waste tires to retailers when purchasing new tires.

Target for Next 5 years: Continue through the planning period.

Name	Start Date	End Date	Goal
Lead Acid Battery Information	2018	Ongoing	1, 2, and 4

The District directs residents to bring LABs to the HHW program or return LABs to retailers. Battery disposal information is searchable on the District's website and there is a flyer with guidance for battery disposal also on the website.

Target for Next 5 years: Continue through the planning period.

2. Audience: Schools

Name	Start Date	End Date	Goal
School Outreach	2017	Ongoing	1 and 2

Obtaining top-level support from school administration, operation and maintenance staff, and custodial staff has been the main focus of school outreach. The District provides technical assistance and presentations to schools upon request.

The District provided recycling technical assistance and collection supplies to three Middletown Elementary Schools - Amanda, Miller Ridge, Creekview and to Fairfield High School in 2017.

In 2018, the District conducted a comprehensive waste and recycling assessment of Talawanda School District. The effort engaged stakeholders from administration, building maintenance, and key faculty. The update to the high school, middle school and three elementary buildings included new recycling bins, custom signage using the Talawanda logo, digital messages to promote recycling in school newsletters and announcements. The final phase involved upgrading recycling at the stadium to include new recycling carts to pair with existing trash receptacles. Talawanda Schools serve over 3,000 students.

In 2019, the District assisted Monroe Elementary School expand their recycling program with purchase of recycling bins; and assisted John XXIII Elementary School (Middletown) with new recycling containers, signage, and messaging inside and outside the school facility.

In 2020, with uncertainty around school schedules due to the pandemic, most District recycling outreach activities were on hold. Recycling signage and recycling containers were purchased and distributed, but limited access to school buildings reduced activities.

For the first half of 2021 the District had limited contact with area schools. With pandemic restrictions and many schools operating with hybrid /online classes, visits to schools were not possible. In fall 2021, site visits resumed with Monroe schools and several planning sessions took place to prepare for an update to the recycling program, including food donation, new recycling containers, improved

signage, and outdoor recycling for the stadium. Activity will continue into 2022 with the Monroe student green team.

Target for Next 5 years: Over the next three to five years (mid-term strategy), the District will work on connecting with past audit and grant recipient schools to survey how programs are working. High School stadiums are an opportunity area that will be explored to see how best to expand recycling in stadiums during events. Additionally, the District will look for expanded education opportunity messaging at sporting events such as stadium billboards.

3. Audience: Industries

Name	Start Date	End Date	Goal
Industry Outreach	2023	Ongoing	1, 2, 4 and 5

The Ohio Materials Marketplace is an online resource for finding outlets for unwanted surplus materials, and source specific types of materials that are needed. This resource is listed on the District's webpage.

In conducting recycling surveys, the District updated its list of industrial business contacts which will be maintained and updated annually. With the updated list the District will offer promotion of services including the Southwest Pollution Prevention (P2) summer internship. District collateral could be digitized making it an available online resource for industries. Another opportunity the District will explore is connecting local businesses and economic partners to determine the desire for materials management and reporting. The District expects this to occur in the next one to three years (short-term strategy).

The policy committee industrial member also serves as a liaison to bring industrial assistance requests to the District.

4. Audience: Institutions & Commercial Businesses

Name	Start Date	End Date	Goal
Business Outreach	2023	Ongoing	1, 2, 4 and 5

The District provides a variety of services to assist small businesses with recycling technical assistance and grants as described in Appendix I. The one-on-one direct contact is beneficial for implementing recycling programs at businesses. However, for further outreach the educational materials for businesses such as how to set up a recycling program will be converted to digital to add to the website.

The District website provides information about using the Ohio Materials Marketplace exchange program.

It was explored whether retailer specific diversion collateral that is meaningful to the retailer for instance, clothing retailers will have different needs than grocery stores, would be useful. The District feels this should be further explored as a regional initiative. The District expects this strategy to be long-term and occur around the fifth planning year, though conversations with regional Districts may begin beforehand. The emergence of the Recycling & Reuse Hub in Cincinnati presents unique opportunities to assist businesses with recyclable material. The District will use its network to connect businesses with goods they seek to repurpose / recycle to available outlets.

5. Audience – Communities & Elected Officials

Name	Start Date	End Date	Goal
Township Trustee Outreach	2017	Ongoing	1, 2, 4 and 5

The District provides timely communications with township elected officials through the Township Trustee Association which meets throughout the year.

The District met separately in September 2018 with officials from Liberty and Fairfield Townships to explore options for bidding and contracting curbside recycling. Fairfield Township has experienced ongoing issues with nuisance trash at recycling drop off site at Shaffer Run Park. Liberty Township also sought to explore available scenarios for residential service.

In 2019, the District met with officials from Morgan Township to offer bidding/contract assistance with the goal of providing all households with curbside recycling. There was strong community opposition to contracted recycling services and officials decided against bidding. As an alternative, curbside recycling promotions were offered with the first 3 months of recycling funded by Butler County to enlist more households in curbside recycling. A similar promotion was offered to Milford Township residents in 2019. The District continued discussions with officials in Liberty and Fairfield Townships about opportunities to bid/contract for curbside recycling service. Significant obstacles prevented the District from moving contracted services forward, specifically lack of unanimous support from elected trustees for contracted recycling service.

In 2020 and 2021, the District met with elected official of Liberty and West Chester townships to explore curbside recycling. Outreach assistance included developing direct mailers, township website content, township digital newsletter content, and social media.

Target for Next 5 years: In 2023, conversations with elected officials of Liberty and West Chester Township are continuing to explore a consortium for trash and recycling services. The District gave a presentation at a joint township work session to explore contracting service scenarios. Conversations are advancing with the District facilitating the bid process and public information and

communication. The District will continue to work with both townships and other townships to advance residential contracted service.

Townships request the District review the feasibility of restarting the curbside freon appliance recycling program. Townships are beginning to see appliances left on roadsides and creating a nuisance and hazard. The District will consider a pilot program where in the District can measure cost control and demand. The District expects this to occur in the next one to three years (short-term strategy).

Name	Start Date	End Date	Goal
City Council Outreach	2017	Ongoing	1, 2, and 4

The District provides timely communications with City elected officials which meets throughout the year.

The District met with local city councils from January to April in 2018 to advance approval of the District Plan Update and discussed recycling outreach, special collection programs and ways to improve residential recycling. Follow up included meeting with Hamilton's 17Strong Neighborhood coalition and partnering with Rumpke to update recycling messages and content. Outreach to the city of Fairfield took place in December and a commitment to participate in an intensive outreach campaign supported by The Recycling Partnership was secured.

In 2019, the District worked closely with city of Fairfield officials, including the city manager, communications director, Fairfield's Environmental Commission, and Rumpke Recycling to conduct an intensive 5-week recycling outreach campaign. Planning and implementation time for this grant funded outreach took place from April to October. The District reached over 42,000 residents and reduced contamination in recycling from 23% to 11%.

In 2020, the District showcased upcycled materials as part of the city of Fairfield's Festival of Trees and promoted Recycling Right at this event. The District partnered with Keep Middletown Beautiful to distribute recycling information to volunteers and residents engaged in the city's annual clean up event.

Target for Next 5 years: Multi-family (apartment and condominium community) recycling remains a challenge. The District will reach out to city officials to review policy that would require haulers to provide service to multi-family complexes, including locating a drop-off at or near a multi-family complex. These conversations are an excellent opportunity to explore the District’s grant resources for expanding infrastructure to multi-family. The District expects this to occur in the next one to three years (short-term strategy).

D. Outreach Priority

Over the current planning period the District elected to overhaul its outreach campaign to put increased emphasis on underserved populations or sectors to create a more diverse community of recyclers in Butler County. Underserved populations or sectors include African American populations, Hispanic populations, lower socio-economic populations, multi-family housing units, and local small businesses. As discussed in Appendix H, the District's population is increasing in minority populations over the last decade and is simultaneously noting a large majority of recyclers are of higher socio-economic status who own homes. The District will make efforts to ensure all residents of Butler County can recycle in an economically feasible, and accessible manner. With a high rate of development in the District and waste disposal projected to increase, the District will place increased emphasis on multi-family housing and underserved population recycling in this planning period.

The District's outreach goal is to begin collecting data on the demographics of residents who use District owned facilities in order to develop an understanding of the groups of people that recycle versus those that do not.

Goal/Purpose: To reach underserved population or sectors. The District is uncertain the current programs are reaching all audiences. The District's outreach objective during this planning period is to create economically feasible, and accessible diversion programs.

Target Audience: The target audiences for the outreach campaign include households (or residents). The campaign aims to engage these groups to understand barriers to participating in diversion programs.

Strategy: The outreach campaign aimed at households (residents) will involve the creation of a robust outreach and communication strategy. This strategy is designed to achieve several objectives, including establishing a baseline, understanding barriers, developing strategies for overcoming barriers, creating best practices which are adoptable, and increasing diversion. The following components of this strategy will be emphasized:

- **Establish a Baseline**: Obtain baseline year metric of program data which includes population data, ArcGIS economic data, etc.
- **Understand Barriers**: Recruit households in underserved areas to participate in a focus group. Facilitate the focus group to establish a baseline of barriers.
- **Develop Strategies to Overcome Barriers**: Work with the focus group to develop strategies to overcome barriers.
- **Call to Action:** Clearly define specific actions that households should take to participate in diversion programs.

- **Setting Measurable Communication Objectives:** Clearly define measurable goals and outcomes to assess the effectiveness of the campaign.
- **Planning Tactics and Timelines:** Develop a strategic plan outlining the methods and timelines for the campaign's implementation.

Milestones: The campaign will achieve its goals through the following milestones:

1. **Development of Focus Groups - FY 2025 QTR 1:** Work with Miami University undergraduate or graduate students to recruit and assist in facilitating focus groups to understand barriers to diversion in underserved populations in Butler County.
    a) *Metrics:* Utilize ArcGIS mapping to map environmental justice neighborhoods, low-income, and marginalized neighborhoods.

2. **Develop Strategies to Overcome Barriers - FY 2025 QTR 3:** Through focus group discussions develop strategies to overcome barriers.
    a. *Metrics:* Measure baseline recovery.

3. **Develop Outreach Campaign - FY 2025 QTR 4:** Redesign outreach material to best fit the behavior change messaging.
    a. *Metrics:* Measure all campaign media engagements methods of delivery, and increased recycling rate numbers.

The District is presenting a simple outline plan as presented below.

Target Audience: Residents	**Tactic**	**Deliverable**	**Metrics**
Program: Outreach with Focus on Diverse or Underserved Populations Goals: Equity and inclusion in recycling programs and measured participation. **Problem:** What are the barriers to recycling	Build a baseline of participation demographics over 2 years prior to implementing strategy.	FY 2023 through 2025	Begin tracking demographic participation for special collection programs (HHW, E-Waste, Tires) effective in 2023 and will continue this tracking activity through 2025
	Develop an outreach plan to encourage recycling across all demographics with a focus on diverse or underserved populations. Plan to engage Miami University to assist with developing a plan and assist in conducting baseline research.	FY 2025 QTR 1	
	Transition messaging from “awareness” to specific information of what to recycle	FY 2025 QTR 1 and QTR 2	Target reaching 25% of the underserved population areas mapped using

Target Audience: Residents	**Tactic**	**Deliverable**	**Metrics**
across all demographics in Butler County.	and behavior change messaging. Collect data from audience, possibly using focus groups. Deploy novel strategies targeting community gathering spots (local ethnic food markets, churches, and school buildings serving the targeted communities) as well as identifying neighborhood leaders to amplify the recycling message.		census underserved community data. Track number of groups reached. Track data collected regarding messaging feedback.
	Redesign outreach material to best fit the behavior change messaging produced by District. Focus on the positive effects of recycling and the reason for its necessity in Butler County. Re-engage audience to pilot the redesigned material.	FY 2025 QTR 2 and 3	Measure baseline recovery and social media followers/ website traffic.
	Develop content and media ongoing posting and interaction	FY 2025 QTR 4	Track analytics.
	Post diversified media – use videos, use photos, use residents and businesses	FY 2025 QTR 4	Measure all campaign media engagements methods of delivery, and increased recycling rate numbers.
	Put special focus on underserved populations to better create a diverse population of recyclers in Butler County	FY 2025	Measure participation, recycling request increase, recycling tonnage over the year.

APPENDIX M

WASTE MANAGEMENT CAPACITY ANALYSIS

Appendix M. Waste Management Capacity Analysis

A. Access to PUBLICLY AVAILABLE Landfill Facilities

Table M-1 Remaining Operating Life of Publicly Available Landfills

Facility	Location	Years of Remaining Capacity
SWACO Franklin County Sanitary Landfill	Franklin County	**46**
Pine Grove Regional Facility	Fairfield County	**88**
Preble County Sanitary Landfill	Preble County	**44**
Rumpke Sanitary Landfill	Hamilton County	**37**
Rumpke Waste Inc Brown County Landfill	Brown County	**64**
Carbon Limestone Landfill LLC	Mahoning County	**47**
Stoney Hollow Landfill	Montgomery County	**4**
Republic Services Inc Celina Sanitary Landfill	Mercer County	**Closed**
Hancock County Landfill	Hancock County	**24**
Cherokee Run Landfill	Logan County	**28**
Apex Environmental LLC	Montgomery County	**21**
Evergreen Recycling and Disposal	Wood County	**33**
New Paris Pike Landfill	Indiana	**Data Not Available**
Bavarian Trucking Landfill	Kentucky	**Data Not Available**
Pendleton Co. Landfill	Kentucky	**Data Not Available**
Valley View Landfill	Kentucky	**Data Not Available**
Waste Management of Kentucky	Kentucky	**Data Not Available**
Caldwell Landfill	Indiana	**Data Not Available**
Jay County Landfill	Indiana	**Data Not Available**
National Serv-All Landfill	Indiana	**Closed**

Source(s) of Information: Ohio EPA Waste Flow 2019, 2020, 2021 and Ohio EPA FDR 2021
Note: The years of remaining capacity are based on the most recent annual report for the facility. Thus, if the owner/operator of a facility obtained a permit to expand the facility after the reference year, then the additional permitted capacity is included in the years of remaining life.

Ohio law requires the solid waste management plan to demonstrate the District has access to adequate disposal capacity during the planning period. This appendix provides a capacity demonstration to show adequate disposal capacity for the District.

Table M-1 details the landfills used by the District and two years prior, as well as the remaining years of capacity.

There are no permitted landfills in the District. During the reference year, the waste was landfilled in seven in-state facilities and seven out-of-state facilities. As shown in **Table M-1,** the in-state landfills used by the District have an average overall capacity remaining of 47 years. All facilities, with the exception of the Stoney Hollow Landfill in Montgomery County, have the capacity to accept waste for years beyond this solid waste planning period.

Table M-2 Tons and Percent Waste 2022

Facility	Location	Tons	Percent
SWACO Franklin County Sanitary Landfill	Franklin County	2	0%
Pine Grove Regional Facility	Fairfield County	1,202	0.2%
Preble County Sanitary Landfill	Preble County	2,128	0.3%
Rumpke Sanitary Landfill	Hamilton County	558,796	75.0%
Rumpke Waste Inc Brown County Landfill	Brown County	34,558	4.6%
Carbon Limestone Landfill LLC	Mahoning County	10	0%
Stoney Hollow Landfill	Montgomery County	6,331	0.8%
New Paris Pike Landfill	Indiana	32,294	4.3%
Bavarian Trucking Landfill	Kentucky	101,793	13.7%
Pendleton Co. Landfill	Kentucky	6,878	0.9%
Valley View Landfill	Kentucky	165	0%
Waste Management of Kentucky	Kentucky	123	0%
Caldwell Landfill	Indiana	752	0.1%
Total		**745,033**	**100%**

Source(s) of Information: Ohio EPA Waste Flow 2019, 2020, 2021 and Ohio EPA FDR 2021
Note: Waste transferred from Dearborn Transfer Station and other Indiana transferred waste is not included because the receiving landfill was not identified. Total waste not included is less than 7,500 tons.

As seen in Table M-2 above, three-quarters of the waste disposed in 2021 was sent to Rumpke Sanitary Landfill in Hamilton County. The second most utilized landfill was Bavarian Trucking Landfill located out-of-state in Kentucky. Together, these two landfills accounted for over 88% of all waste disposed of by the District in the reference year. According to the 2021 Facility Data report, Rumpke Sanitary Landfill has 37 years of capacity remaining, which is adequate through this planning period. The remaining capacity for Bavarian Trucking Landfill was not available at the time of writing this plan.

B. Access to Captive Landfill Facilities

Captive or residual waste landfills are designated exclusively for the disposal of one or any combination of wastes from seven specific industrial categories. Due to regulations these facilities will not receive municipal solid waste. Residual/captive landfills are landfills used to dispose of waste generated exclusively by the manufacturing company that owns the landfill. The District did not send waste to captive landfills in the reference year.

C. Incinerators and Energy Recovery Facilities

The District utilized one energy recovery facility in the reference year. One business in Butler County sent 262 tons of waste to Covanta in Indiana. This was the only usage of an energy recovery facility. See Appendix D for more information.

APPENDIX N

EVALUATING GREENHOUSE GAS EMISSIONS

Appendix N. Evaluating Greenhouse Gas Emissions

The Waste Reduction Model (WARM)

WARM is a tool that US EPA developed to quantify the effects of waste management decisions on greenhouse gas emissions. The model demonstrates the benefits of alternative waste management technologies over traditional waste management methods. The WARM model is updated regularly. A District can use a different but comparable modeling program to calculate greenhouse gas emission reductions provided the model accounts for waste management and recycling activities.

Butler County is using the WARM model to compare municipal solid waste management scenarios with data derived from the residential/commercial sector.

Each District will run WARM twice and include the results in the solid waste management plan:

- For the first run, enter all quantities recycled in the reference year in the landfill column (for the baseline year) and for the alternative scenario, enter the quantities recycled in the tons recycled column.
- For the second run, enter the quantities of residential/commercial material recycled in the reference year in the tons recycled column (for the baseline scenario), and then enter the quantities projected to be recycled in the sixth year of the planning period in the alternative scenario column.

Include printouts of the results for both runs in the solid waste management plan.

A. GHG Measurement

Gases that trap heat in the atmosphere are called greenhouse gases (GHG). These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases. Each gas has its own global warming potential (GWP) with carbon dioxide establishing the baseline global warming potential, all other gases are compared in units of carbon dioxide equivalent (CO_2e). Each gas has varying degrees of effects on the climate and is dependent on the quantity in the atmosphere, the time they remain in the atmosphere, and how strong their GWP is on the atmosphere. Disposal and treatment of materials results in greenhouse gas emissions from collection, transportation, disposal, manufacturing, etc.

The most common method to measure the climate impact of waste management is to measure in terms of carbon dioxide equivalents. Because waste reduction and waste disposal results in multiple types of greenhouse gases, the conversion to a standard carbon equivalent measurement allows for a total quantification of impacts. It also establishes a standard language to compare these sources of emissions to other sources like transportation and energy reduction efforts. A carbon dioxide equivalent means the number of metric tons of CO_2 emissions with the same global warming potential as one

metric ton of another greenhouse gas. The international standard for reporting CO_2 emissions is metric tons. Carbon dioxide quantities will be reported as $MTCO_2e$, metric tons of carbon dioxide equivalent.

Produced by US EPA, the Waste Reduction Model (WARM) was designed to help solid waste planners, municipal leaders, and other stakeholder organizations track and report greenhouse gas emissions reductions. It is a tool that helps decision makers predict the strategies that have the greatest impact on reducing GHG emissions. The WARM model calculates GHG emission across six waste management modalities (source reduction, recycling, composting, anaerobic digestion, combustion, and landfilling). Modeling different combinations of waste management practices allows decision makers to see which approach leads to the least GHG entering the atmosphere.

WARM is a standard tool used for waste management GHG impacts, however the model does have limitations. For example, the WARM GHG-related impacts of composting organics were developed within the framework of the larger WARM development effort and the presentation of results, estimation of emissions and sinks, and description of ancillary benefits are not comprehensive. Also, the material categories within the model are not exhaustive therefore materials like household hazardous wastes (HHW) are excluded from the modeling because they have no relevant WARM proxy.

The reports below show the metric tons of carbon dioxide equivalent ($MTCO_2e$) which describes the global warming potential of all common greenhouse gases as an equivalent to CO_2. Negative values indicate savings while positive values indicate increasing emissions. In 2021, Butler County generated 495,311 tons of waste from the residential and commercial sectors, of which 66,324 tons (13%) was diverted from landfills.

Table N-1: Reference Year Waste Diversion

Total GHG Emissions from Baseline – Year 2021	(161,965) $MTCO_2e$
Total GHG Emissions from Alternative – Year 2030	(164,476) $MTCO_2e$
Incremental GHG Emissions Savings	(2,512) $MTCO_2e$

By diverting materials away from the landfill, GHG emissions are avoided. The waste diversion program savings in MTCO2e are equivalent to:

- Removing 35,918 passenger vehicles from the road for one year
- Conserving 19,036,233 gallons of gasoline
- Conserving 12,771 household’s energy consumption for one year

With the projected increase in diversion by 2030, there is an estimated additional reduction of 2,512 $MTCO_2e$ of greenhouse gases. This is equivalent to:

- Removing 553 additional passenger vehicles from the road for one year
- Conserving 282,656 additional gallons of gasoline
- Conserving 189 additional household’s energy consumption for one year

APPENDIX O

FINANCIAL DATA

Appendix O. FINANCIAL DATA

Ohio Revised Code Section 3734.53(B) requires a solid waste management plan to present a budget. This budget accounts for how the District will obtain money to pay for operating the District and how the District will spend that money. For revenue, the solid waste management plan identifies the sources of funding the District will use to implement its approved solid waste management plan. The plan also provides estimates of how much revenue the District expects to receive from each source. For expenses, the solid waste management plan identifies the programs the SWMD intends to fund during the planning period and estimates how much the SWMD will spend on each program. The plan must demonstrate that planned expenses will be made in accordance with ten allowable uses that are prescribed in ORC Section 3734.57(G).

Ultimately, the solid waste management plan must demonstrate that the SWMD will have adequate money to implement the approved solid waste management plan for a period of 15 years, from 2025 to 2039.

A. Funding Mechanisms and Revenue Generated

This section examines the funding mechanisms expected to be used by the District. In addition, anticipated revenues from each source listed below are projected for each year of the planning period.

1. Disposal Fee

The District does not receive revenues from disposal fees.

Table O-1. Disposal Fee Schedule and Revenue (in accordance with ORC Section 3734.57(B))

Year	Disposal Fee Schedule ($/ton)			Revenue ($)			Total Disposal Fee Revenue ($)
	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	
2017	$2	$4	$2	NA	NA	NA	NA
2018	$2	$4	$2	NA	NA	NA	NA
2019	$2	$4	$2	NA	NA	NA	NA
2020	$2	$4	$2	NA	NA	NA	NA
2021	$2	$4	$2	NA	NA	NA	NA
2022	$2	$4	$2	NA	NA	NA	NA
2023	$2	$4	$2	NA	NA	NA	NA
2024	$2	$4	$2	NA	NA	NA	NA
2025	$2	$4	$2	NA	NA	NA	NA
2026	$2	$4	$2	NA	NA	NA	NA
2027	$2	$4	$2	NA	NA	NA	NA
2028	$2	$4	$2	NA	NA	NA	NA
2029	$2	$4	$2	NA	NA	NA	NA
2030	$2	$4	$2	NA	NA	NA	NA
2031	$2	$4	$2	NA	NA	NA	NA

Year	Disposal Fee Schedule ($/ton)			Revenue ($)			Total Disposal Fee Revenue ($)
	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	
2032	$2	$4	$2	NA	NA	NA	NA
2033	$2	$4	$2	NA	NA	NA	NA
2034	$2	$4	$2	NA	NA	NA	NA
2035	$2	$4	$2	NA	NA	NA	NA
2036	$2	$4	$2	NA	NA	NA	NA
2037	$2	$4	$2	NA	NA	NA	NA
2038	$2	$4	$2	NA	NA	NA	NA
2039	$2	$4	$2	NA	NA	NA	NA

2. Generation Fee

In accordance with ORC 3734.573, a solid waste management district may levy fees on the generation of solid wastes within the District. Generation fees are collected on each ton of waste that passes through the transfer stations or ends up at landfills located in the District. The District's primary source of revenue is generation fees. Effective January 1, 2020, the District solid waste generation fee is $1.00 per ton.

Table O-2. Generation Fee Schedule and Revenue

Year	Generation Fee Schedule ($ per ton)	Total Revenue from Generation Fee ($)
2017	$0.82	$399,822
2018	$0.82	$426,062
2019	$0.82	$463,847
2020	$1.00	$554,193
2021	$1.00	$584,192
2022	$1.00	$678,648
2023	$1.00	$690,000
2024	$1.00	$676,805
2025	$1.00	$680,866
2026	$1.00	$684,951
2027	$1.00	$689,061
2028	$1.00	$693,195
2029	$1.00	$697,354
2030	$1.00	$701,538
2031	$1.25	$882,185
2032	$1.25	$882,185
2033	$1.25	$882,185
2034	$1.25	$882,185
2035	$1.25	$882,185
2036	$1.25	$882,185

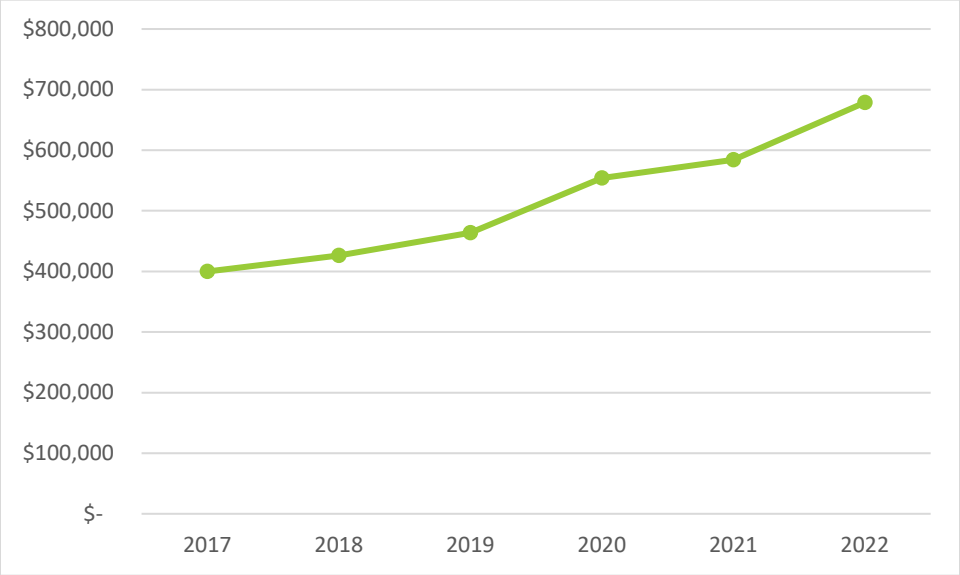
Year	Generation Fee Schedule ($ per ton)	Total Revenue from Generation Fee ($)
2037	$1.25	$882,185
2038	$1.25	$882,185
2039	$1.25	$882,185

Source(s) of Information: Butler County SWMD Quarterly Fee Reports and Appendix D
Sample Projection Calculations:
Total Revenue from Generation Fee = (Generation fee x Projected Waste Disposed)
2024 Total Revenue from Generation = (($1.00 x 676,805 tons) x 0.90) = $676,805

The District operates on a cash accounting basis, as a result, tonnages for fee tracking are recorded when the revenues are received by a landfill facility.

To forecast future revenues anticipated from the generation fee, historic revenues were analyzed. As shown in **Figure O-1**, generation fee revenue follows a rising trend.

Figure O-1 Historic Generation Fee Revenue



As seen in **Table O-2a**, the increase is reflective of the increase in the generation fee in 2020 but also a noticeable increase in waste disposal tonnages. Generation fee revenues are dependent on District waste disposed in Ohio landfills and the District is seeing a rise in recent years.

Table O-2a Historic Waste Disposed and Generation Fee Revenue Received

Year	Total Disposed (tons)	Received Total Generation Fee Revenue ($)	Annual Increase in Revenue Received ($)
2017	535,085	$399,822	-
2018	553,292	$426,062	$26,240
2019	614,848	$463,847	$37,785

Year	Total Disposed (tons)	Received Total Generation Fee Revenue ($)	Annual Increase in Revenue Received ($)
2020	609,260	$554,193	$90,346
2021	638,947	$584,192	$29,999
2022	639,209	$678,648	$94,456

Analyzing historic generation revenues, the District received almost $700,000 in revenues in 2022. This is considerably higher than the average revenues from 2017 to 2021 of approximately $485,000 annually. The District believes this is due to increasing population and renewed growth in development. Projecting into the future, this increase in revenue is expected to continue. Revenues in **Table O-2** are estimated using a higher projected disposal tonnage than demonstrated in Appendix D. Projected revenues base growth from 2021 and 2022 revenues where Appendix D conservatively uses an historical ten-year average. As such, the disposal tonnages used to calculate generation fee revenue differ slightly from those discussed in Appendix D.

To sustain the programming described in this Plan Update generation fee increases are needed to maintain financial solvency and retain a few months of reserves. Numerous budget scenarios projecting revenue and expense modifications were developed and reviewed to determine the lowest generation fee for sustaining programming with options and services.

As discussed previously in Appendix H, the Policy Committee proposes a $0.25 increase in 2031. This minimal fee increase will allow the District to maintain programming. Planning for a generation fee increase in 2031 means the fee increase will not be enacted during this planning period, giving the District time to reassess the budget during the next plan cycle.

3. Designation Fee

In accordance with Ohio Revised Code 343.014, a solid waste management district may adopt designation fees to assure adequate financing to implement the approved solid waste plan. Designation fees can be levied on any solid waste landfill that is designated by the District to receive District generated waste. The District does not receive revenues from designation fees.

Table O-3. Designation Fee Schedule and Revenue

Year	Designation Fee Schedule ($ per ton)	Total Designation Fee Revenue ($)
2017	n/a	n/a
2018	n/a	n/a
2019	n/a	n/a
2020	n/a	n/a
2021	n/a	n/a
2022	n/a	n/a
2023	n/a	n/a
2024	n/a	n/a
2025	n/a	n/a
2026	n/a	n/a
2027	n/a	n/a
2028	n/a	n/a
2029	n/a	n/a
2030	n/a	n/a
2031	n/a	n/a
2032	n/a	n/a
2033	n/a	n/a
2034	n/a	n/a
2035	n/a	n/a
2036	n/a	n/a
2037	n/a	n/a
2038	n/a	n/a
2039	n/a	n/a

4. Loans

The District does not have any outstanding debt due to existing loans and does not anticipate securing loans during this planning period.

Table O-4. Debt

Year Debt Was/Will be Obtained	Outstanding Balance	Lending Institution	Repayment Term (years)	Annual Debt Service ($)
n/a	n/a	n/a	n/a	n/a

5. Other Sources of District Revenue

The District receives revenues from: reimbursements, grants, and other.

Reimbursement: Reimbursement revenues are miscellaneous monies resulting from refunds and reimbursements. The District received reimbursement revenue every year in the last 5 years except for 2018. The largest sum came in 2020 and was $5,745. This amount is unpredictable and not guaranteed from year to year; therefore, only actual values are reported in **Table O-5**, no future values are projected.

Grants: Funding from grants are competitive and not guaranteed. The District received grant revenue every year for the past 5 years. In 2017 and 2018 the District received $5,000 from the Ohio EPA mosquito control grant and used these funds towards the 2017 and 2018 waste tire recycling events. The District received a much larger sum of approximately $30,000 in 2019. Most of this was from The Recycling Partnership grant reimbursement and the remaining $8,500 came from the Ohio EPA mosquito control grant. The District received grant money from the same Ohio EPA mosquito control program in 2020 and 2021, both of which were used to offset costs of waste tire events.

Grant revenue is unpredictable and not guaranteed from year to year; therefore, only actual values are reported in **Table O-5**, no future values are projected.

Other: The District received one payment classified as other. This was a reimbursement from Rumpke as the District overpaid one of their bills. This source is unpredictable and not guaranteed from year to year; therefore, only actual values are reported in **Table O-5**, no future values are projected.

Table O-5. Other Sources of Revenue

Year	Reimbursements	Grants	Other	Total Other Revenue
2017	$532.06	$5,000.00	$0	$5,532.06
2018	$0	$0	$0	$5,000.00
2019	$79.60	$30,150.16	$0	$30,229.76
2020	$5,745.14	$20,000.00	$0	$25,745.14
2021	$1,361.79	$10,000.00	$45.96	$11,407.75
2022	$0	$0	$0	$0
2023	$0	$0	$0	$0
2024	$0	$0	$0	$0
2025	$0	$0	$0	$0
2026	$0	$0	$0	$0
2027	$0	$0	$0	$0
2028	$0	$0	$0	$0
2029	$0	$0	$0	$0
2030	$0	$0	$0	$0
2031	$0	$0	$0	$0
2032	$0	$0	$0	$0
2033	$0	$0	$0	$0
2034	$0	$0	$0	$0
2035	$0	$0	$0	$0

Year	Reimbursements	Grants	Other	Total Other Revenue
2036	$0	$0	$0	$0
2037	$0	$0	$0	$0
2038	$0	$0	$0	$0
2039	$0	$0	$0	$0

Source(s) of Information: CY 2017-2021 revenues sourced from Butler County SWMD Quarterly Fee Reports. All other amounts are projections.

Sample Calculations:
Other Revenue Total = grants + reimbursements + other

Table O-5 above presents the District's projected other sources of revenue through the planning period. The revenue sources above are all held at $0 for the projections because these categories are not guaranteed to bring in revenue.

6. Summary of District Revenues

Table O-6 Summary of District Revenues (in accordance with ORC 3734.57, ORC 3734.572 and ORC 3734.573)

Year	Generation Fees	Other Revenue	Total Revenue
2017	$399,822	$5,532	$405,353.75
2018	$426,062	$5,000	$431,061.98
2019	$463,847	$30,230	$494,077.19
2020	$554,193	$25,745	$579,938.19
2021	$584,192	$11,408	$595,600.06
2022	$678,648	$0	$678,648.00
2023	$690,000	$0	$690,000.00
2024	$676,805	$0	$676,805.10
2025	$680,866	$0	$680,865.93
2026	$684,951	$0	$684,951.13
2027	$689,061	$0	$689,060.84
2028	$693,195	$0	$693,195.20
2029	$697,354	$0	$697,354.37
2030	$701,538	$0	$701,538.50
2031	$882,185	$0	$882,184.66
2032	$882,185	$0	$882,184.66
2033	$882,185	$0	$882,184.66
2034	$882,185	$0	$882,184.66
2035	$882,185	$0	$882,184.66
2036	$882,185	$0	$882,184.66
2037	$882,185	$0	$882,184.66
2038	$882,185	$0	$882,184.66
2039	$882,185	$0	$882,184.66

Source(s) of Information: Butler County SWMD Quarterly Fee Reports 2017 – 2021. All other amounts are projections (refer to Table O-2 and O-5).

Table O-6 includes all funding mechanisms that will be used, and the total amount of revenue generated by each method for each year of the planning period. The District's primary funding mechanism is the generation fee. No sources of alternate revenue are projected for the planning period. The District flatlined the projected revenues in 2031.

B. Cost of Implementing Plan

Table O-7 Years 2017 – 2024

Line #	Category/Program	2017	2018	2019	2020	2021	2022	2023	2024
1	**1. Plan Monitoring/Prep.**	$61,333.66	$55,859.22	$52,902.55	$49,886.43	$51,945.94	$32,150.00	$32,150.00	$5,900
1.a	a. Plan Preparation	$55,682.94	$49,155.56	$10,211.75	$-	$-	$26,250.00	$26,250.00	$0
1.b	b. Plan Monitoring	$5,155.72	$6,703.66	$42,690.80	$49,886.43	$51,945.94	$5,900.00	$5,900.00	$5,900
1.c	c. Other	$495.00	$-	$-	$-	$-	$-	$-	$-
2	**2. Plan Implementation**	$444,597.82	$456,051.96	$573,260.95	$517,777.34	$504,410.54	$561,685.93	$603,481.08	$682,486
2.a	a. District Administration	$138,824.60	$124,383.99	$135,291.20	$130,721.54	$135,573.21	$172,516.50	$179,692.00	$245,983
2.a.1	Personnel	$117,233.54	$106,268.17	$117,280.01	$116,401.71	$121,107.19	$151,792.00	$158,345.76	$193,096.13
2.a.2	Office Overhead	$21,591.06	$18,115.82	$15,761.19	$14,319.83	$14,466.02	$20,261.00	$20,868.83	$52,394.89
2.a.3	Other	$-	$-	$2,250.00	$-	$-	$463.50	$477.41	$491.73
2.b	b. Facility Operation	$-	$-	$-	$-	$-	$-	$-	$0
2.b.1	MRF/Recycling Center								
2.b.2	Compost								
2.b.3	Transfer								
2.b.4	Special Waste								
2.c	c. Landfill Closure/Post-Closure								
2.d	d. Recycling Collection	$129,305.94	$141,772.74	$184,218.38	$164,387.26	$191,194.91	$205,789.90	$224,308.59	$231,038
2.d.1	Curbside						$-		
2.d.2	Drop-off	$88,167.59	$96,644.84	$107,230.72	$110,565.28	$116,126.35	$145,608.14	$162,321.38	$167,191.03
2.d.3	Combined Curbside/Drop-off						$-		
2.d.4	Multi-family						$-		
2.d.5	Business/Institutional	$10,602.35	$14,020.78	$43,796.88	$24,310.43	$32,986.67	$25,897.72	$26,674.66	$27,474.90
2.d.6	Other	$30,536.00	$31,107.12	$33,190.78	$29,511.55	$42,081.89	$34,284.03	$35,312.55	$36,371.93
2.e	e. Special Collections	$132,414.02	$135,031.16	$183,557.19	$202,718.82	$136,085.62	$145,626.06	$157,400.00	$162,122
2.e.1	Tire Collection	$18,844.52	$26,125.31	$26,401.23	$40,053.45	$29,306.37	$28,990.56	$35,000.00	$36,050.00
2.e.2	HHW Collection	$54,958.50	$53,413.00	$78,529.90	$85,133.20	$56,522.38	$80,000.00	$82,400.00	$84,872.00
2.e.3	Electronics Collection	$33,091.00	$32,047.85	$29,654.50	$33,619.99	$49,428.87	$36,635.50	$40,000.00	$41,200.00
2.e.4	Appliance Collection	$25,520.00	$23,445.00	$48,971.56	$43,912.18	$828.00	$-	$-	$-
2.e.5	Other Collection Drives								
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$22,494.05	$39,089.24	$46,711.37	$10,716.94	$24,194.30	$21,170.47	$25,000.00	$25,750
2.g.1	Education Staff								
2.g.2	Advertisement/Promotion	$22,494.05	$20,302.78	$25,061.21	$10,716.94	$24,194.30	$21,170.47	$25,000.00	$25,750.00
2.g.3	Other	$-	$18,786.46	$21,650.16	$-	$-			
2.h	h. Recycling Market Development	$-	$-	$-	$-	$-	$-	$-	$0
2.h.1	General Market Development Activities								
2.h.2	ODNR pass-through grant								
2.i	i. Service Contracts								
2.j	j. Feasibility Studies								
2.k	k. Waste Assessments/Audits								
2.l	l. Dump Cleanup								
2.m	m. Litter Collection/Education	$21,559.21	$15,774.83	$15,967.30	$9,232.78	$17,362.50	$16,583.00	$17,080.49	$17,592.90
2.n	n. Emergency Debris Management								
2.o	o. Loan Payment								
2.p	p. Other	$-	$-	$7,515.51	$-	$-	$-	$-	$-
3	**3. Health Dept. Enforcement**						$0	$0	$0
4	**4. County Assistance**	$0	$0	$0	$0	$0			
4.a	a. Maintaining Roads								
4.b	b. Maintaining Public Facilities								
4.c	c. Providing Emergency Services								
4.d	d. Providing Other Public Services						$0	$0	$0
5	**5. Well Testing**	$0	$0	$0	$0	$0			
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump, Litter Law Enforcement**								
7.a	a. Heath Departments								
7.b	b. Local Law Enforcement								
7.c	c. Other								
8	**8. Heath Department Training**						$0	$0	$0
9	**9. Municipal/Township Assistance**								
9.a	a. Maintaining Roads								
9.b	b. Maintaining Public Facilities								
9.c	c. Providing Emergency Services	$0	$0	$0	$0	$0			
9.d	d. Providing other Public Services						$0	$0	$0
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	Total Expenses	$505,931	$511,911	$626,164	$567,664	$556,356	$593,836	$635,631	$688,386

Table O-7 Years 2025 – 2032

Line #	Category/Program	2025	2026	2027	2028	2029	2030	2031	2032
1	**1. Plan Monitoring/Prep.**	$5,900	$5,900	$32,150	$32,150	$5,900	$5,900	$5,900	$32,150
1.a	a. Plan Preparation	$0	$0	$26,250.00	$26,250.00	$0	$0	$0	$26,250.00
1.b	b. Plan Monitoring	$5,900	$5,900	$5,900	$5,900	$5,900	$5,900	$5,900	$5,900
1.c	c. Other	$-	$-	$-	$-	$-	$-	$-	$-
2	**2. Plan Implementation**	$702,960	$724,049	$745,770	$768,143	$791,188	$814,923	$839,371	$839,371
2.a	a. District Administration	$253,362	$260,963	$268,792	$276,856	$285,161	$293,716	$302,528	$302,528
2.a.1	Personnel	$198,889.02	$204,855.69	$211,001.36	$217,331.40	$223,851.34	$230,566.88	$237,483.89	$237,483.89
2.a.2	Office Overhead	$53,966.74	$55,585.74	$57,253.32	$58,970.92	$60,740.04	$62,562.24	$64,439.11	$64,439.11
2.a.3	Other	$506.48	$521.67	$537.32	$553.44	$570.05	$587.15	$604.76	$604.76
2.b	b. Facility Operation	$0	$0	$0	$0	$0	$0	$0	$0
2.b.1	MRF/Recycling Center								
2.b.2	Compost								
2.b.3	Transfer								
2.b.4	Special Waste								
2.c	c. Landfill Closure/Post-Closure								
2.d	d. Recycling Collection	$237,969	$245,108	$252,461	$260,035	$267,836	$275,871	$284,147	$284,147
2.d.1	Curbside								
2.d.2	Drop-off	$172,206.76	$177,372.96	$182,694.15	$188,174.97	$193,820.22	$199,634.83	$205,623.87	$205,623.87
2.d.3	Combined Curbside/Drop-off								
2.d.4	Multi-family								
2.d.5	Business/Institutional	$28,299.14	$29,148.12	$30,022.56	$30,923.24	$31,850.93	$32,806.46	$33,790.66	$33,790.66
2.d.6	Other	$37,463.09	$38,586.98	$39,744.59	$40,936.93	$42,165.04	$43,429.99	$44,732.89	$44,732.89
2.e	e. Special Collections	$166,986	$171,995	$177,155	$182,470	$187,944	$193,582	$199,390	$199,390
2.e.1	Tire Collection	$37,131.50	$38,245.45	$39,392.81	$40,574.59	$41,791.83	$43,045.59	$44,336.95	$44,336.95
2.e.2	HHW Collection	$87,418.16	$90,040.70	$92,741.93	$95,524.18	$98,389.91	$101,341.61	$104,381.85	$104,381.85
2.e.3	Electronics Collection	$42,436.00	$43,709.08	$45,020.35	$46,370.96	$47,762.09	$49,194.95	$50,670.80	$50,670.80
2.e.4	Appliance Collection	$-	$-	$-					
2.e.5	Other Collection Drives								
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$26,523	$27,318	$28,138	$28,982	$29,851	$30,747	$31,669	$31,669
2.g.1	Education Staff								
2.g.2	Advertisement/Promotion	$26,522.50	$27,318.18	$28,137.72	$28,981.85	$29,851.31	$30,746.85	$31,669.25	$31,669.25
2.g.3	Other								
2.h	h. Recycling Market Development	$0	$0	$0	$0	$0	$0	$0	$0
2.h.1	General Market Development Activities								
2.h.2	ODNR pass-through grant								
2.i	i. Service Contracts								
2.j	j. Feasibility Studies								
2.k	k. Waste Assessments/Audits								
2.l	l. Dump Cleanup								
2.m	m. Litter Collection/Education	$18,120.69	$18,664.31	$19,224.24	$19,800.97	$20,395.00	$21,006.85	$21,637.05	$21,637.05
2.n	n. Emergency Debris Management								
2.o	o. Loan Payment								
2.p	p. Other	$-	$-	$-	$-	$-	$-	$-	$-
3	**3. Health Dept. Enforcement**	$0	$0	$0	$0	$0	$0	$0	$0
4	**4. County Assistance**								
4.a	a. Maintaining Roads								
4.b	b. Maintaining Public Facilities								
4.c	c. Providing Emergency Services								
4.d	d. Providing Other Public Services	$0	$0	$0	$0	$0	$0	$0	$0
5	**5. Well Testing**								
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump, Litter Law Enforcement**								
7.a	a. Heath Departments								
7.b	b. Local Law Enforcement								
7.c	c. Other								
8	**8. Heath Department Training**	$0	$0	$0	$0	$0	$0	$0	$0
9	**9. Municipal/Township Assistance**								
9.a	a. Maintaining Roads								
9.b	b. Maintaining Public Facilities								
9.c	c. Providing Emergency Services								
9.d	d. Providing other Public Services	$0	$0	$0	$0	$0	$0	$0	$0
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	*****Total Expenses*****	$708,860	$729,949	$777,920	$800,293	$797,088	$820,823	$845,271	$871,521

Table O-7 Years 2033 – 2039

Line #	Category/Program	2033	2034	2035	2036	2037	2038	2039
1	**1. Plan Monitoring/Prep.**	$32,150	$5,900	$5,900	$5,900	$32,150	$32,150	$5,900
1.a	a. Plan Preparation	$26,250.00	$0	$0	$0	$26,250.00	$26,250.00	$0
1.b	b. Plan Monitoring	$5,900	$5,900	$5,900	$5,900	$5,900	$5,900	$5,900
1.c	c. Other	$-	$-	$-	$-	$-	$-	$-
2	**2. Plan Implementation**	$839,371	$839,371	$839,371	$839,371	$839,371	$839,371	$839,371
2.a	a. District Administration	$302,528	$302,528	$302,528	$302,528	$302,528	$302,528	$302,528
2.a.1	Personnel	$237,483.89	$237,483.89	$237,483.89	$237,483.89	$237,483.89	$237,483.89	$237,483.89
2.a.2	Office Overhead	$64,439.11	$64,439.11	$64,439.11	$64,439.11	$64,439.11	$64,439.11	$64,439.11
2.a.3	Other	$604.76	$604.76	$604.76	$604.76	$604.76	$604.76	$604.76
2.b	b. Facility Operation	$0	$0	$0	$0	$0	$0	$0
2.b.1	MRF/Recycling Center							
2.b.2	Compost							
2.b.3	Transfer							
2.b.4	Special Waste							
2.c	c. Landfill Closure/Post-Closure							
2.d	d. Recycling Collection	$284,147	$284,147	$284,147	$284,147	$284,147	$284,147	$284,147
2.d.1	Curbside							
2.d.2	Drop-off	$205,623.87	$205,623.87	$205,623.87	$205,623.87	$205,623.87	$205,623.87	$205,623.87
2.d.3	Combined Curbside/Drop-off							
2.d.4	Multi-family							
2.d.5	Business/Institutional	$33,790.66	$33,790.66	$33,790.66	$33,790.66	$33,790.66	$33,790.66	$33,790.66
2.d.6	Other	$44,732.89	$44,732.89	$44,732.89	$44,732.89	$44,732.89	$44,732.89	$44,732.89
2.e	e. Special Collections	$199,390	$199,390	$199,390	$199,390	$199,390	$199,390	$199,390
2.e.1	Tire Collection	$44,336.95	$44,336.95	$44,336.95	$44,336.95	$44,336.95	$44,336.95	$44,336.95
2.e.2	HHW Collection	$104,381.85	$104,381.85	$104,381.85	$104,381.85	$104,381.85	$104,381.85	$104,381.85
2.e.3	Electronics Collection	$50,670.80	$50,670.80	$50,670.80	$50,670.80	$50,670.80	$50,670.80	$50,670.80
2.e.4	Appliance Collection							
2.e.5	Other Collection Drives							
2.f	f. Yard Waste/Other Organics							
2.g	g. Education/Awareness	$31,669	$31,669	$31,669	$31,669	$31,669	$31,669	$31,669
2.g.1	Education Staff							
2.g.2	Advertisement/Promotion	$31,669.25	$31,669.25	$31,669.25	$31,669.25	$31,669.25	$31,669.25	$31,669.25
2.g.3	Other							
2.h	h. Recycling Market Development	$0	$0	$0	$0	$0	$0	$0
2.h.1	General Market Development Activities							
2.h.2	ODNR pass-through grant							
2.i	i. Service Contracts							
2.j	j. Feasibility Studies							
2.k	k. Waste Assessments/Audits							
2.l	l. Dump Cleanup							
2.m	m. Litter Collection/Education	$21,637.05	$21,637.05	$21,637.05	$21,637.05	$21,637.05	$21,637.05	$21,637.05
2.n	n. Emergency Debris Management							
2.o	o. Loan Payment							
2.p	p. Other	$-	$-	$-	$-	$-	$-	$-
3	**3. Health Dept. Enforcement**	$0	$0	$0	$0	$0	$0	$0
4	**4. County Assistance**							
4.a	a. Maintaining Roads							
4.b	b. Maintaining Public Facilities							
4.c	c. Providing Emergency Services							
4.d	d. Providing Other Public Services	$0	$0	$0	$0	$0	$0	$0
5	**5. Well Testing**							
6	**6. Out-of-State Waste Inspection**							
7	**7. Open Dump, Litter Law Enforcement**							
7.a	a. Heath Departments							
7.b	b. Local Law Enforcement							
7.c	c. Other							
8	**8. Heath Department Training**	$0	$0	$0	$0	$0	$0	$0
9	**9. Municipal/Township Assistance**							
9.a	a. Maintaining Roads							
9.b	b. Maintaining Public Facilities							
9.c	c. Providing Emergency Services							
9.d	d. Providing other Public Services	$0	$0	$0	$0	$0	$0	$0
10	**10. Compensation to Affected Community (ORC Section 3734.35)**							
	Total Expenses	$871,521	$845,271	$845,271	$845,271	$871,521	$871,521	$845,271

A 3% inflation rate was applied throughout the first six years of the planning period (2031). After 2031 the District flatlined all expenses as there will be another plan update before 2031 where the District can reassess the inflation rate and expenses.

Each expense applicable to the District allocated to line items in **Table O-7** are explained here:

1. Plan Monitoring/Prep.

1.a Plan Preparation

2017 – 2021 –Actual costs include staff and contracts with outside consultants to prepare the District's solid waste management plan updates.

2022 – 2038 – The District assumed the cost of the contract for all subsequent plan updates would be the same.

1.b Plan Monitoring

2017 – 2021 – Actual costs consultant, legal, etc. needed contract services for monitoring the plan. In 2019 through 2021, additional expenses occurred for a private sector transfer station siting and permitting in the District.

2022 – 2038 – Anticipated costs outside for surveys and other needed monitoring reports.

1.c Other

2017 - 2021 -This is the cost for assistance with data collection, surveys, etc.

2. Plan Implementation

2.a District Administration

2.a.1 Personnel

2017 – 2021 - This is the cost for payroll (one full-time coordinator and one full-time assistant) and benefits (including PERS, Medicare, and insurance). Costs also include administration support from Butler County Water and Sewer Department (human resources, accounting, and IT) and County Office of Management and Budget. Administrative costs include staffing time for some program costs, which are difficult to separate into their own line item. The costs of the program in 2017 through 2021 are actual expenses.

2022 – 2038 - The District expects an increase in personnel costs in 2023 and 2024. As such these costs are inflated at 4% for 2023 and 2024 but drop to 2% annually starting in 2025 to account for raises and cost of living adjustment. Expenses flatline after 2031. $30,000 were added in 2024, the District hopes to hire more staff.

2.a.2 Office Overhead –

2017 – 2021 - This includes supplies (including postage, reproductions, advertising, printing, utilities, etc.), webpage maintenance, office equipment, and travel. The costs shown for 2017 through 2021 are actual expenses.

2022 – 2031 – Costs estimated in 2023 are based on historic values multiplied by a 3% inflation rate. An additional $30,000 in program expenses to assist with education

collateral, marketing expenses, and website development / updates was added in 2024. The initial investment will be made in 2024 and will be carried through the planning period.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.a.3 Other

2016 – 2021 – This includes expenditures for District administration that are not represented by the other line items in this subcategory such as professional services (legal and consulting, etc.). The costs in 2017 through 2021 are actual expenses.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.b. Facility Operation

2.b.1 MRF/Recycling Center – No expenses incurred or budgeted.

2.b.2 Compost – No expenses incurred or budgeted.

2.b.3 Transfer – No expenses incurred or budgeted.

2.b.4 Special Waste – No expenses incurred or budgeted.

2.c. Landfill Closure/Post-Closure – No expenses incurred or budgeted.

2.d. Recycling Collection

2.d.1 Curbside – No expenses incurred or budgeted.

2.d.2 Drop-off –

2017 – 2021 – Actual costs to operate the District's drop-off collection program. The District contracts with a private sector hauler to provide containers for recycling, collect recyclables, and process recyclables.

2022 – 2038 – Drop-off costs are held at 3% throughout the planning period as this is a contracted service. The District expects to remove a drop-off site in 2023. To account for this the District removed $10,000 from the drop-off costs in 2023. Expenses flatline after 2031.

2.d.3 Combined Curbside/Drop-off – No expenses incurred or budgeted.

2.d.4 Multi-Family – No expenses incurred or budgeted.

2.d.5 Business/Institutional –

2017 – 2021 – Actual costs for technical service and start-up services for recycling.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.d.6 Other –

2017 – 2021 – Actual costs to implement County Office Recycling Program. The District contracts with shredding service, office cleaning service, and private sector hauler.

2017 – 2021 – Actual costs for technical service and start-up services for recycling.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.e. Special Collections

2.e.1. Tire Collection –

2017 – 2021 – Actual costs to implement Scrap Tire Collection Program. The District contracts with private businesses to manage a one-day collection event for households.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.e.2. HHW Collection –

2017 – 2021 – Actual costs to implement Household Hazardous Waste Management Program. The District contracts with private business to manage a semi-permanent collection opportunity for households.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate. The District anticipates a considerable increase in HHW management costs and adjusted this program's cost to $80,000 in 2022 with a 3% annual increase.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.e.3. Electronics Collection –

2017 – 2021 – Actual costs to implement Electronics Collection Program. The District contracts with a local private business to accept E-waste from households for one month out of a year.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.e.4. Appliance Collection – The cost incurred by the District to host electronics collection events.

2017 – 2021 – Actual costs to implement Curbside Freon Appliance Collection. The District contracts with a private business to manage the curbside collection, Freon removal, and recycling. In 2021, the program was phased out.

2.e.5. Other Collection Drives – No expenses incurred or budgeted.

2.f. Yard Waste/Other Organics – No expenses incurred or budgeted.

2.g. Education/Awareness

2.g.1 Education Staff - No expenses incurred or budgeted for this line item. Staff costs to implement programs and strategies for education and outreach are absorbed in the personnel line item.

2.g.2. Advertisement/Promotion -

2017 – 2021 – Actual costs for education and outreach supplies.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.g.3. Other –

2017 – 2021 – Actual costs for grant awards and private contract.

2022 – 2038 – No costs budgeted in the planning period.

2.h.1 General Market Development Activities - No expenses incurred or budgeted.

2.h.2 ODNR pass-through grant - No expenses incurred or budgeted.

2.i Service Contracts - No expenses incurred or budgeted.

2.j Feasibility Studies - No expenses incurred or budgeted.

2.k Waste Assessments/Audits - No expenses incurred or budgeted.

2.l Dump Cleanup - No expenses incurred or budgeted.

2.m. Litter Collection/Education –

2017 – 2021 – Actual costs for Roadside Litter Collection program.

2022 – 2031 – Costs estimated in 2023 through 2031 are based off historical values multiplied by 3% inflation rate.

2032 – 2039 – Costs are projected using a 3% inflation rate through 2031. Expenses flatline after 2031.

2.n. Emergency Debris Management - No expenses incurred or budgeted.

2.o. Loan Payment - No expenses incurred or budgeted.

2.p. Other – One expense incurred in 2019. This is the District's P2 internship program.

3. Health Dept. Enforcement - No expenses incurred or budgeted.

4. County Assistance - No expenses incurred or budgeted

5. Well Testing - No expenses incurred or budgeted

6. Out-of-State Waste Inspection - No expenses incurred or budgeted

7. Open Dump, Litter Law Enforcement - No expenses incurred or budgeted

8. Health Department Training - No expenses incurred or budgeted

9. Municipal/Township Assistance - No expenses incurred or budgeted

Revenues and expenses may change from projections anticipated in this Plan Update. Additional revenues are not expected; however, revenues could increase or decrease from what is projected. In the event additional revenues are received, and projected expenses remain within budgeted allowances, additional revenues may be added to the carryover balance.

Nothing contained in these budget projections should be construed as a binding commitment by the District to expend a specific amount of money on a particular strategy, facility, program and/or activity. The Board of Directors, with the advice and assistance of District staff, will review and revise the budget as needed to implement planned strategies, facilities, programs and/or activities as effectively as possible with funds available. The District reserves the right to revise the budget and reallocate funds as programs change or as otherwise determined to be in the best interest of the District.

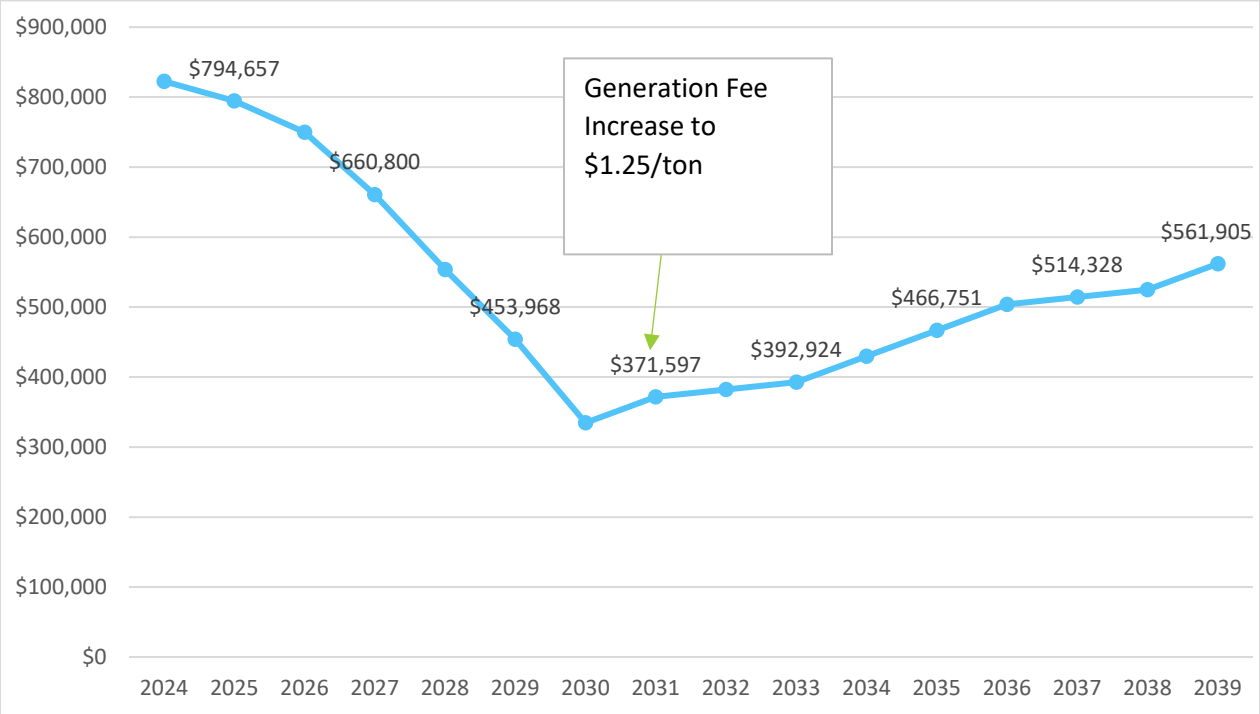
Table O-8 Budget Summary

Year ($)	Revenue	Expenses	Annual Surplus/Deficit	Balance
2016			**Ending Balance**	$1,045,938

Year ($)	Revenue	Expenses	Annual Surplus/Deficit	Balance
2017	$405,354	$505,931	-$100,578	$945,360
2018	$431,062	$511,911	-$80,849	$864,511
2019	$494,077	$626,164	-$132,086	$732,424
2020	$579,938	$567,664	$12,274	$744,699
2021	$595,600	$556,356	$39,244	$783,942
Reconciliation between auditor balance and Ohio EPA 2022 beginning balance				**$695,050**
2022	$678,648.00	$593,835.93	$84,812.07	$779,862
2023	$690,000.00	$635,631.08	$54,368.92	$834,231
2024	$676,805.10	$688,385.51	$(11,580.41)	$822,651
2025	$680,865.93	$708,860.08	$(27,994.14)	$794,657
2026	$684,951.13	$729,948.88	$(44,997.75)	$749,659
2027	$689,060.84	$777,920.35	$(88,859.51)	$660,799
2028	$693,195.20	$800,293.46	$(107,098.26)	$553,701
2029	$697,354.37	$797,087.76	$(99,733.39)	$453,968
2030	$701,538.50	$820,823.39	$(119,284.89)	$334,683
2031	$882,184.66	$845,271.09	$36,913.57	$371,597
2032	$882,184.66	$871,521.09	$10,663.57	$382,260
2033	$882,184.66	$871,521.09	$10,663.57	$392,924
2034	$882,184.66	$845,271.09	$36,913.57	$429,837
2035	$882,184.66	$845,271.09	$36,913.57	$466,751
2036	$882,184.66	$845,271.09	$36,913.57	$503,664
2037	$882,184.66	$871,521.09	$10,663.57	$514,328
2038	$882,184.66	$871,521.09	$10,663.57	$524,991
2039	$882,184.66	$845,271.09	$36,913.57	$561,905

Historically the District auditor reports ending fund balance differs from Ohio EPA fee summary balance reports. It's been an accounting error that stemmed before the current District coordinator's tenure and is believed to be a result of cash versus accrual accounting systems. This 2025 Plan Update is reconciling the two reports as shown in **Table O-8**. The ending balance for 2021 matches the County auditor reports and is used as the beginning balance for 2022 projection calculations. **Table O-2** below shows the District's projected fund balance.

Figure O-2 District Budget Through Planning Period



The District's fund balance is expected to decrease primarily as a result of inflation and programmatic expenditures. In 2031, the District anticipates the need to raise the generation fee from its current $1.00 per ton cost to $1.25 per ton in order to maintain the necessary funds. This minimal fee increase will allow the District to maintain programming. Planning for a generation fee increase in 2031 means the fee increase will not be enacted during this planning period, giving the District time to reassess the budget during the next plan cycle.

C. Alternative Budget

The District does not anticipate the need to identify any type of contingent funding or financing that would be necessary to fund any type of program activity in conjunction with Plan implementation efforts. As such, **Tables O-8** through **O-11** are not included in this analysis.

D. Major Facility Project

The District is not planning to construct or operate a new solid waste management facility during this planning period.

The District does not anticipate the need to develop an in-District sanitary landfill or transfer station by either the private or public sector given access to existing disposal capacity. However, the District does recognize that over the planning period, reasonable

economic access to disposal capacity may pose a problem to ensure that District-generated solid waste continues to be disposed at an acceptable rate at licensed facilities. In the event the District determines that the access to, and the costs for disposal becomes an economic burden for residents and businesses, the District reserves the right to explore development of a transfer facility for District-generated solid waste.

APPENDIX P

DESIGNATION

Appendix P. Designation

Ohio law gives each SWMD the ability to control where waste generated from within the SWMD can be taken. Such control is generally referred to as flow control. In Ohio, SWMDs establish flow control by designating facilities. SWMDs can designate any type of solid waste facility, including recycling, transfer, and landfill facilities.[1]

Even though a District has the legal right to designate, it cannot do so until the policy committee specifically conveys that authority to the board of directors (County Commissioners). The policy committee does this through a solid waste management plan. If the SWMD desires to have the ability to designate facilities, then the policy committee includes a clear statement in the solid waste management plan giving the designation authority to the board of directors. The policy committee can also prevent the board of directors from designating facilities by withholding that authority in the solid waste management plan.

Even if the policy committee grants the board of directors the authority to designate in a solid waste management plan, the board of directors make the final decision of whether or not to act on that authority. If it chooses to use its authority to designate facilities, then the board of directors must follow the process that is prescribed in ORC Section 343.014. If it chooses not to designate facilities, then the board of directors simply takes no action.

Once the Board of Directors (Board) designates facilities, only designated facilities can receive the SWMD's waste. In more explicit terms, no one can legally take waste from the SWMD to undesignated facilities and undesignated facilities cannot legally accept waste from the SWMD. The only exception is when the board of directors grants a waiver to allow an undesignated facility to take the SWMD's waste. Ohio law prescribes the criteria that the board must consider when deciding whether to grant a waiver and the time period available to the board for deciding on a waiver request.

Statement Authorizing/Precluding Designation

The Board of Directors of the Butler County Solid Waste Management District is hereby authorized to establish facility designations in accordance with Section 343.014 of the Ohio Revised Code. In addition, facility designations will be established and governed by applicable District rules.

A. Designated Facilities

[1] Source-separated recyclables delivered to a "legitimate recycling facility" as defined in Ohio law are not subject to the requirements of designation. (A legitimate recycling facility is loosely defined as a facility which consistently recycles a majority of the materials processed on-site.)

The District continues to support an open market for the collection, transport, and disposal of solid waste. As required in Section 3734.53(A)(13)(a) of the Ohio Revised Code, the District is identifying all Ohio licensed and permitted solid waste landfill, transfer, and resource recovery facilities licensed and permitted out-of-state landfill, transfer, and resource recovery facilities.

The District is not designating any facilities in this Plan Update

Table P-1. Facilities Designated

Facility Name	Location		Facility Type	Year Designated
	County	State		
In-District				
None.				
Out-of-District				
None.				
Out-of-State				
None.				

B. Documents

None

APPENDIX Q

DISTRICT RULE

Appendix Q. District Rules

A. Existing Rules

The District reserves the authority for the Board to adopt rules under the provision of Ohio Revised Code.

The District has not enacted or adopted any rules.

B. Proposed Rules

The District does not intend to adopt additional rules during this planning cycle. However, in the event it is determined necessary, the Policy Committee upon recommendation to the Board of County Commissioners, reserves the right to adopt any such rules as authorized by ORC 3734.53 that will support implementation of the Plan.

APPENDIX R

BLANK SURVEY FORMS AND RELATED INFORMATON

EXECUTIVE DIRECTOR
Anne Fiehrer Flaig

130 High Street, 5th Floor
Hamilton, Ohio 45011

513.887.3963
anne.fiehrerflaig@bcohio.us

recycle.bcohio.us

Butler County
RECYCLING & SOLID WASTE

July 8, 2022

Dear Butler County Commercial Business,

Butler County Solid Waste District seeks your participation in a statewide business recycling survey. The purpose of this study is to collect data on the types and amounts of solid waste that businesses recycled in 2021. This information is critical for the District to track progress in meeting Ohio's statewide recycling goals. The data you provide will be combined with other area businesses in a status report submitted annually to Ohio EPA. All data received will be compiled and aggregated by the district, no individual business data will be reported.

Why is your business being surveyed?
Ohio law requires solid waste districts to plan and implement programs to reduce and recycle waste for the residential, commercial, and industrial sectors. An important part of developing programs is to determine the types and amounts of solid waste being recycled by businesses located within Butler County.

How will the data be used?
The data you provide informs Butler County of progress in meeting local and state recycling goals. With your feedback we can determine how much waste is being diverted from Ohio landfills, assess recycling infrastructure and determine recycling needs. The District will review data from the residential, commercial and industrial sectors to determine the amount of material disposed versus recycled in 2021. Your data combined with others helps us calculate the recycling rate in Butler County and in the state of Ohio.

Why participate in the survey?
Your survey participation connects your business directly with Butler County and allows us to provide a variety of services to you. The District can assist with on-site waste assessments, identify financial resources such as grants, and develop targeted recycling communication tools for your employees.

You may fill out the survey online by using this link:
https://form.jotform.com/221363448002042

Questions? Contact Anne Fiehrer Flaig at Butler County Solid Waste District at anne.fiehrerflaig@bcohio.us or, (513) 887-3963.

You may also contact the District's consultant, Emily Barber, at ebarber@gtenvironmental.com, or (614) 964-7294.

Please complete and submit survey responses no later than August 5th, 2022.

Thank you for your time and participation!

BUTLER COUNTY RECYCLING & SOLID WASTE DISTRICT

Anne Fiehrer Flaig, Director

Dear Commercial Business:

Thank you for completing this survey. The information you provide for your company is crucial to monitoring Butler County Solid Waste District's progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material commercial businesses recycled in Butler County in 2021. Your company's data **will not** be reported individually; all data will be aggregated and summarized by the North American Industry Classification Systems (NAICS) category.

For assistance, or questions about completing this form, please contact Anne Fiehrer Flaig, Butler County Solid Waste District Director, at anne.fiehrerflaig@bcohio.us or call (513) 887-3963. You may also contact the District's consultant, Emily Barber, at ebarber@gtenvironmental.com or (614) 964-7294.

Please complete and submit this survey no later than 8/5/2022.

Please SAVE your survey document once complete, THEN email, fax, or mail the completed survey to Butler County:

- Email: Anne Fiehrer Flaig at anne.fiehrerflaig@bcohio.us, Subject Line: 2021 Commercial Survey
- Fax: (513) 887-3777 Attn: Anne Flaig
- Mail: Anne Fiehrer Flaig at 130 High Street, Hamilton, Ohio 45011

Instructions for Table A:

Please provide all information requested in ***Table A*** below. Even if your business does not currently recycle or is unable to report quantities of materials recycled, please complete ***Table A***. Doing so will allow Butler County Solid Waste District to contact you in the future to discuss your recycling needs.

Table A. Company Information			
Name:		County:	
Address:	City:		Zip:
Contact Person:	Title:		
Email:	Telephone Number (include area code): ( ) -		
Primary NAICS:	Secondary NAICS:	Number of full-time employees:	
Would you like to be contacted by your local solid waste management district for recycling assistance? ☐Yes ☐No			

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by commercial businesses in Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris.

The list in ***Table B*** is not all-inclusive. If your facility recycles a material that is not listed in ***Table B***, please enter the name and quantity of that material on a line labeled **"Other".** Some materials may not apply to your operation; simply enter "0" for those materials. Some of the materials are listed in broad categories. For example, "Plastics" include

plastics #1-7, plastic films, etc. Please refer to the ***"Materials Cheat Sheet"*** attached to the end of this document for examples of materials and definitions.
If you do not currently track this information internally, your solid waste hauler or recycling processor may be able to provide it upon request. Butler County Solid Waste Management District may also provide you with assistance.

Table B. Quantities of Recycled Materials			
Recyclable Material Category	**Amount Recycled in 2021**	**Units**	**Name of Hauler or Processor that takes the material/other comments**
Lead-Acid Batteries		☐ lbs ☐ tons ☐ yd^3	
Food		☐ lbs ☐ tons ☐ yd^3	
Glass		☐ lbs ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs ☐ tons ☐ yd^3	
All Other Paper		☐ lbs ☐ tons ☐ yd^3	
Plastics		☐ lbs ☐ tons ☐ yd^3	
Textiles		☐ lbs ☐ tons ☐ yd^3	
Wood		☐ lbs ☐ tons ☐ yd^3	
Rubber		☐ lbs ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs ☐ tons ☐ yd^3	
Yard Waste		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
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Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	

Table C: Please Provide any additional information, comments, suggestions, questions, etc.

Anne Fiehrer Flaig, Executive Director
Butler County Solid Waste District
Phone (513) 887-3963 / Email: anne.fiehrerflaig@bcohio.us

Thank You for completing this survey!

Materials Cheat Sheet

Food
- Compostable food waste
- Food donations

Glass
- Bottles (any color)
- Jars

Ferrous Metals
- Mild Steel
- Carbon Steel
- Stainless Steel
- Cast Iron
- Wrought Iron

Non-Ferrous Metals
- Aluminum
- Copper
- Brass
- Silver
- Lead
- Misc. Scrap Metals

All Other Paper
- Office paper
- Paperboard
- Newspapers
- Folders
- Telephone Books
- Magazines
- Catalogs
- Junk Mail

Plastics
- Plastics #1-7
- Plastics Bottles
- Plastics Jugs
- Shrink Wrap
- Plastics Films
- Coat Hangers

Textiles
- Fabrics
- Clothes
- Carpet

Wood
- Bark
- Woodchips
- Sawdust
- Scrap Wood
- Shipping Pallets
- Boards

Commingled Recyclables
- This is a mix of several different materials that are placed into one container and hauled for recycling. It can include all or a combination of the materials listed above.

Examples of materials that fall under "Other"

- Appliances
- Electronics
- Non-hazardous chemical (solids only)
- Stone/Clay/Sand
- Yard Waste
- Sludge
- Tires
- Any other solid waste that is recycled at your facility

Estimating recycling tonnages – if you are not able to obtain exact tonnages of materials recycled, there are numerous ways to estimate the amount of material recycled in any given year. Below are some common conversion factors that may assist you with your estimations:

Material Type	Density (lb/cu yd)
Mixed Paper Recycling	484
Bottles and Cans	200
Single Stream Recycling	139
Cardboard	100

- (size of container (in cubic yards) x number of collections per month x 12) x density (see table above) = Total pounds per year
- 2,000 pounds = 1 ton

EXECUTIVE DIRECTOR
Anne Fiehrer Flaig

130 High Street, 5th Floor
Hamilton, Ohio 45011

513.887.3963
anne.fiehrerflaig@bcohio.us

recycle.bcohio.us

Butler County
RECYCLING & SOLID WASTE

July 8, 2022

Dear Butler County Manufacturer,

Butler County Solid Waste District seeks your participation in a statewide business recycling survey. The purpose of this study is to collect data on the types and amounts of solid waste that industries recycled in 2021. This information is critical for the District to track progress in meeting Ohio's statewide recycling goals. The data you provide will be combined with other area businesses in a status report submitted annually to Ohio EPA. All data received will be compiled and aggregated by the District, no individual industry data will be reported.

Why is your business being surveyed?
Ohio law requires solid waste districts to plan and implement programs to reduce and recycle waste for the residential, commercial, and industrial sectors. An important part of developing programs is to determine the types and amounts of solid waste being recycled by businesses located within Butler County.

How will the data be used?
The data you provide informs Butler County of progress in meeting local and state recycling goals. With your feedback we can determine how much waste is being diverted from Ohio landfills, assess recycling infrastructure and determine recycling needs. The District will review data from the residential, commercial and industrial sectors to determine the amount of material disposed versus recycled in 2021. Your data combined with others helps us calculate the recycling rate in Butler County and in the state of Ohio.

Why participate in the survey?
Your survey participation connects your industry directly with Butler County and allows us to provide a variety of services to you. The District can assist with on-site waste assessments, identify financial resources such as grants, and develop targeted recycling communication tools for your employees.

You may fill out the survey online by using this link:
https://form.jotform.com/221364599634061

Questions? Contact Anne Fiehrer Flaig at Butler County Solid Waste District at anne.fiehrerflaig@bcohio.us or, (513) 887-3963.

You may also contact the District's consultant, Emily Barber, at ebarber@gtenvironmental.com or (614) 964-7294.

Please complete and submit survey responses no later than August 5, 2022.

Thank you for your time and participation!

BUTLER COUNTY RECYCLING & SOLID WASTE DISTRICT

Anne Fiehrer Flaig, Director

Dear Industrial Facility Manager:

Thank you for completing this survey. The information you provide for your company is crucial to monitoring Butler County Solid Waste District's progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material industrial businesses recycled in Butler County in 2021. Your company's data **will not** be reported individually; all data will be aggregated and summarized by the North American Industry Classification Systems (NAICS) category.

For assistance, or questions about completing this form, please contact Anne Fiehrer Flaig, Butler County Solid Waste District Director, at anne.fiehrerflaig@bcohio.us or call (513) 887-3963. You may also contact the District's consultant, Emily Barber, at ebarber@gtenvironmental.com or (614) 964-7294.

Please complete and submit this survey no later than 8/5/2022.

Options for Returning the Completed Survey

- Email: Anne Fiehrer Flaig at anne.fiehrerflaig@bcohio.us, Subject Line: 2021 Industrial Survey
- Fax: (513) 887-3777 Attn: Anne Flaig
- Mail: Anne Fiehrer Flaig at 130 High Street, Hamilton, Ohio 45011

Instructions for Table A:

Please provide all information requested in ***Table A*** below. Even if your business does not currently recycle or is unable to report quantities of materials recycled, please complete ***Table A***. Doing so will allow Butler County Solid Waste District to contact you in the future to discuss your recycling needs.

Table A. Company Information			
Name:		County:	
Address:	City:		Zip:
Contact Person:	Title:		
Email:	Telephone Number (include area code): ( ) -		
Primary NAICS:	Secondary NAICS:	Number of full-time employees:	
Would you like to be contacted by your local solid waste management district for recycling assistance? ☐Yes ☐No			

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by industrial facilities on Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris.

The list in ***Table B*** is not all-inclusive. If your facility recycles a material that is not listed in ***Table B***, please enter the name and quantity of that material on a line labeled **"Other".** Some materials may not apply to your operation; simply enter "0" for those materials. Some of the materials are listed in broad categories. For example, "Plastics" include

plastics #1-7, plastic films, etc. Please refer to the ***"Materials Cheat Sheet"*** attached to the end of this document for examples of materials and definitions.
If you do not currently track this information internally, your solid waste hauler or recycling processor may be able to provide it upon request. Butler County Solid Waste Management District may also provide you with assistance.

Table B. Quantities of Recycled Materials			
Recyclable Material Category	**Amount Recycled in 2021**	**Units**	**Name of Hauler or Processor that takes the material/other comments**
Food		☐ lbs ☐ tons ☐ yd^3	
Glass		☐ lbs ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs ☐ tons ☐ yd^3	
All Other Paper		☐ lbs ☐ tons ☐ yd^3	
Plastics		☐ lbs ☐ tons ☐ yd^3	
Textiles		☐ lbs ☐ tons ☐ yd^3	
Wood		☐ lbs ☐ tons ☐ yd^3	
Rubber		☐ lbs ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs ☐ tons ☐ yd^3	
Ash (recycled ash only)		☐ lbs ☐ tons ☐ yd^3	
Non-Excluded Foundry		☐ lbs ☐ tons ☐ yd^3	
Flue Gas Desulfurization		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	
Other:		☐ lbs ☐ tons ☐ yd^3	

Table C: Please Provide any additional information, comments, suggestions, questions, etc.

Thank You for completing this survey!

Anne Fiehrer Flaig, Executive Director
Butler County Solid Waste District
Phone (513) 887-3963 / Email: anne.fiehrerflaig@bcohio.us

Materials Cheat Sheet

Food
- Compostable food waste
- Food donations

Glass
- Bottles (any color)
- Jars

Ferrous Metals
- Mild Steel
- Carbon Steel
- Stainless Steel
- Cast Iron
- Wrought Iron

Non-Ferrous Metals
- Aluminum
- Copper
- Brass
- Silver
- Lead
- Misc. Scrap Metals

All Other Paper
- Office paper
- Paperboard
- Newspapers
- Folders
- Telephone Books
- Magazines
- Catalogs
- Junk Mail

Plastics
- Plastics #1-7
- Plastics Bottles
- Plastics Jugs
- Shrink Wrap
- Plastics Films
- Coat Hangers

Textiles
- Fabrics
- Clothes
- Carpet

Wood
- Bark
- Woodchips
- Sawdust
- Scrap Wood
- Shipping Pallets
- Boards

Commingled Recyclables
- This is a mix of several different materials that are placed into one container and hauled for recycling. It can include all or a combination of the materials listed above.

Examples of materials that fall under "Other"

- Appliances
- Electronics
- Non-hazardous chemical (solids only)
- Stone/Clay/Sand
- Yard Waste
- Sludge
- Tires
- Any other solid waste that is recycled at your facility

Estimating recycling tonnages – if you are not able to obtain exact tonnages of materials recycled, there are numerous ways to estimate the amount of material recycled in any given year. Below are some common conversion factors that may assist you with your estimations:

Material Type	Density (lb/cu yd)
Mixed Paper Recycling	484
Bottles and Cans	200
Single Stream Recycling	139
Cardboard	100

- (size of container (in cubic yards) x number of collections per month x 12) x density (see table above) = Total pounds per year
- 2,000 pounds = 1 ton

APPENDIX S

SITING STRATEGY

Appendix S. Siting Strategy

The District's Siting Strategy includes the following:

Submission and Review of Plans and Specifications and Application of Siting Strategy to Proposed Solid Waste Facilities, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste, Maximum Feasible Utilization and Exemption of Existing in-District Solid Waste Facilities.

Definitions
For the purposes of this Section, the following definitions shall apply:

a. Solid Waste Facilities means all solid waste collection, storage, disposal, transfer, recycling, processing, and resource recovery facilities.
b. Siting Strategy means the process by which the Board of Directors (Board) shall review proposals for the construction or modification of any Solid Waste Facility and determine whether such proposal complies with the Plan Update.
c. General Plans and Specifications means that information required to be submitted to the Board for review for the construction or modification of any proposed Solid Waste Facility and includes, but is not limited to, a site plan for the proposed facility, architectural drawings or artists renderings of the proposed facility, the projected size and capacity of the proposed facility and all other information identified in this Siting Strategy.
d. Applicant means a person, municipal corporation, township, or other political subdivision proposing to construct or modify a Solid Waste Facility within the District.
e. Modify means a significant change in the operation of an existing in-District Solid Waste Facility: (1) that requires the approval of the Director of the Ohio Environmental Protection Agency; or (2) that involves a change in the type of material, manner of operation, or activities conducted at the facility (i.e., a conversion of a legitimate recycling facility to a transfer station).

Purpose and Objective
The District's Siting Strategy for Solid Waste Facilities ensures that proposals to construct a new Solid Waste Facility within the District or modify an existing Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste within the District are in compliance with the Plan Update. The Board shall not approve General Plans and Specifications for any proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste or the modification of any existing in-District Solid Waste Facility where the construction and operation of the proposed facility, as determined by the Board, will:

1) Have significant adverse impacts upon the Board's ability to finance and implement the Plan Update; or
2) Not conform with the design, construction, operating and/or siting requirements of the Ohio EPA solid waste rules in Ohio Administrative Code (OAC) Chapter 3745-27.

Except as otherwise provided herein, all Solid Waste and Recycling Facilities, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste, proposed by or on behalf of any person, municipal corporation, township, or other political subdivision, except for Solid Waste and Recycling Facilities proposed by the District, shall be subject to this Siting Strategy and shall comply with the requirement to submit General Plans and Specifications to the District.

A. Siting Procedure Limited Exemption:
Notwithstanding the foregoing requirement, existing in-District Solid Waste Facilities specifically identified in this Siting Strategy are not subject to this Siting Strategy unless the owner or operator of any such in-District Solid Waste Facility, resource recovery facilities, waste-to-energy facilities, resource recovery facilities or other facilities that manage solid waste proposes a modification to the operation of the in-District Solid Waste Facility:

    1) that requires the approval of the Director of the Ohio Environmental Protection Agency; or
    2) that involves a change in the type of material, manner of operation or activities conducted at the facility (i.e., a conversion of a legitimate recycling facility to a transfer station).

B. Maximum Feasible Utilization of Existing In-District Solid Waste Facilities:
The Board has determined that the owners and operators of existing in-District Solid Waste Facilities, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste rely on market factors in the determination of whether to expand or modify the facilities or current operations and activities at such existing facilities. The private corporate decisions of those owners and operators determine and establish the maximum feasible utilization of those existing in-District Solid Waste Facilities, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste and the limited exemption for such existing in District Solid Waste Facilities from the application of this Siting Strategy permits the owners and operators of those facilities to determine the maximum feasible utilization of those facilities. Other than the limited exemption from the application of this Siting Strategy, the Board has no additional obligation with respect to the continuing operation or modification of those facilities.

Requirements

The District requires that General Plans and Specifications for all proposals to construct any new Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste within the District or modify any existing in-District

Solid Waste Facility be submitted for a determination by the Board of whether such General Plans and Specifications and the proposals comply with the Plan Update.

Procedure implementing Siting Strategy

Unless otherwise provided herein, or an exemption or waiver from this requirement has been granted by the Board, the following procedure and process shall be followed in the event the construction of a new Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste or the modification of an existing in-District Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste is proposed within the District:

Step 1: Submittal Plans and Specifications

Any person, municipal corporation, township, or other political subdivision proposing to construct a new Solid Waste Facility or modify an existing in-District Solid Waste Facility, resource recovery facilities, waste-to energy facilities or other facilities that manage solid waste shall:

1) Provide General Plans and Specifications of the proposed facility to the Board. Such General Plans and Specifications shall include, but may not be limited to, the following documents and information:

    a) A site plan for the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste.
    b) Architectural drawings or artists renderings of the proposed Solid Waste Facility, resource recovery facilities, waste-to energy facilities or other facilities that manage solid waste.
    c) Availability of necessary utilities.
    d) Projected size and capacity of the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste.
    e) Hours of operation
    f) anticipated source of solid waste or recyclable materials to be received at the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste. If recycling activities will be conducted at the proposed facility, a detailed description of the recycling activity including materials to be recycled, technology to be utilized to accomplish the separation and processing of the recyclable materials, the anticipated percentage of waste reduction anticipated from the operation of the facility and the identification of the market for the sale of the recyclable materials recovered at the facility must be submitted.
    g) Types and anticipated number of vehicles utilizing the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste on an hourly and daily basis.
    h) Routes to be used by vehicles utilizing the facility and methods of ingress and egress to the facility.

i) Any other information necessary for the Board to evaluate whether the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste complies with each of the criteria listed below.

2) Adequately demonstrate to the Board that the construction or modification and subsequent operation of the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste will:

a) Be consistent with the goals, objectives, projections, and strategies contained in the Plan Update.
b) Not adversely affect financing for the implementation of the Plan Update.
c) Be installed, operated, and maintained to be harmonious and appropriate in appearance and use with the existing or intended character of the area.
d) Be adequately served by essential public facilities and services.
e) Not create excessive additional requirements at public cost for public facilities or services.
f) Not be detrimental to the economic welfare of the community.
g) Not involve the excessive production of traffic, noise, smoke, fumes, or odors; have vehicular approaches to the property that are designed not to create an interference with traffic.
h) Not result in the destruction, loss, or damage of a natural, scenic, or historic feature of major importance.
i) Not adversely affect property values within the surrounding community.

3) The applicant shall submit any additional information as the Board requests to establish, to the reasonable satisfaction of the Board, that the construction or modification and subsequent operation of the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste or proposed modification of an existing in District Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste will comply with the Plan Update.

Step 2: Board Review

The Board shall conduct a review of the information submitted for the proposed Solid Waste Facility to determine whether the Applicant has adequately demonstrated that the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste will be constructed or modified and subsequently operated in compliance with the Plan Update and demonstrated that the impacts listed in Step I do not adversely affect the District, its residents and businesses. The Board may expend District funds to employ a consultant or consultants familiar with Solid Waste Facility construction and operation, land use planning and solid waste planning to assist the Board in implementing this Siting Strategy and in its determination of whether a proposed Solid Waste Facility or modification of an existing in District Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste complies with the Plan Update. Within sixty days of receiving the General Plans and Specifications from an applicant, the Board shall decide as to whether the General

Plans and Specifications submitted by the applicant contain sufficient information for the Board to complete its review of the proposal. In the event the Board determines that more information is necessary to complete its review of the proposal, the Board shall notify the Applicant of such request in writing within ten days. Within ninety days of determining that the Applicant has submitted a complete set of General Plans and Specifications, the Board shall determine whether the proposal complies with the Plan Update and the criteria identified in Step 1 herein. The Board shall notify the Applicant of its decision in writing. While the Board has broad discretion regarding the approval of General Plans and Specifications for a proposed Solid Waste Facility or modification of an existing in-District Solid Waste Facility, it is the intent of this Siting Strategy that the Board shall not approve General Plans and Specifications for a proposed Solid Waste Facility unless the Board determines that the proposed Solid Waste Facility or modification of an existing in-District Solid Waste Facility complies with the Plan Update and the criteria identified in Step 1 herein.

Step 3: Development Agreement

In the event the Board determines that the proposed construction or modification and subsequent operation of a Solid Waste Facility complies with the Plan Update, the person, municipal corporation, township or other political subdivision proposing to construct or modify the Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste shall enter into a development agreement with the District which memorializes the obligations that are the basis of the Board's conclusion that the General Plans and Specifications demonstrate that the proposed facility or its modification complies with the Plan Update. The party proposing to construct a Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste shall have an ongoing obligation to comply with the Plan Update and the development agreement.

Waiver

The Board reserves the right to waive application of the requirement for the submission and Board approval of General Plans and Specifications, and any portion or all of the Siting Strategy or otherwise grant exceptions to the rules of the District, or unilaterally modify or amend the Siting Strategy if the Board concludes such waiver, modification or amendment is in the best interest of the District, its residents and businesses and will assist the Board in the successful implementation of the Plan Update and further District goals with respect to solid waste and waste reduction activities. A determination by the Board to construct or modify any District owned Solid Waste Facility shall be deemed to follow the Plan Update and the other requirements of these rules without additional review.

APPENDIX T

MISCELLANEOUS PLAN DOCUMENTS

Appendix T. Miscellaneous Required Information

During the process of preparing the plan, the policy committee signs three official documents certifying the plan. These documents are as follows.

1. Certification Statement for the Draft of the Solid Waste Management Plan - The policy committee signs this statement to certify that the information presented in the draft plan submitted to the Ohio EPA is accurate and complies with format 4.1.

2. Resolution Adopting the Solid Waste Management Plan (prior to distributing the draft plan for ratification) - The policy committee signs this resolution for two purposes:

- Adopt the draft solid waste management plan
- Certify that the information in the solid waste management plan is accurate and complies with Format 4.1.

The policy committee signs this resolution after considering comments received during the public hearing/public comment period and prior to submitting the solid waste management plan to political jurisdictions for ratification. The policy committee should not make any changes to the solid waste management plan after signing the resolution.

3. Resolution Certifying Ratification of the Solid Waste Management Plan - The policy committee signs this resolution to certify that the solid waste management plan was ratified properly by the political jurisdictions within the solid waste management district. The policy committee signs this resolution after the solid waste management plan is ratified and before submitting the ratified plan to Ohio EPA).

Butler County
RECYCLING & SOLID WASTE

CERTIFICATION STATEMENT
DRAFT SOLID WASTE MANAGEMENT PLAN

We as members of Butler County Recycling & Solid Waste Management District Policy Committee (District), do hereby certify that to the best of our knowledge and belief, the statements, demonstrations and all accompanying materials that comprise the draft District Solid Waste Management Plan Update (2025-2039), and the availability of and access to sufficient solid waste management facility capacity to meet the solid waste management needs of the District for the fifteen year period covered by the Plan Update are accurate and are in compliance with the requirements in the 2020 *District Solid Waste Management Format,* Version 4.1.

Representing the County Commissioners	July 26, 2023 Date Signed
Representing CEO of Largest City	7/26/23 Date Signed
Representing County Health Department	7/26/23 Date Signed
Representing Townships	7/26/23 Date Signed
Representing Commercial/Industrial Generators	7.26.2023 Date Signed
Representing the Public	7-26-23 Date Signed
Representing the Public	7/26/23 Date Signed

APPENDIX U

RATIFICATION RESULTS

Appendix U. Ratification Results

RATIFICATION RESULTS

This page is intentionally left blank and will be completed upon ratification of the plan.

APPENDIX V

INVENTORY OF OPEN DUMPS AND OTHER DISPOSAL FACILITIES

Appendix V. Inventory of Open Dumps and Other Disposal Facilities

In accordance with Ohio Revised Code 3734.53(A)(2) and (A)(6) provide an inventory of the following in the District:

The District does not have any open dump sites.

APPENDIX W

DISTRICT MAP

Appendix W. District Maps

In accordance with Ohio Revised Code 3734.53(A)(2) and (A)(6) provide a map that shows the locations of the disposal and diversion activities in the reference year.

Figure W-1: Disposal Facilities Used in Reference Year

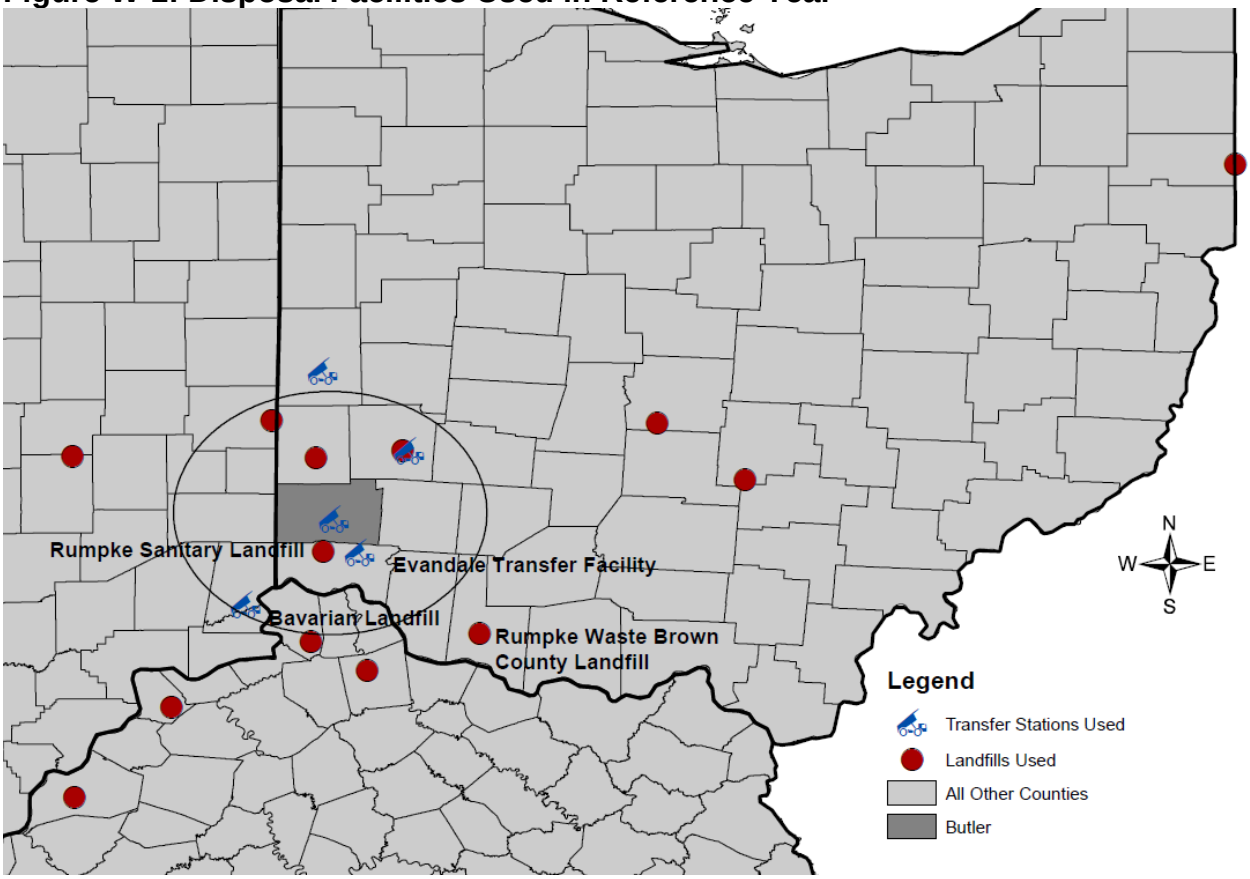

Figure W-2: Curbside Services Provided Reference Year

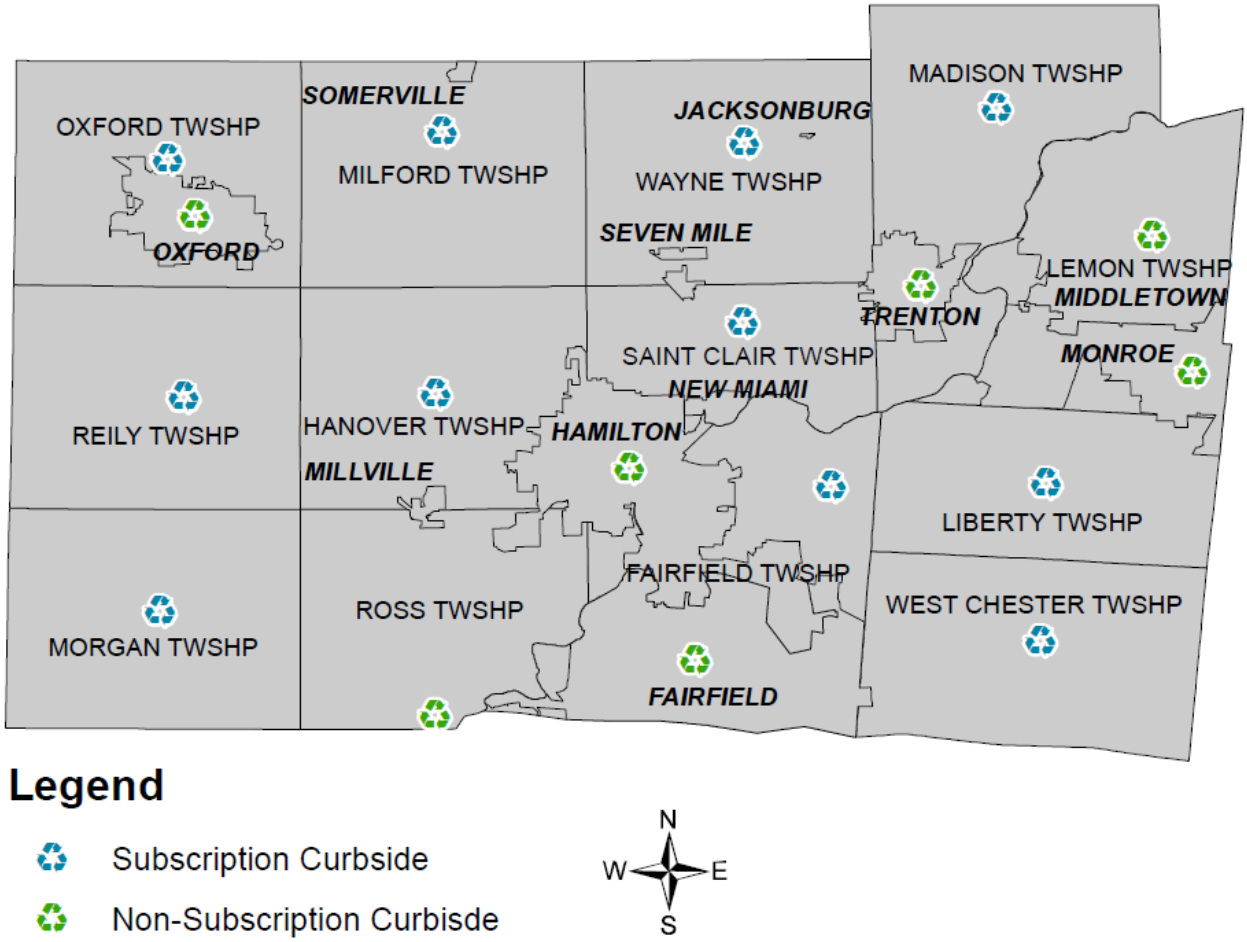

Figure W-3: Drop-Off Locations Reference Year

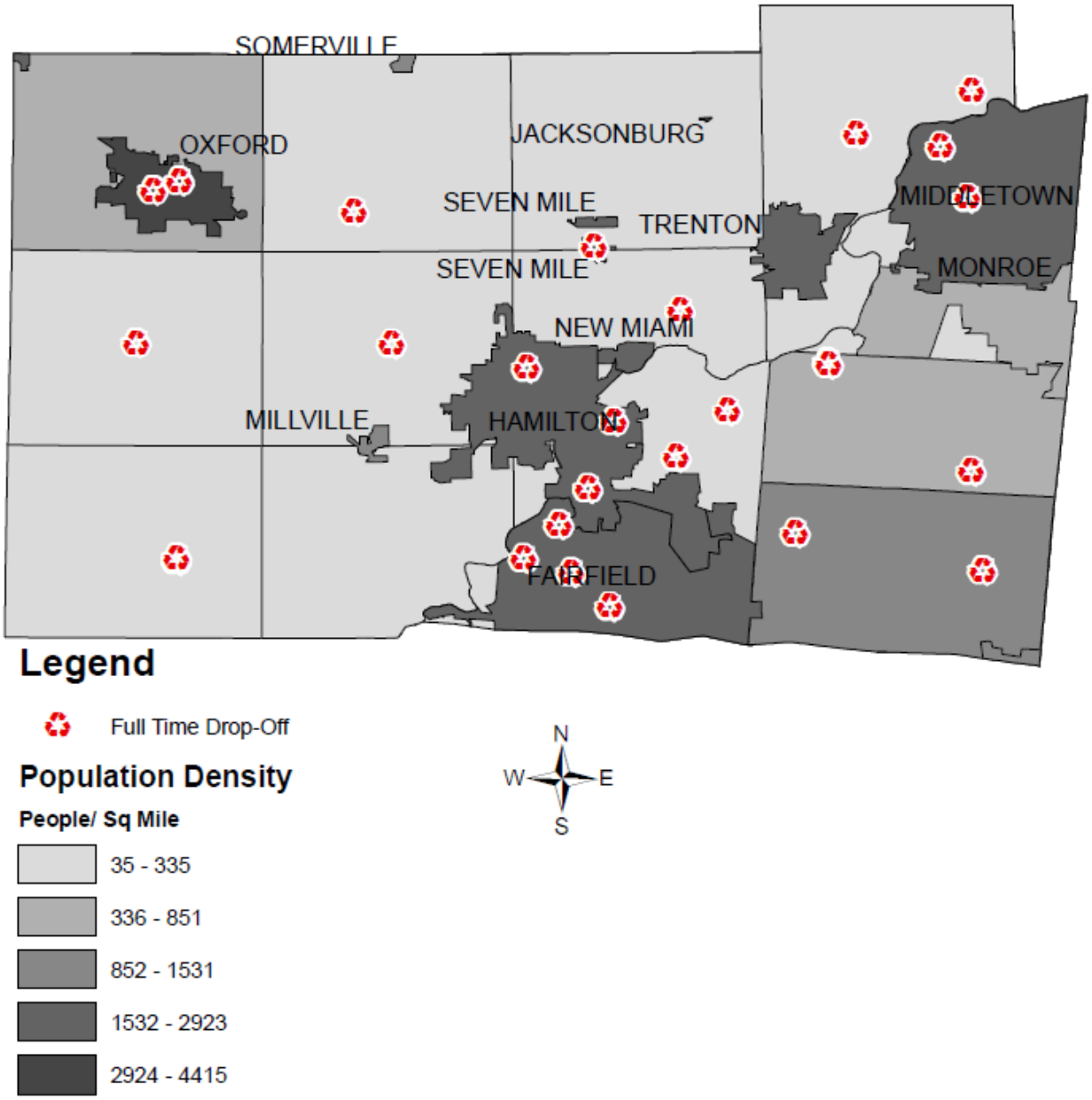

Figure W-4: Recovery Facilities Used Reference Year

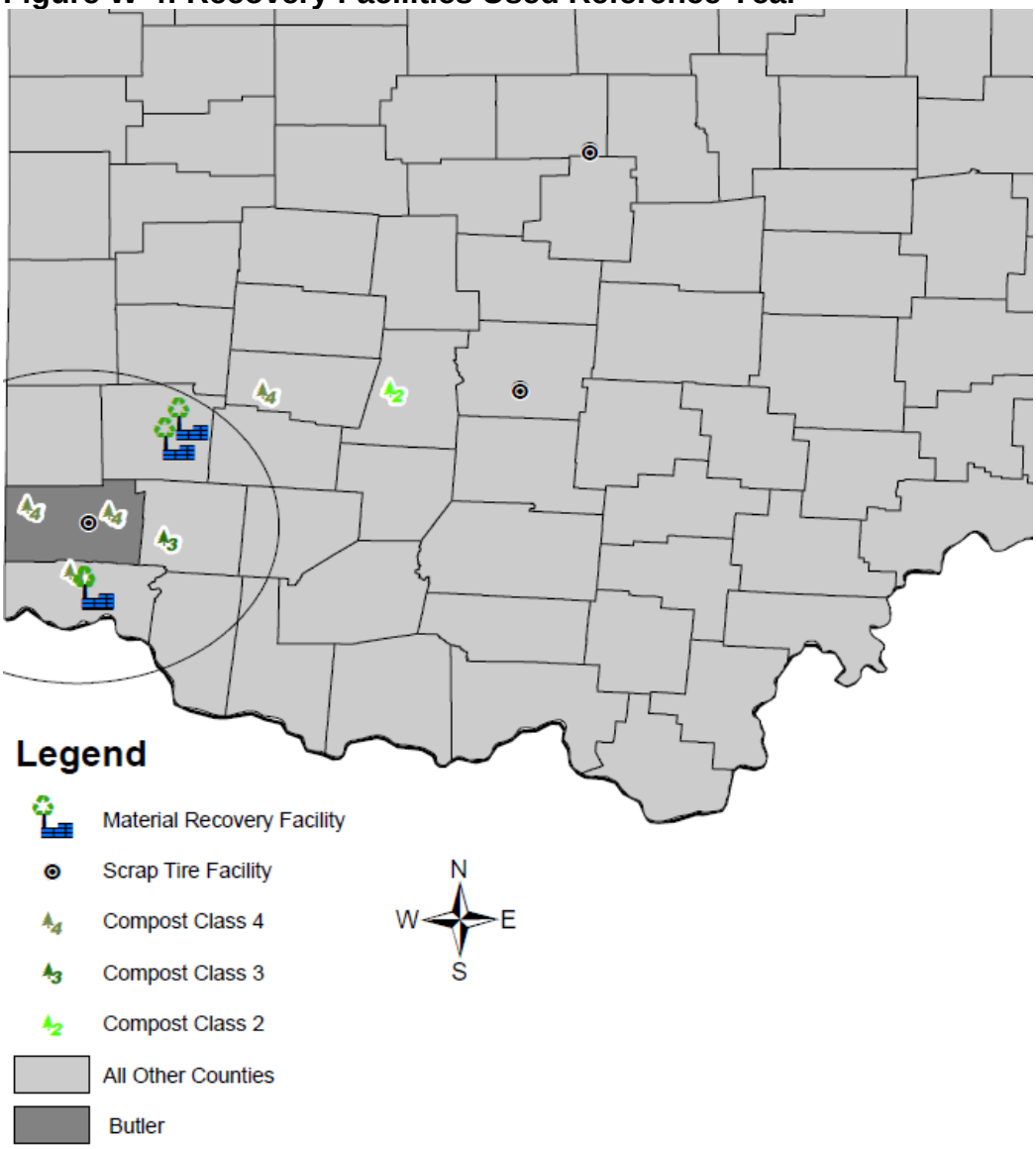

Figure W-5: District Population Density