Butler County
OHIO
Recycling and Solid Waste District

SOLID WASTE MANAGEMENT PLAN UPDATE 2018 PLAN RATIFIED

Prepared by

RRS

Resource Recycling Systems
www.recycle.com

SOLID WASTE
APPROVED
OHIO ENVIRONMENTAL PROTECTION AGENCY

AUG 02 2018

AS EVIDENCED BY COPY OF
LETTER OF APPROVAL
HERETO ATTACHED

2018 SOLID WASTE MANAGEMENT PLAN

Butler County Recycling and Solid Waste District

Ratified

Written by

RRS

416 Longshore Drive
Ann Arbor, Michigan 48105
1-800-517-9634
1-734-996-1361

This page intentionally left blank

TABLE OF CONTENTS

This page intentionally left blank

GLOSSARY

Access – For purposes of this document, access is associated with the availability of waste reduction and recycling services to waste generation within a district. In most cases, access is used as the presence or absence of waste reduction and/or recycling opportunities, and as a component of measuring compliance with Goal #1 of the State Plan.

Annual District Report – A requirement established in State Plan and prepared in accordance with OAC 3745-27-90 (F). This report is due each year to Ohio EPA. This report provides an accounting for all programs and evidence of implementation of the solid waste management plan.

Board and Board of Directors – The Butler County Board of Commissioners acts in its capacity as the solid waste management district Board of Directors.

Broker – For purposes of the this document, a business which accepts recyclables from collection or processing activities, sometimes pays a fee for the materials, and then finds an end-user or another processor to purchase the materials. A broker can also be a processor of solid waste recyclables.

Commingled – Single stream (also known as "fully commingled" or "single-sort") recycling refers to a system in which all paper fibers, cardboard, plastics, metals, and other containers are mixed for collection.

Commercial wastes – Solid waste resulting from businesses and institutional activities. This category includes shopping centers, stores, banks, theaters, gas stations, medical facilities, business offices, motels, and similar establishments. Institutional activities include government and non-profit offices, schools, prisons, religious facilities, parks and a variety of other activities that is not residential or industrial.

Composting – The controlled biological decomposition of organic solid wastes which stabilizes the organic fraction of material.

Construction & Demolition Debris – Those materials resulting from the alteration, construction, destruction, rehabilitation, or repair of manmade physical structure, including houses, buildings, roadways. Construction and demolition debris does not include solid waste or hazardous wastes, materials from mining operations, non-toxic fly ash, spent non-toxic foundry sand or slag.

Designated Solid Waste Facility – Those solid waste facilities designated in the initial or amended plan or as are designated pursuant to Ohio Revised Code Sections 343.013, 343.014, or 343.015.

District – The Butler County Solid Waste Management District operates under the direction of the Board of Commissioners.

Daily Processing Capacity – This should be the amount of materials or waste, which can be processed during a normal operating day for a facility or activity. If the facility normally operates eight hours per day, the daily processing capacity would be based upon eight hours. If the facility normally operates ten hours per day, the daily processing capacity should be based upon ten hours.

Dual Stream Recycling – A system in which paper fibers and cardboard are separated from plastics, metals, and other containers for collection.

Electronic Waste – Those materials that comprise the following types of devices: cell phones, laptop, computers, printers, televisions, monitors, desktop computers, etc.

Exempt Waste – Material excluded from the definition of solid waste in ORC 3734.01(E) including slag, uncontaminated earth, non-toxic fly ash, spent non-toxic foundry sand, and material from mining, construction, or demolition operations. Please note that non-toxic fly ash and non-toxic foundry sand and spent foundry sand determined to be non-toxic in accordance with Ohio EPA Division of Surface Water Policy 0400.007.

Fee Exempt Waste – This term refers to all waste which is exempt from the fees authorized in accordance with Sections 3734.57, 3734.572, and 3734.573 of the ORC. All exempt waste, as defined above, is also fee exempt waste. In addition, fee exempt waste also includes solid waste, which is disposed in captive landfills as defined above.

Generation - This term refers to the amount (weight, volume, or percentage of the overall waste stream) of materials and products as they enter the waste stream and before materials recovery, composting, or combustion takes place.

Generation Fee – A fee established pursuant to Ohio Revised Code Section 3734.573 (A) and assessed on each ton of solid waste generated within the District.

Household Hazardous Waste (HHW) – Materials used in the home/apartment such as cleaners, paints, solvents, pesticides, used oil, batteries, and other automotive products that potentially can cause injuries to refuse workers, damage to equipment, and/or harm to the environment if disposed in the solid waste stream. HHW typically exhibits one or more characteristics of hazardous wastes, but is exempted from regulation as a hazardous waste because of generation by households.

Incineration – The controlled process by which solid wastes are burned and changed into gases and ash.

Industrial Solid Waste – Includes any non-hazardous solid waste, which results from, or is the residue of an industrial process. Some examples are industrial sludge, paint, petrochemicals, fly ash, bottom ash, slag, and foundry sand. Waste streams such as fly ash, bottom ash, slag and foundry sand are characterized as solid waste in accordance with Ohio EPA Division of Surface Water policy 0400.007. Industrial solid waste includes both industrial process wastes such as sludge, trimmings, and filter cake, and industrial non-process wastes such as cafeteria and packaging wastes. For purposes of this document, industrial wastes are generated by industries in Standard Industrial Classification (SIC) category 20 and 22 through 39.

MRF (Materials Recovery Facility) – Any type of facility used for separating, sorting or processing waste in order to segregate materials with value (e.g. aluminum, glass, plastics). The type of processing conducted at a MRF can range widely from buildings in which recyclables are sorted primarily by hand, to mechanical facilities that attempt to recover recyclables from mixed solid waste (sometimes called a "dirty MRF"). Note that MRF's as such are not regulated as a solid waste facility in Ohio, unless the facility accepts mixed waste and total recovery of recyclables is less than 60 percent of total receipts by weight. Any facility recovering less than 60 percent is regulated as a solid waste transfer station.

Non-ferrous – Metals not including iron or its alloys or compounds.

Ohio Administrative Code (OAC) – A compilation of the rules governing the actions of all state agencies. The OAC is based upon the authority granted in the Ohio Revised Code.

Ohio Revised Code (ORC) – All statutes of the State of Ohio as revised and consolidated into general provisions, chapters, and sections.

Open dumping – The deposit of solid wastes into a body or stream of water or onto the surface of the ground at a site that is not licensed as a solid waste facility under Section 3734.05 of the ORC. For the purposes of the solid waste management plan, open dumps should be considered areas off the road or right-of-way on which solid wastes are dumped. Occasional debris or litter found in road right-of-ways should not be considered open dumps.

Other Waste – This term, refers to materials disposed in sanitary landfills, which were not classified as solid wastes. In this document, the term "exempt wastes" is used to refer to these materials disposed in sanitary landfills, which are not classified as solid wastes.

Participation Rate – As defined by the National Recycling Coalition, a participation rate is the number of households that separate out materials for recycling, divided by the total number of households serviced by the recycling program at least once over an established time period or number of collection events. In the case of a curbside recycling program, the participation rate is commonly measured by tracking whether a particular household (by address), sets out materials during the time period examined. In contrast, the set-out rate is defined as a count of the "set-outs" on the observed collection day, as a percent of the total number of households or entities serviced.

Processing Capacity – For purposes of this document, processing capacity refers to the design capacity of the facility (or the maximum amount of materials which could be processed), and not the actual amount of materials processed during a given time period.

Recycling - The systematic collection, sorting, decontaminating and returning of waste materials to commerce as commodities for use or exchange. Recycling also means to use, reuse or reclaim a material. It does not include incineration.

Reference Year – The calendar year selected by the solid waste management district as a basis for data collection in preparation of the district's amended plan. For example, a district beginning to prepare an amended plan in 1996 would typically use calendar year 1995 as the reference year. All facilities used by the district in 1995, and all industries and haulers operating in the district during 1995 would be surveyed to collect data for 1995. Data from the reference year would then be used to adjust the projections in the previous plan, and make any other changes necessary resulting from this new information.

Residential Wastes – Solid wastes resulting from residential dwellings such as single-family homes, apartment buildings, condominiums, cooperatives, and mobile homes. Domiciles such as nursing homes, campgrounds, and other types of group quarters and institutions should be considered generating commercial waste.

Reuse – The reuse of waste means the re-utilization of a material in an environmentally sound manner that will not result in a hazard to human health or the environment. From a manufacturing perspective, a material is reused if it is either: 1) employed as an ingredient, including uses as an intermediate in an industrial production process, or 2) used in a particular function or application as an effective substitute for a commercial product.

Resource Recovery – This term refers to the conversion of solid waste into energy, or some material, which can be used to create energy at any stage before ultimate disposal. As used in this document, resource recovery does not include the recovery of materials through mechanical and advanced technology methods.

Set-out Rate – The National Recycling Coalition defines a set-out rate as the number of households that set out materials on their assigned collection day, divided by the total number of households served. A set-out rate is a measurement commonly used in assessing curbside collection programs.

SIC Code - Standard Industrial Classification used to categorize industries, institutions, and businesses according to the product manufactured or services offered.

Single Stream Recycling – A system in which all paper fibers, cardboard, plastics, metals, and other containers are mixed together for collection. In single-stream, both the collection and processing systems are designed to handle this fully commingled mixture of recyclables.

Solid Waste – Unwanted residual solid or semi-solid materials resulting from industrial, commercial, agricultural, and community operations, but excluding earth or material from construction, mining, or demolition operations, or other waste materials of the type that would normally be included in demolition debris, non-toxic foundry sand, slag, and other substances that are not harmful to public health. It includes, but is not limited to, garbage, tires, combustible and non-combustible material, street dirt, and debris. Solid waste does not include any material that is an infectious waste or a hazardous waste.

Source Reduction – Any effort to reduce, at the source, the quantity of waste generated, toxic chemical use, or any release to the environment. Source reduction in generation of commercial or industrial wastes could result from process modifications, improvement in feedstock purity, better operating and management practices, and increases in the efficiency of machinery. It includes reducing the amount of materials entering the waste stream by voluntary or mandatory programs to eliminate the initial generation of waste.

SWMD – Solid Waste Management District

TPD – Tons Per Day.

TPY – Tons Per Year.

Transfer Station (Transfer Facility) – A facility, which receives deliveries of solid waste by local collection vehicles and provides for transfer to larger vehicles, which deliver wastes more economically to resource recovery or landfill facilities.

Volume Reduction – Activities such as incineration, which reduce the volume of waste to be disposed.

Waste Generation – This term refers to the amount (weight, volume, or percentage of the overall waste stream) of materials and products as they enter the waste stream and before materials recovery, composting, or combustion takes place.

Waste Minimization – Any effort to reduce or recycle the quantity of hazardous waste generated, and where feasible, to reduce or eliminate toxicity. Treatment of hazardous waste is not waste minimization, unless such treatment is part of a recycling process. (Please note that the definition of this term as used in this document does not include solid wastes.)

Waste Reduction – As used in this document, this term means source reduction, recycling, MSW composting, incineration, and resource recovery.

Waste Stream – The amount of materials that are destined for disposal. The waste stream may refer to specific, homogenous material or numerous materials mixed together.

White Goods – Discarded kitchen and other large appliances (washing machines, clothes dryer, etc.)

This page intentionally left blank

ii SOLID WASTE MANAGEMENT DISTRICT PERSONNEL AND CONTACTS

Table ii-1 Solid Waste Management District Information

SWMD Name	Butler County Solid Waste District
Member Counties	Butler County
Coordinator's Name (main contact)	Anne Fiehrer Flaig
Job Title	Director
Street Address	130 High Street, 5th Floor
City, State, Zip Code	Hamilton, Ohio 45011
Phone	513-887-3963
Fax	513-887-3777
E-mail address	FiehrerFlaigEA@butlercountyohio.org
Webpage	www.butlercountyrecycles.org

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

Member Name	**Representing**
Butler County	
Donald L. Dixon	County Commissioners
Rich Engle	Municipal Corporations
John Kinne	Townships
Steve Schulte	Health District
Matt Pfirman	Generators
Louise Jewett	Citizens
Dave Butsch	Public
Additional Public Representative	
Name	County

Table ii-3 Chairperson of the Policy Committee or Board of Trustees

Name	Rich Engle
Street Address	345 High Street
City, State, Zip Code	Hamilton, Ohio 45011
Phone	513-785-7270
Fax	513-785-7269
E-mail Address	engleR@ci.hamilton.oh.us

Table ii-4 Board of County Commissioners/Board of Directors

Commissioner Name	County	Chairperson/President
Donald L. Dixon	Butler	Member
Cindy Carpenter	Butler	Vice President
T.C. Rogers	Butler	President

Table ii-5 Technical Advisory Committee

Table ii-5 is not provided. A Technical Advisory Committee was not used to prepare this plan update and has not been appointed.

This page intentionally left blank

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 outdated 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, protective 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

As a result of H.B. 592, each of the 88 counties in Ohio must be a member of a solid waste management district (SWMD). County commissioners form a SWMD. 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].

Two bodies govern a SWMD. 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]

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.

---

[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.

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. The 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 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 (SWMD), a division of Butler County Water and Sewer Department, was formed on March 23, 1989. The District operates from one centralized location located in the City of Hamilton, Ohio. It is a single county district that relies heavily on neighboring districts for landfill, transfer facility, and recycling processing infrastructure. The SWMD operates in an open market system, which means customers have a choice of any waste hauler because the system is open to competition. All six of the municipal political jurisdictions and one township procure one contractor, a single source, to provide specified collection services for their single-family residents. The remaining political jurisdictions operate with individual contracts or private subscriptions, a system where residents contract directly with the hauler of their choice.

The SWMD is dedicated to promoting recycling, waste reduction and responsible disposal of all waste from households, retail establishments, industry and schools. The SWMD offers numerous recycling programs designed to assist the Residential, Commercial and Industrial Sectors in diverting solid waste from the landfill. Each year, as the amount of recyclables collected continues to increase, the SWMD has worked towards being a key resource of disposal and recycling information for residents and commercial businesses within the county.

In addition, the SWMD continues to work in a cost conscious manner, and in 2014, the District passed legislation to further reduce the solid waste generation fee from $1.00 per ton to $ 0.82 per ton in 2015.

The SWMD worked on two major efforts in 2014 to increase the amount of recycling service offered with the County. First, the SWMD launched a 22 building comprehensive recycling initiative at the eighth

largest school district in Ohio, Lakota Local Schools. The SWMD collaborated with Rumpke Recycling and the Lakota nutrition department to begin the program at the start of the new school year in August 2014. The SWMD also partnered with Middletown City Schools and food service provider Sodexo, to begin a recycling program for all classrooms and cafeterias in September. In total, the SWMD served a total of 21,450 students with new recycling services in 2014.

The SWMD continued its education and outreach to multi-family complexes with a focus on the Oxford area, and Miami University students off campus population. The SWMD offered up to one year of recycling service to the multifamily complexes, and Rumpke offered site assessments and placement options for recycling carts, recycling dumpsters, or a combination thereof. The SWMD customized materials for each complex to reach each resident with information about the new program, featured the apartment management company logos, and contact information. The program has enlisted 11 new apartment communities, a total of 1200 residential units within the county.

In 2016, the SWMD started to use a new technology on its website provided by ReCollect System, which will allow the SWMD to track activity by material searched, and the total number of visitors. Residents and businesses will also be able to inform the SWMD of materials they need more information about. This new resource will enhance the current program and allow for residents and businesses to find suitable outlets for a wide variety of materials.

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 *2009 Solid Waste Management Plan* (2009 State Plan). The 2009 State Plan established nine goals as follows:

1. The SWMD shall ensure that there is adequate infrastructure to give residents and commercial businesses opportunities to recycle solid waste.
2. The SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector and at least 66 percent of the solid waste generated by the industrial sector.
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.
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 provide strategies for managing scrap tires, yard waste, lead-acid batteries, household hazardous wastes and obsolete/end-of-life electronic devices.
6. The SWMD shall explore how to incorporate economic incentives into source reduction and recycling programs.
7. 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.
8. The SWMD has the option of providing programs to develop markets for recyclable materials and the use of recycled-content materials.
9. The SWMD shall report annually to Ohio EPA regarding implementation of the SWMD's solid waste management plan.

All nine SWMD goals in this state plan are crucial to furthering solid waste reduction and recycling in Ohio. However, by virtue of the challenges posed by Goals 1 and 2, SWMDs typically dedicate more resources to achieving those two goals than to the remaining goals. Thus, Goals 1 and 2 are considered the primary goals of the state plan.

Each SWMD is encouraged to devote resources to achieving both goals. However, each of the 52 SWMDs varies in its ability to achieve both goals. Thus, a SWMD is not required to demonstrate that it will achieve both goals. Instead, SWMDs have the option of choosing 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 8 (market development) is an optional goal. While Goal 9 requires submitting annual reports to Ohio EPA, and no demonstration of achieving that goal is needed in the solid waste management plan.

See Chapter 5 and Appendix I for descriptions of waste reduction and recycling programs.

CHAPTER 2: DISTRICT PROFILE

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 takes all of these circumstances into account to develop the overall waste management strategy.

A. Profile of Political Jurisdictions

1. Counties in the Solid Waste Management District
   The SWMD is a single county District geographically located in Butler County. Butler County encompasses 467 square miles and according to "Ohio County Profile of Butler County" prepared by Office of Research is generally rural. The land use/land cover is:
   - 12.8% urban (residential/commercial/industrial/transportation and urban grasses),
   - 51.5% cropland,
   - 11.3% pasture,
   - 23.2% forest,
   - 0.9% open water, and
   - 0.4% bare/mines.

2. County Overview

Southwestern Ohio ranks as one of the top growth areas in the State. In 2015, Butler was the seventh most populous county in Ohio, and is expected to experience 6 percent in growth from 2010 to 2020. Butler County has borders to the west with the state of Indiana and I-75 transverses the county to the east, and US-129 passes through the center of the County. These transportation corridors give both businesses and residents easy access to the metropolitan centers of Cincinnati and Dayton.

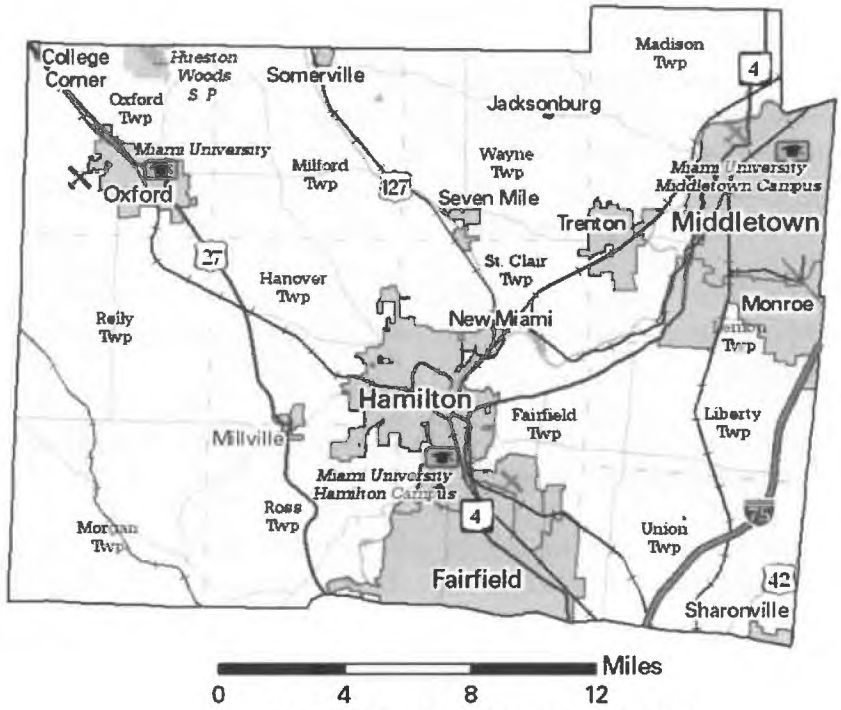


Figure 2-1 Map of Butler County

The majority of Butler County residents live in either the south central portion of the County or the eastern portion of the County. The western half of the County is less dense, containing only Oxford as a major city. The cities of Hamilton and Fairfield are located in the southern portion of the County along US-127, providing residents with a direct route to Cincinnati. The second largest population center is Middletown in the northeastern section of the County along I-75, a route to either Cincinnati to the south or Dayton to the north. Fairfleld Township, Liberty Township and West Chester Township (formerly Union Township) are densely populated townships continually showing growth and development.

The biggest employment sectors of the County are manufacturing, education, retail trade, health care, social assistance, and government. Together these sectors account for nearly half the employment in the County. Accommodation and food services are also strong sectors. Major employers in Butler County include AK Steel Holding Corp, Cincinnati Financial Corp, Cornerstone Brands Inc., Ft Hamilton Memorial Hospital, GE Aviation, Lakota Local Schools, Liberty Mutual/Ohio Casualty Corp, Mercy Regional Hospital, Miami University, MillerCoors, and AdvancePierre Foods.

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 SWMD has five communities that are located in more than one solid waste management District: Fairfield, Middletown, Monroe, Sharonville and College Corner. The majority of Fairfield, Middletown, and Monroe reside in Butler County; however, the majority of population for the other two municipalities is outside of Butler County. Adjustments were made to add the portion of Fairfield, Middletown, and Monroe located outside Butler County to the Butler County population and to subtract the portion of the municipalities located in the other counties from the Butler County population.

   The reference year population is 374,311, as shown in Table 2-1 "Population of District in the Reference Year".

Table 2-1 Population of District in the Reference Year

County		Largest Political Jurisdiction		
Name	**Population**	**Community Name**	**Population**	**Percent of Total County Population**
Butler	374,311	Hamilton	62,451	17%

2. Population Distribution

   Butler County has 13 townships, 6 municipalities, and 6 villages. The county's largest City and county seat is Hamilton. The largest township is West Chester. Both Hamilton City and West Chester Township equally comprise the same portion of the total county population.

Table 2-2 Populations of Largest Communities

City or Township	Estimated 2014 Population	Percentage of County Population
Hamilton City	62,451	17%
West Chester Township	62,360	17%
Middletown City	46,061	12%
Fairfield City	42,746	11%
Liberty Township	38,180	10%
Fairfield Township	22,030	6%
Oxford Township	24,109	6%
Monroe City	12,309	3%
Trenton City	12,250	3%
Madison Township	8,593	2%

The County is unique because the population is almost equally distributed between the municipalities and the townships as shown in Table 2-3. Of the 13 unincorporated townships 3 are rapidly growing and urban. The other 10 townships are primarily rural. The county has a population density of 788 people per square mile.

Table 2-3 Population Distributions

County	Percent of Population in Cities	Percent of Population in Villages	Percent of Population in Unincorporated Township
Butler	53%	1%	45%

3. Population Change

From 2000 to 2015, Butler County's population grew by 13.2 percent, the second highest growth rate in the region behind Warren County. That growth rate is much higher than the 2.3 percent for the state as a whole. No cities in Butler County lost population. Monroe and Trenton in the northeastern portion of the county saw the highest city population growth of 1.2 and 0.7 percent annual growth from 2010 to 2015, respectively. Oxford City in the northwestern portion of the County also experienced more than 0.5 percent annual population growth. The cities of Fairfield and Hamilton did not see a substantial change in their population from 2010 to 2015.

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 has become a focus of future growth in these townships.

All of Ohio is expected to experience job growth in the period from 2012 to 2020, but particularly strong job growth nearing 10 percent is expected in the Southwest portion of Ohio. The Butler County population is expected to grow by 7 percent from 2018 to 2032 and is based on Ohio Department Strategic Analysis (ODSA) Planning Research and Strategic Planning Office projected estimates for 2015, 2020, 2025, 2030, and 2035. To determine population estimates between these years, straight-line interpolation was used.

Population projections can gauge future demand for services, but in projection calculations there are room for errors because of the difficulty associated with forecasting. As projected by ODSA, population is expected to increase. However, when compared to historic population growth, the projected growth is modest.

Table 2-4 District Population Change

Time Period	Area	Butler
2000 to 2010	County	8.96%
	Largest City	1.86%
	Unincorporated areas	17.60%
Planning Period	County	7.03%
	Largest City	7.03%
	Unincorporated areas	7.03%

4. Implications for Waste Management

Population is projected to increase through the planning period but per capita waste generation is projected to decrease. Population affects waste generation rates but factors of population growth such as household income, people per household, and economic activity also contribute. Economic activity and population growth affect household income and household income impacts per capita waste generation; and higher income households tend to produce higher amounts of waste. However, higher income households also tend to achieve higher participation rates of recycling. These complex factors are all simultaneously involved and affect each other because they dynamically occur over time.

Butler County's residential/commercial generation over the past five years falls between 419,000 and 445,000 tons, a plus or minus range of 25,000 tons. This relative consistency explains why the increasing population continually calculates a lower generation rate. Examine the equation for calculating waste generation rates:

$$\frac{\text{Waste Generation (lbs/day)}}{\text{Population (persons)}} = \text{Waste Generation Rate (lbs/person/day)}$$

Looking at the equation the numerator remains constant while the denominator is increasing resulting in a lower calculated rate.

Population increases are not expected to demonstrate significant increases on waste generation, however population will continue to have growing recycling program needs.

C. Profile of Commercial and Institutional Sector

The top commercial and institutional employers in the county fall into the education, insurance, government and health care industry. Table 2-5 lists the largest employers in the commercial and institutional sectors.

Table 2-5 Butler County's Top Employers in Commercial and Institutional Sectors

Business	Type of Business
Miami University	Education
Cincinnati Financial Corporation	Insurance
Lakota School District	Education
Butler County Government	Government
Mercy Regional Hospital	Healthcare

Source: Butler County Economic Development Office

With its location along a major interstate highway the county is in a strong position for significant regional retail activity. Convenience, community, regional and super regional retail hubs are expanding throughout Butler County. Businesses and institutions are concentrated within either a Central Business District (CBD) or more local concentrations within business and residential districts. There are clusters of concentrated commercial businesses/institutions, amusement attractions, entertainment areas, etc. throughout the county.

D. Profile of Industrial Sector

The top-manufacturing employers in the county are listed in Table 2-6.

Table 2-6 Butler County's Top Employers in Manufacturing Sectors

Business	Type of Business
AK Steel	Manufacturing
GE Aviation	Manufacturing
Advance Pierre Foods	Manufacturing
Baker Concrete	Manufacturing

Proctor & Gamble	Manufacturing

Source: Butler County Economic Development Office

Table 2-7 shows the 2011 commuter flows to Butler County. Work inflow is when nonresidents commute into an area for work; work outflow is when the residents commute to work in other areas. Butler County has a greater outflow of workers than inflow.

Table 2-7 Commuter Flows (All Jobs), 2011

Area	Work Inflow	Live and Work in Area	Work Outflow	Net Inflow/Outflow
Butler	73,303	60,868	99,519	26,216 outflow

Source: A Workforce Analysis of the Southwest Region published by Ohio Department of Job and Family Services

E. Other Characteristics

According to the 2015 Ohio Census population estimates, West Chester Township in the southeast corner of Butler County is the largest township in Ohio, and Liberty Township just to the north of West Chester ranks in the top 20 largest townships in the State. Both West Chester and Liberty Townships are located on the eastern side of Butler County, and are bedroom communities for residents commuting via I-75 to Cincinnati or Dayton. The Lakota School District serves both townships, and is the largest school district in the County and the eighth largest in the State.

Miami University is located in Oxford in the northwest section of Butler County. The university has 23,983 students. The campus moved to single-stream recycling in 2012, and the program accepts plastics, paper, milk and juice cartons, aluminum cans, steel cans, and glass. Miami University is the largest commingled recycler in the county.

Butler County is experiencing growth in housing developments and commercial businesses. Even with the growth Butler County is as much a rural community as it is an urban community. Residents, planners, and commissioners continue to develop highly livable communities throughout the County that respect the rural traditions mixing natural and man-made environments.

CHAPTER 3: WASTE GENERATION

This chapter of the solid waste management plan provides a summary of the SWMD's historical and projected solid waste generation. The policy committee needs to understand the waste the SWMD will generate before it can make decisions regarding how to manage the waste. Thus, the policy committee 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 SWMD'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 generated by households, small and large businesses, schools, government, etc. in a community. Manufacturing operations generate industrial solid waste. The policy committee added the quantities of waste disposed from both residential/commercial and industrial sources in landfills and the quantity of wastes reduced/recycled to determine total waste generation.

The SWMD's policy committee obtained reduction and recycling data 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 policy committee relies upon an entity's ability and willingness to provide data. When entities do not respond to surveys, the policy committee gets only a partial picture of recycling activity. How much data the policy committee obtains has a direct effect on the SWMD's waste reduction and recycling generation rates.

The policy committee also obtains 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.

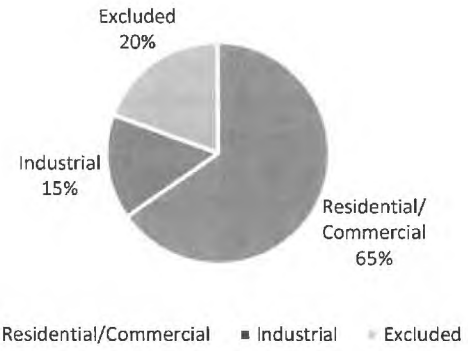
The policy committee analyzed historic quantities of waste generated to project future waste generation. The details of this analysis are presented in Appendix G. The policy committee used the projections to make decisions on how best to manage waste and to ensure future access to adequate waste management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

A. Solid Waste Generated in Reference Year

Table and Figure 3-1, presents the SWMD's waste generation for year 2014.

Table 3-1 and Figure 3-1 Solid Waste Generated in the Reference Year

Type of Waste	Quantity Generated (tons)
Residential/ Commercial	442,803
Industrial	104,163
Excluded	131,479
Total	678,445



1. Residential/Commercial Waste Generated in the Reference Year

During the reference year, the SWMD generated 442,803 tons of waste in the residential/commercial sector as calculated by adding recycling and disposal data. The residential and commercial sector is the largest generator in the SWMD, generating more than two thirds of the SWMD's solid waste. At a County population of 374,311 people, the residential/commercial waste generation rate is 6.48 pounds per person per day.

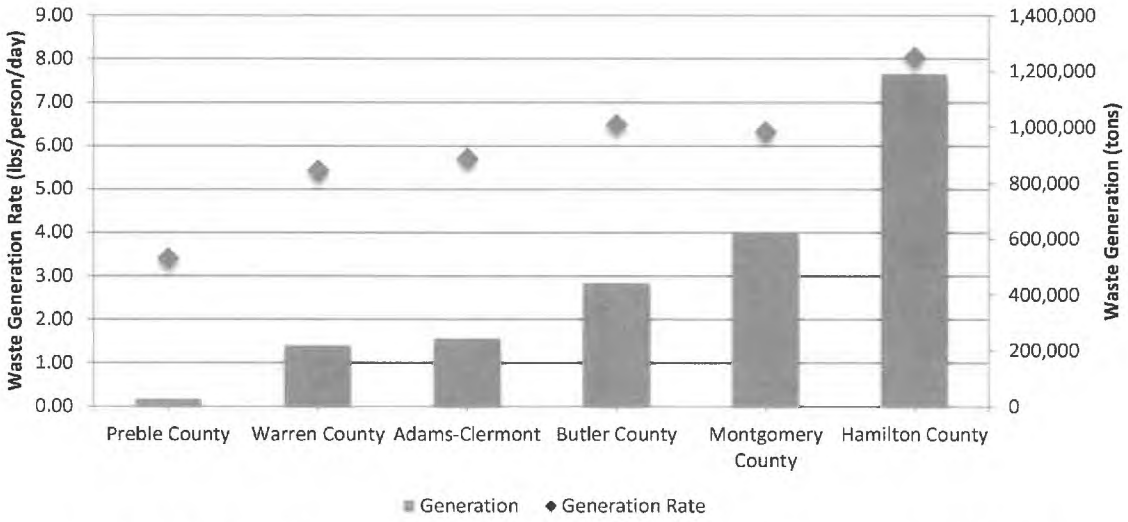
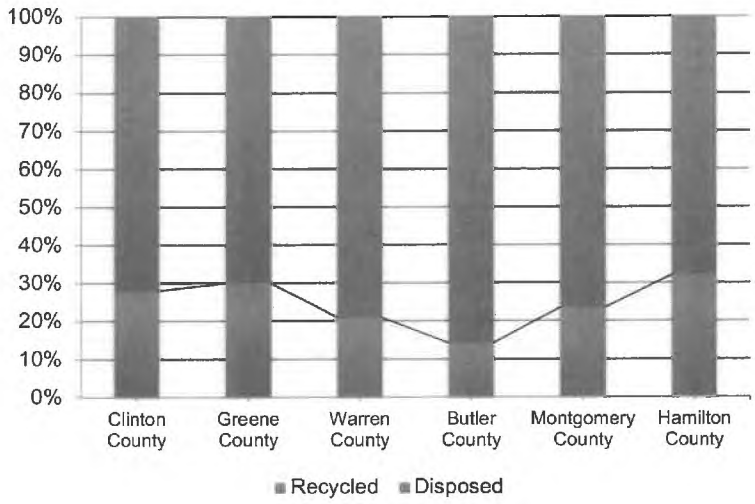


Figure 3-2 Residential/Commercial Waste Generation Compared to Regional SWMD 2014

As shown in Figure 3-2 the SWMD's waste generation falls third highest among SWMD's in the region.

The recycling rate is the lowest at 14 percent, Figure 3-3. Three quarters of the residential and commercial solid waste sent for disposal is direct hauled to the Rumpke Hughes Road Landfill, an out-of-district facility. The Pine Grove Regional Facility is the second most used facility for disposal,



located in Amanda, Ohio in Fairfield County. The remaining quarter of residential and commercial solid waste for disposal passes through transfer stations in Butler, Hamilton, and Montgomery Counties. The major points of diversion are commercial businesses, with the retail trade industry the biggest commercial recycler. Curbside recycling is the major point of diversion for residential.

Figure 3-3 Regional SWMD Residential/Commercial Waste Generation 2014

2. Industrial Waste Generated in the Reference Year

   The industrial sector solid waste generation accounts for 15 percent of the total waste generation in the county. In 2014, 36,951 tons or thirty-five percent of the waste generated in the industrial sector was diverted from the landfill (excludes AK Steel recycling of blast furnace slag and basic oxygen furnace slag).

3. Excluded Waste Generated in the Reference Year

   Excluded waste accounts for 20 percent of the total waste generation in 2014, amounting to 131,479 tons disposed in landfills. The vast majority of the excluded waste was disposed of in Kentucky landfills at either Republic Services Epperson Waste Disposal in Grant County, Kentucky or Bavarian Trucking Landfill in Boone County, Kentucky.

B. Historical Waste Generated

1. Historical Residential/Commercial Waste Generated

   Over the past five years the residential and commercial sector have disposed of between 419,000 and 445,000 tons of waste per year (Figure 3-4). The recycling from years 2010 to 2013 hovered at above 100,000 tons per year, but in 2014 a large drop occurred from 105,662 to 62,357 tons per year. The large decrease in the recycling tonnage from 2013 to 2014 resulted in an overall decrease in the waste generated, despite an increase in disposal from 2013 to 2014. The SWMD predicts a slight drop in residential and commercial disposal over the planning period, so that by the end of the planning period the SWMD will be near the 2013 national per capita disposal of 4.40 per person per day.

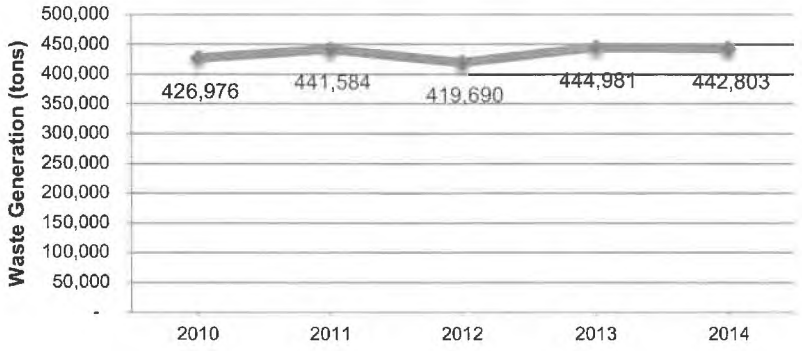


Figure 3-4 Historical Residential/Commercial Waste Generation

Butler County is the third highest residential and commercial waste generator out of the 5 counties that make up Southwest Ohio. However, it is difficult to compare these 5 counties directly because of varying populations. Butler County has comparable residential and commercial waste generation to counties with similar populations as shown in Figure 3-5.

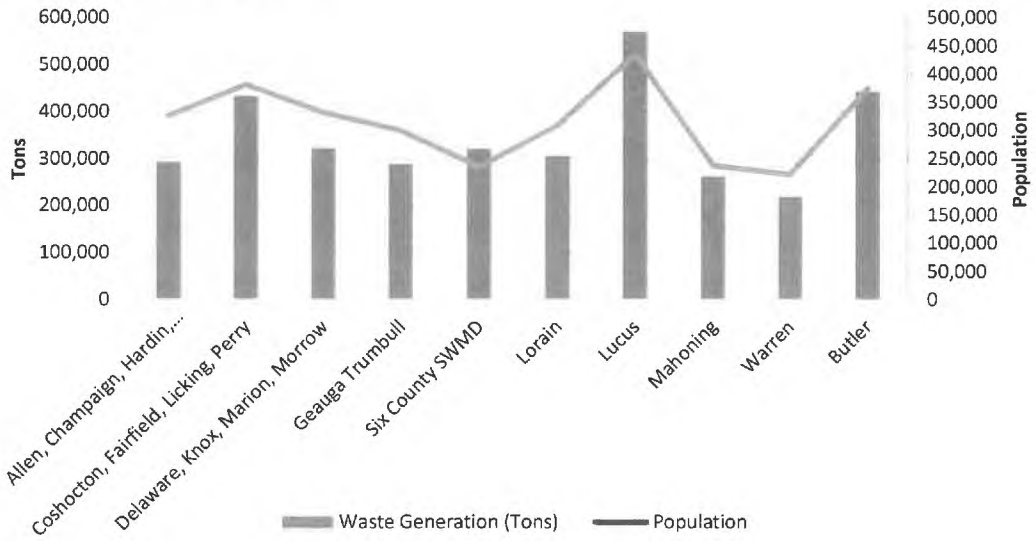


Figure 3-5 Residential/Commercial Waste Generation and Population Compared to Similar Population SWMD's 2014

2. Historical Industrial Waste Generated

Historically, industrial generation declined (Figure 3-6). Analyzing the components that make up generation shows decreases in both disposal and recycling. Industry in the SWMD reports scaling down operations and a steel manufacturing plant reported a decrease of nearly 260,000 tons in ferrous metal recycling. The SWMD also noted a decrease in paper recycling caused by multiple paper mills in the County closing. Food composting recorded a large decrease (totaling approximately 140,000 tons) due to reporting errors acknowledged by the manufacturer. Most of the largest employers have an environmental sustainability plan or program to guide them in

reducing environmental impacts. In many sustainability plans a change in manufacturing develops better reuse or reduction of the waste disposal stream.

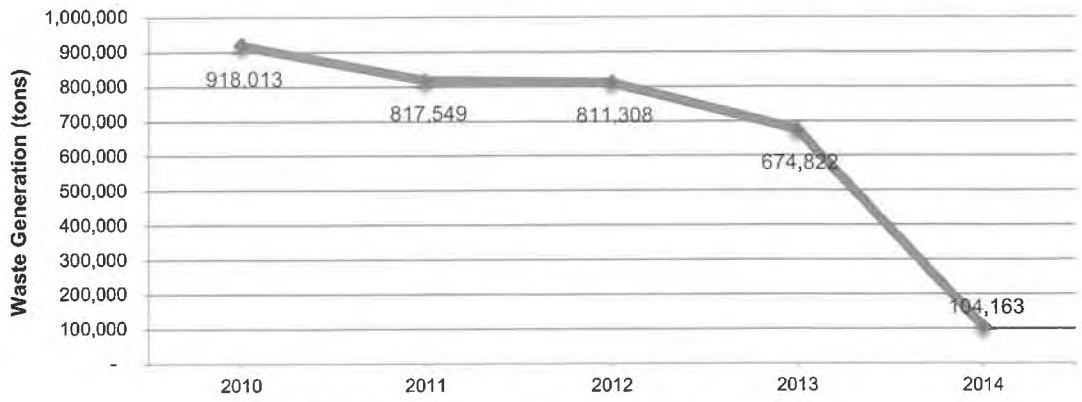


Figure 3-6 Historical Industrial Waste Generation

3. Excluded Waste Generated

The excluded waste disposal in the SWMD varied year to year from 2010 to 2014 from a low of 30,000 tons to over 120,000 tons per year. As a result, it is difficult to predict the excluded waste generation during the planning period. This variation resulted from a change in waste classified at landfills.

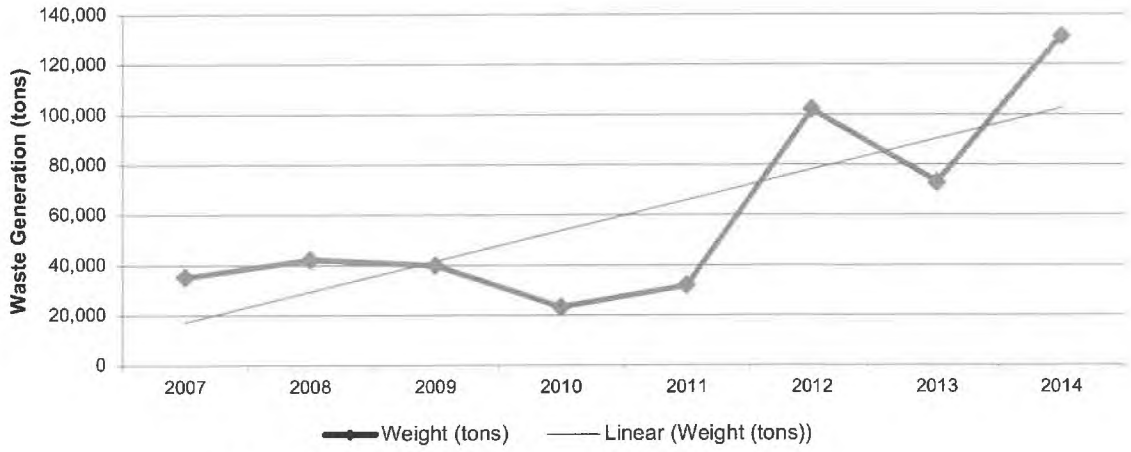


Figure 3-7 Historical Excluded Waste Generation

C. Waste Generation Projections

Table 3-2 presents the SWMD's waste generation for the first 6 years of the planning period.

Table 3-2 Waste Generation Projections

Year	Residential Commercial Waste	Industrial Waste	Excluded Waste	Total
	Waste (tons)	Waste (tons)	Waste (tons)	Waste (tons)
2018	458,061	101,443	131,479	690,983
2019	456,872	100,783	131,479	689,134
2020	454,331	100,131	131,479	685,941
2021	451,143	99,486	131,479	682,108
2022	448,065	98,850	131,479	678,394
2023	445,107	98,221	131,479	674,807

1. Residential/Commercial Waste Projections
   Waste generation projections were estimated by analyzing historical trends of waste generation, disposal, and recycling and planning period program design impacts. The waste disposal analysis in Appendix D projects future trends using the peak and lowest per capita disposal rates. Thus the projected planning period waste disposal is held within the range of 4.69 and 5.82 pounds per person per day. Using this model waste disposal peaks just over 400,000 tons and dips slightly below 352,000 tons. The analysis in Appendix E projects approximately a 2 percent annual increase for recycling in the planning period. This places the waste generation projections over the 6-year period shown on Table 3-2 with a slight fall.

2. Industrial Waste Projections
   Waste generation projections were estimated by analyzing historical trends of waste generation, disposal, and recycling and predicted Ohio manufacturing employment for the region. The waste disposal analysis in Appendix D projects future trends using the declining linear regression line plotted from historical disposal reports. The analysis in Appendix F projects a slight increase at 0.13 percent annually. As indicated in "2022 Job Outlook, Southwest Ohio" produced by Ohio Department of Job and Family Services, manufacturing employment is projected to increase through 2022 about 1.3 percent, 0.13 percent per year. Applying an annual increase models industrial waste disposal projections after the historical linear positive slope trend line. The analysis in Appendix F projects industrial recovery is projected to increase based on employment projections. Waste disposal declining and recovery increasing places the waste generation projections over the 6-year period shown on Table 3-2 with a slight fall.

3. Excluded Waste Projections
   As mentioned in the previous section, the excluded waste generation has varied greatly over the last several years. As a result a flat line approach to projection was taken.

CHAPTER 4: WASTE MANAGEMENT

The previous chapter provided a summary of how much waste the SWMD generated in the reference year and how much waste the policy committee estimates the SWMD will generate during the planning period. This chapter summarizes the strategy for how the SWMD will manage that waste during the planning period.

A SWMD must have access to facilities that can manage the waste the SWMD will generate. This includes landfills, transfer facilities, incinerator/waste-to-energy facilities, compost facilities, and facilities to process recyclable materials.

To ensure that the SWMD has access to facilities, the solid waste management plan identifies the facilities the policy committee expects will take the SWMD's trash, compost, and recyclables. Those facilities must be adequate to manage all of the SWMD's solid waste. The SWMD 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 SWMD. Further, identified facilities can be any combination of facilities located within and outside of the SWMD (including facilities located in other states).

Although the policy committee needs to ensure that the SWMD will have access to all types of needed facilities, Ohio law emphasizes access to disposal capacity. In the solid waste management plan, the policy committee must demonstrate that the SWMD will have access to enough landfill capacity for all of the waste the SWMD will need to dispose of. If there isn't adequate landfill capacity to meet the county's waste needs, then the policy committee must develop a strategy for obtaining adequate capacity.

Ohio has more than 30 years of remaining landfill capacity. That is more than enough capacity to dispose of all of Ohio's waste. However, landfills are not distributed equally around 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 SWMDs in that region would likely rely on transfer facilities to get waste to an existing landfill instead of building a new landfill.

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

A. Waste Management Overvie

The SWMD manages waste through combination of landfills, recycling progra and facilities, transfer stations, a composting facilities. Figure 4-1 depicts t waste generation management in reference year. The majority of wa generated is managed through lan disposal.

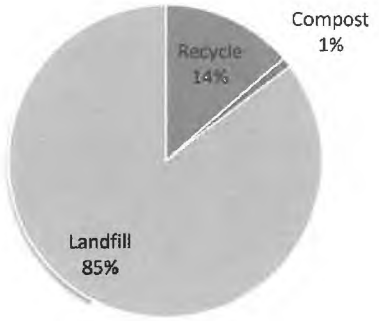


Figure 4-1 Waste Mangement Methods 2014

In Figure 4-2 residential waste disposal demonstrates a downward trend from 2008 through 2012, which can be attributed to the economic recession of 2008. The SWMD shows signs of a gradual increase in residential/commercial waste generation for 2013 and 2014, which can likely be attributed to population growth and several significant recent commercial developments in Butler County.

Industrial waste disposal sharply increased in 2010 over 2008, and 2009 figures. The SWMD noticed as industrial disposal declined exempt waste disposal increased. During that time a large known industrial generator began exporting waste to out of state landfills. In 2012, the out of state landfills changed reporting procedures and began classifying 70,000 to 100,000 tons as exempt waste altering the waste generation and waste disposal trends for the SWMD. Waste allocations seen in 2014 are expected to continue with only slight variation through the planning period. With many manufacturers seeking to demonstrate sustainability through "zero waste to landfill" programs, the SWMD has seen industries adopt incineration as a preferred waste management method, directing waste out of state to Covanta in Indiana. With this trend underway, a return to industrial waste tons landfilled as seen in 2010 will be unlikely. Other waste disposal changes noticed was a small reduction in the 2010 residential/commercial solid waste disposal mostly attributable to economic downturn.

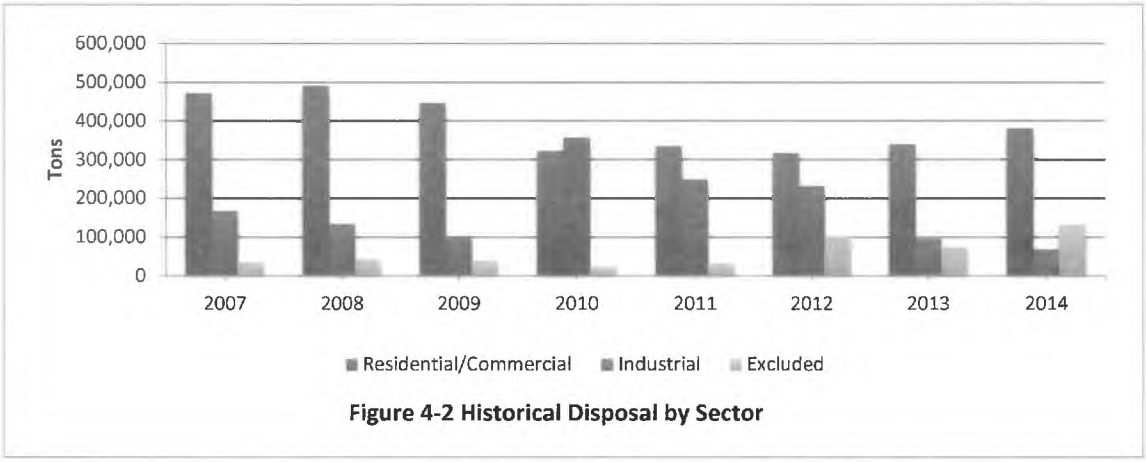


Figure 4-2 Historical Disposal by Sector

Future waste projections demonstrate an initial increase in landfill disposal for 2018 followed by modest declines as depicted in Table 4-1.

Table 4-1 Methods for Managing Waste

Year	Generate[1]	Recycle[2]	Compost[3]	Transfer[4]	Landfill[5]
2014	**678,445**	**92,442**	**6,866**	**50,493**	**579,137**
2018	690,983	83,362	8,750	52,214	598,871
2019	689,134	85,501	8,750	51,866	594,884
2020	685,941	86,280	8,750	51,520	590,911
2021	682,108	87,132	8,750	51,111	586,226
2022	678,394	88,064	8,750	50,706	581,580
2023	674,807	89,086	8,750	50,304	576,971

Source:
[1]Reference Year Table G-1 and Projections Table G-2
[2]Reference Year Table E-5 and Projections Table E-7

[3]Reference Year Table B-5 and Projections Table E-7
[4]Reference Year Table D-2 and Projections Table D-5
[5]Reference Year Table D-3 and Projections Table D-5

Landfill capacity remains abundant and exceeds available volume of waste generated locally. Consequently, tipping fees are low, and landfills continue to be the most feasible and economical disposal option today.

The SWMD is not expecting changes in the management of waste through the planning period. Following historical trends, the planning period expects waste to be similarly managed as shown in Figure 4-3.

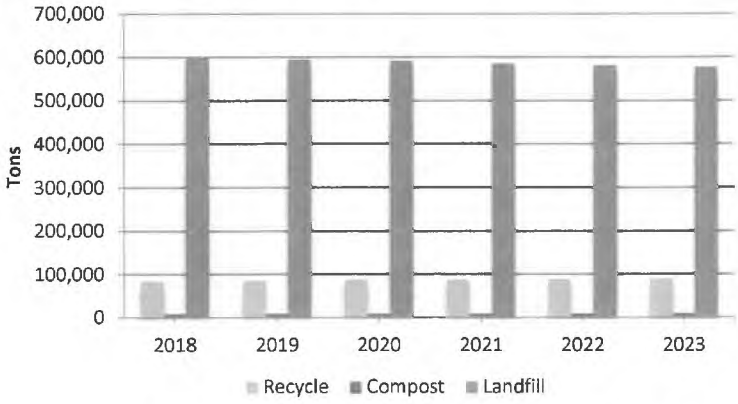


Figure 4-3 Planning Period Waste Mangement Methods

B. Profile of Waste Management Infrastructure

1. Solid Waste Management Facilities
   a. Landfills

   There are no active permitted solid waste disposal facilities in Butler County. Fortunately affordable disposal capacity is available within close proximity to the 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.

   Landfills used by the SWMD include 7 out-of-district but in-state landfills, and 8 out-of-state landfills. In addition 5 out-of-state treatment facilities were used. The majority of the facilities are owned and operated by the private sector. The source of information is Ohio EPA.

   b. Transfer Facilities

   There are 4 transfer facilities that accepted waste from the SWMD during the reference year. One transfer facility is located in Butler County in the City of Hamilton, the facility is publicly owned but privately operated. Of the remaining three, two are publicly owned and one is privately owned. Information for this section was obtained from Ohio EPA.

   c. Compost Facilities

   There were 9 registered Class IV compost and yard waste management facilities accepting SWMD materials in 2014. Four of those facilities are located in Butler County however the facilities primarily serve municipal yard and leaf management purposes, and are not accessible to the general public.

   Residents residing in the municipalities of Fairfield and Oxford have curbside yard waste collection hauling. Residents residing in the municipalities of Fairfield, Hamilton, Oxford, and Trenton have curbside leaf collection hauling. In the reference year, Fairfield provided their residents the opportunity to place brush and leaves at the curb using the Public Works Department to haul materials. Hamilton provided their residents the opportunity to bring tree limbs and brush to the wastewater treatment plant twice a month between April and October. Limbs and brush are chipped for mulch used in city parks. Curbside leaf collection was provided by the Hamilton Public

Works Department. In addition, Oxford provided residential curbside pickup for brush and yard waste (no grass) including leaves, tree trunks, stumps and holiday trees from December through February.

2. Waste Collection

Municipal solid waste is collected from residents, businesses or institutions and transported to landfills by a number of private waste operators. Collection of municipal solid waste is predominantly handled by two large companies, Rumpke and Republic. These companies are also the main competitors for residential and commercial recycling collection. Based on data collected Rumpke services the majority of residential customers. Waste haulers contract directly with individual homeowners and commercial establishments. However, municipalities secure these services for their residents through a competitive bidding process. Service is widely available throughout Butler County.

C. Solid Waste Facilities Used in the Reference Year

1. Landfill Facilities

Table 4-2 identifies the landfill waste shed.

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

Facility Name	Location		Waste Accepted from SWMD (tons)	Percent of all SWMD Waste Disposed	Remaining Capacity (years)
	County	State			
In-District					
None		OH		0%	
Out-of-District					
Celina Sanitary Landfill	Mercer	OH	0.76	0%	N/A
Evergreen Recycling & Disposal	Wood	OH	0.77	0%	43
Preble County Sanitary Landfill	Preble	OH	1,298.92	0%	58
Rumpke Waste Inc Hughes Rd Landfill	Hamilton	OH	336,887.65	64%	14
Stony Hollow Landfill, Inc	Montgomery	OH	4,627.82	1%	16
Pine Grove Regional Facility	Fairfield	OH	21,156.73	4%	73
Rumpke Brown County Landfill	Brown	OH	1,503.31	0%	88
Out-of-State					
Bavarian Trucking Co Inc	Boone	KY	52,761.90	10%	38
Republic Services of KY LLC - Epperson Waste Disposal	Grant	KY	82,906.70	16%	3
Rumpke of KY Inc - Pendleton Co Landfill	Pendleton	KY	4,216.70	1%	21
Republic Services of KY - Valley View Landfill	Henry	KY	176.50	0%	25
Central KY Landfill	Scott	KY	199.70	0%	106
Big Run Landfill	Boyd	KY	1,619.20	0%	61
Caldwell Landfill	Shelby	IN	3,029.00	1%	77
Dearborn County Trash and Recycling Transfer Station	Decatur	IN	6,856.00	1%	N/A
Indianapolis Resource Recovery Facility	Marion	IN	483.96	0%	N/A
Liquid Waste Removal Processing Facility	Johnson	IN	1.12	0%	N/A
Medasure of Indiana Treatment Facility	Marion	IN	5.64	0%	N/A
Merell bros Inc Indt Disposal Solutions	Marion	IN	34.60	0%	N/A

Facility Name	Location		Waste Accepted from SWMD (tons)	Percent of all SWMD Waste Disposed	Remaining Capacity (years)
	County	State			
Midwest Resource Recovery CNT	Clark	IN	124.00	0%	N/A
National Serv-all Landfill	Allen	IN	7,164.52	1%	28
New Paris Pike Landfill	Wayne	IN	3,562.86	1%	73
Tradebe Treatment & Recycling, LLC	Lake	IN	25.45	0%	N/A
Total			528,643.81	100%	724

2. Transfer Facilities

Table 4-3 identifies the waste transferred waste shed.

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

Facility Name	Location		Waste Received from the SWMD (TPY)				Destination
	County	State	Residential/ Commercial	Industrial	Excluded	Total	
In-district facilities							
none						0	
Out-of-district facilities							
Evendale Transfer Station	Hamilton	OH	40,219	0	0	40,219	Rumpke Waste Inc Hughes Rd Landfill, unknown, and out of state facilities
Hamilton City Transfer Facility	Butler	OH	7,824	0	177	8,001	Rumpke Waste Inc Hughes Rd Landfill
Montgomery Co. South Transfer Facility	Montgomery	OH	2,273	0	0	2,273	Rumpke Brown Co Sanitary Landfill, Waste Management Transfer Station Fairborn, Stony Hollow Landfill, Cherokee Run Landfill, Unknown
Montgomery Co. North Transfer Facility	Montgomery	OH	0	0	0	0	Cherokee Run Landfill
Out-of-state facilities							
none							
Total Transferred Waste			50,316	0	177	50,493	

3. Composting Facilities

Table 4-4 identifies the compost waste shed.

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

Facility Name	Location	Material Composted (tons)	Percent of all Material Composted
In District			
Collins Run Compost Facility	Oxford, Ohio - Butler County	1,314	10%
City of Trenton Composting Facility	Trenton, Ohio - Butler County	397	3%
Miami University Compost Facility	Oxford, Ohio - Butler County	882	7%
Joyce Park Leaf Collection Area	Hamilton, Ohio - Butler County	Included in Hamilton Leaf Collection total	-
Hauler/Kroger/Walmart	na	1,367	10%
City of Fairfield Chipper Drop-off	Fairfield, Ohio	2,406	18%
City of Fairfield Curbside Yard Waste Pickup	Fairfield, Ohio	1,384	10%
City of Hamilton Chipper Drop-off	Hamilton, Ohio	19	0%
City of Hamilton Leaf Collection	Hamilton, Ohio	1,388	10%
City of Oxford Curbside Yard Waste Pickup	Oxford, Ohio	included in Collins Run Compost Facility total	-
City of Oxford Leaf collection	Oxford, Ohio	included in Collins Run Compost Facility total	-
City of Trenton Leaf Collection	Trenton, Ohio	included in City of Trenton Composting Facility	-
Tri-State Mulch	Monroe, Ohio - Butler County	2,996	22%

Facility Name	Location	Material Composted (tons)	Percent of all Material Compos
Out-of-District			
Ohio Mulch	Cincinnati, Ohio - Hamilton County	12	0%
NPK Compost Facility	Cincinnati, Ohio - Hamilton County	349	3%
H. Hafner & Sons Inc C&DD Facility	Cincinnati, Ohio - Hamilton County	730	5%
Brausch Farms	Clarksville, Ohio - Warren County	9	0%
Marvins Organics Gardens	Lebanon, Ohio - Warren County	191	1%
	Total	13,444	

4. Processing Facilities

Table 4-5 identifies the material recovery waste shed.

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				
none		OH		
Out-of-District				
Rumpke Center City Recycling-Hamilton County	Hamilton	OH	material recovery facility	19,609
Waste Management Dayton MRF	Montgomery	OH	material recovery facility	77
Rumpke Recycling-Dayton	Montgomery	OH	material recovery facility	6
Out-of-State				
none				
			Total	**19,692**

D. Use of Solid Waste Facilities During the Planning Period

The estimated quantity of municipal solid waste generation averages 669,635 tons per year through the planning period. An estimated net disposal of approximately 8.5 million tons is needed for the duration of the planning period.

E. Siting Strategy

As explained earlier, the solid waste management plan must demonstrate that the SWMD will have access to enough capacity at landfill facilities to accept all of the waste the SWMD 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 SWMD'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 R.

F. 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.

Even though a SWMD 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 SWMD 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 use its authority 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 can receive the SWMD's waste. That means, 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 in a situation where, 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 how long the board has to make a decision on 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 SWMD'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 SWMD rules.

2. List of Designated Facilities

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

Table 4-6 Facilities Currently Designated

Facility Name	Location		Facility Type
	County	State	
In-District			
n/a		Ohio	
Out-of-District			
n/a		Ohio	
Out-of-State			
n/a			

This page intentionally left blank.

CHAPTER 5: WASTE REDUCTION AND RECYCLING

A SWMD must have programs and services to achieve reduction and recycling goals established in the state solid waste management plan. A SWMD also ensures that there are programs and services available to meet local needs. The SWMD 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.

Between achieving the goals of the state plan and meeting local needs, the SWMD needs to ensure that a wide variety of stakeholders have access to reduction and recycling programs. These stakeholders include residents, businesses, institutions, schools, and community leaders. These programs and services collectively represent the SWMD's strategy for advancing waste reduction and recycling in its member counties.

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 SWMD's existing programs and services, recycling infrastructure, recovery efforts, finances, and overall expectations. This review consisted of a series of 13 analyses that allowed the policy committee to obtain a holistic understanding of the SWMD by answering questions such as:

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

Using what it learned, the policy committee drew conclusions about the SWMD'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 SWMD could take, programs the SWMD could implement, and approaches to address its conclusions. The policy committee used that list to make decisions about the programs and services that will be available in the SWMD during the upcoming planning period.

After determining 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 4.0. 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
- Population Analysis
- Data Collection Analysis
- Processing Capacity Analysis

In preparation of this strategic evaluation the Policy Committee engaged in a strength, weakness, opportunity, and threat (SWOT) analysis able to elicit essential insight and feedback on the current status of recycling and other waste reduction activities within the county. The purpose of the SWOT was to identify the SWMD's waste management system strengths, weaknesses and to find broader opportunities and anticipate threats. The exercise purpose was to ultimately allow the SWMD to find areas for the greatest improvement and maximum impact.

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 a summary of the residential analysis is captured.

2. Conclusions

Using what the Policy Committee learned from the analyses performed in Appendix H and L a list of conclusions was developed. These conclusions represent what was learned about the SWMD's structure, abilities, operation and existing programs, outstanding needs, and available resources. Identified conclusions include:

Reduce/Reuse/Recovery	• Reuse infrastructure is in place via non-profits and other private outlets. • Opportunities to capitalize on existing infrastructure. • Opportunities to connect the reuse network to consumers; and develop greater awareness of donation outlets. • Opportunities to improve data gathering from reuse entities. • Opportunities to explore and promote food recovery. • Opportunities to develop awareness for re-usable cups/bags, etc. • Emphasis to consumers to purchase only necessary quantities of materials: esp. hazardous items like paints, pesticides, automotive fluids

Education	• Website is a high-traffic, popular one-stop resource for recycling information and education for multiple stakeholders (consumers, businesses, schools). • Opportunities to generate more visitors to the website including through social media and other avenues. • Technical assistance to schools is strong and results in additional recycling programming. • Technical assistance to businesses is impactful and demonstrates measureable results. • Consistent and up-to-date messaging is provided to multiple audiences via direct mail (utility bill inserts, print and digital advertising, press releases, community announcements.) • Opportunity to improve resident perception and favorability for costs associated with curbside recycling. Residents often have inaccurate facts on true costs of recycling and hauler business. • SWMD staff of 2 restrains amount and types of education delivered. • Opportunity for branding as part of the county branding efforts currently underway. • Opportunities for regional partnerships to expand messaging about recycling. • Marketing costs to educate and change behavior can be high.
Recycling and Composting	• Minimal generation fees are important but may hinder programming. • Many residents with curbside service have curbside carts resulting in high yields of material. • Curbside recycling tonnages continue to show growth annually. • Residents and businesses incur costs to recycle; often this is a deterrent to signing up for service. • Multi-family housing is underserved and has opportunities to increase program services. • Drop-off programming costs are expensive for SWMD, and increase each year. • Some drop-off recycling locations are prone to misuse for trash disposal; further increasing costs to SWMD. • Approximately 16% of SWMD budget support drop-off recycling. • Composting infrastructure in SW Ohio is limited. Many barriers and challenges to composting food and organics with current infrastructure.

Special Programming	• HHW collection is convenient with semi-permanent availability and provides an opportunity at no additional resident cost. • Retailers and scrap yards provide E-waste outlets but charge user fees and/or accept limited materials. E-waste is likely being landfilled when consumers have no convenient, low cost options. • Opportunities to offer e-waste recycling at no cost to residents/consumers. • Curbside Freon Appliance Collection is convenient and provided on a long-term basis. • Scrap tire collection provides an opportunity for residents to recycle tires at no additional cost; thereby helping to keep tires from being illegally dumped. • Large quantities of obsolete e-waste and scrap tires are challenging issues for a county SWMD to cost effectively manage with limited resources. • Southwest Ohio Pollution Prevention (P2) Internship Program demonstrates effective regional collaboration among three southwest Ohio solid waste districts with excellent metrics and savings derived for industrial partners participating in the program. • Opportunities to educate on reducing the purchase of harmful and hazardous materials and their proper management/disposal.

3. Priorities

After evaluating the list of conclusions, programs and strategies were developed as presented in this Section and in Appendix I. Priorities are to keep the generation fee at the minimum level needed to provide sufficient funding for programming planned. The SWMD 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.

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

Name of Curbside Service	Community Served	Service Provider
Non-subscription	Fairfield City	Rumpke
Non-subscription	Hamilton City	Rumpke
Non-subscription	Middletown City	Rumpke
Non-subscription	Monroe City	Rumpke
Non-subscription	Oxford City	Rumpke
Non-subscription	Trenton City	Rumpke

Name of Curbside Service	Community Served	Service Provider
Non-subscription	Ross Township	Rumpke
Subscription	Fairfield Township	Rumpke
Subscription	Hanover Township	Rumpke
Subscription	Lemon Township	Rumpke
Subscription	Liberty Township	Rumpke
Subscription	Morgan Township	Rumpke
Subscription	Ross Township	Rumpke
Subscription	West Chester Township	Rumpke, Republic
Subscription	St. Clair Township	Rumpke
Subscription	Milford Township	Rumpke
Subscription	Oxford Township	Rumpke
Subscription	Reily Township	Rumpke
Subscription	Wayne Township	Rumpke

Six cities and 1 township have non-subscription curbside achieved through contracts between the municipality and a trash hauler. Municipalities 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.

Seven townships have subscription curbside recycling service and 5 townships have limited subscription curbside service. In subscription curbside service the individual homeowners and the hauler contract.

In 2014, all curbside materials were collected single stream (commingled) with either a bin or cart-based system. Markets guide the materials collected. The standard recyclables collected in 2014 were: cardboard, paper, plastic bottles and jugs, metal, and glass. Each community maintains an updated list of recyclables accepted by their waste hauler.

Drop-off Recycling Locations

Table 5-2 Drop-off Recycling Locations

Location of Drop-off	Community Served	Service Provider
Fairfield City, Community Arts Center	City of Fairfield	Rumpke
Fairfield City, Fairfield Aquatic Center	City of Fairfield	Rumpke
Fairfield City, Water Works Park	City of Fairfield	Rumpke
Fairfield Township, Butler Tech	Fairfield Township	Rumpke
Fairfield Township, Fire Station No. 2	Fairfield Township	Rumpke
Fairfield Township, Police Station at Shaeffer Park	Fairfield Township	Rumpke
Hamilton City, Fire Station No. 1	City of Hamilton	Rumpke
Hamilton City, Fire Station No. 2	City of Hamilton	Rumpke
Hamilton City, Fire Station No. 5	City of Hamilton	Rumpke
Hanover Township, Memorial Park, Mormon Rd.	Hanover Township	Rumpke
Hanover Township, Southwest Regional Water District	Hanover Township	Rumpke
Liberty Township, Dudley Park	Liberty Township	Rumpke
Liberty Township, Fire Station No. 1	Liberty Township	Rumpke
Liberty Township, Fire Station No. 2	Liberty Township	Rumpke

Location of Drop-off	Community Served	Service Provider
Liberty Township, Fire Station No. 3	Liberty Township	Rumpke
Liberty Township, Community Meeting Center	Liberty Township	Rumpke
Madison Township, Poast Town Fire Station	Madison Township	Rumpke
Madison Township, Township Administration Building	Madison Township	Rumpke
Middletown City - Smith Park	City of Middletown	Rumpke
Middletown City - Fire Station HQ	City of Middletown	Rumpke
Middletown City - Fire Station No. 5	City of Middletown	Rumpke
Middletown City - Beau downtown	City of Middletown	Rumpke
Morgan Township, Administration Building	Morgan Township	Rumpke
Morgan Township, Shandon Fire Station	Morgan Township	Rumpke
Oxford City, Oxford West Apartments	City of Oxford	Rumpke
Oxford City, Miami University Police Station	City of Oxford	Rumpke
Oxford City, Miami University Culinary Support Center	City of Oxford	Rumpke
St. Clair Township, Administration Buildings	St. Clair Township	Rumpke
West Chester Township, Beckett Park	West Chester Township	Rumpke
West Chester Township, Keehner Park	West Chester Township	Rumpke
West Chester Township, Voice of America Park (2015 - Partners in Pride)	West Chester Township	Rumpke
Milford Township, Darrtown Hitching Post	Milford Township	Rumpke
Milford Township, Maintenance Building	Milford Township	Rumpke
Reily Township, Community Center Parking	Reily Township	Rumpke
Ross Township, Police and Road Maintenance Building	Ross Township	Rumpke
Wayne Township, Maintenance Building	Wayne Township	Rumpke
Seven Mile Village, Fire Station	Seven Mile Village	Rumpke

All drop-offs are open to the public 24/7. Markets guide the materials collected. The standard recyclables collected in 2014 were: cardboard, paper, plastic bottles and jugs, metal, and glass. The SWMD 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 SWMD contract costs include processing, transportation, and any other management related costs of operating the drop-off locations. The SWMD coordinates placement of drop-offs with hosting community or private sector entity.

Commercial/Institutional Source Reduction and Recycling Programs

Commercial/Industrial Technical Assistance

Technical assistance to area businesses, institutions, and industries includes performing waste assessments, waste audits and assistance in establishing effective recycling programs will continue through the planning period. The SWMD will identify and contact at least 5 businesses utilizing brokers for recycling in attempts to capture additional recycling data.

Southwest Ohio P2 Internship Program

The Southwest Ohio P2 Internship Program is a collaborative partnership between Butler County SWMD, Hamilton County SWMD, Montgomery 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.

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

Multi-Family Housing Cooperative
Multi-family housing assistance to expand recycling services will continue to be a priority for the SWMD. Every other year the SWMD will identify a target community or complex to begin recycling services. West Chester, which is experiencing significant growth in multi-family housing development, Middletown, and Fairfield are next target areas. Outreach strategies will be fulfilled in these target markets.

Special Event Recycling
The SWMD will encourage organizations to consider recycling at high attendance community events. 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 SWMD can potentially assist with these services in terms of grant funding for service cost, recycling signage, and advising on suitable set up.

Restricted/Difficult to Manage Waste Programs
Curbside Freon Appliance Collection
Curbside Freon Appliance collection is an "on-demand" service where Freon is evacuated from the appliance and the unit is removed from the curb, or driveway of residents' homes at no charge. Appliances recycled through the curbside appliance collection include: refrigerators, freezers, dehumidifiers, and air conditioners. Service is available seven months (April – October) of the year with a limit of 2 like appliances per each household. The SWMD contracts with a recycler to manage the appliances.

Household Hazardous Waste Management Program
A semi-permanent contracted HHW service for residents will continue to be offered. The SWMD will also continue to monitor the collection data for participation, tonnages, and costs. In addition, the SWMD will think more broadly about HHW and will develop plans to reduce future generation of HHW through source-reduction efforts and behavior change. This will be addressed in the education and outreach programs.

Lead-Acid Battery Information
Locations where residents may dispose of lead-acid batteries are listed on the SWMD's web page.

Scrap Tire Collection Program
Locations that accept tires are listed on the SWMD's web page. In addition, the SWMD provides a one day Waste Tire Amnesty Event for residents to dispose of unwanted tires at no charge.

Electronics Program
The SWMD maintains a comprehensive list of outlets that accept E-waste on its website, and distributes informational flyers by direct mail to residents. Most outlets accept the same types of electronic items

for recycling but fees for service can vary from one vendor to another. The SWMD is exploring options to help residents properly manage E-waste. In 2018, the SWMD is budgeting funds to implement a voucher program. Vouchers will be used to cover expenses for residents to recycle E-waste at a local scrap recycler. Details need to be finalized but the SWMD envisions residents delivering E-waste to the scrap recycler at a per unit cost to be paid by SWMD. The SWMD will set a "not to exceed" contract limit to be observed by the processor. The scrap recycler would invoice the SWMD for the E-waste processing up to the set limit. The program would operate on a "first come, first served" basis and would be available until the set limit is reached. If vouchers run out, residents would still be able to use the outlet but would incur a user fee.

Food Waste Management Program

The SWMD will 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. A food waste content page will be added to the SWMD website to depict the Food Waste Hierarchy and link to US EPA's Food Recovery Challenge.

Yard Waste Collection from Municipalities/Private Haulers

The SWMD's website guides residents to the city, village, and township websites for information about yard waste programs, seasonal collection services, and other private drop off yard waste options.

Grant Programs

Business and Institutional 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. Grant funding will also be earmarked for Townships to provide "No Littering" signs on roadways. Business Recycling Grants will continue to be offered annually as long as funding permits.

Other Programs

Roadside Litter Collection

The SWMD 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 SWMD'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 SWMD 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.

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

Data Collection

The SWMD surveys commercial and industrial businesses every other year to determine the amount of materials collected for recycling by this sector within the SWMD. Information from these surveys is included in Appendix E and F. In spite of conducting extensive survey efforts response rates have declined and data supporting diversion activity is difficult to capture. The SWMD will pilot new procedures for collecting survey data in this Plan Update.

Outreach, Education, Awareness, and Technical Assistance

District Website

The SWMD maintains a website meeting the requirements prescribed by Goal 3 of the 2009 State Plan. In 2016, the SWMD procured new search engine software to support its online Waste Wizard. The new search algorhythm permits website visitors to search for material specific outlets. The software allows the SWMD to track activity by material searched and the total number of visitors. 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. The site promotes recycling and includes locations where materials may be taken while assisting the SWMD to track trends in materials and needs.

Resource Guide

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

Education Provider

The SWMD Director is available for presentations and meets the requirements prescribed by Goal 3 of the 2009 State Plan.

Backyard Composting Education and Awareness

The SWMD partners with the local Soil & Water Conservation District to promote composting classes to area educators and consumers. The SWMD periodically partners with the Soil & Water Conservation District to conduct joint presentations on recycling and composting.

Township Trustee Outreach

The SWMD will 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. Strategies for the Township Trustees include:

- Link township websites to SWMD.
- Partner to promote participation in curbside recycling for more households.
- Highlight township recycling efforts in various media.
- Survey trustees to build more engagement.
- Face to face meetings to build support and discuss campaign messages.
- Engage haulers for outreach assistance and ensure residents have carts.
- Distribute campaign message information

City Council Outreach

The SWMD will 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. Strategies for local city councils include:

- Help expand programs to multi-family.
- Help develop media to educate on true costs of recycling.

- Develop ways to recognize cities for their recycling achievements now that the RRI program is cancelled.

Resident Outreach

The SWMD will 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. Strategies for residents include:

- Update Recycle Right Flyer in collaboration with Rumpke.
- Website optimization.
- Utilize social media.
- Release campaign message with action item.
- Hosts digital contest.
- Engage local media, civic groups, and HOA's.
- Participate in community events.
- Participate in cart distribution.
- Direct mail campaign.

School Outreach

Strategies for school outreach include:

- Continue outreach to school administrators.
- Provide grant assistance.
- Enhance teacher resources on SWMD webpage to include: field trip ideas, no waste lunch, creative reuse ideas, etc.
- Assist ongoing programs with benchmarks and continuous improvement.
- Work with school administrators to promote successes of programs to local stakeholders.

District Newsletters

The SWMD will continue to partner with community publications to expand the education and advertisement outreach.

District Program Promotions

The SWMD uses the following media outlet for distributing information regarding services and opportunities:

- Facebook
- Direct mail
- Utility bill inserts
- Flyers
- Newspaper advertisements
- Community newsletters
- Website

The variety of media outlets addresses audiences by how they consume the information. The SWMD will continue to use all of the above listed media outlets for program promotions.

Social Media

The SWMD created a Facebook account in 2011 and in this planning period will use social media to change behaviors. The number of campaigns a year will be recorded, the message will be recorded, and the number of promotional items distributed will be tracked. Social media campaigns will follow and

track: traffic stats, number of shares, measure for fan growth, average number of likes and comments, and the ability to maintain conversations.

Outreach Marketing Plan
Outreach and Marketing for the SWMD will engage residents, businesses, and visitors of Butler County through effective strategies, provide clear and compelling information about the benefits of waste reduction and recycling, and describe programs and services available.

The marketing and outreach plan has 3 major goals:

1.) Build positive awareness of the SWMD
2.) Educate households, businesses, and institutions to overcome barriers to recycling participation
3.) Target marketing efforts to drive participation by key audiences

Objectives set:

- Increase curbside subscribers by 5 percent.
- 10,000 unique hits on the website.
- Virtual "word-of-mouth" buzz created through social media, resulting in clicks to the website.

Marketing/Outreach Coordination:
The SWMD will use a multi-layered, multi-faceted marketing and outreach strategy that targets audiences by identifying who they are, where they live, and events going on in their lives. Marketing will focus on each target audience and may include the following marketing efforts:

Media Platform	Comments
Social media (Facebook, Twitter, etc.)	Optimize search words for search engines, reach appropriate independent blogs, and encourage blog posts and Tweets.
Website	One-stop shop for easy access of information.
Direct Mail (e.g. utility bill inserts, other mailers)	Mainstream marketing and advertising.
Flyers, posters, etc.	Customizable, print and online materials.
Newspaper advertisements	Mainstream marketing and print/digital advertising.
Community newsletters	Research driven, focusing on property owners. Articles highlighting programs and community environmental issues.
Presentations	Customizable and direct messaging.
Community-Based outreach	Targeted grassroots marketing (includes local events).
Community Events	Attend local events.

Note: See Appendix I for a tiered outreach schedule.

C. Waste Reduction and Recycling Rates

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] (%)
2018	54,973	12%
2019	57,064	12%
2020	57,795	13%
2021	58,600	13%
2022	59,485	13%
2023	60,459	14%

2. Industrial Recycling in the District

Table 5-4 Industrial Waste Reduction and Recycling Rate

Year	Projected Quantity Collected (tons)	Industrial WRR[1] (%)
2018	37,139	37%
2019	37,187	37%
2020	37,234	37%
2021	37,282	37%
2022	37,329	38%
2023	37,377	38%

CHAPTER 6: BUDGET

Ohio Revised Code Section 3734.53(B) requires a solid waste management plan to present a budget. This budget accounts for how the SWMD will obtain money to pay for operating the SWMD and how the SWMD will spend that money. For revenue, the solid waste management plan identifies the sources of funding the SWMD will use to implement its approved solid waste management plan. The plan also provides estimates of how much revenue the SWMD 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 also 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 funding 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 SWMD will not have enough money to pay for all planned expenses or if the SWMD has reason to believe that circumstances could change its future financial position, then the plan must demonstrate how the SWMD 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 SWMD's budget. Detailed information about the budget is provided in Appendix O.

A. Overview of the SWMD's Budget

The SWMD'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 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.

From 1995 to 2006 the SWMD 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 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. At $0.82 per ton generation fee the SWMD is spending out of its reserve funds and annual expenditures exceed revenues.

As shown in Figure 6-1, cash balances are being drawn down.

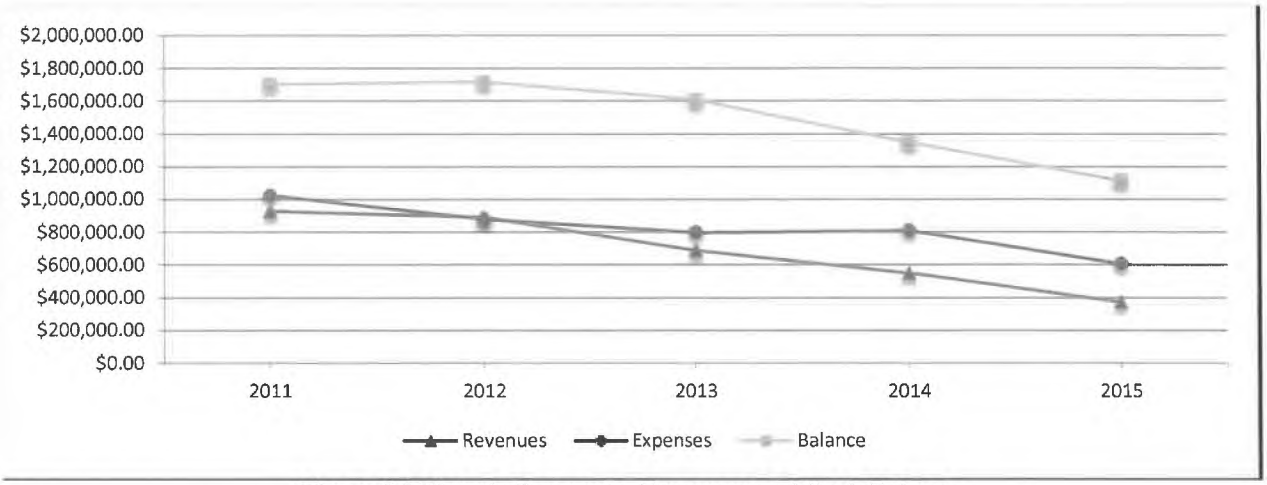


Figure 6-1 Historic Revenues, Expenses and Cash Balance

The budget set forth in this Plan Update reduces the reserve funds to maintain a 12-month operating budget. The $0.82 per ton generation fee will remain effective until year 2020, when a $1.00 per ton generation fee is needed. The fee increase is needed in 2020 to keep programming planned during this Plan Update. At $1.00 per ton the SWMD's generation fee will remain the second lowest in the state, shown in Figure 6-2.

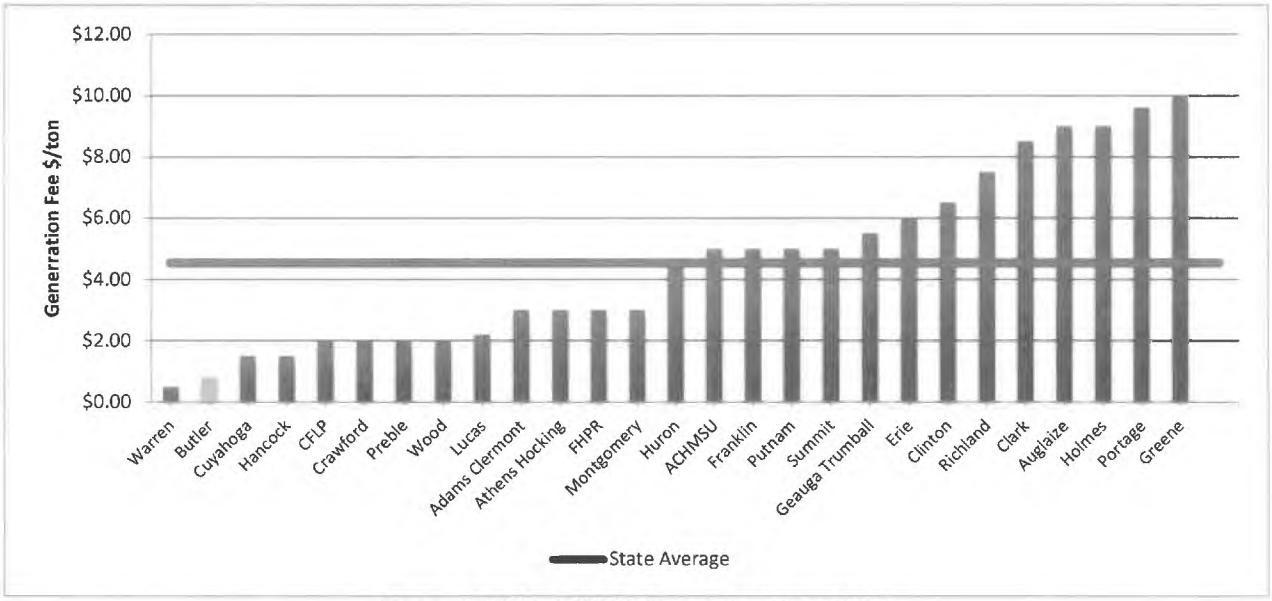
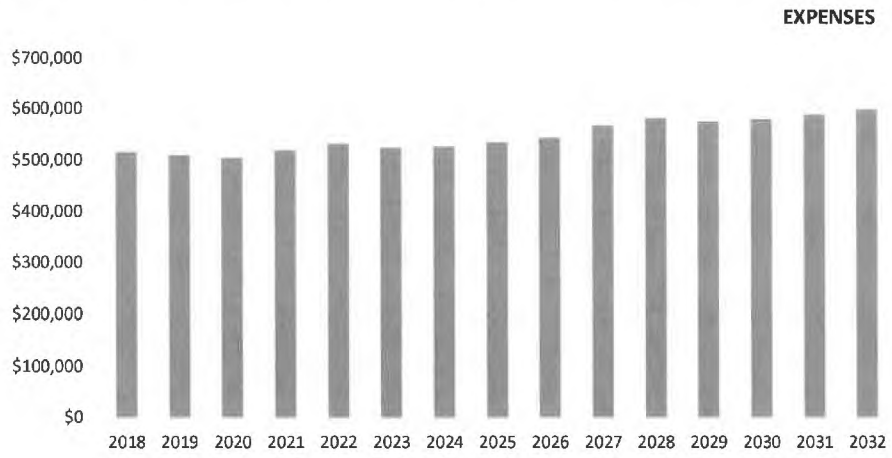


Figure 6-2 Ohio SWMD Generation Fees 2014

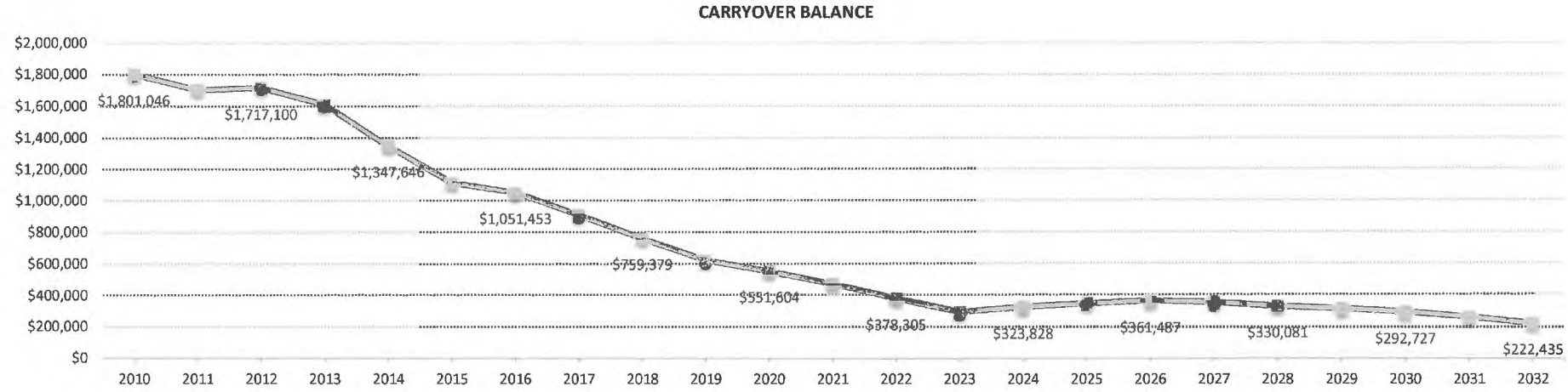
The small increase in generation fee revenues will support the household hazardous waste collection, scrap tire collection, multi-family and business/institution, technical assistance, P2 internship, litter collection, addition of electronics recycling, and rising costs of the contracted drop-off recycling programs. The budget is shown in Figure 6-3.

Figure 6-3 SWMP Budget Forecast



Programs	2018	Expenses remain flat unless otherwise noted.
Administrative Costs	$ 186,469	Staffing at 3% annual inflationary factor
Drop-off	$ 99,878	2% annual inflationary factor
Multi-family	$ 6,000	Every other year budgeted expense
Business/Institutional	$ 8,000	
County Office Paper	$ 25,000	Reduces down to $12,000 per year by 2021
Tire Collection*	$ 20,000	
HHW Collection*	$ 60,000	Service 4 to 6 months per year
Electronics Collection*	$ 15,000	
Appliance Collection *	$ 17,000	
Education*	$ 50,000	Reduces to $40,000/year in 2019
Litter Collection	$ 16,000	
P2 Internship	$ 12,000	
Total	$ 515,347	

*In 2024 costs for each program reduces $5,000, HHW reduces $10,000.



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
INCOME	$366,621	$366,621	$447,098	$447,098	$447,098	$447,098	$536,518	$536,518	$536,518	$536,518	$536,518	$536,518	$536,518	$536,518	$536,518
EXPENSES	$514,346	$508,218	$513,276	$527,525	$539,971	$532,619	$505,475	$513,544	$521,833	$545,348	$559,095	$553,080	$557,310	$566,793	$576,535
CASH FLOW	-$147,726	-$141,597	-$66,177	-$80,427	-$92,872	-$85,520	$31,043	$22,974	$14,685	-$8,830	-$22,577	-$16,562	-$20,792	-$30,275	-$40,017
CUMULATIVE CASH FLOW	$759,379	$617,781	$551,604	$471,177	$378,305	$292,785	$323,828	$346,802	$361,487	$352,658	$330,081	$313,519	$292,727	$262,452	$222,435

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.

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.

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).

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
There are a variety of other sources that SWMDs can use to earn revenue. Some of these sources include:

- Revenue from the sale of recyclable materials
- 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
- Bonds

1. Generation Fees
   Butler County SWMD collects generation fees of $0.82 per ton on solid waste disposed in Ohio. Upon approval of this Plan Update by the Director of Ohio EPA, the SWMD generation fee will increase to $1.00 per ton in 2020. Collection of the increased generation will to go into effect January 1, 2020. Generation fee increases budgeted later in the planning period at year 2024 affect the SWMD's next planning cycle and will be further evaluated as to need at that time.

2. Other Funding Mechanisms
   SWMD's may receive funding from other sources. Other sources as described below are typically 5 percent or less of contributing funding.

   Reimbursement
   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.

   Recycling Revenue
   The SWMD previously collected occasional revenue from sale of recyclables. Recycling revenue is not projected during the planning period.

3. Summary of Revenue

   Table 6-1 shows projected revenues for the first five years of the planning period. The $1 per ton generation fee is expected to result in approximately $80,000 in additional annual revenue.

Table 6-1 Summary of Revenue

Year	Disposal Fees	Generation Fees	Contract Fees	Other Revenue				Total Revenue
				Reimbursements	Grants	Other	Recycling Revenue	
Reference Year								
2014	$0	$410,006	$0	$309	$13,899	$0	$0	$424,214
Planning Period								
2018	$0	$366,621	$0	$0	$0	$0	$0	$366,621
2019	$0	$366,621	$0	$0	$0	$0	$0	$366,621
2020	$0	$447,098	$0	$0	$0	$0	$0	$447,098
2021	$0	$447,098	$0	$0	$0	$0	$0	$447,098
2022	$0	$447,098	$0	$0	$0	$0	$0	$447,098
2023	$0	$447,098	$0	$0	$0	$0	$0	$447,098

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 summarizes the types of expenses the SWMD expects for implementation of this Plan Update. Detailed information regarding expenses is provided in Appendix O.

Table 6-2 Summary of Expenses

Expense Category	Year						
	Reference	Planning Period					
	2014	2018	2019	2020	2021	2022	2023
Personnel and Administration	$190,136	$185,468	$196,342	$195,362	$221,533	$225,859	$222,345
Drop-off Recycling	$97,066	$99,878	$101,876	$103,914	$105,992	$108,112	$110,274
Multi-family	$0	$6,000	$0	$6,000	$0	$6,000	$0
Business/Institutional	$0	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
County Office Paper	$30,183	$25,000	$22,000	$20,000	$12,000	$12,000	$12,000
Tire Collection	$16,367	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
HHW Collection	$89,612	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
Electronics Collection	$0	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Freon Appliance Collection	$13,810	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000
Litter Collection	$14,214	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000
Education and Outreach	$75,691	$50,000	$40,000	$40,000	$40,000	$40,000	$40,000
P2 Internship	$8,391	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
RRI	$149,579	$0	$0	$0	$0	$0	$0
Total Expenses	$685,049	$514,346	$508,218	$513,276	$527,525	$539,971	$532,619

D. Budget Summary

Table 6-3 Budget Summary

Year	Revenue	Expenses	Net Difference	Ending Balance
Reference Year				
2014	$424,214	$685,049	-$260,835	$1,347,646
Planning Period				
2018	$366,621	$514,346	($147,726)	$759,379
2019	$366,621	$508,218	($141,597)	$617,781
2020	$447,098	$513,276	($66,177)	$551,604
2021	$447,098	$527,525	($80,427)	$471,177
2022	$447,098	$539,971	($92,872)	$378,305
2023	$447,098	$532,619	($85,520)	$292,785

APPENDIX A: MISCELLANEOUS INFORMATION

A. Reference Year

The reference year for this solid waste management plan is:

2014

B. Planning Period

The planning period for this solid waste management plan is:

First Year	Last Year
2018	2032

C. Goal Statement

The SWMD will achieve the following Goal(s):

Goal 1	X
Goal 2	
Goal 1 and Goal 2	

D. Material Change in Circumstances/Contingencies

In accordance with ORC 3734.56(D), the District's Solid Waste Management Plan (*Plan Update*) must be revised if the Board of Directors (Board) has determined that "circumstances materially changed from those addressed in the approved initial or amended plan of the district."

The following criteria will be monitored to determine if a material change in circumstance has occurred in the SWMD, which may require a revision of the *Plan Update*:

1. **Criteria for Determining Material Change**
   Change in the Solid Waste Management Facilities Identified by the Plan
   Solid waste management facilities are identified in the *Plan Update* to ensure waste disposal options for the District. If the facilities identified should close, or for some reason they are not able to handle the District waste disposal while no other substitutes are provided, the District would determine a material change.

   Change in Waste Generation
   A change in waste generation within the District that impairs the ability of the facilities identified in the *Plan Update* to adequately process the District-generated waste and/or a change in waste generation within the District that impairs the ability of the District to financially fund programs would constitute a material change in circumstances. However, if the facilities identified in this *Plan Update* adapt to the change in waste generation, the change in waste generation would not be deemed a material change in circumstances. If the District were able to adjust budgets or implement contingency funding options listed in this *Plan Update* in Section VIII from a change in

waste generation that would negatively affect the financial funding of this *Plan Update*, then a change in waste generation would not be deemed a material change in circumstances.

Change in the Capacity Available for Disposal, Transfer and Composting
Capacity shortfall to one or more waste management methods identified in the Plan Update would be deemed a material change if other waste management methods identified and/or not identified in the *Plan Update*, but deemed acceptable by the Board, were unavailable. However, if other waste management methods were capable of handling the capacity shortfall, the change in capacity would not be deemed a material change in circumstances.

Change in Strategies for Waste Reduction and/or Recycling
Strategies for waste reduction and/or recycling are dependent upon many factors. The District is committed to promoting recycling; however, changes in recycling markets and/or the recycling needs of the District would constitute a material change if they result in the permanent discontinuation of strategies that are necessary in order to demonstrate compliance with the State Plan Goals in this *Plan Update*. The loss of strategies that do not impact compliance with the demonstration of State Plan Goals would not be deemed a material change in circumstances.

Change in the Availability of Revenues for Plan Implementation
Any significant shortfall in revenues that would result in a program discontinuation would be deemed a material change in circumstances if the lack of funding prohibits demonstration of State Plan Goals. However, if the District were able to adjust budgets or implement contingency funding options listed in this *Plan Update* in Section VI from a change in revenues that would negatively affect the financial funding of this *Plan Update*, then a change in revenues would not be deemed a material change in circumstances.

Change in the Procedures to be followed for Plan Implementation
Significant changes in the procedures for implementing the *Plan Update* would be deemed a material change in circumstances if said changes would prevent District staff from implementing programs necessary to meet required State Plan Goals. A delay in procedures for plan implementation would not be a material change in circumstances providing the procedures do not hinder the implementation of programs that are needed to meet required State Plan Goals.

Change in the Timetable for Implementation of Programs and/or Activities
Significant changes or delays in program implementation would be deemed a material change in circumstances if said changes resulted in non-compliance with required State Plan Goals. However, if the District were able to implement new strategies within a reasonable time frame to ensure compliance with State Plan Goals, then a material change in circumstances would not have occurred.

2. Monitoring Process

The District's Board and the solid waste coordinator will monitor the changes indicated above on an annual basis by reviewing implementation of the *Plan Update* and looking for indicators such as:

- A significant increase from the 2014 baseline, for two or more consecutive years, of waste quantities reported to Ohio EPA for solid waste disposal facilities used by the District.
- A significant decrease in remaining capacity in identified landfills, along with an absence of alternatives, such that capacity falls short of the 15-year planning period.

- A significant increase in out-of state waste exports, for two or more consecutive years, leading to a loss in revenue adversely impacting the District's ability to fulfill State Plan Goals.
- A significant cost increase for all programs and strategies planned by the District throughout the planning years.
- A significant one-year decrease in total recycling tonnage collected by local recycling activities.
- The loss of one or more entire recycling markets such that the District would be unable to recycle one or more of the required designated materials necessary to meet Goal #1 of the 2009 State Plan.

The District has chosen to not identify specific trigger points in the above monitoring process. The District believes that arbitrary percentages, dollar amounts, tonnages or other trigger points decided during the plan preparation time period (2014-2016) may not always be applicable during a potential material change evaluation in the future. The District is confident that the above listed procedures will adequately serve the District in determining if a material change has occurred based on the information and data at the time of the evaluation.

3. **Timetable for Analyzing the Determination**
   Within thirty days after the Board makes a determination that a material change has occurred, the Board will call a meeting of the Policy Committee requesting the Policy Committee to analyze the *Plan Update* and submit a Draft Amended Plan to the Board.

4. **Notification Procedure**
   After the Board has decided that a material change has occurred, the Board will notify the municipal corporations and townships within the District and Ohio EPA of its intention to revise the *Plan Update* because of a material change in circumstances from those addressed.

E. Explanations of differences between data previously reported and data used in the solid waste management plan

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

Data does not differ.

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

Data does not differ.

This page intentionally left blank.

APPENDIX B: RECYCLING INFRASTRUCTURE INVENTORY

A. Inventory of Residential Recycling Infrastructure Available in the Reference Year

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

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected[1]	Type of Collection	PAYT ✓	Weight of Materials Collected from SWMD (tons)
Non-subscription curbside								
NSC1	Fairfield City	Butler	Contract between a political jurisdiction and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		2,172
NSC2	Hamilton City	Butler	Contract between a political jurisdiction and a private hauler	Bi-Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		2,696
NSC3	Middletown City	Butler	Contract between a political jurisdiction and a private hauler	Bi-Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		1,199
NSC4	Monroe City	Butler	Contract between a political jurisdiction and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		654
NSC5	Oxford City	Butler	Contract between a political jurisdiction and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		958
NSC6	Trenton City	Butler	Contract between a political jurisdiction and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream Manual and semi-automated		475
	Ross Twp						**Total**	8,154

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail; Plastic includes: any plastic container shaped like a bottle or jug; Metals includes: Aluminum containers, Steel Cans, & Tin Cans; Glass includes: Brown Glass, Clear Glass, & Green Glass

Six cities in the SWMD have non-subscription combination curbside (Ross Township added non-subscription combination curbside recycling and trash service effective April 2016) recycling and trash removal achieved through contracts between the municipality and a trash hauler. Provision of solid waste services is privatized in the SWMD, no public haulers provide hauling services. Municipalities 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.

Six townships in the SWMD have subscription curbside recycling service. In subscription based service residents must take a voluntary action to sign up for and agree to pay for their curbside recycling service with a hauler. All waste haulers providing trash service in the SWMD offer curbside recycling service to their customers in these six townships.

Residents mix all recyclables (single stream) in bins or carts for curb collection.

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

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected[1]	Type of Collection	PAYT ✓	Weight of Materials Collected from SWMD
Subscription curbside								
SC1	Fairfield Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		419
SC2	Hanover Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		104
SC3	Liberty Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		1,291
SC4	Morgan Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		61
SC5	Ross Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		116
SC6	West Chester Township	Butler	Contract between a resident and a private hauler	Weekly	Paper, Plastic, Cartons, Metals, Glass	Single Stream, manual and semi-automated		1,757
							Total	3,748

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail; Plastic includes: any plastic container shaped like a bottle or jug; Metals includes: Aluminum containers, Steel Cans, & Tin Cans; Glass includes: Brown Glass, Clear Glass, & Green Glass

Table B-2a: Inventory of Full-Time, Urban Drop-off Sites Available in the Reference Year

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD (tons)
Full-time, urban drop-offs							
FTU1	Fairfield City, Community Arts Center	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	81 combined total from all Fairfield locations
FTU2	Fairfield City, Fairfield Aquatic Center	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	81 combined total from all Fairfield locations
FTU3	Fairfield City, Grange Park	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	81 combined total from all Fairfield locations
FTU4	Fairfield City, Point Pleasant Park	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	81 combined total from all Fairfield locations
FTU5	Fairfield City, Water Works Park	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	81 combined total from all Fairfield locations
FTU6	Fairfield Township, Butler Tech	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	203 combined total from all Fairfield Township locations
FTU7	Fairfield Township, Fire Station No. 2	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	203 combined total from all Fairfield Township

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD (tons)
							locations
FTU8	Fairfield Township, Police Station at Shaeffer Park	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	203 combined total from all Fairfield Township locations
FTU9	Hamilton City, Fire Station No. 1	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	13 combined total from all Hamilton locations
FTU10	Hamilton City, Fire Station No. 2	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	13 combined total from all Hamilton locations
FTU11	Hamilton City, Fire Station No. 5	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	13 combined total from all Hamilton locations
FTU12	Hanover Township, Memorial Park, Mormon Rd.	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	104 combined total from all Hanover Township locations
FTU13	Hanover Township, Southwest Regional Water District	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	104 combined total from all Hanover Township locations
FTU14	Liberty Township, Dudley Park	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	189 combined total from all Liberty Township locations
FTU15	Liberty Township, Fire Station No. 2	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	189 combined total from all Liberty Township locations
FTU16	Liberty Township, Fire Station No. 3	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	189 combined total from all Liberty Township locations
FTU17	Liberty Township, Township Administration Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	189 combined total from all Liberty Township locations
FTU18	Madison Township, Poast Town Fire Station	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	63 combined total from in Madison Township locations
FTU19	Madison Township, Township Administration Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	63 combined total from in Madison Township locations
FTU20	Middletown City Smith Park	Butler	Contract with private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	26 tons
FTU21	Morgan Township, Administration Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	91 combined total from all Morgan Township locations

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD (tons)
FTU22	Morgan Township, Shandon Fire Station	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	91 combined total from all Morgan Township locations
FTU23	Oxford City, Oxford West Apartments	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	111 combined total from all Oxford locations
FTU24	Oxford City, Miami University Police Station	Butler	Contract between service department and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	111 combined total from all Oxford locations
FTU25	Oxford City, Miami University Culinary Support Center	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	111 combined total from all Oxford locations
FTU26	St. Clair Township, Administration Buildings	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	13
FTU27	West Chester Township, Beckett Park	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	525 combined total from all West Chester locations
FTU28	West Chester Township, Keehner Park	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	525 combined total from all West Chester locations
FTU29	West Chester Township, Voice of America Park	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	yes	525 combined total from all West Chester locations
						TOTAL	**1,418**

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail; Plastic includes: any plastic container shaped like a bottle or jug; Metals includes: Aluminum containers, Steel Cans, & Tin Cans; Glass includes: Brown Glass, Clear Glass, & Green Glass

Drop-off recycling opportunities consist of multiple drop-off containers located at each site. Sites are available to county residents 24 hours/7 days a week and materials are collected at least weekly by the hauler.

Table B-2b: Inventory of Part-Time, Urban Drop-off Sites Available in the Reference Year

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD
Part-time, urban drop-offs							
none							
						TOTAL	**0**

Table B-2c: Inventory of Full-Time, Rural Drop-off Sites Available in the Reference Year

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD
Full-time, rural drop-offs							
FTR1	Milford Township, Darrtown Hitching Post	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	Yes	39 combined total from all Milford Township locations
FTR2	Milford Township, Maintenance Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	Yes	39 combined total from all Milford Township locations
FTR3	Reily Township, Community Center Parking	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	Yes	52
FTR4	Ross Township, Police and Road Maintenance Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	Yes	168
FTR5	Wayne Township, Maintenance Building	Butler	Contract between SWMD and a private hauler	24/7	Paper, Plastic, Cartons, Metals, Glass	Yes	65
						TOTAL	**324**

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail; Plastic includes: any plastic container shaped like a bottle or jug; Metals includes: Aluminum containers, Steel Cans, & Tin Cans; Glass includes: Brown Glass, Clear Glass, & Green Glass

Table B-2d: Inventory of Part-Time, Rural Drop-off Sites Available in the Reference Year

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD (tons)
Part-time, rural drop-offs							
none							
						TOTAL	**0**

Table B-2e: Inventory of Other Drop-off Sites Available in the Reference Year

ID#	Name of Drop-off Site	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (yes or no)	Weight of Materials Collected from the SWMD (tons)
Other Drop-offs							
ODO1	Abitibi (102 locations)	Butler	Private Business	24/7	Paper	no	748
						TOTAL	**748**

Table B-3 Mixed Municipal Solid Waste Material Recovery Facility

Name of Material Recovery Facility	Location (County, City)	Communities Served	Types of Materials Recovered[1]	Weight of Materials Recovered (tons)	Waste Processed (tons)	Bypass Waste (tons)	Total Waste (tons)	Recovery Rate in Reference Year (percent)
none							**0**	**0**

A mixed solid waste materials recovery facility provides residents with access to recycling opportunities by removing recyclables from the trash for the residents. The SWMD does not use a mixed waste material recovery facility (aka dirty MRF) to separate recyclables from trash.

B. Inventory of 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	County(ies) Served	Trash Collection Service				Curbside Recycling Service		
		PAYT	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Rumpke Waste, Inc	Butler	☐	✓	✓	✓	✓	✓	✓
CSI/Republic Services	Butler		✓	✓	✓	✓	✓	✓
Best Way Disposal	Butler			✓	✓		✓	✓

Three private haulers operate in the county providing recycling and trash collection services.

C. Inventory of Composting Facilities/Yard Waste Management Programs Available in the Reference Year

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

ID#	Facility or Activity Name	Compost Class	Publicly Accessible	Location	Waste Received from the SWMD	
					Food Waste (tons)	Yard Waste (tons)
Compost Facilities						
YW1	City of Oxford, Collins Run Compost Facility	IV		Oxford, Ohio (Butler County)		1,31
YW2	City of Trenton Composting Facility	IV		Trenton, Ohio (Butler County)		397
YW3	Miami University Compost Facility	IV		Oxford, Ohio (Butler County)		882
YW4	Joyce Park Leaf Collection Area	IV		Hamilton, Ohio (Butler County)		Included in Hamilton Leaf Collection
YW5	Ohio Mulch	IV	✓	Cincinnati, Ohio (Hamilton County)		12
YW6	NPK Compost Facility	IV	✓	Cincinnati, Ohio (Hamilton County)		349
YW7	H. Hafner & Sons Inc C&D Facility	IV		Cincinnati, Ohio (Hamilton County)		730
YW8	Brausch Farms	IV		Clarksville, Ohio (Warren County)		9
YW9	Marvins Organics Gardens	IV	✓	Lebanon, Ohio (Warren County)		191
YW10	Hauler/Kroger/Walmart	N/A	N/A	N/A	1,367	
Total					1,367	3,884
Community Yard Waste Collection Programs						
YW11	City of Fairfield Chipper Drop-off			Fairfield, Ohio		2,406
YW12	City of Fairfield Curbside Yard Waste Pickup			Fairfield, Ohio		1,384
YW13	City of Hamilton Chipper Drop-off			Hamilton, Ohio		19
YW14	City of Hamilton Leaf Collection			Hamilton, Ohio		1,388
YW15	City of Oxford Curbside Yard Waste Pickup			Oxford, Ohio		included in Collins Run facility total
YW16	City of Oxford Leaf collection			Oxford, Ohio		included in Collins Run facility total
YW17	City of Trenton Leaf Collection			Trenton, Ohio		Included in City of Trenton Composting Facility
Total						5,197
Mulching Operations						
YW18	Tri-State Mulch			Monroe, OH (Butler County)		2,996
Total						2,996
Land Application						
	none					
Total					0	0

Anaerobic Digestion				
	none			
Total			0	0

Material quantities were obtained through surveys, direct inquiry and Ohio EPA Compost Facility data. Compost facilities (all classes) track material volumes delivered and reported to Ohio EPA.

Two municipalities, Fairfield and Oxford, provide curbside yard waste pick-up. In the reference year, Fairfield provides their residents the opportunity to place brush and leaves at the curb utilizing the Public Works Department to haul materials. Oxford provides residential curbside pickup for brush and yard waste (no grass) including leaves, tree trunks, stumps and holiday trees from December through February. The Public Works Departments in Fairfield, Hamilton, Oxford, and Trenton provide curbside leaf collection. Hamilton provides their residents the opportunity to bring tree limbs and brush to the wastewater treatment plant twice a month between April and October. Limbs and brush are chipped for mulch used in city parks. 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.

This page intentionally left blank

APPENDIX C: POPULATION DATA

Table C-1 Population Adjustments

	Butler
Before Adjustment	374,158
Additions	
Fairfield City	0
Middletown City	2,705
Monroe City	142
Subtractions	
Sharonville City	2,358
College Corner	194
After Adjustment	374,311

Source: Office of Research, Ohio Development Services Agency, "2014 Population Estimates by County, City, Village and Township", April 2016

Total Reference Year Population	
Before Adjustment Population	**After Adjustment Population**
374,158	374,311

Source: Office of Research, Ohio Development Services Agency, "2014 Population Estimates by County, City, Village and Township", May 2015

Reference year population is taken from Ohio Development Services Agency Office of Statistical Research (ODSA, OSR). OSR provided estimate populations for 2014 based on the 2014 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 SWMD has five communities that are located in more than one solid waste management District: Fairfield, Middletown, Monroe, Sharonville and College Corner. The majority of Fairfield, Middletown, and Monroe reside in Butler County; however, the majority of population for the other two municipalities is outside of Butler County. Adjustments were made to add the portion of the first three municipalities located in other counties to the Butler County population and to subtract the portion of the municipalities located in Butler County from the Butler County population.

Table C-2: Population Projections

Year	Butler	Total District Population
2014	374,311	374,311
2015	378,370	378,370
2016	380,718	380,718
2017	383,066	383,066
2018	385,414	385,414
2019	387,762	387,762
2020	390,110	390,110
2021	392,064	392,064
2022	394,018	394,018
2023	395,972	395,972
2024	397,926	397,926
2025	399,880	399,880
2026	402,096	402,096
2027	404,312	404,312
2028	406,528	406,528
2029	408,744	408,744
2030	410,960	410,960
2031	412,748	412,748
2032	414,536	414,536

Source: Office of Research, Ohio Development Services Agency, "2014 Population Estimates by County, City, Village and Township", April 2016

Sample Calculations:

Projected population in 2015 = 378,370
Projected population in 2020= 390,110
Annual population change = (378,370– 390,110) / 5 = 2,348
Projected population in 2016 = 2015 population + 2,348 = 378,370 + 2,348 = 380,718

Projections of population through the planning period are based on the latest population projections from the Ohio Development Services Agency (ODSA), Office of Statistical Research. The ODSA Planning Research and Strategic Planning Office provided year 2014 census data and projected estimates for 2015, 2020, 2025, 2030, and 2035. To determine population estimates between these years, straight-line interpolation was used.

Over the fifteen-year planning period, population figures are expected to increase 5 percent, averaging a 0.4 percent annual increase.

Population projections gauge future demand for services, but in projection calculations there are room for errors because of the difficulty associated with forecasting. As projected by ODSA, population is expected to increase. However, when compared to historic population growth, the projected growth is modest. According to the United States Census Bureau between the years 2000 and 2014 population for Butler County grew by 12.5 percent, averaging a 1 percent annual increase.

APPENDIX D: DISPOSAL DATA

A. Reference Year Waste Disposed

Table D-1a: 2014 Waste Disposed – Publicly Available Landfills (Direct Haul)

Facility Name	Location		Waste Received from SWMD (TPY)			
	County	State	Residential/ Commercial	Industrial	Excluded	Total
In-district facilities						
none		OH	0	0	0	0
Out-of-district facilities						
Celina Sanitary Landfill	Mercer	OH	0	0	1	1
Evergreen Recycling & Disposal	Wood	OH	1	0	0	1
Preble County Sanitary Landfill	Preble	OH	1,299	0	0	1,299
Rumpke Waste Inc Hughes Rd Landfill	Hamilton	OH	279,956	50,130	6,802	336,888
Stony Hollow Landfill, Inc	Montgomery	OH	3,408	1,201	19	4,628
Pine Grove Regional Facility	Fairfield	OH	21,157	0	0	21,157
Rumpke Brown County Landfill	Brown	OH	1,503	0	0	1,503
Out-of-state facilities						
Bavarian Trucking Co Inc	Boone	KY	1,582	2,256	48,924	52,762
Republic Services of KY LLC - Epperson Waste Disposal	Grant	KY	0	9,178	73,729	82,907
Rumpke of KY Inc - Pendleton Co Landfill	Pendleton	KY	3,841	375	0	4,217
Republic Services of KY - Valley View Landfill	Henry	KY	2	174	0	177
Central KY Landfill	Scott	KY	0	200	0	200
Big Run Landfill	Boyd	KY	0	0	1,619	1,619
Caldwell Landfill	Shelby	IN	0	3,029	0	3,029
Dearborn County Trash and Recycling Transfer Station	Decatur	IN	6,840	0	16	6,856
Indianapolis Resource Recovery Facility	Marion	IN	0	484	0	484
Liquid Waste Removal Processing Facility	Johnson	IN	0	1	0	1
Medassure of Indiana Treatment Facility	Marion	IN	6	0	0	6
Merell bros Inc Indt Disposal Solutions	Marion	IN	0	35	0	35
Midwest Resource Recovery CNT	Clark	IN	0	124	0	124
National Serv-all Landfill	Allen	IN	7,165	0	0	7,165
New Paris Pike Landfill	Wayne	IN	3,370	0	193	3,563
Tradebe Treatment & Recycling, LLC	Lake	IN	0	25	0	25
Total Direct Haul Waste Disposed in Landfills			330,129	67,212	131,302	528,644

Source(s) of Information: Facility Annual Operational Reports for 2014

A wide variety of wastes are disposed in municipal solid waste landfills. Waste generated from households, commercial businesses, institutions, and industrial plants. In addition, asbestos (if permitted to do so), construction and demolition debris, dewatered sludge, contaminated soil, and incinerator ash. More waste from residential and commercial sources was disposed than from industrial sources.

Table D-1b: 2014 Waste Disposed – Captive Landfills

Facility Name	Location		Waste Received from SWMD (TPY)		
	County	State	Industrial	Excluded	Total
In-district facilities					
none		OH	0	0	0
Total Waste Disposed in Captive Landfills			0	0	0

Source(s) of Information: Facility Annual Operational Reports for 2014

Captive landfills are landfills used to dispose of waste generated exclusively by the manufacturing company that owns the landfill. SWMD waste was not disposed in a captive landfill in the reference year.

Table D-2 Reference Year Waste Transferred

Facility Name	Location		Waste Received from the SWMD (TPY)				Destination
	County	State	Residential/Commercial	Industrial	Excluded	Total	
In-district facilities							
none						0	
Out-of-district facilities							
Evendale Transfer Station	Hamilton	OH	40,219	0	0	40,219	Rumpke Waste Inc Hughes Rd Landfill, unknown, and out of state facilities
Hamilton City Transfer Facility	Butler	OH	7,824	0	177	8,001	Rumpke Waste Inc Hughes Rd Landfill
Montgomery Co. South Transfer Facility	Montgomery	OH	2,273	0	0	2,273	Rumpke Brown Co Sanitar Landfill, Waste Managemen. Transfer Station Fairborn, Stony Hollow Landfill, Cherokee Run Landfill, Unknown
Montgomery Co. North Transfer Facility	Montgomery	OH	0	0	0	0	Cherokee Run Landfill
Out-of-state facilities							
none							
	Total Transferred Waste		50,316	0	177	50,493	

In cases where waste is hauled from a transfer facility to a landfill, the county of origin is not recorded at the landfill. This means a load of trash disposed in a landfill from a transfer facility could have waste mixed from several counties. When a transfer facility hauls to more than one landfill, it becomes difficult to track which landfill received a county's waste. For planning purposes the waste hauled through transfer facilities is listed separately identifying possible destination landfills. Approximately 9 percent of the waste was transferred, meaning a refuse truck picked up waste from clients and hauled that waste to a transfer facility. Waste was tipped, reloaded into transfer trucks, and hauled to landfills for disposal.

Table D-3 Reference Year Total Waste Disposed

	Residential/ Commercial	Industrial	Excluded	Total
Direct Hauled	319,589	66,543	131,109	517,242
Transferred	50,316	0	177	50,493
Total	369,906	66,543	131,286	567,735
Percent of Total	65%	12%	23%	100%

% of Total Waste Disposed
91%
9%
100%

Waste flows to the landfills either by direct haul or through a transfer facility. Approximately 91 percent of the waste was direct hauled, meaning a refuse truck picked up waste from clients and directly hauled that waste to a landfill for disposal. Direct hauled waste is disposed in in-state and out-of-state landfill facilities. The majority of direct hauled waste was disposed in one privately owned landfill located in Ohio in neighboring Hamilton County. 71 percent of the waste was disposed of at in-state facilities, while 29 percent was disposed in out-of-state landfill facilities.

Total disposal refers to the sum of waste direct hauled and transferred. According to Ohio EPA Format 4.0, if excluded waste is 10 percent or less of total disposal in the reference year, then SWMD's are not required to account for excluded waste in the solid waste management plan. For Butler County, excluded waste accounts for 23 percent of total disposal in 2014, and therefore the SWMD's has provided an accounting of excluded waste totals.

Compared to other solid waste districts with similar residential/commercial waste disposal tonnages the Butler County per capita waste disposal is one of the highest.

Table D-3a: Reference Year Per Capita Waste Disposal Compared to SWMD with Similar Residential/Commercial Disposal

District	2014 Residential/Commercial Waste Disposal (tons)	2014 Population	Pounds/Person/Day
Geauga Trumball	223,082	299,470	4.08
Summit Akron	407,755	541,943	4.12
Montgomery County	472,038	535,153	4.83
Lucas County	387,683	435,424	4.88
Butler County	*380,446*	*374,158*	*5.57*
Carroll Columbiana Harrison	344,749	149,416	12.64

Compared to neighboring solid waste districts Butler County's residential/commercial per capita waste disposal is the highest.

Table D-3b: Reference Year Per Capita Waste Disposal Compared to Regional SWMD's

District	2014 Residential/Commercial Waste Disposal (tons)	2014 Population	Pounds/Person/Day
Preble County	42,051	22,465	2.93
Adams-Clermont	156,379	233,180	3.67
Warren County	173,186	221,659	4.28
Montgomery County	472,038	535,153	4.83
Hamilton County	809,319	811,748	5.46
Butler County	*380,446*	*374,158*	*5.57*

B. Historical Waste Analysis

Table D-4 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)
2007	357,276	6.06	394,931	243,168	35,164	673,263
2008	353,895	6.00	387,644	236,453	42,131	666,228
2009	363,184	5.12	339,572	208,165	39,778	587,515
2010	368,130	4.79	321,507	356,645	23,234	701,386
2011	368,630	4.96	333,924	248,509	31,756	614,189
2012	370,589	4.69	317,192	231,665	101,936	650,792
2013	371,272	5.01	339,319	94,359	73,031	506,708
2014	374,311	5.57	380,446	67,212	131,479	579,137

Source(s) of Information: Population retrieved from Annual District Report Review Forms. Adjustments were made in 2007, 2008, and 2009 to remove auto shredder residue from MSW and record it with industrial waste.

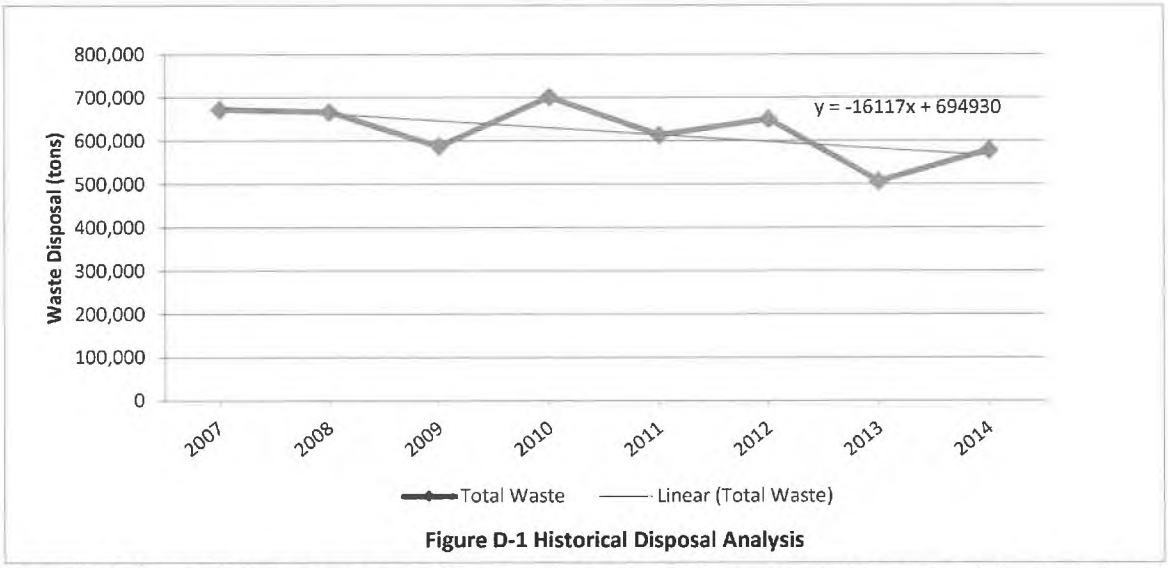


Figure D-1 Historical Disposal Analysis

Historical disposal demonstrates a downward trend. Both residential/commercial and industrial waste disposal declined over the past 8 years.

1. Residential/Commercial Waste

In the residential/commercial sector rising population does not show direct correlation to landfilled waste. Landfilled waste followed an inverted bell curve demonstrating peaks in 2007 and 2014 while population demonstrated annual increases. Waste disposal peaks at over 390,000 tons and dips to 317,000 tons. The decline in disposal is attributable in part to the downturn in the economy, which began in late 2008. Disposal weight tons begins to increase as the economy has rebounded. From the chart below the trend curve appears to be on the rise. The average annual decline was 4.5 percent.

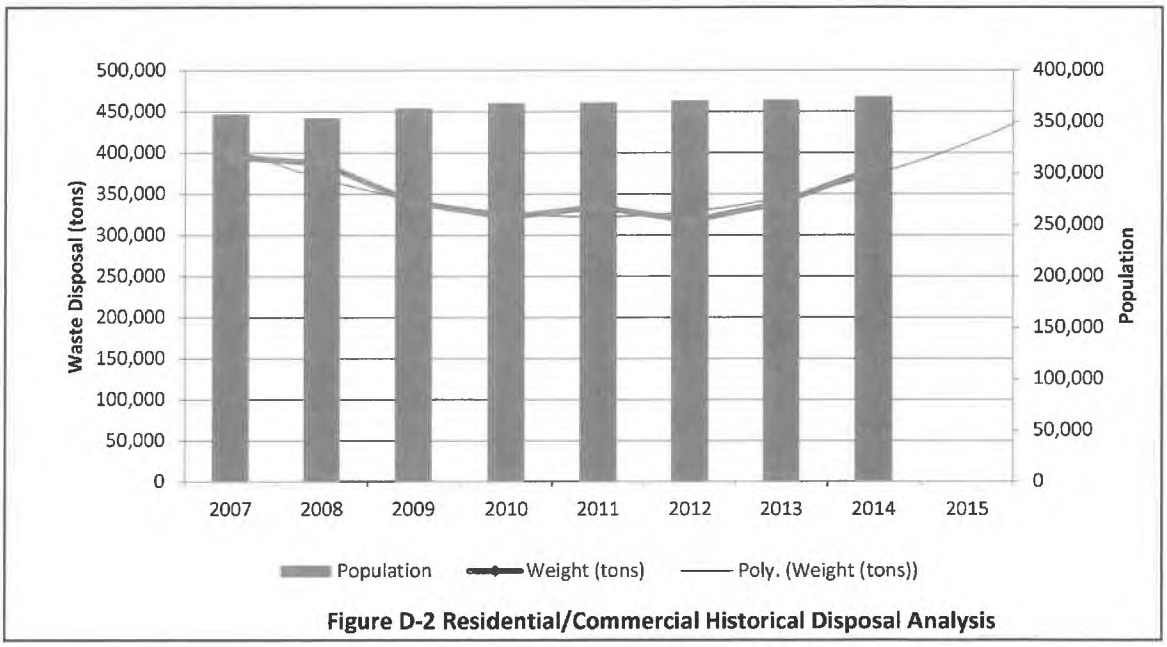


Figure D-2 Residential/Commercial Historical Disposal Analysis

Projections made in the 2010 Plan for years 2008 through 2014 were higher than shown in Table D-2. Two reasons 2010 Plan projections were higher is because population was projected to increase faster and per capita waste disposal projections were projected to increase higher. However, past records indicate population and per capita disposal do not seem to correlate with the annual disposal tonnages.

Year	Plan Projected Waste Disposal (tons)	Actual Waste Disposal
2008	490,211	490,609
2009	452,763	445,745
2010	460,315	321,507
2011	467,554	333,924
2012	474,889	317,192
2013	482,319	339,319
2014	489,846	380,446

Waste disposal declining could be contributed to the changing waste stream. Evolving materials such as aseptic/cartons, bulky rigid HDPE plastics, tubs and lids (Nos. 2, 4 and 5 plastics) are becoming more prevalent. This lighter feedstock is taking the place of denser printed materials and consumer packaging. Plus as manufacturers seek to use less energy and materials for greater savings along the production and distribution chains, the weight of lighter feedstock is also decreasing.

2. Industrial Waste

Historical data shows a high degree of variability in industrial disposal. In 2009 disposal jumps from near 100,000 tons per year to more than 350,000 tons per year in 2010. This is attributable to large manufacturing base and yearly fluctuations in operations. The high tonnages are not typical and will be considered outliers. Disposal declined to low of near 67,000 tons in 2014.

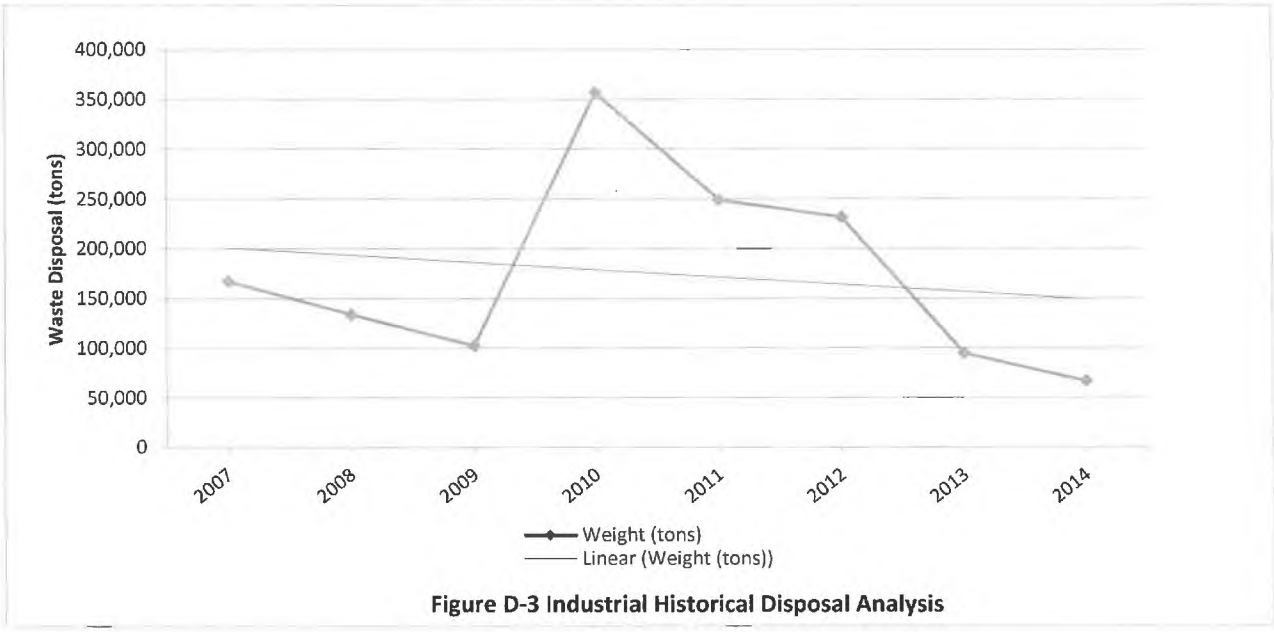


Figure D-3 Industrial Historical Disposal Analysis

3. Excluded Waste

According to Ohio EPA Format 4.0, if excluded waste is 10 percent or less of total disposal in the reference year, then SWMD's are not required to account for excluded waste in the solid waste management plan. The SWMD excluded waste is over the 10 percent thus the chart below depicts the rise of excluded waste disposal. This is of interest since the residential/commercial and industrial waste disposal show a declining trend. It is possible that waste at the landfill is being mischaracterized as excluded waste. It is also possible that prior years mischaracterized the waste causing an inflated historical waste disposal in those sectors. With more SWMD waste transferred and hauled out-of-state it is an area the SWMD may want to scrutinize and make additional efforts to monitor.

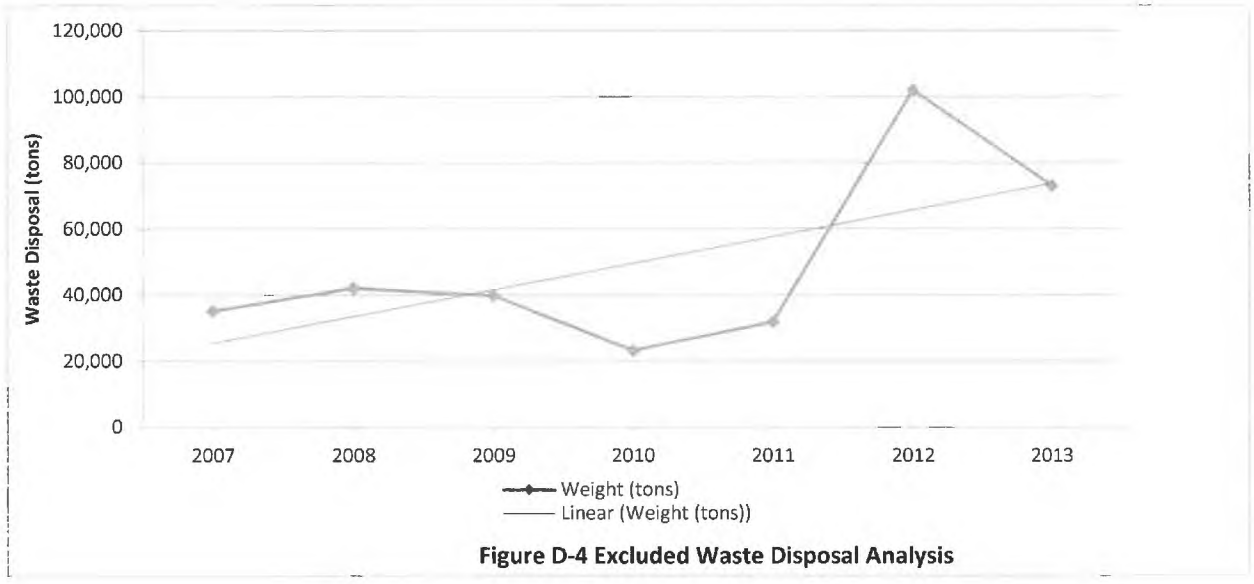


Figure D-4 Excluded Waste Disposal Analysis

C. Disposal Projections

Table D-5 Waste Disposal Projections

Year	Population	Per capita	Residential/ Commercial Solid Waste	Industrial Solid Waste	Excluded Waste	Total Waste	Waste Transferred (as part of Total Disposal)
			Weight (tons)	Weight (tons)	Weight (tons)	Weight (tons)	Weight (tons)
2014	374,311	5.57	380,446	67,212	131,479	579,137	50,493
2015	376,993	5.65	388,919	66,473	131,479	586,872	51,168
2016	379,676	5.74	397,562	65,742	131,479	594,783	51,857
2017	382,358	5.82	406,376	65,019	131,479	602,874	52,563
2018	385,040	5.74	403,089	64,303	131,479	598,871	52,214
2019	387,723	5.65	399,808	63,596	131,479	594,884	51,866
2020	390,405	5.57	396,536	62,897	131,479	590,911	51,520
2021	392,359	5.48	392,542	62,205	131,479	586,226	51,111
2022	394,313	5.40	388,580	61,520	131,479	581,580	50,706
2023	396,267	5.32	384,648	60,844	131,479	576,971	50,304
2024	398,221	5.24	380,746	60,174	131,479	572,400	49,906
2025	400,175	5.16	376,876	59,513	131,479	567,867	49,511
2026	402,391	5.08	373,278	58,858	131,479	563,615	49,140
2027	404,607	5.01	369,704	58,210	131,479	559,393	48,772
2028	406,823	4.93	366,153	57,570	131,479	555,202	48,406
2029	409,039	4.86	362,625	56,937	131,479	551,041	48,044
2030	411,255	4.78	359,121	56,311	131,479	546,910	47,684
2031	413,043	4.71	355,272	55,691	131,479	542,442	47,294
2032	414,831	4.64	351,457	55,079	131,479	538,015	46,908

Source(s) of Information: Population retrieved from Annual District Reports.
Sample Calculation: Residential/Commercial Solid Waste = (365 days * population * 5.65 lbs/person/day) / 2000 lb/ton
Industrial Solid Waste = 2014 tonnage * 1.011 = 2015 tonnage
Total Waste = Residential/Commercial Solid Waste + Industrial Solid Waste

There are several methods that can be used for projecting waste disposal through the planning period, such as historical per capita, historical averages, and historical trends.

Residential/commercial waste disposal appears to be rising at the end of year 2014, following a rise and fall curve oscillating between high and low disposal tonnages, with some years having higher disposal than others. To project future trends it was decided to model the peak based on the average eight-year per capita disposal rate, 5.82 pounds per person per day. The bottom is modeled after the lowest per capita disposal rate of 4.69 pounds per person per day. Thus the projected planning period waste disposal will be kept within the range of 4.69 and 5.82 pounds per person per day. Using this model, waste disposal peaks just over 400,000 tons and dips slightly below 352,000 tons.

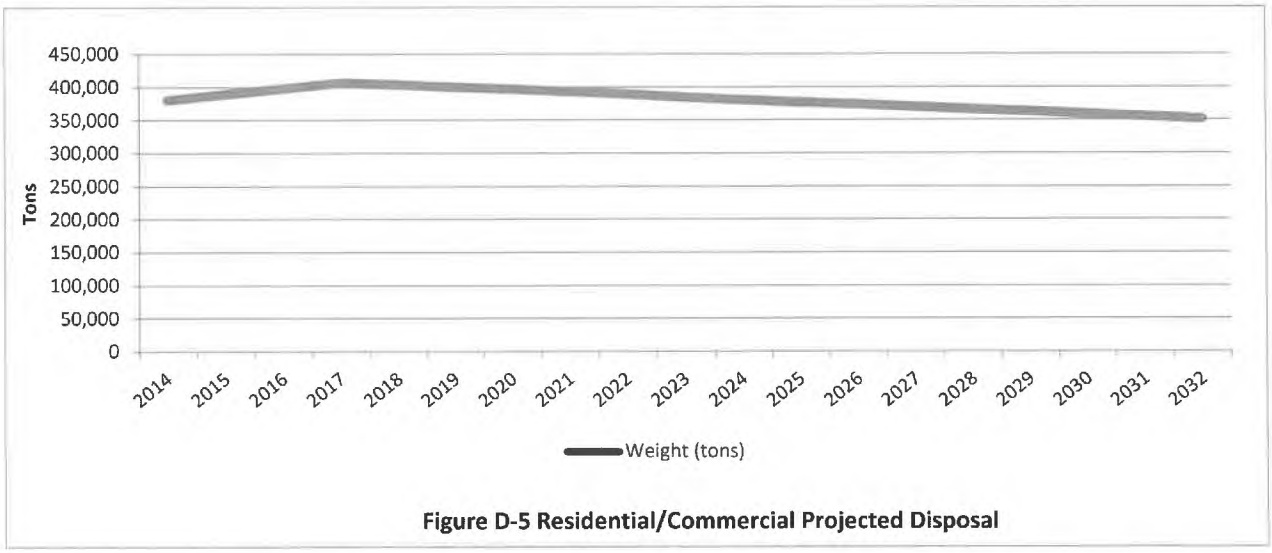


Figure D-5 Residential/Commercial Projected Disposal

Industrial waste disposal is projected to decrease annually at 0.3 percent. As indicated in "2022 Job Outlook, Southwest Ohio" produced by Ohio Department of Job and Family Services, manufacturing employment is projected to decrease through 2022 about 1.1 percent, 0.11 percent per year. Applying an annual decrease models industrial waste disposal projections after the negative slope trend line.

In the reference year, of the 579,137 tons of the District's waste that was disposed in landfills, 50,493 tons, or 9 percent, was routed through a transfer facility. Based on analysis of available capacity for disposing waste, the policy committee did not identify any reasons to suspect that the amount of waste routed through transfer facilities will change during the planning period. For the first year of the planning period, it is expected 11 percent of total waste will be routed through transfer facilities.

APPENDIX E: RESIDENTIAL/COMMERCIAL RECOVERY DATA

A. Reference Year Recovery Data

Tables E-1 through E-4 account for all material being credited to the waste reduction and recycling rate for the residential/commercial sector. These tables were adjusted for double counting. Double counting occurs when the same material is reported by more than one survey respondent, typically both the generator of the material and the processor that receives the material from the generator. Material is "double counted" if the quantities from both respondents are credited to total recovery. In those instances, the total quantity recovered was adjusted to subtract the quantity reported by one source or the other to avoid crediting the material twice.

Table E-2 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)	Tires	Concrete	Yard Waste	Dry Cell Batteries	Used Oil	Other 1 Toner	Other 2 Books	Other 3 Reusables	*Unadjusted Quantities*	*Adjustments*	*Adjusted Quantities*
42	0	0	7	0	0	59	2	128	10	0	0	55	0	0	0	0	0	0	0	0	0	0	261	102	**159**
44	0	0	41	2	15	234	31	2836	19	170	0	81	0	55	19	0	210	0	245	0	0	0	3,958	625	**3,333**
45	0	2	0	0	94	10984	74	285	65	506	0	2298	0	0	0	0	0	0	0	0	0	0	14,307	98	**14,209**
48	0	0	0	0	0	0	1		0	0	0	0	0	0	26	0	0	0	3	0	0	0	30	27	**3**
49	0	0					0	14	0	0		21		0	0								35	14	**21**
51	0	0	0	0	0	1	1	13	37	2	0	0	0	0	0	0	3	0	0	0	0	0	57	44	**13**
52	0	0	0	0	0	0	4	24	263	0	0	0	0	0	0	0	0	0	0	0	0	0	291	7	**284**
53	0	0	0	0	0	110	0	487	13	0	0	548	0	0	0	0	0	0	0	0	0	0	1,157	482	**675**
54	0	0	0	0	0	10	4	30	9	0	0	4	0	0	0	0	1	0	0	0	0	0	58	43	**15**
56	0	0					0		1	0		0		0	0								1	0	**1**
61	0	0	0	138		29	7	275	34	0	0	24	0	879	1	0	338	3	0	0	0	0	1,728	1672	**56**
62	0	0	0	0	0	0	1	79	12	0	0	0	0	2	0	0	0	0	0	0	0	0	94	74	**20**
71	0	0	0	0	0	1	1	12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	16	15	**1**
72	0	0	0	6	0	0	0	375	0	0	0	0	0	7	0	0	0	0	0	0	0	0	388	382	**6**
81	0	23	0	12	0	11	1	67	34	0	400	0	0	34	0	0	0	0	0	1	12	50	646	150	**496**
92	0	0	0	0	0	0	15	20	3	0	0	0	0	0	17	0	0	0	0	0	0	0	54	51	**3**
Unadjusted Total	0	26	48	158	108	11438	141	4645	500	680	400	3032	0	977	62	0	552	3	248	1	12	50	23,081	-3786	**19,295**
Adjustments	0	0	6	152	0	8	109	1822	108	3	0	0	0	978	62	0	538	0	0	0	0	0	3785		
Adjusted Total	**0**	**26**	**42**	**6**	**108**	**11430**	**32**	**2823**	**392**	**677**	**400**	**3032**	**0**	**0**	**0**	**0**	**14**	**3**	**248**	**1**	**12**	**50**	**19296**		

Table E-1 is reserved for commercial data obtained from SWMD survey efforts. The SWMD issued a waste and recycling survey to capture 2014 diversion data for the commercial sector. In some cases, generator data from a survey conducted prior to 2014 was used. The SWMD verified the current status of the generator(s) during the report year with follow-up phone calls. Calendar year 2013 and 2012 data was used for some businesses. Adjustments of 3,785 tons were made to commercial sector recycling to exclude recycling that was reported from processors shown on Table E-2.

The SWMD uses the software Re-TRAC to collect and manage data. One area the SWMD had to reconfigure was the organization of commercial businesses. Re-TRAC categorizes commercial businesses by SIC Code whereas this plan format organizes by NAICS code. Commercial businesses were organized by NAICS code for this plan.

Table E-2 Data From Buybacks, Scrap Yards, Processors & MRF's

Program and/or Source of Materials/Data	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	Other:	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Buybacks																			
Cohen Brothers, Inc	1,500	0	110	0	0	11,184	606	183	61	146	0	0	0	0	0	0	**13,790**	,11,184	2,606
Unadjusted Total	1,500	0	110	0	0	11,184	606	183	61	146	0	0	0	0	0	0	**13,790**	11,184	2,606
Adjustments						11,184											11,184		
Adjusted Total	1,500	0	110	0	0	0	606	183	61	146	0	0	0	0	0	0	2,606		
Scrap Yards																			
none																	**0**		0
Unadjusted Total	0	0	0	0	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	0	0		
Processors																			
Dayton Glass Plant	0	0	0	0	1,590	0	0	0	0	0	0	0	0	0	0		**1,590**	1,590	0
Unadjusted Total	0	0	0	0	1,590	0	0	0	0	0	0	0	0	0	0	0	**1,590**	1,590	0
Adjustments					1,590												1,590		
Adjusted Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MRF's																			
Rumpke Center City Recycling-Hamilton County (Residential)	0	0	0	0	1,767	277	162	1,815	5,676	950	0	0	0	0	0	0	**10,647**	**0**	**10,647**
Waste Management Dayton MRF (Residential)	0	0	0	0	0	0	0	77	0	0	0	0	0	0			**77**	**0**	**77**
Rumpke Recycling-Dayton	0	0	0	0	1	0	0	1	3	1	0	0	0	0	0	0	**6**	**0**	**6**
Rumpke Center City Recycling-Hamilton County (Commercial)	0	0	0	0	589	92	54	5,899	2,001	320	0	7	0	0	0		**8,962**	**0**	**8,962**
Unadjusted Total	0	0	0	0	2,357	369	216	7,792	7,680	1,271	0	7	0	0	0	0	**19,692**	0	**19,692**
Adjustments																	0		
Adjusted Total	0	0	0	0	2,357	369	216	7,792	7,680	1,271	0	7	0	0	0	0	19,692		
Grand Total	1,500	0	110	0	2,357	369	822	7,975	7,741	1,417	0	7	0	0	0	0	**22,298**		

Source(s) of Information: 2014 Material Recovery Facility and Commercial Recycling Data dated July 10, 2015 from Ohio EPA website.

Quantities reported in Table E-2 were obtained from buyback surveys and Ohio EPA reports on processors. Processors capture the recyclables and process them to get them ready to be recycled. These are typically buybacks, processors and MRFs. Adjustments exclude double counting and non-creditable materials such as construction and demolition debris and vehicle salvage operations.

Table E-3 Data Reported to Ohio EPA

Ohio EPA Data Source	Glass	Plastic	Newspaper	Cardboard	Mixed Paper	Nonferrous	Ferrous	Wood	Food: Compost	Food: Other	Commingled	Other	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Wal-mart	0	53	0	2,059	29	1	0	0	0	0	0	406	2,548		2,548
Lowe's Companies Inc	0	2	0	146	0	0	221	108	0	0	0	0	477		477
Home Depot Corporation	0	3	0	126	0	0	12	326	0	0	0	0	467		467
Meijer Corporation	0	0	0	447	0	0	0	0	0	0	0	0	447	447	0
Target Corporation	0	13	0	648	4	0	3	0	0	0	1	0	670		670
Dollar General Corporation	0	0	0	286	1	0	0	0	0	0	0	0	286		286
Big Lots Corporation	0	0	0	101	0	0	0	0	0	0	0	0	101		101
Kohl's Corporate Office & Headquarters	0	33	0	322	0	0	0	0	0	0	0	0	356		356
Michael's Corporation	0	0	0	36	0	0	0	0	0	0	0	0	36		36
Kroger Division Southwest	0	108	0	3,696	149	0	0	0	0	0	0	0	3,953		3,953
ALDI Inc. Springfield Division	0	2	0	139	0	0	0	0	0	0	0	0	142		142
Hauler/Kroger/Wal-Mart	0	0	0	0	0	0	0	0	1,367	0	0	0	1,367		1,367
Unadjusted Total	0	214	0	8,006	182	1	237	434	1,367	0	1	406	10,850	447	10,403
Adjustments	0	0	0	447	0	0	0	0	0	0	0	0	447		
Adjusted Total	0	214	0	7,559	182	1	237	434	1,367	0	1	406	10,403		

Source(s) of Information: 2014 Material Recovery Facility and Commercial Recycling Data dated July 10, 2015 from Ohio EPA website.

Quantities reported in Table E-3 were obtained from Ohio EPA reports. Adjustments exclude recycling that was reported from commercial surveys shown on Table E-1.

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

Other Recycling Programs or Other Sources of Data	Appliances/ "White Goods"	HHW	Used Motor Oil	Electronics	Scrap Tires	Dry Cell Batteries	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Ohio EPA Scrap Tire Data					3,392															3,392	0	3,392
HHW Collection Program		105					0													105	0	105
Computer/Electronics Seasonal Recycling Program				0																0	0	0
Curbside																		11,902		11,902	11,902	0
Drop-offs																		1,716		1,716	1,716	0
Composting								0											12,077	12,077	5,211	6,866
County Office Recycling Program													87							87	87	0
Curbside Freon Appliance Collection	40																			40	40	0
Scrap Tire Collection Program					84															84	84	0
Abitibi													748							748	748	0
Household Battery Recycling Program																				0	0	0
Compact Fluorescent Light Bulb Recycling		1																		1	1	0
Unadjusted Total	40	106	0	0	3,476	0	0	0	0	0	0	0	835	0	0	0	0	13,618	12,077	30,151	19,790	10,361
Adjustments	40	1			84		0						835					13,618	5,211	19,790		
Adjusted Total	0	105	0	0	3,392	0	0	0	0	0	0	0	0	0	0	0	0	0	6,866	10,361		

Source(s) of Information: 2014 Phone inquiry surveys of haulers, community compost programs, and recorded District program data.

Table E-4 presents quantities diverted through programs and services in the reference year. This table includes all residential/commercial programs and services through which materials being credited to total diversion were recovered. Adjustments exclude recycling that was reported from processors shown on Table E-2 and other data collected. Most materials collected from programs are recycled to a processor listed on Table E-2 thus, are credited to the processor to avoid double counting recycling quantities. As such, this table removes paper and commingled quantities to adjust for double counting since a processor listed on Table E-2 received materials from curbside, drop-off, County Office Recycling, and Abitibi programs. Appliances collected were credited on Table E-2 with the processor data. Scrap tires collected from the collection program are reported with Ohio EPA Scrap Tire data, thus data was removed from the collection program to avoid double counting. Composting totals were adjusted to remove double counting from community programs that were directed to registered compost facilities.

Table E-5 Reference Year Residential/Commercial Material Reduced/Recycled

Material	Quantity (tons)
Appliances/ "White Goods"	1,500
Household Hazardous Waste	105
Used Motor Oil	248
Electronics	26
Scrap Tires	3,392
Dry Cell Batteries	3
Lead-Acid Batteries	152
Food	1,374
Glass	2,466
Ferrous Metals	12,037
Non-Ferrous Metals	855
Corrugated Cardboard	18,357
All Other Paper	8,315
Plastics	2,308
Textiles	400
Wood	3,473
Rubber	0
Commingled Recyclables (Mixed)	1
Yard Waste	6,880
Other (Aggregated)	468
Recycling Subtotals	62,357
Incineration	0
Grand Total	62,357

The District diverted 62,357 tons from the residential/commercial sector. Table E-5 reports quantities of each material diverted. Cardboard and ferrous metals are the two largest material categories recycled in the reference year.

Table E-6 Quantities Recovered by Program/Source

Program/Source of R/C Recycling Data	Quantities (Tons)
Commercial Survey	19,296
Buybacks	2,563
Scrap Yards	0
Processors	0
MRFs	5,240
Ohio EPA Commercial Retail Data	10,403
Ohio EPA Scrap Tire Data	3,307
HHW Collection Program	105
Computer/Electronics Seasonal Recycling Program	0
Curbside	11,902
Drop-offs	1,716
Composting	6,866
County Office Recycling Program	87
Curbside Freon Appliance Collection	40
Scrap Tire Collection Program	84
Abitibi	748
Household Battery Recycling Program	0
Compact Fluorescent Light Bulb Recycling	1
Total	62,357

Table E-6 reports quantities diverted for each program/source. This table differs slightly from what is shown on Tables E-2 and E-4 for buybacks, scrap yards, processors, MRFs and specific program data. The earlier tables attribute more recycling to buybacks and MRF's and less to programs.

To help understand the nuances of these tables is a brief explanation of the SWMD's programs and processors. Recyclable materials are typically collected through a program and directed to a processor. These programs can be set up by the SWMD or may happen with little to no SWMD involvement. Processors capture the recyclables and process them to get them ready to be recycled. These are typically buybacks, processors or MRFs.

The task of attributing recycling to programs versus source for this Plan Update was complicated. The SWMD has predominantly one hauler collecting for curbside and drop-off programs. However, in 2014, this hauler reported more materials collected in the curbside and drop-off programs than the MRF reported recycling. Thus, the SWMD removed double counting from Table E-4. Table E-6 attempts to rectify the numbers by attributing the material back to the programs. By attributing the recycling back to the programs, the SWMD can better track and measure program performance.

Recycling quantities reported in Table E-6 will be used throughout the plan.

B. Historical Recovery

Table E-6a1 Recycling Program/Source

Year	Commercial Survey	Buybacks	MRFs	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	HHW Collection Program	Computer/Electronics Seasonal Recycling Program	Curbside	Drop-offs	Composting	County Office Recycling Program	Curbside Freon Appliance Collection	Scrap Tire Collection Program	Abitibi	Household Battery Recycling Program	Compact Fluorescent Light Bulb Recycling	Totals
2010	3,508	61,756	12,336	2,294	1,062	159	176	10,194	1,495	10,320	0	72	262	1,825	10	0	105,469
2011	3,471	51,677	12,643	4,103	2,140	127	187	12,313	6,930	12,066	0	48	117	1,832	6	0	107,660
2012	9,653	38,949	10,571	4,013	1,278	103	133	12,490	9,992	9,647	0	51	154	3,717	5	1,743	102,498
2013	34,304	40,152	5,248	3,299	1,564	70	0	11,030	3,186	4,853	56	49	211	1,629	0	1	105,662
2014	***19,296***	***2,563***	***5,240***	***10,403***	***3,307***	***105***	***0***	***11,902***	***1,716***	***6,866***	***87***	***40***	***84***	***748***	***0***	***1***	***62,357***

Table E-6a2 Annual % Change

Year	Commercial Survey	Buybacks	MRFs	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	HHW Collection Program	Computer/Electronics Seasonal Recycling Program	Curbside	Drop-offs	Composting	County Office Recycling Program	Curbside Freon Appliance Collection	Scrap Tire Collection Program	Abitibi	Household Battery Recycling Program	Compact Fluorescent Light Bulb Recycling	Totals
2010																	
2011	169%	-16%	2%	79%	101%	-20%	6%	6%	33%	17%	-	-33%	-56%	0%	-40%	-	2%
2012	92%	-25%	-16%	-2%	-40%	-19%	-29%	6%	-26%	-20%	-	6%	32%	103%	-13%		-5%
2013	76%	3%	-50%	-18%	22%	-32%	-100%	-1%	104 %	-50%	-	-4%	37%	-56%	-100%	-100%	3%
2014	***-44%***	***-94%***	***0%***	***215%***	***111%***	***50%***	***-***	***8%***	***-46%***	***41%***	***55%***	***-19%***	***-60%***	***-54%***	***-***	***52%***	***-41%***
Average Annual % Change	73%	-33%	-16%	69%	49%	-5%	-41%	5%	16%	-3%	55%	-13%	-12%	-2%	-51%	-24%	-10%

Table E-6a3 Tonnage Change/Year

Year	Commercial Survey	Buybacks	MRFs	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	HHW Collection Program	Computer/Electronics Seasonal Recycling Program	Curbside	Drop-offs	Composting	County Office Recycling Program	Curbside Freon Appliance Collection	Scrap Tire Collection Program	Abitibi	Household Battery Recycling Program	Compact Fluorescent Light Bulb Recycling	Totals
2010																	
2011	6,362	-10,079	306	1,809	1,077	-31	11	630	5,435	1,747	0	-24	-146	7	-4	0	2,191
2012	9,309	-12,728	-2,072	-90	-862	-24	-54	647	3,062	-2,419	0	3	37	1,885	-1	1,743	-5,162
2013	14,859	1,202	-5,322	-713	286	-33	-133	-98	-6,807	-4,794	56	-2	57	-2,088	-5	-1,742	3,165
2014	***-15,008***	***-37,588***	***-8***	***7,103***	***1,743***	***35***	***0***	***872***	***-1,470***	***2,013***	***31***	***-9***	***-127***	***-881***	***0***	***1***	***-43,305***
Average Tonnage Change/Year	3,880	-14,798	-1,774	2,027	561	-14	-44	513	36	-863	22	-8	-45	-269	-3	0	-10,778
Average Tons of Material Over 5 Years	17,391	39,019	9,208	4,822	1,870	113	99	10,878	2,027	8,750	29	52	166	1,950	4	349	96,729

Table E-6a1 identifies historical recycling from program/source. Historically:

- Commercial survey data fluctuates based on responses received and where double counted materials were removed.
- Buybacks are facilities that buy post-consumer secondary materials from the public. These can be brokers and processors. In many instances data collected from buybacks can be challenging to track the source and to exclude non-creditable materials. In 2014, the SWMD did not receive data from several buybacks resulting in substantially lower recycling tonnages. MRF data has been lowered due to reporting data as program categories.
- Ohio EPA Commercial Retail Data and Ohio EPA Scrap Tire Data fluctuate based on reporting entities.
- Program sources have minimal fluctuations. Computer/Electronics Recycling and Household Battery Recycling programs ceased in 2013.

Table E-6b Historical Recycling Analysis

Year	Residential/ Commercial
	Weight (tons)
2010	105,469
2011	107,660
2012	102,498
2013	105,662
2014	62,357

Source(s) of Information: Annual District Report Review forms.

Tables E-6a1 through E-6b analyze recovery over a five-year period. Recovery followed a linear trend until year 2014, as shown in Figure E-1, when recovery dropped approximately 41 percent.

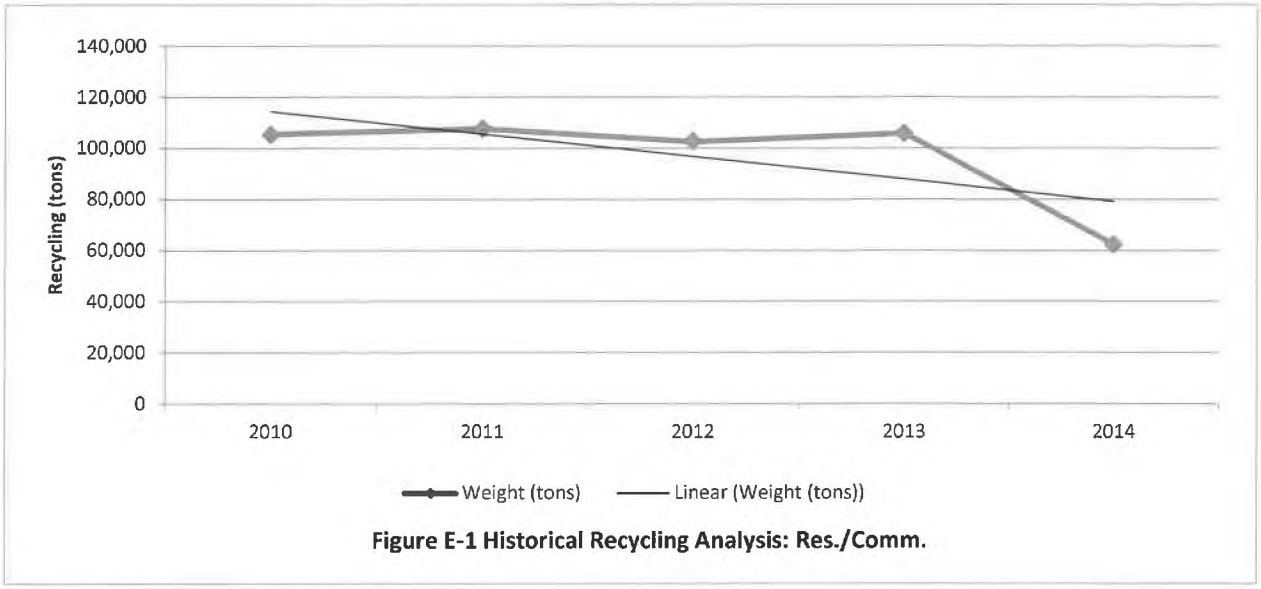


Figure E-1 Historical Recycling Analysis: Res./Comm.

Looking at the program/source data reported on Table E-6a1 the decrease in recycling is a result of a decrease in reporting from the commercial sector and buybacks. The main contributing factor is decreased recycling reported in ferrous metals, paper, and commingled recyclables. See Table E-6b2 for reported historical recycling tonnages per material category. Ferrous metal data lowered because one scrap metal recycler reported decreased tonnages and two recyclers did not report updated data. Paper data lowered because a large warehouse and distribution facility, which typically reported high volumes of paper, relocated outside of Butler County. Reported commingled recycling changed from reporting these materials as commingled to separating into individual material categories. Thus, commingled recyclables are captured in ferrous, nonferrous, paper, glass, plastics, and cardboard material categories.

Table E-6b 2 Historical Recycling Per Material Categories

Materials	2008	2009	2010	2011	2012	2013	2014
Appliances/ "White Goods"	77	86	98	74	79	77	1,500
Household Hazardous Waste	83	115	248	201	103	125	105
Used Motor Oil	132	132	345	345	222	222	248
Electronics	98	179	217	248	187	2,104	26
Scrap Tires	3,456	5,006	3,617	2,844	2,766	4,696	3,392
Dry Cell Batteries	-	-	-	-	-	-	3
Lead-Acid Batteries	143	150	127	131	47	59	152
Food	56	56	56	56	354	513	1,374
Glass	120	120	376	436	555	659	2,466
Ferrous Metals	24,238	25,727	24,361	24,322	22,555	24,138	12,036
Non-Ferrous Metals	1,301	952	1,353	1,323	929	929	855
Corrugated Cardboard	13,929	14,941	17,273	16,292	10,658	12,815	18,357
All Other Paper	30,995	33,029	29,439	30,412	32,442	32,442	8,315
Plastics	580	602	783	612	957	957	2,308
Textiles	0	0	0	581	401	209	400
Wood	4,759	4,759	4,783	4,766	6,519	6,188	3,473
Rubber	0	0	0	0	0	0	0
Commingled Recyclables (Mixed)	10,708	11,276	11,734	12,600	12,689	13,290	1
Yard Waste	39,600	12,924	10,320	12,066	9,647	4,853	6,880
Other (Aggregated)	341	341	341	352	1,390	1,387	468
Total Tons	130,617	110,397	105,469	107,660	102,498	105,662	62,358

C. Residential/Commercial Recovery Projections

As discussed earlier, other than the decline in 2014 shown in Table E-6a1, historical program/source data has been relatively consistent. Larger fluctuations are shown in MRFs, buybacks, and commercial surveys. According to SWMD records the program/source data reported has been consistent (See Tables E-1, E-2, and E-3.). The SWMD removes double counting on a yearly basis from material categories and reports this information to Ohio EPA in the Annual District Report. However, source data is not adjusted for double counting on a yearly basis. It has been done here in preparation of the plan update to satisfy plan format tables. Thus Table E-6a1 shows more fluctuation as a result of removing previously double counted materials.

MRFs, buybacks, commercial surveys, and Ohio EPA Commercial data are dependent on factors out of the SWMD's control. These third party/non-program sources will be projected to hold constant at the reference year quantity.

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

Year	Commercial Survey	Buybacks	MRFs	Ohio EPA Commercial Retail Data	Ohio EPA Scrap Tire Data	HHW Collection Program	Electronics Recycling Program	Curbside	Drop-offs	Composting	County Office Recycling Program	Curbside Freon Appliance Collection	Scrap Tire Collection Program	Abitibi	Compact Fluorescent Light Bulb Recycling	Totals
2014	***19,296***	***2,563***	***5,240***	***10,403***	***3,307***	***105***	***0***	***11,902***	***1,716***	***6,866***	***87***	***40***	***84***	***748***	1	**62,357**
2015	14,138	2,563	7,377	6,372	3,311	113	0	14,150	2,027	8,750	87	40	166	0	2	**59,096**
2016	7,917	2,563	7,377	6,372	3,000	113	0	15,282	2,027	8,750	87	40	166	0	2	**53,696**
2017	4,434	2,563	7,377	6,372	3,000	113	0	16,505	2,027	8,750	87	40	166	0	2	**51,435**
2018	6,651	2,563	7,377	6,372	3,000	115	0	17,825	2,027	8,750	87	40	166	0	0	**54,973**
2019	7,316	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**57,064**
2020	8,047	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**57,795**
2021	8,852	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**58,600**
2022	9,737	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**59,485**
2023	10,711	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**60,459**
2024	11,782	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**61,530**
2025	12,960	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**62,708**
2026	14,256	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**64,004**
2027	15,682	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**65,430**
2028	17,250	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**66,998**
2029	18,975	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**68,723**
2030	20,872	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**70,620**
2031	22,959	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**72,708**
2032	25,255	2,563	7,377	6,372	3,000	115	0	19,251	2,027	8,750	87	40	166	0	0	**75,004**

- Commercial survey data is increased annually except for year 2014. The strategy for surveying the commercial sector will undergo modifications. One outcome of the strategy is to increase data reporting from commercial businesses. Commercial data is expected to decline until the modifications are fully implemented. In Year 2018 data is projected to increase by 10% annually.
- Double counting adjustments cause fluctuations in some program/source categories. For instance buyback data decreased over the years because of reallocation to other classification sources. It is assumed the adjusted total for year 2014 will remain throughout the planning period.

- MRF data allocated into this column is derived from Ohio EPA MRF reports but then adjusted to account for double counting. Allocations of double counting created yearly fluctuations making it difficult to draw conclusions for forecasting. Reported data in 2015 are conservatively held constant for the planning period.
- Ohio EPA Commercial Retail Data is compiled from reports provided to Ohio EPA for participating commercial retail stores. Except for year 2013 historical data shows yearly increases. Each year Ohio EPA attempts to expand upon the retailers reporting. Reports in 2015 were slightly lower. Data for 2015 does not capture a large commercial business that had previously reported. Projections are conservatively held constant at the 2015 reported tonnage.
- Ohio EPA Scrap Tire Data is compiled from processor reports provided to Ohio EPA. Historical data fluctuates from increases to decreases. Reports in 2014 were unusually higher than other years. Projections are conservatively held constant at the annual average of materials from 2010 to 2014.
- Historical data for materials collected through the HHW Collection program fluctuate due to change in accepting only oil-based paints in 2014. Changes are not planned for this program, thus projections were kept at the annual average of materials from 2010 to 2014.
- Curbside recycling has shown steady increases for the past five years. The 5-year average annual percent change is 5 percent. The annual increase from 2013 to 2014 demonstrated a higher rate at 8 percent. Beginning in 2017 the SWMD is planning a targeted outreach campaign to increase subscription curbside recycling. Additional subscriptions should increase recycling. Applying 8 percent annually to 2016, 2017, 2018 and 2019 totals 19,251 tons or averages a recovery of 487 pounds per household (Single stream national average is 364 lbs/hh/yr. Source: The Recycling Partnership "The 2016 State of Curbside Report"). An 8 percent increase is applied from 2016 until year 2019. Beyond 2019 projections are held constant.
- Projections for materials collected in drop-off program have been kept at the annual average of materials from 2010 to 2014.
- Composting is another material where planning period projections use the average tons of material from 2010 to 2014.
- Historically recyclables are collected and reported with the MRF recycling tonnages. This is still the same procedure for the commingled recyclables. Changes to the program separate paper to the paper shredder. The SWMD now receives separate paper recycling tonnages for the County Office Recycling Program. Reports from 2013 to 2014 show a material increase of 55%. This growth is not expected to continually annually through the planning period. Reported 2015 tonnages were the same as 2014, thus material projections are constant.
- Curbside Freon Appliance Collection used 5 year average tons. The program is consistent and no significant increase in volumes of diversion is expected.
- Projections for tires collected through the Scrap Tire Collection program were kept at the annual average of materials from 2010 to 2014.
- Materials reported collected from Abitibi Paper Retriever declined dramatically in 2014. The company operating the Abitibi containers had management changes in 2014, and finally ceased operations in 2015.
- Compact Fluorescent Light Bulb recycling is included with the Household Hazardous Waste projections.

APPENDIX F: INDUSTRIAL WASTE REDUCTION AND RECYCLING 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	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Other: Calcium Hydroxide Cenospheres	*Unadjusted Quantities*	*Adjustments*	*Adjusted Quantities*
31	348	1,499	1	196	1,586	116	353	34	768			0	4,901		**4,901**
32	0	0	769	27	12,720	1,810	236	0	430		24	0	16,015	7	**16,008**
33	0	0	12,864	869	874	62	7	0	719		52	0	15,449	118	**15,330**
Unadjusted Total	348	1,499	13,634	1,093	15,180	1,988	596	34	1,917	0	76	0	36,365	-126	**36,240**
Adjustments				121		5							126		
Adjusted Total	**348**	**1,499**	**13,634**	**972**	**15,180**	**1,983**	**596**	**34**	**1,917**	**0**	**76**	**0**	**36,240**		

Source(s) of Information: Calendar year 2014 survey data as reported by industrial businesses.

Table F-1 accounts for material credited for waste reduction and recycling as reported by industrial businesses. In some instances an industrial business did not respond to the reference year survey but did respond to a previous survey. Supplemental data from calendar years 2012 and 2013 was used in this table when the business was verified as operating in the reference year, the nature of the business did not significantly change, and the business still produced the same type of recyclables. Some materials reported as recycled are considered non-creditable. These materials include: train boxcars, construction and demolition debris, metals from vehicles, liquid industrial waste, and hazardous waste. Adjustments were made on Table F-1 to exclude these materials.

Data on Table F-1 is organized by North American Industry Classification System (NAICS). Manufacturing industries are classified under sectors 31-33. Table F-1 aggregates the quantities from all returned surveys for an NAICS code. The SWMD mailed 399 surveys and received a 12% response rate.

Table F-2 Data From Buybacks, Scrap Yards, Processors & MRFs

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 Disulfurization	Other: Scrap Tires	Other	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Buybacks																			
none																	**0**	100	- 100
Unadjusted Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	300	- 300
Adjustments																	0		
Adjusted Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Scrap Yards																			
Cohen Bros.			4,175	202	61	20	49									500	**5,007**	4296	711
Unadjusted Total	0	0	4,175	202	61	20	49	0	0	0	0	0	0	0	0	500	**5,007**	4296	711
Adjustments			4,175		61	11	49										4,296.0		
Adjusted Total	0	0	0	202	0	9	0	0	0	0	0	0	0	0	0	500	711		
Processors																			
none																	**0**		0
Unadjusted Total	0	0	0	0	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	0	0		
MRF's																			
none																	**0**		0
Unadjusted Total	0	0	0	0	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	0	0		
Grand Total	0	0	0	202	0	9	0	0	0	0	0	0	0	0	0	500	711		

Source(s) of Information: Calendar year 2014 survey data as reported by scrap yards.

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

Other Recycling Programs or Other Sources of 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 Disulfurization	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
None															0		0
Unadjusted Total	0	0	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		

Table F-4 Reference Year Industrial Waste Reduced/Recycled

Material	Quantity (tons)
Food	348
Glass	1,499
Ferrous Metals	13,634
Non-Ferrous Metals	1,174
Corrugated Cardboard	15,180
All Other Paper	1,992
Plastics	596
Textiles	34
Wood	1,917
Rubber	0
Commingled Recyclables (Mixed)	76
Ash	0
Non-Excluded Foundry Sand	0
Flue Gas Disulfurization	0
Other (Aggregated)	500
Recycling Subtotals	36,951
Incineration	
Grand Total	36,951

Source(s) of Information:

The SWMD diverted 36,951 tons from the industrial sector. Table F-4 reports quantities of each material diverted.

Table F-5 Quantities Recovered by Program/Source

Program/Source of Industrial Recycling Data	Quantities (Tons)
Industrial Survey	36,240
Buybacks	0
Scrap Yards	711
Processors	0
MRFs	0
Total	36,951

Table F-5 reports quantities diverted for each program/source.

B. Historical Recovery

Table F-5a Historical Industrial Recovery

Year	Industrial Survey	Buybacks	Scrap Yards	Processors	MRFs	None	Totals
2010	561,368						561,368
2011	569,040						569,040
2012	579,643						579,643
2013	580,463						580,463
2014	36,240	0	711	0	0	0	36,951

Source(s) of Information: Annual District Reports for 2010- 2014

Data from the industrial sector is obtained from surveys, as seen from Table F-5a. An industrial survey was conducted in 2014. Historical data shown for industrial surveys is historically consistent except for year 2014, as shown in Figure F-1. In 2014, in addition to other industry reports of scaling down operations, one steel manufacturing plant reported a decrease of nearly 260,000 tons in ferrous metal recycling. The SWMD also noted a decrease in paper caused by multiple paper mills shutting down. Food composting also recorded a large decrease (totaling approximately 140,000 tons) due to reporting errors acknowledged by the manufacturer.

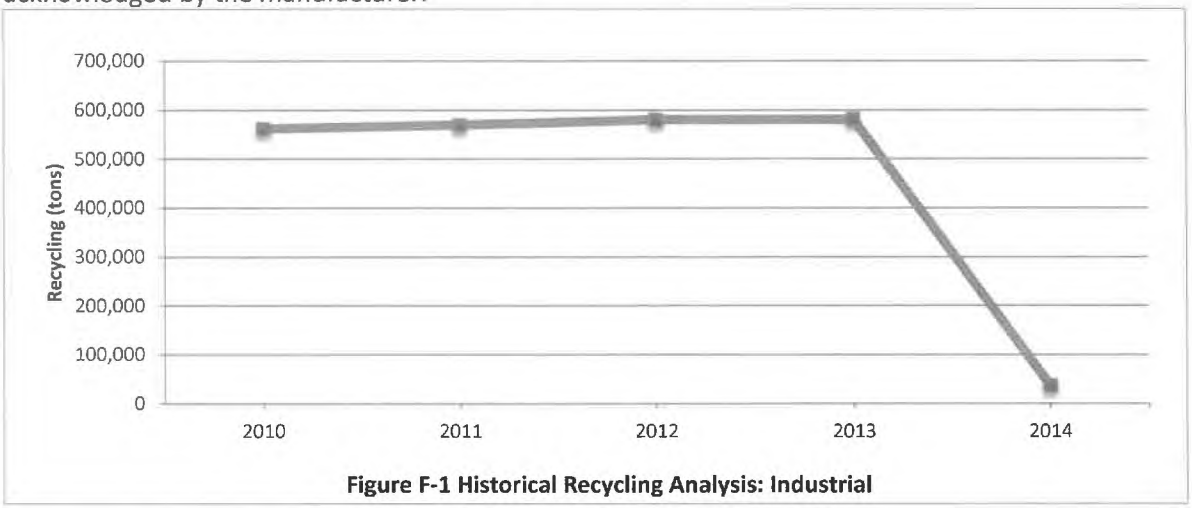


Figure F-1 Historical Recycling Analysis: Industrial

Recovery achieved through manufacturing processes is dependent upon factors the SWMD has limited ability to influence.

C. Industrial Recovery Projections

Table F-6 Industrial Recovery Projections by Program/Source

Year	Industrial Survey	Buybacks	Scrap Yards	Processors	MRFs	None	Totals
2014	**36,240**	**0**	**711**	**0**	**0**	**0**	**36,951**
2015	36,287	0	711	0	0	0	**36,998**
2016	36,334	0	711	0	0	0	**37,045**
2017	36,381	0	711	0	0	0	**37,092**
2018	36,428	0	711	0	0	0	**37,139**
2019	36,476	0	711	0	0	0	**37,187**
2020	36,523	0	711	0	0	0	**37,234**
2021	36,571	0	711	0	0	0	**37,282**
2022	36,618	0	711	0	0	0	**37,329**
2023	36,666	0	711	0	0	0	**37,377**
2024	36,714	0	711	0	0	0	**37,425**
2025	36,761	0	711	0	0	0	**37,472**
2026	36,809	0	711	0	0	0	**37,520**
2027	36,857	0	711	0	0	0	**37,568**
2028	36,905	0	711	0	0	0	**37,616**
2029	36,953	0	711	0	0	0	**37,664**
2030	37,001	0	711	0	0	0	**37,712**
2031	37,049	0	711	0	0	0	**37,760**
2032	37,097	0	711	0	0	0	**37,808**

Sample Calculation:
2014 Industrial Survey Recovery x 1.0013 = Total Industrial Recovery

In order to estimate recovery projections through the planning period, the SWMD consulted research conducted by Ohio Department of Job and Family Services, Bureau of Labor Market Information (BLMI) for employment projections. BLMI updates employment projections every two years for use in long-range economic and employment forecasts. Butler County is included in the Southwest Ohio region. "2022 Job Outlook, JobsOhio Network Southwest Ohio" indicates manufacturing employment is expected to increase 1.3% from 2012 – 2022. The industries surveyed fall within the manufacturing categories that are expected to increase.

Taking into account the projected increase predicted by the BLMI, industrial recovery is projected to increase 1.3% from 2012 – 2022, an annual increase of 0.13%. The SWMD's industrial recovery projections are presented in Table F-6.

This page intentionally left blank.

APPENDIX G: WASTE GENERATION

A. Historical Year Waste Generated

Table G-1 Reference Year and Historical Waste Generated

Year	Population	Residential/ Commercial		Industrial		Excluded (tons)	Total (tons)	Per Capita Generation (ppd)	Annual % Change (tons)
		Disposal (tons)	Recycled (tons)	Disposal (tons)	Recycled (tons)				
2010	368,130	321,507	105,469	356,645	561,368	23,234	1,368,223	20.4	-
2011	368,630	333,924	107,660	248,509	569,040	31,756	1,290,889	19.2	-5.7%
2012	370,589	317,192	102,498	231,665	579,643	101,936	1,332,933	19.7	3.3%
2013	371,272	339,319	105,662	94,359	580,463	73,031	1,192,834	17.6	-10.5%
2014	***374,311***	***380,446***	***62,357***	***67,212***	***36,951***	***131,479***	***678,445***	***9.9***	***-43.1%***

Source(s) of Information:
Disposal from Appendix D
Recycled from Appendices E and F
Sample Calculations:
2014 waste generation = 380,446 + 62,537 + 67,212 + 36,951 + 131, 479
2014 waste generation = 678,445 tons
2014 Per Capita Generation = ((678,445 * 2,000) / 365) / 374,311
2014 Per Capita Generation = 9.9 pounds per person per day

Waste generation is calculated by adding the quantities of waste disposed from Appendix D and quantities of recycled from Appendices E and F. Quantities resulting from the disposal and recycling as presented in Table G-1 accurately represent waste generation for the SWMD. Per capita waste generation shows a continuous decline from year 2010. Even though population had a moderate increase total generation had a more dramatic decline, resulting in the decreased per capita generation.

1. Residential/Commercial Waste

Table G-2 Residential/Commercial Historical Waste Generation

Year	Residential/ Commercial		Total (tons)	Per Capita Generation (ppd)
	Disposal (tons)	Recycled (tons)		
2010	321,507	105,469	426,976	6.36
2011	333,924	107,660	441,584	6.56
2012	317,192	102,498	419,690	6.21
2013	339,319	105,662	444,981	6.57
2014	***380,446***	***62,357***	***442,803***	***6.48***
		Average	435,207	6.43

The components of recycling and disposal have shown substantial changes in the reference year. Recycling decreased by almost 50 percent and disposal increased by 12 percent. As explained in Appendix E contributing factors to the decreased recycling tonnage include lack of data reports from several key recyclers plus a large warehouse and distribution facility relocating outside of Butler County.

Historically the residential/commercial generation has remained between 400,000 and 450,000 tons demonstrating a relatively flat generation. Generation rate also has remained relatively flat at an

average of 6.43 pounds per person per day. The District residential/commercial generation rate is and has historically been significantly higher than the national generation rate[3]. Maintaining a flat generation with a rising population suggests Butler County residents are buying and consuming less.

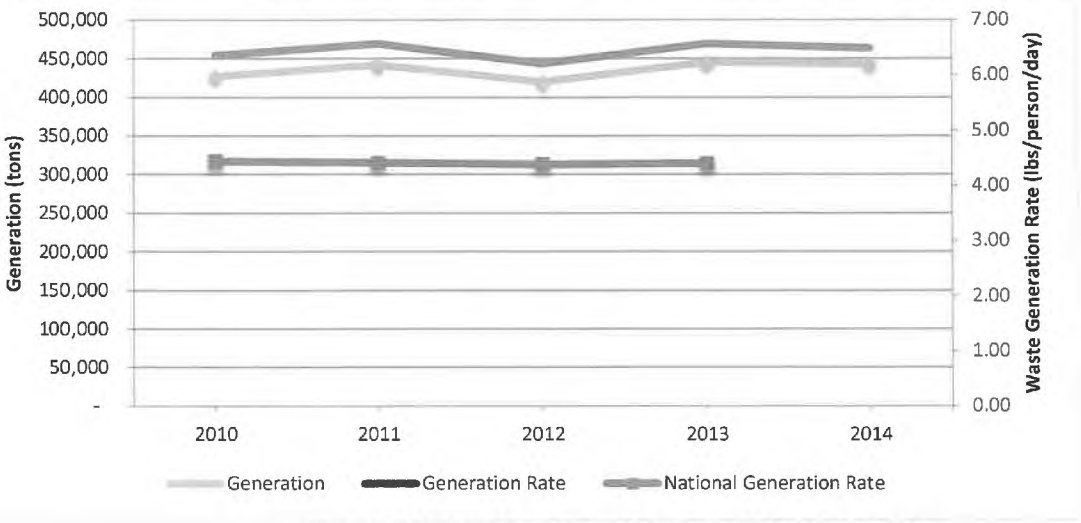


Figure G-1 Historical Residential/Commercial Waste Generation

The SWMD's residential/commercial generation rate falls behind Hamilton County and ranks as the third highest within the region. Limitations of available data and indicators introduce an element of uncertainty when comparing across other Districts. There are differences in population density, urban versus rural areas, and commercial development. While Butler County is home to many jobs, the County is also a bedroom community and serves as a hub for many who live and commute outside the county for work.

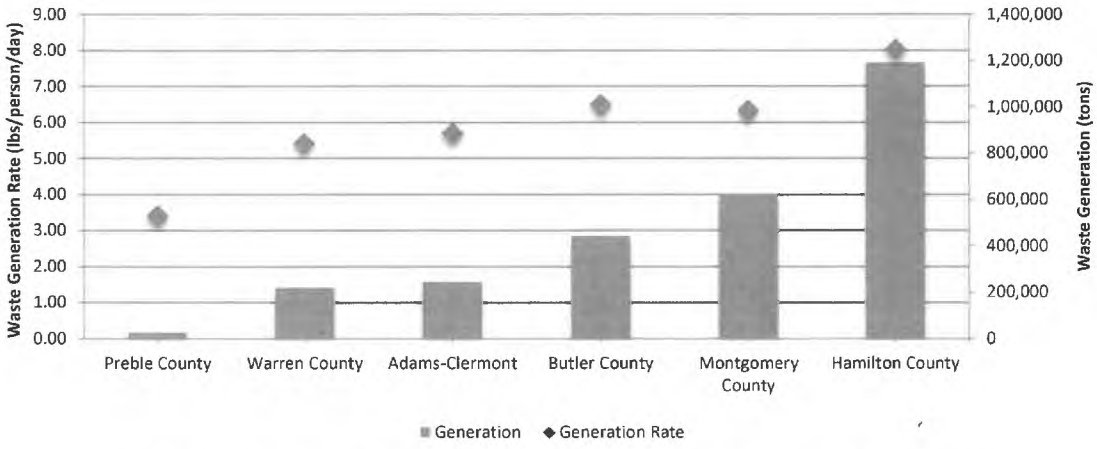


Figure G-2 Residential/Commercial Waste Generation Compared to Regional SWMD 2014

2. Industrial Waste

[3] US EPA's Table 30 Generation, Materials Recovery, Composting, Combustion, and Discards of Municipal Solid Waste 1960 to 2013.

Table G-3 Industrial Historical Waste Generation

Year	Industrial		Total (tons)	Per Capita Generation (ppd)
	Disposal (tons)	Recycled (tons)		
2010	356,645	561,368	918,013	13.66
2011	248,509	569,040	817,549	12.15
2012	231,665	579,643	811,307	12.00
2013	94,359	580,463	674,822	9.96
2014	***67,212***	***36,951***	***104,163***	***1.52***
		Average	665,171	9.86

Over the period 2010-2014, total industrial generation has declined. Analyzing the two components that comprise total generation, it's evident that waste tons have declined each year, as recycling totals have increased year over year. Increases in industrial recycling were modest when compared to the significant decreases in overall industrial waste generation. Generation decreased over 88 percent. Factors relating to the decreased generation include: industry reports of scaling down operations, one steel manufacturing plant reporting a decrease of nearly 260,000 tons in ferrous metal recycling, multiple paper mills shutting down, and a large decrease (totaling approximately 140,000 tons) due to reporting errors acknowledged by a manufacturer.

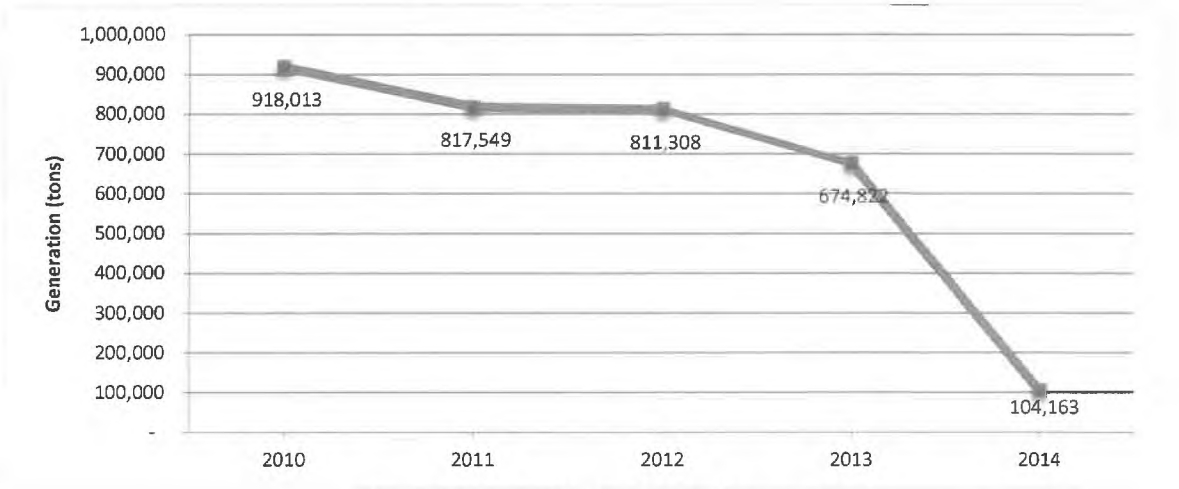


Figure G-3 Historical Industrial Waste Generation

3. Excluded Waste

Quantities of excluded waste have greatly increased. In 2014, the quantity increased to over 130,000 tons and accounts for 23 percent of disposed waste. In 2008 (the 2011 Plan Update reference year) exempt waste accounted for 6 percent of disposed waste. A factor that influences excluded waste in Butler County is the classification of waste. Special waste delivered to out-of-state facilities was previously classified by Ohio EPA as industrial waste. A change in procedure now identifies the special waste as excluded waste.

B. Generation Projections

Table G-4 Generation Projections

Year	Population	Residential/ Commercial		Industrial		Excluded Waste	Total (tons)	Per Capita Generation (ppd)	Annu. % Change (tons)
		Disposal (tons)	Recycle (tons)	Disposal (tons)	Recycle (tons)	Disposal (tons)			
2014	***374,311***	***380,446***	***62,357***	***67,212***	***36,951***	***131,479***	***678,445***	***9.93***	-------
2015	378,370	388,919	***59,096***	66,473	36,998	131,479	682,966	9.89	0.7%
2016	380,718	397,562	***53,696***	65,742	37,045	131,479	685,524	9.87	0.4%
2017	383,066	406,376	***51,435***	65,019	37,092	131,479	691,402	9.89	0.9%
2018	385,414	403,089	***54,973***	64,303	37,139	131,479	690,983	9.82	-0.1%
2019	387,762	399,808	***57,064***	63,596	37,187	131,479	689,134	9.74	-0.3%
2020	390,110	396,536	***57,795***	62,897	37,234	131,479	685,941	9.63	-0.5%
2021	392,064	392,542	***58,600***	62,205	37,282	131,479	682,108	9.53	-0.6%
2022	394,018	388,580	***59,485***	61,520	37,329	131,479	678,394	9.43	-0.5%
2023	395,972	384,648	***60,459***	60,844	37,377	131,479	674,807	9.34	-0.5%
2024	397,926	380,746	***61,530***	60,174	37,425	131,479	671,355	9.24	-0.5%
2025	399,880	376,876	***62,708***	59,513	37,472	131,479	668,048	9.15	-0.5%
2026	402,096	373,278	***64,004***	58,858	37,520	131,479	665,139	9.06	-0.4%
2027	404,312	369,704	***65,430***	58,210	37,568	131,479	662,391	8.98	-0.4%
2028	406,528	366,153	***66,998***	57,570	37,616	131,479	659,816	8.89	-0.4%
2029	408,744	362,625	***68,723***	56,937	37,664	131,479	657,428	8.81	-0.4%
2030	410,960	359,121	***70,620***	56,311	37,712	131,479	655,242	8.74	-0.
2031	412,748	355,272	***72,708***	55,691	37,760	131,479	652,910	8.67	-0.4%
2032	414,536	351,457	***75,004***	55,079	37,808	131,479	650,827	8.60	-0.3%

APPENDIX H: STRATEGIC EVALUATION

In this Appendix 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 4.0. This strategic program evaluation was performed on the following:

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

In preparation of this strategic evaluation the Policy Committee engaged in a strength, weakness, opportunity, and threat (SWOT) analysis able to elicit essential insight and feedback on the current status of recycling and other waste reduction activities within the county. The purpose of the SWOT was to identify the SWMD's waste management system strengths, weaknesses and to find broader opportunities and anticipate threats. The exercise purpose was to ultimately allow the SWMD to find areas for the greatest improvement and maximum impact.

1. Residential Recycling Infrastructure Analysis

This evaluation of the SWMD's existing residential recycling infrastructure determines whether the needs of the residential sector are being met and if infrastructure is adequately performing. The analysis conducted here for this plan update is extensive. The residential recycling infrastructure consists of curbside programs, drop-off recycling programs, special event drop-offs, take-back retailers, reuse centers, thrift stores, network of food banks, and compost facilities. The SWMD's role within this network of available opportunities varies. This analysis provides a detailed discussion of the SWMD's role and analyzes the system.

1. Curbside

In terms of curbside infrastructure single stream curbside recycling programs are available in six cities and six townships in Butler County. Single stream means residents mix all recyclables (single stream) in bins or carts for curb collection. The SWMD only has one main recycling processor that receives recyclables from residents. Thus the list of accepted materials is fairly consistent throughout the SWMD. Materials include: newspapers, magazines, junk mail, phone books, brown paper bags, office paper,

cardboard, paperboard (such as cereal boxes), plastic bottles/jugs, milk cartons/juice boxes, glass bottles and food jars, aluminum cans, steel cans, and empty aerosol cans.

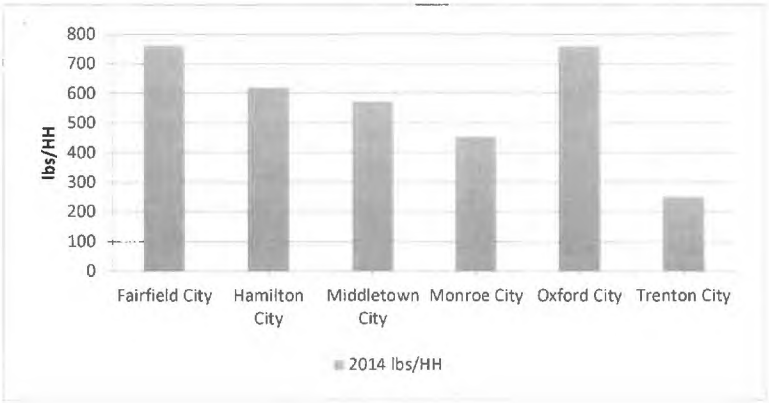
The cities have non-subscription curbside achieved through contracts between the municipality and the hauler. Each city curbside recycling program differs per their contract requirements. Service requirements in 2014 include:

- Fairfield: All single-family households have access to 65 gallon recycling carts but residents must call and request a cart. Collection is every week.
- Hamilton: All single-family households have access to 35, 65 or 95-gallon recycling carts. Residents who wish to use the smaller red bin must request this. Collection is every other week.
- Middletown: All single-family households have access to recycling bins. Collection is every other week. In 2015, Middletown revamped the curbside program by delivering 65-gallon recycling carts to every single-family household (approximately 16,500 carts).
- Monroe: All single-family households have access to a bin or 65 gallon recycling cart. Bins were initially provided to every single-family household. If residents need a bin or a cart they must call to request. Collection is every week.
- Oxford: All single-family households have access to recycling bins. Bins were initially provided to every single-family household. If residents need a bin or a cart they must call to request. Collection is every week.
- Trenton: All single-family households have access to recycling bins. To receive a bin residents must pick one up from the City building. Single-family households have access to 65-gallon recycling carts but they must request one from the service provider and will be charged a monthly rental fee. Collection is every week.

As shown in Table H-1, non-subscription curbside recycling tonnage increased yields nearly 20 percent from 2008 to 2014 totals.

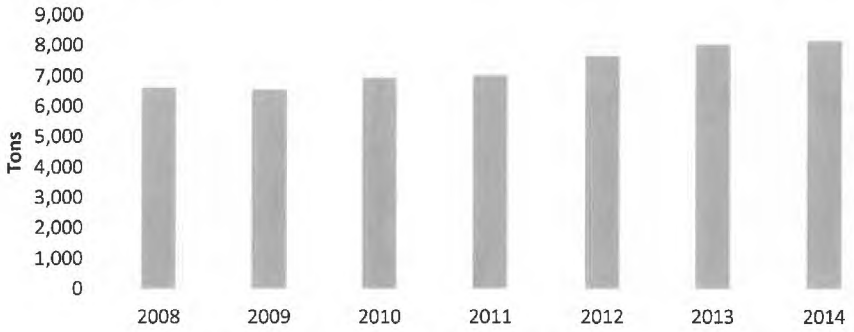
Table H-1 Non-Subscription Curbside Recycling

Political Jurisdiction	2008 Tons	2014 Tons
Fairfield City	1,880	2,172
Hamilton City	1,587	2,696
Middletown City	1,050	1,199
Monroe City	537	654
Oxford City	1,115	958
Trenton City	455	475
TOTAL	**6,624**	**8,154**



Source:
Hauler reported households participating.
Sample Calculation: 2014 Fairfield City 2,172 tons * 2000 lbs/ton / 11,533 households

Overall non-subscription curbside programs are performing well and continue to capture more recyclables each year the program is in place. As shown in Figure H-1, since 2008 non-subscription curbside recycling consistently increased diversion.



Butler County is similar to Hamilton County in so far as both counties have municipalities that contract for non-subscription curbside trash and recycling collection. Hamilton County had 1 township with contracted curbside trash and recycling service in 2014. In 2015, Butler County and Hamilton County assisted 3 townships with issuing a competitive bid for contracted trash and recycling service. As a result, residents of Colerain, and Springfield Township (Hamilton County) and Ross Township (Butler County) now have reduced fees for combination trash and recycling service and have secured savings through a multiyear, multi-township contract. This contiguous township contract went into effect April 2016.

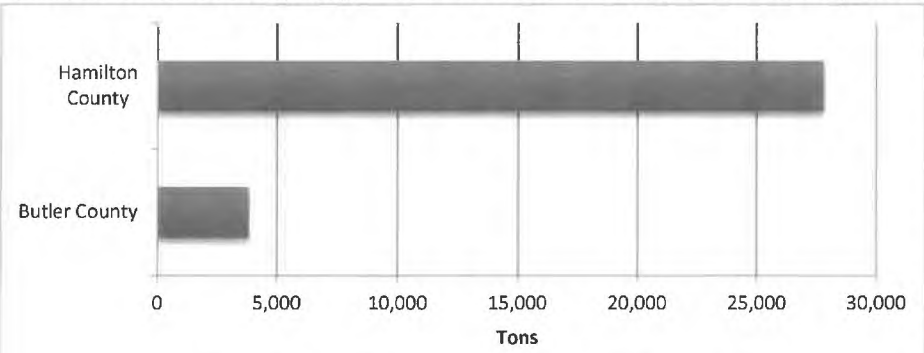


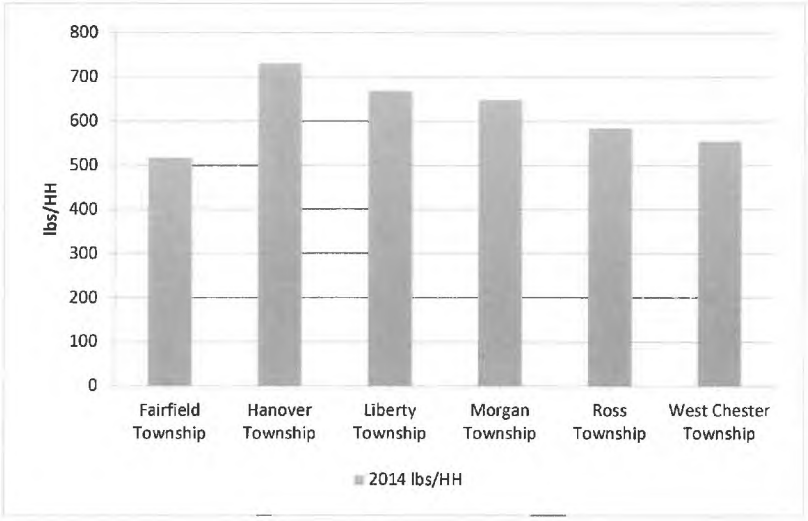
Figure H-2 Southwest Ohio Non-subscription Recycling

Subscription recycling service is the service model available in (6) Butler County townships, wherein the individual homeowner contracts directly with the hauler. As shown in Table H-2, subscription recycling increased by 29 percent since 2008, the 2011 Plan Update's reference year.

Table H-2 Subscription Curbside Recycling

Political Jurisdiction	2008 tons	2014 tons
Fairfield Township	304	419
Hanover Township	89	104
Liberty Township	887	1,291
Morgan Township	30	61
Ross Township	76	116
West Chester Township	1,586	1,831
Total	**2,972**	**3,822**

Source: Hauler reported households participating. 1 of the 2 curbside haulers provided household data for 2015. The 2015 data is included in the analysis here. The data is not used in other appendices to determine total curbside recycling. Sample Calculation: 2014 Fairfield Township 419 tons * 2000 lbs/ton / 1,616 households



Both Tables H-1 and H-2 show calculated data of tons recovered for households served. Pounds per household are calculated from hauler reported household data. The pounds recovered per household are a performance measure used to determine how well a program is performing. Haulers report recycling data for each community.

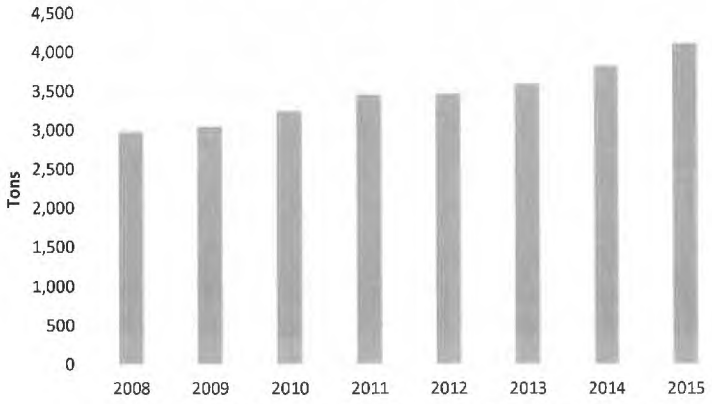


Figure H-2 Historical Trend for Subscription Curbside

Tons recycled have increased year to year from 2008 to 2014. It appears that there has been a trend of increased subscription recycling from 2008 to 2014, but figures plateaued over 2011 to 2012. A sharp increase in 2015 suggests improved subscription recycling participation when compared with baseline year 2008.

Non-subscription programs on average recycle more per household than subscription programs as shown in Figure H-3. To compare similar data sets, hauler reported participating household counts was used. Average pounds per household reported in subscription service areas are lower, suggesting lower participation. Hauler data demonstrates 46 percent of non-subscription households participate and 26 percent of subscription households.

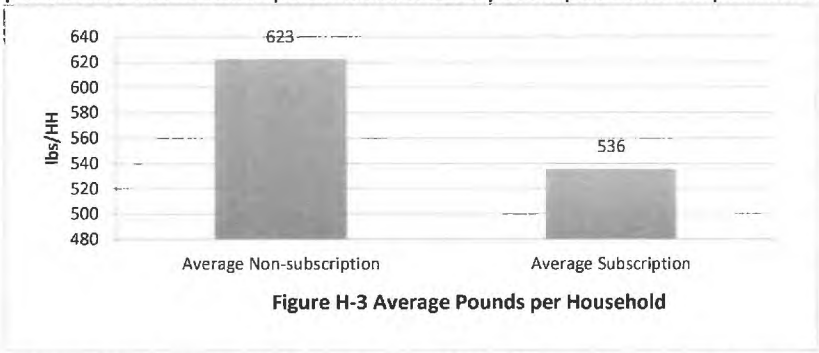
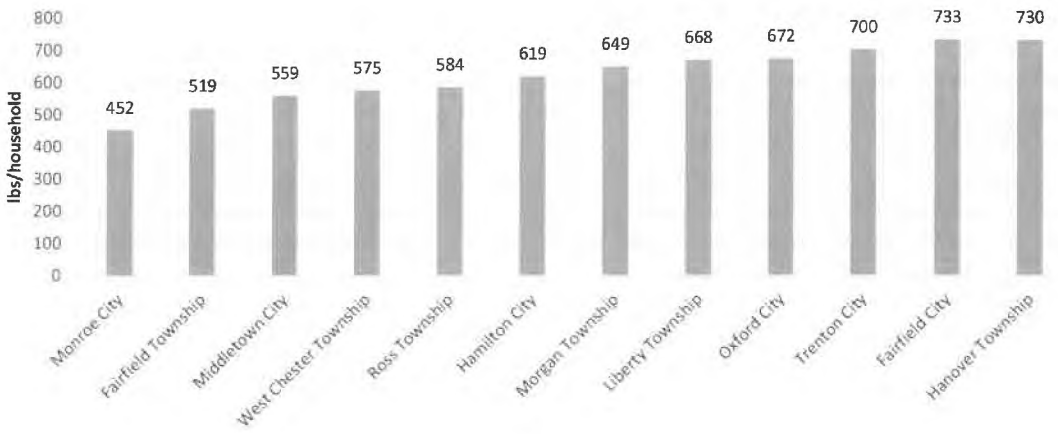


Figure H-3 Average Pounds per Household

While many communities have taken steps to ensure curbside recycling collection is available, the majority of the population is served by programs that require individual homeowners to voluntarily sign up and pay the additional cost for curbside recycling. As shown, the voluntary subscription programs have less participation and achieve lower amounts of recycling than those with non-subscription service.

In Ohio, one solid waste district measured increased non-subscription services by offering financial incentives. Summit/Akron Solid Waste Management Authority achieved higher subscription participation by offering a Community Recycling Access Grant. The program was designed to motivate municipalities to implement local curbside collection programs. Funding was provided to communities shifting from subscription program to non-subscription program and or providing full-service drop-off locations. This program resulted in growing the number of non-subscription curbside communities in Summit County from 13 to 20.

Figure H-4 shows recycling per household in each of the SWMD communities in 2014.



Population growth in Liberty and West Chester Townships has resulted in higher performing subscription based recycling communities.

Strengths

- Resident convenience.
- Single stream collection and material consistency.
- Proximity of single stream processors.
- Widespread availability of curbside.

Challenges/Barriers

- Fee for recycling services.
- Some residents utilize small bins.
- Voluntary programs reduce participation.
- Reporting from communities and haulers.
- Lack of direct jurisdiction over municipal residential collection systems.

2. Drop-off

Drop-off locations offer collection containers where people place their recyclable materials. People who use drop-offs voluntarily transport recyclable materials to the drop-off location. Materials collected are consistent with materials collected in the curbside programs and are commingled into a single stream.

Since 2008, the SWMD has maintained 23+ community recycling drop off sites. In general, these sites are popular with residents and recyclable materials deposited within have been appropriate, with minimal contamination issues reported. As a result, the District has had few site changes or closures. Factors contributing to site closures include recycling contamination and/or private property ownership arrangements. In terms of drop-off recycling infrastructure in 2014, programs were available full-time (at least 40 hours a week) in 28 urban and 5 rural locations in Butler County. In 2016, 36 drop-off locations were available in the SWMD as shown in Figure H-5. Fairfield, Hamilton, and Middletown drop-off programs are not funded by the SWMD but are paid for by the municipalities. All provision and servicing of drop-off locations is achieved through contracts between the SWMD or political subdivision and the hauler.

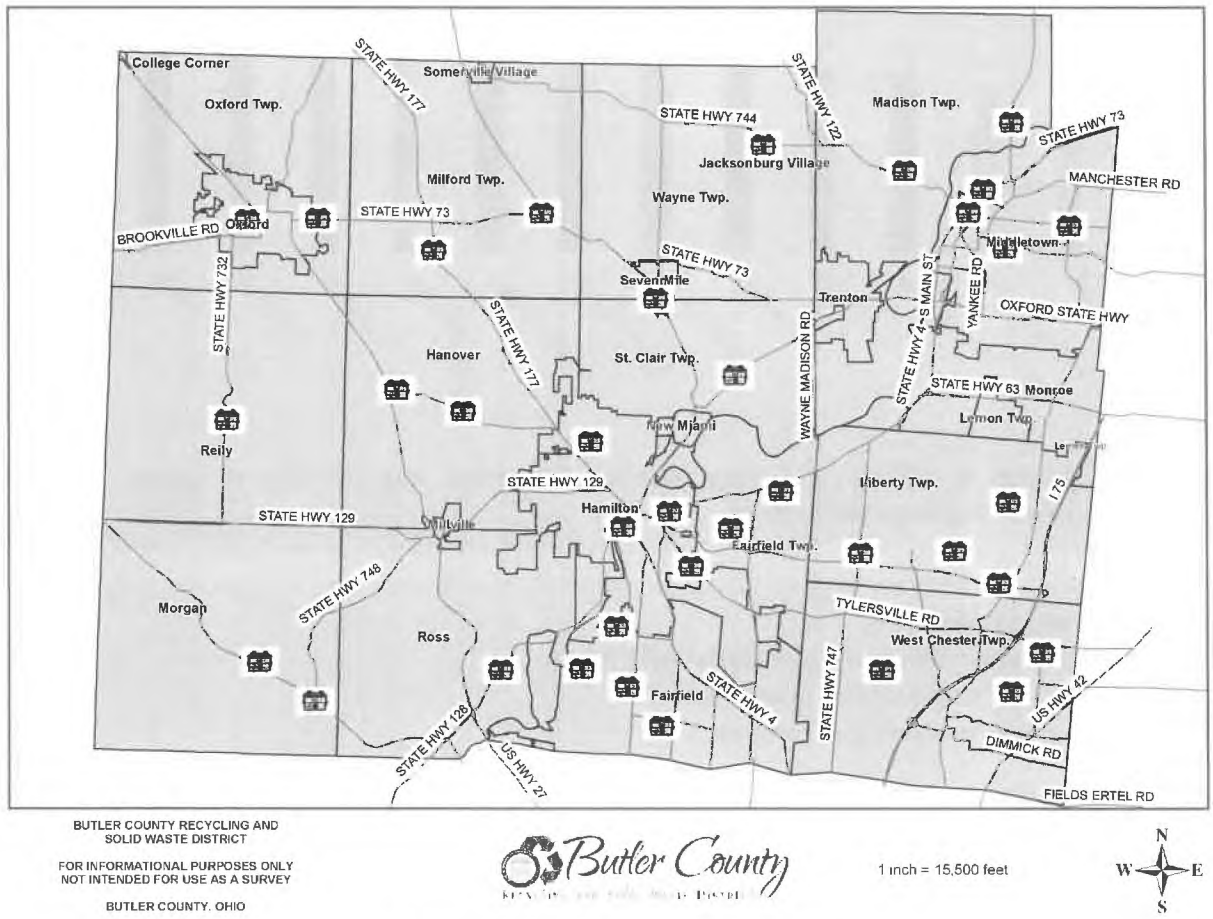


Figure H-5 Map of Drop-off Locations

While provision of drop off locations by municipalities provides area city populations with additional opportunities to recycle, these drop off sites do not factor into the formulation for Access credit. The District is already capturing the full municipal population credit as a non-subscription curbside recycling community. Therefore, the number of urban township drop off recycling locations are a priority concern because a loss of any of these locations could potentially negatively impact the SWMD's Access demonstration by lowering Access below 90%. The SWMD monitors activity at township drop offs by checking in with area township staff and offering technical assistance, service adjustments, and communication tools for locations when situations require active management. The SWMD continually strives to keep drop off recycling services in optimal operating condition.

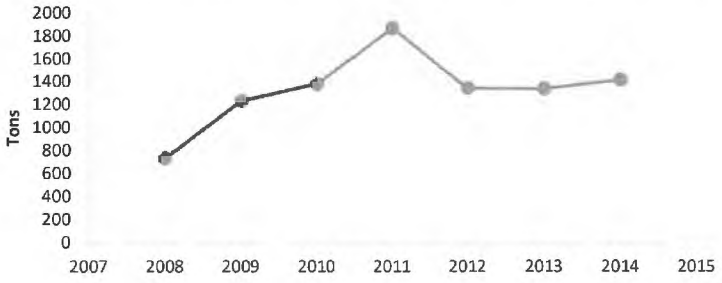
The service provider reports tonnages per community, not by individual site locations. As shown in Table H-3 recycling tonnages at different full-time urban drop-offs have varied since the 2001 Plan Update reference year to 2014. Overall tonnage collected increased by 93 percent.

Table H-3 Fulltime Urban Drop Off (2008 versus 2014)

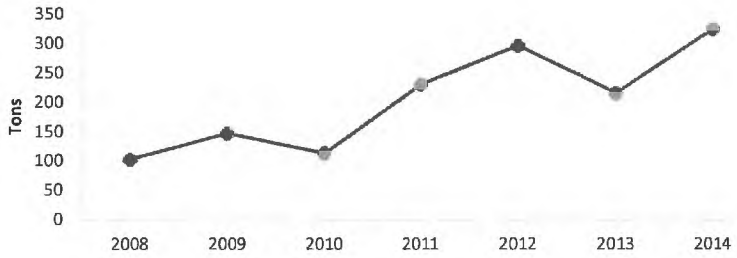
	2008 tons	2014 tons	2008 lbs/HH[1]	2014 lbs/HH[1]
Fairfield City	79	81	9	9
Fairfield Township	94	203	25	55
Hamilton City	0	13	0	1
Hanover Township	43	104	28	69
Liberty Township	149	189	26	33
Madison Township	20	63	13	40
Middletown City	5	26	1	3
Morgan Township	25	91	25	92
Oxford City	5	111	2	38
St. Clair Township	32	13	25	10
West Chester Township	283	525	25	47
TOTAL	**733**	**1418**		

[1]Household counts are taken from "Population and Household Counts for Governmental Units: 2010, 2000, 1990" dated August, 2011 published by Ohio Department of Development Policy Research and Strategic Planning Office.

The recycling rate at urban drop-offs hovered near 1,400 tons from 2010 to 2014, with a slight bump up to more than 1,700 tons in 2011. Nearly all communities with the exception of Oxford City collected more recycling in 2011 than in 2010 at the drop-off locations. Figure H-6 depicts the historical trends for fulltime urban drop-off recycling.

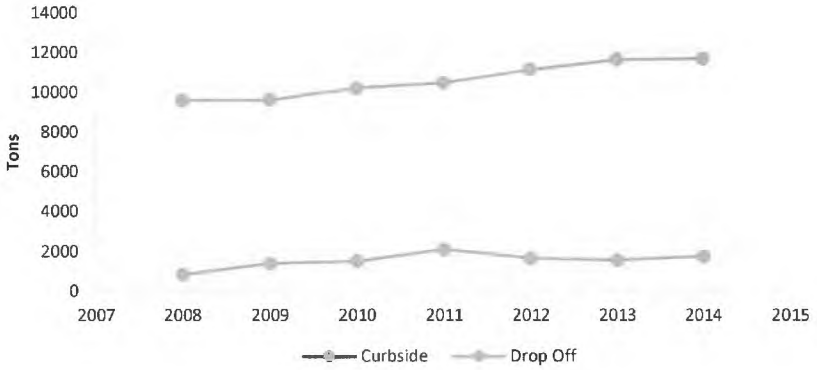


The 5 fulltime rural drop offs have increased recycling over 100%, however there were some years with variable results over time. Figure H-7 depicts historical trends for fulltime rural drop-offs.



Challenges with implementing the drop-off program include contamination or abuse at some site locations. One site with constant issue has been closed and relocated to another site. Locating sites is also a challenge. Hosting communities assist with site preparation and agreement to location.

Figure H-8 depicts curbside and drop-off recycling tonnages. As shown, curbside programs account for more recycling tons captured than drop-off programs.



Strengths

- Multi-family and small commercial business outlet.
- Single stream collection and material consistency.
- Municipal provision of some locations.

Challenges/Barriers

- Cost of service.
- Low volume of materials collected.
- Contamination.
- Reporting data.

3. Other Drop-offs

In 2014 and prior, Abitibi Consolidated, Inc. provided and serviced 102 paper only drop-off containers in Butler County. The program was originally operated as a fundraiser for participating entities. Abitibi provided market share revenues based on volume of material collected. In 2015, Abitibi abruptly ceased operations in Southwest Ohio. The SWMD was uncertain of the impacts this would bring to the infrastructure and participating entities and began targeting participating schools to demonstrate benefits and cost savings of maintaining a recycling program. Fortunately businesses and schools wanted to continue recycling and retained recycling services with Rumpke. The new contract agreements also expanded materials to include plastic bottles and jugs, metal, and glass.

4. Multi-Family

Multi-family housing units may be contained in one building or several buildings within one complex. The type of units or combination of units add a complexity to recycling service and often differentiate the units as commercial rather than single-family housing because they are serviced with trash dumpsters instead of toters. In some political jurisdictions, such as Ross Township, service contracts require housing units with four or less units use toters and receive curbside recycling service. Jurisdictions without contracts typically rely on drop-off recycling locations to fill this service void. Since 2013, the SWMD began focusing outreach to multi-family units and property managers to provide more convenient services to those residing in multi-family housing.

In 2013, the SWMD used assistance from Ohio EPA's Glass Recycling Initiative for funding a portion of start-up recycling service cost for apartments. The SWMD targeted Oxford, a college town community with 363 acres out of 2,075 acres developed as multi-family housing[4]. The SWMD met with property managers from 6 apartment communities in December 2013 and developed plans to launch recycling service in January 2014. The pilot was successful and throughout the next year grew to 12 new apartment communities in Oxford, and 1 in Hamilton. These apartments represent 1350+ residential units. Collaborations between Miami University, City of Oxford, property managers, and the SWMD were instrumental as was start-up funding provided by the Ohio EPA grant. Implementing convenient curbside multi-family recycling requires consistent and dedicated staff to meet with all parties and provide technical assistance. Tenant education is also a constant endeavor because of the flux of tenants moving in and out.

2. Commercial Sector Analysis

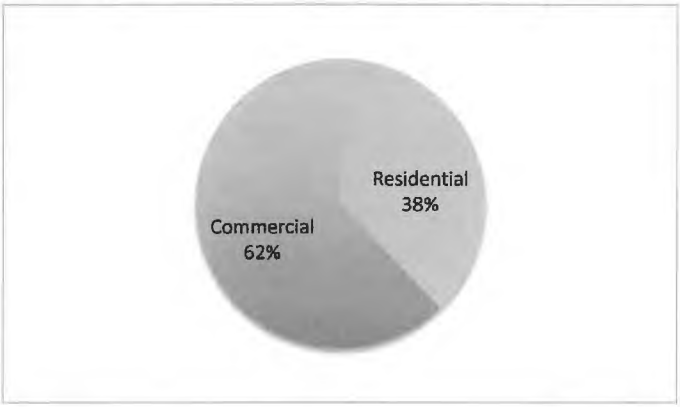
This evaluation of the SWMD's existing commercial/institutional recycling determines if existing programs are adequate to serve the sector or if there are needs that are not being met. The analysis conducted here for this plan update evaluates the strengths and weaknesses of existing programs. The ultimate goal is to determine if the SWMD can do more to address the commercial sector. Commercial/institutional sector within the SWMD 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.

Geographical

The SWMD is a single county District geographically located in Butler County. According to "Ohio County Profile of Butler County" prepared by Office of Research the land use/land cover is:

- 12.77% urban (residential/commercial/industrial/transportation and urban grasses),
- 51.45% cropland,
- 11.3% pasture,
- 23.24% forest,
- 0.88% open water, and
- 0.36% bare/mines.

Hamilton City is the county's largest city and is also the county seat. More than half of the county's residents reside in Hamilton City, West Chester Township, Middletown City, or Fairfield City. The county spans more than 450 square miles. Between 1990 and 2000, Butler County grew from just under 300,000 residents, to over 330,000 residents, a 14% increase in population. The county continued to grow by 11% from 2000 to 2010. The county average is 800 people per square mile.



The top industries for employment in Butler County are education, insurance,

[4] "Comprehensive Plan City of Oxford, Ohio", Adopted November 4, 2008.

manufacturing, and government. The top employers of Butler County include Miami University, Cincinnati Financial Corp, AK Steel, GE Aviation, Lakota School District, and Butler County Government. Miami University located in Oxford, Ohio and has nearly 24,000 students, and employs more than 3,000 people.

Businesses and institutions are concentrated within either a Central Business District (CBD) or more local concentrations within business and residential districts. There are clusters of concentrated commercial businesses/institutions, retail, entertainment areas, etc. throughout the county.

Diversion

Management of residential and commercial recycling makes separating commercial data from residential data challenging. Measurables obtained from this sector include recorded diversion data obtained from commercial surveys and Ohio EPA sourced data from commercial businesses and material recovery facilities (MRFs). Using these data sources, as shown in Table H-4, a total of 38,747 tons are estimated as commercial recycling activities. This estimate is known to be low because it excludes other sources, such as buyback (scrap yards) recycling. Sources were excluded from this estimation if commercial versus residential streams are not clearly tracked.

Table H-4 Commercial Recycling Data Sources in 2014

Program/Source of R/C Recycling Data	Quantities (Tons)
Commercial Survey	19,295
MRFs	8,962
Ohio EPA Commercial Retail Data	10,403
County Office Recycling Program	87
Total Commercial Recycling	38,747

While the estimations are rough, this demonstration shows 62 percent of the residential/commercial recycling is attributed to the commercial sector.

Functionality

Businesses can request recycling service from local and/or brokerage companies. The SWMD maintains a list of local haulers providing recycling services. Local haulers collect materials and transport them to a materials recovery facility for processing. Brokerage companies handle the selling of recyclables on behalf of the commercial clients. Commercial businesses generating recyclables contact a broker to collect and deliver to an end processor. Most of the SWMD's recycling assistance to this sector focuses on outreach. The SWMD conducts on-site waste audits for businesses and schools, works with the Chamber of Commerce, offers grant funding, and various advertisements/press releases.

Event Venues and Parks: Recycling while away from home is a need the SWMD has identified and is working to develop throughout the County. The SWMD loans containers for special events to recycle beverage bottles and cans. In 2014, the SWMD installed permanent recycling containers at Butler Metro Parks. In addition, private haulers offer collection services but it is unknown if event venues contract for services.

Commercial Businesses: Private haulers provide ample service opportunities. The SWMD conducts waste assessments annually to assist businesses in reducing their waste stream and to save money by implementing recycling programs. The SWMD supports commercial service offerings such as providing units small bins or plastic bags for commingled single stream containment with evaluation of

compaction of stored materials. Beginning in 2012, the SWMD began a concentrated effort in tenant and landlord education for commercial businesses. These relationships will insure appropriate service design while building the necessary personal relationship(s) within the business/industry sector as performance is evaluated and new services enhanced. Targeting commercial businesses located in clusters has resulted in at least one new recycling program per year since program inception.

The eastern side of Butler County has seen solid commercial growth the past few years.

Schools, Universities, Institutions: There are 10 public school districts in Butler County. The largest school district in the County, Lakota School District, is also the eighth largest school district in Ohio. Butler County is home to one University, Miami, and other learning centers, technical, vocational and private schools. Recycling activities at schools is the responsibility of the school to subscribe with a private sector service provider.

Institution	Building Count	Student Count	Faculty Count	Recycling Program
Edgewood School District	5	3,700	425	3 school buildings
Fairfield School District	10	10,037	1,055	School District-wide
Hamilton School District	12	9,415	1,215	School District wide
Lakota Local School District	22	17,000	1,722	School District-wide
Madison School District	2	1,500	178	Junior/Senior High and 1 elementary
Middletown City Schools	10	6,500	543	3 school buildings
Monroe School District	4	2,503	210	Junior/Senior High and 1 elementary
New Miami School District	1	700	100	School District is on target for outreach in 2018
Ross School District	4	2,865	330	School District-wide
Talawanda School District	5	3,000	295	School District-wide
Miami University	4 campuses*	23,087	4,847	Entire campus and compost program

*Hamilton, Middletown, Oxford and West Chester

Five of the 10 school districts have school district-wide recycling programs in place. The most recent school district to contract services was the Lakota School District. This was a success due in large part o the oversight and involvement of the Lakota facilities and operations managers striving to ensure all school building conformed to a uniform classroom, cafeteria and building recycling model/set-up. The SWMD and Lakota School District worked together to broaden recycling to all schools reaching all classrooms and cafeterias under one service contract. The SWMD views management/implementation from the school District instead of building managed to be a model program. In addition to reaching more schools the program expanded to collect a commingled stream (newspapers, magazines, junk mail, phone books, brown paper bags, office paper, cardboard, paperboard (such as cereal boxes), plastic bottles/jugs, milk cartons/juice boxes, glass bottles and food jars, aluminum cans, steel cans, and empty aerosol cans).

In 2013, Talawanda High School earned LEED Gold Certification making it the 24th school in Ohio and 2nd in Butler County.

Miami University's Sustainability Committee set a goal of recycling the majority of its waste stream by 2017. In 2012, they implemented single-stream recycling pairing trash and recycling cans across campus. In 2013, the University replaced the trash compactor at the Culinary Support Center with a sealed 30-yard organic compactor. Miami began collecting compostable materials from the Culinary Support

Center and 7 dining operations for composting. Organic waste was delivered to Compost Cincy in Hamilton County, but for only a short time. Compost Cincy could not obtain a lease renewal to continue operations. Food waste was then directed to Brausch Farms in Warren County for a few months before the materials were no longer accepted due to compliance issues. Without facility infrastructure to compost the materials, the University is re-assessing composting and is working to implement a small-scale operation. The small-scale operation currently underway uses only spent coffee grounds from campus buildings at a community-site garden. This community site is located at the Institute for Food Farm, a project where students and staff partner to provide fresh produce to local food pantries. Miami has many student organizations devoted to sustainability, by support projects, fundraising and volunteering. These student organizations help to promote recycling, composting, and special challenges such as the 'Kill the Cup'. The SWMD has assisted Miami secure grant funds for waste reduction initiatives, battery recycling for students and faculty, and has partnered with graduate students in the Institute for Sustainability and the Environment as well as the Farmer School of Business Marketing Department to develop outreach tools for business recycling. The SWMD is a resource for Miami University and will continue communicating with the University on their efforts.

The County is home to West Chester Hospital, Mercy Hospital, Fort Hamilton Hospital, McCullough-Hyde Memorial Hospital, and Cincinnati Children's Liberty Campus Hospital. The health care industry is growing in Butler County. In 2015, the Cincinnati Children's Liberty Campus added a $50 million, 70,000 square foot expansion leading to more than 600 employees working at this site. The Christ Hospital Health Network has targeted the County for a 125,000-square foot medical center. The SWMD will increase its outreach effort to this growing sector especially with regard to grant funding to assist the largest area hospitals with recycling infrastructure. The extent of recycling programming in these institutions is sporadic and has potential to be scaled for full implementation.

Government Agencies, Office Buildings: Based on the land use code for identifying offices, the county auditor office indicated 1,065 office structures in the County. There are different structure codes within the land use code meaning offices could be condo units, buildings with suites, stand alone office buildings, etc. Of these structures 3 are federal, 6 state, 9 county, 8 township, 12 municipal, 8 board of education, and 5 colleges or universities. Over 90 percent of Butler County departments, courts, and county buildings participate in the County Office Recycling program (see Residential/Commercial Waste Composition Analysis).

Other Opportunities

Butler County is experiencing commercial sector growth and development. The SWMD could explore contractual arrangements to develop business clusters and developments within the communities to design for recycling container placement. The SWMD could also work with local economic development and urban planning teams to promote zoning or ordinances favorable to establishing a recycling plan as part of new developments.

Challenges/Barriers

The biggest challenge is collecting recycling data from businesses using brokers. The SWMD conducts surveys but survey response rates are low.

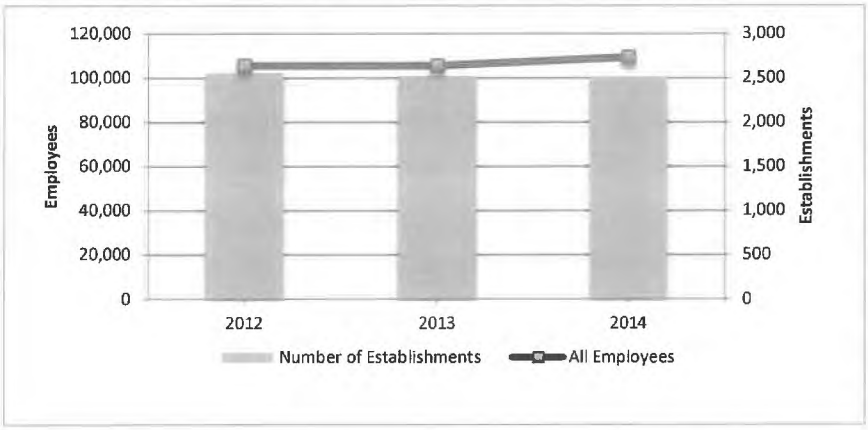
Other barriers for recycling in this sector include architectural barriers, storage container placement, cost of service, and time/service constraints.

Commercial/Institutional Programming (descriptions provided in Appendix I)

- Commercial/Industrial Technical Assistance
- Commercial P2 Program and Internship
- County Office Recycling Program
- Multi-Family Housing Cooperative
- Special Event Recycling
- Business Recognition Program

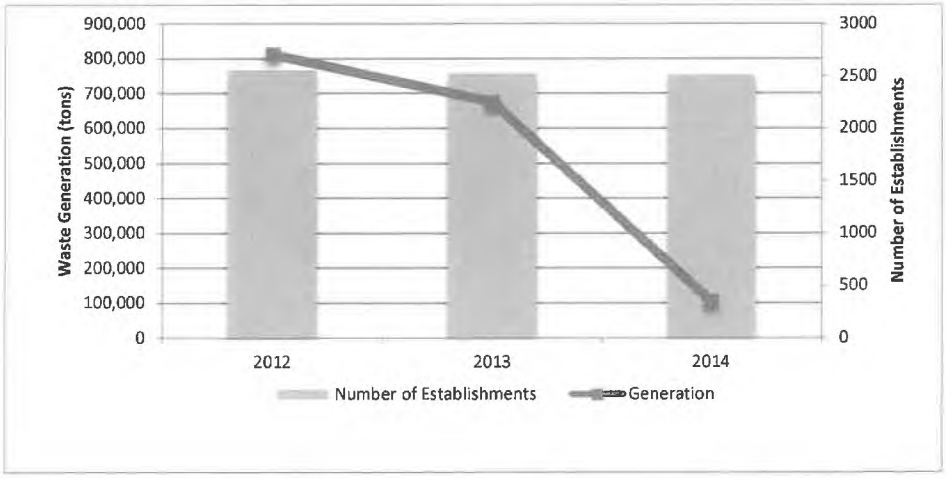
3. Industrial Sector Analysis

This evaluation of the industrial sector determines if existing programs (offered either through the SWMD or other entities) are adequate to serve that sector and determine if additional programs are needed to support the industrial manufactures in Butler County.



Manufacturing employment from 2012-2022 is projected to increase 0.9%.[5] 2015 Butler County Unemployment Rate average is 4.6%.[6]

Ohio Department of Job and Family Services Office of Workforce Development groups Butler County in the Cincinnati Metropolitan Statistical Area and reports goods-producing industries lost jobs in manufacturing. Figure H-10 shows minimal decline in the number of establishments for Butler County and a slight rise in employment. Even though the number of establishments declined the decline in recycling generation downturned tremendously. This decline in generation is a result of acknowledged errors in reported recycling by a large manufacturer.



The largest industrial establishments by employees in Butler County include:

[5] Source:"2022 Job Outlook Cincinnati-Middletown Metropolitan Statistical Area", Ohio Department of Job and Family Services, October 2015.

[6] Source: Ohio Department of Job and Family Services Office of Workforce Development, Bureau of Labor Market Information

Manufacturer Industry	Number of Employees
AK Steel	2,412
GE Aviation	2,000
Advance Pierre Foods	892
Baker Concrete (Monroe)	802
Procter & Gamble	742
ThysennKrupp Bilstein of America	684
Pacific Manufacturing, Inc	576
Totes Isotoner	459
Square D (Schneider Electric)	403

Web-based searches found that the largest industries have sustainability plans, environmental stewardship, or recycling activities in place. Survey response from these entities is low. The SWMD's relationship with these entities is limited. Waste streams generated are specialized presenting challenges to assistance the SWMD could provide.

The largest entity, a steel mill, sends a large quantity, over 60,000 tons, of automobile fluff materials to landfills located out-of-state in Kentucky. This waste stream is classified as "excluded" and is not included as industrial waste for generation.

4. Residential/Commercial Waste Composition Analysis

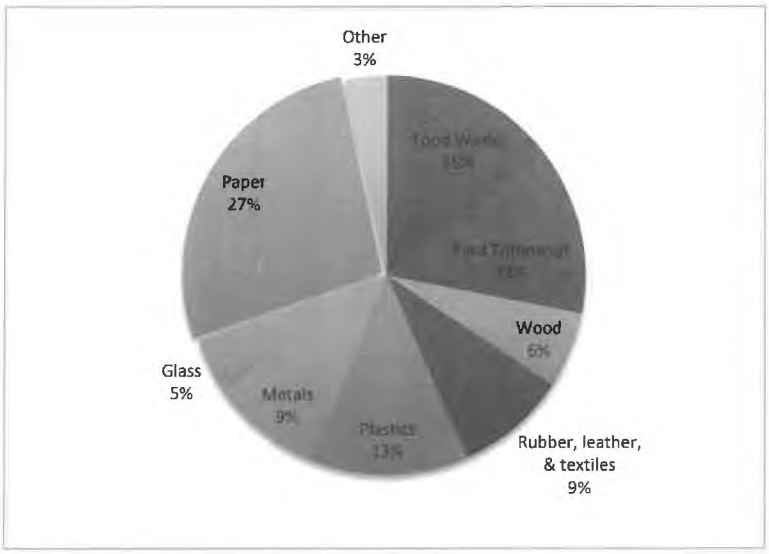
This evaluation of Butler County's residential/commercial composition analysis describes and evaluates the wastes that make up the largest portions of the residential/commercial waste stream. The evaluation outlines what programs are in place to address these waste streams and what programs the SWMD should evaluate to further address those wastes.

GENERATION

The SWMD generated 442,803 tons of municipal solid waste (MSW) from the residential and commercial sectors and recycled and composted over 62,000 tons of this material as shown in Figure H-12.

Waste Generation = Wastes Disposed + Wastes Diverted

442,803 tons = 380,446 tons (disposed) + 62,357 tons (diverted)



WASTE COMPOSITION

The largest component of the residential/commercial waste stream is projected to be paper at 27 percent followed by food waste at 15 percent and yard trimmings at 14 percent of the waste stream. Figure H-13 depicts the residential/commercial waste composition for the reference year as determined using US EPA national waste composition averages.

FIBER WASTE STREAM

Based on the 442,803 tons of MSW generated from the residential and commercial sectors, approximately 27 percent, or 119,557 tons of this waste stream should be fiber materials (based on US EPA's "Advancing Sustainable Materials Management: 2013 Fact Sheet", June 2015). The 2014 ADR reported a total of 26,922 tons of fibers diverted – at this time approximately 23 percent of the fiber waste stream is being diverted from the landfill.

Table H-5 Fiber Recycling in 2014

Generated Fibers	119,557 tons
Diverted Fibers	26,672 tons
Potential Diversion	**92,885 tons**

Fiber materials (cardboard and paper materials) have a significant recovery potential. Programs in place to divert fiber materials include: non-subscription and subscription curbside, drop-off, County Office Recycling, and Commercial/Industrial Technical Assistance. Even though waste for residential and commercial sectors is commingled and difficult to separate for composition and generation purposes, the two sectors are separated when developing targeted diversion programs.

All Butler County residents have access to fiber recycling either through curbside collection program or at one of the many drop-off collection sites. A specific challenge in curbside programs stem around the single-family households participating in the program. While the SWMD has not conducted a study regarding participation barriers, other state and national studies identify time and effort to take materials to the curb or drop-off and/or fees for recycling participation as barriers.

Commercial businesses have the opportunity to contract with local haulers for recycling dumpster service. The SWMD facilitates this by offering technical assistance. Typical challenges include costs for recycling services (container, processing and hauling), space for recycling containers, time and effort to collect recyclables on-site. Over 90 percent of Butler County departments, courts, and county buildings participate in the County Office Recycling program. Those participating include:

County Area Courts 1, 2 and 3	GIS (part of Auditor's Office)
Adult Probation	Janet Clemmons Center
Auditor's Office	Job and Family Services
Board of Elections	Law Library
Butler County Educational Service Center	LeSourdsville Water Reclamation Facility
Butler County Health Department	MRDD
Butler County Job Center	Ohio State University Extension Office
Butler County Juvenile Justice Center	Planning & Zoning
Butler County Water & Sewer Department	Probate Court
Child Support Enforcement Agency (CSEA)	Prosecutor
Children Services Board (CSB)	Recorder
Clerk of Courts	Records Center/Archives
Commissioners	Soil and Waster Conservation
Common Pleas Court	Southwest Regional Water District
Coroner	Treasurer
Domestic Relations Court	Veterans Service Commission
Economic Development	Butler County Jail & Sheriff's Offices
Emergency Management Agency	

In July 2013 with the retiring of the SWMD's Recycling Technician, paper was separated from the commingled stream and managed through a contracted shredding service. The SWMD provided all county departments recycling totes to capture paper. In addition, recycling containers were set up in break rooms and common areas for the collection of cardboard, aluminum cans, steel cans, and plastic bottles/jugs, glass and cartons. Office cleaning crews were trained to collect and take the recyclables to an outside receptacle for service from a contracted hauler. 87 tons of paper was diverted in 2014. Commingled recyclables captured by the hauler cannot be reported separately as part of the county's office recycling program. Challenges include outreach to county departments/employees regularly to encourage participation and conformance with recycling protocols.

These programs, while successful, divert only a small portion of the total fiber.

YARD WASTE STREAM

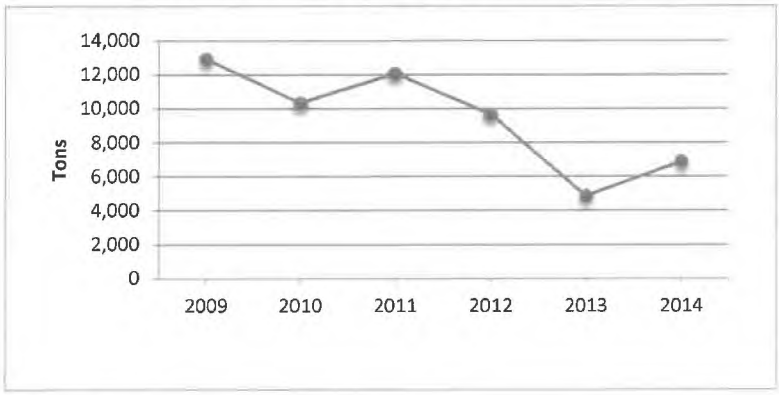
Based on the 442,803 tons of MSW generated from the residential and commercial sectors, approximately 14 percent, or 61,992 tons of this waste stream should be yard waste materials (based on US EPA's "Advancing Sustainable Materials Management: 2013 Fact Sheet", June 2015). The 2014 ADR reported a total of 6,880 tons of yard waste composted – at this time 12 percent of the potential yard waste stream is being diverted from the landfill.

Yard waste management is decentralized. The SWMD does not fund or operate yard waste management collection or facilities. Four communities provide curbside yard waste collection service or drop-off sites to residents within the community. As shown in Table H-6, the following communities reported curbside services.

Table H-6 Curbside Yard Waste Collection Programs in 2014

Community curbside service	2014 Tons Reported
City of Fairfield Yard Waste Pickup	1,384
City of Hamilton Leaf Collection	1,388
City of Oxford Curbside Yard Waste Pickup	Did not separately report
City of Oxford Leaf Collection	Did not separately report
City of Trenton Leaf Collection	397
Subtotal of Community Curbside	*3,169*

While there are 4 in-district registered compost facilities they are not available to the general public. Three cities, Oxford, Trenton, and Hamilton own and operate these facilities for composting materials from their city programs. The other facility is owned and operated by Miami University. One private mulching operation accepts brush, branches, and clean wood waste from the public.

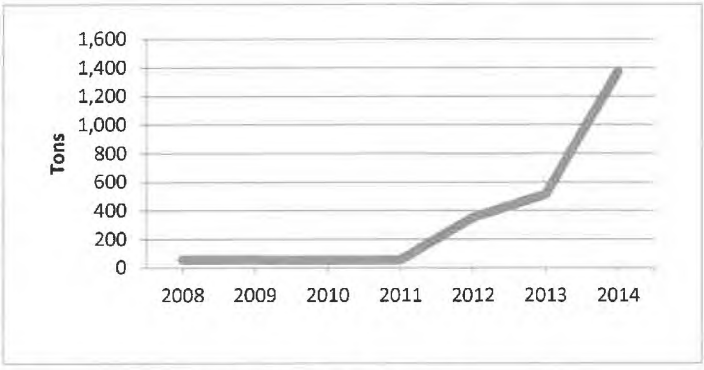


The historical trend for yard waste diverted declined. Programming has remained consistent except for one community, City of Monroe, discontinuing curbside pickup in 2012.

Information regarding yard waste programs (municipal operated) and available outlets are posted on the SWMD website and updated seasonally.

FOOD WASTE STREAM

Based on the 442,803 tons of MSW generated from the residential and commercial sectors, approximately 15 percent, or 66,420 tons of this waste stream should be food waste materials (based on US EPA's "Advancing Sustainable Materials Management: 2013 Fact Sheet", June 2015). The 2014 ADR reported a total of 1,374 tons of food waste composted – at this time approximately 2 percent of the food waste stream is being diverted from the landfill. There is a lot of potential diversion.



Historically, food waste diversion has been minimal but standardized reporting from large retailers such as Wal-Mart and Kroger has resulted in new data being captured at Ohio EPA. Food waste is a very challenging waste stream. Lack of infrastructure, transportation costs, board of health issues are all factors. Butler County does not have Class I Compost facilities, which are permitted to compost food waste. Two facilities serving the region, Marvin Organics Gardens and Compost Cincy stopped accepting food waste in 2015.

5. Economic Incentive Analysis

By definition, economic incentives are designed to encourage participation in recycling programs. In accordance with Goal 6 of the 2011 State Solid Waste Management Plan, the SWMD is required to explore how to incorporate economic incentives into source reduction and recycling programs.

Since 2007 the SWMD has been actively implementing economic incentives to help reach recycling goals. The first initiative was designed to encourage political jurisdictions to implement recycling programs. After achieving a goal of 90 percent access, the SWMD modified the economic incentives into a community competition program. Beginning in 2008, incentives were provided to political jurisdictions in the form of financial rewards for achieved recycling rates. The Residential Recycling Incentive program aggregated curbside, drop-off and Abitibi programs to calculate political jurisdiction recycling rates.

In 2011, economic incentives were modified to reflect a graduated system that provided a higher financial reward to communities achieving greater diversion rates and a provision for higher rate of reward to contracted/non-subscription communities; and a moderately lesser rate of reward to non-contracted subscription communities. The rationale was to make contracted/non-subscription recycling service an objective for communities since non-subscription curbside recycling results in higher proven diversion rates. The more a community recycled in curbside programs the greater the total diversion rate would be for each community. The graduated incentive pay scale is featured below.

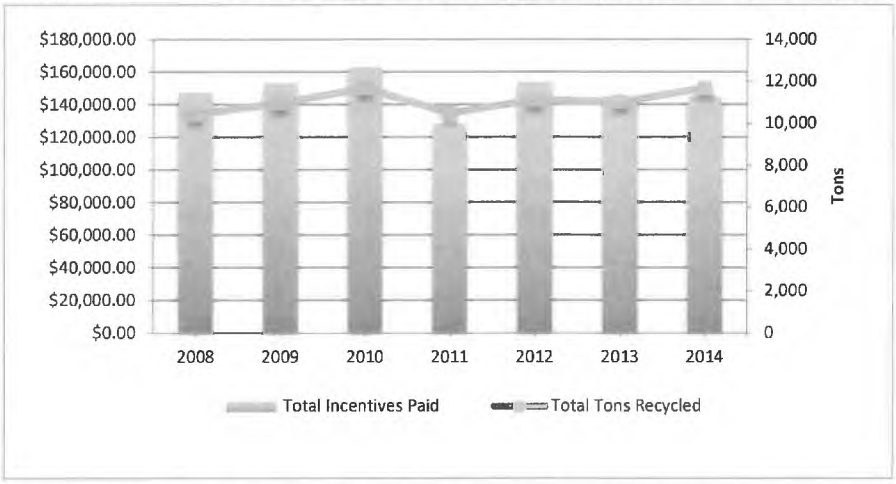
Table H-7 Communities with NS/Contracted Curbside Recycling Collection

Recycling Rate	Variable Rate Curbside Recycling Incentive per Ton (Year 2011 and 2012)	Variable Rate Curbside Recycling Incentive per Ton (Year 2013 and beyond)
40.5 - 45%	n/a	$36.00
35.1 - 40%	n/a	$32.00
30.5 - 35%	n/a	$28.00
25.1 - 30%	n/a	$24.00
20.1 - 25%	$20.00	$20.00
15.1 - 20%	$16.00	$16.00
10.1 - 15%	$12.00	$12.00
5.1 - 10%	$8.00	$8.00
0 - 5%	$4.00	$4.00

Table H-8 Communities with Subscription/Non-Contracted Curbside Recycling Collection

Recycling Rate	Variable Rate Curbside Recycling Incentive per Ton (Year 2011 and 2012)	Variable Rate Curbside Recycling Incentive per Ton (Year 2013 and beyond)
40.5 - 45%	n/a	$35.00
35.1 - 40%	n/a	$31.00
30.5 - 35%	n/a	$27.00
25.1 - 30%	n/a	$23.00
20.1 - 25%	$15.00	$19.00
15.1 - 20%	$12.00	$15.00
10.1 - 15%	$9.00	$11.00
5.1 - 10%	$6.00	$7.00
0 - 5%	$3.00	$3.00

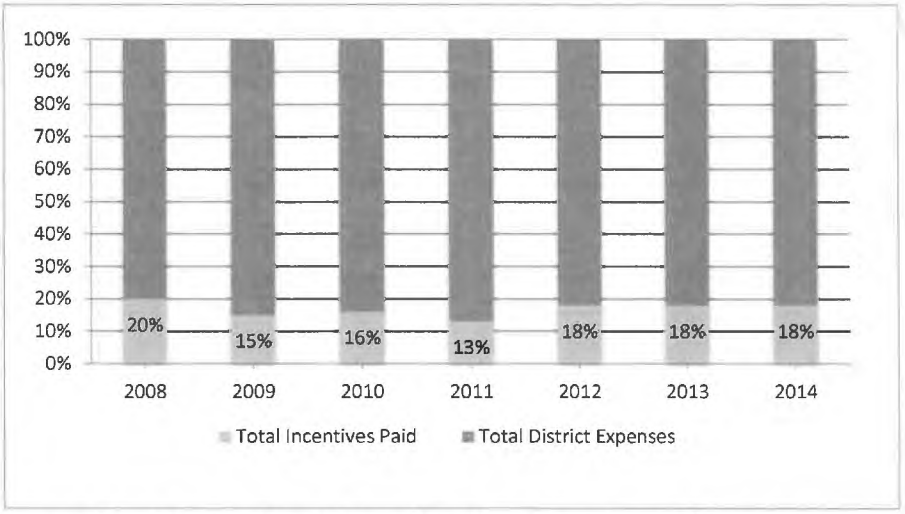
Figure H-16, shows the relationship between incentive costs and tonnages recycled (tonnages recycled are tonnages incentives were calculated on).



Economic incentives were implemented as anticipated. While incentives were popular among officials, recycling tonnages seemed to increase independent of the economic incentives provided. Incentives did not appear to have sufficient economic impact to push jurisdictions towards contracted curbside recycling service (Analysis in 2011 Plan Update.)

The Residential Recycling Incentive program was helpful for achieving 90 percent access and evolved to reward each jurisdiction for improving recycling rates. Incentives were paid without restrictions on how the funds were to be spent. As a result, most incentive allocations were treated as part of a city or township's general operating fund and did not encourage jurisdictions to contract for curbside recycling service and did not result in improving recycling infrastructure.

On average the distributed economic incentives accounted for between 17 percent of total SWMD expenditures. The Residential Recycling Incentive program was the largest expense category. After implementing the 2011 recycling incentive changes further recycling yields were incremental. This program was discontinued in 2016 in order to reduce expenses for the lower SWMD generation fee.

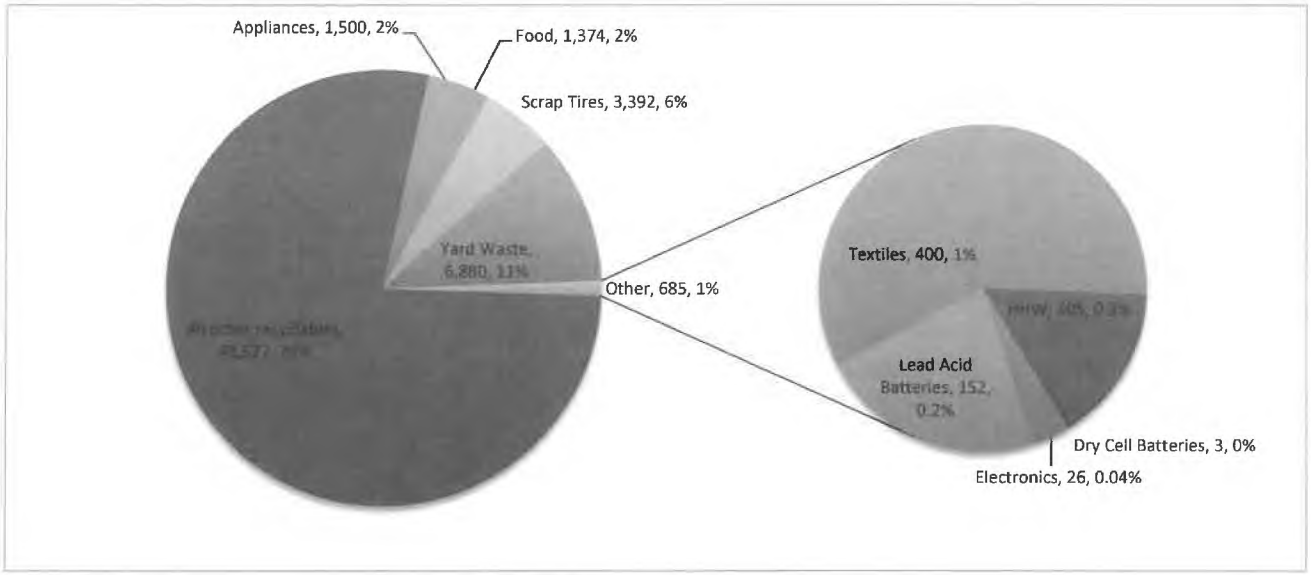


Butler County political jurisdictions do not have Pay As You Throw (PAYT) programs. The 2011 plan update targeted political jurisdictions offering curbside recycling to develop PAYT programs. The SWMD reached out to political jurisdictions through presentations at Butler County's township trustee meetings. Over the past five years, interest has not been gained in these programs. PAYT has been known to result in an increase of 40% or more in curbside recycling yields. The SWMD could continue outreach to political jurisdictions but may need to strategize the outreach to look for areas of greatest impact and feasibility for PAYT.

6. Restricted and Difficult to Manage Waste Streams Analysis

Goal 5 of the 2009 State Plan requires SWMD's to provide strategies for managing 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 difficult to manage waste.

In 2014, approximately 22 percent of the waste recycled is categorized as restricted or difficult to manage waste. These categories are shown in the Figure H-18 below.



In 2014 the SWMD expended roughly 15 percent of 2014 expenses to the management of restricted and difficult to manage waste streams, and roughly 18 percent in 2015.

Scrap Tires – In 1996, regulations banning disposal of whole scrap tires at solid waste landfill facilities and incinerators became effective. As shown in Figure H-18 above, approximately 3,392 tons of scrap tires were recycled.

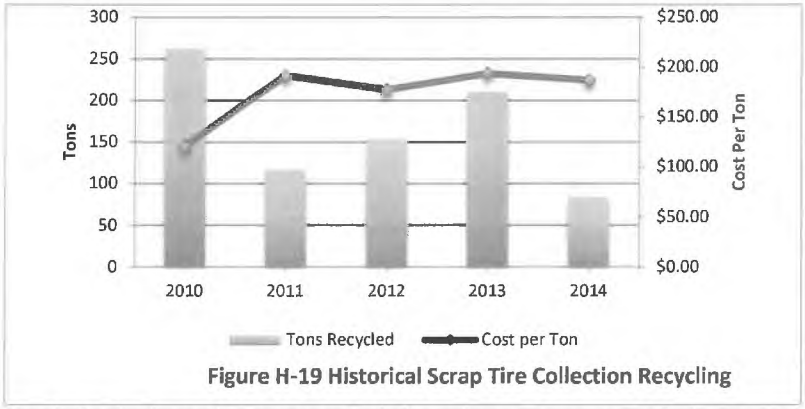


Figure H-19 Historical Scrap Tire Collection Recycling

Butler County residents have many opportunities available to properly manage scrap tires and divert them from the landfill. In addition to outlets accepting tires for nominal charges, the SWMD offers an annual scrap tire collection event.

The scrap tire collection event is funded by the SWMD. The chart to the left depicts the tons recycled and cost per ton of the scrap tires collected through the collection program. The figure demonstrates the cost per ton to handle the tires has been consistent. Tonnages recovered at the collection events fluctuated and fell to a low in 2014. The decline in tonnages is attributed to the SWMD enforcing residential tire quantities for collection, typically up to 10 passenger car tires per participant. Abuse of the program by commercial tire processors and businesses bringing tractor trailer loads of tires caused the Policy Committee members to enforce the residential service tire limit. As shown in Figure H-20, program costs per participant were climbing in 2012 and 2013 leading to the program changes in 2014 resulting in a more economical cost. The SWMD monitors the scrap tire collection event striving to provide service within the budget set forth by collected revenues.

There are many retail outlets accepting unwanted tires throughout the SWMD, however scrap tire collection events offer residents a no-cost opportunity to recycle scrap tires. The events provide opportunities for those not able or not willing to pay user fees, although, as demonstrated in the graphs, the services come at a cost.

Ohio EPA estimates more than 12 million scrap tires are generated in Ohio annually. Scrap tires not properly disposed have the potential to end up in illegal dumps creating hazards to public health and the environment. The number of tires and the cost to handle tires are challenges the SWMD is addressing consistently. The SWMD could develop a targeted marketing campaign to educate residents on scrap tire disposal management to complement the waste tire amnesty (collection) day.

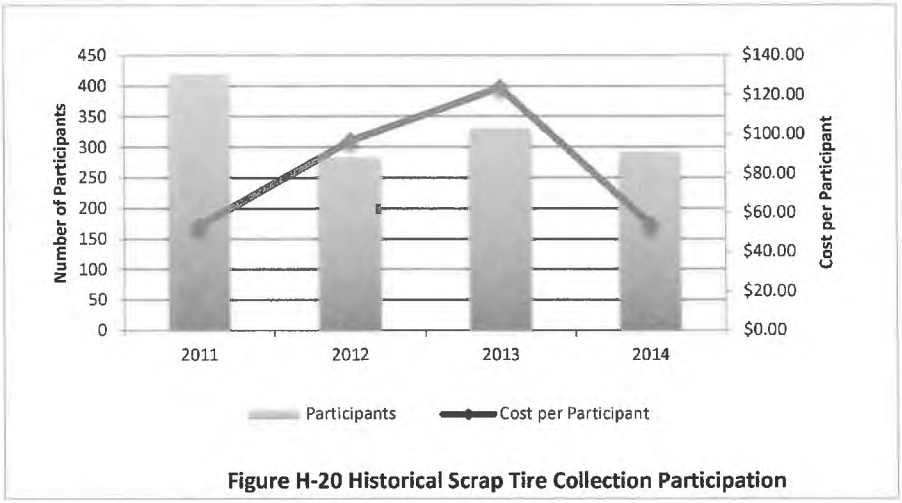


Figure H-20 Historical Scrap Tire Collection Participation

The SWMD expended, roughly 3 percent of 2015 expenses to the collection of scrap tires.

Strengths:

- Drop-off collection event offered.
- SWMD data collection and tracking.
- Retailer take-back.
- Retailer take-back provides a year-round outlet. List of retailers is on the SWMD website.

Weaknesses:

- Collection offered only once a year.
- Costs to SWMD to hold a collection event.
- Collection event is easily abused by entities wanting to get rid of tires.
- Retailer take-backs charge fees.

Yard Waste – Despite legislation in 1995, attempting to limit and restrict the use of landfills for disposal of yard waste, many residents manage their yard waste at the curb with their household trash. If residents mix yard waste with municipal trash the yard waste is disposed in the landfill. As such, tracking total yard waste discarded at the landfill is not feasible.

Yard waste management is decentralized. The SWMD does not fund or operate yard waste management collection or facilities. Haulers in the SWMD do not offer curbside separate yard waste collection hauling. Residents residing in the municipalities of Fairfield and Oxford have separate curbside yard waste collection hauling. Residents residing in the municipalities of Fairfield, Hamilton, Oxford, and Trenton have separate curbside leaf collection hauling. The SWMD actively promotes the curbside leaf collection program and the collection schedule to communities with access to those convenient curbside programs. There are 4 in-district registered compost facilities. All four of these are public sector owned facilities and are not available for public use. Processing of yard waste is the responsibility of registered compost facility owners.

Collaborative partnerships provide program strengths to managing any waste stream. Yard waste is a material stream where both the SWMD and the Soil and Water Conservation District share similar

missions. The SWMD collaborates with the Soil and Water Conservation District to provide composting education and outreach to residents. Soil and Water Conservation District have resources available on their website and offer a public speaker to give presentations and workshops. The SWMD utilizes education to make residents aware of the beneficial use for composting yard waste. The SWMD maintains a web-link to the Soil and Water Conservation District on the SWMD website for residents to gather more information on managing organic material.

In addition to the Soil and Water Conservation District collaboration, seasonal education regarding Christmas Tree composting is provided in utility bill inserts, on the Solid Waste District website, and through social media.

Strengths:

- Four political jurisdictions manage programs to divert this waste stream from the landfill.
- SWMD data collection and tracking.
- Collaboration with Soil and Water Conservation District.
- Utility bill insert and website promotions.

Weaknesses:

- Promotion of the collaboration with Soil and Water Conservation District needs more exposure.
- Lack of convenient infrastructure.
- Costs associated with developing and maintaining infrastructure within the SWMD.

Lead-Acid Batteries – In 2008, regulations banning disposal of lead-acid batteries in landfills became effective. Lead-acid batteries have a high recycling value and Ohio has a retailer take-back law. In addition, the SWMD accepts lead-acid batteries at the long-term HHW collection events. Figure H-21 shows the cumulative tons of lead-acid batteries from HHW collection events and survey results of commercial businesses.

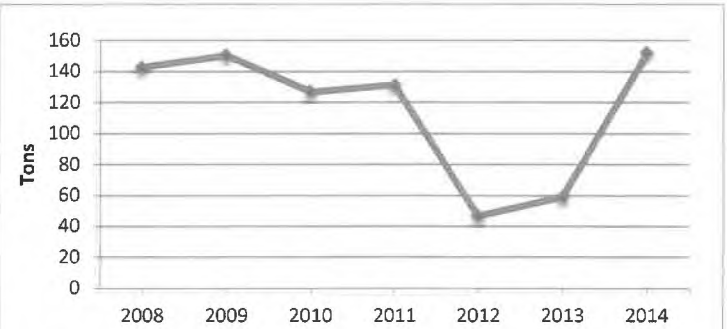


Figure H-21 Historical Lead-Acid Battery Recycling

Strengths:

- Ohio law.
- Retailer take-back.
- Well developed infrastructure.
- Residents have the opportunity to use the long-term HHW collection to properly manage lead-acid batteries.

Weaknesses:

- Lack of retailer take-back data.
- SWMD data collection and tracking from retailers.

Household Hazardous Waste – Households produce hazardous wastes containing chemicals that pose environmental risk. Informing the public to these dangers and providing outlets for proper disposal or recycling has been a priority item for the SWMD. The SWMD has offered household hazardous waste collections since before 2007. Collection is available at least 4 consecutive months a year for one day a

week. Factors such as cost, contractor, and terms affect the availability. The SWMD provides convenience to working families by offering later operational hours. In 2014, collection was available every Thursday for 6 months (May thru October). Service was shortened to 5 months in 2015.

In 2012, 2013, and 2014 the SWMD collaborated with other entities to provide mobile collection events. Table H-9 presents a brief summary of the mobile collection events. Collection events are dependent on additional funding obtained through grants and are truly collaboration with the political jurisdictions. The SWMD is a resource for the political jurisdictions. The additional collection events were hosted in the political jurisdictions for their respective residents.

Table H-9 Mobile HHW Collection Event Summary

Year	Collaborative Partner	Number of Participants	Pounds Collected
2012	City of Oxford/Reily Township with Talawanda High School	492	57,137
2013	Keep Middletown Beautiful	523	53,998
2013	City of Hamilton with Miami University Hamilton	237	32,691
2014	Fairfield Township	360	209,198

Household hazardous waste includes such materials as household and lead-acid batteries, gasoline, turpentine, spray paint, fertilizer, pool chemicals, bleach and household cleaners, antifreeze, automotive fluids, compact fluorescent bulbs, adhesives, mercury containing devices, etc.

Each year the amount of materials collected through the long-term HHW collection varies, as does the toxicity level. As shown in Figure H-22 the number of participants declined after 2013, the last year the SWMD accepted latex paint. Except for year 2014 the number of pounds collected also declined. Most of the decline can be attributed to the removal of latex paint from these collections. Historically latex paint constituted more than 40 percent of the material collected. The spike in tonnages collected shown for year 2014 is a result of a one-time collection event in Fairfield Township.

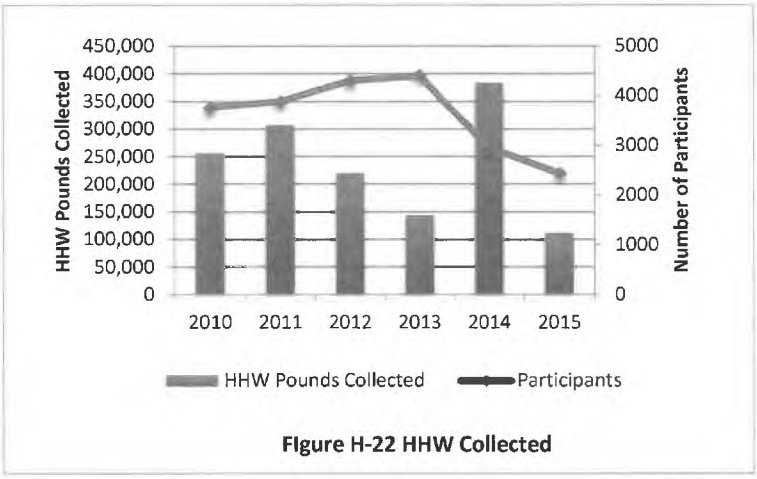


Figure H-22 HHW Collected

HHW collection is challenging. There are challenges to keep the costs within a reasonable budget and challenges to make the collection convenient so residents will utilize the service. In addition there are risks associated with proper handling and management of HHW. The SWMD takes all of these factors into account when bidding and selecting contractors.

Collaboration and grant assistance in 2014 proved to be very successful for capturing more materials from the waste stream. The SWMD analyzes program data annually to identify successes to help mold the program to the needs of the residents. The SWMD identified a new HHW contractor for 2016 and has relocated its HHW collection program to another political jurisdiction while still providing 1-day per week drop-off service. The SWMD will monitor the results for comparison purposes.

The SWMD expended roughly 12 percent of 2015 expenses to the collection of HHW.

Strengths:

- Long-term availability provides more convenience to residents.
- SWMD data collection.
- Diverts harmful materials from the environment.
- Residents are not charged user fees for the service.
- SWMD competitively bids for contractor services.
- Collaboration with political jurisdictions and others.

Weaknesses:

- Cost to SWMD.

Electronics – Electronics contain hazardous materials that can pose health and environmental risks after disposal. The preferred method of handling is donation for working electronics and recycling for non-working electronics. The SWMD maintains a list of retailer take-back, secondhand retailers, and scrap yard outlets where residents may take electronics. Each location varies as to the type of electronics accepted and user fees charged. To disseminate information to residents the SWMD developed an informational e-waste insert that gets mailed to households in the cities of Fairfield, Hamilton, Monroe, Oxford, Trenton, and in utility bills for Butler County Water & Sewer customers. In addition, the list is available on the website.

The SWMD held seasonal collection events through year 2012. After evaluating the cost for the SWMD to offer periodic e-waste recycling collection, it was determined that distributing information to residents about multiple outlets available year round for unwanted computers, televisions and other devices was the best strategy to assist the public with recycling obsolete materials.

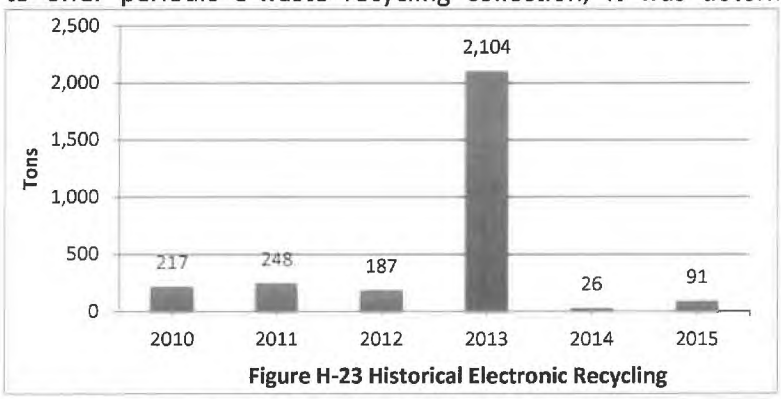


Figure H-23 Historical Electronic Recycling

Figure H-23 shows the historical electronic recycling in the SWMD. Year 2013 shows a significant spike because of reports by scrap yards and second hand stores. Based on data collected in 2013 it's assumed e-waste is being captured. However surveyed retailer take-back, secondhand retailers, and scrap yards do not always report data, thus a lack of reported data in subsequent years does not support this assumption.

The SWMD recognizes e-waste is a growing material stream and wants to be of assistance in diverting these materials from the landfill. The major obstacle is costs. The SWMD is continually looking for options to help residents properly manage this material. Partnerships and collaborations are areas the SWMD is beginning to explore.

Strengths:

- Educates residents to recycling or reuse outlets in the SWMD.
- Diverts harmful materials from the environment.

Weaknesses:

- User fees charged to resident.

- Not all outlets accept all types of e-waste.
- Data can be difficult to obtain.

Other –Appliances - As shown in Figure H-24 below, an average of 50 tons of appliances were recycled annually from 2010 to 2015. Residents have an opportunity to recycle appliances through retailer take-back, scrap processors, or curbside collection. Each of these opportunities operates differently. Retailer take-back and scrap processors rely on the household generating the appliance waste to properly manage the appliance. Opportunities such as these hold the household accountable for the waste produced. It helps that retailer take-back opportunities have become more prevalent with big box store companies offering to remove appliances as a new one is delivered. Taking appliances directly to scrap processors offers a greater incentive to recycle the appliance because they usually pay market pricing for scrap metal. Curbside Freon Appliance collection relies on the SWMD to manage the appliances. Appliances recycled through the curbside appliance collection include: refrigerators, freezers, dehumidifiers, and air conditioners. Curbside Freon Appliance collection is an "on-demand" service where Freon appliances are removed from the curb, or driveway of residents' homes at no charge. The SWMD pays for the service. Service is available seven months (April – October) of the year with a limit of 2 appliances per household.

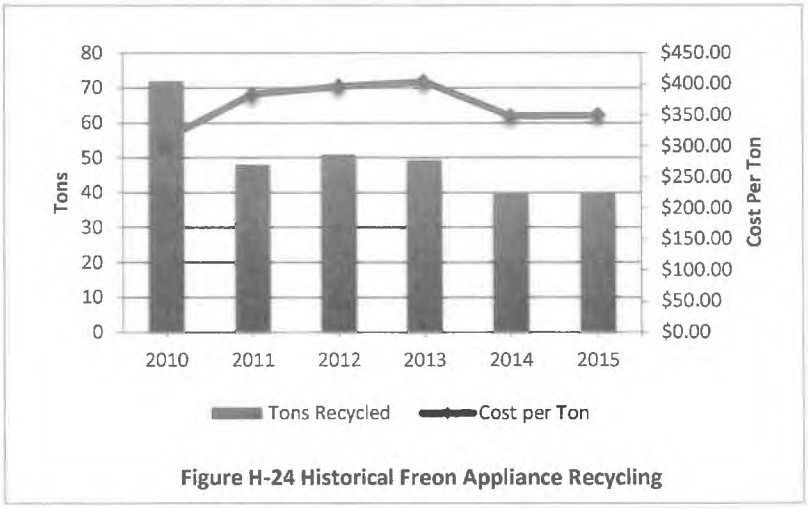


Figure H-24 Historical Freon Appliance Recycling

Figure H-24 depicts the tons recycled and cost per ton of the appliances collected through the curbside collection program. The cost per ton to collect the appliances ranges from $300 to $405 per ton. Tonnages collected dropped to a low in year 2014.

Figure H-25 depicts the number of participants and cost per participant for the appliance collection program. The graph demonstrates steady costs per participant to collect the appliances ranging from $30 to $35 per participant. The number of participants decreased, as did the tonnage collected. Decreasing tonnage, lower participation, and lower costs suggests fewer households are participating in curbside appliance collection.

Curbside Freon Appliance collection is convenient and ensures proper removal of Freon as well as recycling of the appliances. The program is reliable and receives positive feedback. However, the

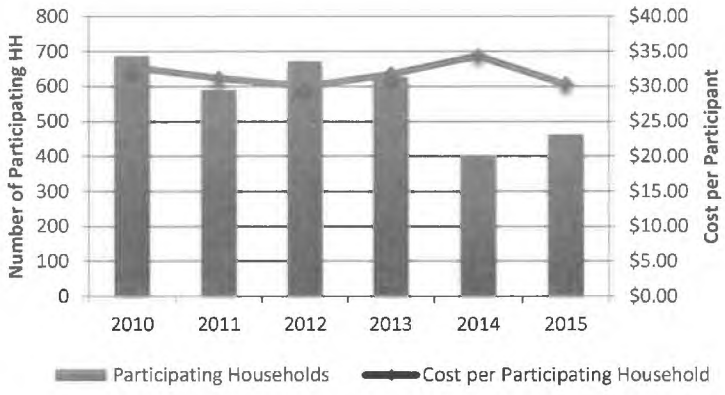


Figure H-25 Historical Freon Appliance Participation

program is not an essential waste stream for the SWMD program funding.

Of the 1,500 tons recycled a small portion, 40 tons, were diverted using the Curbside Freon Appliance collection program.

The SWMD allocated a small portion, roughly 2 percent, of 2015 expenses to the Curbside Freon Appliance Collection.

Strengths:

- Convenience.
- SWMD data collection.
- Residents are not charged user fees for the service.

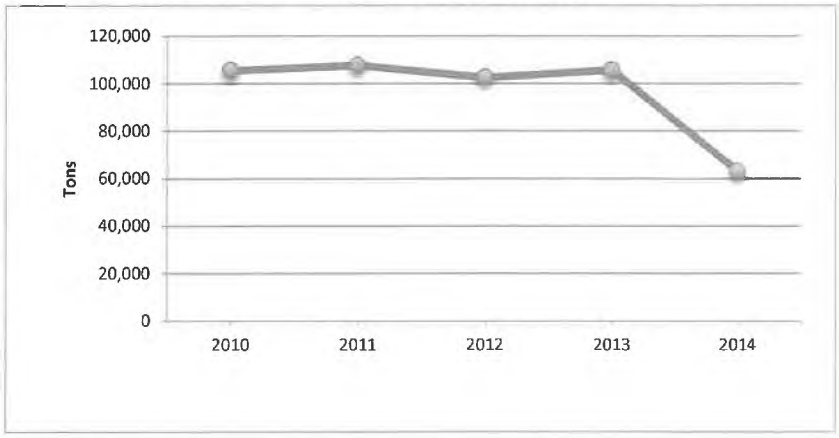
Weaknesses:

- Cost.
- Participation dropped significantly in 2014 and has not rebounded.

Other – Pharmaceuticals – The SWMD participates in the statewide and national initiatives for managing pharmaceuticals by advertising outlets on the SWMD website.

7. Diversion Analysis

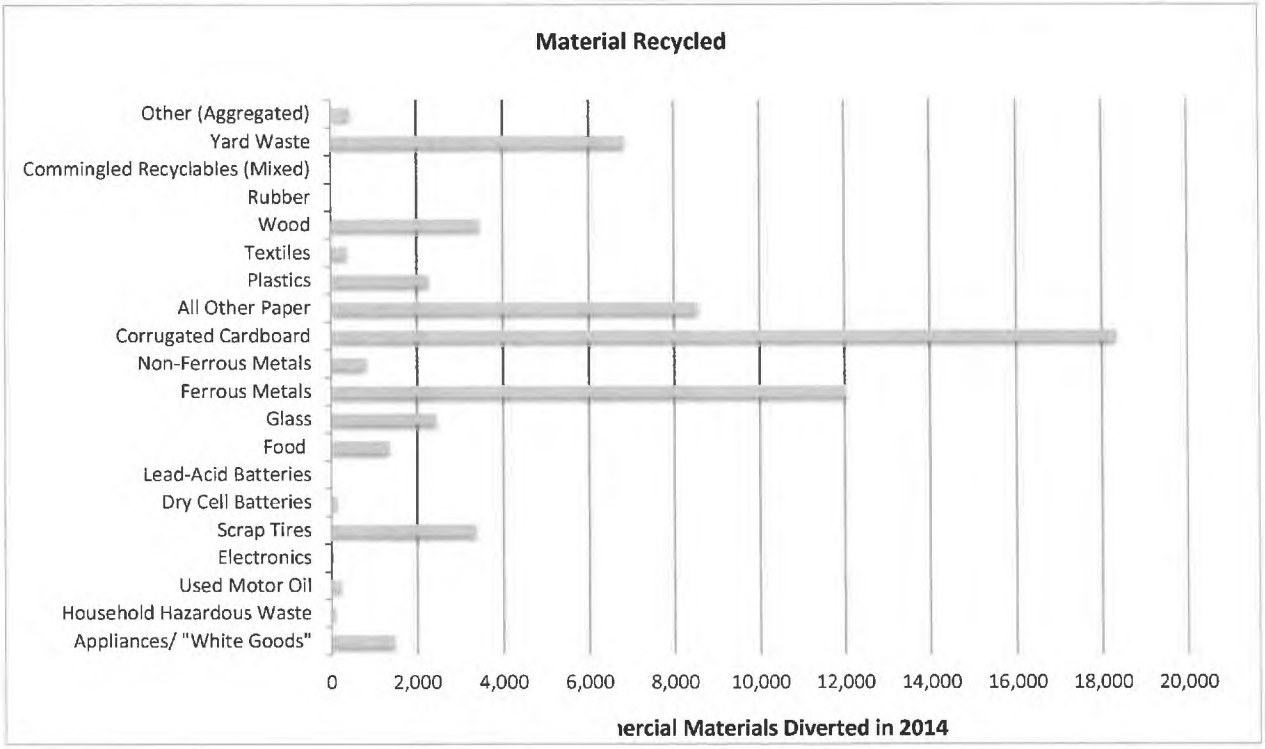
Waste diversion is defined as the amount of waste recycled and the amount of waste diverted from entering the waste stream through source reduction activities. Waste diversion activities include waste minimization (also called source reduction), reuse, recycling, and composting. The diversion analysis takes a look at the diversion programs, infrastructure, rate and trends, and materials.



Residential/commercial diversion in the SWMD trends a relatively linear line as shown in Figure H-26 from 2010 to 2013, and then a decrease in 2014. .

The data points to economic impacts and non-reporting as factors that caused the diversion decline of 2014. Specific economic impacts include relocation of a large warehouse outside of the County and a scrap recycler reporting lower tonnages. Non-reporting is a yearly challenge due in large part to the voluntary survey procedures. In 2014, two recyclers were unreported resulting in decreased diversion.

While these factors result in a decline they do not tell much about the individual material categories and what trends occur with specific materials. Figure H-27 shows the residential/commercial material categories diverted in 2014.



The material categories reported as most recycled in 2014 includes cardboard, ferrous metals, other paper, and yard waste. As shown in Table H-10 these materials have also historically been the most recycled.

Table H-10 Historical Residential/Commercial Materials Diverted per Material Category

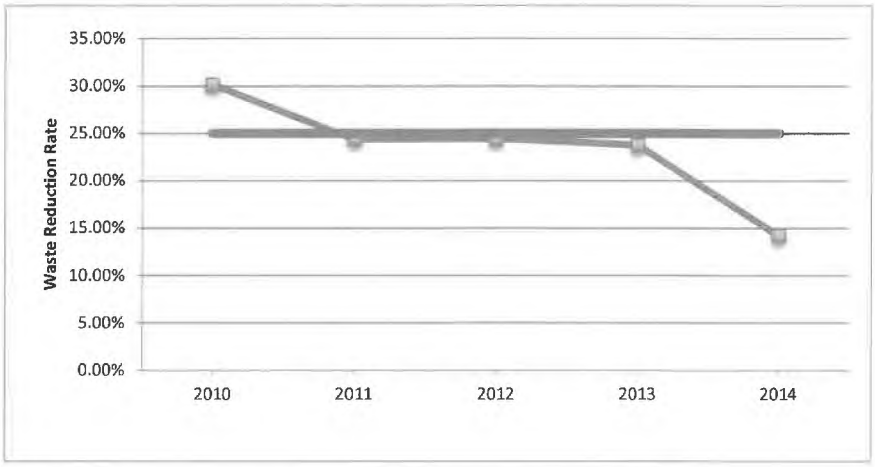
Materials	2008	2009	2010	2011	2012	2013	2014
Standard Recyclables							
Glass	120	120	376	436	555	659	2,466
Ferrous Metals	24,238	25,727	24,361	24,322	22,555	24,138	12,036
Non-Ferrous Metals	1,301	952	1,353	1,323	929	929	855
Corrugated Cardboard	13,929	14,941	17,273	16,292	10,658	12,815	18,357
All Other Paper	30,995	33,029	29,439	30,412	32,442	32,442	8,315
Plastics	580	602	783	612	957	957	2,308
Textiles	0	0	0	581	401	209	400
Wood	4,759	4,759	4,783	4,766	6,519	6,188	3,473
Rubber	0	0	0	0	0	0	0
Commingled Recyclables (Mixed)	10,708	11,276	11,734	12,600	12,689	13,290	1
Subtotal	*86,631*	*91,406*	*90,102*	*91,343*	*87,705*	*91,627*	*48,211*
Organics							
Yard Waste	39,600	12,924	10,320	12,066	9,647	4,853	6,880
Food	56	56	56	56	354	513	1,374
Subtotal	*39,656*	*12,980*	*10,375*	*12,122*	*10,001*	*5,366*	*8,254*
Hard to Recycle							
Appliances/ "White Goods"	77	86	98	74	79	77	1,500
Household Hazardous Waste	83	115	248	201	103	125	105

Materials	2008	2009	2010	2011	2012	2013	2014
Used Motor Oil	132	132	345	345	222	222	248
Electronics	98	179	217	248	187	2,104	26
Scrap Tires	3,456	5,006	3,617	2,844	2,766	4,696	3,392
Dry Cell Batteries	0	0	0	0	0	0	3
Lead-Acid Batteries	143	150	127	131	47	59	152
Other (Aggregated)	341	341	341	352	1,390	1,387	468
Subtotal	*4,330*	*6,010*	*4,992*	*4,195*	*4,792*	*8,669*	*5,894*
Total Tons	130,617	110,397	105,469	107,660	102,498	105,662	62,358

The historical material trend identifies the changes relative to the materials and factors that occurred over time such as:

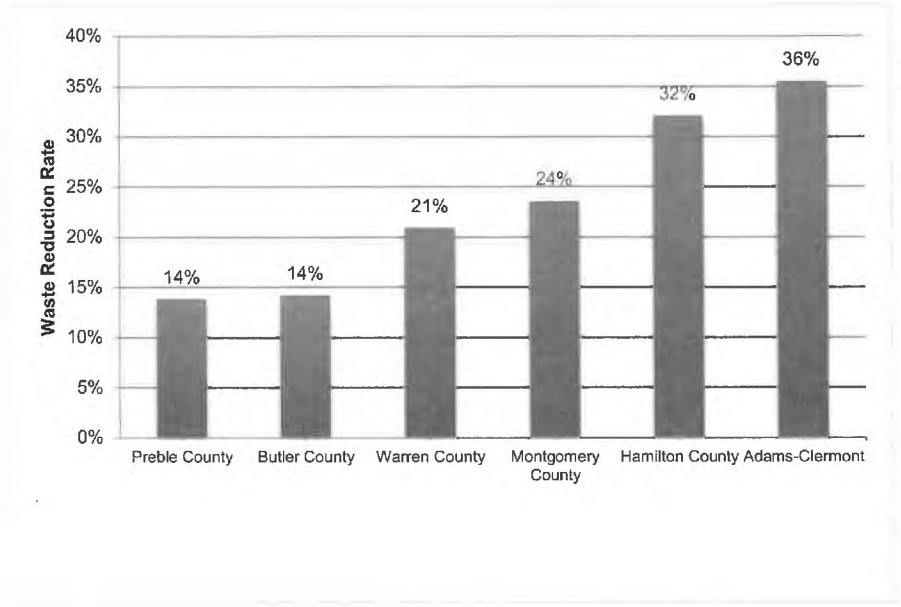
- Decreased recycling tonnage of paper in 2014 in Butler County due to a large warehouse that reported large quantities of recycled paper moved outside of the County.
- Decreased ferrous metal tonnages because one scrap metal recycler reported decreased tonnages and two recyclers did not report updated data.
- Increased cardboard recycling in 2014 because one large chain quadrupled their cardboard recycling, and another store doubled their quantity of recycled cardboard.
- Decreased commingled recycling tonnages because of changes in reporting in 2014. The MRF accepting commingled stream separates by materials based on material throughput.

Based on reported data obtained from surveys, communities, and Ohio EPA, commingled recyclables are largely being captured by the curbside and drop-off recycling programs while paper and cardboard are being captured by commercial businesses and reporting MRFs.



Though SWMD diversion decreased in the last year, there are some positive signs. The SWMD launched a 20 building comprehensive recycling initiative in collaboration with Rumpke Recycling and the Lakota nutrition department at Lakota Local Schools. The program began in August 2014. A recycling program in all cafeterias and classrooms was started for 3 of the Middletown City School buildings. Another recycling push the district is working on is multi-family recycling, especially surrounding Miami University. The district added 11 new apartments for a total of 1,350+ residential units to the recycling program. There are numerous additional opportunities to expand recycling in the district.

Figure H-28 shows the diversion achieved over the past four years in comparison to the State residential/commercial waste diversion goal, represented by the red line. In 2010 the waste reduction rate was above the state's goal. Between 2011 and 2013, the waste reduction rate was right on the state's goal. However, in 2014 the reduction rate dropped below the state's goal.



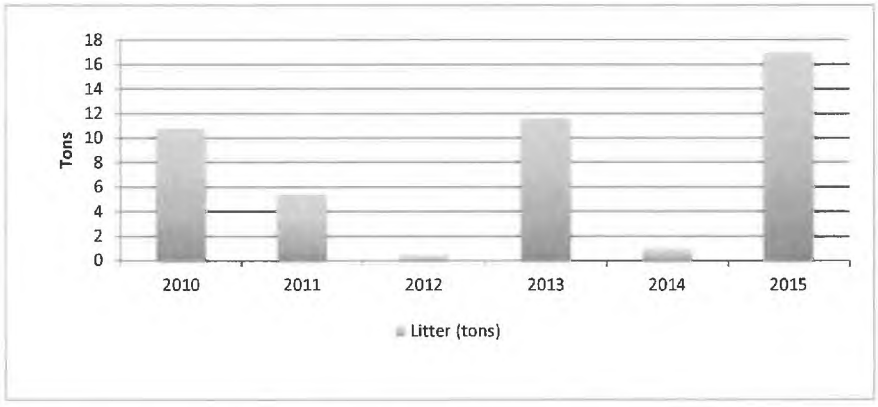
The SWMD's residential/commercial waste reduction rate compared to other regional districts is outlined in Figure H-29.

Nationally, in 2013, the US EPA reported 34.3% (over 87 million tons) was recycled of municipal solid waste generated. (At the time of this report, 2014 US EPA municipal solid waste data was not published.)

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.

Roadside Litter Collection: This program, implemented by the SWMD, began in 2002. Work release prisoners from the county jail conduct collection of roadside litter with supervision by a Butler County Sheriff's deputy. Deputies provide supervision to working inmates. The program operates approximately 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. Research indicates individuals are substantially more likely to litter into dirty or already littered environments than into clean ones (Cialdini, Kallgren, & Reno, 1991; Geller, Witmer, & Tuso, 1977; Herberlein, 1971; and Reiter & Samual, 1980). This strategy helps to reduce litter and keep the community clean. Figure H-30 depicts the tons of litter collected.



The expense related to this line item is for the operation of this program for the SWMD. In 2014 and 2015, expenses were $14,213 and $15,097, respectively. Reductions were made as a result of an internal

analysis of SWMD expenditures compared to waste reduction performance. This program does not meet any of the State Plan Goals and therefore was reduced in funding in 2014.

The SWMD allocated roughly 2 percent of 2015 expenses to Roadside Litter Collection.

Disaster Debris Management: The SWMD helped develop a Disaster Management Plan identifing the services and the needs of the County in the event a debris management emergency or a solid waste management service emergency exists. The SWMD serves as the responsible team for developing the debris management plan and revising periodically. Roles are defined but will only be assigned in the event of a disaster. Team membership includes representation from: SWMD, Butler County EMA, Health Department, Engineer, local officials, Ohio EMA, and Ohio EPA. At a minimum, the SWMD will coordinate disaster plan development and implementation in collaboration with the county EMA.

A comprehensive list of temporary debris management sites has been indicated in the Disaster Management Plan and catalogues a variety of likely waste streams that could occur in the event of a natural or man-made disaster.

9. Financial Analysis

For this analysis, the policy committee evaluates the SWMD's financial position, not just in terms of its current situation but also in terms of the SWMD's financial situation over the course of the planning period.

Revenue Sources

Generation Fee:

In accordance with ORC 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. In 2006, the District adopted, ratified, and implemented a $2.00 per ton generation fee as part of its plan update. In 2013, this fee was decreased to $1.00 per ton then reduced to $0.82 per ton in 2014. Historically generation fees have provided 99 percent of the SWMD's annual funding. The SWMD operates as an administrative pass through for state grant funds. Grant awards are not annual sources of operation revenue and are not guaranteed from year to year. As grant funds do not support SWMD programs or staff, they have been deducted from this analysis.

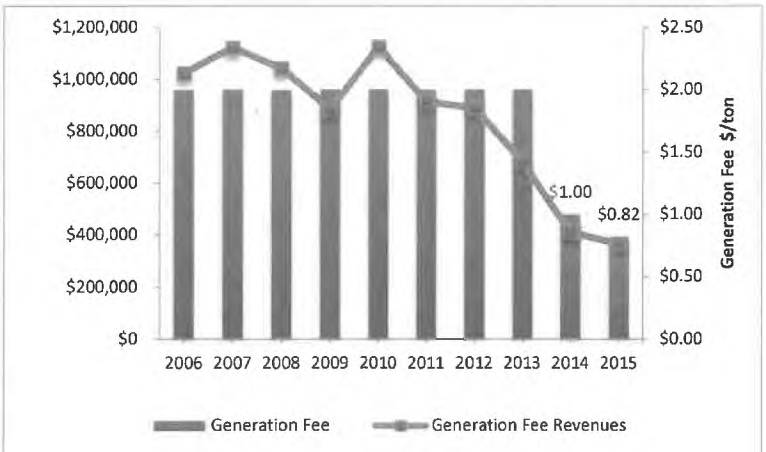


Figure H-31 Historical Generation Fee Revenue

Other Revenue Sources:

From time to time the SWMD receives revenues from refunds, reimbursements, and grants. These funding sources are typically less than 1 percent of annual funding. However, in 2014, one substantial grant was received contributing 24.1 percent of the revenue stream. The market

development grant award provided funding to a recycling processor in Butler County. Discussions regarding grant funds and expenses are excluded from this financial analysis.

Historical Generation Fee Revenue

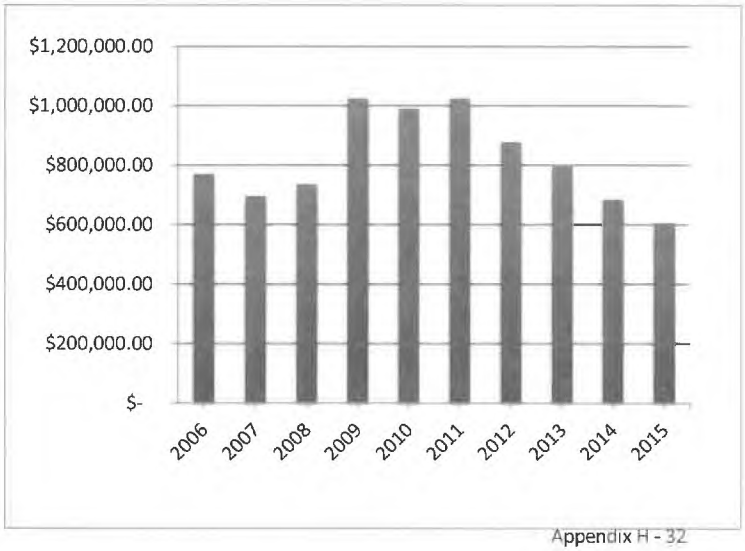
From 2006 to 2012 generation fee revenues provided an average of $1 million in annual revenues as shown in the table and figure below. During this time Butler County had a generation fee of $2.00 per ton and slightly greater disposal tonnages.

Year	Generation Fee Schedule ($ per ton)	Revenue from Generation Fee ($)
2006	$2.00	$1,023,183
2007	$2.00	$1,122,134
2008	$2.00	$1,042,204
2009	$2.00	$882,652
2010	$2.00	$1,123,539
2011	$2.00	$915,741
2012	$2.00	$888,566
2013	$2.00	$681,253
	$1.00	
2014	**$1.00**	***$410,006***
2015	$0.82	$366,621

SWMD funds that were not spent on programming and services accrued to serve as a contingency fund in the event of a waste disposal capacity crisis. At the time of the last Plan Update, Rumpke's permit to expand their existing Colerain Township sanitary landfill was in arbitration and landfill expansion was opposed by Colerain Township zoning authorities. As such, Butler County acted to reserve funds in the event a transfer facility or other waste disposal site would be necessary to develop. Such infrastructure would ensure disposal capacity and a revenue stream for the SWMD. As expansion at Rumpke's Colerain landfill has been resolved capacity concerns have stabilized. The SWMD, Policy Committee, and Board of Directors analyzed the estimated annual operating expenditures to determine the minimum annual budget to support the SWMD's core programs and staffing level. The outcome was a recommendation to lower the generation fee.

Reference Year Revenue Analysis

In 2014, the generation fee at $1.00 per ton netted $410,006 in revenues. Residents, businesses and industries are charged $1.00 per ton equating to a cost of approximately $1.26 per household per year.



With reduced staff and further streamlined operations, supplementary evaluations took place to examine future expenditures and the Policy Committee passed legislation to reduce the generation fee to $0.82 per ton. The fee reduction took effect January 1,

2015. In 2015, the generation fee netted $366,621 in revenues equating to a cost of approximately $1.03 per household per year.

Historical Expenditures

Over the past five years, the SWMD has reduced total spending by almost $419,000. Over this time period the SWMD made changes to the special collection programs and litter collection resulting in significant program savings. However, the greatest cost saving is attributed to reduced staffing.

Reference Year Expenditures

The SWMD's generation fee funds solid waste recycling, reuse, and reduction programs as outlined in the solid waste management plan. Figure H-33 depicts the expenditure distribution categories in 2014 and 2015.

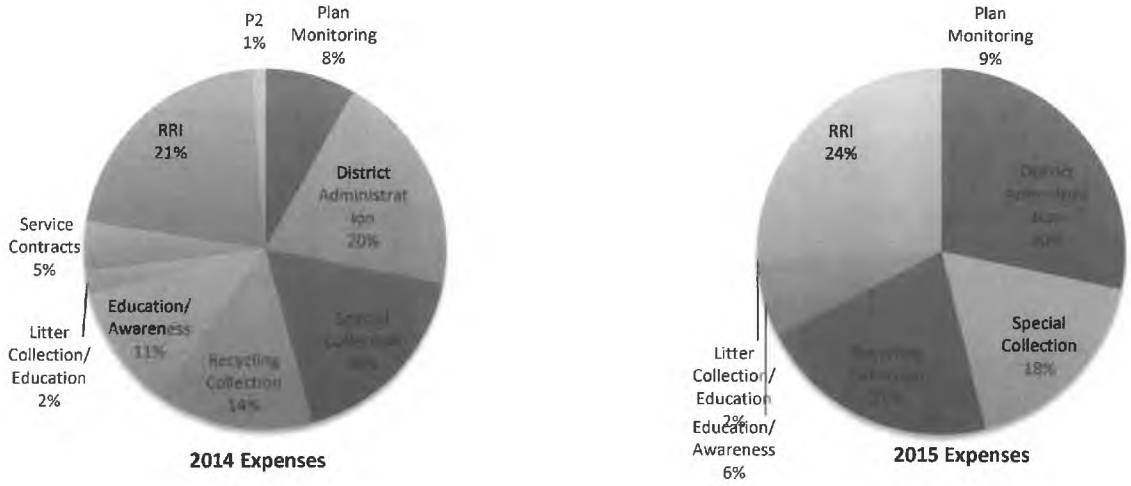


Figure H-33 Expense Distribution in 2014 and 2015

Comparing 2014 to 2015 the program distributions shifted slightly. In both years, the largest expense category is RRI, the Residential Recycling Incentive program. The RRI program, as identified in the 2011 Plan Update, has not resulted in substantial increases of recyclable materials or increased total number of households participating in curbside recycling. Program changes were planned to further incentivize recycling yields but after a few years of implementation, impacts on recycling were incremental and significant gains in recycling were not attained. In order to reduce the SWMD generation fee a second time this program was discontinued. Year 2016 was the first year without expenses allocated to RRI.

Carryover Balance

Figure H-34 shows revenues in comparison to expenses. As revenues decline, the SWMD extracts from the reserve carryover balance to cover the deficit. At the end of 2015, the reserve balance was $1,113,252.60. As observed from Figure H-34, from 2013 to 2015, the reserve fund has declined over $600,000.

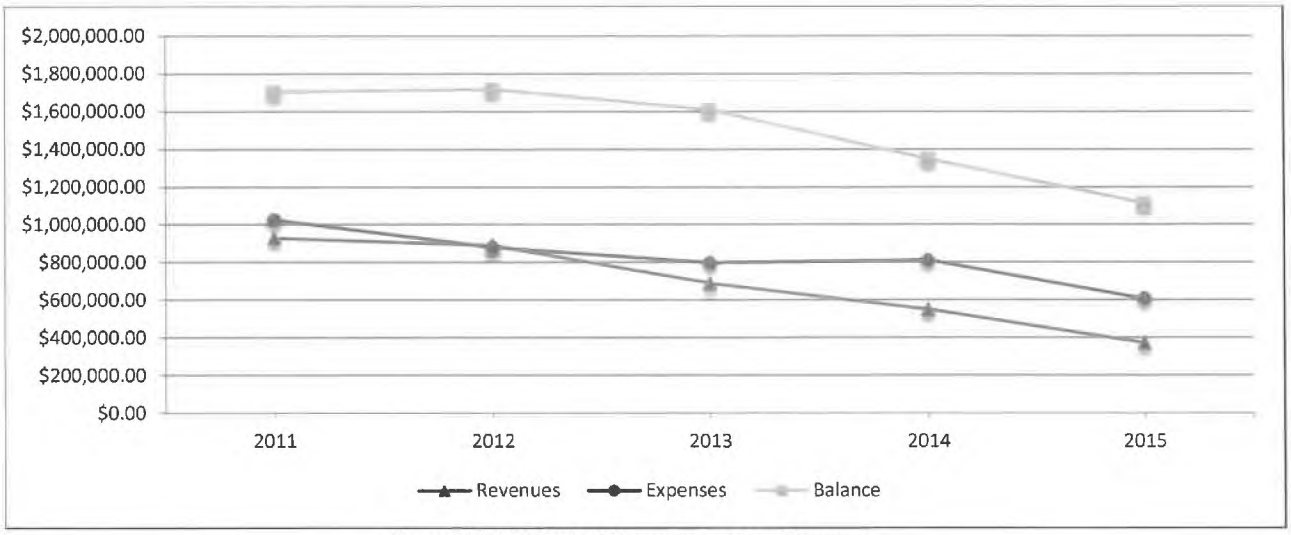
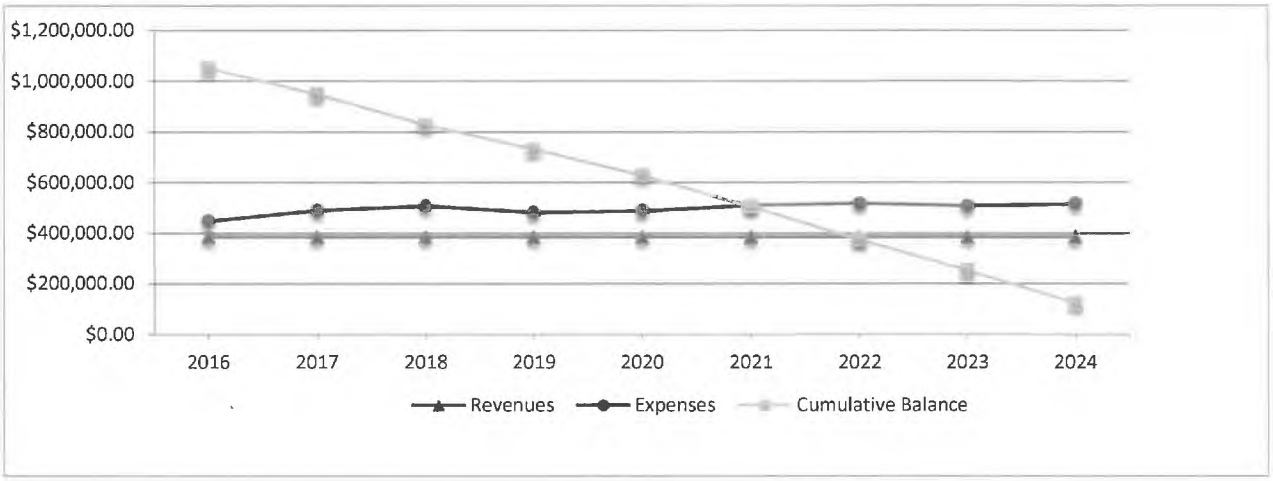


Figure H-34 Historical Revenues versus Expenses
(Includes pass-through grants)

The SWMD is operating at a net average loss of $134,920 annually. If the SWMD were to continue spending its cash balance at some point in calendar year 2021 the SWMD would have only enough funding in reserve to cover one year of staffing and programs/services. From 2023 to 2024 the SWMD will experience a shortfall as depicted in Figure H-35. The chart depicts revenues held constant at 2016 estimated revenues and expenses for planned programming. Year 2016 excludes expenses for the RRI program.



COMPARISON TO OTHER NEIGHBORING SWMD'S

Compared to neighboring solid waste management districts, the per capita revenue and expenses are second lowest in the region. The amount of money spent on programs per resident in the county is $1.61 per year.

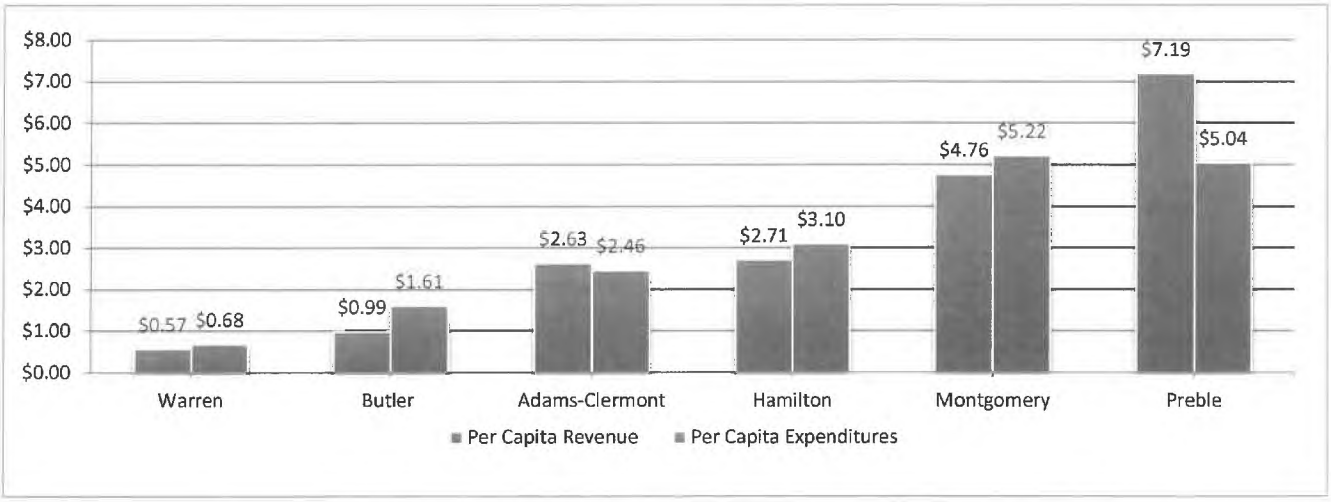


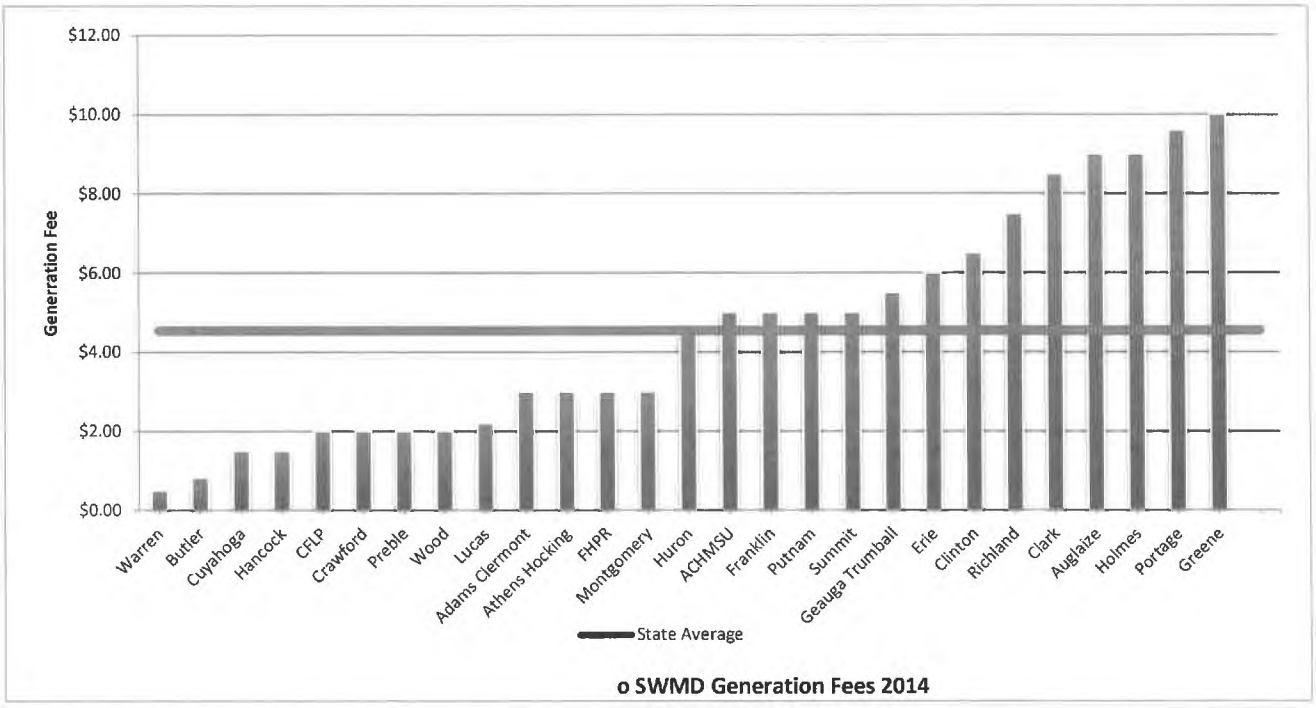
Table H-11 shows reported expenses for residential/commercial recycling programming in neighboring solid waste management districts. Most districts do not expend costs for curbside recycling. Residential curbside recycling is typically not subsidized by local government or SWMD's. If curbside programs are lacking, Districts meet State Recycling Goals by offering recycling community drop-off programs. Costs vary depending on number of containers and frequency of service. Special collection drives are the largest expense for all of the solid waste districts in the region. Special collections focus on tires, HHW, electronics, Freon Appliances and other hard-to-dispose materials.

Table H-11 Annual Reported Expenses for Residential/Commercial Programming 2015

SWMD	Curbside	Drop-off	Special Collections	Yard Waste Programs	Education/Awareness
Warren	$0.00	$0.00	$1,758.81	$0.00	$11,244.26
Butler	$0.00	$81,513.01	$108,043.73	$0.00	$34,290.92
Adams-Clermont	$133,372.08	$90,126.01	$67,555.38	$0.00	$27,157.50
Hamilton	$1,125,653.88	$0.00	$112,996.70	$198,308.53	$67,864.42
Montgomery	$0.00	$32,980.84	$439,638.13	$0.00	$104,554.61
Preble	$79,829.88	$0.00	$48,863.05	$2,286.00	$6,128.46

Source: Solid Waste Management District Fee Summary: 2015, Ohio EPA. Not representative of all SWMD expenses
Notes:
Montgomery County expenses shown are representative of calendar year 2014.
Adams-Clermont and Preble County curbside expenses are curbside/drop-off expenses.
Hamilton County curbside expenses are costs for the Residential Recycling Incentive program.

Figure H-37 depicts the generation fees for Ohio solid waste management districts. Butler County has the second lowest generation fee in the State. The State average is $4.54.



10. Regional Analysis

The purpose of the regional analysis is to consider regional opportunities for collaboration and partnerships, and to also consider how the policy committee's decisions may impact other stakeholders in the region.

Collaboration is a process where people or organizations come together to solve problems with a common goal. Through the process of sharing differing perspectives, experiences and resources we can expand opportunity and improve performance. Collaboration enables decision makers to realize several benefits, including mutual respect for agency/jurisdictional authority, unified efforts, collective support with mutually beneficial financial outcomes. Geographically differing economic challenges, program performance, constituent demands and emerging technologies, issues faced by all Ohio's SWMDs, dictate that regional concepts be explored.

As such, by joining forces and economies of scale, communities have been able to explore best available technologies while implementing projects that individually would have been too expensive to develop for a single entity. Urban, rural plus small and large communities have benefited as costs and volume responsibilities are spread over a larger population of participants while educational, management and purchasing power are shared.

Such successes are seen with the Southwest Ohio Regional Pollution Prevention (P2) Internship. This collaborative partnership with Butler County SWMD, Hamilton County SWMD, Montgomery County SWMD, and TechSolve began in 2008. The program seeks Ohio undergraduate engineering students to serve as temporary contractors for a 12-week summer internship at local manufacturers. The P2 collaboration has placed over 30 interns with over 24 area industries since inception, with collective savings of over 1.8 million.

With the departure of the SWMD environmental educator in 2013, the SWMD partnered with Butler Soil & Water Conservation District, Civic Garden Center, and the OSU Extension office to provide environmental education resources for classroom presentations, contests, etc. to elementary schools. These organizations provide full-time environmental educators to primary school classrooms in Butler County.

Another regional collaboration is the partnership between Colerain, Ross and Springfield townships to bundle trash and recycling services of all three townships under one contract to one service provider. Colerain and Springfield are located in Hamilton County SWMD while Ross is located in Butler SWMD. Contracted combination curbside recycling and trash collection began for all residents in the three contiguous townships in 2016.

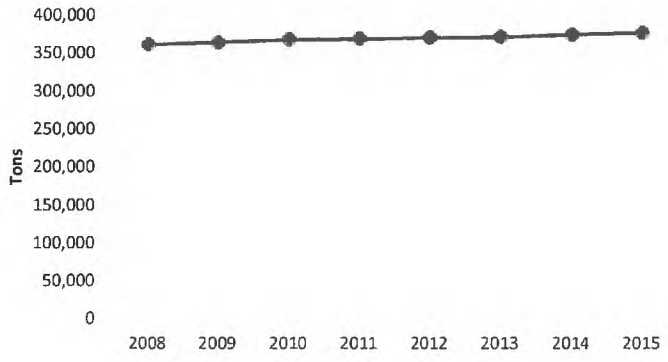
Other identified stakeholders in the region that may have a key interest and involvement in SWMD programs, problems, and solutions.

Potential Stakeholders	Potential Program Collaborations
Neighboring SWMD's (Warren, Hamilton, Preble, and Montgomery)	• Regional HHW collections • Regional E-Waste collections • Continued community contract services across district lines
Neighboring Soil and Water Conservation Districts	• Rain barrel and compost bin sales • Collaborative grants for education/workshops • Collaborative contests
Private service providers (Rumpke, CSI, Best Way Disposal)	• Continued community contract services across district lines • Data/Reporting • Coordinating complementary content on educational campaigns and messaging
Chambers of Commerce	• Resource for additional outreach to businesses • Recognition collaborations • Social media ventures/support • Publication sharing

11. Population Analysis

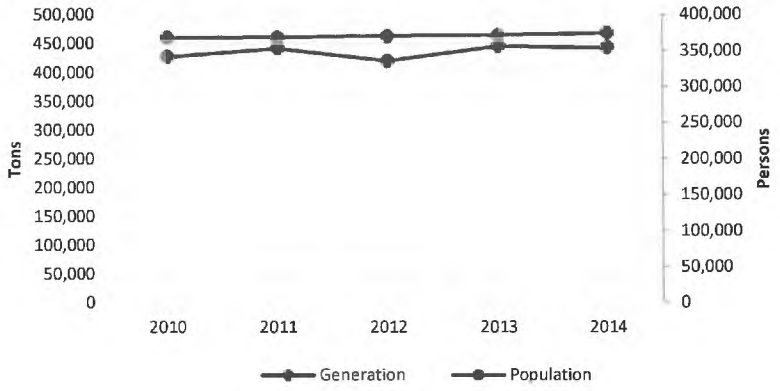
This analysis evaluates whether the population changes will affect the programs.

Population change in Butler County increased over 2 percent from 2010 to 2015 as shown in Figure H-38. Over the same time period in Ohio, the population increased 2 percent. Butler County population growth over this time was about average compared to the state and other counties.



Population over time has had little impact on SWMD's programs, largely in part to the design of the programs. Most of the SWMD's programs are self-sufficient and self-supporting operated almost exclusively by private hauler companies. As shown in Figure H-39, population slowly increased while generation demonstrated minor variation.

Population affects waste generation rates but take into account the contributing factors of population growth: household income, educational attainment levels, people per household, and economic activity. Economic activity and population growth affect household income and household income impacts per capita waste generation; and higher income households tend to produce higher amounts of waste. However, higher income households tend to achieve higher recycling participation rates. These complex factors impact waste generation and dynamically occur over time.



Population is expected to continue to grow over the planning period. The estimated projection is 5 percent and is based on ODSA Planning Research and Strategic Planning Office projected estimates for 2015, 2020, 2025, 2030, and 2035. To determine population estimates between these years, straight-line interpolation was used. To determine an estimate population for 2016, 2017, 2018, and 2019, population for years 2015 and 2020 were averaged over the 5-year time span.

Population projections gauge future demand for services, but in projection calculations there are room for errors because of the difficulty associated with forecasting. As projected by ODSA, population is expected to increase. However, when compared to historical population growth, the projected growth is modest.

12. Data Collection Analysis

This analysis evaluates the SWMDs current data collection efforts and identifies ways to improve its data.

Waste is generated by three sectors: residential, commercial and industrial. Waste source reduced, recycled, composted, incinerated, and disposed are measured to establish a baseline and determine waste generation, and measure recycling rates. Collecting data is challenging due to a variety of factors and takes considerable time and effort to gather and analyze. Issues encountered when surveying include:

- Low participation rates
- SWMD time commitment
- Lack of response
- Survey costs
- Errors in reported values

The data collection process for each sector is described below.

Residential

The SWMD gathers data from service providers and Ohio EPA annual published data. Service providers operate the Curbside recycling, Drop-off recycling, HHW collection, Curbside Freon Appliance collection,

and Scrap Tire collection. Service providers report on a monthly basis to SWMD on recycling activity and weights that occurred within the SWMD.

Commercial

The SWMD gathers data from commercial businesses and Ohio EPA annual published data. Re-TRAC, a web based data management system is used to survey commercial businesses. Businesses surveyed are mailed a cover letter, survey, and postage-paid return envelope. Survey recipients are given the option to submit their completed surveys online, via email, or fax. Approximately two to three follow up requests are sent via e-mail to contacts every two to three weeks. Follow up phone calls are placed to entities if data has not been submitted after receiving the final follow-up request via e-mail. The quantity of follow-up phone calls made to each survey recipient varies on a case-by-case basis. Non-responders are prioritized. Priority has been placed on obtaining responses from entities that have not provided data within the last two surveys and to businesses known to generate significant quantity of recycling and waste.

The SWMD makes an effort to understand how materials are obtained and managed by entities that submit recycling information. To avoid double counting the SWMD strives to identify if there are any materials that might be reported by more than one entity.

The SWMD mailed 1,667 surveys in 2014 and received 85 responses. Mailed surveys had a response rate of approximately 5%. Data responses from calendar year 2013 and 2012 for businesses still operating but non-responding to the calendar year 2014 were used to supplement 2014 data. Surveys from previous years are not included in response rate statistics.

The SWMD's commercial survey response rate historically measures below 6%. An analysis of the source data reveals that 47% of commercial sector data was derived from Ohio EPA, 33% from responding businesses, and 20% from recycling processors (only commercial data was analyzed). This demonstrates Ohio EPA is providing the majority of usable recycling data. It also reveals that only a fraction of commercial businesses surveyed contribute to the recycling data. The challenge of capturing accurate diversion data from businesses is evident after multiple years of surveying using both web-based survey and mailed paper survey options. The low response rate presents an opportunity for the SWMD to evaluate a lower cost method and more strategic approach to capturing data from the largest commercial businesses operating in Butler County.

Industrial

The SWMD 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 SWMD supports the Ohio Recycles Survey, a collaborative statewide recycling survey effort promoted by Ohio's solid waste management districts, the Ohio Council of Retail Merchants, the Ohio Chamber of Commerce, the Ohio Manufacturers' Association, and the Ohio Environmental Protection Agency (Ohio EPA). Businesses have the opportunity to complete the Ohio Recycles Survey online.

The SWMD mailed 399 surveys in 2014 and received 49 responses. Mailed surveys had a response rate of approximately 12%. Data responses from calendar year 2013 and 2012 for businesses still operating but non-responding to the calendar year 2014 were used to supplement the 2014 data. Surveys from previous years are not included in response rate statistics.

13. Processing Capacity Analysis

Both residential and commercial curbside collection and drop-off materials are processed at Rumpke Recycling Facility located in Cincinnati, Rumpke Recycling Facility located in Dayton, and Waste Management's Dayton facility.

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 27 tons per hour. In 2014, the SWMD sent approximately 6 tons of recyclables to the Dayton MRF and 19,609 tons to the Cincinnati MRF.

In addition to Rumpke's services, Waste Management also processes materials originating in the SWMD. During the reference year, 2014, the SWMD sent 77 tons of corrugated cardboard to this facility. However in year 2015 Waste Management closed the Dayton facility. The SWMD is aware Waste Management has made arrangements with Rumpke to accept recyclables.

APPENDIX I: CONCLUSION, PRIORITIES, AND PROGRAM DESCRIPTIONS

A. Conclusions, Actions, and Priorities

1. Conclusions

   Using what the Policy Committee learned from the analyses performed in Appendix H and L a list of conclusions was developed. These conclusions represent what was learned about the SWMD's structure, abilities, operation and existing programs, outstanding needs, and available resources. Identified conclusions include:

Reduce/Reuse/Recovery	• Reuse infrastructure is in place via non-profits and other private outlets. • Opportunities to capitalize on existing infrastructure. • Opportunities to connect the reuse network to consumers; and develop greater awareness of donation outlets. • Opportunities to improve data gathering from reuse entities. • Opportunities to explore and promote food recovery. • Opportunities to develop awareness for re-usable cups/bags, etc. • Emphasis to consumers to purchase only necessary quantities of materials: esp. hazardous items like paints, pesticides, automotive fluids
Education	• Website is a high-traffic, popular one-stop resource for recycling information and education for multiple stakeholders (consumers, businesses, schools). • Opportunities to generate more visitors to the website including through social media and other avenues. • Technical assistance to schools is strong and results in additional recycling programming. • Technical assistance to businesses is impactful and demonstrates measurable results. • Consistent and up-to-date messaging is provided to multiple audiences via direct mail (utility bill inserts, print and digital advertising, press releases, community announcements.) • Opportunity to improve resident perception and favorability for costs associated with curbside recycling. Residents often have inaccurate facts on true costs of recycling and hauler business. • SWMD staff of 2 restrains amount and types of education delivered. • Opportunity for branding as part of the county branding efforts currently underway. • Opportunities for regional partnerships to expand messaging about recycling. • Marketing costs to educate and change behavior can be high.

Recycling and Composting	• Minimal generation fees are important but may hinder programming. • Many residents with curbside service have curbside carts resulting in high yields of material. • Curbside recycling tonnages continue to show growth annually. • Residents and businesses incur costs to recycle; often this is a deterrent to signing up for service. • Multi-family housing is underserved and has opportunities to increase program services. • Drop-off programming costs are expensive for SWMD, and increase each year. • Some drop-off recycling locations are prone to misuse for trash disposal; further increasing costs to SWMD. • Approximately 16% of SWMD budget support drop-off recycling. • Composting infrastructure in SW Ohio is limited. Many barriers and challenges to composting food and organics with current infrastructure.
Special Programming	• HHW collection is convenient with semi-permanent availability and provides an opportunity at no additional resident cost. • Retailers and scrap yards provide E-waste outlets but charge user fees and/or accept limited materials. E-waste is likely being landfilled when consumer have no convenient, low cost options. • Opportunities to offer e-waste recycling at no cost to residents/consumers. • Curbside Freon Appliance Collection is convenient and provided on a long-term basis. • Scrap tire collection provides an opportunity for residents to recycle tires at no additional cost; thereby helping to keep tires from being illegally dumped. • Large quantities of obsolete e-waste and scrap tires are challenging issues for a county SWMD to cost effectively manage with limited resources. • Southwest Ohio Pollution Prevention (P2) Internship Program demonstrates effective regional collaboration among three southwest Ohio solid waste districts with excellent metrics and savings derived for industrial partners participating in the program. • Opportunities to educate on reducing the purchase of harmful and hazardous materials and their proper management/disposal.

2. Actions

Based on these conclusions the Policy Committee has made a list of actions for consideration, including programs the SWMD could implement, among other strategies. Including an item on the list does not mean the Policy Committee has committed the SWMD to undertake every strategy. The goal of compiling a list is to provide the SWMD with a comprehensive summary of proposed ideas.

- Collaborate with political jurisdictions to increase community participation in curbside recycling.
- Develop a focused outreach campaign in three largest townships to increase curbside recycling participation.
- Promote countywide non-subscription curbside recycling to help meet Access goal.
- Continue to implement drop-off program to meet Access goal.
- Provide technical assistance to multi-family buildings to contract for recycling services.
- Provide start-up funding assistance to multi-family establishments to implement recycling services.
- Develop a multi-level targeted public awareness education plan on reducing, reusing, and recycling.
- Modify commercial sector data surveys to achieve better response.
- Continue to provide technical assistance to businesses and institutions to implement recycling services.
- Explore SWMD branding as part of the county's branding efforts, currently underway.
- Explore compost infrastructure, investment need, capital costs, and community need.
- Dedicate efforts to develop regional partnerships for education and marketing campaigns regarding recycling.
- Dedicate efforts to bring reuse retailers together to create an in-district network.
- Utilize more social media outlets to reach additional audiences.
- Develop outreach campaign targeted to residents on food waste diversion.
- Provide a voucher system to offer subsidized E-waste recycling opportunities.
- Continue to offer Curbside Freon Appliance recycling collection.
- Continue to offer HHW semi-permanent collection.
- Continue to offer once a year Scrap Tire collection.
- Seek other funding sources for Scrap Tire collection event.
- Implement user fee charges at scrap tire collection event for tires over the (10) tire limit.
- Continue the SW Ohio Pollution Prevention (P2) Internship Program.

3. Priorities
   After evaluating the list of conclusions, programs and strategies were developed as presented in this Section and in Appendix I. Priorities are to keep the generation fee at the minimum level needed to provide sufficient funding for programming planned. The SWMD 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.

B. Programs

Residential Recycling Programs

ID	Name	Start Date	End Date	Goal(s)
NSC 1 - 6	Non-Subscription Curbside Recycling	2016	Ongoing	1 and 2

In 2014 six cities had a non-subscription curbside recycling program. These political jurisdictions include:

- SC 1 - Fairfield City
- SC 2 - Hamilton City
- SC 5 - Oxford City
- SC 6 - Trenton City

- SC 3 - Middletown City
- SC 4 - Monroe City
- SC 7 - Ross Township (added in 2016)

In May 2015, combination trash and recycling service was competitively bid as part of a joint township contract opportunity for Colerain, Ross, and Springfield Townships. These townships collectively bidding are able to provide costs savings to residents while securing additional services. A unique aspect of this arrangement is that while the three townships are contiguous they are not located within the same solid waste district. Ross Township is located in Butler County while the remaining townships are in Hamilton County. The jointly bid contract is scheduled to begin in 2016 and will add non-subscription curbside recycling to approximately 3,316 additional households in Butler County.

In 2014, all curbside materials were collected single stream (commingled) with either a bin or cart-based system. The standard recyclables collected in 2014 were: paper, cardboard, plastic bottles and jugs, metal, and glass. The SWMD expects these materials to be collected throughout the remainder of the planning period, yet markets guide the materials collected.

ID	Name	Start Date	End Date	Goal(s)
SC 1 - 7	Subscription Curbside Recycling	1995	Ongoing	1 and 2

In 2014 six townships had a subscription curbside recycling program. These political jurisdictions include:

- NSC 1 - Fairfield Township
- NSC 2 - Hanover Township
- NSC 3 - Liberty Township
- NSC 4 - Morgan Township
- Ross Township (changed to non-subscription in 2016)
- NSC 6- West Chester Township

In 2016, Ross Township's curbside program will become non-subscription curbside. All single-family homes will receive curbside carts to use for weekly recycling collection. This will give the SWMD five townships with subscription curbside service.

In 2014, all curbside materials were collected single stream (commingled) with either a bin or cart-based system. The standard recyclables collected in 2014 were: paper, cardboard, plastic bottles and jugs, metal, and glass. The SWMD expects these materials to be collected throughout the remainder of the planning period, yet markets guide the materials collected.

ID	Name	Start Date	End Date	Goal(s)
FTR 1 - 6	Full-Time Rural Drop-off	Ongoing	Ongoing	1 and 2

Open to the public 24/7 and capturing 324 tons of commingled recyclable material in 2014, rural locations have at least two 8-cubic yard dumpsters serviced as needed. The SWMD directly contracts with a private hauler to provide and service the rural drop-off locations. The SWMD contract costs include processing, transportation, and any other management related costs of operating the drop-off locations. The SWMD coordinates placement of drop-offs with hosting community or private sector entity.

- FTR 1 – Milford Township, Darrtown Hitching Post
- FTR 2 – Milford Township, Maintenance Building
- FTR 3 – Reily Township, Community Center
- FTR 4 – Ross Township, Police and Road Maintenance Building
- FTR 5 – Wayne Township, Maintenance Building
- FTR 6 – Seven Mile, Fire Station (added in 2015)

The standard recyclables collected in 2014 were: paper, cardboard, plastic bottles and jugs, metal, and glass. The SWMD expects these materials to be collected throughout the remainder of the planning period, yet markets guide the materials collected.

ID	Name	Start Date	End Date	Goal(s)
FTU 1 - 28	Full-Time Urban Drop-off	Ongoing	Ongoing	1 and 2

Open to the public 24/7 and capturing 1,418 tons of commingled recyclable material in 2014. Urban locations have at least two 8-cubic yard dumpsters serviced as needed. The SWMD 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 SWMD contract costs include processing, transportation, and any other management related costs of operating the drop-off locations. The SWMD coordinates placement of drop-offs with hosting community or private sector entity.

- FTU 1 - Fairfield City, Community Arts Center
- FTU 2 - Fairfield City, Fairfield Aquatic Center
- FTU 3 - Fairfield City, Grange Park
- Fairfield City, Point Pleasant Park (removed in 2015)
- FTU 4 - Fairfield City, Water Works Park
- Fairfield Township, Butler Tech. (removed in 2016)
- FTU 5 - Fairfield Township, Fire Station No. 2
- FTU 6 - Fairfield Township, Police Station at Shaefer Park
- FTU 7 - Hamilton City, Fire Station No. 1
- FTU 8 - Hamilton City, Fire Station No. 2
- FTU 9 - Hamilton City, Fire Station No. 5
- FTU 10 - Hanover Township, Memorial Park, Mormon Rd
- FTU 11 - Hanover Township, Southwest Regional Water District
- FTU 12 - Liberty Township, Dudley Park
- FTU 13 - Liberty Township, Fire Station No. 2
- FTU 14 - Liberty Township, Fire Station No. 3
- FTU 15 - Liberty Township, Township Administration Building now called Community Meeting Center
- FTU 16 - Madison Township, Poast Town Fire Station
- FTU 17 - Madison Township, Township Administration Building
- FTU 18 - Middletown City, Smith Park (added in 2015)
- FTU 19 - Middletown City, Fire Station HQ (added in 2015)
- FTU 20 - Middletown City, Fire Station No. 5 (added in 2015)
- FTU 21 - Middletown City, BeauVerre Downtown (added in 2016)
- FTU 22 - Morgan Township, Administration Building
- FTU 23 - Morgan Township, Shandon Fire Station
- FTU 24 - Oxford City, Oxford West Apartments
- FTU 25 - Oxford City, Miami University Police Station
- FTU 26 - Oxford City, Miami University Culinary Support Center
- FTU 27 - St. Clair Township, Administration Building
- FTU 28 - West Chester Township, Beckett Park
- FTU 29 - West Chester Township, Keehner Park
- FTU 30 - West Chester Township, Voice of America Park

The standard recyclables collected in 2014 were: paper, cardboard, plastic bottles and jugs, metal, and glass. The SWMD expects these materials to be collected throughout the remainder of the planning period, yet markets guide the materials collected.

ID	Name	Start Date	End Date	Goal(s)
ODO	Abitibi	ongoing	2015	1 and 2

In 2014 and prior, Abitibi Consolidated, Inc. provided and serviced 102 paper only drop-off containers in Butler County. The program was originally operated as a fundraiser for participating entities. Abitibi provided market share revenues based on volume of material collected. In 2015, Abitibi abruptly ceased operations in Southwest Ohio. The SWMD was uncertain of the impacts this would bring to the infrastructure and participating entities and began targeting participating schools to demonstrate benefits and cost savings of maintaining a recycling program. Fortunately businesses and schools wanted to continue recycling and retained recycling services with Rumpke. The new contract agreements also expanded materials to include cardboard, plastic bottles and jugs, metal, and glass.

Commercial/Institutional Source Reduction and Recycling Programs

Name	Start Date	End Date	Goal(s)
Business Recognition Program	Ongoing	2016	4

The SWMD participated in the Green Umbrella regional consortium to recognize businesses/industries who exemplify excellence in waste reduction, and develops strategies and resources to promote waste reduction initiatives to businesses throughout the tri-state. Recognition for businesses achieving waste diversion was accomplished primarily by recognizing those industries participating in the Southwest Ohio Pollution Prevention (P2) Program. As the SWMD has struggled with obtaining reliable metrics from industrial survey outreach, the business recognition program has not been fulfilled as planned. The recognition program will not continue into the planning period.

Name	Start Date	End Date	Goal(s)
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. The SWMD has been focusing 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.

Businesses

In 2013, the SWMD targeted three adjacent commercial properties to share recycling services. After provision of technical assistance the properties, home to multiple tenants, began sharing a single stream recycling dumpster. The SWMD partnered with Ohio EPA, Miami University's Institute of Sustainability and the Environment, and the City of Oxford to determine areas of greatest need for glass recycling; and the District provided additional recycling resources for recycling glass to multi-family housing, bars and restaurants.

Similarly, in 2014, the SWMD targeted one large commercial property with multiple tenants. After meetings and assessments the tenants (featuring 2 restaurants, 3 clothes retailers and a gift shop) began sharing a single stream recycling dumpster.

In 2015, the SWMD focused its outreach on 3 strip malls located in Trenton, Hamilton, and West Chester (locations included high volume restaurants, daycare facility, hair salons, and pizza franchises) and was successful in implementing shared recycling dumpster service. In addition, an office complex in West Chester also signed up for recycling. The SWMD provided technical support to the property owners; customized recycling signage/posters for multiple businesses, and distributed collection containers.

Success is attributed to the SWMD's outreach approach of building the relationship with the landlord/property management and tenants as well as provision of information, technical support, recycling posters, and recycling totes. Key information and technical support identifies cost barriers that are often mitigated by reducing the frequency of trash collection, which results in lower trash fees.

Institutions

The SWMD provides technical assistance to schools and will provide financial assistance for in-school use recycling containers and informational posters, customized for each building. In 2014, on-site waste audits were conducted at 6 businesses, 2 manufacturers, Lakota and Middletown City School Districts, and Sacred Heart Elementary School.

The SWMD and Rumpke Recycling worked with Lakota Local School (nutrition department and building maintenance) to implement a school district wide recycling program for all classrooms and cafeterias. The SWMD provided classroom and cafeteria recycling containers for paper, plastic bottles, cartons, cans, and cardboard to all elementary, junior school and high school buildings. This program was expanded to the two high school stadiums. A recycling program was also launched at Middletown City School District for one elementary, one middle, and one high school and expanded to the one high school stadium.

In 2015, the SWMD assisted Edgewood High School, Middle School, and Seven Mile Elementary with setting up classroom and cafeteria recycling with help from teacher and students in Future Farmers of America (FFA). Monroe Junior Senior High School launched a new recycling program in fall 2015 with technical support and collection containers supplied by SWMD. The school recycling programs collect the common suite of materials (paper, glass, plastic bottles and jugs, metals, cardboard, and cartons).

Strengths:

- SWMD provides technical assistance to businesses and institutions free of charge.
- Businesses/institutions gain greater waste management understanding.
- Businesses/institutions often reduce their trash disposal cost.
- SWMD adopts promotion of recycling and waste reduction materials to the institution/business environment and to the particular audience being served.

Weaknesses:

- SWMD staff consists of two employees, and thereby limits the scale of outreach to institutions/businesses and schools.
- Businesses/institutions are not always responsive.

Technical assistance to area businesses, institutions, and industries includes performing waste assessments, waste audits and assistance in establishing effective recycling programs will continue through the planning period. The SWMD will identify and contact at least 5 businesses utilizing brokers for recycling in attempts to capture additional recycling data.

Name	Start Date	End Date	Goal(s)
Commercial Business Cooperative	2012	2016	

This program is the same as Commercial/Industrial Technical Assistance.

Name	Start Date	End Date	Goal(s)
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 2013, Montgomery County SWMD joined the Southwest Ohio P2 Program adding strength to the regional collaboration between Hamilton and Butler Counties. Past interns include students from Miami University, The Ohio State University, Ohio University, University of Dayton, Purdue University and University of Kentucky. Past Butler County industry partners include Hamilton Caster, Deceuninck, MillerCoors, Skyline, Valeo Climate Control, Tedia, and Synergy Flavors.

In Fall 2015, Butler County led the effort to develop new marketing tools to recruit industry partners for the 3 county area showcasing the environmental benefits and cost saving metrics derived to participating industries.

Strengths:

- Over $1.8 million in annual savings to participating P2 partner industries.
- Businesses gain skilled assistance at very low cost.
- Builds network of industries with ties to local solid waste districts.
- Builds regional capacity and expertise in Pollution Prevention.
- Provides hands-on professional experience to undergraduate student interns.
- Highly qualified P2 interns have been hired by major industries in Ohio due in part to their P2 experience.

Weaknesses:

- Short time frame to accomplish projects that can be complex.
- Industries often lack time and personnel to oversee and supervise a student intern.

The Southwest Ohio P2 program will continue through the planning period. The 3 joining SWMD's fund approximately 75 percent of the internship and the host companies match 25 percent. Additional money is budgeted beginning in 2017 in hopes additional internships may be awarded.

Name	Start Date	End Date	Goal(s)
County Office Recycling Program	Ongoing	Ongoing	2

Office paper, mixed paper, cardboard and other recyclables were 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, and recycling of paper, and enlisting the evening cleaning crew with capturing common recyclables from breakrooms, conference rooms and common gathering points in county buildings.

The SWMD 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 SWMD 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 SWMD contracts with a private sector hauler to transport and process the recyclables.

Quantities increased up to 86 tons in 2014 from 56 tons in 2013.

Strengths:

- Recycling opportunities are standardized and provided to all county agencies and offices.
- Secure management of confidential documents minimizes liability for county.
- Reduction in waste collection costs.

Weaknesses:

- Rising costs to operate program.

Recycling will continue to be available to county offices, buildings and courts through contracts managed by the SWMD. The SWMD will annually review the infrastructure and contracts to provide best and most economically effective program.

Name	Start Date	End Date	Goal(s)
Multi-Family Housing Cooperative	2012	Ongoing	2

Ohio EPA offered assistance with funding some cost of start-up recycling service for apartments as part of the state of Ohio's Glass Recycling Initiative in 2013. The SWMD utilized this assistance to contact Oxford area apartment communities to increase access to recycling and capture more glass for recycling in Ohio. The SWMD met with property managers from 6 apartment communities in December 2013 and developed plans to launch recycling service in January 2014. In 2014, the SWMD continued its outreach to multifamily communities targeting primarily the Oxford area and Miami University students. In total the District enlisted 12 new apartment communities in Oxford, and 1 in Hamilton. These apartments represent 1350+ residential units. 1700 custom flyers were printed and distributed at these locations. In 2015, support of the 12 large apartment communities continued in Oxford with flyers and recycling information for Miami student residents at the start of the academic year (Fall 2015). The SWMD has worked every year since 2011 with Miami's Office of Community Engagement to supply 1600 Recycle Right flyers to students living off campus, in single family rented housing.

Strengths:

- By working with multi-family housing, the District reaches a large captive audience with recycling services.
- Opportunity to work with property managers to educate apartment residents through established management communication methods (newsletters, email blasts, social media).
- Significant quantities of diverted materials can be realized at multi-family communities.

Weaknesses:

- Continued outreach is needed to keep participants active with resident turnover each academic year.
- Housing landlords and/or property managers are not always responsive.
- On-site infrastructure challenges: insufficient space for additional dumpsters, placement for recycling totes for residents, etc.

Multi-family housing will continue to be a priority for the SWMD. Every other year the District will identify a target community or complex to begin recycling services. West Chester, which is experiencing significant growth in multi-family housing development, Middletown, and Fairfield are next target areas. Outreach strategies will be fulfilled in these target markets.

Name	Start Date	End Date	Goal(s)
Special Event Recycling	Ongoing	Ongoing	2

The SWMD loans collection containers for special events for recycling beverage bottles and cans.

In 2013, the SWMD partnered with local organizations to provide recycling containers to 12 community events (January through July). With the retirement of the Recycling Tech recycling collection units were allocated to the following local organizations on a permanent basis for use at ongoing events and festivals: Hospice of Hamilton, Sacred Heart School (Fairfield), St. Ann's (Hamilton), St. John the Evangelist (West Chester), Village of Seven Mile.

In 2014, the SWMD partnered with local organizations to loan recycling collection containers to 4 community events including Greater Hamilton Chamber Business Expo, West Chester Chamber, Shandon's Christmas in the Country, and Rotary Revels community theater. The SWMD installed permanent recycling containers at 2 Butler Metro Parks: Rentschler Park and Voice of America. Signage was produced for these units.

In 2015, the SWMD continued to supply recycling containers to local organizations for special events, including MetroParks of Butler County, Izaak Walton Lodge Family Fun Dayz, Shandon Strawberry Festival, Hamilton Earth Day Festival, Butler County Fair, Middletown Earth Day Celebration, and Hamilton Chamber Business Expo.

Strengths:
- Recycling opportunity for special events where recyclable materials are often substantial.
- Outreach with new audiences.
- Grown to provide permanent use containers when organizations have proven to be committed to managing the material.
- All organizations (government, non-profit, schools) have the opportunity to take advantage of this program.

Weaknesses:
- Event organizers must contact the SWMD to request containers.
- The SWMD cannot oversee results or supervise recycling activity
- High contamination of recycling with trash material

The SWMD will encourage organizations to consider recycling at high attendance community events. 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 SWMD can potentially assist

with these services in terms of grant funding for service cost, recycling signage, and advising on suitable set up.

Restricted/Difficult to Manage Waste Programs

Name	Start Date	End Date	Goal(s)
Curbside Freon Appliance Collection	Ongoing	Ongoing	1 and 2

Curbside Freon Appliance collection is an "on-demand" service where Freon is evacuated from the appliance and the unit is removed from the curb, or driveway of residents' homes at no charge. Appliances recycled through the curbside appliance collection include: refrigerators, freezers, dehumidifiers, and air conditioners. Service is available seven months (April – October) of the year with a limit of 2 like appliances per each household. The SWMD contracts with a recycler to manage the appliances.

Name	Start Date	End Date	Goal(s)
Household Hazardous Waste Management Program	1994	Ongoing	2 and 5

The SWMD has historically offered Household Hazardous Waste (HHW) drop off programs since before 2007. Collection is available at least 4 consecutive months a year for one day a week. Factors such as cost, contractor, and terms affect the availability. The SWMD provides convenience to working families by offering later operational hours. In 2014, collection was available every Thursday for 6 months (May thru October). Service was shortened to 5 months in 2015. See Appendix H for program analysis results.

The SWMD will continue to offer a semi-permanent HHW drop off option for residents. The SWMD will also continue to monitor the collection data for participation, tonnages, and costs. In addition, the SWMD will think more broadly about HHW and will develop plans to reduce future generation of HHW through source-reduction efforts and behavior change. This will be addressed in the education and outreach programs.

Name	Start Date	End Date	Goal(s)
Lead-Acid Battery Information	1994	Ongoing	2 and 5

Locations where residents may dispose of lead-acid batteries are listed on the SWMD's web page.

Name	Start Date	End Date	Goal(s)
Scrap Tire Collection Program	1995	Ongoing	2 and 5

Locations that accept waste tires are listed on the SWMD's web page. In addition, the District provides a one day Waste Tire Amnesty Day for residents to dispose of unwanted tires at no charge.

Name	Start Date	End Date	Goal(s)
Electronics Program	2018	Ongoing	2 and 5

The SWMD maintains a list of outlets that accept E-waste and distributes information to residents. Each location varies as to the type of E-waste accepted and user fees charged. The SWMD is exploring options to help residents properly manage E-waste. In 2018, the SWMD is budgeting funds to implement a voucher program. Vouchers will be used to cover expenses for residents to recycle E-waste at a local scrap recycler. Details need to be finalized but the SWMD envisions residents delivering E-waste to the scrap recycler at a per unit cost to be paid by SWMD, the District will set a "not to exceed" contract limit to be observed by the processor. The scrap recycler would invoice the SWMD for the E-waste processing up to the set limit. The program would operate on a "first come, first served" basis and would be available until the set limit is reached. If vouchers run out, residents would still be able to use the outlet but would incur a user fee.

Name	Start Date	End Date	Goal(s)
Food Waste Management Program	2011	2016	2 and 5

In 2013, the SWMD launched a composting program at Wilson Middle School (Hamilton City Schools) in January with the goal of capturing all food and paper waste, in addition to recycling collection, from 800+ daily meals. The result was a 70% diversion rate, with 24.5 tons of material diverted as compost. Unfortunately this program encountered several challenges due to increasing costs associated with the service. Diminishing local infrastructure drove prices beyond expected budget costs. Costs for commercial composting now exceeds trash removal costs and makes diverting food waste in southwest Ohio economically impractical. As a result many business and schools have suspended their food waste diversion activities.

Costs to develop infrastructure to process food waste composting in-district is a responsibility the SWMD is not able to address at this time. The SWMD will continue to support infrastructure development by providing education when requested. The SWMD will utilize existing education resources to promote food waste reduction through source-reduction efforts and behavior change. A food waste content page will be added to the SWMD website to depict the Food Waste Hierarchy and link to US EPA's Food Recovery Challenge.

Name	Start Date	End Date	Goal(s)
Yard Waste Collection from Municipalities/Private Haulers	Ongoing	Ongoing	2 and 5

Yard waste management is decentralized. The SWMD does not fund or operate yard waste management collection or facilities. Haulers in the SWMD 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 SWMD actively promotes the curbside leaf collection program and the collection schedule to communities with access to those convenient curbside programs. There are 4 in-district registered compost facilities. All four of these are public sector owned facilities and are not available for public use. Processing of yard waste is the responsibility of registered compost facility owners.

The SWMD's website guides residents to the city, village, and township websites for information about their programs.

Grant Programs

Name	Start Date	End Date	Goal(s)
Business and Institutional Grant Program (previously called 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 SWMD 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 2013, a total of $7,232 in recycling grants was awarded to 3 schools, 3 non-profit organizations, and 1 private enterprise.

In 2014, a total of $6,842 in recycling grants was awarded to manufacturer Iwata Bolt and Mother Teresa Elementary School. Technical support and funding assistance to 10 area bars/restaurants for provision of collection containers and start up recycling service cost was provided in the amount of $4,964.

In 2015, the SWMD provided $2,500 in grant support to ShareFest, a non-profit, which provides transportation and volunteers serving 42 Miami University residence halls, apartments, and rental houses throughout Oxford at the end of Spring semester to capture usable items (furniture, clothing, housewares). Material is sorted and distributed to partner agencies such as Butler County Children's Services, YWCA, Goodwill, and Habitat for Humanity. ShareFest activity resulted in a record 59 tons of goods captured for reuse. In 2015, $7,730 supported residential recycling services for twelve months at 12 multifamily apartment communities and $7,284 supported glass and commingled recycling at 9 bars and restaurants throughout Butler County

Strengths:

- Expands recycling.
- Provides financial incentive to start up or enhance programs.
- Presents additional opportunity for outreach to businesses when incentives are available.

Weaknesses:

- Accountability from grant recipients.
- Long-term commitment.

Business Recycling Grants will continue to be offered annually, as long as funding permits. Grant funding will also be earmarked for Townships to provide "No Littering" signs on roadways. In 2004, the SWMD pursued and was awarded state funding for litter prevention signs and will explore this opportunity in this planning period.

Name	Start Date	End Date	Goal(s)
Curbside Recycling Creation/Enhancement Grant	2011	2015	1 and 2

Curbside Recycling Creation/Enhancement Grants created incentives for communities to enhance their residential recycling performance. Communities are rewarded for either creating new curbside collection programs or upgrading their current system of solid waste collection and recycling.

Several large jurisdictions (cities of Hamilton, Monroe, Fairfield) rolled out cart based recycling containers for all residential households, resulting in higher yields of recyclable material and the potential to garner higher rewards from the Residential Recycling Incentive Program. In 2014 and 2015 the SWMD conducted numerous presentations to political jurisdictions regarding benefits of Pay As You Throw (PAYT) trash collection. In such programs, residents are limited in the amount of trash collected for weekly disposal but there is unlimited recycling collection. The intent was to incentivize residents to throw away less material, maximize recycling and save residents money. In spite of offering a one-time grant up to $50,000 to communities the District could not gather interest. The biggest challenge is convincing stakeholders to change the current model for trash and recycling collection. The Curbside Recycling Creation/Enhancement Grant program was suspended in 2015.

Name	Start Date	End Date	Goal(s)
Residential Recycling Incentive Program (RRI)	2008	2015	2

In 2013, 2014, and 2015 a total of $159,141, $149,579, and $145,591 was awarded, respectively, to area political subdivisions based on recycling tonnage collected through curbside and drop boxes. The SWMD continued its promotion of the program through its website, flyers and communications to elected officials.

The 2010 Plan Update determined the RRI program was not producing the desired results of significantly increasing recycling. It called for developing a set of financial incentive tiers – to award the top performing recycling communities with greater financial incentives than the lowest performing communities. This multi-tiered system of reward was implemented in the Plan from 2011-2014. With the solid waste generation fee reduced from $2.00/ton to $0.82/ton in 2014, the RRI program was eliminated effective 2015. The District could demonstrate only incremental improvements in residential recycling yields over 5 years, and with lower revenues the District cancelled the program. The SWMD continues to maintain a "scorecard" to keep local jurisdictions apprised of their residential recycling performance, and to track countywide recycling diversion. The scorecard will be part of the education and outreach program moving into the planning period.

Market Development Programs

Name	Start Date	End Date	Goal(s)
None			

The SWMD will continue to promote recycling markets through a variety of education and awareness activities, grant applications and direct market support. The SWMD does not have a specific program for market development activities. In 2014, the SWMD applied for and was awarded a market development grant in the amount of $250,000 to support the purchase of specialized equipment for Cohen in

Middletown. Funds were used to expand the E-waste recycling operation and support the addition of at least (6) full-time employees as part of the expansion.

Other Programs

Name	Start Date	End Date	Goal(s)
Roadside Litter Collection	Ongoing	Ongoing	n/a

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 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's Department also helps support the SWMD'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. In 2014, the roadside litter collection program covered 242 miles of roadsides and parks resulting in 17 tons of litter.

Name	Start Date	End Date	Goal(s)
Disaster Debris Management	2014	Ongoing	n/a

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 SWMD 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.

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

Name	Start Date	End Date	Goal(s)
Data Collection	2010	Ongoing	2

In 2010, the SWMD began using Re-TRAC, a web based data management system, to survey commercial and industrial businesses. The District has been surveying the business community on an every other year basis. In 2015, surveys were issued to a comprehensive list of businesses and industries operating in Butler County. Surveys were issued by mail in paper format, and also provided a link to the on-line survey tool. In spite of conducting extensive survey efforts response rates have declined and data supporting diversion activity is difficult to capture.

Strengths:

- Provides the SWMD with information for planning purposes.
- Connects the District with businesses and manufacturers who could benefit from SWMD programs.

Weaknesses:

- Low response rates.
- Survey costs.

- Significant follow up required verifying reported values.
- Not an accurate account of recycling activity occurring in the District.

Based on this analysis in Appendix H the SWMD will pilot new procedures for collecting survey data. Those procedures are outlined below.

Recyclers and Commercial Surveys

Database R:

- Compile list of typical responders. List will be compiled from Re-TRAC. To develop a list of typical responders the most recent previous survey attempt and the attempt prior will be reviewed for responders. Cross-referencing the lists will include two data sets of responders. If a new business opens it will be placed on the Database R list. New businesses on the list will be given 2 years to respond or they will be moved to Database NR.
- Mail new blank survey and last completed survey. Return postage included.
- Follow up after 2 weeks with phone call and fax surveys if needed.
- Follow up after 3 weeks with phone call and obtain information over phone.
- Compile data.
- Evaluate quality of data, quantitative data, response rate, and costs.

Database NR:

- Compile list of typical non-responders. List will be compiled by reviewing a comprehensive commercial list compiled by using Chamber of Commerce, and District knowledge. Responders will follow the Database R procedures detailed above. All other commercial businesses will be considered non-responders.
- Post survey on website and when performing waste audits.
- Mail new blank survey.
- Compile any data that is received.
- Target 5 non-responding businesses and follow the Database R procedures.

Industrial Surveys

- Compile list using Ohio Harris Industrial Guide.
- Develop a list of typical responders by using Re-TRAC.
- Mail new blank survey and last completed survey to typical responders. Return postage included.
- Post survey on website and advertise on website, and when performing waste audits.
- Follow up after 2 weeks with phone call and fax surveys if needed. Aim for an increased response rate of 5% response rate from most recent previous survey attempts. Target typical responders first, then continue with largest industries based on employee counts.
- Follow up after 3 weeks with phone call and obtain information over phone.
- Compile data.

Education and Outreach Programs

Name	Start Date	End Date	Goal(s)
District Website	Ongoing	Ongoing	2, 3, 4, and 5

The SWMD maintains a website at www.butlercountyrecycles.org. The homepage is updated in a timely manner to reflect recycling services and current seasonal programs in Butler County. 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.

Website analytics:

Year	Web Visitors	Average Page Views
2013	25,892	2.3
2014	24,876	2
2015	32,257	2

Strengths:

- Reaches large audiences.
- All-in-one source of information.
- Content is up-to-date and informative.

Weaknesses:

- One-way source of information.
- Not all cities/township webpages offer direct links to the SWMD webpage.
- Some items are embedded and not streamlined.
- Waste Wizard search engine is at the bottom of the page - not very visible. The SWMD plans to move to top of page, once the county undertakes a new branding initiative that will impact all county department websites.

In 2016, the SWMD procured new search engine software, Waste Wizard, from ReCollect Systems allowing users to search for material specific outlets. The software allows the SWMD to track activity by material searched and the total number of visitors. 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.

Name	Start Date	End Date	Goal(s)
Backyard Composting Education and Awareness	Ongoing	Ongoing	3 and 5

The SWMD partners with the local Soil & Water Conservation District to promote composting classes to area educators and consumers. The SWMD periodically partners with the Soil & Water Conservation District to conduct joint presentations on recycling and composting.

Name	Start Date	End Date	Goal(s)
Contests	Ongoing	2013	4

With the departure of the Environmental Educator in August 2013 the SWMD suspended the Recycled Sculpture Contest. The SWMD directs elementary schools to environmental education resources for classroom presentations, contests, etc. to Butler Soil & Water Conservation District, Civic Garden Center, and the OSU Extension office. These organizations provide full time environmental educators to primary school classrooms in Butler County.

Contests will not continue in the planning period.

Name	Start Date	End Date	Goal(s)
Curbside Creation/Enhancement Outreach	2011	2016	2 and 4

This outreach is described in Curbside Creation/Enhancement Grant Program. Elements of this program will fuse into the new Outreach programs described in this Plan Update, and will no longer stand alone as previously developed.

Name	Start Date	End Date	Goal(s)
Curbside Participation Education and Awareness Program	2011	2018	2 and 4

In collaboration with Miami University's Office of Community Engagement, SWMD developed 1,200 magnets to be distributed in August 2013 to new residents moving into off campus housing to make them aware of recycling services in the City of Oxford. The SWMD updated its "Recycle Right" flyer and website to promote the acceptance of cartons/aseptic packaging in curbside and drop box recycling in Butler County.

In 2014 the SWMD partnered with Keep Middletown Beautiful, Middletown utilities, and a former city council member to bring new awareness about recycling to residents. 2,000 custom flyers and 1,000 magnets were developed focusing on the availability of recycling totes carts for residential households and distributed at multiple high attendance community events. The SWMD also partnered with the Middletown School District to reach even more households with the recycling message through the school newsletter, by adding recycling at football stadium, and setting up recycling in classrooms/cafeterias. The SWMD partnered again with Miami University and the City of Oxford to distribute 1,100 magnets with recycling information to off campus residents about curbside and drop off recycling opportunities. 250 flyers were printed and a digital packet featuring the recycling flyer was issued to registered Miami University students living off campus.

In 2015, the SWMD partnered with City of Middletown in their outreach to residents by supplying 500 flyers to be distributed at special events. The SWMD also promoted curbside recycling "do's and don't's" at the Butler County Fair, July 2015. SWMD assisted Miami University's Office of Community Engagement and the City of Oxford to supply 1,600 Recycle Right flyers to off campus student residents. Rumpke collaborated with SWMD and Ross Township to develop materials for the 2016 roll out of the combination curbside recycling/trash collection program. The SWMD offered information and materials to 200 employees at Schneider Electric as part of its Health, Safety and Environmental Fair in September 2015.

Elements of this program will fuse into the new Outreach programs thus, this program will no longer continue as a separate outreach effort.

Name	Start Date	End Date	Goal(s)
Township Trustee Outreach	2017	Ongoing	1, 2 and 4

The SWMD will 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. This outreach will target 3 audiences that have the potential to influence recycling behavior in the Butler County

population: Township Trustees, City Councils, and Residents. This Plan Update separates the target audiences into separate outreach programs in order to describe the priorities and strategies as well as any barriers to reaching and impacting these audiences.

Barriers	Strengths	Strategies	Measurables
- Not all township websites link to SWMD. - Additional fees for curbside recycling for residents. - SWMD is primary communicator regarding services offered. - Proponent of autonomy, limited government	- SWMD lists township recycling programs on website. - Many township residents attend collection events offered by SWMD. - Single hauler dominance makes recycling education consistent. - SWMD attendance and presentations at trustee meetings. - Trustees are vocal ambassadors of the SWMD.	- Link township websites to SWMD. - Partner to promote curbside for more households. - Highlight township recycling efforts in various media. - Survey trustees to build more engagement. - Face to face meetings to build support and discuss campaign messages. - Engage haulers for outreach assistance and ensure residents have carts. - Distribute campaign message information	- Increase the households signed up for curbside recycling by 5% - Establish "permanent" links to SWMD website that township residents will access when seeking information. - Have at least one SWMD topic per year on the townships newsletters to residents when newsletters are issued as part of township communications. - Measure campaign effectiveness by the increase in curbside subscription requests.

Name	Start Date	End Date	Goal(s)
City Council Outreach	2017	Ongoing	1, 2 and 4

The SWMD will 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. This outreach will target 3 audiences that have the potential to influence recycling behavior in the Butler County population: Township Trustees, City Councils, and Residents. This Plan Update separates the target audiences into separate outreach programs in order to describe the priorities and strategies as well as any barriers to reaching and impacting these audiences.

Barriers	Strengths	Strategies	Measurables
- Cities have established programs. - Cities tend to manage all aspects of resident communication without input from outside agencies, interests. - Residents often pay cities directly for trash and recycling services, and may not recognize SWMD or be familiar with its mission/programs.	- SWMD lists city recycling programs on website. - Single hauler dominance makes recycling education consistent. - SWMD has established good rapport and provides presentations and communications to city councils. - Relationships developed by working collaboratively including assisting local schools and holding events in local communities.	- Help expand programs to multi-family. - Help develop media to educate on true costs of recycling. - Develop ways to recognize cities for their recycling achievements now that the RRI program is cancelled.	- Enlist at least one new apartment community every other year in a target community – provide extensive outreach about Do's and Don't's of Recycling - Develop a social marketing campaign with Rumpke (or other hauler) in at least one targeted city each year to address contamination issues, and increase recycling yields. - Consider volunteers from smaller communities

Barriers	Strengths	Strategies	Measurables
	- Council is often an advocate for the SWMD. - Cities have well established recycling programs. - City websites link to SWMD.		within a city to assist in recycling outreach – possibly door-to-door. - Feature at least one article on SW or recycling issues per year in the largest cities in Butler County (Fairfield, Hamilton, Middletown, Monroe).

Name	Start Date	End Date	Goal(s)
Resident Outreach	2017	Ongoing	1, 2 and 4

The SWMD will 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. This outreach will target 3 audiences that have the potential to influence recycling behavior in the Butler County population: Township Trustees, City Councils, and Residents. This Plan Update separates the target audiences into separate outreach programs in order to describe the priorities and strategies as well as any barriers to reaching and impacting these audiences.

Barriers	Strengths	Strategies	Measurables
- Find "Why" residents choose not to participate in curbside recycling. Gather more information about these barriers. - Low curbside recycling participation in townships. - Contamination in drop-off boxes. - Resident costs for subscription service. - 45% of population in unincorporated townships. - Residential outreach is predominantly delivered using one-way communication strategies. - Resident unfamiliarity with SWMD mission/programs.	- Services available. - Residential utility bill inserts reach households with SWMD information. - Single hauler dominance makes material collected education consistent. - SWMD website. - Social media platforms.	- Update Recycle Right Flyer in collaboration with Rumpke. - Website optimization. - Utilize social media. - Release campaign message with action item. - Hosts digital contest. - Engage local media, civic groups, and HOA's. - Participate in community events. - Participate in cart distribution. - Direct mail campaign.	- Baseline subscription metrics. - Increase households signed up for curbside recycling by 5%. - Web and social media analytics. - Measure campaign effectiveness by yield of tons of recycling in cities with curbside service contracts, methods of delivery, and subscription requests. - Perform at least 2 engaging outreach a year.

Name	Start Date	End Date	Goal(s)
School Outreach	2017	Ongoing	1, 2 and 4

Obtaining top-level support from school administration, operation and maintenance staff, and custodial staff has been the focus of school outreach since 2013. The SWMD will continue to focus on administrators and faculty to continue expansion of recycling programs.

Barriers	Strengths	Strategies	Measurables
- Perception of recycling	- SWMD technical	- Continue outreach to	- Track pounds or tons

Barriers	Strengths	Strategies	Measurables
program costs. - Top-level support. - Faculty buy-in. - Limited K-5 outreach engagements.	assistance and waste assessments. - Services available. - Top-level support. - Faculty buy-in. - Grant assistance provided by SWMD. - "Steps for Organizing a School Recycling Program" guide. - Expansion of recycling programs. - Flyers, posters, and other education resources. - School-age children involvement in school recycling programs, promotes school ownership of recycling.	school administrators. - Provide grant assistance. - Develop or partner with regional solid waste districts to expand teacher professional development resources. - Enhance teacher resources on SWMD webpage to include: field trip ideas, no waste lunch, creative reuse ideas, etc. - Assist ongoing programs with benchmarks and continuous improvement. - Work with school administrators to promote successes of programs to local stakeholders.	recycled at schools. - Strive to expand recycling programs to at least one building a year. - Webpage analytics.

Name	Start Date	End Date	Goal(s)
District Newsletters	Ongoing	Ongoing	3, 4 and 5

Prior to 2013, Butler County Water & Sewer allocated a portion of a FT 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 becoming 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. The 2013 Constant Contact newsletter distribution was small and in an effort to expand the outreach without incurring additional costs, the District reached out to townships and municipalities to feature content in community newsletters. In 2014 and 2015, the SWMD partnered with residential print publications such as City of Hamilton's Enviro News and Liberty, Madison and Fairfield Township quarterly newsletters to reach consumers. The SWMD provides an article or pertinent information about "What to Recycle" and highlights upcoming collection programs, like HHW. In 2015, the SWMD expanded the community newsletters to include Wayne Township. The SWMD was also featured in the Madison Township community calendar. Butler County Rural Electric Country Living magazine (July 2015) and SW Regional Water District Newsletter (May 2015) also regularly feature content about Butler County SWMD programs.

The SWMD will continue to partner with community publications to expand the education and advertisement outreach.

Name	Start Date	End Date	Goal(s)
District Program Promotions	Ongoing	Ongoing	2, 4 and 5

The SWMD uses the following media outlet for distributing information regarding services and opportunities:

- Facebook
- Direct mail
- Utility bill inserts
- Flyers
- Newspaper advertisements
- Community newsletters
- Website

In 2013, the SWMD distributed approximately 10,000 flyers at high attendance public events such as Butler County Fair, Fairfield Home Expo. SWMD contracted (May through October) with Cox Publishing for bi-monthly print and online advertising in Journal-News, Oxford Press, West Chester/Liberty Pulse and Monroe Pulse to coincide with the SWMD's special collection events. In addition, the SWMD advertised in community newspapers Venice Cornerstone (Ross, Morgan Townships), and Madison Township newsletters with information about recycling programs.

In 2014, a total 500 of special promotional flyers were distributed to area political subdivisions to generate awareness of SWMD programs. The "Recycle Right" flyer was updated and distributed to reflect the addition of aseptic containers as recyclable. The SWMD maintained a contract with Cox Media to provide bi-monthly print and online adverts to consumers from May through October in Journal-News, Oxford Press, West Chester/Liberty Pulse Journal to coincide with SWMD special collection events. The SWMD continued to advertise in community newspapers such as the Venice Cornerstone serving Ross & Morgan Townships.

In 2015, 6,000 flyers were distributed regarding HHW, Freon Appliance Collection Program, Latex Paint Management Guide, Computer & TV Recycling, and Recycle Right - a guide to residential recycling.

The variety of media outlets addresses audiences by how they consume the information. The SWMD will continue to use all of the above listed media outlets for program promotions.

Name	Start Date	End Date	Goal(s)
Drop-off Participation Education and Awareness Program	2011	2016	2 and 4

In 2013, the SWMD developed custom flyers for 8 Oxford apartment communities promoting use of new recycling drop boxes available on the property. The SWMD distributed and updated "Recycle Right" flyers featuring aseptic packaging/cartons to all political subdivisions.

In 2014, the SWMD developed custom flyers for the City of Middletown showcasing both curbside and drop off recycling options. In addition the SWMD developed and distributed custom flyers for 4 new Oxford multifamily community residents and 1 City of Hamilton apartment community to announce start of recycling service and generate awareness about recyclable materials.

The SWMD, with assistance from Rumpke, installed a new drop off recycling dumpster at the Village of Seven Mile Fire Station, and assisted the City of Middletown in setting up recycling drop boxes at 2 fire stations for use by residents and businesses in 2015. Promotional flyers and information was shared with local residents and elected officials to inform them of this new service.

Elements of this program will fuse into the new Outreach programs thus, this program will no longer operate as a separate program.

Name	Start Date	End Date	Goal(s)
Environmental Education Presentations	Ongoing	2016	3 and 4

The SWMD has provided environmental education programs to any Butler County group or organization seeking a presentation. The Environmental Outreach Education focused on school groups and developed many presentation programs to align with Ohio Education Standards. The portfolio included K through 6 grade education presentations addressing conservation, litter prevention, waste reduction and recycling topics. In 2013, the Environmental Outreach Educator provided 279 presentations to 7,838 students/audience members. With the retirement of the Environmental Educator in August 2013, and without funding to support a replacement, the SWMD was forced to suspend much of its programming specifically targeting elementary and early education audiences.

As a result of this staffing change the SWMD changed direction to focus on cultivating school administrators and faculty to help establish and expand recycling programs and information within school buildings, focusing on classrooms, cafeterias and breakrooms with collection systems and accompanying signage. Expansion has been successful and school-age children are now involved in hands-on recycling participation while learning about resource conservation as part of their regular science curriculum, instead of through SWMD sponsored presentation-based learning.

This program will no longer continue during the planning period. Technical assistance provided by the SWMD to schools is described in other programs.

Name	Start Date	End Date	Goal(s)
Recycle to Win Challenge	Ongoing	2015	2 and 4

This program is the same as the Residential Recycling Incentive Program. The program was concluded in 2015 and will not resume in the Plan Update.

Name	Start Date	End Date	Goal(s)
Social Media	2018	Ongoing	2, 3, 4, and 5

The SWMD created a Facebook account in 2011. The SWMD posts information regarding special event programs and seasonal recycling opportunities such as: HHW Collection, Scrap Tire Collection, Curbside Freon Appliance Collection, year round medication drop off, etc. In addition Facebook is used to post community events. During collection events the SWMD attempts to make weekly posts. The account has 100+ likes. Inquiries often take place on Facebook allowing two-way communication for the SWMD to respond to specific recycling and disposal questions.

In this Plan Update the SWMD is planning to employ behavior-changing outreach through social influence. Social influence is influence by peers. This is accomplished with volunteers engaging in conversation, providing giveaways, example residents, etc. Changing behavior with social media outlets requires forming relationships on the social media site. Specific goals for achieving success with social media are: posting frequently to meet audience needs, post useful, fun and interesting ideas or topics or questions (about 80% of the time), and post promotions (about 20% of the time). Postings will cover local SWMD recycling, reuse and reduction events, list resources, and will also include state and national recycling topics.

Purpose: Use social media to change behaviors.
Measurable: The number of campaigns a year will be recorded, the message will be recorded, and the number of promotional items distributed will be tracked. Social media campaigns will follow and track: traffic stats, number of shares, measure for fan growth, average number of likes and comments, and the ability to maintain conversations.
Example schedule of postings:

Year and Quarter	Prompts
2018 – Q1	Reduce Your HHW
2018 – Q2	Reduce Food Waste
2018 – Q3	Recycling Participation
2018 – Q4	Recycle Right
2019 – Q1	True Costs of Recycling
2019 – Q2	What happens when recyclables leave the curb
2019 – Q3	Sustainable Holidays
2019 – Q4	Topics in Recycling: Paper / additional topics..(cardboard, Styrofoam, glass, E-Waste, etc.

APPENDIX J: REFERENCE YEAR OPPORTUNITY TO RECYCLE AND DEMONSTRATION OF ACHIEVING GOAL 1

Demonstrating compliance with Goal 1 means the SWMD shall ensure adequate infrastructure to give residents and commercial businesses opportunities to recycle solid waste.

A. Residential Sector Opportunity to Recycle in the Reference Year

The SWMD is using the standard demonstration established in the 2009 State Plan to show compliance with Goal 1. Demonstration involves assigning population credits to the opportunities. Generally the most convenient programs that serve the largest populations receive the most population credits. Residential infrastructure credits for achieving Goal 1 include non-subscription curbside recycling, subscription curbside recycling, full-time urban drop-offs and full-time rural drop-offs.

Non-subscription curbside recycling programs credit the entire population of a jurisdiction that is served by a qualifying non-subscription curbside program toward the population that has the opportunity to recycle.

Subscription curbside recycling programs credit 25 percent of the population of a jurisdiction that is served by a qualifying subscription curbside program toward the population that has the opportunity to recycle.

Drop-offs, as demonstrated in this 2018 Plan Update, assign default population credit if the drop-offs: collect at least five of the materials listed in the Format 4.0 Appendix J Reference Table A; are easily accessible to residents; meet minimum capacity standards; have adequate signage; and meet the demand of the population. The default population credit for full-time urban drop-offs is 5,000. The default population credit for full-time rural drop-offs is 2,500. At least two 8-cubic yard containers are located at each site thus meeting the minimum 10-cubic yards of capacity for drop-offs. The following five minimum materials are collected in curbside and drop-off recycling opportunities: newspaper, mixed paper, steel containers, aluminum containers and plastic containers.

The SWMD achieved Goal 1 in the reference year. As shown in Table J-1, demonstration of access in 2018 falls below 90%. *Format 4.0* limits the credit for infrastructure in a community to the population of an entire community, up to and including the entire credit for a drop-off that would be needed to achieve 100% of the residential population with access to recycling infrastructure. This limit affects the access credit demonstration for the SWMD. The Cities of Fairfield, Hamilton, Middletown, and Oxford and Ross Township receive the full population credit for their non-subscription curbside recycling programs. Since these communities receive full population credit they cannot receive additional population credit when drop-off recycling locations are also provided in their community.

The SWMD requested household counts from haulers documenting non-subscription and subscription households served. Table J-1a provides the household participation count provided by haulers servicing Butler County. This 2016 data will serve as the baseline metric of subscription household counts.

Table J-1a Hauler Reported Households Served and Access Creditable (2016 data)

Political Jurisdiction	Type of Service	Community Population	Hauler Reported Households with Access	Population with Access	Creditable Population with Access	Notes
Fairfield City	NS	42,770	11,591	29,441	42,770	able to credit 100% of population
Hamilton City	NS	62,486	21,500	54,610	62,486	able to credit 100% of population
Middletown City	NS	46,088	17,200	43,688	46,088	able to credit 100% of population
Monroe City	NS	13,137	4,533	11,514	13,137	able to credit 100% of population
Oxford City	NS	21,782	3,250	8,255	21,782	able to credit 100% of population
Trenton City	NS	12,260	3,906	9,921	12,260	able to credit 100% of population
Ross Township	NS	8,248	2,600	6,500	8,248	able to credit 100% of population
Fairfield Township	S	22,045	1,760	4,400	4,400	able to credit 25% of population
Hanover Township	S	8,280	461	1,153	1,153	able to credit 25% of population
Liberty Township	S	37,384	4,530	11,325	11,325	actual number of subscriptions 30% is greater than 25 percent of population
Morgan Township	S	5,622	206	515	515	able to credit 25% of population
West Chester Township	S	60,037	6,841	17,103	17,103	actual number of subscriptions 28% is greater than 25 percent of population
St. Clair Township	S	4,576	12	30	30	very limited curbside recycling available
Milford Township	S	3,399	17	43	43	very limited curbside recycling available
Oxford Township	S	2,177	123	308	308	very limited curbside recycling available
Reily Township	S	2,731	61	153	153	very limited curbside recycling available
Wayne Township	S	4,028	9	23	23	very limited curbside recycling available

Notes: Used 2.5 persons per household to calculate Population with Access.
Source: Data provided by 2 haulers operating in the District.

Format 4.0 allows 25 percent of the population of a jurisdiction that is served be creditable for access demonstration. If the SWMD can demonstrate greater access, the access contribution may be increased. As shown in Table J-1a hauler household counts service greater than 25 percent of the population in two communities. Even with these additional household counts and population credit, the SWMD does not demonstrate 90 percent access credit.

To reach 90 percent access credit by year 2021 the SWMD needs to acquire an additional 8,500 persons or approximately 3,400 curbside recycling household subscriptions. Table J-1b below shows total access credit with additional credit needed.

Table J-1b Demonstration of Additional Access Credit Needed for 2019

Total County Population	387,762
Total Population Credit	340,496
Percent of Population	88%
Population Needed to Reach 90%	8,500
Approximate Number of Households Needed	3,400

Note: Household count was determined by dividing population by 2.5

The demonstration provided in Table J-1 shows 90 percent access in year 2021.

The SWMD plans to achieve additional credit by obtaining more subscription services in the largest townships. Liberty, Fairfield and West Chester are large townships where curbside subscription services have potential to increase. If all three townships add an additional 3,000 persons or 1,200 households to curbside service the SWMD reaches 90 percent access.

As demonstrated in Table J-1c, the number of households receiving subscription curbside service increased by 5,688 households between 2013 and 2016. Based on this data it appears an additional 3,400 households is an achievable goal, especially with the growth Butler County is experiencing.

Table J-1c Comparison of Households with Curbside Access in Subscription Service Areas

Political Jurisdiction	2013 Hauler Reported Households with Access	2016 Hauler Reported Households with Access
Fairfield City	11,533	11,591
Hamilton City	20,300	21,500
Middletown City	17,200	17,200
Monroe City	4,383	4,533
Oxford City	3,250	3,250
Trenton City	3,789	3,906
Ross Township	397	2,600
Fairfield Township	1,616	1,760
Hanover Township	285	461
Liberty Township	3,863	4,530
Morgan Township	188	206
West Chester Township	6,108	6,841
St. Clair Township	0	12
Milford Township	0	17
Oxford Township	0	123
Reily Township	0	61
Wayne Township	0	9
Total	72,912	78,600
Increase in Households from 2013 to 2016		**5,688**

Source: Data provided by 2 haulers operating in the District.

The goal is 3,400 households regardless of the distribution among townships. The outreach campaign described in Appendix L will be applied to all three townships, however, the District will track subscription service households in all townships. The demonstration in Table J-1 shows all three townships increasing their subscription services in year 2021 and maintaining it through the planning period.

Table J-1 Opportunity to Recycle

ID #	Butler	2014		2016		2019		2021		2027		2032	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
Non-subscription curbside													
NSC1	Fairfield City	42,770	42,770	43,520	43,520	44,325	44,057	44,817	45,040	46,217	46,217	47,386	47,386
NSC2	Hamilton City	62,486	62,486	63,582	63,582	64,758	64,366	65,476	65,803	67,522	67,522	69,229	69,229
NSC3	Middletown City	46,088	46,088	46,896	46,896	47,764	47,474	48,294	48,534	49,802	49,802	51,062	51,062
NSC4	Monroe City	13,137	13,137	13,367	13,367	13,615	13,532	13,766	13,834	14,196	14,196	14,555	14,555
NSC5	Oxford City	21,782	21,782	22,164	22,164	22,574	22,437	22,824	22,938	23,537	23,537	24,133	24,133
NSC6	Trenton City	12,260	12,260	12,475	12,475	12,706	12,629	12,847	12,911	13,248	13,248	13,583	13,583
NSC7	Ross Township	0	0	8,189	2,047	8,341	8,290	8,433	8,475	8,697	8,697	8,917	8,917
Subscription curbside													
SC1	Fairfield Township	22,045	5,511	22,432	5,608	22,847	5,677	23,100	5,804	23,822	5,956	24,424	6,106
	Additional Fairfield Township Subscriptions								3,000		6,000		
SC2	Hanover Township	8,280	2,070	8,425	2,106	8,581	2,132	8,676	2,180	8,947	2,237	9,174	2,294
	Lemon Township												
SC3	Liberty Township	37,384	9,346	38,039	11,325	38,743	11,553	39,173	11,810	40,397	12,119	41,418	12,425
	Additional Liberty Township Subscriptions								3,000		6,000		10,000
SC4	Morgan Township	5,622	1,406	5,721	1,430	5,826	1,448	5,891	1,480	6,075	1,519	6,229	1,557
	Ross Township	8,048	2,012	switched to non-subscription									
SC6	West Chester Township	60,037	15,009	61,090	17,103	62,220	17,316	62,910	17,703	64,875	18,165	66,516	18,624
	Additional West Chester Township Subscriptions								3,000		6,000		10,000
Subscription curbside Areas with Very Limited Curbside Available													

ID #	Butler	2014		2016		2019		2021		2027		2032	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
SC7	St. Clair Township		0	12	30	12	30	12	30	12	30	12	30
SC8	Milford Township		0	17	43	17	43	17	43	17	43	17	43
SC9	Oxford Township		0	123	308	123	308	123	308	123	308	123	308
SC10	Reily Township		0	61	153	61	153	61	153	61	153	61	153
SC11	Wayne Township		0	9	23	9	23	9	23	9	23	9	23
Full-time, urban drop-off													
FTU1	Fairfield City, Community Arts Center	42,770	5000	43,520	0	Not creditable towards access because of non-subscription curbside							
FTU2	Fairfield City, Fairfield Aquatic Center	42,770	5000	43,520	0	Not creditable towards access because of non-subscription curbside							
FTU3	Fairfield City, Water Works Park	42,770	5000	43,520	0	Not creditable towards access because of non-subscription curbside							
FTU4	Fairfield Township, Butler Tech	22,045	5000	22,432	5000	Drop-off Site Location Removed							
FTU5	Fairfield Township, Fire Station No. 2	22,045	5000	22,432	5000	22,847	5000	23,100	5000	23,822	5000	24,424	5000
FTU6	Fairfield Township, Police Station at Shaeffer Park	22,045	5000	22,432	5000	22,847	5000	23,100	5000	23,822	5000	24,424	5000
FTU7	Hamilton City, Fire Station No. 1	62,486	5000	63,582	0	Not creditable towards access because of non-subscription curbside							
FTU8	Hamilton City, Fire Station No. 2	62,486	5000	63,582	0	Not creditable towards access because of non-subscription curbside							
FTU9	Hamilton City, Fire Station No. 5	62,486	5000	63,582	0	Not creditable towards access because of non-subscription curbside							
FTU10	Hanover Township, Memorial Park, Mormon Rd.	8,280	5000	8,425	5000	8,581	5000	8,676	5000	8,947	5000	9,174	5000
FTU11	Hanover Township, Southwest Regional Water District	8,280	5000	8,425	5000	8,581	5000	8,676	5000	8,947	5000	9,174	5000
FTU12	Liberty Township, Dudley Park	37,384	5000	na	na	Drop-off Site Location Removed							
FTU13	Liberty Township, Fire Station No. 1	na	na	38,039	5000	38,743	5000	39,173	5000	40,397	5000	41,418	5000
FTU14	Liberty Township, Fire Station No. 2	37,384	5000	38,039	5000	38,743	5000	39,173	5000	40,397	5000	41,418	5000
FTU15	Liberty Township, Fire Station No. 3	37,384	5000	38,039	5000	38,743	5000	39,173	5000	40,397	5000	41,418	5000
FTU16	Liberty Township, Community Meeting Center	37,384	5000	38,039	5000	38,743	5000	39,173	5000	40,397	5000	41,418	5000

ID #	Butler	2014		2016		2019		2021		2027		2032	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
FTU17	Madison Township, Poast Town Fire Station	8,598	5000	8,749	5000	8,911	5000	9,009	5000	9,291	5000	9,526	5000
FTU18	Madison Township, Township Administration Building	8,598	5000	8,749	5000	8,911	5000	9,009	5000	9,291	5000	9,526	5000
FTU19	Middletown City - Smith Park	46,088	5000	46,896	0	Not creditable towards access because of non-subscription curbside							
FTU20	Middletown City - Fire Station HQ	46,088	5000	46,896	0	Not creditable towards access because of non-subscription curbside							
FTU21	Middletown City - Fire Station No. 5	46,088	5000	46,896	0	Not creditable towards access because of non-subscription curbside							
FTU22	Middletown City - Beau downtown	46,088	5000	46,896	0	Not creditable towards access because of non-subscription curbside							
FTU23	Morgan Township, Administration Building	5,622	5000	5,721	5000	5,826	5000	5,891	5000	6,075	5000	6,229	5000
FTU24	Morgan Township, Shandon Fire Station	5,622	5000	5,721	0	Not creditable towards access because one-drop-off and subscription curbside provides 100% of community population with access.							
FTU25	Oxford City, Oxford West Apartments	21,782	5000	22,164	0	Not creditable towards access because of non-subscription curbside							
FTU26	Oxford City, Miami University Police Station	21,782	5000	22,164	0	Not creditable towards access because of non-subscription curbside							
FTU27	Oxford City, Miami University Culinary Support Center	21,782	5000	22,164	0	Not creditable towards access because of non-subscription curbside							
FTU28	St. Clair Township, Administration Buildings	4,497	5000	4,576	5000	4,661	5000	4,712	5000	4,859	5000	4,982	5000
FTU29	West Chester Township, Beckett Park	60,037	5000	61,090	5000	62,220	5000	62,910	5000	64,875	5000	66,516	5000
FTU30	West Chester Township, Keehner Park	60,037	5000	61,090	5000	62,220	5000	62,910	5000	64,875	5000	66,516	5000
FTU31	West Chester Township, Voice of America Park (2015 -Partners in Pride)	60,037	5000	61,090	5000	62,220	5000	62,910	5000	64,875	5000	66,516	5000
Part-time, urban drop-off													
	none												
Full-time, rural drop-off													
FTR1	Milford Township, Darrtown Hitching Post	3,340	2500	3,399	2500	3,461	2500	3,500	2500	3,609	2500	3,700	2500

ID #	Butler	2014		2016		2019		2021		2027		2032	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit	Community Population	Population Credit
FTR2	Milford Township, Maintenance Building	3,340	2500	3,399	2500	3,461	2500	3,500	2500	3,609	2500	3,700	2500
FTR3	Reily Township, Community Center Parking	2,684	2500	2,731	2500	2,782	2500	2,812	2500	2,900	2500	2,974	2500
FTR4	Ross Township, Police and Road Maintenance Building	8,048	2500	8,189	0	Not creditable towards access because of non-subscription curbside							
FTR5	Wayne Township, Maintenance Building	8,048	2500	4,028	2500	4,103	2500	4,148	2500	4,278	2500	4,386	2500
FTR6	Seven Mile Village, Fire Station	na	na	772	2500	787	2500	795	2500	820	2500	841	2500
Part-time, rural drop-off													
	none												
Mixed municipal waste material recovery facility													
	none												
Total County Population		374,311		380,718		387,762		392,064		404,312		414,536	
Total Population Credit		396,377		334,679		340,496		352,295		369,269		377,927	
Percent of Population		105.9%		87.9%		88%		90%		91%		91%	

B. Commercial Sector Opportunity to Recycle

Table J-4 Demonstration of Commercial Opportunity to Recycle

Service Provider	Type of Recycling Service Provided	Cardboard	Newspaper	Mixed Paper	Steel Containers	Aluminum Containers
Butler						
CSI/Republic Waste Services	Hauler Collection	x	x	x	x	x
Rumpke Waste, Inc.	Hauler Collection	x	x	x	x	x
Waste Management	Hauler Collection	x	x	x	x	x

The SWMD obtains credit for commercial infrastructure to meet Goal 1 from recycling service providers/haulers that offer collection services to commercial/institutional generators throughout the county and buybacks operations/scrap yards located within the county. The following five minimum materials are collected: corrugated cardboard, newspaper, mixed paper, steel containers, and aluminum containers.

C. Demonstration of Other Requirements for Achieving Goal 1

1. Residential/Commercial Waste Reduction and Recycling Rate
   As a requirement to achieving Goal 1 the SWMD must demonstrate that the SWMD did achieve a 25 percent residential/commercial waste reduction and recycling rate or will achieve annual increases in the reduction and recycling rate during the planning period. Appendix K calculates the residential/commercial solid waste reduction and recycling rate for the reference year and the planning period. The reference year rate is 14.1 percent, with the state goal established at 25 percent, thus the SWMD is striving to raise this rate over the planning period.

   If the SWMD could capture more data from the commercial sector the recycling rate would most likely calculate higher than demonstrated. Commercial data was obtained from reporting commercial surveys and Ohio EPA data efforts. The SWMD is limited in staff and resources to conduct commercial sector surveys. During this planning period a targeted survey effort will be made to capture more commercial sector information. In addition, the SWMD is planning on focused outreach efforts to specific commercial sector businesses. This outreach effort is described in Appendices I and L.

   In addition to commercial outreach and data collection efforts, the SWMD will utilize an outreach campaign to increase subscription curbside services in the largest townships. This outreach effort is described in Appendix L.

2. Industrial Waste Reduction and Recycling Rate
   As a requirement to achieving Goal 1 the SWMD must demonstrate that the SWMD did achieve a 66 percent industrial waste reduction and recycling rate in the reference year or will achieve annual increases in the reduction and recycling rate during the planning period. Appendix K calculates the industrial solid waste reduction and recycling rate for the reference year and the planning period. The reference year rate is 35.5 percent, less than the state diversion goal of 66 percent.

Historically the industrial sector has demonstrated 66 percent waste reduction rate except for year 2014. In 2014, in addition to other industry reports of scaling down operations, one steel manufacturing plant reported a decrease of nearly 260,000 tons in ferrous metal recycling. The SWMD also noted a decrease in paper caused by multiple paper mills shutting down. Food composting also recorded a large decrease due to a large brewer verified reporting error.

Disposal data also reflects the scaled down operations. Manufacturing industries usually lead the way in waste reduction and recycling by implementing self-initiated waste reduction and recycling programs to achieve financial savings and/or to meet environmental policies or regulations. Of total county employment, approximately 10.3 percent is in the manufacturing industry. Unfortunately a lack of verifiable data does not provide a representative account of recycling activity within the manufacturing sector. A major challenge is gathering data from this sector. Reporting is voluntary. Staffing levels and limited funding remain obstacles to advancing data collection during the planning period. However, the SWMD anticipates incremental annual diversion while remaining under the 60 percent state diversion goal.

3. Encouraging Participation
   The SWMD will encourage residents and commercial generators to participate in available recycling infrastructure. Appendices I and L provide explanation of outreach/education programs anticipated for this planning period.

This page intentionally left blank.

APPENDIX K WASTE REDUCTION AND RECYCLING RATES AND DEMONSTRATION OF ACHIEVING GOAL 2

Goal 2: Waste Reduction and Recycling Rates states the SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector and at least 66 percent of the solid waste generated by the industrial 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 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)
2014	***374,311***	***62,357***	***380,446***	***442,803***	***14.08%***	***0.9***
2015	378,370	59,096	388,919	448,016	13.19%	0.9
2016	380,718	53,696	397,562	451,258	11.90%	0.8
2017	383,066	51,435	406,376	457,812	11.24%	0.7
2018	385,414	54,973	403,089	458,061	12.00%	0.8
2019	387,762	57,064	399,808	456,872	12.49%	0.8
2020	390,110	57,795	396,536	454,331	12.72%	0.8
2021	392,064	58,600	392,542	451,143	12.99%	0.8
2022	394,018	59,485	388,580	448,065	13.28%	0.8
2023	395,972	60,459	384,648	445,107	13.58%	0.8
2024	397,926	61,530	380,746	442,276	13.91%	0.8
2025	399,880	62,708	376,876	439,584	14.27%	0.9
2026	402,096	64,004	373,278	437,282	14.64%	0.9
2027	404,312	65,430	369,704	435,134	15.04%	0.9
2028	406,528	66,998	366,153	433,151	15.47%	0.9
2029	408,744	68,723	362,625	431,348	15.93%	0.9
2030	410,960	70,620	359,121	429,741	16.43%	0.9
2031	412,748	72,708	355,272	427,979	16.99%	1.0
2032	414,536	75,004	351,457	426,461	17.59%	1.0

Source(s) of Information
Appendix C, Table C-1
Appendix D, Table D-3
Appendix E, Table E-4 and Table E-5
Appendix G, Table G-1 and Table G-2

The residential/commercial waste reduction rate in the reference year 2014 is calculated at 14.08 percent. The approved 2011 Plan Update projected the 2014 waste reduction rate would be 19 percent. The 2011 Plan Update projected waste reduction rate decreasing for the last planning period because of increases predicted in waste disposal. Instead, total waste generation declined. The SWMD observed decreases in both recycling, as well as waste disposal.

Table K-2 Annual Rate of Waste Reduction: Industrial Solid Waste

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2014	***36,951***	***67,212***	***104,163***	***35.47%***
2015	36,998	66,473	103,471	35.76%
2016	37,045	65,742	102,787	36.04%
2017	37,092	65,019	102,111	36.33%
2018	37,139	64,303	101,443	36.61%
2019	37,187	63,596	100,783	36.90%
2020	37,234	62,897	100,131	37.19%
2021	37,282	62,205	99,486	37.47%
2022	37,329	61,520	98,850	37.76%
2023	37,377	60,844	98,221	38.05%
2024	37,425	60,174	97,599	38.35%
2025	37,472	59,513	96,985	38.64%
2026	37,520	58,858	96,378	38.93%
2027	37,568	58,210	95,778	39.22%
2028	37,616	57,570	95,186	39.52%
2029	37,664	56,937	94,601	39.81%
2030	37,712	56,311	94,022	40.11%
2031	37,760	55,691	93,451	40.41%
2032	37,808	55,079	92,887	40.70%

Source(s) of Information
Appendix C, Table C-1
Appendix D, Table D-3
Appendix F, Table F-4 and Table F-5
Appendix G, Table G-1 and Table G-2

The industrial waste reduction rate in the reference year 2014 is calculated at 35.47 percent. The approved 2011 Plan Update projected the 2014 waste reduction rate would be 79 percent. The 2011 Plan Update projected waste reduction remaining constant for the last planning period. Unfortunately several manufacturers closed and one major manufacturer identified a significant reporting error. This led to an industrial recycling decline. As mentioned previously, the SWMD observed decreases in both recycling as well as waste disposal.

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)
2014	***99,308***	***447,658***	***546,966***	***18.16%***
2015	96,094	455,393	551,487	17.42%
2016	90,741	463,304	554,045	16.38%
2017	88,528	471,395	559,923	15.81%
2018	92,112	467,392	559,504	16.46%
2019	94,251	463,404	557,655	16.90%
2020	95,030	459,432	554,462	17.14%
2021	95,882	454,747	550,629	17.41%
2022	96,814	450,100	546,915	17.70%
2023	97,836	445,492	543,327	18.01%
2024	98,955	440,921	539,875	18.33%
2025	100,180	436,388	536,569	18.67%
2026	101,524	432,136	533,660	19.02%
2027	102,998	427,914	530,912	19.40%
2028	104,614	423,723	528,337	19.80%
2029	106,387	419,562	525,948	20.23%
2030	108,332	415,431	523,763	20.68%
2031	110,468	410,963	521,430	21.19%
2032	112,812	406,536	519,348	21.72%

Source(s) of Information
Appendix K, Table K-1 and Table K-2

In spite of historical progress in meeting Goal 2, recent efforts by SWMD have not resulted in documented data to support meeting Goal 2. The main barrier to achieve Goal 2 is lack of reporting from commercial and industrial businesses. Survey responses are low. Efforts are made to collect data annually using Re-TRAC (more discussion provided in Appendix H). Greater recycling rates will be achieved if the data can be collected. This plan update will implement changes to the data collection process to further streamline and target specific businesses. The residential sector will help increase recycling rates but the greatest impact will come from the commercial and industrial sectors.

Target recycling rates for the residential/commercial sector is set at 17.59 percent for year 2032.

Target recycling rates for the industrial sector is set at 21.72 percent for year 2032.

Specific programs to help the residential/commercial sector reach the target waste reduction rate include:

- Curbside Recycling
- Drop-off Recycling
- County Office Recycling Program
- Data Collection

See Appendix I for more discussion regarding programs.

This page intentionally left blank.

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 2009 State Plan, each SWMD is required to provide 4 minimum education programs.

1. Website and Resource Guide

The SWMD maintains a website at www.butlercountyrecycles.org. The homepage is updated in a timely manner to reflect recycling services and current seasonal programs in Butler County. 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. In 2014, the website received 24,876 visitors of which 75 percent were new visitors and 25 percent were returning visitors.

In 2016, the SWMD procured new search engine software, Waste Wizard, from ReCollect Systems allowing users to search for material specific outlets. The software allows the SWMD to track activity by material searched and the total number of visitors. 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 for residents and businesses. This resource guide provides a detailed inventory of outlets for recyclable materials.

The last redesign of the website was in 2009. Butler County is currently embarking on a branding initiative which may result in a website redesign for the Solid Waste District as well as other county departments. The SWMD website may benefit by the redesign at some point in the planning period. Items that could be tweaked include:

- Improved navigability to quickly locate information.
- Less text on page layouts.
- Priority messages.
- Application for smart phone; or formats that read easily in smart phone without a conversion format.

2. Infrastructure Inventory

The SWMD maintains an inventory of infrastructure for solid waste management and disposal and waste reduction and recycling activities/facilities in the Solid Waste Management Plan. In addition, Waste Wizard located on the webpage, can be utilized to find outlets for disposal and recycling/reuse specific materials.

3. Speaker/Presenter

The SWMD Director is available to speak or present when needed. In the reference year, the Director presented to apartment communities, school administrators and faculty, numerous businesses, and political jurisdictions. In 2014, the District calculated over 56,000 contacts made to individuals.

B. Outreach and Education – Outreach Plan and General Education Requirements

As prescribed by the 2009 State Plan, each SWMD will provide education, outreach, marketing, and technical assistance regarding education and reuse through an outreach and marketing plan. The outreach and marketing plan needs to have the following components:

- Five target audiences as identified in Ohio EPA Format 4.0.
- Follow basic best practices when developing and selecting outreach programs.
- Outreach priority.
- Education and outreach programs to all appropriate audiences in the context of the priority using social marketing principles and tools.

Before deciding on the outreach and marketing plan programs, the existing outreach, education, and technical assistance programs were analyzed. To align with the Ohio EPA Format 4.0 the SWMD's existing programs were organized by target audience. Some of the SWMD programs align with the target audiences; others do not. In this evaluation, when applicable, specific program names are identified. Otherwise the type of audience or outreach strategy to target audiences is explained.

1. Evaluation, Conclusions, and Actions

Target Audience: Residents
- Single family homes
- Multi-family homes

The SWMD uses several media platforms for residential education and customizes the message and media depending on the program and education need.

- The SWMD assisted over 4,013 residents and businesses with disposal and recycling inquiries in 2014.
- SWMD website contains a dedicated resident content page. The resident page, organized by community, identifies residential programs and materials accepted through each program. Information is clear and concise however, navigability could be optimized.
- The SWMD uses a Facebook account to offer two-way communication and provides additional reminders regarding programs. This could be used to expand messaging on waste reduction, recycling topics, composting topics, etc.
- "Recycle Right" flyer provides clear and concise messaging on recyclables accepted. Thousands of flyers are distributed each year, with 1,600 flyers provided annually to Miami University for off campus student housing units.
- Direct mail using utility bill inserts informs households about special collection programs and outlets for hard to manage materials, such as e-waste.
- In-person contact at high attendance community events.

- Customized education materials were developed for the Multi-family Housing Outreach program and included 1,700 customized flyers.
- Community promotion of curbside recycling and/or drop box recycling opportunities are developed in response to the addition of new recycling sites, programs, and changes in any materials accepted for curbside recycling collection. Promotional items typically include flyers, magnets, newsletter content, press release and digital content to include on local community web sites and/or newsletters.

SWMD outreach to residents is predominantly provided using one-way communication tools. The SWMD could incorporate additional media platforms and resources to develop additional two-way communication and foster sustainable behavior. Identified barriers and strengths for education and outreach programs for this target audience include:

Strategies and measurables for this target audience are identified in Appendix I.

Target Audience: Schools -Primary, secondary, vocational schools
- Students
- Teachers/professors/instructors
- Administrators
- Other staff

Prior to 2014, the SWMD placed strong emphasis on conventional classroom education programs targeting K through 6 grade students. The SWMD had satisfactory experiences reaching these targeted audiences but with the retirement of the Environmental Outreach Educator and reduced annual revenues the classroom based student outreach was suspended. Focus was changed to cultivate school administrators and faculty to support establishing and expanding recycling programs and information within school buildings. Recycling program expansion has been successful. Over the past four years, public and private schools have been served with outreach and funding to support recycling services and collection infrastructure, with the following districts most recently being served: Hamilton City Schools – Wilson Middle School (2013), Lakota Local Schools (2014), Middletown City Schools (2014), Sacred Heart Elementary (2014), Edgewood Local Schools (2015), Monroe City School District (2015), and Cincinnati Christian Schools (2016). These efforts have been successful due in large part to funds available through the District's Business and Institutional Grant Program. Funds provide assistance with start up and collection container costs for new recycling programs. Description of work and tasks achieved with schools is described in the Commercial/Industrial Technical Assistance program in Appendix I.

Strategies and measurables for this target audience are identified in Appendix I.

Target Audience: Industries
- Manufacturing businesses

The largest industrial establishments in Butler County have sustainability plans and publish annual sustainability reports or showcase sustainability initiatives on their websites. Industry waste types vary and are often specialized. Different waste types require different approaches and thus a need to focus on specific industry and its infrastructure needs/gaps for each waste stream. A consistent challenge for the District is a lack of data reported by local industries. Programs to address these audiences:

- Business and Institutional Grant Program

- Commercial/Industrial Technical Assistance
- Data Collection
- District website
- Southwest Ohio Pollution Prevention (P2) Internship Program

Strategies and measurables for this target audience are identified in Appendix I.

Target Audience: Institutions and Commercial Businesses

- Government offices
- Non-profit organizations
- Commercial businesses
- Hospitals
- Churches
- Non-residential quarters
- Special event/sports venues
- Transportation centers
- Amusement parks and other tourist attractions

The SWMD relies on direct phone calls and in-person meetings to conduct outreach to institutions and commercial businesses. The SWMD has worked with government offices, commercial businesses, and special event/sport venues. As a result all county offices have a recycling program, new commercial programs are implemented yearly, and recycling containers are loaned to community events. Non-profit organizations and hospitals are two audience sectors not yet targeted. Limited staffing restrains the outreach opportunities. If time allows the SWMD will seek these two audience sectors offering technical assistance services. Programs to address institution and commercial business audiences:

- Special Event Recycling
- County Office Recycling Program
- Commercial/Industrial Technical Assistance

Strategies and measurables for this target audience are identified in Appendix I.

Target Audience: Communities and Elected Officials

- Policy makers
- Elected officials
- County Commissioners
- City representatives
- Township trustees
- Community leaders
- Influential members of society
- Community groups

The SWMD relies on direct phone calls, in-person meetings, written correspondence, and presentations to conduct outreach to communities and elected officials. Direct contact is impactful for these audiences. Media used to address these audiences:

- Annual report to county commissioners, policy committee, and area officials.

- Community Scorecard – showcasing residential recycling activity by jurisdiction.
- Customized presentations on timely topics such as recycling performance, generation fee legislation, etc.

Strategies and measurables for this target audience are identified in Appendix I.

2. Programs to Address Outreach and Marketing Evaluations

After evaluation, the following programs described in Appendix I, will help address the messages and incorporate social marketing principles:

- District Website
- Township Trustee Outreach
- City Council Outreach
- Resident Outreach
- School Outreach

3. Outreach and Marketing Plan

Outreach and Marketing for the SWMD will engage residents, businesses, and visitors of Butler County through effective strategies, provide clear and compelling information about the benefits of waste reduction and recycling, and describe programs and services available.

The marketing and outreach plan has 3 major goals:

1.) Build positive awareness of the SWMD
2.) Educate households, businesses, and institutions to overcome barriers to recycling participation
3.) Target marketing efforts to drive participation by key audiences

Objectives set:

- Increase curbside subscribers by 5 percent.
- 10,000 unique hits on the website.
- Virtual "word-of-mouth" buzz created through social media, resulting in clicks to the website.

Marketing/Outreach Coordination:
The SWMD will use a multi-layered, multi-faceted marketing and outreach strategy that targets audiences by identifying who they are, where they live, and events going on in their lives. Marketing will focus on each target audience and will include the following marketing efforts:

Media Platform	Comments
Social media (Facebook, Twitter, etc.)	Optimize search words for search engines, reach appropriate independent blogs, and encourage blog posts and Tweets.
Website	One-stop shop for easy access of information.
Direct Mail (e.g. utility bill inserts, other mailers)	Mainstream marketing and advertising.
Flyers, posters, etc.	Customizable, print and online materials.
Newspaper advertisements	Mainstream marketing and print/digital advertising.

Media Platform	Comments
Community newsletters	Research driven, focusing on property owners. Articles highlighting programs and community environmental issues.
Presentations	Customizable and direct messaging.
Community-Based outreach	Targeted grassroots marketing (includes local events).
Community Events	Attend local events.
Market Research	Focus groups.

4. Outreach Priority

To reach 90 percent "access credit" by year 2021 the SWMD needs to acquire an additional 8,500 persons or approximately 3,400 curbside recycling household subscriptions. The outreach goal is to achieve additional access credit by obtaining more subscription services in the largest townships: Liberty, Fairfield and West Chester. If all three townships add 3,000 persons or 1,200 households to curbside service the SWMD 90 percent access credit goal would be reached.

Goal: To achieve additional 90 percent access obtaining more subscription services in the largest townships: Liberty, Fairfield and West Chester by 2021.

Before beginning a robust outreach campaign, it is essential for the website, ButlerCountyRecycles.org to be navigable with links to priority information. A recycling focused website is the home base for recycling messages that will be delivered through various mediums to reach the target audience. In optimizing the website navigability it will be important to review current layout, links and priority messages. Changes will be made to provide each community with a designated recycling page on the website for residents to find out how to subscribe to their respective recycling programs. When information is clear the website interaction serves as an analytical tool to discover if the campaign tactics are working, i.e. increased page views per targeted community.

Cooperation with each target community is paramount. The SWMD will involve recycling and communications representatives early in the campaign. One-on-one meetings with key decision makers will be scheduled to build understanding and support. Representatives will be kept up-to-date with progress using regularly scheduled check-ins.

Each community has various mediums for message delivery: website, newsletters, social media, event outreach, etc. The SWMD will work in concert with each community to outline the best combination of mediums and custom message for their community. The result will be consistent and personalized approach for residents of target communities.

After compiling data and customizing the message, the campaign strategy can begin. SWMD could support development of marketing collateral for distribution in a direct mail campaign, at events, as print and online/social media advertisements. The marketing material should refer to the targeted campaign message and include an action item: subscribe for curbside recycling service. Social media advertisement and engagement is effective in creating a two-way conversation and to drive traffic to SWMD's website.

Outreach Priority Campaign

Target Audience	Tier	Tactic	Deliverable	Metrics
Residents Liberty, Fairfield & West Chester	Tier 1	Community designated webpage on SWMD website	FY 2017: Website optimization	Measure web analytics
	Tier 1	Create a strategy with cities/townships and haulers to make signing up for non-subscription recycling easier	FY 2017: Baseline analytics	Measure hauler subscription household counts; hauler outreach material
	Tier 1	Social media advertisements-target by location and homeowner	FY 2018: Increase resident outreach	Measure web analytics
	Tier 2	Release of campaign message and action item (Note: Actual campaign materials will be determined using best management practices and benchmark campaigns with successful outcomes. Resources and outside consultant assistance are budgeted.)	FY 2018 - 2 campaign releases: increase resident outreach FY 2019 - 2 campaign releases: increase resident outreach FY 2020 - 2 campaign releases: increase resident outreach	Measure all campaign media, all methods of delivery and subscription requests
	Tier 2	Host digital contests to increase recycling request	FY 2018: Increase resident outreach	Measure participation
	Tier 2	Engage and create trusted relationships among digital audience	FY 2018: Increase resident outreach	Measure web analytics
	Tier 2	Engage local media, civic groups, and homeowner associations	FY 2018 thru 2021: Increase volunteer support and message ambassadors (behavioral change)	Measure number of volunteers
	Tier 2	Participate in community events sign up for recycling onsite, if possible	FY 2018 thru 2021: Increase resident outreach	Measure events attended; measure residents reach to subscription requests
	Tier 2	Participate in cart/bin distribution events	FY 2018 thru 2021: Increase resident outreach	Measure events attended; measure residents reach to subscription requests
	Tier 2	Use data from ReCollect website tool to discover if you are engaging target areas	FY 2018 thru 2021: Website optimization	Measure web analytics
Community Leaders and Elected Officials	Tier 1	Kick off meeting, metric sharing and campaign goals	FY 2017: Build understanding and support from community leaders	Measure meeting attendance and record minutes. Establish budget, scope and timeline.
	Tier 1	Create a strategy of outreach involving various mediums, custom messaging and targeted release dates.	FY 2017: Custom message for community.	Moderate strategy sessions and design
	Tier 1	Create a strategy with cities/townships and haulers to make signing up for non-subscription recycling easier	FY 2017 and 2018: Engage haulers, seek outreach assistance, ensure new subscribers will have carts	Moderate strategy sessions and design
	Tier 2	Participate in community meetings/local media with campaign message	FY 2018 thru 2021: Community leader outreach	Measure all campaign media, all methods of delivery and subscription requests
	Tier 2	Implement media tactics involving supportive elected officials distributing recycling education material, carts, etc. in target areas	FY 2018 thru 2021: Community leader outreach	Measure all campaign media, all methods of delivery and subscription requests

This page intentionally left blank.

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
In-District		
None		
Out-of-District		
Celina Sanitary Landfill	Mercer	N/A
Evergreen Recycling & Disposal	Wood	43
Preble County Sanitary Landfill	Preble	58
Rumpke Waste Inc Hughes Rd Landfill	Hamilton	14
Stony Hollow Landfill, Inc	Montgomery	16
Pine Grove Regional Facility	Fairfield	73
Rumpke Brown County Landfill	Brown	88
Out-of-State		
Bavarian Trucking Co Inc	KY	38
Republic Services of KY LLC - Epperson Waste Disposal	KY	3
Rumpke of KY Inc - Pendleton Co Landfill	KY	21
Republic Services of KY - Valley View Landfill	KY	25
Central KY Landfill	KY	106
Big Run Landfill	KY	61
Caldwell Landfill	IN	77
National Serv-all Landfill	IN	28
New Paris Pike Landfill	IN	73

Source(s) of Information
Annual District Report Review Forms 2012, 2013, and 2014
Ohio Solid Waste Facility Data Report 2014

Table M-1 lists the landfills where waste from the SWMD was disposed in the reference year and the two prior years. The landfills listed include those that accepted direct-haul and those that accepted transferred waste. Over the past three years, the SWMD disposed waste in 16 different in-state and out-of-state landfills. The majority of the total SWMD's waste, approximately 63.7%, was disposed in state at the Rumpke Sanitary Landfill. Rumpke Sanitary Landfill reported 14.1 years of remaining capacity at the end of 2014. To demonstrate the SWMD has adequate disposal capacity the landfill that historically took the largest amounts of the SWMD's waste must have adequate remaining life for the first eight years of the planning period. Rumpke Sanitary Landfill has 14.1 years of remaining capacity which means the landfill has enough permitted airspace to accept waste through year 2028. The first 8 years of the SWMD's planning period are 2018 through 2025 and demonstrate Rumpke Sanitary Landfill has adequate remaining life to manage the SWMD's waste.

B. Access to Captive Landfill Facilities

Captive landfills are not located within the SWMD, thus this section does not relevant to the SWMD.

C. Access to Processing Capacity for Recovered Materials

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

Name of Facility	Location		Type of Facility	Recyclables Accepted from District	
	County	State		Types	Weight (tons)
In-District					
None					
Out-of-District					
Rumpke Center City Recycling-	Hamilton	OH	material recovery facility	Paper, Plastic, Cartons, Metals, Glass, Cardboard	19,609
Waste Management Dayton MRF	Montgomery	OH	material recovery facility	Paper, Plastic, Cartons, Metals, Glass, Cardboard	77
Rumpke Recycling-Dayton	Montgomery	OH	material recovery facility	Paper, Plastic, Cartons, Metals, Glass, Cardboard	6
Out-of-State					
None					
				Total	**19,692**

Source(s) of Information
Phone Calls

Recycling processing facilities do not have unlimited capabilities for processing materials. In this planning period the SWMD needs to ensure that there is processing capacity for recyclables. The SWMD is projecting conservative growth in recyclables and has adequate processing capacity available for processing recovered materials.

Two Rumpke owned processing facilities are readily available and within 30 miles from the SWMD. Rumpke Cincinnati MRF is capable of processing 50 tons per hour and can handle approximately 180,000 tons annually. Rumpke's Dayton MRF is a pre-sort, compaction, and transfer facility. At this facility cardboard is baled and shipped to manufacturers while glass is further processed. The glass recycling plant cleans and separates 20,000 tons of glass annually. Metals, paper, plastic and carton recycling is transferred from this facility to the Rumpke Cincinnati MRF. Rumpke processes a large range of materials including glass bottles & jars, aluminum & steel cans, plastic bottles & jugs, mixed paper, and cartons.

Historically Rumpke, Waste Management, and CSI (Republic Services) haul recyclables. Rumpke has agreements with both Waste Management and CSI.

D. Incinerators and Energy Recovery Facilities

Table M-5 Incinerators and Energy Recovery Facilities Used by the District in the Reference Year

Facility Name	Location		Type of Facility	Waste Processed from the District
	County	State		
In-District				
none		Ohio		
Out-of-District				
Covanta Energy		Indiana	Incineration	161.38 tons
Out-of-State				
none				
			Total	**161.38 tons**

Notes: If less than five percent of the solid waste generated was incinerated, then incineration is not accounted for.

Incinerating solid waste is not a major component of solid waste management for the SWMD. Less than five percent of the solid waste generated in the reference year was incinerated thus the Plan does not account for incineration.

This page intentionally left blank.

APPENDIX N EVALUATING GREENHOUSE GAS EMISSIONS

WARM is a tool that U.S. EPA developed to quantify the effects of waste management methods on greenhouse gas emissions. The model demonstrates the benefits of alternative management technologies over traditional management methods. WARM was applied to the reference year data and data projected for the sixth year of the planning period (year 2023). Both residential/commercial and industrial waste has been included in this analysis. Not all SWMD reported recycling and waste had specific material composition breakdown as identified in WARM's model material composition categories. Some of the category totals were combined to create corresponding input entries available in WARM.

The comparison of greenhouse gas emissions reductions for the reference year versus year 2023 suggests greenhouse gas emissions will be reduced by nearly 30,000 metric tons of carbon dioxide equivalents ($MTCO_2E$).

The results from WARM are shown below:

Baseline Data Generation WARM Model

GHG Emissions from Baseline Waste Management (MTCO2E) in 2014:
(254,829 MRCO2E)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$
Aluminum Cans	2,029.0	-	161.4	NA	NA	(18,474)
Glass	3,964.0	19,022.0	-	NA	NA	(711)
Corrugated Containers	33,537.0	-	-	NA	NA	(104,658)
Dimensional Lumber	5,390.0	30,436.0	-	NA	NA	(44,092)
Yard Trimmings	NA	57,447.0	-	6,880.0	-	(11,336)
Mixed Paper (general)	10,307.0	80,274.0	-	NA	NA	(26,237)
Mixed Metals	27,325.0	34,621.0	-	NA	NA	(117,901)
Mixed Plastics	2,904.0	44,132.0	-	NA	NA	(2,076)
Mixed Recyclables	1,096.0	-	-	NA	NA	(3,096)
Food Waste	NA	67,339.0	-	1,721.0	-	36,278
Mixed MSW	NA	114,770.0	-	NA	NA	39,838
Carpet	434.0	-	-	NA	NA	(1,023)
Personal Computers	26.0	-	-	NA	NA	(65)
Tires	3,392.0	-	-	NA	NA	(1,276)

Source(s) of Information:
2014 Data from commercial survey, industrial survey, buybacks, scrap yards, processors, and MRFs.
Notes:
Recycled appliances, dry cell batteries and lead acid batteries were counted as ferrous metals.
Any material recycled listed as other was calculated as mixed recyclables.
Recycled textiles were counted as carpet.
Recycled HHW and used oil is not included in model analysis.

Projected Data

GHG Emissions from Baseline Waste Management (MTCO2E):

(284,310 tons)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$
Aluminum Cans	2,028.0	-	180	NA	NA	(18,464)
Glass	3,958.0	19,217.0	-	NA	NA	(705)
Corrugated Containers	33,494.0	-	-	NA	NA	(104,524)
Dimensional Lumber	5,381.0	30,748.0	-	NA	NA	(44,385)
Yard Trimmings	NA	58,037.0	-	6,857.0	-	(11,439)
Mixed Paper (general)	10,281.0	81,097.0	-	NA	NA	(26,041)
Mixed Metals	27,296.0	34,976.0	-	NA	NA	(117,768)
Mixed Plastics	2,897.0	44,584.0	-	NA	NA	(2,060)
Mixed Recyclables	10,985.0	-	-	NA	NA	(31,032)
Food Waste	NA	68,060.0	-	1,717.0	-	36,670
Mixed MSW	NA	108,888.0	-	NA	NA	37,796
Carpet	433.0	-	-	NA	NA	(1,021)
Personal Computers	26.0	-	-	NA	NA	(65)
Tires	3,381.0	-	-	NA	NA	(1,272)

Source(s) of Information:
2014 Data from commercial survey, industrial survey, buybacks, scrap yards, processors, and MRFs.
Notes:
Recycled appliances, dry cell batteries and lead acid batteries were counted as ferrous metals.
Any material recycled listed as other was calculated as mixed recyclables.
Recycled textiles were counted as carpet.
Recycled HHW and used oil is not included in model analysis.

APPENDIX O FINANCIAL DATA

A. Funding Mechanisms and Revenue Generated

1. Disposal Fee

The SWMD 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 ($/ton)			Waste Disposed at in-District Landfills (Tons)			Revenue ($)			Total Disposal Fee Revenue ($)
	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	
2010	$0.00	$0.00	$0.00				$0	$0	$0	$0
2011	$0.00	$0.00	$0.00				$0	$0	$0	$0
2012	$0.00	$0.00	$0.00				$0	$0	$0	$0
2013	$0.00	$0.00	$0.00				$0	$0	$0	$0
2014	***$0.00***	***$0.00***	***$0.00***				***$0***	***$0***	***$0***	***$0***
2015	$0.00	$0.00	$0.00				***$0***	***$0***	***$0***	***$0***
2016	$0.00	$0.00	$0.00				$0	$0	$0	$0
2017	$0.00	$0.00	$0.00				$0	$0	$0	$0
2018	$0.00	$0.00	$0.00				$0	$0	$0	$0
2019	$0.00	$0.00	$0.00				$0	$0	$0	$0
2020	$0.00	$0.00	$0.00				$0	$0	$0	$0
2021	$0.00	$0.00	$0.00				$0	$0	$0	$0
2022	$0.00	$0.00	$0.00				$0	$0	$0	$0
2023	$0.00	$0.00	$0.00				$0	$0	$0	$0
2024	$0.00	$0.00	$0.00				$0	$0	$0	$0
2025	$0.00	$0.00	$0.00				$0	$0	$0	$0
2026	$0.00	$0.00	$0.00				$0	$0	$0	$0
2027	$0.00	$0.00	$0.00				$0	$0	$0	$0
2028	$0.00	$0.00	$0.00				$0	$0	$0	$0
2029	$0.00	$0.00	$0.00				$0	$0	$0	$0
2030	$0.00	$0.00	$0.00				$0	$0	$0	$0
2031	$0.00	$0.00	$0.00				$0	$0	$0	$0
2032	$0.00	$0.00	$0.00				$0	$0	$0	$0

2. Generation Fee

In accordance with ORC 3734.573, a solid waste management policy committee may levy fees on the generation of solid wastes within the district. During the 2011 Plan Update the SWMD reduced the generation fees twice. In 2013, the SWMD successfully completed a solid waste generation fee reduction and corresponding plan amendment to the county's solid waste management plan. The fee reduction was effective September 1, 2013. In 2014, the SWMD passed legislation to further reduce the solid waste generation fee from $1.00 per ton to $0.82 per ton. This fee reduction was effective January 1, 2015.

Table O-2 Generation Fee Schedule and Revenue

Year	Generation Fee Schedule ($ per ton)	Waste Disposed (tons)	Total Revenue from Generation Fee ($)
2010	$2.00	*561,770*	$1,123,539
2011	$2.00	*457,871*	$915,741
2012	$2.00	*444,283*	$888,566
2013	$2.00	*266,611*	$681,253
	$1.00	*148,031*	
2014	**$1.00**	***410,006***	***$410,006***
2015	$0.82	447,098	$366,621
2016	$0.82	447,098	$385,433
2017	$0.82	447,098	$366,621
2018	$0.82	447,098	$366,621
2019	$0.82	447,098	$366,621
2020	$1.00	447,098	$447,098
2021	$1.00	447,098	$447,098
2022	$1.00	447,098	$447,098
2023	$1.00	447,098	$447,098
2024	$1.20	447,098	$536,518
2025	$1.20	447,098	$536,518
2026	$1.20	447,098	$536,518
2027	$1.20	447,098	$536,518
2028	$1.20	447,098	$536,518
2029	$1.20	447,098	$536,518
2030	$1.20	447,098	$536,518
2031	$1.20	447,098	$536,518
2032	$1.20	447,098	$536,518

Source(s) of Information:
CY 2010-2015 revenues sourced from quarterly fee reports. All other amounts are projections.
CY 2010-2015 waste disposed sourced from quarterly fee reports. All other amounts projected from CY 2015 revenues.
Sample Calculations:
Total Revenue from Generation fee (2014) = Generation Fee Schedule x Waste Disposed
Total Revenue from Generation fee (2014) = $1.00 x 410,006 tons
Total Revenue from Generation fee (2014) = $410,006
Assumptions:
Revenue collected in 2015 was used to calculate waste tonnage of disposal. The 2015 waste tonnage disposal is kept constant for planning revenue projections.

The SWMD operates on a cash accounting basis, and, as a result, tonnages for fee tracking purposes are recorded when fee revenue is actually received from a landfill facility.

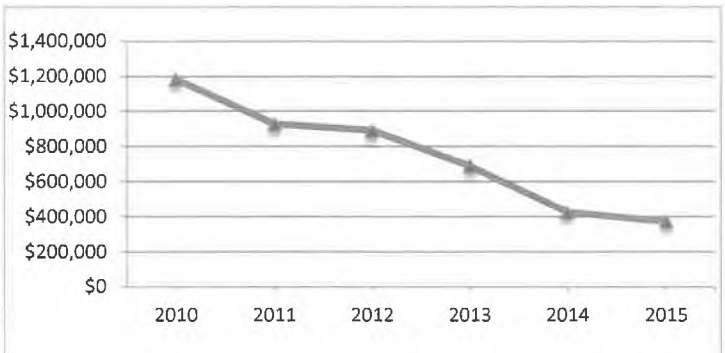


Figure O-1 Historical Revenue

Forecasting revenues by nature is imperfect. To forecast future revenues anticipated from the generation fee, historic revenues were analyzed. As shown in Figure O-1, generation fee revenue follows a declining trend. The steep decline between 2013 and 2014 is reflective of the

generation fee decrease from $2.00 per ton to $1.00 per ton.

Generation fee revenues are dependent on SWMD waste disposed in Ohio landfills. In addition to analyzing revenues, historic waste disposal trends were also analyzed.

Waste disposal tonnages beyond 2015, are forecasted using an average of the historic (past five year) disposal volumes. The calculated historic average volume, 457,714 tons, closely aligns to the 2015 waste disposed, 447,098 tons. Consideration of the historic average tonnage, 2015 tonnage, and recent declines in waste disposal resulted in a conservative approach to use the 2015 tonnage for projections.

In order to sustain 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.

Upon approval of this Plan Update by the Director of Ohio EPA, the SWMD generation fee will increase to $1.00 per ton in 2020. Collection of the increased generation fee will to go into effect January 1, 2020. Generation fee increases budgeted later in the planning period at year 2024 affect the SWMD's next planning cycle, and will be further evaluated prior to being implemented and approved.

3. Designation Fees

The SWMD does not receive revenues from designation fees.

Table O-3 Contract Fee Schedule and Revenue

Year	Contract Fee Schedule ($ per ton)	Waste Disposed at Contracted Facilities (tons)	Total Contract Fee Revenue ($)
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
2031			
2032			

4. Loans

The SWMD does not anticipate securing loans during this planning period.

Table O-4 Loans

Year Loan Obtained	Outstanding Balance	Lending Institution	Loan Term (years)	Annual Debt Service ($)
n/a				

5. Other Sources of District Revenue

Table O-5 Other Revenues and Other Revenue Sources

Year	Reimbursements	Grants	Other	Recycling Revenue	"Other Revenue" Total
2010	$0	$56,875	$0	$0	$56,875
2011	$1,828	$10,175	$0	$399	$12,402
2012	$1,611	$0	$720	$0	$2,331
2013	$7,138	$0	$0	$0	$7,138
2014	**$309**	***$13,899***	***$0***	***$0***	**$14,208**
2015	$5,022	$0	$0	$0	$5,022
2016	$0	$0	$0	$0	$0
2017	$0	$0	$0	$0	$0
2018	$0	$0	$0	$0	$0
2019	$0	$0	$0	$0	$0
2020	$0	$0	$0	$0	$0
2021	$0	$0	$0	$0	$0
2022	$0	$0	$0	$0	$0
2023	$0	$0	$0	$0	$0
2024	$0	$0	$0	$0	$0
2025	$0	$0	$0	$0	$0
2026	$0	$0	$0	$0	$0
2027	$0	$0	$0	$0	$0
2028	$0	$0	$0	$0	$0
2029	$0	$0	$0	$0	$0
2030	$0	$0	$0	$0	$0
2031	$0	$0	$0	$0	$0
2032	$0	$0	$0	$0	$0

Note: Market Development grant was excluded from 2014 and 2016. Both amounts were $125,000.

Reimbursement

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 District. Grant funds are not projected during the planning period.

Other
Other revenue is not projected during the planning period.

Recycling Revenue
The SWMD previously collected an occasional revenue from sale of recyclables. Recycling revenue is not projected during the planning period.

6. Summary of District Revenues

Table O-6 Total Revenue

Year	Disposal Fees	Generation Fees	Contract Fees	Other Revenue	Total Revenue
2010	$0	$1,123,539	$0	$56,875	$1,180,414
2011	$0	$915,741	$0	$12,402	$928,143
2012	$0	$888,566	$0	$2,331	$890,896
2013	$0	$681,253	$0	$7,138	$688,391
2014	***$0***	***$410,006***	***$0***	***$14,208***	**$424,214**
2015	$0	$366,621	$0	$5,022	$371,642
2016	$0	$385,433	$0	$0	$385,433
2017	$0	$366,621	$0	$0	$366,621
2018	$0	$366,621	$0	$0	$366,621
2019	$0	$366,621	$0	$0	$366,621
2020	$0	$447,098	$0	$0	$447,098
2021	$0	$447,098	$0	$0	$447,098
2022	$0	$447,098	$0	$0	$447,098
2023	$0	$447,098	$0	$0	$447,098
2024	$0	$536,518	$0	$0	$536,518
2025	$0	$536,518	$0	$0	$536,518
2026	$0	$536,518	$0	$0	$536,518
2027	$0	$536,518	$0	$0	$536,518
2028	$0	$536,518	$0	$0	$536,518
2029	$0	$536,518	$0	$0	$536,518
2030	$0	$536,518	$0	$0	$536,518
2031	$0	$536,518	$0	$0	$536,518
2032	$0	$536,518	$0	$0	$536,518

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 SWMD's primary funding mechanism is the generation fee. The SWMD receives alternate revenues from other contributions, reimbursements, recycling revenue and other. No sources of alternate revenue are projected for the planning period.

B. Cost of Implementing Plan

Table O-7 Expenses

Line #	Category/Program	2010	2011	2012	2013	2014	2015	2016
1	**1. Plan Monitoring/Prep.**	$166,725	$144,143	$120,659	$97,943	$53,351	$51,630	$64,082
1.a	a. Plan Preparation	$39,724	$20,275	$13,472	$11,210			$16,760
1.b	b. Plan Monitoring	$124,500	$123,648	$104,687	$85,805	$49,851	$43,473	$45,943
1.c	c. Other	$2,501	$220	$2,500	$928	$3,500	$8,157	$1,380
2	**2. Plan Implementation**	$823,598	$880,984	$757,200	$699,067	$631,699	$554,405	$383,151
2.a	a. District Administration	$297,315	$320,193	$265,131	$217,750	$136,786	$119,995	$130,523
2.a.1	Personnel	$290,500	$288,545	$244,289	$200,212	$116,319	$101,446	$107,199
2.a.2	Office Overhead	$6,815	$31,648	$20,842	$16,909	$20,467	$18,549	$23,324
2.a.3	Other				$629			
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	$27,113	$37,556	$42,003	$30,205	$97,066	$128,405	$135,081
2.d.1	Curbside							
2.d.2	Drop-off	$27,113	$37,556	$42,003	$30,205	$97,066	$81,513	$96,000
2.d.3	Combined Curbside/Drop-off							
2.d.4	Multi-family						$8,759	
2.d.5	Business/Institutional						$6,288	$7,797
2.d.6	Other						$31,845	$31,284
2.e	e. Special Collections	$232,323	$227,138	$236,452	$192,150	$119,789	$108,044	$78,500
2.e.1	Tire Collection	$31,711	$22,330	$27,308	$40,875	$16,367	$20,786	$13,000
2.e.2	HHW Collection	$147,387	$147,733	$146,718	$129,345	$89,612	$73,260	$46,000
2.e.3	Electronics Collection	$30,404	$33,786	$34,759	$1,986			
2.e.4	Appliance Collection					$13,810	$13,998	$19,500
2.e.5	Other Collection Drives	$22,821	$23,289	$27,667	$19,944			
2.f	f. Yard Waste/Other Organics							
2.g	g. Education/Awareness	$32,048	$41,425	$36,357	$55,802	$75,691	$34,291	$16,928
2.g.1	Education Staff	$32,048	$41,425	$36,357	$45,673	$44,780		
2.g.2	Advertisement/Promotion						$34,291	$16,928
2.g.3	Other				$10,129	$30,911		
2.h	h. Recycling Market Development	$0	$0	$0	$0	$0	$0	$0
2.h.1	General Market Development Activities							
2.h.2	Ohio EPA pass-through grant							
2.i	i. Service Contracts		$3,883			$30,183		
2.j	j. Feasibility Studies							
2.k	k. Waste Assessments/Audits							
2.l	l. Dump Cleanup							
2.m	m. Litter Collection/Education	$41,168	$37,696	$30,876	$39,680	$14,214	$15,097	$16,000
2.n	n. Emergency Debris Management							
2.o	o. Loan Payment							
2.p	p. Other	$193,631	$213,093	$146,381	$163,481	$157,970	$148,574	$6,120
3	**3. Health Dept. Enforcement**							
	Health Department Name:							
4	**4. County Assistance**	$0	$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							
5	**5. Well Testing**							
6	**6. Out-of-State Waste Inspection**							
7	**7. Open Dump, Litter Law Enforcement**	$0	$0	$0	$0	$0		$0
7.a	a. Heath Departments							
7.b	b. Local Law Enforcement							
7.c	c. Other							
8	**8. Heath Department Training**							
9	**9. Municipal/Township Assistance**	$0	$0	$0	$0	$0		$0
9.a	a. Maintaining Roads							
9.b	b. Maintaining Public Facilities							
9.c	c. Providing Emergency Services							
9.d	d. Providing other Public Services							
10	**10. Compensation to Affected Community (ORC Section 3734.35)**							
	Total Expenses	$990,322	$1,025,126	$877,859	$797,010	$685,049	$606,035	$447,233

Table O-7 Expenses

Line #	Category/Program	2017	2018	2019	2020	2021	2022	2023	2024
1	**1. Plan Monitoring/Prep.**	$74,681	$50,740	$58,203	$53,709	$76,260	$76,858	$69,504	$60,199
1.a	a. Plan Preparation	$19,360				$15,000	$20,000	$5,000	
1.b	b. Plan Monitoring	$47,321	$48,740	$50,203	$51,709	$53,260	$54,858	$56,504	$58,199
1.c	c. Other	$8,000	$2,000	$8,000	$2,000	$8,000	$2,000	$8,000	$2,000
2	**2. Plan Implementation**	$436,288	$463,606	$450,015	$459,567	$451,265	$463,113	$463,115	$445,276
2.a	a. District Administration	$131,415	$134,727	$138,139	$141,653	$145,273	$149,001	$152,841	$156,797
2.a.1	Personnel	$110,415	$113,727	$117,139	$120,653	$124,273	$128,001	$131,841	$135,797
2.a.2	Office Overhead	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000
2.a.3	Other								
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	$137,873	$138,878	$131,876	$137,914	$125,992	$134,112	$130,274	$138,479
2.d.1	Curbside								
2.d.2	Drop-off	$97,920	$99,878	$101,876	$103,914	$105,992	$108,112	$110,274	$112,479
2.d.3	Combined Curbside/Drop-off								
2.d.4	Multi-family		$6,000		$6,000		$6,000		$6,000
2.d.5	Business/Institutional	$7,953	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
2.d.6	Other	$32,000	$25,000	$22,000	$20,000	$12,000	$12,000	$12,000	$12,000
2.e	e. Special Collections	$100,000	$112,000	$112,000	$112,000	$112,000	$112,000	$112,000	$87,000
2.e.1	Tire Collection	$23,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$15,000
2.e.2	HHW Collection	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$50,000
2.e.3	Electronics Collection		$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$10,000
2.e.4	Appliance Collection	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$12,000
2.e.5	Other Collection Drives								
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$39,000	$50,000	$40,000	$40,000	$40,000	$40,000	$40,000	$35,000
2.g.1	Education Staff								
2.g.2	Advertisement/Promotion	$39,000	$50,000	$40,000	$40,000	$40,000	$40,000	$40,000	$35,000
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	Ohio EPA 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	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000
2.n	n. Emergency Debris Management								
2.o	o. Loan Payment								
2.p	p. Other	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
3	**3. Health Dept. Enforcement**								
	Health Department Name:								
4	**4. County Assistance**	$0	$0	$0	$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								
5	**5. Well Testing**								
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump. Litter Law Enforcement**	$0	$0	$0	$0	$0	$0	$0	$0
7.a	a. Heath Departments								
7.b	b. Local Law Enforcement								
7.c	c. Other								
8	**8. Heath Department Training**								
9	**9. Municipal/Township Assistance**	$0	$0	$0	$0	$0	$0	$0	$0
9.a	a. Maintaining Roads								
9.b	b. Maintaining Public Facilities								
9.c	c. Providing Emergency Services								
9.d	d. Providing other Public Services								
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	Total Expenses	$510,969	$514,346	$508,218	$513,276	$527,525	$539,971	$532,619	$505,475

Table O-7 Expenses

Line #	Category/Program	2025	2026	2027	2028	2029	2030	2031	2032
1	**1. Plan Monitoring/Prep.**	$67,945	$63,743	$86,595	$87,503	$80,468	$71,492	$79,577	$75,724
1.a	a. Plan Preparation			$15,000	$20,000	$5,000			
1.b	b. Plan Monitoring	$59,945	$61,743	$63,595	$65,503	$67,468	$69,492	$71,577	$73,724
1.c	c. Other	$8,000	$2,000	$8,000	$2,000	$8,000	$2,000	$8,000	$2,000
2	**2. Plan Implementation**	$445,599	$458,090	$458,753	$471,592	$472,612	$485,818	$487,216	$500,811
2.a	a. District Administration	$160,870	$165,067	$169,389	$173,840	$178,425	$183,148	$188,013	$193,023
2.a.1	Personnel	$139,870	$144,067	$148,389	$152,840	$157,425	$162,148	$167,013	$172,023
2.a.2	Office Overhead	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000
2.a.3	Other								
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	$134,729	$143,024	$139,364	$147,751	$144,186	$152,670	$149,203	$157,788
2.d.1	Curbside								
2.d.2	Drop-off	$114,729	$117,024	$119,364	$121,751	$124,186	$126,670	$129,203	$131,788
2.d.3	Combined Curbside/Drop-off								
2.d.4	Multi-family		$6,000		$6,000		$6,000		$6,000
2.d.5	Business/Institutional	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
2.d.6	Other	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
2.e	e. Special Collections	$87,000	$87,000	$87,000	$87,000	$87,000	$87,000	$87,000	$87,000
2.e.1	Tire Collection	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
2.e.2	HHW Collection	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
2.e.3	Electronics Collection	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
2.e.4	Appliance Collection	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
2.e.5	Other Collection Drives								
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
2.g.1	Education Staff								
2.g.2	Advertisement/Promotion	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
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	Ohio EPA 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	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000	$16,000
2.n	n. Emergency Debris Management								
2.o	o. Loan Payment								
2.p	p. Other	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
3	**3. Health Dept. Enforcement**								
	Health Department Name:								
4	**4. County Assistance**	$0	$0	$0	$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								
5	**5. Well Testing**								
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump, Litter Law Enforcement**	$0	$0	$0	$0	$0	$0	$0	$0
7.a	a. Heath Departments								
7.b	b. Local Law Enforcement								
7.c	c. Other								
8	**8. Heath Department Training**								
9	**9. Municipal/Township Assistance**	$0	$0	$0	$0	$0	$0	$0	$0
9.a	a. Maintaining Roads								
9.b	b. Maintaining Public Facilities								
9.c	c. Providing Emergency Services								
9.d	d. Providing other Public Services								
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	Total Expenses	$513,544	$521,833	$545,348	$559,095	$553,080	$557,310	$566,793	$576,535

1.a Plan Preparation

2010-2032 - This cost includes staff and contracts with outside consultant to prepare the SWMD's solid waste management plan updates. The SWMD assumed the cost of the contract for all subsequent plan updates would be the same.

1.b Plan Monitoring

2010-2015 - This is the cost for a portion of staff time to monitor the plan.
2016-2032 - Costs are absorbed in line item 2.a District Administration for the planning period.

1.c Other

2010-2032 - This is the cost for assistance with data collection, surveys, and Re-TRAC subscription.

2.a District Administration

2010-2032 - This is the cost for payroll (one full-time coordinator and one full-time assistant) and benefits (including PERS, Medicare, and insurance), supplies (including postage, reproductions, advertising, printing, utilities, etc.), webpage maintenance, office equipment, and travel. 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 also include staffing time for some program costs, which are difficult to separate into their own line item. The costs of the program in 2010 through 2015 are actual expenses. Administrative costs are increased 3 percent on an annual basis to account for raises and cost of living adjustment. Office overhead costs are held constant.

2.d.2 Drop-off

2010-2016 - Actual costs to implement drop-off collection program. SWMD contracts with a private sector hauler to provide containers for recycling, collect recyclables, and process recyclables.
2017-2032 - Cost budgeted with annual 2 percent inflation through the planning period.

2.d.4 Multi-family

2010-2016 - Actual costs to provide technical assistance, education assistance (flyers, etc.), and a fraction of start-up expenses.
2017-2032 - Program costs are budgeted every other year through the planning period.

2.d.5 Business/Institutional

2010-2016 - Actual costs to provide technical assistance.
2017-2032 - Cost budgeted with annual 2 percent inflation through the planning period.

2.d.6 Other

2010 -2016 Actual costs to implement County Office Recycling Program. SWMD contracts with shredding service, office cleaning service, and private sector hauler.

2017-2020 - SWMD anticipates a phased decrease in funding with a review of the infrastructure and contracts for providing best and most economically effective program.

2021-2032 - Anticipated program costs after implementing changes.

2.e1 Tire Collection

2010-2016 - Actual costs to implement Scrap Tire Collection Program. SWMD contracts with a private business to manage a one-day collection event for residents.

2017-2032 -Program costs are held constant through the planning period.

2.e.2 HHW Collection

2010-2016 - Actual costs to implement Household Hazardous Waste Management Program. SWMD contracts with a private business to manage semi-permanent collection opportunity for residents. Reduced costs in year 2016 are reflective of contract changes with a different provider and 2 months less service.

2017-2019 - Program costs are held constant through the planning period.

2020-2032 - Program costs adjusted slightly to help sustain a lower generation fee. Program costs are held constant through the planning period.

2.e.3 Electronics Collection

2018-2032 - Program costs are held constant through the planning period. Costs are budgeted for waiver program with a local scrap processor to accept residential electronics. Program costs will not exceed annual budgeted costs.

2.e.4 Appliance Collection

2014-2016 - Actual costs to implement Curbside Freon Appliance Collection. SWMD contracts with a business to manage the collection, Freon removal, and recycling.

2017-2032 - Program costs are held constant through the planning period.

2.e.5 Other Collection Drives

2010-2013 - Actual costs to implement Curbside Freon Appliance Collection. Line item allocations on the quarterly fee reports changed slightly in 2014 allowing for a separate line item for Appliance Collection. Expenses beyond 2013 were moved to the Appliance Collection line item.

2.g.1 Education Staff

2010-2014 - Actual costs for education and outreach program supplies. Costs were allocated in 2015 to line item 2.g.2 Advertisement/Promotion.

2.g.2 Advertisement/Promotion

2015-2016 - Actual costs for education and outreach program supplies.
2015-2032 - Budget costs for outreach and education program supplies. Additional money is budgeted in 2018 for outreach priority program development costs.

2.g.3 Other

2013-2014 - Actual costs for RRI and grant awards to local businesses. Grant funding will also be earmarked for Townships to provide "No Littering" signs on roadways.

2.i. Service Contracts

2011 and 2014 - Outside contracts for service that were not allocated into other line items. Year 2011 expense was for the P2 internship program and 2014 expense was for paper and recycling at the county offices.

2.m Litter Collection/Education

2010-2016 - Actual appropriations for Roadside Litter Collection program.
2017-2032 - Budget is held constant through the planning period.

2.p Other

2010-2015 - Actual costs for Residential Recycling Incentive program and Commercial P2 Program and Internship.
2016 Actual costs for Commercial P2 Program and Internship. SWMD eliminated the Residential Recycling Incentive program.
2017- 2032 - A 2 percent inflation cost budgeted through the planning period

Revenues and expenses may change from projections anticipated in this Plan Update. Additional revenues are not expected, however, revenues could increase or decrease form 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 SWMD 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 SWMD 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 SWMD 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 SWMD.

Table O-8 Budget Summary

Year	Revenue	Expenses	Annual Surplus/Deficit ($)	Balance ($)
2009			**Ending Balance**	$1,608,955
2010	$1,182,414	$990,322	$192,092	$1,801,046
2011	$928,143	$1,025,126	-$96,983	$1,704,063
2012	$890,896	$877,859	$13,038	$1,717,100
2013	$688,391	$797,010	-$108,619	$1,608,481
2014	$424,214	***$685,049***	**-$260,835**	**$1,347,646**
2015	$371,642	$606,035	-$234,393	$1,113,253
2016	$385,433	$447,233	-$61,801	$1,051,453
2017	$366,621	$511,969	-$145,348	$906,104
2018	$366,621	$514,346	-$147,726	$759,379
2019	$366,621	$508,218	-$141,597	$617,781
2020	$447,098	$513,276	-$66,177	$551,604
2021	$447,098	$527,525	-$80,427	$471,177
2022	$447,098	$539,971	-$92,872	$378,305
2023	$447,098	$532,619	-$85,520	$292,785
2024	$536,518	$505,475	$31,043	$323,828
2025	$536,518	$513,544	$22,974	$346,802
2026	$536,518	$521,833	$14,685	$361,487
2027	$536,518	$545,348	-$8,830	$352,658
2028	$536,518	$559,095	-$22,577	$330,081
2029	$536,518	$553,080	-$16,562	$313,519
2030	$536,518	$557,310	-$20,792	$292,727
2031	$536,518	$566,793	-$30,275	$262,452
2032	$536,518	$576,535	-$40,017	$222,435

C. Alternative Budget

The SWMD 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.

D. Major Facility Project

The SWMD is not planning to construct or operate a new solid waste management facility during this planning period.

The SWMD does not anticipate the need to develop an in-District sanitary landfill or transfer station by either the private or public sector given the access to existing disposal capacity. However, the SWMD 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 SWMD determines that the access to, and the costs for disposal becomes an economic burden for residents and businesses, the SWMD reserves the right to explore development of a transfer facility for District-generated solid waste.

APPENDIX P DESIGNATION

A. Statement Authorizing/Precluding Designation

The Board of Directors of the Butler County Solid Waste Management District is 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.

B. Designated Facilities

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.

C. Documents

None

This page intentionally left blank.

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.

Currently there are no existing rules for the District.

B. Proposed Rules

The SWMD 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.

This page intentionally left blank.

APPENDIX R 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 the 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 of 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:

a. 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:

i. a site plan for the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste;
ii. 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;
iii. availability of necessary utilities;
iv. projected size and capacity of the proposed Solid Waste Facility, resource recovery facilities, waste-to-energy facilities or other facilities that manage solid waste;
v. hours of operation;
vi. 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;
vii. 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;
viii. routes to be used by vehicles utilizing the facility and methods of ingress and egress to the facility; and
ix. 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.

b. 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:

i. be consistent with the goals, objectives, projections and strategies contained in the Plan Update;
ii. not adversely affect financing for the implementation of the Plan Update;
iii. be installed, operated and maintained to be harmonious and appropriate in appearance and use with the existing or intended character of the area;
iv. be adequately served by essential public facilities and services;
v. not create excessive additional requirements at public cost for public facilities or services;
vi. not be detrimental to the economic welfare of the community;
vii. 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;
viii. not result in the destruction, loss or damage of a natural, scenic, or historic feature of major importance; and
ix. not adversely affect property values within the surrounding community.

c. 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 make a determination 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.

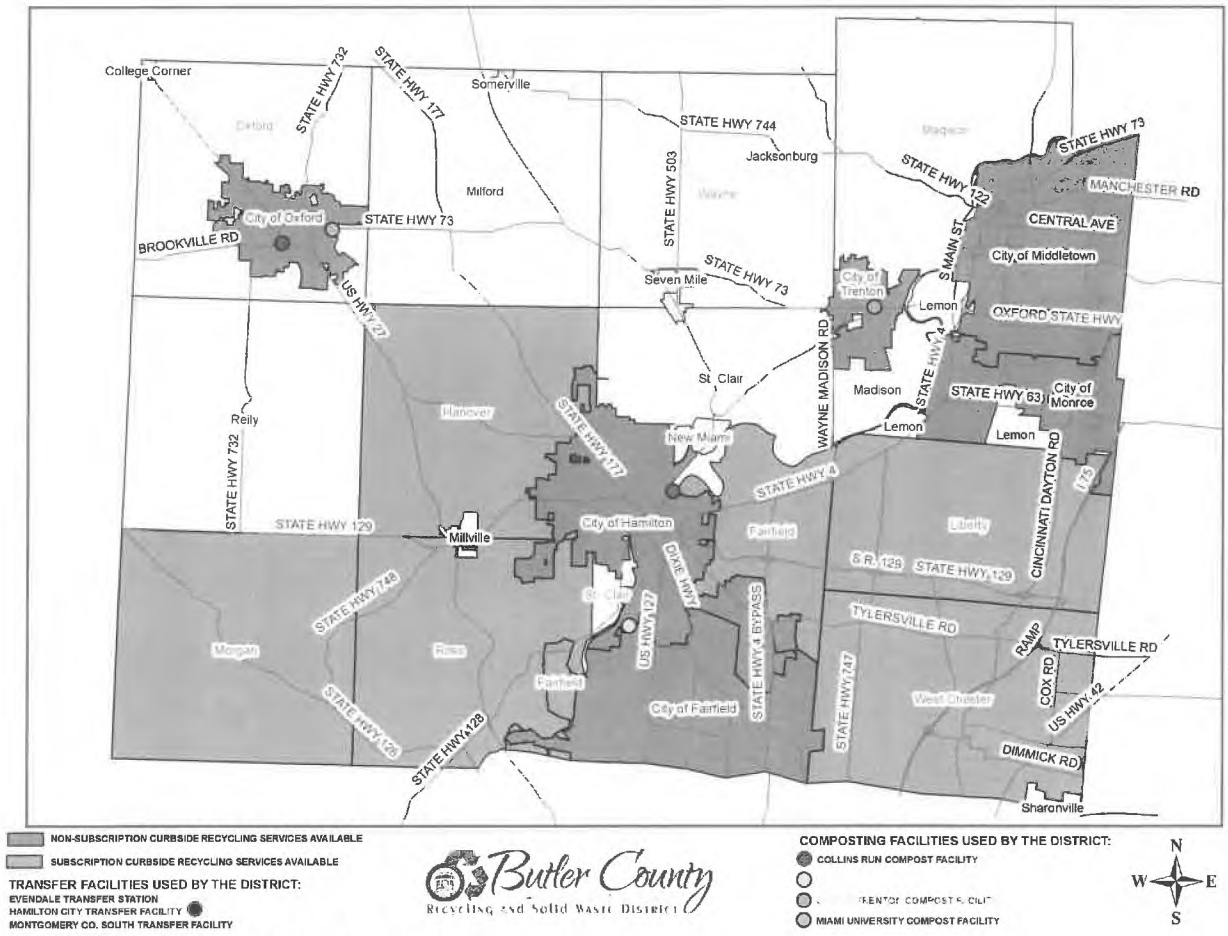
WAIVER

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 be in compliance with the Plan Update and the other requirements of these rules without additional review.

This page intentionally left blank.

APPENDIX S ADDITIONAL PROVISIONS (NOT SPECIFIED IN FORMAT 4.0 BUT INCLUDED HERE AS A REFERENCE)

A. Inventory of Existing Facilities



Note: Drop-off locations are included in Figure H5- in Appendix H.

Figure S-1 Map of Facilities and Sites Calendar Year 2015

B. Inventory of Open Dump Sites

Table S-1 Inventory of Open Dump Sites

Site Location (describe briefly)	Latitude (degrees, minutes, seconds)	Longitude (degrees, minutes, seconds)	Landowner Mailing Address	County	Description of Materials Dumped	Approximate Size of Parcel (in acres)	Time Period Site known
none							

C. Amounts of Solid Waste Originating Outside the District

The SWMD does not expect solid waste originating outside of the District to be brought into the SWMD for disposal or resource recovery. The SWMD does not have in-district landfills and the one transfer facility does not take waste from out of district.

D. ORC 3734.35 Expenses

Table S-2 is provided to meet the requirements of ORC 3734.53 (A)(10), however, Table O-7, in Appendix O, would also meet the requirements.

Table S-2 Revenues and Allocations in Accordance with ORC 3734.57, ORC 3734.572, and ORC 3734.573

Year	Total Annual Revenue ($)	Allocations of ORC 3734.57 and ORC 3734.573 Revenue For the Following Purposes:											Cumulative Balance
		1	2	3	4	5	6	7	8	9	10	Total Budget Allocation ($)	
													$1,608,955
2010	$1,182,414	$166,725	$823,598	$0	$0	$0	$0	$0	$0	$0	$0	$990,323	$1,801,046
2011	$928,143	$144,143	$880,984	$0	$0	$0	$0	$0	$0	$0	$0	$1,025,126	$1,704,063
2012	$890,896	$120,659	$757,200	$0	$0	$0	$0	$0	$0	$0	$0	$877,859	$1,717,100
2013	$688,391	$97,943	$699,067	$0	$0	$0	$0	$0	$0	$0	$0	$797,010	$1,608,481
2014	$424,214	$53,351	$631,699	$0	$0	$0	$0	$0	$0	$0	$0	$685,049	$1,347,646
2015	$371,642	$51,630	$554,405	$0	$0	$0	$0	$0	$0	$0	$0	$606,035	$1,113,253
2016	$385,433	$64,082	$383,151	$0	$0	$0	$0	$0	$0	$0	$0	$447,233	$1,051,452
2017	$366,621	$74,681	$437,288	$0	$0	$0	$0	$0	$0	$0	$0	$511,969	$906,104
2018	$366,621	$50,740	$464,718	$0	$0	$0	$0	$0	$0	$0	$0	$515,459	$757,266
2019	$366,621	$58,203	$451,290	$0	$0	$0	$0	$0	$0	$0	$0	$509,492	$614,394
2020	$447,098	$53,709	$451,007	$0	$0	$0	$0	$0	$0	$0	$0	$504,716	$556,777
2021	$447,098	$76,260	$442,874	$0	$0	$0	$0	$0	$0	$0	$0	$519,134	$484,742
2022	$447,098	$76,858	$454,894	$0	$0	$0	$0	$0	$0	$0	$0	$531,752	$400,089
2023	$447,098	$69,504	$455,072	$0	$0	$0	$0	$0	$0	$0	$0	$524,575	$322,612
2024	$603,583	$60,199	$467,412	$0	$0	$0	$0	$0	$0	$0	$0	$527,610	$398,584
2025	$603,583	$67,945	$467,918	$0	$0	$0	$0	$0	$0	$0	$0	$535,862	$466,305
2026	$603,583	$63,743	$480,595	$0	$0	$0	$0	$0	$0	$0	$0	$544,338	$525,550
2027	$603,583	$86,595	$481,447	$0	$0	$0	$0	$0	$0	$0	$0	$568,043	$561,090
2028	$603,583	$87,503	$494,480	$0	$0	$0	$0	$0	$0	$0	$0	$581,983	$582,689
2029	$603,583	$80,468	$495,698	$0	$0	$0	$0	$0	$0	$0	$0	$576,166	$610,106
2030	$603,583	$71,492	$509,106	$0	$0	$0	$0	$0	$0	$0	$0	$580,599	$633,090
2031	$603,583	$79,577	$510,710	$0	$0	$0	$0	$0	$0	$0	$0	$590,287	$646,386
2032	$603,583	$75,724	$524,514	$0	$0	$0	$0	$0	$0	$0	$0	$600,239	$649,730

Notes: Total Annual Revenues include carry over revenues from prior years beginning in 2011 as shown in Table 8-8

1 - Preparation and monitoring of plan implementation.

2 - Implementation of approved plan.

3 - Financial assistance to boards of health for solid waste enforcement.

4 - Financial assistance to defray the costs of maintaining roads and other public services related to the location or operation of solid waste facilities.

5 - Contracts with boards of health for collecting and analyzing samples from water wells adjacent to solid waste facilities.

6 - Out-of-state waste inspection program.

7 - Financial assistance to local boards of health to enforce ORC 3734.03 or to local law enforcement agencies having jurisdiction within the District for anti-littering.

8 - Financial assistance to local boards of health for employees to participate in Ohio EPA's training and certification program for solid waste operators and facility inspectors.

9 - Financial assistance to local municipalities and townships to defray the added cost of roads and services related to the operation of solid waste facilities.

10 - Payment of any expenses that are agreed to awarded or ordered to be paid under section 3745.35 of the Revised Code and any administrative costs incurred pursuant to that section.

E. Schedule for Implementation

a. Identification of SWMD Disposal, Transfer, Resource Recovery, or Recycling Facilities

Facilities used by the SWMD in the reference year are described throughout the plan, specifically in Appendix D. These facilities are expected for use throughout the planning period. Facilities identified in the plan meet statutory provision ORC 3734.53 (A)(13).

b. Schedule for Closure, Expansion, Establishment of Solid Waste Facilities

The SWMD has no in-district landfills. As of writing this plan the only out-of-district in-state facility expected to run out of capacity is Rumpke Waste, Inc. Hughes Rd Landfill. At the end of 2015, Rumpke reported 14 years of capacity. According to Ohio EPA, Rumpke is working on an expansion permit. The SWMD does not know when the permit will be approved.

This page intentionally left blank.

APPENDIX T CERTIFICATION STATEMENT, PUBLIC NOTICES, RESOLUTIONS

This page intentionally left blank.

Table T-1 Ratification Results

Butler			
Board of County Commissioners	**Approved**	**Rejected**	**Date Resolution Adopted**
	X		2/5/18
Community	**Population**		**Date Resolution Adopted**
	Approved	Rejected	
Cities			
Fairfield City	44,022		2/12/18
Hamilton City	64,315		2/14/18
Middletown City	50,221		3/6/18
Monroe City	13,668		1/23/18
Oxford City	22,420		2/6/18
Sharonville City*	-		This jurisdiction is included in Hamilton Co. SW Plan
Trenton City	12,619		2/1/18
Subtotal	207,265		
Townships			
Fairfield Township	22,690		1/24/18
Hanover Township	8,522		2/21/18
Lemon Township	2,403		2/1/18
Liberty Township	38,478		3/20/18
Madison Township	8,850		1/17/18
Milford Township	3,438		2/6/18
Morgan Township	5,787		2/20/18
Oxford Township	2,202		2/12/18
Reily Township	2,763		1/17/18
Ross Township	8,284		1/29/18
St Clair Township	4,629		3/12/18
Wayne Township	4,075		2/20/18
West Chester Township	61,794		2/13/18
Subtotal	173,914		
Villages			
College Corner Village	-		
Jacksonburg Village	66		3/5/18
Millville Village	737		
New Miami Village	2,360		1/18/18
Seven Mile Village	781		
Somerville Village	291		
Subtotal	2,426		
Total	**383,605**		
County Population			385,414
Ratification percentage	**99.5%**		

Butler County
Recycling and Solid Waste District

CERTIFICATION STATEMENT FOR THE DRAFT 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 (2018-2032), 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 *District Solid Waste Management Plan Format*, Version 4.0.

Representing the County Commissioners	2-24-2017 Date Signed
Representing CEO of Largest City	03/07/2017 Date Signed
Representing County Health Department	2/27/17 Date Signed
Representing Townships	2/27/17 Date Signed
Representing Commercial/Industrial Generators	2/27/2017 Date Signed
Representing the Public	2-27-17 Date Signed
Representing the Public	2/27/17 Date Signed

Resolution Adopting
Butler County Solid Waste Management Plan

A resolution declaring that the amended 2018 Solid Waste Management Plan Update for Butler County Recycling & Solid Waste Management District has been adopted.

WHEREAS, the District completed the draft amended Solid Waste Management Plan and submitted it to the Ohio Environmental Protection Agency for review and comment on March 2, 2017, and the Ohio Environmental Protection Agency provided comments in a non-binding advisory opinion on April 18, 2017;

WHEREAS, this Solid Waste Management District Policy Committee has reviewed the non-binding advisory opinion received from the Ohio Environmental Protection Agency and taken into consideration these comments, incorporating changes into the amended Plan where necessary;

WHEREAS, the Solid Waste Management District conducted a 30-day public comment period from October 16 November 14, 2017 and held a public hearing November 20, 2017, to provide the public an opportunity to have input in this Plan, and;

WHEREAS, the Solid Waste Management District incorporated one change resultant to the public comment period and such change is reflected in the narrative of the draft amended Solid Waste Plan;

NOW, THEREFORE, BE IT RESOLVED that the Solid Waste District Policy Committee of Butler County Recycling & Solid Waste Management District:

1. Adopts the amended Plan for Butler County Solid Waste Management District; and

2. Certifies that, to the best of our knowledge and belief, the statements, demonstrations, and all accompanying materials that comprise the District's Plan, and availability of and access to sufficient solid waste management facility capacity to meet the solid waste management needs of the District for the 15-year period covered by the Plan (2018-2032), are accurate and are in compliance with the requirements of the state *Solid Waste Management Plan Format*, version 4.0.

3. Directs that copies of the adopted Plan be delivered to the Board of County Commissioners and to the legislative authority of each municipal corporation and township under the jurisdiction of the District for ratification.

Motion made by Louise Jessett, seconded by Steve Schutte.

Voting for the Resolution

Butler County Commissioner

Municipal Representative - City of Hamilton

Township Trustee Representative

Voting Against the Resolution

Industrial –Institutional Representative

General Interest – Public Sector Representative

General Interest – Public Sector Representative

Butler County Health Commissioner Representative

Total votes FOR the resolution: 7 Total votes AGAINST the resolution: 0

ATTEST: Butler County Solid Waste District, Administrative Assistant Date: 12-4-2017

Butler County
RECYCLING & SOLID WASTE

RESOLUTION CERTIFYING RATIFICATION OF THE SOLID WASTE MANAGEMENT PLAN

A resolution declaring that the amended Solid Waste Management Plan for Butler County Solid Waste Management District has been ratified in accordance with Section 3734.55 of the Ohio Revised Code.

WHEREAS the District held a written public comment period from October 16 through November 20, 2017, and a public hearing November 20, 2017; and

WHEREAS the District received only one comment, originating from a township official, requesting that the Solid Waste Management District make available roadside litter signage to prevent and reduce littering along township roadways. The Policy Committee adopted the Solid Waste Management Plan Update on December 4, 2017 and issued the Solid Waste Management Plan Update for ratification for the period January 4 through April 3, 2018; and

WHEREAS the Solid Waste Plan Update includes provision for a solid waste generation fee increase of $0.18/ton which will result a generation fee of $1.00/ton effective January 1, 2020; and

WHEREAS the Solid Waste Management District Policy Committee has received copies of resolutions and ordinances approving the amended Plan from the board of county commissioners, the legislative body of the largest municipality within the District, and from elected officials in legislative jurisdictions representing at least 60% of the population within the District;

NOW THEREFORE be it resolved that the Solid Waste Management District Policy Committee of the Butler County Recycling and Solid Waste Management District declares the amended Plan for Butler County Solid Waste Management District to be ratified in accordance with Section 3734.55 of the Ohio Revised Code, and shall cause the amended Plan to be submitted to the Director of the Ohio Environmental Protection Agency for review.

This resolution shall be in effect immediately upon its adoption.

Voting FOR the Resolution:

Representing the County Commissioners	4/30/18 Date Signed
Representing CEO of Largest City	04/30/18 Date Signed
Representing County Health Department	4/30/18 Date Signed
Representing Townships	4/30/18 Date Signed
Representing Commercial/Industrial Generators	4/30/2018 Date Signed
Representing the Public	4/30/18 Date Signed
Representing the Public	4/30/18 Date Signed

Voting AGAINST the Resolution:

Representing the County Commissioners	Date Signed
Representing CEO of Largest City	Date Signed
Representing County Health Department	Date Signed
Representing Townships	Date Signed
Representing Commercial/Industrial Generators	Date Signed
Representing the Public	Date Signed
Representing the Public	Date Signed

PUBLIC NOTICE
BUTLER COUNTY RECYCLING AND SOLID WASTE MANAGEMENT DISTRICT
30-DAY WRITTEN COMMENT PERIOD AND PUBLIC HEARING

Butler County Commissioners, Municipalities, Townships

Butler County Recycling & Solid Waste District (District) is establishing a 30-day written comment period (Monday, October 16, 2017 until Tuesday, November 14, 2017) on the draft solid waste management plan (Ohio Revised Code Section 3734.55). The District has prepared a draft solid waste management plan as required by Section 3734.54 of the Ohio Revised Code. The draft plan is available for review on the District's Website at: www.butlercountyrecycles.org or, at the following locations:

Butler County Recycling & Solid Waste District
Administrative Center
130 High Street, 5th Floor
Hamilton, OH 45011

Butler County Board of Commissioners
Government Services Center
315 High Street, 6th Floor
Hamilton, OH 45011

Lane Public Library in Fairfield
1485 Corydale Drive
Fairfield, OH 45014

Midpoint Public Library – West Chester
9363 Centre Pointe Drive
West Chester, OH 45069

Interested parties are encouraged to review and comment on the Plan Update. Written comments can be submitted to: Anne Fiehrer Flaig, District Coordinator, Butler County Recycling & Solid Waste District, Administrative Center, 5th Floor, 130 High Street, Hamilton, OH 45011.

The Plan Update has been prepared to fulfill the requirements of Ohio solid waste laws and regulations. The Plan Update establishes a fifteen year planning period (2018-2032). The draft solid waste plan includes a solid waste facility inventory, projections and strategies, facilities and programs to be used, an analysis of progress made toward achieving state waste reduction goals, and cost to finance the plan. The plan includes the following programs: curbside recycling partnerships/promotions, drop-off recycling, household hazardous waste recycling, scrap tire recycling, computer/electronics recycling, Freon appliance collection program, county office recycling, subscription recycling outreach program (targeting townships), commercial/industrial technical assistance, industrial pollution prevention, business recycling grants, roadside litter collection, data collection, school recycling promotion, and multi-family recycling strategies.

The draft plan includes a demonstration of sufficient landfill capacity available to the District at landfill facilities within a reasonable distance. The closest landfill, Rumpke Sanitary Landfill, has sufficient capacity available through 2028. While no specifics are outlined in this plan, the Board of Commissioners reserves the right to designate facilities in accordance with ORC Section 343.014.

The District demonstrates achieving the State of Ohio 90% recycling access goal through a combination of curbside and drop-off recycling programs throughout the District. In addition the District is proposing a targeted outreach campaign to increase the total number of households participating in subscription curbside recycling service, with a focus on the most populous townships in Butler County.

The Plan includes a detailed budget outlining revenues and operational costs for programs. The District currently funds its programs and operations with a $0.82/ton generation fee assessed on waste that is generated in Butler County and tipped in Ohio landfills. The generation fee is proposed to increase to $1.00/ton effective January 1, 2020. Butler County's generation fee remains among the lowest in the state of Ohio.

The District will hold a **public hearing** to obtain oral comments regarding the draft plan on Monday, **November 20, 2017** from 9:30 am to 10:00 a.m. at the Butler County Government Services Center, Commissioners Meeting Room, 2nd Floor, 315 High Street, Hamilton, OH 45011.