2021 SOLID WASTE MANAGEMENT PLAN

Jefferson Belmont Regional Solid Waste Authority

PREPARED BY:

RRS recycle.com

COMMISSIONED BY:

JB GREEN TEAM

TABLE OF CONTENTS

Acronyms Used in this Document

2009 State Plan is used when referring to the *2009 State Solid Waste Management Plan* that was adopted in 2010.

2020 State Plan is used when referring to the *2020 State Solid Waste Management Plan*, adopted November 21, 2019.

ADR – Annual district report

Authority –Regional Solid Waste Management Authority

C&DD - Construction and demolition debris

DO – Drop-off

FGD – Flue gas desulfurization waste

FTR – Full-time, rural drop-off

FTU – Full-time, urban drop-off

Format is used when referring to this document, the *District Solid Waste Management Plan Format*, version 4.0

HHW – Household Hazardous Waste

HB – House Bill

JBRSWA – Jefferson Belmont Regional Solid Waste Authority

MRF – Material Recovery Facility

MSW – Municipal Solid Waste

NAICS - North American Industry Classification System

NSC – Non-subscription curbside recycling

PAYT – Pay as you throw trash collection

OAC – Ohio Administrative Code

Ohio EPA – Ohio Environmental Protection Agency

ORC – Ohio Revised Code

PA – Publicly available

PPD – Pounds per person per day

PTR – Part-time, rural drop-off

PTU – Part-time, urban drop-off

SIC – Standard Industrial Classification

SC – Subscription curbside recycling

State Plan is used when referring to the state solid waste management plan in general.

SWMD - Solid Waste Management District

TPD –Tons Per Day.

TPY –Tons Per Year

SECTION i SOLID WASTE MANAGEMENT DISTRICT INFORMATION

Table i-1 Solid Waste Management District Information

SWMD Name	Jefferson Belmont Regional Solid Waste Authority
Member Counties	Jefferson and Belmont
Coordinator's Name (main contact)	Anita Petrella
Job Title	Executive Director
Street Address	228 Technology Way
City, State, Zip Code	Steubenville, Ohio 43953
Phone	740-266-6899
Fax	740-266-6895
E-mail address	apetrella@jbgreenteam.org
Webpage	jbgreenteam.org

Table i-2 Members of the Board of Trustees

Member Name	Representing
Jefferson	
Joe Luckino	County Commissioners
James Mavromatis, City of Steubenville	Municipal Corporations
Scott Fabian	Townships
vacant position	Health District
Domenick Mucci	Generators
Mitch Morelli	Citizens
George Irvin, Jr	Public
Belmont	
Jerry Echemann	County Commissioners
Mayor John Davies, City of Martins Ferry	Municipal Corporations
Anthony Kolanski	Townships
Robert Sproul	Health District
Robert Krajnyak	Generators
Mark McVey	Citizens
Chuck Dawson	Public
Public Member	
Michael C. Bianconi	

Table i-3 Chairperson of Board of Trustees

Name	Scott Fabian
Street Address	PO Box 178 25 Smithfield Street
City, State, Zip Code	Mingo Junction, Ohio 43938
Phone	740-284-0751
Fax	
E-mail address	jsfabes@comcast.net

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

Commissioner Name	County	Chairperson/President
N/A		

The board of trustees is the governing Board for the Jefferson-Belmont Regional Solid Waste Authority.

Table i-5 Technical Advisory Committee

Name
N/A

Technical Advisory Committee was not utilized for this Plan Update and has not been appointed.

Consulting Information:

The Jefferson Belmont Regional Solid Waste Authority used Resource Recycling Systems, Inc. (RRS) to prepare the solid waste management plan.

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

Principal Consultant: Jamie Zawila

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). A SWMD is formed by county commissioners through a resolution. A board of county commissioners has the option of forming a single county SWMD or joining with the board(s) of county commissioners from one or more other counties to form a multi county SWMD. Ohio currently has 52 SWMDs. Of these, 37 are single county SWMDs and 15 are multi county SWMDs.[1]

A SWMD is governed by two bodies. The first is the board of directors which consists of the county commissioners from all counties in the SWMD. The second is a policy committee. The policy committee is responsible for developing a solid waste management plan for the SWMD. The board of directors is responsible for implementing the policy committee's solid waste management plan.[2] Jefferson Belmont Regional Solid Waste Authority (JBRSWA) is an Authority and has one governing body, the board of trustees. A board of trustees prepares, adopts, and submits the solid waste management plan and is responsible for implementing a solid waste management plan for the SWMD.

2. SOLID WASTE MANAGEMENT PLAN

In its solid waste management plan, the policy committee must, among other things, demonstrate that the Authority will have access to at least 10 years of landfill capacity to manage all of the Authority's solid wastes that will be disposed. The solid waste management plan must also show how the Authority 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.

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[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, and Ohio Administrative Code (OAC) Rule 3745-27-90. Ohio EPA prescribes the format that details the information that is provided and the manner in which that information is presented. This format is very similar in concept to a permit application for a solid waste landfill.

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

Next, the board of trustees ratifies the plan. Ratification is the process that the board of trustees must follow to give the Authority's communities the opportunity to approve or reject the draft plan. Once the plan is ratified, the board of trustees 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 board of trustees is required to submit periodic updates to its solid waste management plan to Ohio EPA. How often the board of trustees 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 board of trustees 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 board of trustees must submit a revised plan to Ohio EPA within five years of the date the plan was approved.

C. District Overview

March 23, 1989 the Jefferson and Belmont County Commissioners passed a resolution establishing a joint two-county Solid Waste Management District. In 1993, the County Commissioners reconfigured the solid waste management district to an Authority, establishing the Jefferson Belmont Regional Solid Waste Authority (JBRSWA), aka JB Green Team.

The Authority operates from two locations. The Belmont County location is located in St. Clairsville, Ohio and has a garage and office. The Jefferson County site is newly located in the Steubenville, Ohio. The Jefferson County office houses a maintenance and storage garage as well as administrative offices. The main Authority operations are in the Jefferson location.

The SWMD's waste management strategy is integrated with a mix of several waste management approaches, depending on the economic and environmental conditions. JBRSWA uses source reduction, recycling, composting, and landfilling options for managing their waste stream. The private sector has a long history of providing trash collection and waste management services throughout both counties. Jefferson County has one active permitted municipal solid waste landfill with plenty of capacity, but JBRSWA also relies on neighboring districts for landfill disposal. Waste collection throughout JBRSWA is either by municipal contract, self-haul by a political jurisdiction or by individual residential or business, or by subscription (residents subscribe with a private company for service).

Except for one municipal waste collection system, the Authority operates in an open market system, which means customers have a choice of any waste hauler because the system is open to competition.

Private sector also services recycling collection but, there are economic challenges of providing services cost effectively. As with waste collection, recycling collection services are also in an open market system. As such, the recycling collection, processing and marketing tends to be more localized. JBRSWA is a facilitator and/or a direct service provider of recycling programs. JBRSWA provides and collects drop-off containers and serves many local businesses. Materials are collected in a dual stream.

Over the next 15-years JBRSWA is planning to continue streamlining programming and service options as well as focus on cultivating waste reduction and recycling programs in businesses and institutions.

D. Waste Reduction and Recycling Goals

As explained earlier, a SWMD (refers to both SWMDs and Authorities) must achieve goals established in the state solid waste management plan. The current state solid waste management plan is the *2020 Solid Waste Management Plan* (2020 State Plan), adopted November 2, 2019. The 2020 State Plan established ten goals as follows:

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

2. The SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial 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 incorporate a strategic initiative for the industrial sector into its solid waste management plan.

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

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

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

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

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

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

A SWMD's solid waste management plan will provide programs to meet up to eight of the goals. Goal 9 (market development) is an optional goal. Goal 10 requires submitting annual reports to Ohio EPA, and no demonstration of achieving that goal is needed for the solid waste management plan.

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

CHAPTER 2 DISTRICT PROFILE

Purpose of Chapter 2

This chapter provides context for the Authority's solid waste management plan by providing an overview of general characteristics of the Authority. Characteristics discussed in this chapter include:

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

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

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

The make-up of the commercial and industrial sectors within the Authority influences the types of wastes generated and the types of programs the Authroity 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 board of trustees must take into account all of these characteristics when developing its overall waste management strategy.

A. Profile of Political Jurisdictions

1. COUNTIES IN THE SOLID WASTE MANAGEMENT DISTRICT

Two counties make up the solid waste management district: Jefferson County and Belmont County. In Jefferson County, the Village of Adena straddles both Jefferson County and Harrison County. The majority of the population resides in Jefferson County. An adjustment was made to include the entire population of the Village of Adena to JBRSWA. In Belmont County, the Village of Wilson straddles both Belmont County and Monroe County. The majority of the population resides in Monroe County. An adjustment was made to exclude from JBRSWA the portion of the Village of Wilson's population residing in Belmont County.

2. COUNTY OVERVIEW

JBRSWA is a two county District geographically located on the eastern Ohio border. Both counties border the Ohio River and are part of the Appalachian region. The surface of both Jefferson and Belmont counties is hilly and consists chiefly of V-shaped valleys.

Jefferson County – Roughly 10% of the land is developed. The county is heavily rural and has experienced declining population. The Ohio River forms the eastern boundary.

Belmont County – Roughly 8% of the land is developed. Belmont County is also heavily rural and has experienced declining population. The Ohio River forms the eastern boundary.

B. Population

1. REFERENCE YEAR POPULATION

In 2017, Jefferson and Belmont Counties were the 38th and 36th most populous counties in Ohio out of 88 total counties.[3] 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. Two communities in JBRSWA are located in more than one solid waste district. The majority of the population of the Village of Wilson in Belmont County resides in another district, and thus the population of the Village residing in Belmont County is subtracted from the total population of JBRSWA. The majority of population of Village of Adena is located in Jefferson County and thus was added to JBRSWA's total population.

Table 2-1 Population of District in the Reference Year

	Jefferson	Belmont
Before Adjustment	67,284	69,336
Additions		
Village of Adena	117	
Subtractions		
Village of Wilson		36
After Adjustment	67,401	69,300
Total Adjusted Population	136,701	

2. POPULATION DISTRIBUTION

Table 2-1 shows the largest community in each county and the size of the community relative to the total population of the county. The largest community in Jefferson County is the City of Steubenville, accounting for just over a fourth of the county's population. In Belmont County the largest community is Richland Township at roughly 14% of Belmont County's population.

Table 2-2 Population Distribution in the Reference Year

County		Largest Political Jurisdiction		
Name	**Population**	**Community Name**	**Population**	**Percent of Total County Population**
Jefferson	67,401	Steubenville	18,186	27%
Belmont	69,300	Richland Township	9,688	14%

[3] United States Census Bureau. B01001 SEX BY AGE, 2017 American Community Survey 5-Year Estimate. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. http://www.census.gov/.

Table 2-3 shows distribution of the population in cities, villages, and townships and the distribution of the population in incorporated versus unincorporated areas. Over half of Belmont County's and just under 45% of Jefferson County's population resides in unincorporated townships. The distribution of incorporated versus unincorporated areas is almost equally distributed.

Table 2-3 Population Distribution

County	Percent of Population in Cities	Percent of Population in Villages	Percent of Population in Unincorporated Township
Jefferson	**34%**	**23%**	**43%**
Belmont	**17%**	**29%**	**54%**

3. POPULATION CHANGE

From 2010 to 2018, Jefferson County population decreased by 5.7% and Belmont County population decreased by 4.1%. Overall the JBRSWA's population declined by 4.9%. While the District's population declined, Ohio's population grew 1.3% during the same time period.

Through the planning period (2021-2035) Jefferson County's population is forecasted to decrease 1% and Belmont County's to decline by 3%. Overall the District population will decrease by 2% during that time. This projection 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 there is room for error in projection calculations because of the difficulty associated with forecasting. As projected by ODSA, population is expected to decrease.

4. IMPLICATIONS FOR SOLID WASTE MANAGEMENT

JBRSWA identifies several implications of the residential population characteristics on managing solid waste and providing recycling programs. The first is the low population densities in each County. In Belmont County the population density is 132 persons per square mile. The County is rural and not heavily populated. Jefferson County is slightly more at 167 persons per square mile. Both are more densely populated on the eastern boundary of each County than in the central or western areas. In addition to this challenge, both counties poverty rates at 14.1% for Belmont County and 17.6% in Jefferson County are higher than the State of Ohio's rate at 13.9%. The lower population density of rural towns cannot support the cost of curbside collection and communities cannot afford to add the costs of collection and processing to their budgets. As shown in Figure 2-1 more than a quarter of households in each county reside in in renter-occupied housing units. JBRSWA has found the best method for providing recycling opportunities to these residents is with drop-off recycling.

Fracking waste landfilled increased considerably over the past few years raising the per capita disposal rate from 5.1 pounds per person per day in 2012 to 16.92 pounds per person per day in 2017. Ohio Department of Natural Resources (ODNR) tracks and maps the oil and gas wells in the State of Ohio. Figure 2-2 shows the wells located in both counties.

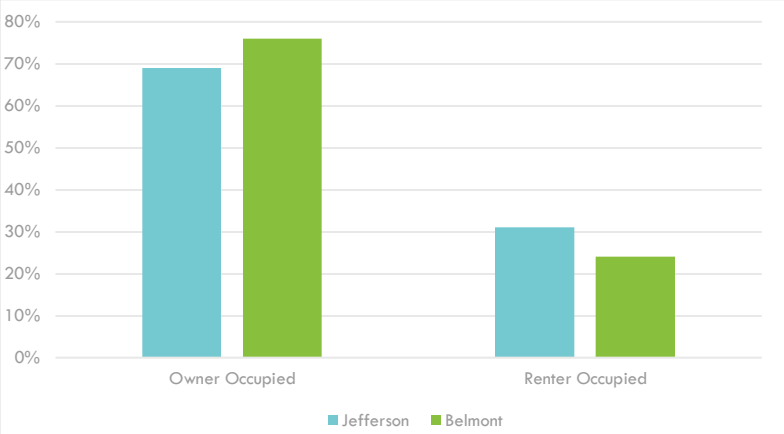


Figure 2-1 Housing Units Occupied

At forecasted projections JBRSWA does not expect any implications in managing the increased waste from oil and gas well operations. JBRSWA's in-district landfill and neighboring districts' landfill capacity is adequate for JBRSWA's solid waste management needs. Waste collection throughout JBRSWA is either by contract, self-haul by a political jurisdiction or by individual residential or business subscription, or by subscription (residents subscribe with a private company for service). JBRSWA has a competitive market for solid waste collection and disposal services. JBRSWA will continue to operate drop-off recycling programs.

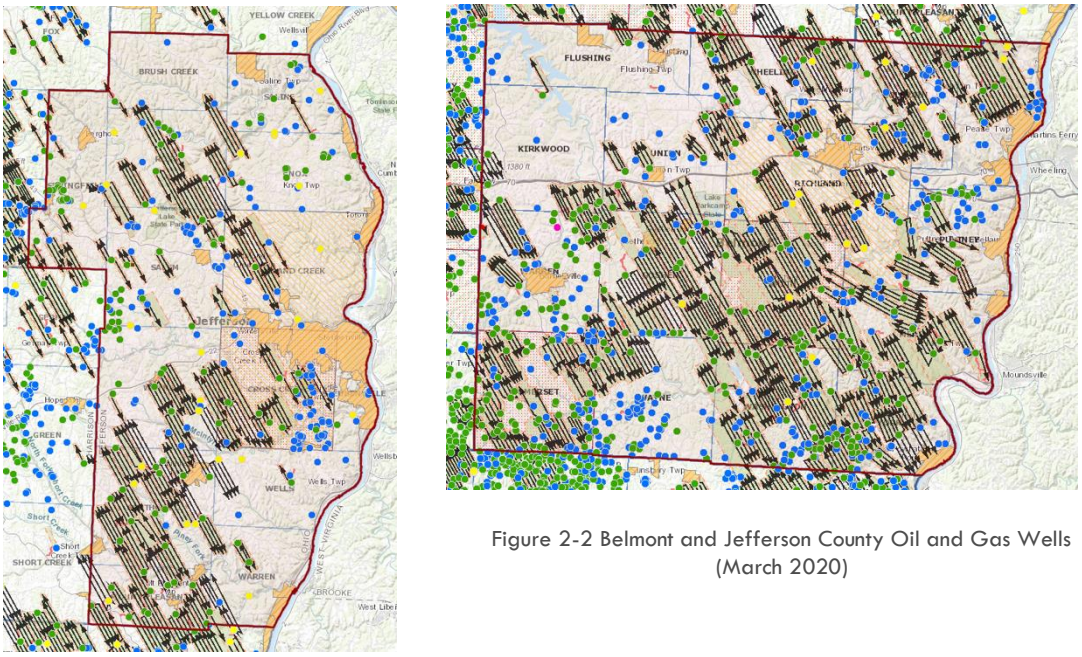


Figure 2-2 Belmont and Jefferson County Oil and Gas Wells (March 2020)

C. Profile of Commercial and Institutional Sector

Transportation and utilities, education, and health services, are the largest employment sectors in both Counties. The top employment sectors are shown in Figure 2-3 and Table 2-4.

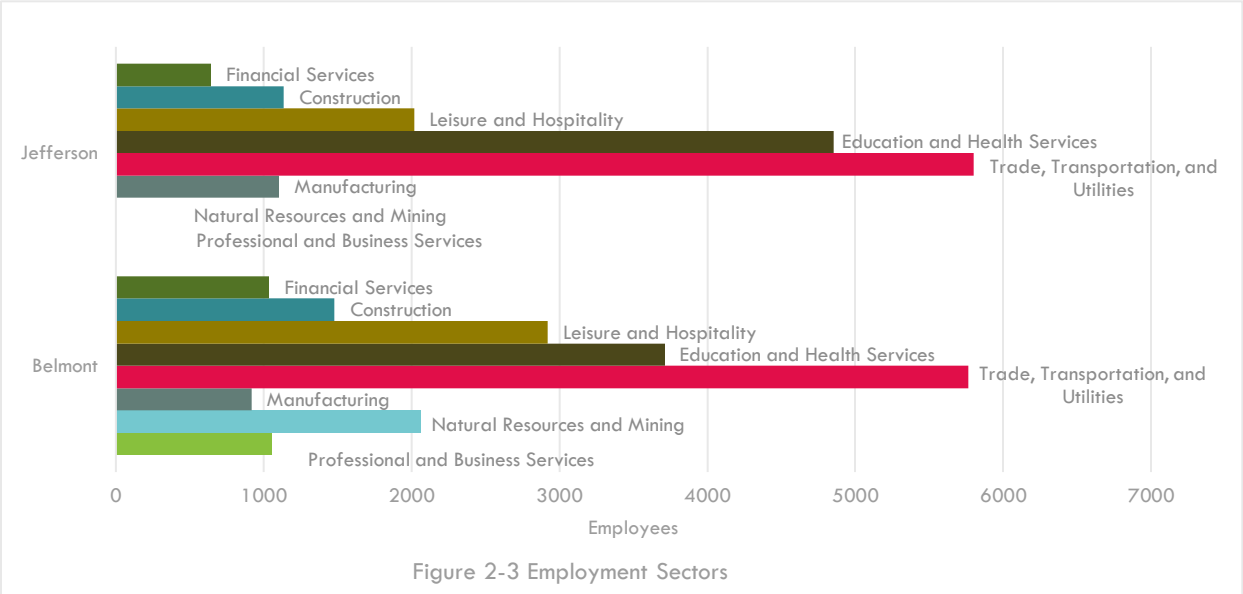


Figure 2-3 Employment Sectors

County data source: Ohio County Profiles for Jefferson and Belmont Counties. 2017.

Table 2-4 Top Employers by Employment in Commercial and Institutional Sectors

Business	Type of Business
Jefferson County	
Trinity Health System	Institution – Health
Walmart Distribution Center	Retail
Eastern Gateway Community College	Institution – School
FirstEnergy	Utility
Cardinal Power Plant	Utility
Belmont County	
Barnesville Hospital Association.	Institution - Hospital
Belmont Community Hospital	Institution – Hospital
Belmont County Government	Public Administration
East Ohio Regional Hospital	Institution - Hospital
Kroger Co	Retail

D. Profile of Industrial Sector

In 2017, Jefferson had 35 manufacturing establishments and Belmont had 44. The top manufacturing employers by employment in the county are listed in Table 2-5. The manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The state of Ohio is a leader in manufacturing jobs with 14,000 establishments. In both Jefferson and Belmont County manufacturing has declined and has less establishments and employment in this sector than other sectors.

Table 2-5 Top Employers by Employment in Manufacturing Sectors

Business	Type of Business
Jefferson County	
Timet	Manufacturing

Business	Type of Business
JBS Technologies LLC	Manufacturing
Bill Denoon Lumber Co	Manufacturing
Belmont County	
Nickles Bakery	Manufacturing
United Dairy, Inc.	Manufacturing

Source: Lexis Nexis and Ohio County Profiles

The waste stream from the manufacturing sector is not large. Landfilled waste from the industrial sector is dominated by two coal-burning power plants. (Note: A third coal burning power plant located in Shadyside. the R.E. Burger Power Station, closed in 2011.) Flue gas desulphurization (FGD) waste from First Energy's W.H. Sammis Plant and from the co-owned Cardinal Plant contributed 73% of the industrial waste landfilled in JBRSWA in 2017. When the amount of waste disposed by these two power plants is included in calculations of the amount of waste generated within JBRSWA, it has a disproportionate effect on the District's waste disposal and recycling statistics for planning purposes. Therefore, in the Appendices to this Plan, JBRSWA is providing additional plan tables and explanations that exclude the waste from these power plants.

Industries are financially responsible for implementing their own recycling programs and contracting for services to meet their trash and recycling needs.

E. Other Characteristics

Low disposal costs in the region, higher recycling processing costs, and low recycling commodity values contribute to create more challenges to recycling in JBRSWA. This is made worse by the higher level of economic stress that exists within JBRSWA compared to most counties in Ohio. Because the District is largely rural and hilly, with modestly-sized communities rather than large commercial and residential developments, curbside recycling is difficult to provide at a reasonable cost and there is little incentive to pursue collection franchise contracts. Travel from one end of the Authority to the other requires considerable time. In the current challenging economic times, the communities prioritize services they can afford, and recycling is usually at the bottom of the list.

CHAPTER 3 WASTE GENERATION

Purpose of Chapter 3

This chapter of the solid waste management plan provides a summary of the Authority's historical and projected solid waste generation. The board of trustees needs to understand the waste the Authority will generate before it can make decisions regarding how to manage the waste. Thus, the board of trustees analyzed the amounts and types of waste that were generated within the Authority in the past and that could be generated in the future.

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

The Authority's board of trustees 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 the survey is voluntary. The Authority uses the survey information that is provided to estimate recycling and generation rates.

The board of trustees obtained disposal data from Ohio EPA. Owners/operators of solid waste facilities submit annual reports to Ohio EPA that state 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 board of trustees analyzed historic quantities of waste generated to project future waste generation. The details of this analysis are presented in Appendix G. The board of trustees used the projections to make decisions on how best to manage waste and to ensure future access to adequate waste management capacity, including recycling infrastructure and disposal facilities.

A. Solid Waste Generated in Reference Year

Waste generation refers to the volume of materials that enter the waste stream before recycling, composting, landfilling or other waste management. JBRSWA estimated waste generation based on data collected from several sources including:

- Ohio EPA Facility Data Reports
- Voluntary responses to surveys of commercial and industrial businesses recyclers, buybacks, brokers, and scrap dealers
- Ohio EPA MRF reports (Ohio EPA collects data from commercial 'big box stores' and material recovery facilities)

Waste Generation = Wastes Disposed + Wastes Diverted

In 2017, JBRSWA generated 1,099,696 tons of material, as shown in Figure 3-1.

Table 3-1 Solid Waste Generated in the Reference Year

Type of Waste	Quantity Generated (tons)
Residential/ Commercial	422,120
Industrial	677,576
Excluded	0
Total	1,099,696

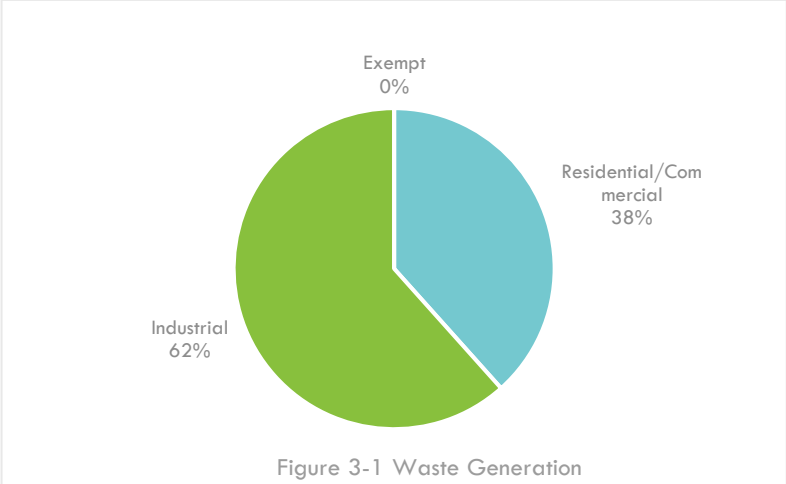


Figure 3-1 Waste Generation

1. Residential/Commercial Waste Generated in the Reference Year

JBRSWA generated 422,120 tons of waste in the residential/commercial sector. This estimated generation indicates each person generates approximately 16.92 pounds per day.

Waste generation is higher due to disposal of solid waste generated from hydraulic fracking processes. Figure 3-2 shows the per capita generation including and excluding fracking waste. It is not known how long the measured impact in waste generation will remain but it's clear the fracking waste is not a direct measurement of how much waste one person generates. Thus, for planning purposes JBRSWA calculated per capita generation with and without fracking waste. See Appendix D for methodology detail. Per capita waste generation without fracking waste is 5.78 pounds per person per day.

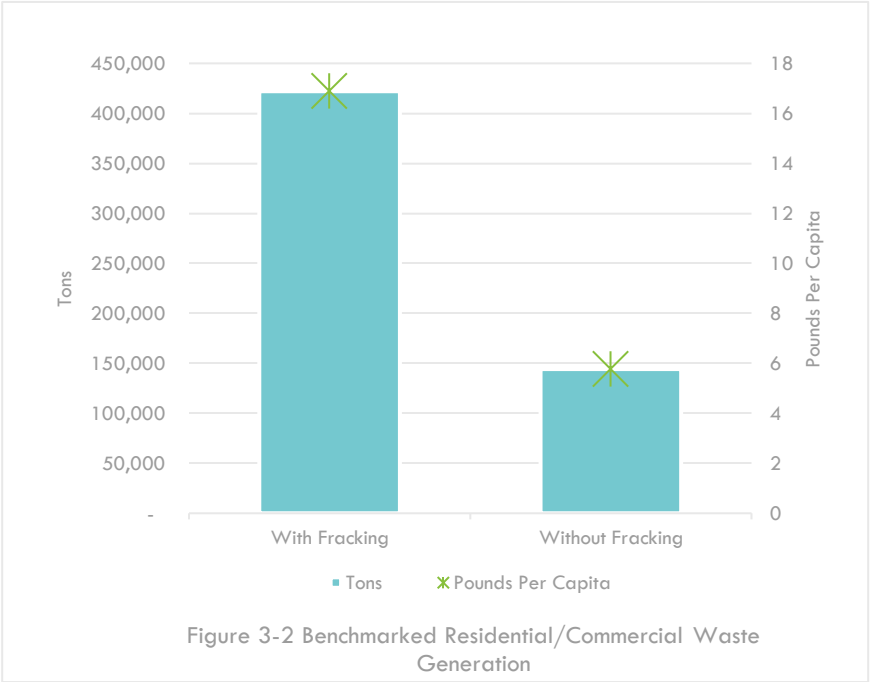


Figure 3-2 Benchmarked Residential/Commercial Waste Generation

2. Industrial Waste Generated in the Reference Year

The industrial sector generated 677,576 tons of waste. Industrial generation is skewed by large amounts of waste disposal at captive landfills. Approximately 73% of the industrial waste is disposed by coal-fired power plants in captive landfills owned by the power plants. Excluding captive landfill disposal, the total generation of industrial waste that needs to be managed at non-captive solid waste facilities is 189,945 tons.

3. Excluded Waste Generated in the Reference Year

Excluded waste is waste material exempt from the definition of solid waste in ORC 3734.01. Ohio EPA Format 4.0 adds a threshold for exempt waste which excludes exempt waste from calculations if less than 10% of

waste generated. Exempt waste for the Authority is less than 10% of waste generated and is therefore not considered in the analysis of this plan.

B. Historical Waste Generated

1. Historical Residential/Commercial Waste Generated

A review of residential/commercial waste generation demonstrates an increasing trend line over the past five years shows as shown in Figure 3-3. During this time the residential/commercial sector waste generation has more than doubled. The increase is primarily due to fracking industry waste disposal. Waste generation increases are not increasing proportionally to population growth. The increased residential/commercial waste disposal tonnage from fracking waste adds complexity to historical analysis and forecasting. To gain a better understanding of how much waste one person generates, JBRSWA estimates the volume of fracking waste by using landfill reports and then calculates per capita waste generation without the fracking waste volume for year 2017.

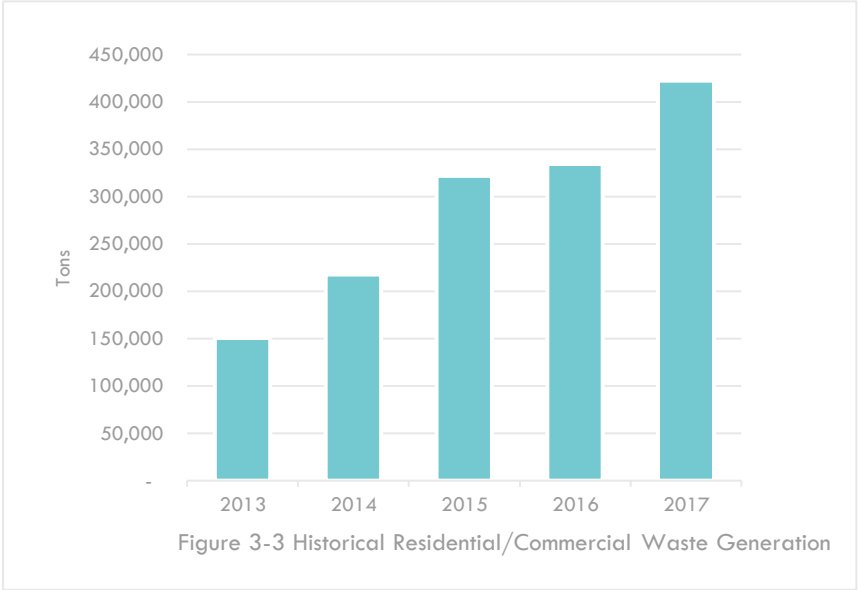


Figure 3-3 Historical Residential/Commercial Waste Generation

2. Historical Industrial Waste Generated

Industrial generation declined by more than 900,000 tons since 2014. In this region of Ohio, the production of electricity from coal-fired power plants has decreased. Waste historically is higher because of volumes of waste disposed in the captive landfills. A decline in production results in less waste disposal. Figure 3-4 shows the breakdown of captive landfill waste disposal (power plant landfill) versus other industrial landfill waste disposal.

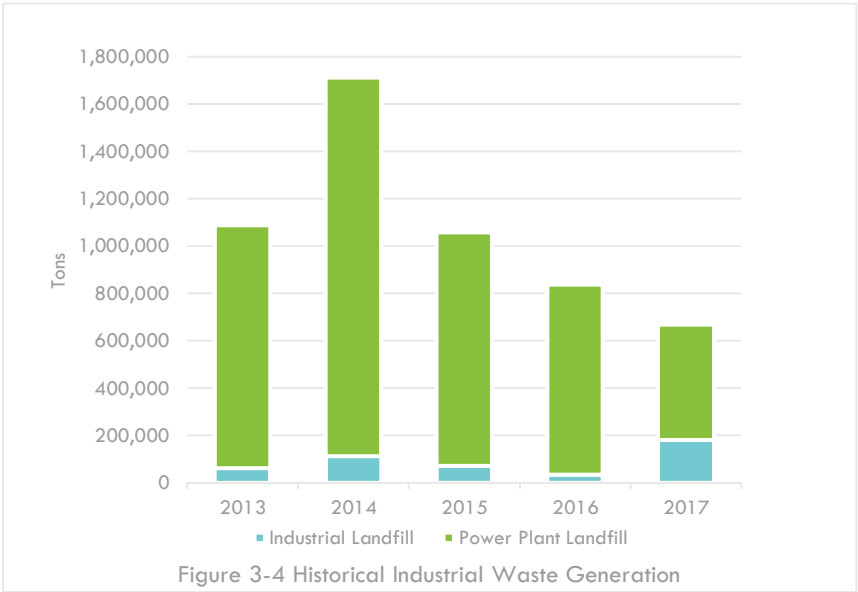


Figure 3-4 Historical Industrial Waste Generation

Trade, utilities and transportation is the top employer in the two counties, not manufacturing. This explains why the captive landfill waste is generally much higher and why industrial waste disposal is greatly impacted by the utilities. While Ohio manufacturing has declined in Ohio since 2000, the biggest impact to the industrial waste stream in JBRSWA is the loss of coal-producing power production.

C. Waste Generation Projections

Historical and reference year data assist in forecasting waste generation to plan future infrastructure needs. As JBRSWA plans for future infrastructure it is important to look at the impacts of the fracking waste and coal industry in the two counties. Residential/commercial waste generation has increased over the past several years as shown by the landfilled waste disposal data. Industrial waste generation is decreasing with the decline documented in landfilled waste disposal.

JBRSWA conducted online research into fracking and coal power plants to try to determine how waste disposal may be impacted through the planning period. Not much was found to guide future estimations for waste disposal amounts. Fracking permits are expected to continue to increase. And while plans to retire First Energy's W.H. Sammis Plant in 2022 were announced, it was decided in 2019 after passing of Ohio House Bill 6 the coal utility productions will continue. Additionally, the former R.E. Burger coal-fired power plant, closed since 2011, was purchased by a utility company which is developing the plant into a Cracker Site. This will be a petrochemical site that turns locally produced natural gas into plastic. The opening and operation of this facility may increase the amount of waste that needs to be landfilled. At this time, it's difficult to accurately project waste generation. Estimation and forecasting explanations are provided in more detail in Appendices D, E, F and G.

Table 3-2 and Table 3-2a presents projected waste generation for the first 6 years of the planning period including and excluding fracking waste.

Table 3-2 Waste Generation Projections (including Fracking Waste)

Year	Residential Commercial Waste	Industrial Waste	Excluded Waste	Total
	Waste (tons)	Waste (tons)	Waste (tons)	Waste (tons)
2021	416,439	651,012	0	1,067,451
2022	415,623	644,667	0	1,060,291
2023	414,809	638,388	0	1,053,197
2024	413,996	632,173	0	1,046,169
2025	413,184	626,021	0	1,039,206
2026	412,601	619,933	0	1,032,534

Source: Appendices G and K
Sample Calculation:
Generation = Disposal + Recycle
Total = Residential/Commercial Generation + Industrial Generation
Per Capita Generation = ((Generation x 2000) / 365) / Population

Table 3-2a Waste Generation Projections (excluding Fracking Waste and Captive Waste)

Year	Residential Commercial Waste	Industrial Waste	Excluded Waste	Total
	Waste (tons)	Waste (tons)	Waste (tons)	Waste (tons)
2021	141,597	182,596	0	324,193
2022	141,420	180,935	0	322,355
2023	141,244	179,293	0	320,537
2024	141,069	177,669	0	318,738

Year	Residential Commercial Waste	Industrial Waste	Excluded Waste	Total
	Waste (tons)	Waste (tons)	Waste (tons)	Waste (tons)
2025	140,896	176,063	0	316,959
2026	140,797	174,474	0	315,271

Source: Appendices G and K
Sample Calculation:
Generation = Disposal + Recycle
Total = Residential/Commercial Generation + Industrial Generation
Per Capita Generation = ((Generation x 2000) / 365) / Population

CHAPTER 4 WASTE MANAGEMENT

Purpose of Chapter 4

Chapter 3 provided a summary of how much solid waste was generated in the Authority in the reference year and how much waste the board of trustees estimates the Authority will generate during the planning period. This chapter summarizes the board of trustee's strategy for managing that waste during the planning period.

The Authority must provide access to facilities that have sufficient capacity to meet the solid waste management needs of the Authority. This includes landfills, transfer facilities, incinerator/waste-to-energy facilities, compost facilities, and facilities to process recyclable materials. This chapter describes the board of trustee's strategy for managing the waste that will be generated within the Authority during the planning period.

To ensure that the Authority has access to facilities, the solid waste management plan identifies the facilities the board of trustees expects will take the Authority's trash, compost, and recyclables. Those facilities must be adequate to manage all of the Authority's solid waste. The Authority does not have to own or operate the identified facilities. Further, identified facilities can be any combination of facilities located within and outside of the Authority (including facilities located in other states).

Although the board of trustees needs to ensure that the Authority will have access to all types of needed facilities, Ohio law emphasizes access to disposal capacity. In the solid waste management plan, the board of trustees must demonstrate that the Authority will have access to enough landfill capacity for all of the waste the Authority will need to dispose of. If there isn't adequate landfill capacity, then the board of trustees develops 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, the Authority has the ability to control which landfill and transfer facilities can, and by extension cannot, accept waste that was generated within the Authority. The Authority accomplishes this by designating solid waste facilities (often referred to flow control). The Authority's authority to designate facilities is explained in more detail later in this chapter.

A. Waste Management Overview

JBRSWA manages waste through a combination of landfills, recycling programs and facilities, transfer stations, and composting facilities. Figure 4-1 depicts total waste generation management in the reference year. The majority of waste generated is managed through landfill disposal (includes fracking and captive landfill waste disposal).

Table 4-1 and Table 4-1a presents projected waste generation for the first 6 years of the planning period including and excluding fracking waste.

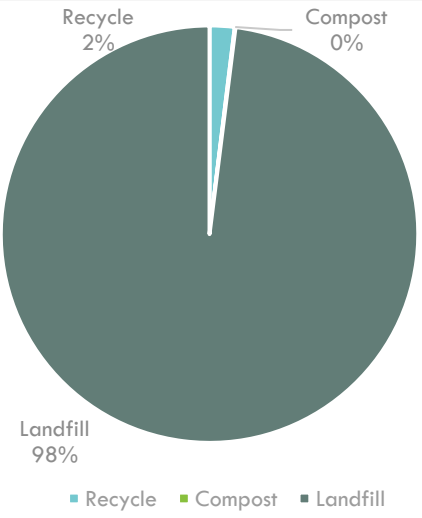


Figure 4-1 Methods of Managing Waste

Table 4-1 Methods for Managing Waste Projections (including Fracking Waste)

Year	Generate[1]	Recycle[2]	Compost[3]	Transfer[4]	Landfill[5]
2021	1,067,451	19,583	1,006	19,017	1,046,862
2022	1,060,291	19,768	1,026	18,973	1,039,496
2023	1,053,197	19,956	1,047	18,929	1,032,195
2024	1,046,169	20,145	1,068	18,884	1,024,956
2025	1,039,206	20,336	1,089	18,840	1,017,781
2026	1,067,451	20,528	1,111	18,807	1,010,896

Source:
[1]Reference Year Appendix Table G-1 and Projections Table G-2
[2]Reference Year Appendix Table E-5 and Projections Table K-3 subtracting compost
[3]Reference Year Appendix Table B-5 and Projections Table E-7
[4]Reference Year Appendix Table D-2 and Projections Table D-5
[5]Reference Year Appendix Table D-3 and Projections Table D-5

Table 4-1a Methods for Managing Waste Projections (excluding Fracking Waste and Captive Waste)

Year	Generate[1]	Recycle[2]	Compost[3]	Transfer[4]	Landfill[5]
2021	324,193	19,583	1,006	19,017	303,604
2022	322,355	19,768	1,026	18,973	301,561
2023	320,537	19,956	1,047	18,929	299,535
2024	318,738	20,145	1,068	18,884	297,526
2025	316,959	20,336	1,089	18,840	295,534
2026	315,271	20,528	1,111	18,807	293,632

Source:
[1]Reference Year Appendix Table G-1 and Projections Table G-2
[2]Reference Year Appendix Table E-5 and Projections Table K-3 subtracting compost
[3]Reference Year Appendix Table B-5 and Projections Table E-7
[4]Reference Year Appendix Table D-2 and Projections Table D-5
[5]Reference Year Appendix Table D-3 and Projections Table D-5

B. Profile of Waste Management Infrastructure

1. Landfill Facilities

Municipal solid waste and captive landfills were used in the reference year. A wide variety of wastes are disposed in municipal solid waste landfills and includes 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 may also be disposed in municipal solid waste landfills.

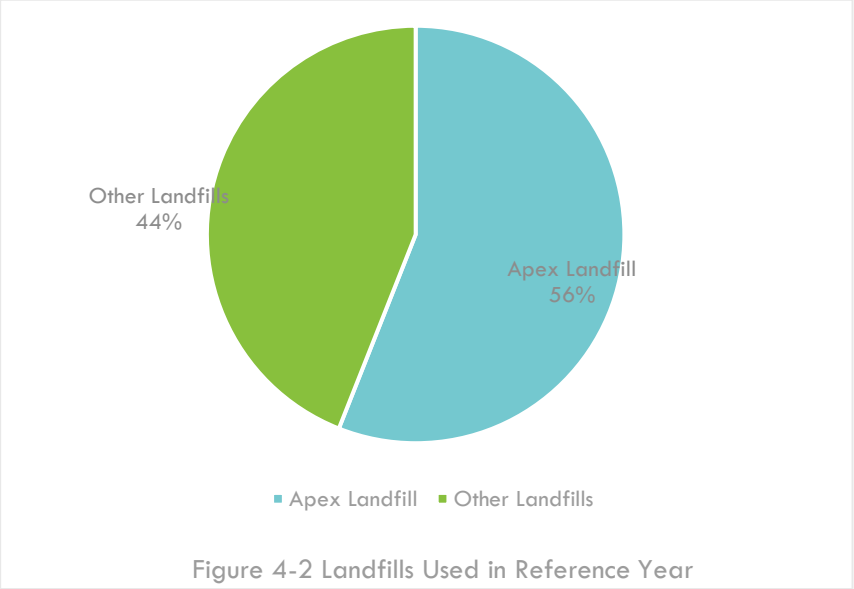


Figure 4-2 Landfills Used in Reference Year

Captive or residual waste landfills are designated exclusively for the disposal of one or any combination of wastes from seven specific industrial categories. Due to regulations these facilities do not receive municipal solid waste. Residual/captive landfills are landfills used to dispose of waste generated exclusively by the manufacturing company that owns the landfill. Two energy companies, located in Jefferson County, have scrubbers to minimize air pollutants from the coal burning process. The flue gas desulfurization (FGD) equipment produces two byproducts (synthetic gypsum and chloride purge stream solids)[4] which are types of pollution control waste that has typically been difficult to recycle. By Ohio law this material is not exempt from being classified as a solid waste and as a result is included in the total amount of solid waste generated.

Roughly 56% of the municipal solid waste (including both direct hauled and transferred) is disposed in the Apex Sanitary Landfill in Jefferson County, Ohio (Figure 4-2). Additionally, there are several landfills within reasonable direct haul and transfer distance. The volume of waste each landfill receives is dependent on its own collection and transport capabilities or upon its relationships with independent haulers and other customers, and the amount of daily waste tons the facility is allowed to accept under its permit issued by Ohio EPA. The majority of the landfills are owned and operated by the private sector.

2. Transfer Facilities

Public and private haulers provide waste collection service in JBRSWA, and some waste is self-hauled. Waste is transported to landfills either by direct haul from the point of collection, or from a solid waste transfer facility. Approximately 94% of the waste municipal solid waste generated in JBRSWA was direct hauled, meaning a refuse truck picked up waste from customers that generated the waste, and directly hauled that waste to a landfill for disposal. Direct hauled waste is disposed of at landfills located in Ohio and outside the state.

[4] Ohio EPA letter. "Re: Cardinal FAR1 Residual Waste Landfill Waste Characterization Report for 2008". April 24, 2008

Four transfer facilities transferred waste generated within JBRSWA during the reference year. One of these is located in Belmont County. All transfer facilities handling JBRSWA waste are privately owned and operated.

3. Composting Facilities

Two registered Class IV compost facilities are located in JBRSWA, one in Belmont County and one in Jefferson County.

4. Processing Facilities

JBRSWA relies on out-of-district material recovery facility (MRF) processing capacity. A MRF is a specialized facility that receives, separates and prepares recyclable materials for marketing to end-user manufacturers. Materials collected at the curb and through drop-off programs are sent to MRFs. There is one single-stream or multi-stream MRF that accepts commingled residential and commercial recyclables operating in the region. This facility has complex sorting equipment and is able to process limited materials (plastic bottle and jugs, paper, cardboard, glass, and cans). If other materials are placed in the bins destined for this MRF it can be dangerous for the workers and sorting machinery.

There is also a single material processor located in Jefferson County that can process paper and cardboard.

5. Waste Collection

Municipal solid waste is collected from residents, businesses or institutions and transported to landfills by a number of private waste operators. There is much competition for collection of municipal solid waste. Curbside recycling collection is available but has challenges for service, chiefly higher costs. Drop-off and some commercial/business recycling are provided by JBRSWA (JB Green Team). Organics (yard and food waste) collection is limited haulers and also have higher costs of service.

C. Solid Waste Facilities Used in the Reference Year

1. Landfill Facilities

Table 4-2 lists the landfills receiving waste from JBRSWA in the reference year, which is direct hauled, i.e., not transferred through a transfer facility.

Table 4-2 Landfill Facilities Used by the District in the Reference Year (2017 Direct Hauled)

Facility Name	Location		Waste Accepted from SWMD (tons)	Percent of all SWMD Waste Disposed	Remaining Capacity (years)
	County	State			
In-District					
Apex Sanitary Landfill	Jefferson	OH	304,150	55%	33.7
Out-of-District					
Carbon Limestone Landfill LLC	Mahoning	OH	2,640	0%	51.5
Mahoning Landfill, Inc.	Mahoning	OH	334	0%	45.3
Countywide Recycling & Disposal Facility	Stark	OH	54	0%	75
Kimble Sanitary Landfill	Tuscarawas	OH	75,456	14%	29.8
American Landfill, Inc.	Stark	OH	94,659	17%	62.4
Suburban Landfill, Inc	Perry	OH	33,295	6%	55.13
Pine Grove Regional Facility	Fairfield	OH	74	0%	64.9

Facility Name	Location		Waste Accepted from SWMD (tons)	Percent of all SWMD Waste Disposed	Remaining Capacity (years)
	County	State			
Out-of-State					
Northwestern Landfill		WVa	33	0%	
Brooke County Landfill		WVa	43,432	8%	
Wetzel		WVa	3,790	1%	
Meadowfill Landfill		WVa	34	0%	
Caldwell Landfill		IN	14	0%	
Tradebe Treatment Facility (solidification facility)		IN	0	0%	
EQ Industrial Services Processing Facility (solidification facility)		IN	0	0%	
Medassure of Indiana Treatment Facility (Medical Waste Processor)		IN	0	0%	
Total			557,965	100%	418

Source: "2018 Ohio Facility Data Report Tables". Ohio EPA . October 29, 2019.
Appendix D, Table D-1

Facility Name	Location		Waste Accepted from District Tons
	County	State	
Captive Landfills			
FirstEnergy Hollow Rock Facility	Jefferson	Ohio	365,614
Cardinal FAR 1 Residual Waste Landfill	Jefferson	Ohio	122,017
Total			487,631

2. Transfer Facilities

Table 4-3 lists the transfer facilities receiving waste from JBRSWA in the reference year before landfilling.

Table 4-3 Transfer Facilities Used by the District in the Reference Year (2017)

Facility Name	Location		Waste Accepted from District (tons)	Percent of all District Waste Transferred	Landfill Where Waste was Taken to be Disposed
	County	State			
In-District					
Apex Environmental LLC	Belmont	OH	40,297	66%	Apex Sanitary Landfill
Out-of-District					
J & J Refuse and Recycling	Carroll	OH	6,549	11%	Kimble Sanitary Landfill
Kimble Transfer & Recycling Facility - Canton	Stark	OH	34	0%	Kimble Sanitary Landfill
Kimble Transfer & Recycling Facility - Cambridge	Guernsey	OH	13,791	23%	Kimble Sanitary Landfill
Out-of-State					
None					
Total			60,671	100%	0

Source: "2017 Ohio Facility Data Report Tables". Ohio EPA . October 29, 2019.
Appendix D, Table D-1
Appendix D, Table D-2

3. Composting Facilities

Table 4-4 lists the permitted composting facilities receiving materials from JBRSWA in the reference year.

Table 4-4 Compost Facilities Used by the District in the Reference Year (2017)

Facility Name	Location (County)	Material Composted (tons)	Percent of all Material Composted
In District			
German Ridge Composting	Belmont	0	0%
Total Lawn Care	Jefferson	0	0%
Out-of-District			
None			
	Total	0	

Source:
Appendix B, Table B-5

4. Processing Facilities

Table 4-5 lists the processing facilities receiving materials from JBRSWA in the reference year.

Table 4-5 Processing Facilities Used by the District in the Reference Year (2017)

Name of Facility	Location		Facility Type	Recyclables Accepted from District (tons)
	County	State		
In-District				
Valley Converting	Jefferson	OH	Single material processor (ONP and OCC)	3,157
Out-of-District				
None				
Out-of-State				
Waste Management (GreenStar)	Allegheny	PA	SS, MRF	exact total not reported
			Total	**3,157**

Source:
Appendix B, Table B-7
Note:
* Tons reported are from JBRSWA collection programs.

D. Use of Solid Waste Facilities During the Planning Period

There is sufficient access to municipal solid waste landfill capacity for the planning period and access to transfer facilities to manage waste. 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.

Following historical trends, the planning period expects waste to be similarly managed as shown in Figure 4-3. JBRSWA does not expect any changes to the recyclable processing facilities or flows to processing facilities during the planning period. Additional capacity is not needed.

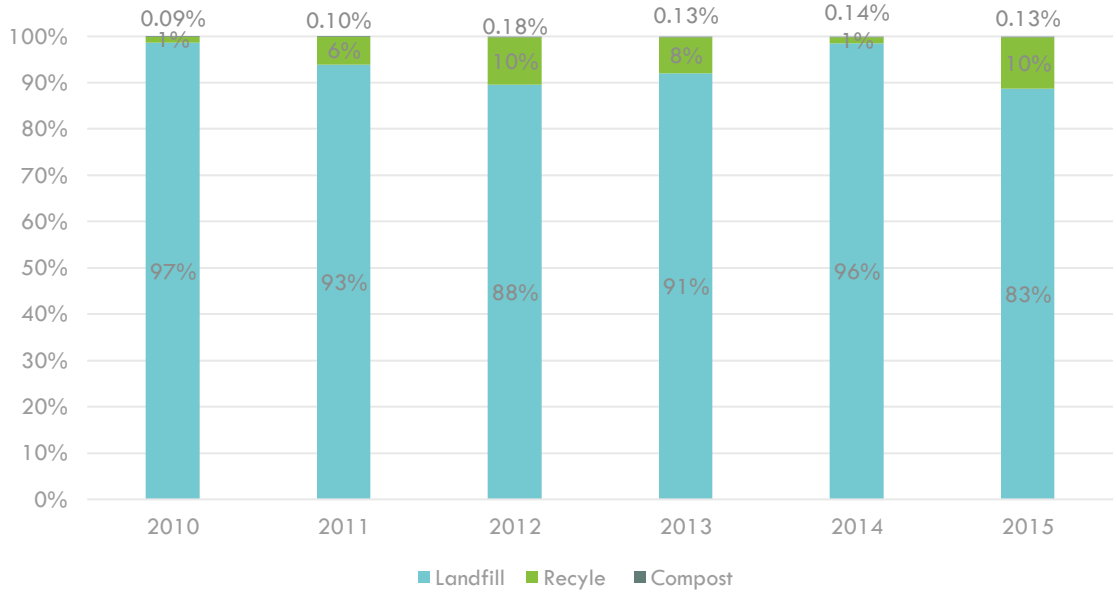


Figure 4-3 Historical Management Methods

E. Siting Strategy

As explained earlier, the solid waste management plan must demonstrate that the Authority will have access to enough capacity at landfill facilities to accept all of the waste the Authority will need to dispose of during the planning period. If existing facilities cannot provide that capacity, then the board of trustees must develop a plan for obtaining additional disposal capacity.

Although unlikely, the board of trustees can conclude that it is in the Authority's best interest to construct a new solid waste landfill facility to secure disposal capacity. In that situation, Ohio law requires the board of trustees to develop a strategy for identifying a suitable location for the facility. That requirement is found in Ohio Revised Code Section 3734.53(A)(8). This strategy is referred to as a siting strategy. The board of trustees must include its siting strategy in the solid waste management plan. The siting strategy is located in Appendix S.

JBRSWA adopted Rule 2016-2 to implement the siting strategy included in Appendix S.

The Authority's siting strategy ensures proposals to construct a new or modify an existing Solid Waste Facility within the Authority are in compliance with the Plan Update. The Board shall not approve the General Plans and Specifications for any proposed Solid Waste Facility or the modification of any existing in-Authority 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; (2) obstruct or interfere with the Board's obligation to provide for the maximum feasible utilization of existing in-Authority Solid

Waste Facilities; (3) adversely affect the quality of life of residents; or (4) have significant adverse impacts upon the local community and its resources that cannot be eliminated.

Except as otherwise provided herein, all proposed Solid Waste Facilities, shall be subject to this Siting Strategy and shall comply with the requirement to submit General Plans and Specifications to the Board.

F. Designation

Purpose of Designation
Ohio law gives each solid waste management district the authority to specify where solid waste generated from within the district may be taken. The exercise of this authority is generally referred to as flow control. In Ohio, solid waste management districts establish flow control by designating one or more solid waste facilities under ORC 343.013 or 343.014. A district can designate any type of solid waste facility, including recycling, transfer, and landfill facilities.

Even though a District has the legal right to designate facilities pursuant to ORC 343.014, it cannot do so unless the solid waste management plan expressly reserves that authority to the board of trustees.

Even if the solid waste management plan grants the board of trustees grants the authority to designate facilities pursuant to ORC 343.014, it is the board of trustees that decides whether or not to exercise that authority. If it decides to designate facilities, then the board of trustees must follow the process that is prescribed in ORC Section 343.014.

Once the board of trustees designates facilities, only designated facilities can take the Authority's waste. That means no one can legally take waste from the Authority to undesignated facilities and undesignated facilities cannot legally accept waste from the Authority. The only exception is in a situation where, the board of trustees grants a waiver to allow an undesignated facility to take the Authority'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 trustees 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 Authority's Designation Process

The 2015 Plan Update (2015-2029 Plan update) was the first plan to grant authority to designate facilities. In 2016, the Authority adopted Rule 2016-1 designating facilities to receive solid waste. This 2021 Plan Update authorizes the Board to establish and maintain designations of solid waste facilities and recycling activities pursuant ORC 343.014. The designation strategy is not anticipated to change under this solid waste management plan.

Each facility currently designated by the Authority has entered into a designation agreement with the Authority. The designation agreement requires the designated facility to pay the Authority a fee of $2 per ton fee on each ton of solid waste generated within JBRSWA that is delivered to the facility.

The Board may grant a waiver to use an undesignated facility. If seeking a waiver, a written request for a waiver of designation must be submitted to the Board. Required submittal information is contained in Appendix

P. In brief, the request must contain identification of entity requesting the waiver, generator of solid waste, type and quantity of solid waste, time period, disposal facility, letter from SWMD (refers to SWMDs and Authorities) from where solid waste will be disposed, estimate of financial impact to Authority, and explanation of reason for requesting the waiver. The Board will act on the waiver request within 90 days after receiving a complete application for a waiver. The waiver process is explained in more detail in Appendix P.

2. List of Designated Facilities

Table 4-6 Facilities Currently Designated

Facility Name	Location		Facility Type
	County	State	
In-District			
Apex Sanitary Landfill	Jefferson	OH	Landfill
Apex Environmental LLC	Belmont	OH	Transfer Facility
Out-of-District			
Carbon Limestone Landfill LLC	Mahoning	OH	Landfill
Mahoning Landfill, Inc.	Mahoning	OH	Landfill
Countywide Recycling & Disposal Facility	Stark	OH	Landfill
Kimble Sanitary Landfill	Tuscarawas	OH	Landfill
American Landfill, Inc.	Stark	OH	Landfill
Suburban Landfill, Inc	Perry	OH	Landfill
Pine Grove Regional Facility	Fairfield	OH	Landfill
J & J Refuse and Recycling	Carroll	OH	Transfer Facility
Kimble Transfer & Recycling Facility - Canton	Stark	OH	Transfer Facility
Kimble Transfer & Recycling Facility - Cambridge	Guernsey	OH	Transfer Facility
Out-of-State			
Northwestern Landfill	Wood	WVa	Landfill
Brooke County Landfill	Brooke	WVa	Landfill
Wetzel	Wetzel	WVa	Landfill
Meadowfill Landfill	Harrison	WVa	Landfill
Caldwell Landfill	Shelby	IN	Landfill

CHAPTER 5: WASTE REDUCTION AND RECYCLING

As was explained in Chapter 1, an Authority must have programs and services to achieve reduction and recycling goals established in the state solid waste management plan. An Authority also ensures there are programs and services available to meet local needs. The Authority 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.

In achieving the goals of the state plan and meeting local needs, the Authority 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 Authority's strategy for furthering reduction and recycling in its member counties.

Before deciding upon the programs and services that are necessary and will be provided, the board of trustees performed a strategic, in-depth review of the Authority's existing programs and services, recycling infrastructure, recovery efforts, finances, and overall expectations. This review consisted of a series of 14 analyses that allowed the board of trustees to obtain a thorough understanding of the Authority by answering questions such as:

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

Based on its analyses, the board of trustee drew conclusions about the Authority's abilities, strengths and weaknesses, operations, existing programs and services, outstanding needs, available resources, etc. The board of trustees then compiled a list of actions the Authority could take, programs the Authority could implement, or other things the Authority could do to address its conclusions. The board of trustees used that list to make decisions about the programs and services that will be available in the Authority during the upcoming planning period.

After deciding on programs and services, the board of trustees projected the quantities of recyclable materials that would be collected through those programs and services. This in turn allowed the board of trustees 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. Solid Waste Management District Priorities

JBRSWA has identified the following as priorities to address in this Plan.

- Deliver high quality and cost-effective service.
  Infrastructure programs such as drop-off, Paper Recycling and Glass Recycling are service offerings provided by JBRSWA. To deliver high quality service, JBRSWA is committed to review operations and

equipment needs at least annually to ensure optimized operations. Additionally, JBRSWA will assess the Paper Recycling Collection routes to ensure adding another truck and driver will meet the demand needs.

- Streamline ADR Survey.
  ADR Survey will undergo modifications to streamline data collection for staff with the goal of achieving better response rates and more data.
- Continue to focus education on community-based approaches.
  JBRSWA's focus on community-based approaches for education and outreach demonstrate success in interaction with the community. JBRSWA will take this approach and develop a contamination campaign for drop-off program to encourage behavior change.

B. Program Descriptions

This section briefly describes major programs and services available during the planning period. Appendix I contains more detailed descriptions.

1. Residential Recycling Programs

Drop-off recycling is a service provided by JBRSWA for use by all residents and improved parcels in the Authority. JBRSWA collects materials in a dual stream, paper and commingled. Containers, collection and transportation services are provided by JBRSWA. Commingled materials are transported to a material recovery facility for processing and paper is delivered to a paper mill for processing. The material recovery facility reprocesses and sells the recyclables to manufacturers to turn into new materials. Not all recyclable materials can be recycled through the drop-off program. Material recovery facilities have sophisticated equipment. JBRSWA's website maintains a list of materials acceptable for the drop-off as well as a list of outlets for other recyclables.

ID	Name	Start Date	End Date	Goal
Full-Time Urban Drop-off – Jefferson County				
FTU5	Island Creek Township, Pleasant Hill Elementary (3297 S.R. 213)	ongoing	ongoing	1 and 2
FTU6	Steubenville (1004 Lincoln Ave.)	ongoing	ongoing	1 and 2
FTU7	Steubenville, Mill Parking Lot (452 S. Third St)	ongoing	ongoing	1 and 2
FTU8	Steubenville, (Fort Steuben Mall behind JC Penney)	ongoing	ongoing	1 and 2
FTU10	Steubenville, Old Aquinas School (625 Lovers Lane)	ongoing	ongoing	1 and 2
FTU11	Steubenville (School of Bright Promise, 256 John Scott Highway)	ongoing	ongoing	1 and 2
Full-Time Urban Drop-off – Belmont County				
FTU1	Martins Ferry (501 N First St)	ongoing	ongoing	1 and 2
FTU2	Richland Township (68329 Bannock Rd)	ongoing	ongoing	1 and 2
FTU3	Richland Township, Fairgrounds (45300 Roscoe Rd)	ongoing	ongoing	1 and 2
FTU4	St. Clairsville (1 Geno Sessi Drive)	ongoing	ongoing	1 and 2
FTU12	St. Clairsville, Belmont County Animal Shelter, (45244 National Rd)	2019	ongoing	1 and 2

Available for use 24/7. Materials accepted include plastic bottles and jugs, glass bottles and jars, cans, paper and cartons. Containers are 6-cubic yards. The number of containers and service frequency depends on the location. Drop-off site locations are subject to change at any time for unforeseen reasons or to maintain performance and reasonable costs.

ID	Name	Start Date	End Date	Goal
Full-Time Rural Drop-off – Jefferson County				
FTR19	Adena (570 W. Main St)	ongoing	ongoing	1 and 2
FTR43	Amsterdam (348 N Main)	2020	ongoing	1 and 2
FTR20	Bergholz Village (Washington St at Village Garage)	ongoing	ongoing	1 and 2
FTR21	Bloomingdale Village (103 Cadiz St)	ongoing	ongoing	1 and 2
FTR22	Brush Creek Township (6701 Co Rd 55)	ongoing	ongoing	1 and 2
FTR23	Dillonvale Village (465 Main St)	ongoing	ongoing	1 and 2
FTR24	Empire/Stratton (84 Ave)	ongoing	ongoing	1 and 2
FTR25	Knox Township, Kelly's Old Skool (8898 S.R. 213)	ongoing	ongoing	1 and 2
FTR26	Mingo Junction (1130 S Commercial Ave)	ongoing	ongoing	1 and 2
FTR27	Mt Pleasant Village (Corner South & East Streets)	ongoing	ongoing	1 and 2
FTR29	Richmond Village (210 Park St)	ongoing	ongoing	1 and 2
FTR30	Saline Township, Complex (164 Co Hwy 50A)	ongoing	ongoing	1 and 2
FTR31	Smithfield Village (High Street)	2020	ongoing	1 and 2
FTR32	Springfield Township (4569 County Road 75	ongoing	2019	1 and 2
FTR33	Steubenville Township (25 Smithfield St)	ongoing	ongoing	1 and 2
FTR34	Tiltonsville Village (337 Main St)	ongoing	ongoing	1 and 2
FTR35	Toronto City, Helping Hands of Toronto (418 Clark St)	ongoing	ongoing	1 and 2
FTR36	Wells Township (North End Market St)	ongoing	ongoing	1 and 2
FTR37	Wintersville, Kroger's Parking Lot (858 Main St)	ongoing	ongoing	1 and 2
FTR38	Wintersville, Reisbecks Food Market (100 Main St)	ongoing	2019	1 and 2
FTR39	Wintersville, Cross Creek Twp Bldg (Corner Two Ridge & Cadiz Rd)	ongoing	2020	1 and 2
FTR40	Yorkville Village, Handy Market (150 Williams St)	ongoing	ongoing	1 and 2
Full-Time Rural Drop-off – Belmont County				
FTR1	Barnesville, #1 (525 Watt Ave)	ongoing	ongoing	1 and 2
FTR2	Barnesville, #2 (130 E South St)	ongoing	ongoing	1 and 2
FTR3	Bellaire, Bellaire Village Garage (417 E. 37th St)	ongoing	ongoing	1 and 2
FTR4	Pultney Township, Spirit of 76 VFD (53890 Key-Bellaire Rd)	ongoing	ongoing	1 and 2
FTR5	Goshen Township, Barkcamp State Park, (65330 Barkcamp Park Rd)	ongoing	ongoing	1 and 2
FTR6	Belmont, Belmont Village Garage (421 South St)	ongoing	ongoing	1 and 2
FTR8	Bridgeport (109 S Lincoln Ave)	ongoing	2020	1 and 2
FTR9	Bridgeport, St. Joseph's Community Center (55505 National Rd)	ongoing	ongoing	1 and 2
FTR41	Colerain IGA (72690 Colerain Rd.)	2020	ongoing	1 and 2
FTR11	Fairpoint, Wheeling Township Garage (71240 Main St)	ongoing	ongoing	1 and 2
FTR7	Goshen Township, Bethesda Christian Church (40601 Belmont-Bethesda Rd)	ongoing	ongoing	1 and 2
FTR12	Kirkwood Township/Hendrysburg, Old Schoolhouse (35160 Main St.)	ongoing	2019	1 and 2
FTR13	Morristown (201 W. Cross St)	ongoing	2019	1 and 2
FTR14	Morristown (66859 Belmont-Morristown Rd)	ongoing	ongoing	1 and 2
FTR15	Powhatan Point (104 Mellot St)	ongoing	ongoing	1 and 2
FTR16	Shadyside, Shadyside Municipal Garage (East 40th St)	ongoing	ongoing	1 and 2
FTR42	Smith Township, Senior Center (46642 Main St)	2019	ongoing	1 and 2
FTR17	Union Township/Lafferty (43201 Mt. Hope Rd)	ongoing	ongoing	1 and 2
FTR18	York Township (53420 York Dr)	ongoing	ongoing	1 and 2

Location of the drop-off sites meets the infrastructure requirements of Goal #1 of providing access to 80% of the residential population within each county the opportunity to recycle.

2. Commercial/Institutional Sector Reduction and Recycling Programs

Name	Description
Glass Recycling Drop-off	This program separates the collection of glass from commingled containers at high-volume generators. JBRSWA provides glass only collection bins and services glass only recycling bins located at bars, restaurants, and at one community location.

Name	Description
University Partnerships	JBRSWA provides 6 cubic yard drop-off recycling containers for each campus and provides collection services.

Name	Description
Paper Recycling Collection	This program separates the collection of paper from commingled containers at high-volume generators. JBRSWA provides the 6-yard containers and services 252 schools, non-profits and businesses. JBRSWA offers revenue sharing to participants in the program.

Name	Description
Waste Audits	JBRSWA offers waste assessments and audits to industrial businesses requesting the service. If requested, JBRSWA will conduct a site visit to observe then evaluate the materials generated and managed. Recommendations based on the waste management hierarchy of diversion (reduce, reuse, recycle, compost) are provided.

3. Industrial Sector Reduction and Recycling Programs

Name	Description
Waste Audits	JBRSWA offers waste assessments and audits to industrial businesses requesting the service. If requested, JBRSWA will conduct a site visit to observe then evaluate the materials generated and managed. Recommendations based on the waste management hierarchy of diversion (reduce, reuse, recycle, compost) are provided.

4. Restricted/Difficult to Manage Wastes

Name	Description
Community Cleanup Events	Community Cleanup events have evolved into comprehensive collection diversion events. Most of the community events accept scrap tires, electronics, and appliances for diversion. They also offer large bulk item disposal. JBRSWA sponsors these diversion events *which are provided to residents and improved parcels*.

Name	Description
HHW Collection Events	JBRSWA aims to host two HHW collection events per year, one in each County. JBRSWA directly contracts with a private contractor to service HHW collection and properly manage materials. Collection days, locations, and materials accepted are advertised via social media, in print media and on the website.

Name	Description
Lead Acid Battery Strategy	Residents have the opportunity to recycle lead-acid batteries through retailer take-back, scrap processors or HHW collection events. JBRSWA's website maintains a list of outlets.

Name	Description
Yard Waste Strategy	Information regarding yard waste and composting is provided through presentations, Facebook, awareness events, brochures, website, etc. The Ohio State Extension offices located in each County also provide information to residents.

Name	Description
Scrap Tire Strategy	Residents have the opportunity to recycle scrap tires through retailer take-back or if a collection event is available. Information regarding scrap tire recycling opportunities is on the website, Facebook, and other media.

5. Funding/Grants

Name	Description
Financial Market Grants	Ohio EPA offers grants to enhance market development. JBRSWA will support the grant match businesses that either produce products with recycled materials or recycle solid waste for resale on commodity markets. The intent of this grant is to foster existing or new businesses to use recycled feedstock.

Name	Description
Recycling Initiatives Competitive Funding Project	JBRSWA offers competitive funding to local townships, villages, cities, schools and non-profits. Grants finance activities or projects related to recycling, reuse, recycled material, or community cleanups. Two levels of grants are available: Community Award and Comprehensive Grant. Community Award is up to $1,000 with no match. Comprehensive is between $1,001 and $5,000 with a 20% required match of in-kind services.

6. Facility Ownership/Operations

Name	Description
Capital Improvement Fund	JBRSWA will maintain a capital improvement fund to replace equipment and/or purchase new equipment or other capital needs for the Authority programs.

7. Other

Name	Description
ADR Survey	Annually JBRSWA conducts a survey of diversion activity data from commercial and industrial sector businesses located in JBRSWA and from other supporting infrastructure (haulers, organic facilities, non-profits, etc.). JBRSWA maintains a list of businesses and past responding businesses and surveys.

Name	Description
Health Department Funding	JBRSWA provides financial assistance to the Jefferson County Health Department to support the Health Department in carrying out its duties to inspect solid waste facilities, and to investigate and enforce solid waste regulations. The assistance is subject to the terms of an agreement between JBRSWA and the Health Department.

Name	Description
Disaster Debris Management Plan	Disaster debris management planning is handled differently in each county. The Authority provides education regarding separation of recyclable materials and yard waste from other general debris during an emergency situation and provides guidance and assistance to political jurisdictions within JBRSWA.

Name	Description
Assistance To Maintain Access to Solid Waste Facilities Within JBRSWA	JBRSWA may provide assistance to *maintain regular vehicular access to publicly available solid waste facilities located in JBRSWA including but not limited to providing assistance* for road repairs due to excess truck traffic from solid waste haulers.

Name	Description
Environmental Enforcement	One deputy in each County responds to complaints, citations, and cleans dump and open sites.

Name	Description
Buy Recycled Promotion	JBRSWA promotes the development of recycling markets by promoting the purchase and use of products and goods made with recycled materials. JBRSWA purchased recycled-content products such as office paper whenever purchases were cost-effective.

8. Outreach, Education, Awareness, and Technical Assistance

Minimum education requirements prescribed by Goal 3:

- JBRSWA maintains a website at www.jbgreenteam.org
- The Solid Waste Management Plan and website serve as a resource guide.
- JBRSWA staff and education coordinators are available for presentations.

Supplying information and seeking behavior change is the central objective for JBRSWA's outreach and marketing approach. JBRSWA will employ various collateral and promotions. The key is to integrate communication such that promotional efforts are effective with the marketing activities. Incorporating the strategies and best practices described below provides a multi-layered, multi-faceted marketing and outreach strategy. Flyers, ads, postcards, print/digital advertisements, etc. are all JB Green Team branded with consistent recognizable look that ties the resident/business back to JBRSWA. The following table lists the education/outreach programs.

Education/Outreach Program	Target Audience				
	Residents	Schools	Industries	Institutions and Commercial Businesses	Communities and Elected Officials
Commercial Technical Assistance		X		X	
Industrial Technical Assistance			X		
Adult Education/Presentations	X	X			X
Keep Jefferson County Beautiful/Keep Belmont County Beautiful	X	X	X	X	X
Ohio River Valley Water Sanitation Commission Activities (ORSANCO)	X	X	X	X	X
Youth Education/Presentations		X		X	
Paper Recycling Tours Business Programs	X	X	X	X	X

C. Waste Reduction and Recycling Rates

Table 5-1 Residential/Commercial Waste Reduction and Recycling Rate

Year	Projected Quantity Collected (tons)	Residential/ Commercial WRR[1] (%)
2021	12,318	3%
2022	12,441	3%
2023	12,565	3%
2024	12,691	3%
2025	12,818	3%
2026	12,946	3%

Notes: WRR = Waste Reduction Rate
Source:
Appendix K, Table K-1
Sample Calculation:
Waste Reduction Rate = Recycled / Total Generated

Table 5-6 Industrial Waste Reduction and Recycling Rate

Year	Projected Quantity Collected (tons)	Industrial WRR[1] (%)
2021	8,271	1%
2022	8,354	1%
2023	8,437	1%
2024	8,521	1%
2025	8,607	1%
2026	8,693	1%

Notes: WRR = Waste Reduction Rate
Source:
Appendix K, Table K-2
Sample Calculation:
Waste Reduction Rate = Recycled / Total Generated

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 Authority will obtain money to pay for operating the Authority and how the Authority will spend that money. For revenue, the solid waste management plan identifies the sources of funding the Authority will use to implement its approved solid waste management plan. The plan also provides estimates of how much revenue the Authority expects to receive from each source. For expenses, the solid waste management plan identifies the programs the Authority intends to fund during the planning period and estimates how much the Authority will spend on each program. The plan must also demonstrate that planned expenses will be made in accordance with ten allowable uses of tiered-disposal fees and generation fees that are set forth in ORC Section 3734.57(G).

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

If projections show that the Authority will not have enough money to pay for all planned expenses or if the Authority has reason to believe that uncertain circumstances could change its future financial position, then the plan must demonstrate how the Authority 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 Authority's budget. Detailed information about the budget is provided in Appendix O.

A. Overview of the Authority's Budget

The activities and services described in Chapter 5 are supported through disposal fees, contract fees, rates and charges, designation fees and sale of recycled materials. The Authority estimates earning roughly $2.7 million annually the first six years of the planning period and spending between $2.0 to $3.2 million annually over that same time period. Changes in revenue sources are not anticipated during the first six years of the plan.

B. Revenue

Overview of How Authority Earns Revenue
There are a number of mechanisms an Authority can use to raise the revenue necessary to finance its solid waste management plan. Two of the most commonly used mechanisms are tiered-disposal fees and generation fees. These fees are often referred to as "statutory" fees because Authority's authority to levy the fees is established in Ohio law.

An Authority's board of trustees has the authority to establish fees. Before an Authority can collect a generation or disposal fee, the Authority's board of trustees must first obtain approval from local communities through a ratification process. That process is detailed in ORC Section 3734.57.

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 in the levying Authority. 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 Authority and disposed at landfills in that Authority. Out-of-district waste is solid waste generated in Ohio counties that are not part of the Authority and disposed at landfills in the Authority. Out-of-state waste is solid waste generated in other states and disposed at landfills in the Authority.

Ohio's law prescribes the following limits on tiered-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 Authority and accepted at either a transfer facility or landfill located in Ohio. The fee is collected at the first facility that accepts the Authority'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 trustees can collect money for an Authority through rates and charges to be paid by every person, municipal corporation, township, or other political subdivision that owns premises to which solid waste collection, storage, transfer, disposal, recycling, processing, or resource recovery service is provided by the Authority.

Rate and charges can be collected in two ways:

1. Through periodic billings made by the Authority. The Authority 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. By certifying the rates and charges to the county auditor for placement on the real property duplicate.

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 an Authority.

Other Sources of Revenue
There are a variety of other sources that an Authority may 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. Disposal Fees

   Statute (Ohio Revised Code 3734.57(B)) allows for the Authority to generate revenues by levying tiered-disposal fees on any waste disposed in landfills located in the Authority. There is one landfill in the Authority, Apex Sanitary Landfill. JBRSWA's existing disposal fee structure is: $1.00 per ton of solid waste in-district; $2.00 per ton of solid waste out-of-district; and $1.00 per ton of solid waste out-of-state.

2. Generation Fees

   JBRSWA does not collect generation fee revenue.

3. Fees Collected via Designation Agreements

   In 2016, in accordance with Ohio Revised Code 343.014, the Board of Directors designated solid waste facilities that are authorized to received solid waste generated within JBRSWA. Facilities that requested to be designated entered into a designation agreement with JBRSWA that, among other things, provides for payment to the Authority of a $2.00 per ton fee on each ton of solid waste generated within JBRSWA that is delivered to the facility. The Board of the JBRSWA will continue using the $2.00 per ton facility designation fee to fund the solid waste plan. The fee is collected by the first designated facility that receives the waste and remitted back to the Authority.

4. Other Funding Mechanisms

   Interest: Income is from Authority fund balances.

   Recycling Revenue: Income from sale of recyclable materials. Recycling revenue fluctuates with the markets.

   Rates and Charges: Rates and charges levied on improved parcels in both counties. Rates and charges supplement funding to implement the plan and were needed revenue as out-of-state waste receipts declined in 2014 and subsequent years. Annually, JBRSWA evaluates revenues and expenses and decides

whether to modify the rates and charges based on actual budget. In 2016 rates and charges were fixed at $9.52 and in 2018 reduced to $4.52. JBRSWA is further reducing the rate to $2.00 per improved parcel in 2021, estimating $128,000 annual revenue throughout the planning period. The Authority does not totally rely on the proceeds from rates and charges to fund all of the costs of providing drop-off recycling, community cleanup, and other services provided to residents and improved parcels within JBRSWA. The Authority relies on other revenue sources as the primary funding mechanisms to provide these services.

Out-of-State Contract: JBRSWA collects an additional contract fee of 50 cents/ton on solid waste disposed in Apex Landfill from out-of-state generators. As out-of-state waste receipts declined so did the revenue. The 5-year average (2013-2017) of $234,872 is forecasted as annual projected revenue through the planning period beginning in 2020.

Other: Miscellaneous revenues come from the sale of old equipment, or vehicles and the return of unused portion of community grants and other insignificant miscellaneous items.

5. Summary of Revenue

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

Table 6-1 Summary of Revenue

Year	Disposal Fees	Designation Fees	Other Revenue								Total Revenue
			Interest	Recycling Revenue	Rates and Charges	Out of State Contract Fee	Grants	Fee Penalty	Reimburse-ments	Other	
Reference Year											
2017	$1,316,546	$916,095	$6,517	$204,327	$601,565	$410,694	$0	$0	$0	$7,089	$3,462,832
Planning Period											
2021	$928,476	$900,000	$20,000	$196,322	$128,000	$234,872	$0	$0	$0	$12,000	$2,417,670
2022	$928,476	$900,000	$20,000	$195,340	$128,000	$234,872	$0	$0	$0	$12,000	$2,418,688
2023	$928,476	$900,000	$21,000	$194,364	$128,000	$234,872	$0	$0	$0	$12,000	$2,418,711
2024	$928,476	$900,000	$21,000	$193,392	$128,000	$234,872	$0	$0	$0	$12,000	$2,417,739
2025	$928,476	$900,000	$22,000	$192,425	$128,000	$234,872	$0	$0	$0	$12,000	$2,417,772
2026	$928,476	$900,000	$23,000	$191,463	$128,000	$234,872	$0	$0	$0	$12,000	$2,417,810

Source:
Appendix O, Table O-5 and O-6

C. Expenses

Ohio's law authorizes Authority's to spend the proceeds of tiered disposal fees and generation fees on 10 specified purposes set forth in ORC 3734.57(G) (often referred to as the 10 allowable uses). All of the uses are directly related to managing solid waste 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 an Authority's budget is used to implement the approved solid waste management plan (allowable use 2). Allowable use 2 authorizes Authorities 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 yard waste 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 an Authority can spend money in accordance with the other nine uses. For example, allowable use 4 authorizes an Authority to use funds to compensate the county for costs it incurs because it hosts a solid waste facility. The Authority also can use funds provide assistance to a county 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 an Authority can spend money under allowable use 4.

The provisions of ORC 3734.57(G) do not apply to the Authority's use of funds derived from sources other than tiered-disposal fees and generation fees. Table 6-2 summarizes the types of expenses the Authority expects for implementation of this Plan Update. Detailed information regarding expenses is provided in Appendix O.

Table 6-2 Summary of Expenses

Expense Category	Reference	Planning Period					
	2017	2021	2022	2023	2024	2025	2026
Administration, overhead, legal, plan monitoring	$455,196	$675,448	$692,711	$710,492	$743,807	$767,671	$717,101
Drop-off Collection	$1,518,799	$875,699	$895,970	$916,849	$2,013,126	$1,037,520	$1,062,646
Other Recycling Collection	$0	$250,000	$0	$0	$250,000	$0	$0
Tire Collection	$56,749	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
HHW Collection	$58,966	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
Electronics Collection	$53,983	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Appliance Collection	$0	$0	$0	$0	$0	$0	$0
Other Collection Drives	$48,882	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
Organics	$0	$0	$0	$0	$0	$0	$0

Expense Category	Reference	Planning Period					
	2017	2021	2022	2023	2024	2025	2026
Education and Awareness	$118,578	$171,160	$175,095	$179,148	$183,322	$187,622	$192,051
Other – Recycling Incentive Grant	$0	$0	$0	$0	$0	$0	$0
Market Development Activities		$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
Emergency Debris Management	$0	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Health Department	$88,113	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
Open Dump Enforcement	$0	$0	$0	$0	$0	$0	$0
Total Expenses	$2,399,265	$2,329,107	$2,120,576	$2,163,289	$3,547,056	$2,349,613	$2,328,598

Source:
Appendix O, Table O-7

D. Budget Summary

Table 6-3 Summary of Expenses

Year	Revenue	Expenses	Net Difference	Ending Balance
Reference Year				
2017	$3,462,832	$2,399,265	$1,063,567	$3,816,532
Planning Period				
2021	$2,417,670	$2,329,107	$88,563	$5,188,813
2022	$2,418,688	$2,120,576	$298,112	$5,486,925
2023	$2,418,711	$2,163,289	$255,422	$5,742,347
2024	$2,417,739	$3,547,056	($1,129,316)	$4,613,030
2025	$2,417,772	$2,349,613	$68,159	$4,681,189
2026	$2,417,810	$2,328,598	$89,212	$4,770,402

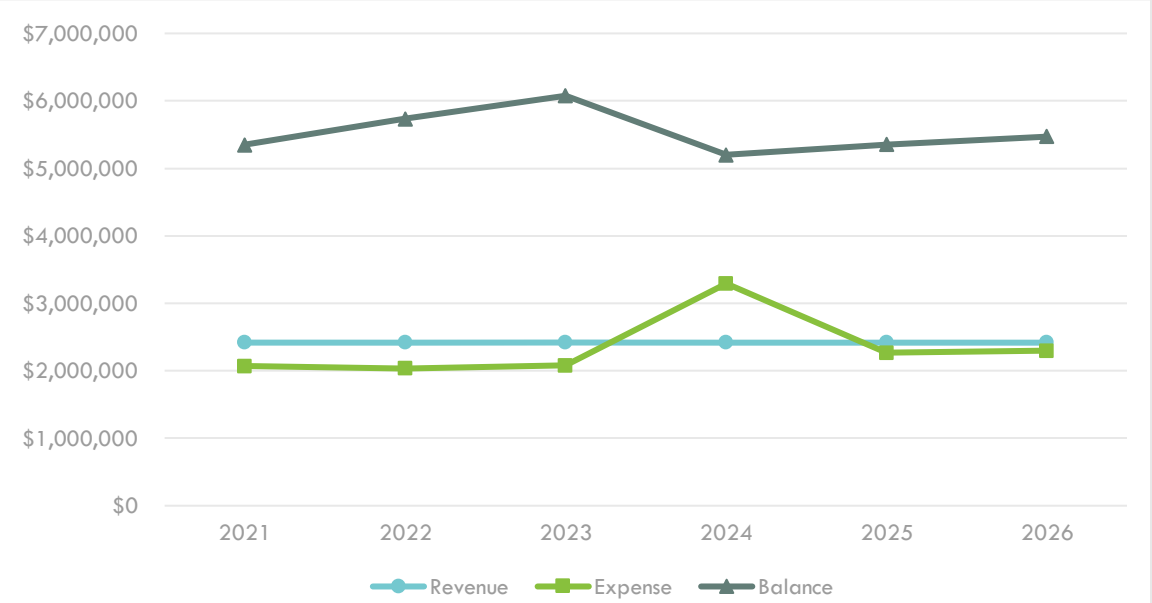


Figure 6-1 Planning Period Budget Summary

APPENDIX A MISCELLANEOUS INFORMATION

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

A. Reference Year

The reference year for this solid waste management plan is 2017.

B. Planning Period

The planning period for this solid waste management plan is 2021 to 2035.

C. Goal Statement

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

D. 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.

The Authority's ADR reported 13,605 tons of residential/commercial recycling. There was a discrepancy found in the Authority's ADR. The material category "other" added 276 tons of industrial recycling to residential/commercial recycling when the total should have been 115 tons. Removing the difference of 162 tons adjusts the residential/commercial recycling total to 13,443 tons instead of the 13,605 tons recorded in the ADR.

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.

E. Material Change in Circumstances/Contingencies

In accordance with ORC 3734.56(D), the Authority's Solid Waste Management Plan (*Plan Update*) must be revised if the Board of Trustees (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 Authority, which may require a revision of the Plan Update:

1. Criteria for Determining Material Change
    a. 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 Authority. If the facilities identified should close, or for some reason they are not able to handle the Authority waste disposal while no other substitutes are provided, the Authority would determine a material change

b. Change in Waste Generation

A change in waste generation within the Authority that impairs the ability of the facilities identified in the Plan Update to adequately process the Authority-generated waste and/or a change in waste generation within the Authority that impairs the ability of the Authority 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 Authority is able to adjust budgets or implement contingency funding options listed in this Plan Update in Appendix O 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.

c. 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 are capable of handling the capacity shortfall, the change in capacity would not be deemed a material change in circumstances.

d. Change in Strategies for Waste Reduction and/or Recycling

Strategies for waste reduction and/or recycling are dependent upon many variable factors. The Authority is committed to promoting recycling; however, changes in recycling markets and/or the recycling needs of the Authority 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.

e. 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 Authority is able to adjust budgets or implement contingency funding options listed in this Plan Update in Appendix O 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.

The Authority reserves the right to modify and improve properties and make necessary expenses for those modifications without impairing demonstration of State Plan Goals. Such modification or improvement expenses resulting in a significant draw from the fund balance are not deemed a material change in circumstances if funding revenues support demonstrating State Plan Goals and no material negative impact to programs.

f. Change in Procedures to be followed for Plan Implementation

Significant changes in the procedures for implementing the Plan Update would be deemed a material change in circumstance if said changes would prevent Authority 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.

g. Change in the Timetable for Implementation of Programs and/or Activities

Significant change 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 Authority is 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 Authority's Board and the Executive Director 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 2017 baseline, for two or more consecutive years, of waste quantities reported to Ohio EPA for solid waste disposal facilities used by the Authority.
- 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 Authority's ability to fulfill State Plan Goals.
- A significant cost increase for all programs and strategies planned by the Authority 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 Authority would be unable to recycle one or more of the required designated materials necessary to meet Goal #1 of the 2009 State Plan.

The Authority has chosen to not identify specific trigger points in the above monitoring process. The Authority believes that arbitrary percentages, dollar amounts, tonnages or other trigger points decided during the plan preparation time period (2019-2020) may not always be applicable during a potential material change evaluation in the future. The Authority feels very comfortable that the above listed procedures will adequately serve the Authority 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 30 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.

APPENDIX B RECYCLING INFRASTRUCTURE INVENTORY

Appendix B provides an inventory of the recycling infrastructure that existed in the reference year. This inventory covers residential curbside collection services, drop-off recycling sites, mixed waste materials recovery facilities, waste companies providing recycling collection and trash collection services and composting facilities and yard waste management programs.

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

1. Curbside Recycling Services

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

ID #	Name of Curbside Service	Service Provider	County	How Service is Provided	Collection Frequency	Materials Collected[1]	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
None	None									
Total									0	

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail, Telephone books; 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
[2]Data is 2017.
Source: Authority

No non-subscription curbside recycling programs in the reference year.

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

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected(1)	Type of Collection	PAYT (Y/N)	Weight of Materials Collected from SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
None	None								
Total								0	

[1]Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail, Telephone books; 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
[2]Data is 2017.
Source: Authority

No subscription curbside recycling programs in the reference year.

2. Drop-Off Recycling Locations

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

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTU1	Martins Ferry (501 N. First St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU2	Richland Township (68329 Bannock Rd)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU3	Richland Township, Fairgrounds (45300 Roscoe Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU4	St. Clairsville (St. Clair St. & Neff St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		location moved in 2017 and then again in 2020 to 1 Geno Sessi Dr
FTU5	Island Creek Township, Pleasant Hill Elementary (3297 S.R. 213)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU6	Steubenville (1004 Lincoln Ave)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU7	Steubenville, Mill Parking Lot (452 S. 3rd St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTU8	Steubenville, Eastern Gateway Community College (4000 Sunset Blvd.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU9	Steubenville, McKinley Elementary (1400 W. Adams St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2018
FTU10	Steubenville, Old Aquinas School (625 Lovers Lane)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTU11	Steubenville, School of Bright Promise (256 John Scott Highway)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
Total								0	

1Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail, Telephone books; 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
Source: 2017 Annual District Report Implementation Schedule

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

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
PTU1	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	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTR1	Barnesville, Watt Center (525 West Ave)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR2	Barnesville, Harmony Windows (130 E. South St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR3	Bellaire, Imperial Plaza (1731 Belmont St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Moved to 417 E 37th St in 2020
FTR4	Pultney Township , Spirit of 76 VFD (53890 Key-Bellaire Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR5	Goshen Township, Barkcamp State Park (65330 Barkcamp Park Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR6	Belmont Village Garage (421 South St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR7	Bethesda Christian Church (40601 Bethesda-Belmont Rd)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR8	Bridgeport (109 S. Lincoln Ave.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2020
FTR9	Bridgeport, St. Joseph's Community Center (55505 National Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTR10	Bridgeport, Job and Family Services (56104 National Rd)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2017
FTR11	Wheeling Township Garage (71701 Fairpoint-Shepardstown Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Move to 71240 Main St in 2020
FTR12	Kirkwood Township/Hendrysburg, Old Schoolhouse (351160 Main St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2019
FTR13	Morristown (201 W. Cross St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2019
FTR14	Morristown (66859 Belmont-Morristown Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR15	Powhatan Point (104 Mellot St.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR16	Shadyside, Mayflower Auxiliary Parking Lot (4800 Central Ave.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to Municipal Garage East 40th St in 2020
FTR17	Union Township/Lafferty (43201 Mt. Hope Rd.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR18	York Township (53420 York Dr.)	JB Green Team	Belmont	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FT19	Adena (570 W. Main St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTR20	Bergholz Village (360 3rd St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to Washington Street at Village Garage in 2020
FTR21	Bloomingdale Village (130 Cadiz St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to 103 Cadiz St in 2020
FTR22	Brush Creek Township (6701 Co Rd 55)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR23	Dillonvale Village (S.R. 150 & Railroad St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to 465 Main St in 2018
FTR24	Empire/Stratton (84 1st Ave.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to Rear 84 Ave in 2020
FTR25	Knox Township, Kelly's Old Skool (8898 S.R. 213)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR26	Mingo Junction (Legion Drive)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to 1130 S Commercial Ave in 2018
FTR27	Mt. Pleasant Village (154 Concord St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to Corner South & East Streets in 2018
FTR28	Rayland Village	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2017
FTR29	Richmond Village (210 Park St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTR30	Saline Township (14890 S.R. 213)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to 1162 Co Hwy 50A in 2018
FTR31	Smithfield Village (1301 Main St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2018. Then added in 2020 on High Street.
FTR32	Springfield Township (4569 County Rd. 75)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2019
FTR33	Steubenville Township (25 Smithfield St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR34	Tiltonsville Village (200 Mounds St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to 337 Main St in 2018
FTU35	Toronto City, Helping Hands of Toronto (418 Clark St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR36	Wells Township (1004 Third St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Location moved to North End Market St in 2017
FTR37	Wintersville, Kroger's Parking Lot (858 Sunset Blvd.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR38	Wintersville, Reinbeck's Food Market (100 Sunset Blvd.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
FTR39	Wintersville, Cross Creek Twp Bldg (Corner Two Ridge & Cadiz Rd)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Removed in 2020

ID#	Name of Drop-off Site	Service Provider	County	How Service is Provided	Days and Hours Available to the Public	Materials Collected[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)[2]	Service will Continue Throughout Planning Period (Y/N)
FTR40	Yorkville Village, Handy Market (150 Williams St.)	JB Green Team	Jefferson	JB Green Team provides containers and hauling	24hrs, 7days/week	Glass, Metal, Plastics bottles and jugs, Paper, Cartons	Y		Y
Total All Drop-offs Rural and Urban								1,029	

1Paper includes: Newspaper, Cardboard, Other Paper, Paper, & Junk Mail, Telephone books; 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
Source: 2017 Annual District Report Implementation Schedule

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

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

JBRSWA services (provide containers and collect recyclables) for both counties. Recyclables are processed by the private sector. Locations are open to the public 24/7.

3. Mixed Municipal Solid Waste Material Recovery Facility

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

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

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

B. Curbside Recycling and Trash Collection Service Providers

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

Name of Provider	Counties Served	Trash Collection Services				Curbside Recycling Services		
		PAYT (Y/N)	**Residential**	**Commercial**	**Industrial**	**Residential**	**Commercial**	**Industrial**
Republic (aka, Allied Waste of Wheeling, WV)	Jefferson	N	some areas	some areas	some areas	some areas	some areas	some areas
D&R Refuse	Jefferson	N	Y	Y				

Name of Provider	Counties Served	Trash Collection Services				Curbside Recycling Services		
		PAYT (Y/N)	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Dailey Recycling & Refuse Svc. (Ohio Valley)	Jefferson	N	Y	Y			Y	
J & J Refuse	Jefferson & Belmont	N						
Lytton Sanitation Service	Jefferson	N	Y	Y				
N.C. Sanitation	Jefferson	N	Y	Y				
R S V Incorporated	Jefferson	N		Y	Y			
Stonebraker's Refuse	Jefferson	N	Y	Y				
Waste Management of WV dba Braddon Hauling	Jefferson (Steubenville)	N	Y	Y	Y			
West End Excavating, Inc.	Jefferson (Steubenville & Wintersville)	N						
JB Green Team	Jefferson & Belmont	N				Y	Y	
C&L Sanitation	Belmont	N	Y	Y				
Blue Ribbon Collections LLC	Belmont	N	Y	Y				
City of Martins Ferry	Belmont	Container limit	Y	Y		N	N	N
J & W Roll-Off Service	Belmont	N	Y	Y				
McCort Hauling	Belmont (Barnesville)	N	Y	Y				
Moore's Collection	Belmont	N	Y	Y				
Republic Services of WV	Belmont	N	some areas	some areas	some areas	some areas	some areas	some areas
Pickens Hauling	Belmont	N	Y					
H&R Maintenance	Belmont	N	Y	Y				

C. Composting Facilities

Table B-5: Inventory of Compost Facilities Used in the Reference Year

Facility Name	Compost Facility Classification	Publicly Accessible (Y/N)	Location	Food Waste (tons)	Yard Waste (tons)	Total
German Ridge Composting	IV	Y	53101 German Ridge Road, Powhatan Point, Ohio Belmont County	0	0	0
Total Lawn Care	IV	Y	175 Detmar Rd (CR 26) Steubenville, Ohio Jefferson County	0	0	0
Total				0	0	0

Source: Ohio EPA 2015 Compost Facility Planning Report. Compost facilities (all classes) track material volumes delivered and reported to Ohio EPA.

Yard waste is a valuable organic material and when diverted from the landfill has beneficial use such as soil conditioners, erosion control, etc. To better understand the landscape of yard waste programs in both counties a web search and phone solicitation of each political jurisdiction was conducted. The results are summarized below.

County	Total			Number of Available Yard Waste Programs		
	Villages	Cities	Townships	Drop-off Collection Area	Curbside Pick up	Chipping
Belmont	14	2	16	0	0	0
Jefferson	17	2	14	0	0	0
Total Programs				0	0	0

D. Other Food Waste and Yard Waste Management Programs

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

Facility or Activity Name	Activity Type	Location	Food Waste (tons)	Yard Waste (tons)
Hauler/Grocer Food Waste Data	Commercial	Belmont	440	
Hauler/Grocer Food Waste Data	Commercial	Jefferson	191	
Total			631	0

Source: Ohio EPA 2017 Compost Facility Planning Report

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

Table B-7: Inventory of Material Handling Facilities Used in the Reference Year

Facility Name	County	State	Type of Facility	Weight of Material Accepted from SWMD (tons)
Valley Converting	Jefferson	Ohio	Single material processor (ONP and OCC)	3,157 (paper drop-off)
Waste Management (GreenStar)	Allegheny	Pennsylvania	SS, MRF	DNR (1.029 collected through Commingled drop-off)
Total				0

Source: Ohio EPA 2015 MRF Report
Note: SS = single stream, MS = multi stream, MRF = material recovery facility

Valley Converting is located in Toronto, Ohio. Valley Converting owns the mill and converting firm, thus they are a manufacturer and converter of recycled paperboard. They produce 85 tons of paperboard per day. JBRSWA markets drop-off collected paper directly to Valley Converting in 2017.

Waste Management is single stream processor and provide material marketing services for small and large volume customers. JBRSWA contracted with Waste Management to process commingled containers in 2017.

APPENDIX C: POPULATION DATA

A. Reference Year Population

Table C-1a: Reference Year Population Adjustments

	Jefferson
Before Adjustment	67,284
Additions – Village of Adena	117
Subtractions	0
After Adjustment	67,401

	Belmont
Before Adjustment	69,336
Additions	0
Subtractions – Village of Wilson	36
After Adjustment	69,300

Source: "2017 Ohio County Population Estimates" prepared by Ohio Development Services Agency, Office of Research (3/2018)

Table C-1b: Total Reference Year Population

Unadjusted Population	Adjusted Population
136,620	136,701

Reference year population is taken from Ohio Development Services Agency Office of Statistical Research (ODSA, OSR). OSR provided estimate populations for 2017 based on the 2010 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 Authority has 2 communities that are located in more than one solid waste management district: Village of Adena in Jefferson County and the Village of Wilson in Belmont County. The Village of Adena straddles the border of Harrison and Jefferson Counties. The majority of the population reside in Jefferson County, so the portion of Adena's population living in Harrison County was added to the Authority's total population. A small portion of Village of Wilson straddles the border of Belmont and Monroe Counties. The majority of the population of Village of Wilson reside outside of Belmont County, so the portion of Wilson' population living in Belmont County was subtracted from the total Authority population.

B. Population Projections

Table C-2: Population Projections

Year	Jefferson	Belmont	Total District Population
2017	67,401	69,300	136,701
2018	67,153	69,196	136,349
2019	66,905	69,020	135,925
2020	66,657	68,844	135,501
2021	66,465	68,722	135,187
2022	66,273	68,600	134,873
2023	66,081	68,478	134,559
2024	65,889	68,356	134,245
2025	65,697	68,234	133,931
2026	65,647	68,046	133,693
2027	65,597	67,858	133,455
2028	65,547	67,670	133,217
2029	65,497	67,482	132,979
2030	65,447	67,294	132,741
2031	65,545	67,134	132,679
2032	65,643	66,974	132,617
2033	65,741	66,814	132,555
2034	65,839	66,654	132,493
2035	65,937	66,494	132,431

Source: Office of Research, Ohio Development Services Agency, "Population Projections by Age and Sex, 2015 to 2050 Prepared by Office of Research, April 2018

Sample Calculations for Jefferson County:

Projected population in 2017 = 67,401

Projected population in 2020 = 66,657

Annual population change = (66,657– 67,401) / 3 = -248

Projected population in 2018 = 2015 population – 248 = 67,153

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.

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 decrease in both counties. Over the fifteen-year planning period, population is expected to decrease by 2%.

APPENDIX D: DISPOSAL DATA

Appendix D provides an inventory of where waste was managed in the reference year (2017), calculates the total waste disposed in the reference year, analyze historical waste disposal quantities, and projects waste to be disposed.

A. Reference Year Waste Disposed

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

	Location		Waste Accepted from the SWMD			
Facility Name	County	State	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)
Apex Sanitary Landfill	Jefferson	OH	299,942	0	4,208	304,150
Carbon Limestone Landfill LLC	Mahoning	OH	0	2,583	57	2,640
Mahoning Landfill, Inc.	Mahoning	OH	308	26	0	334
Countywide Recycling & Disposal Facility	Stark	OH	2	17	35	54
Kimble Sanitary Landfill	Tuscarawas	OH	2,911	72,028	517	75,456
American Landfill, Inc.	Stark	OH	9	92,022	2,628	94,659
Suburban Landfill, Inc	Perry	OH	163	14,269	18,863	33,295
Pine Grove Regional Facility	Fairfield	OH	74	0	0	74
Northwestern Landfill	Wood	Wva	13	0	20	33
Brooke County Landfill	Brooke	Wva	42,922	212	299	43,432
Wetzel	Wetzel	Wva	2,209	277	1,304	3,790
Meadowfill Landfill	Harrison	Wva	8	0	26	34
Caldwell Landfill	Shelby	IN	0	14	0	14
Tradebe Treatment Facility (solidification facility)	Lake	IN	0.01	0	0	0
EQ Industrial Services Processing Facility (solidification facility)	Marion	IN	0.12	0	0	0
Medassure of Indiana Treatment Facility (Medical Waste Processor)	Marion	IN	0.38	0	0	0
Total			348,561	181,448	27,957	557,965

[1] The facilities listed in Table D-1a and identified as able to accept waste from the SWMD (in Appendix M) will constitute those identified for purposes of Ohio Revised Code Section 3734.53(13)(a).
Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018
Sample Calculations:
Residential/Commercial + Industrial + Excluded = Total
299,942 + 0 + 4,208 = 304,150 tons disposed at Apex Sanitary Landfill

A wide variety of wastes are disposed in municipal solid waste landfills and includes 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 may also be disposed in municipal solid waste landfills.

Public haulers, private haulers, or self-haul provide waste collection service in JBRSWA. Waste flows to landfills either by direct haul or through a transfer facility. Approximately 94% 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.

Roughly 56% of the municipal solid waste is disposed in the Apex Sanitary Landfill in Jefferson County, Ohio. Table D-1a depicts the landfills used for waste disposal in the reference year waste.

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

	Location		Waste Accepted from the District		
Facility Name	**County**	**State**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
FirstEnergy Hollow Rock Facility	Jefferson	Ohio	365,614	0	365,614
Cardinal FAR 1 Residual Waste Landfill	Jefferson	Ohio	122,017	0	122,017
Total			487,631	0	487,631

[1] The facilities listed in Table D-1a and identified as able to accept waste from the SWMD (in Appendix M) will constitute those identified for purposes of Ohio Revised Code Section 3734.53(13)(a).
Cardinal FAR 1 Residual Waste Landfill was awarded a PTI in October 2005.
Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018
Ohio EPA letter. "Re: Cardinal FAR1 Residual Waste Landfill Waste Characterization Report for 2008". April 24, 2008

JBRSWA has two Class III Residual Waste Landfills located within the Authority. Residual Waste Landfills are designated exclusively for the disposal of one or any combination of wastes from seven specific industrial categories. Due to regulations these facilities will not receive municipal solid waste. Residual/captive landfills are landfills used to dispose of waste generated exclusively by the manufacturing company that owns the landfill. Two energy companies, located in Jefferson County, have scrubbers to minimize air pollutants from the coal burning process. The flue gas desulfurization (FGD) equipment produces two byproducts (synthetic gypsum and chloride purge stream solids)[5] which are types of pollution control waste that has typically been difficult to recycle. By Ohio law this material is not exempt from being classified as a solid waste and as a result is included in the total amount of solid waste generated.

Table D-1b shows that 487,631 tons were disposed in captive landfills. Including waste disposal from these two power plants has a huge impact on calculations for waste generation and planning. For planning purposes, the Authority is providing additional plan tables and explanations excluding the waste from these power plants in this and later Appendices.

Table D-1c: Total Waste Disposed in Landfills (Direct Haul)

Residential/Commercial (tons)	Industrial (tons)	Excluded (tons)	Total
348,561	669,079	27,957	1,045,596

Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018
Sample Calculations:
Residential/Commercial + Industrial + Excluded = Total
348,561 + 669,079 + 27,957 = 1,045,596 tons disposed

[5] Ohio EPA letter. "Re: Cardinal FAR1 Residual Waste Landfill Waste Characterization Report for 2008". April 24, 2008

Total waste disposed in municipal solid waste and captive landfills total over 1 million tons.

Table D-2 Reference Year Waste Transferred

	Location		Waste Received from the SWMD			
Facility Name	**County**	**State**	**Residential/ Commercial (tons)**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
Apex Environmental LLC	Belmont	OH	40,297	0	0	40,297
J & J Refuse and Recycling	Carroll	OH	6,191	0	358	6,549
Kimble Transfer & Recycling Facility - Canton	Stark	OH	34	0	0	34
Kimble Transfer & Recycling Facility - Cambridge	Guernsey	OH	13,594	28	169	13,791
Total			60,116	28	527	60,671

[1] The facilities listed in Table D-2 and identified as able to accept waste from the SWMD (in Appendix M) will constitute those identified for purposes of Ohio Revised Code Section 3734.53(13)(a).
Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018.
Sample Calculations:
Residential/Commercial + Industrial + Excluded = Total
40,297 + 0 + 0 = 40,297 transferred by Apex Environmental LLC

As mentioned, waste can also flow through a transfer facility. Transfer facilities are conveniently located facilities where solid waste, delivered by collection companies and residents, is consolidated, temporarily stored, and loaded into semi-trailers for transport. Solid waste is then delivered to a processing facility or disposal site. 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.

JBRSWA has one in-district active transfer station (privately owned). Approximately 6% of the waste was transferred, meaning a refuse truck picked up waste from clients and hauled that waste to a transfer facility. In 2017, transfer facilities managing JBRSWA waste identified using the following disposal facilities:

Transfer Station	**Destination Landfill**
Apex Environmental LLC	Apex Sanitary Landfill
J&J Refuse and Recycling	Kimble Sanitary Landfill
Kimble Transfer & Recycling Facility – Canton	Kimble Sanitary Landfill
Kimble Transfer & Recycling Facility – Cambridge	Kimble Sanitary Landfill

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

		Location		Waste Accepted from the SWMD			
Facility Name	**Facility Type**	**County**	**State**	**Residential/ Commercial (tons)**	**Industrial (tons)**	**Excluded (tons)**	**Total (tons)**
None							0
Total				0	0	0	0

[1] The facilities listed in Table D-3 and identified as able to accept waste from the SWMD (in Appendix M) will constitute those identified for purposes of Ohio Revised Code Section 3734.53(13)(a).
Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018.

The Authority did not use incineration as a management method in the reference year.

Supplement to Table D-4 Incinerated and Excluded Waste Percentages of Total Waste Disposed

	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)	% of Total Waste Disposed
Direct Hauled	348,561	669,079	27,957	1,045,596	95%
Transferred	60,116	28	527	60,671	5%
Incinerated	0	0	0	0	0%
Total	408,677	669,107	28,484	1,106,267	100%
Percent of Total	37%	60%	3%	100%	

According to Ohio EPA Format 4.0, if excluded waste is 10% or less of total disposal in the reference year, then Authority's are not required to account for excluded waste in the solid waste management plan. For JBRSWA, excluded waste accounts for 3% of total disposal in 2017, and therefore will not be included as shown in Table D-4.

Table D-4 Total Waste Disposed in Reference Year

	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)	% of Total Waste Disposed
Direct Hauled	348,561	669,079	0	1,017,639	94%
Transferred	60,116	28	0	60,144	6%
Incinerated	0	0	0	0	0%
Total	408,677	669,107	0	1,077,783	100%
Percent of Total	38%	62%	0%	100%	

Source(s) of Information: 2017 Ohio Facility Data Report Tables, October 1, 2018.
Sample Calculations:
% of Total Waste Disposed = Total Direct Hauled / Total Disposed * 100%
= 348,561 / 1,017,639 * 100%
= 94% Direct Hauled Waste

Table D-4a Total Waste Disposed in Reference Year (Excluding Captive Waste)

	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)	% of Total Waste Disposed
Direct Hauled	348,561	181,448	0	530,008	90%
Transferred	60,116	28	0	60,144	10%
Incinerated	0	0	0	0	0%
Total	408,677	181,476	0	590,152	100%
Percent of Total	69%	31%	0%	100%	

Since wastes from captive facilities accounts for approximately 73% of total district waste disposal JBRSWA is including Table D-4a to demonstrate waste disposal impact without captive waste. To exclude the captive waste is to show measurement of the industrial waste needing management.

B. Historical Waste Analysis

Table D-5 Historical Disposal Data

Year	Population	Residential/ Commercial Solid Waste		Industrial Solid Waste	Excluded Waste	Total Waste
		Rate (ppd)	Weight (tons)	Weight (tons)[2]	Weight (tons)[3]	Weight (tons)[4]
2012	138,060	5.10	128,405	779,470	12,899	920,774
2013	137,535	5.45	136,916	1,088,132	16,390	1,241,438
2014	137,535	8.02	201,380	1,711,864	44,109	1,957,353
2015	136,501	12.37	308,159	1,057,999	104,166	1,470,324
2016	136,501	12.77	318,233	838,090	30,358	1,186,682
2017	136,701	16.38	408,677	669,107	0	1,077,783

Source(s) of Information: Ohio EPA ADR Review Forms for 2012, 2013, 2014, 2015, and 2016 for population and waste disposal data.
Sample Calculation:
Residential/Commercial + Industrial + Excluded = Total Waste
128,405 + 779,470 + 12,899 = 920,774 tons disposed in 2012
((Residential/Commercial tons * 2,000 pounds per ton) / 365 days) / Population = Residential/Commercial disposal rate
((128,405 tons * 2,000 pounds per ton) / 365 days) / 138,060 persons = 5.10 pound per person per day

Total waste disposal peaked at nearly 2 million tons in 2014 then steadily declined to 1 million tons. The residential/commercial sector exhibited steady increases while the industrial sector documents a peak then fall. Figure D-1 demonstrates population does not provide a direct correlation to landfilled waste.

As shown in Figure D-2 the percentage of industrial waste disposed remains higher than the residential/commercial waste disposed.

Residential/commercial waste disposed in the Authority increased from 15% in 2010 to over 40% in 2017. Residential/commercial waste tonnages increased and industrial waste tonnages decreased.

As mentioned previously, since excluded waste is less than 10% of total waste disposed of in 2017, it does not need to be included for planning purposes.

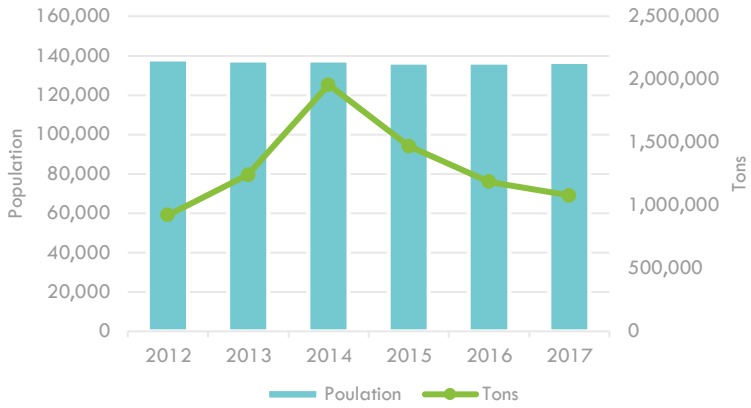


Figure D-1 Historical Disposal and Population

1. Residential/Commercial
   Figure D-3 shows the total residential and commercial tons of waste disposed in the Authority from 2012 through 2017. As shown waste tonnages show a steady increase. Figure D-3 also depicts disposal not directly following population. Disposal increased despite a flat population. Increases in waste disposal are mainly attributable to Utica wells drilled. Belmont, Monroe and Jefferson Counties were the Top 3 shale-drilling counties in the state in 2017.[6]

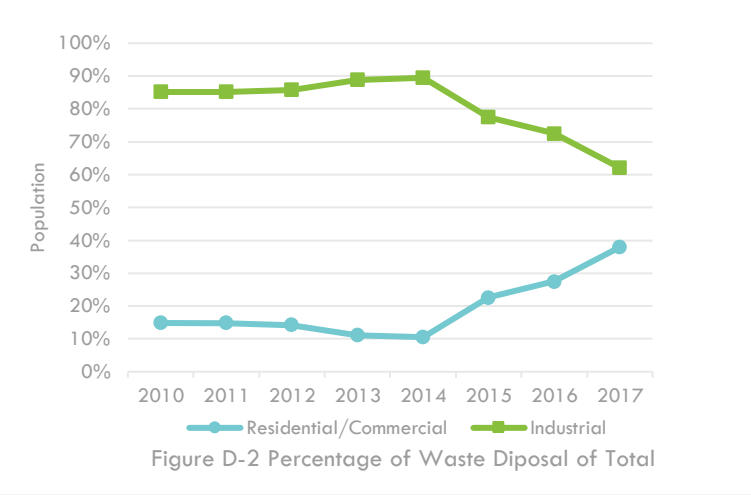


Figure D-2 Percentage of Waste Diposal of Total

   Belmont County reports 124 wells and Jefferson County at 43. The horizontal drilling technology to drill into Utica shale uses hydraulic fracturing, commonly referred to as "fracking". This drilling technology uses sand, water and chemical additives injected at high pressures to blast open shale rock. The fractured shale opens releasing the trapped gas and oil to flow up the well. Solid waste generated throughout hydro-fracking process is sent to municipal landfills.

   The measured impact fracking waste has on the waste disposal is shown in Table D-5a which compares the 2015 Plan projected waste disposal versus the actual waste disposal. Well drilling began in

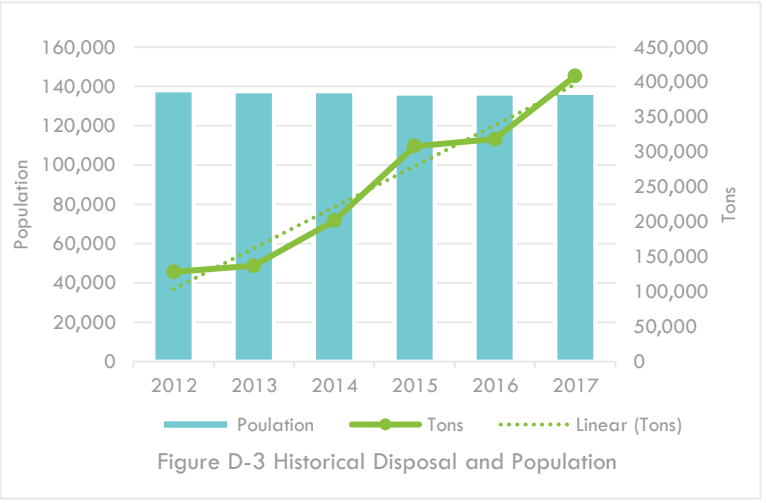


Figure D-3 Historical Disposal and Population

[6] Marcellus Drilling News. "Top 3 Most-Drilled Counties in Ohio Utica for 2017". March 9, 2018.

2012. As documented, actual disposal demonstrates substantial increases over the seven years. These increases substantially impact calculated per capita disposal rates. Per capita disposal rate uses two factors: population and disposal. Per capita disposal jumped from 4.48 pounds per person per day to 16.38.

Table D-5a: Actual Residential/Commercial Disposal Compared to 2015 Plan Projections

Year	Actual		2015 Plan Projected		
	Actual Disposal (tons)	Rate (lbs/person/day)	Disposal (tons)	Rate (lbs/person/day)	% change
2011	114,512	4.48	114,588	4.51	0.07%
2012	128,405	5.10	114,619	4.55	-12%
2013	136,916	5.45	115,592	4.59	-18%
2014	201,380	8.02	115,612	4.60	-74%
2015	308,159	12.37	116,494	4.64	-165%
2016	318,233	12.77	117,350	4.70	-171%
2017	408,677	16.38	118,213	4.73	-246%

Source(s):
Actual Disposal: 2011, 2012, 2013, 2014, 2105, 2016, and 2017 Annual District Review Form
2015 Plan Projected Disposal Source: 2015 JBRSWA Plan

Benchmarking to other solid waste management districts that also have a large number of fracking wells, JBRSWA found two other districts experiencing similar increases in per capita disposal rates. Unlike JBRSWA, the increases documented in other solid waste management districts dropped to lower rates in 2016 as shown in Figure D-4. Comparatively, JBRSWA rates are the highest and well above the Ohio's statewide 2017 rate of 4.71 pounds per person per day.

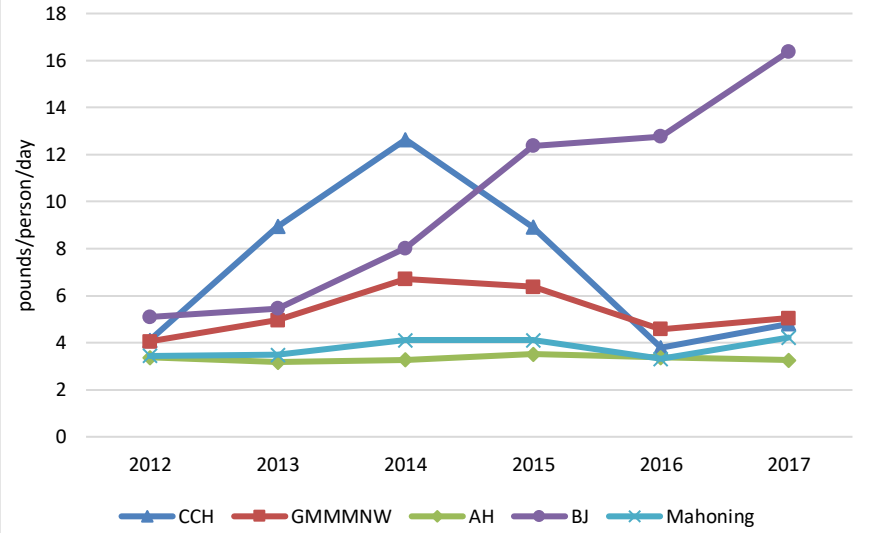


Figure D-4 Benchmark Residential/Commercial Disposal Rates

To investigate whether waste disposed is trash solely from residents or a mix of drilling waste, JBRSWA researched waste disposal characterized at the Apex Sanitary Landfill. Upon request, Apex Sanitary Landfill reported weight totals and material id's for all reported waste disposed in 2017. JBRSWA was able to ascertain that approximately 32% is municipal solid waste. The other 78% is drilling waste. Based on this examination of landfill waste characterization at Apex Landfill, JBRSWA believes the 2017 per capita disposal is inflated because of fracking waste. Thus, residents are not disposing over 16 pounds per person per day of trash.

2. Industrial Waste

As previously mentioned, two energy companies, located in Jefferson County, operate residual waste landfills. Both coal-fired power plants dispose a significant amount of waste and attribute to the fluctuations in historical industrial waste disposal. Approximately 73% of industrial waste is landfilled in captive landfills owned by the power plants. Figure D-5 demonstrates the historical trend of industrial waste. Reported waste landfilled at the captive landfills saw a steep rise in 2014, only to fall in 2015 and continue declining. There is a confluence of factors contributing to the rise in waste disposal at a captive facility. Since the peak is not maintaining JBRSWA considers the peak an anomaly.

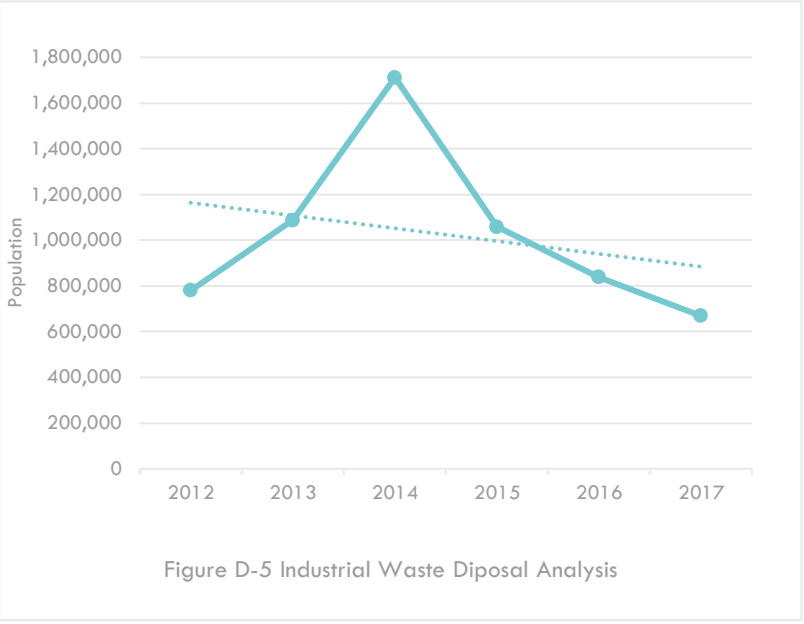


Figure D-5 Industrial Waste Diposal Analysis

Including captive landfilled waste from energy companies does not give an accurate depiction of the industrial landscape in Jefferson and Belmont Counties. Table D-5b calculates industrial waste disposal excluding captive waste landfilled. Excluding captive landfill wastes, the industrial waste also follows the same rise and fall curve over time until year 2017. In 2017, the industrial waste again peaks.

Table D-5b Historical Industrial Disposal Excluding Captive Landfill

	Industrial Solid Waste		
	Total	Captive Landfill Disposal	Excluding Captive Landfill Disposal
Year	(tons)	(tons)	(tons)
2012	779,470	756,635	22,835
2013	1,088,132	1,026,229	61,903
2014	1,711,864	1,599,187	112,677
2015	1,057,999	986,324	71,675
2016	838,090	803,139	34,952
2017	669,107	487,631	181,476

Source(s):
Actual Disposal: 2012, 2013, 2014, 2015, 2016, and 2017 Annual District Review Form

3. Excluded Waste

Excluded waste makes up less than 10% of JBRSWA's waste disposal. As such that waste is not included in this plan's analysis.

C. Disposal Projections

Table D-6 Waste Disposal Projections

Year	Residential/ Commercial Solid Waste	Industrial Solid Waste	Excluded Waste	Total Waste	Waste Transferred (as part of Total Disposal)	Waste Transferred (as part of Total Disposal)
	Weight	Weight	Weight	Weight	Weight	Percent
	(tons)	(tons)	(tons)	(tons)	(tons)	15%
2017	408,677	669,107	0	1,077,783	60,144	
2018	407,595	662,416	0	1,070,010	59,957	
2019	406,327	655,791	0	1,062,119	59,770	
2020	405,060	649,234	0	1,054,293	59,584	
2021	404,121	642,741	0	1,046,862	59,446	
2022	403,183	636,314	0	1,039,496	59,308	
2023	402,244	629,951	0	1,032,195	59,170	
2024	401,305	623,651	0	1,024,956	59,032	
2025	400,367	617,415	0	1,017,781	58,894	
2026	399,655	611,240	0	1,010,896	58,789	
2027	398,944	605,128	0	1,004,072	58,684	
2028	398,232	599,077	0	997,309	58,580	
2029	397,521	593,086	0	990,607	58,475	
2030	396,809	587,155	0	983,964	58,370	
2031	396,624	581,284	0	977,908	58,343	
2032	396,439	575,471	0	971,909	58,316	
2033	396,253	569,716	0	965,969	58,289	
2034	396,068	564,019	0	960,087	58,261	
2035	395,883	558,379	0	954,261	58,234	

Source(s) of Information: 2017 waste disposal retrieved from Ohio EPA Annual District Report.
Sample Calculation: Residential/Commercial Solid Waste = (365 days * population * 5.24 lbs/person/day) / 2000 lb/ton
Industrial Solid Waste = 2017 tonnage – (2017 tonnage * 0.01) = 2018 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. After conducting the historical analysis and considering factors that could change historical disposal trends, waste disposal for the planning period is projected in Table D-6.

Transfer projections is kept at a constant percentage of total waste disposed. The percentage used is the percentage of total waste disposed in the reference year that was routed through transfer facilities prior to being taken to a landfill, which is 15%. Based on analysis of available capacity for disposing of the Authority's waste, the Authority did not identify any reasons to suspect that the amount of waste routed through transfer stations will change.

1. Residential/Commercial Waste Projections

Looking at historical trends, in the last 4 years residential and commercial disposal increased significantly (approximately 226,000 tons). The five-year average per capita residential and commercial disposal is 11.0 pounds per person per day. Prior to 2014, residential and commercial waste disposal in JBRSWA, averaged significantly less at about 115,000 tons per year.

The examination of Apex Landfill waste characterization reports identified a majority of waste landfilled as drilling/fracking waste. In an attempt to develop better estimates for residential/commercial landfill quantities, JBRSWA calculated an estimated landfill quantity. Total residential/commercial was multiplied by 23% (percent of residential/commercial landfill waste disposed in 2017 per Apex Landfill reports). This 130,776 tons was then used to determine a per capita disposal rate. The resulting 5.24 pounds per person per day correlates with per capita disposal before the shale oil well drilling boom. JBRSWA believes this is a better representation of per capita disposal.

To show a more realistic residential/commercial planning period waste disposal, JBRSWA prepared Table D-6a. This table shows what the Authority expects from the residential/commercial sector. This is a base for calculating the waste generation and recycling projections needed for the 2021 Plan and program development. Total waste disposal is needed for capacity demonstrations. The number of shale wells and operation of those wells greatly impacts the waste disposal and air space needed at a landfill and is addressed further in Appendix M.

Residential/commercial waste disposal forecasts shown in Table D-6 projects planning period waste disposal using the calculated per capita disposal rate of 5.24 pounds per person per day.

Table D-6a Waste Disposal Projection Demonstrating Fracking Waste

Year	Estimated Residential/ Commercial Solid Waste	FRACKING WASTE Residential/ Commercial Solid Waste	TOTAL Residential/ Commercial Solid Waste
	Weight	Weight	Weight
	(tons)	(tons)	(tons)
2017	130,777	277,900	408,677
2018	130,391	277,165	407,595
2019	129,985	276,303	406,327
2020	129,580	275,441	405,060
2021	129,279	274,802	404,121
2022	128,979	274,164	403,183
2023	128,679	273,526	402,244
2024	128,378	272,888	401,305
2025	128,078	272,249	400,367
2026	127,851	271,766	399,655
2027	127,623	271,282	398,944
2028	127,395	270,798	398,232
2029	127,168	270,314	397,521
2030	126,940	269,830	396,809

Year	Estimated Residential/ Commercial Solid Waste	FRACKING WASTE Residential/ Commercial Solid Waste	TOTAL Residential/ Commercial Solid Waste
	Weight	Weight	Weight
	(tons)	(tons)	(tons)
2031	126,881	269,704	396,624
2032	126,822	269,578	396,439
2033	126,762	269,452	396,253
2034	126,703	269,326	396,068
2035	126,644	269,200	395,883

2. Industrial Waste Projections

From 2013 to 2017, industrial waste experienced an average annual percent decrease of 5.46%. Ohio's 2024 Job Outlook report for the Southeast Ohio projects a 2.1 percent decline in manufacturing employment. Research also found the waste disposed in captive landfills will be reduced. According to an article in the Wheeling News-Register, "By 2020, FirstEnergy Corp. will retire enough coal-fired electricity to power about 720,000 homes, as it announced plans to shut down four generating units at the W.H. Sammis Plant in Jefferson County."[7] However, with the passage of House Bill 6, the Sammis Plant will not be retired at this time. It is uncertain what the future volume impact of the coal-fired unit will have on waste disposed. At this point in time, JBRSWA is estimating a reduced waste disposal of 1% for the industrial stream because it aligns with the captive landfill average decline.

Including captive landfilled waste from energy companies does not give an accurate depiction of the industrial landscape in Jefferson and Belmont Counties. Table D-6b calculates industrial waste disposal forecasts excluding captive waste landfilled.

Table D-6b Waste Disposal Projection Demonstrating Captive Waste

Year	Industrial Solid Waste	CAPTIVE WASTE Industrial Solid Waste	TOTAL Industrial Solid Waste
	Weight	Weight	Weight
	(tons)	(tons)	(tons)
2017	181,476	487,659	669,107
2018	179,661	482,782	662,416
2019	177,865	477,955	655,791
2020	176,086	473,175	649,234

[7] The Intelligencer. Wheeling News-Register. July 23, 2016.

Year	Industrial Solid Waste	CAPTIVE WASTE Industrial Solid Waste	TOTAL Industrial Solid Waste
	Weight	Weight	Weight
	(tons)	(tons)	(tons)
2021	174,325	468,443	642,741
2022	172,582	463,759	636,314
2023	170,856	459,121	629,951
2024	169,147	454,530	623,651
2025	167,456	449,985	617,415
2026	165,781	445,485	611,240
2027	164,124	441,030	605,128
2028	162,482	436,620	599,077
2029	160,858	432,254	593,086
2030	159,249	427,931	587,155
2031	157,657	423,652	581,284
2032	156,080	419,415	575,471
2033	154,519	415,221	569,716
2034	152,974	411,069	564,019
2035	151,444	406,958	558,379

APPENDIX E: RESIDENTIAL/COMMERCIAL RECOVERY DATA

Appendix E provides an inventory of materials recovered from the residential/commercial sector in the reference year, adjusted quantities for double counting, total adjusted quantities of material recovered in the reference year, historical quantities recovered, and projected quantities to be recovered.

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-1 Commercial Survey Results

NAICS	Appliances/ "White Goods"	Electronics	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste
42								1							
44															
45															
48															
49															
51															
52															
53															
54															
55															
56															
61															
62															
71															
72															
81															
92															

NAICS	Appliances/ "White Goods"	Electronics	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste	
Other:																
Unadjusted Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Adjustments																
Adjusted Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

Source(s) of Information: District surveys conducted to gather 2017 recycling data.
Sample Calculation:
Unadjusted Total – Adjustments = Total
Assumptions:

Table E-1 is reserved for commercial data obtained from JBRSWA survey efforts. No adjustments were needed to exclude recycling that was reported from processors.

Table E-2 Data from Other Recycling Facilities

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	Scrap Tires	
Buybacks																	
None																	
Scrap Yards																	
None																	
Brokers																	
Jasar Recycling																	
Campbell Scrap Tire Company																23	
Perrysville Iron Metal & Tire																449	
Ants Trucking																20	
Lightner Tire Company																114	
Miller & Co Portable Toilet Service, Inc																5	
Processors/MRF's																	
S.Slesnick Co								355									
River Valley Paper								18	247								
Interstate Batteries			61														
Valley Converting									58								
Liberty Tire Service of Ohio																2,338	
Food Waste Hauler Data				631													
Unadjusted Totals	0	0	61	631	0	0	0	373	305	0	0	0	0	0	0	2,949	0

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	Scrap Tires	
Adjustments																	
Adjusted Totals	0	0	**61**	**631**	**0**	**0**	**0**	**373**	**305**	**0**	**0**	**0**	**0**	**0**	**0**	**2,949**	**0**

Source(s) of Information: 2017 Ohio EPA Material Recovery Facility and Commercial Recycling Data. SWMD surveys to gather 2017 data for Buybacks, Scrap Yards, and Brokers.
*Hauler reports include commercial clients. This is not all residential.
Sample Calculation:
Unadjusted Total – Adjustments = Total
Assumptions:

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 by Commercial Businesses

Ohio EPA Data Source	Glass	Plastic	Newspaper	Cardboard	Mixed Paper	Nonferrous	Ferrous	Wood	Food: Compost	Food: Other	Commingled	Other	
BELMONT COUNTY													
Walmart		9		707	2							58	
Kroger		8		576								2	
Sams Club		6		296	1								
Dollar General Corporation				260	4								
Big Lots Corporation				24									
Lowe's Companies Inc		0		78			28	23					
United States Postal Service		1		4	68								
JEFFERSON COUNTY													
Walmart		12		663	3	0						54	
Lowe's Companies Inc				133			66	21					
Dollar General Corporation				260	3								
Big Lots Corporation				36									
Kroger		8		553								2	
United States Postal Service		1		4	66								
Unadjusted Total	0	45	0	3,594	147	0	94	44	0	0	0	115	4,040
Adjustments													
Adjusted Total	**0**	**45**	**0**	**3,594**	**147**	**0**	**94**	**44**	**0**	**0**	**0**	**115**	**4,040**

Source(s) of Information: 2015 Ohio EPA Material Recovery Facility and Commercial Recycling Data
Sample Calculation:
Unadjusted Total – Adjustments = Total

Quantities reported in Table E-3 were obtained from Ohio EPA reports. No adjustments were needed.

Other sources and/or programs for diverting waste are included in Table E-4. Scrap tires collected from the scrap tire collection events were sent to a transporter that had an active transporter registration in 2017. However, the registration was not renewed in 2018, thus the tires were not reported to Ohio EPA.

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

Other Programs or 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	Other: Ash	Other:	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Curbside Recycling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drop-off Recycling Full Service	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,029	0	0	0	1,029	0	1,029
Scrap Tire Recycling	0	0	0	0	391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	391	0	391
Community Clean-Ups	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0	64
Battery Collection	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
HHW Collection	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	32
Electronics Recycling	0	0	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	49
Data reported to SWMD from Political Jurisdictions	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	20	0	0	22	0	22
Drop-Off Recycling Fiber	0	0	0	0	0	0	0	0	0	0	0	0	3,157	0	0	0	0	0	0	0	0	3,157	0	0
Glass Program	0	0	0	0	0	0	0	0	339	0	0	0	0	0	0	0	0	0	0	0	0	339	0	339
Unadjusted Total	64	32	0	49	391	1	0	0	339	0	2	0	3,157	0	0	0	0	1,029	20	0	0	5,082	0	5,082
Adjustments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Adjusted Total	64	32	0	49	391	1	0	0	339	0	2	0	3,157	0	0	0	0	1,029	20	0	0	5,082		

Source(s) of Information: Ohio EPA 2017 Compost Facility Data Report. District program data for 2017.
Sample Calculation:
Unadjusted Total – Adjustments = Total
Assumptions:

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

Material	Quantity (tons)
Appliances/ "White Goods"	64
Household Hazardous Waste	32
Used Motor Oil	0
Electronics	49
Scrap Tires	3,340
Dry Cell Batteries	1
Lead-Acid Batteries	61
Food	631
Glass	339
Ferrous Metals	94
Non-Ferrous Metals	2
Corrugated Cardboard	3,968
All Other Paper	3,609
Plastics	45
Textiles	0
Wood	44
Rubber	0
Commingled Recyclables (Mixed)	1,029
Yard Waste	20
Other (Aggregated)	115
Total	13,443

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

The District diverted 13,443 tons from the residential/commercial sector. Table E-5 reports quantities of each material diverted. Cardboard, paper and scrap tires 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	1
Other Recycling Facilities (Buybacks, Brokers, Haulers, & Processors/MRFs)	4,320
Ohio EPA Commercial Retail Data	4,040
Curbside Recycling Services	0
Drop-off Recycling Programs	1,029
Scrap Tire Recycling	391
Community Clean-Ups	64
Battery Collection	1

Program/Source of R/C Recycling Data	Quantities (Tons)
HHW	32
Electronics Recycling	49
Data reported to SWMD form Political Jurisdictions	22
Drop-Off Recycling Fiber	3,157
Glass Program	339
Total	13,443

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

Table E-6 reports tonnages diverted for each program/source. This table attempts to attribute recycling to a JBRSWA program for data analyzation.

B. Historical Recovery

The data analysis in Table E-7 shows non-linear programmatic recycling data over the time period analyzed. Diversion demonstrates 25 to 27% annual variability with an average of 14,695 tons. Based on recovery data obtained JBRSWA recovers approximately 0.59 pounds per person per day.

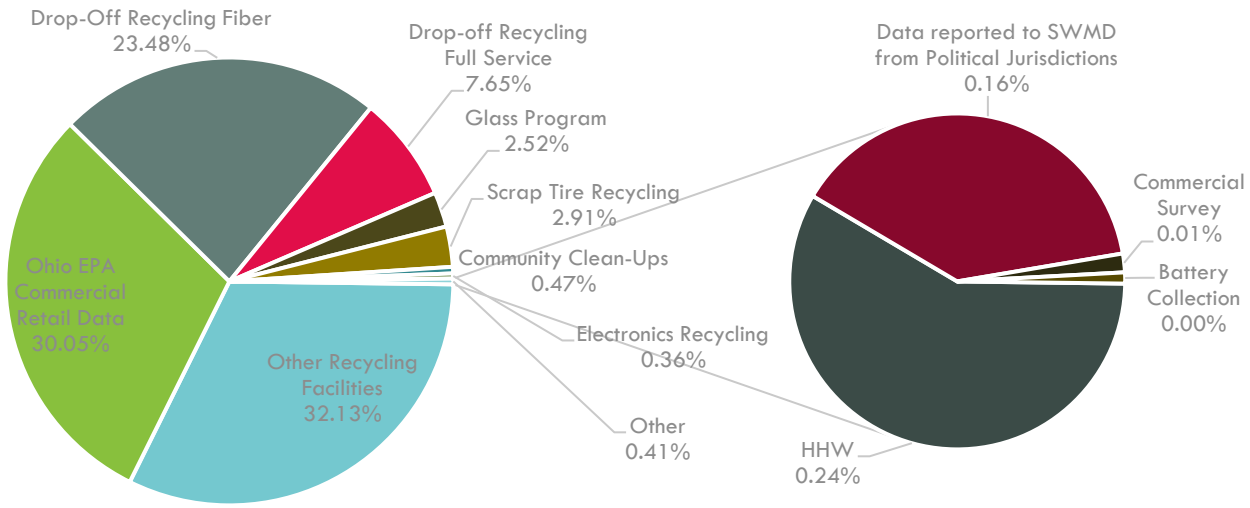


Figure E-1 Recycling by Source

By weight, three programs source the majority of recycling (see Figure E-1). Variations in data from these sources affect the recycling trends. Significant changes are noted in Commercial Survey, Other Recycling Facilities (Buybacks, Brokers, Haulers, & Processors/MRFs), and Ohio EPA Commercial Retail data. In 2016, JBRSWA received responses from commercial businesses that did not report in 2017 resulting in the decline shown between the two years in the Commercial Survey. Also, in 2017, one processor reported a decline of about 95% in recovery, resulting in a significant decline of Other Recycling Facilities in 2017.

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

Year	Commercial Survey	Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Full Service	Scrap Tire Recycling	Community Clean-Ups	Battery Collection	HHW	Electronics Recycling	Data reported to SWMD from Political Jurisdictions	Drop-off Recycling Fiber	Glass Program	Totals
2013	0	7,230	1,754	21	829	368	26	0	33	127	0	3,105	222	13,716
2014	48	7,800	3,839	48	902	53	10	0	8	17	0	3,240	300	16,266
2015	0	6,048	3,254	0	711	332	29	0	29	92	0	2,799	422	13,716
2016	235	8,318	2,926	0	1,015	314	66	1	26	30	0	3,099	306	16,336
2017	***1***	***4,320***	***4,040***	***0***	***1,029***	***391***	***64***	***1***	***32***	***49***	***22***	***3,157***	***339***	***13,443***

Table E-7a1 Average Percent Change in Tons Recovered

2013														
2014	-	8%	119%	125%	9%	-86%	-60%	6%	-75%	-87%	-	4%	35%	19%
2015	-100%	-22%	-15%	-100%	-21%	523%	181%	-78%	246%	440%	-	-14%	41%	-16%
2016	-	38%	-10%	-	43%	-5%	129%	578%	-10%	-68%	-	11%	-28%	19%
2017	***-100%***	***-48%***	***38%***	***-***	***1%***	***24%***	***-4%***	***14%***	***24%***	***63%***	-	***2%***	***11%***	***-18%***

Table E-7a2 Average Percentage Change in Tons Recovered

		-6%	33%		8%	114%	61%	130%	46%	87%		1%	15%	1%

Table E-7a3 Annual Change in Tons Recovered

2013														
2014	48	570	2,085	27	73	-315	-15	0	-25	-110	0	135	78	2,550
2015	-48	-1,752	-585	-48	-191	279	19	0	21	75	0	-440	122	-2,550
2016	235	2,271	-328	0	304	-18	37	0	-3	-62	0	300	-117	2,620
2017	***-234***	***-3,999***	***1,114***	***0***	***14***	***76***	***-3***	***0***	***6***	***19***	***22***	***58***	***33***	***-2,893***

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

Population														
137,535	2013	0.00	0.29	0.07	0.00	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.12	0.01	0.55
137,535	2014	0.00	0.31	0.15	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.65
136,501	2015	0.00	0.24	0.13	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.11	0.02	0.55
136,501	2016	0.01	0.33	0.12	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.66
136,701	***2017***	***0.00***	***0.17***	***0.16***	***0.00***	***0.04***	***0.02***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.13***	***0.01***	***0.54***

Table E-7a5 Average Per Capita Recovery Rate (pounds/person/day)

0.00	0.27	0.13	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.59

Table E-7a6 Average Tons of Material Recovered

57	6,743	3,162	14	897	292	39	0	26	63	4	3,080	318	14,695

Sources:
Commercial Survey from District survey efforts
Data from other recycling facilities from Ohio EPA MRF report
Ohio EPA commercial retail data from Ohio EPA MRF report
Yard Waste composted from Annual District Report
Food waste hauled reported from Annual District Report
Ohio EPA scrap tire data from Ohio EPA reports
Specific program data from historical Annual District Reports

To provide additional analysis, JBRSWA developed Table E-7a7 to historically benchmark material quantities recovered.

Table E-7a7: Residential/Commercial Historical Materials Recovered

	2014	2015	2016	2017	Correlations
Standard Recyclables					
Corrugated Cardboard	3,752	3,136	3,996	3,968	Cardboard is historically one of the largest material categories recovered for recycling.
Ferrous Metals	145	250	11	94	Low response in commercial and processor surveys, depends on survey response.
All Other Paper	5,153	4,054	4,635	3,610	Change waste stream, less paper (50% reduction in newspaper readership over last 10 years[8])
Plastics	22	66	109	45	Changing waste stream, more plastic in stream, materials are lighter, markets are not established for all varieties of plastics in the waste stream. Recovery is challenging for certain material types.
Glass	301	422	306	339	Establishing a bar glass recovery program increased the recovery of glass.
Wood	55	148	74	44	Low response in commercial surveys, depends on survey responses.
Non-Ferrous Metals	3	14	3	2	
Commingled Recyclables (Mixed)	951	711	1,015	1,029	Commingled recovery is trending annual increases of approximately 2% per year.
Subtotal	10,382	8,799	10,148	9,132	
Organics					
Food	2,649	1,913	981	631	In 2014 and 2015, a considerable amount of hauler/Kroger/Walmart food diversion data was reported by Ohio EPA to the Authority.
Yard Waste	151	213	19	20	Fluctuates, weather/storm dependent. Most communities do not offer yard waste services.
Subtotal	2,800	2,126	1,000	651	
Hard to Recycle Materials					
Scrap Tires	2,536	2,455	4,361	3,340	Scrap tires are historically one of the largest material categories recovered for recycling. Data tracking and collection are established.
Appliances/ "White Goods"	10	29	66	64	Depends on survey response. Recent years received better response and data tracking.
Other (Aggregated)	-	-	598	115	
Textiles	-	-	-	-	
Used Motor Oil	-	-	-	-	
Lead-Acid Batteries	181	187	106	61	Depends on survey response. Recent years received less response from surveyed businesses.
Household Hazardous Waste	8	29	26	32	
Electronics	17	92	30	49	

[8] Waste Management. The Changing Waste Stream. EPA Webinar Series. November 13, 2014. Susan Robinson.

	2014	2015	2016	2017	Correlations
Dry Cell Batteries	1	-	1	1	
Rubber	-	-	-	-	
Subtotal	2,754	2,791	5,188	3,822	
Total Tons	15,936	13,716	16,336	13,443	Increased scrap tire recovery explains the jump in recovery in 2016. A few materials categories fluctuate but overall the total recovery has been relatively flat.

Throughout the state and nation many have seen a decline in recycling tonnages because of evolving materials. The collection of some materials has changed dramatically especially in curbside single stream collection systems. Societal and lifestyle trends have fundamentally changed the composition and type of materials in the waste stream such as aseptic/cartons, bulky rigid HDPE plastics, tubs and lids (Nos. 2, 4 and 5 plastics). These materials are becoming more prevalent in the waste stream. This lighter feedstock is taking the place of denser printed materials and consumer packaging. The volume of a ton has increased with the loss of ton density. There may be more volume, but it weighs less. 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. Essentially recycling programs will need to collect more volume in order to maintain tonnages. As seen in Table E-7a7 paper recovery is following a decreasing trend.

C. Residential/Commercial Recovery Projections

Table E-8 Residential/Commercial Recovery Projections by Program/Source

Year	Commercial Survey	Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Programs	Scrap Tire Recycling	Community Clean-Ups	Battery Collection	HHW	Electronics Recycling	Data reported to SWMD from Political Jurisdiction	Drop-Off Recycling Fiber	Glass Program	Totals
2017	***1***	***4,320***	***4,040***	***0***	***1,029***	***391***	***64***	***1***	***32***	***49***	***22***	***3,157***	***339***	***13,443***
2018	1	3,071	4,419	0	769	245	64	1	38	29	22	2,957	339	**11,955**
2019	1	3,102	4,464	0	777	247	65	1	38	29	22	2,987	342	**12,075**
2020	1	3,133	4,508	0	784	250	65	1	39	30	22	3,016	346	**12,196**
2021	1	3,164	4,553	0	792	252	66	1	39	30	23	3,047	349	**12,318**
2022	1	3,196	4,599	0	800	255	67	1	40	30	23	3,077	353	**12,441**
2023	1	3,228	4,645	0	808	257	67	1	40	30	23	3,108	356	**12,565**
2024	1	3,260	4,691	0	816	260	68	1	40	31	23	3,139	360	**12,691**
2025	1	3,293	4,738	0	824	263	69	1	41	31	24	3,170	363	**12,818**
2026	1	3,326	4,786	0	833	265	69	1	41	31	24	3,202	367	**12,946**
2027	1	3,359	4,833	0	841	268	70	1	42	32	24	3,234	371	**13,075**

Year	Commercial Survey	Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Programs	Scrap Tire Recycling	Community Clean-Ups	Battery Collection	HHW	Electronics Recycling	Data reported to SWMD from Political Jurisdiction	Drop-Off Recycling Fiber	Glass Program	Totals
2028	1	3,392	4,882	0	849	271	71	1	42	32	24	3,266	374	**13,206**
2029	1	3,426	4,931	0	858	273	71	1	42	32	25	3,299	378	**13,338**
2030	1	3,461	4,980	0	867	276	72	1	43	33	25	3,332	382	**13,472**
2031	1	3,495	5,030	0	875	279	73	1	43	33	25	3,365	386	**13,606**
2032	1	3,530	5,080	0	884	282	74	1	44	33	25	3,399	390	**13,742**
2033	1	3,565	5,131	0	893	284	74	1	44	34	26	3,433	394	**13,880**
2034	1	3,601	5,182	0	902	287	75	1	45	34	26	3,467	398	**14,019**
2035	1	3,637	5,234	0	911	290	76	1	45	34	26	3,502	401	**14,159**

Sources:
Years 2017 and 2018 data sources:
Commercial Survey from District survey efforts
Other Recycling Facilities from Ohio EPA MRF report, Ohio EPA compost data from Ohio EPA Compost report (includes food waste), and Ohio EPA scrap tire data from Ohio EPA reports
Ohio EPA Commercial Retail data from Ohio EPA MRF report
Drop-off Recycling Programs data from historical Annual District Reports
Scrap Tire Recycling data from historical Annual District Reports
Community Clean-Ups data from historical Annual District Reports
Battery Collection data from historical Annual District Reports
HHW data from historical Annual District Reports
Electronics Recycling data from historical Annual District Reports
Data Reported to SWMD from Political Jurisdiction data from historical Annual District Reports
Drop-off Recycling Fiber data from historical Annual District Reports
Glass Program data from historical Annual District Reports

The average tonnage recycled from 2013 to 2017 is roughly 14,700 tons. The average annual percent change in tons recovered is calculated at 1%. It is expected recovery will continue to see minimal fluctuations annually. Recovery is projected to increase 1% over the planning period.

APPENDIX F INDUSTRIAL WASTE REDUCTION AND RECYCLING DATA

Appendix F contains an inventory of materials recovered from the industrial sector in the reference year, adjusts quantities for double counting, calculates total adjusted quantities of material recovered, analyzes historical quantities recovered and projects quantities to be recovered.

A. Reference Year Recovery Data

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)	Ash	Non-Excluded Foundry Sand	Flue Gas Desulfurization	Other:	
22																
31																
32																
33			3,430	3,922		61	2		60						825	
42				14			15								140	
44																
53																
54																
Unadjusted Total	0	0	3,430	3,936	0	61	17	0	60	0	0	0	0	0	965	8,469
Adjustments																
Adjusted Total	**0**	**0**	**3,430**	**3,936**	**0**	**61**	**17**	**0**	**60**	**0**	**0**	**0**	**0**	**0**	**965**	**8,469**

Source(s) of Information: Calendar year 2017 survey data as reported by industrial businesses.

Table F-1 accounts for material credited for waste reduction and recycling as reported by industrial businesses. 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.

Data in 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 467 surveys and received a 6% response rate.

Table F-2 Data from Other Recycling Facilities

Program and/or Source of Materials/Data	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Ash	Non-Excluded Foundry Sand	Flue-Gas Desulfurization Waste	
Buybacks															
none															
Scrap Yards															
5 responding businesses															
Brokers															
4 responding businesses															
Processors/MRF's															
none															
Unadjusted Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Adjustments															**0**
Adjusted Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source(s) of Information:
Calendar year 2017 survey data as reported by industrial businesses.
Ohio EPA Material Recovery Facility data 2017

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 Desulfurization Waste	*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		

Source(s) of Information:
Calendar year 2017 survey data as reported by industrial businesses.
Ohio EPA Material Recovery Facility data 2017

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

Material	Quantity (tons)
Food	0
Glass	0
Ferrous Metals	3,430
Non-Ferrous Metals	3,936
Corrugated Cardboard	0
All Other Paper	61
Plastics	17
Textiles	0
Wood	60
Rubber	0
Commingled Recyclables (Mixed)	0
Ash	0
Non-Excluded Foundry Sand	0
Flue Gas Desulfurization	0
Other (Aggregated)	965
Total	8,469

Source(s) of Information:
Calendar year 2017 survey data as reported by industrial businesses.
Ohio EPA Material Recovery Facility data 2017

The Authority diverted 8,469 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	Quantity (Tons)
Industrial survey	8,469
Scrap Yards	0
Data from other recycling facilities	0
Total	**8,469**

Source(s) of Information:
Calendar year 2015 survey data as reported by industrial businesses.
Ohio EPA Material Recovery Facility data 2015

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

B. Historical Recovery

Table F-6 Historical Industrial Recovery by Program/Source

Year	Industrial survey	Data from other recycling facilities	Totals
2013	93,017	0	93,017
2014	13,438	0	13,438
2015	161,063	0	161,063
2016	162,024	0	162,024
2017	8,469	0	8,469

Table F-6a1 Annual Percentage Change in Tons Recovered

2013			
2014	-86%	0%	-86%
2015	1099%	0%	1099%
2016	1%	0%	1%
2017	-95%	0%	-95%

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

230%	0%	230%

2013			
2014	-79,579	0	-79,579
2015	147,624	0	147,624
2016	961	0	961
2017	-153,555	0	-153,555

Average Tonnage Change/Year

-21,137	0	-21,137

Average Tons of Material Over 5 Years

87,602	0	87,602

Source(s) of Information: Annual District Reports for 2013- 2017

Data from the industrial sector is obtained from surveys, as seen from Table F-6. An industrial survey was conducted to obtain 2017 data. Industrial recycling is dependent on survey responses. A large increase occurred in 2015 with an industry responder, and then dropped in 2017 when responses were no longer received. The low response rate means that any change in industries reporting can have a huge impact on the recycling tonnages. For example, if a large industrial recycler reports intermittently, reported recycling tonnages may swing up and down. The industrial sector has been challenging for the Authority to receive industry responses to recycling surveys. Figure F-1 shows the number of manufacturing establishments and employment declining in in both counties. On average between 2013 and 2017, the Authority collected roughly 87,000 tons of material.

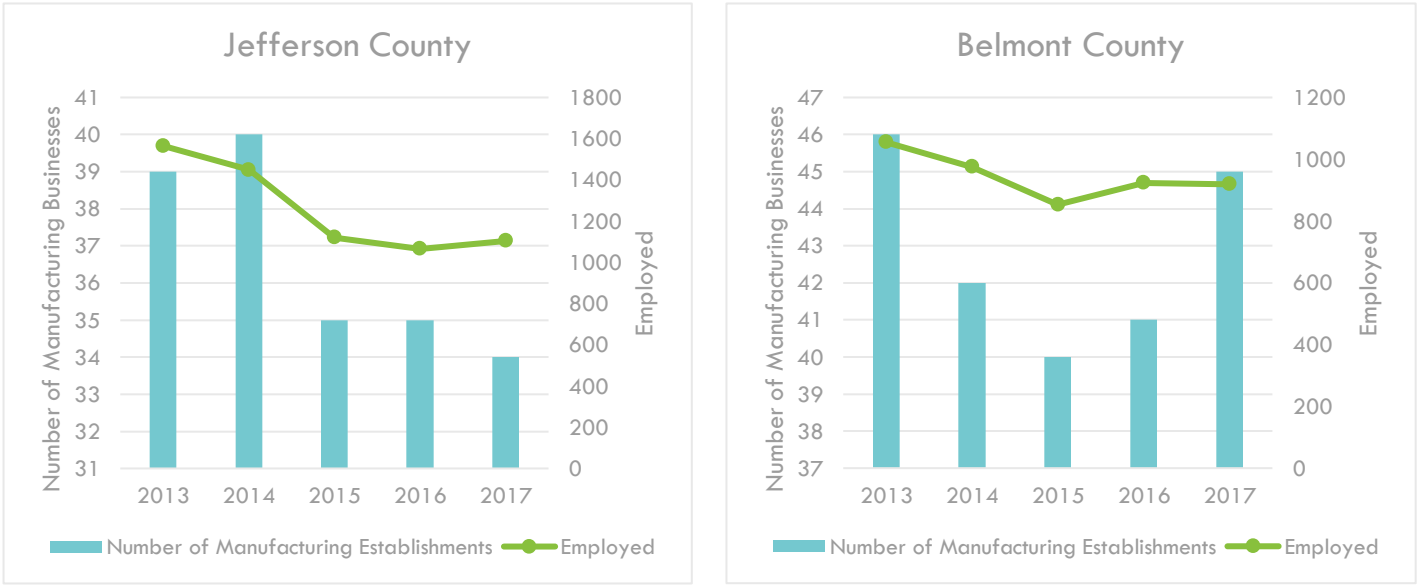


Figure F-1 Manufacturing Establishments and Employment

C. Industrial Recovery Projections

Table F-7 Industrial Recovery Projections by Program/Source

Year	Industrial survey	Data from other recycling facilities	Totals
2017	8,469	0	8,469
2018	8,028	0	8,028
2019	8,108	0	8,108
2020	8,189	0	8,189
2021	8,271	0	8,271
2022	8,354	0	8,354
2023	8,437	0	8,437
2024	8,521	0	8,521
2025	8,607	0	8,607
2026	8,693	0	8,693
2027	8,780	0	8,780
2028	8,867	0	8,867
2029	8,956	0	8,956
2030	9,046	0	9,046
2031	9,136	0	9,136
2032	9,228	0	9,228
2033	9,320	0	9,320
2034	9,413	0	9,413
2035	9,507	0	9,507

Source(s) of Information: Table F-6
Sample Calculations:
Industrial survey annual increases of 1%.
Industrial Survey annual projection: 8,028 tons * 0.01 + 8,028 tons = 8,108 tons projected recycled in 2019

A survey was conducted to obtain 2017 data from industries, haulers and brokers. One hundred seventeen surveys were mailed to industrial businesses. Follow up phone calls were made to the largest industries in both counties. A 5% response rate was achieved. Survey efforts to the brokers and haulers elicited better response rates, 25%.

Ohio Department of Job and Family Services predicts manufacturing employment in Ohio will decline 5.9% from 2016 to 2026[9]. It is also predicted Southeast Ohio will decline by 2.1% from 2014 to 2024[10]. Following this forecast, the industrial sector recovery is projected to decline. Table F-7 predicts a 1% annual change through the end of the planning period to reflect a decreasing manufacturing employment in the region.

[9] Ohio Department of Job and Family Services. "2026 Ohio Job Outlook, Employment Projections". October 2018.
[10] Ohio Department of Job and Family Services. "2024 Job Outlook, JobsOhio Network Southeast Ohio." November 2017.

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)
		Disposed (tons)	Recycled (tons)	Generated (tons)	Per Capita Generated (ppd)	Disposed (tons)	Recycled (tons)	Generated (tons)		
2013	137,535	136,916	13,716	150,632	6.00	1,088,132	93,017	1,181,149	16,390	1,348,171
2014	137,535	201,380	16,266	217,646	8.67	1,711,864	13,438	1,725,302	44,109	1,987,057
2015	136,501	308,159	13,716	321,875	12.92	1,057,999	161,063	1,219,062	104,166	1,645,103
2016	136,501	318,233	16,336	334,569	13.43	838,090	162,024	1,000,114	30,358	1,365,042
2017	**136,701**	**408,677**	**13,443**	**422,120**	**16.92**	**669,107**	***8,469***	***677,576***	**0**	1,099,695

Source(s) of Information:
Disposal from Appendix D
Recycled from Appendices E and F
Populations: Annual district reports
Sample Calculations:
Waste generation = disposed + recycled = generated
Per Capita Generation = ((generated * 2,000) / 365) / population

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 JBRSWA. The volume of waste is continuing to increase. Waste generation is holding between 2 million and 1 million tons. Residential/commercial waste generation is rising while industrial waste generation is falling as shown in Figure G-1.

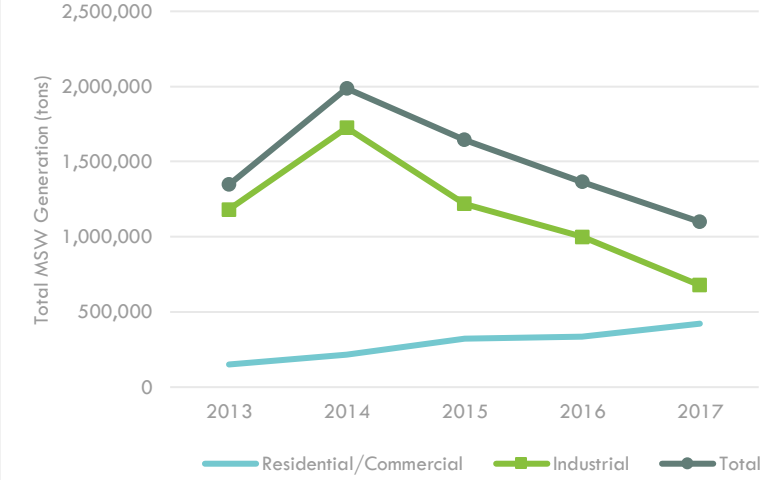


Figure G-1 Historical Waste Generated

National per capita waste generation has held between 4.4 and 4.53 from 2013 to 2017. Part of this change is due to the evolving waste stream. Since the 1990s, heavy glass packaging such as bottles and jars have increasingly been replaced with lighter HDPE, PET, and flexible plastic packaging. The decline in newspaper subscriptions and increase in online shopping means that newsprint has decreased in the waste stream while corrugated containers have increased. The use of steel and aluminum containers has remained fairly constant over the past several decades. 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. Because of these changes the volume is increasing but the weight is not.

Also, the material restrictions to foreign markets results in tighter recyclable bales (recyclables collected at the curb and in drop-offs are processed into bales at a MRF to be marketed for use in end products = closing the loop in recycling.) The market disruption is resulting in higher tipping fees at processing facilities as they re-invest in equipment and facility updates to produce bales that will meet market demand. These tighter restrictions may have implications on future volumes of recyclables recovered.

JBRSWA residential/commercial per capita waste generation is not following the national trend. JBRSWA's per capita generation is rising as shown in Figure G-1. This is due to increased fracking and fracking waste disposal. Comparing to regional SWMDs, as shown in Figure G-2, JBRSWA's per capita rate is almost triple to the neighboring solid waste districts. JBRSWA's reference year residential/commercial generation falls above Ohio's generation of 4.71 pounds per person per day (2017).

Industrial generation had a steep peak in 2014 and has since followed a steady decline. A major contributor that influences waste disposal is waste from power plants. Operations at these utilities significantly impact the annual waste disposal. Diversion also fluctuates and is dependent on the responding industries.

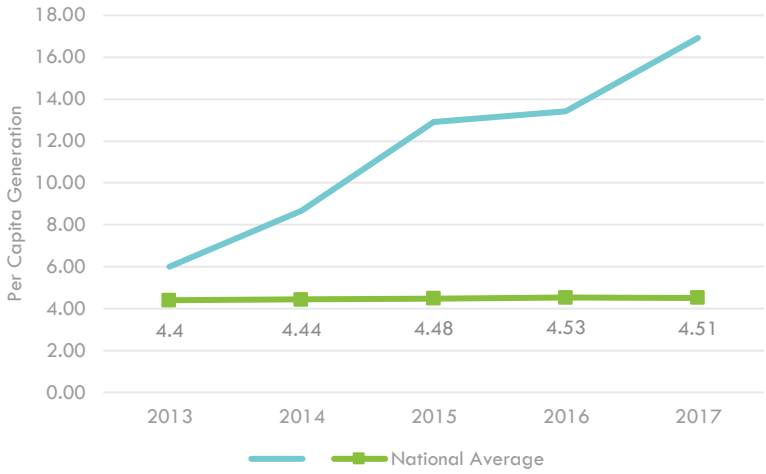


Figure G-1 Residential/Commercial Per Capita Generation

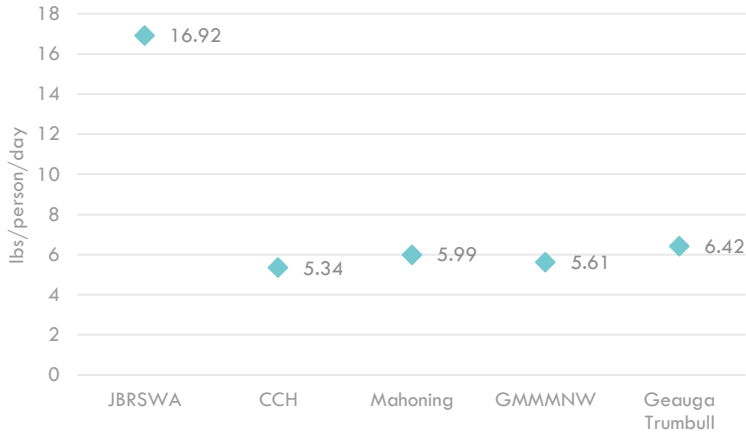


Figure G-2 Benchmark Per Capita Waste Generation

B. Generation Projections

Table G-2 Generation Projections

Year	Population	Residential/ Commercial				Industrial			Excluded Waste (tons)	Total (tons)
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		
2017	***136,701***	***408,677***	***13,443***	***422,120***	***16.92***	***669,107***	***8,469***	***677,576***	***0***	***1,099,696***
2018	136,349	407,595	11,955	419,550	***16.86***	662,416	8,028	670,443	0	1,089,994
2019	135,925	406,327	12,075	418,402	***16.87***	655,791	8,108	663,899	0	1,082,302
2020	135,501	405,060	12,196	417,256	***16.87***	649,234	8,189	657,423	0	1,074,678
2021	135,187	404,121	12,318	416,439	***16.88***	642,741	8,271	651,012	0	1,067,451
2022	134,873	403,183	12,441	415,623	***16.89***	636,314	8,354	644,667	0	1,060,291
2023	134,559	402,244	12,565	414,809	***16.89***	629,951	8,437	638,388	0	1,053,197

Year	Population	Residential/ Commercial				Industrial			Excluded Waste (tons)	Total (tons)
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		
2024	134,245	401,305	12,691	413,996	***16.90***	623,651	8,521	632,173	0	1,046,169
2025	133,931	400,367	12,818	413,184	***16.90***	617,415	8,607	626,021	0	1,039,206
2026	133,693	399,655	12,946	412,601	***16.91***	611,240	8,693	619,933	0	1,032,534
2027	133,455	398,944	13,075	412,019	***16.92***	605,128	8,780	613,908	0	1,025,927
2028	133,217	398,232	13,206	411,438	***16.92***	599,077	8,867	607,944	0	1,019,383
2029	132,979	397,521	13,338	410,859	***16.93***	593,086	8,956	602,042	0	1,012,901
2030	132,741	396,809	13,472	410,281	***16.94***	587,155	9,046	596,201	0	1,006,482
2031	132,679	396,624	13,606	410,230	***16.94***	581,284	9,136	590,420	0	1,000,650
2032	132,617	396,439	13,742	410,181	***16.95***	575,471	9,228	584,698	0	994,879
2033	132,555	396,253	13,880	410,133	***16.95***	569,716	9,320	579,036	0	989,169
2034	132,493	396,068	14,019	410,087	***16.96***	564,019	9,413	573,432	0	983,519
2035	132,431	395,883	14,159	410,041	***16.97***	558,379	9,507	567,886	0	977,927

Source(s) of Information:
Disposal from Appendix D
Recycled from Appendices E and F
Populations: Annual district reports
Sample Calculations:
Waste generation = disposed + recycled = generated
Per Capita Generation = ((generated * 2,000) / 365) / population

Table G-2a Generation Projections (excludes Fracking Waste and Captive Waste)

Year	Population	Residential/ Commercial				Industrial			Excluded Waste (tons)	Total (tons)
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		
2017	***136,701***	***130,777***	***13,443***	***144,219***	***5.78***	***181,476***	***8,469***	***189,945***	***0***	***334,165***
2018	136,349	130,391	11,955	142,346	***5.72***	179,661	8,028	187,689	0	330,035
2019	135,925	129,985	12,075	142,060	***5.73***	177,865	8,108	185,973	0	328,033
2020	135,501	129,580	12,196	141,775	***5.73***	176,086	8,189	184,275	0	326,050
2021	135,187	129,279	12,318	141,597	***5.74***	174,325	8,271	182,596	0	324,193
2022	134,873	128,979	12,441	141,420	***5.75***	172,582	8,354	180,935	0	322,355
2023	134,559	128,679	12,565	141,244	***5.75***	170,856	8,437	179,293	0	320,537
2024	134,245	128,378	12,691	141,069	***5.76***	169,147	8,521	177,669	0	318,738
2025	133,931	128,078	12,818	140,896	***5.76***	167,456	8,607	176,063	0	316,959
2026	133,693	127,851	12,946	140,797	***5.77***	165,781	8,693	174,474	0	315,271
2027	133,455	127,623	13,075	140,699	***5.78***	164,124	8,780	172,903	0	313,602
2028	133,217	127,395	13,206	140,602	***5.78***	162,482	8,867	171,350	0	311,952
2029	132,979	127,168	13,338	140,506	***5.79***	160,858	8,956	169,814	0	310,320
2030	132,741	126,940	13,472	140,412	***5.80***	159,249	9,046	168,295	0	308,707
2031	132,679	126,881	13,606	140,487	***5.80***	157,657	9,136	166,793	0	307,280
2032	132,617	126,822	13,742	140,564	***5.81***	156,080	9,228	165,307	0	305,872
2033	132,555	126,762	13,880	140,642	***5.81***	154,519	9,320	163,839	0	304,481
2034	132,493	126,703	14,019	140,722	***5.82***	152,974	9,413	162,387	0	303,109
2035	132,431	126,644	14,159	140,803	***5.83***	151,444	9,507	160,951	0	301,754

APPENDIX H STRATEGIC EVALUATION

The state solid waste management plans establish recycling and reduction goals for solid waste management districts. The Authority's 2015 Plan demonstrated compliance with the 2001 State Plan. Programs and strategies approved by Ohio EPA in the 2015 Plan are evaluated in this Appendix H. In this Appendix, the Board 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 14 analyses described in Format 4.0. The strategic program evaluation was performed on the following:

- Residential Recycling Infrastructure Analysis
- Commercial 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
- Education and Outreach Analysis
- Processing Capacity Analysis

1. Residential Recycling Infrastructure Analysis

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

a. Evaluation

CURBSIDE

Curbside recycling has been and continues to be a challenging service offering in both Jefferson and Belmont Counties. Both counties are predominantly rural (88% Jefferson, 90% Belmont) and have low population densities (163 persons per square mile Jefferson, 128 persons per square mile Belmont). Research conducted found all 65 communities are in an open market system for curbside recycling services. Open market system gives the customer a choice in who provides the service. In Jefferson and Belmont counties the haulers contacted had a limited range of service areas. Proximity, distance, and low volume of recyclables generated in lower populated areas is a barrier for curbside recycling infrastructure. Haulers stated no efficiencies of scale in these areas. Lack of service or greater costs for service result in service voids throughout both counties.

For those with availability of service (subscription or opt-in, i.e., the hauler offers the service), the requirement to sign up, especially when a monthly fee is required for services may be a barrier to participation. The 2015 Plan Update developed a few strategies to promote and work with communities to implement curbside programs. JBRSWA was able to pilot 2 programs in 2013 and 2014 in the largest political jurisdictions in each County. Both Steubenville and Martins Ferry each had 199 households participate representing about 50% of households offered the service (400 households offered in each jurisdiction). Service operated for 6 months and collected 47 tons which is approximately 236 pounds per household participating. According to The Recycling Partnership's 2016 State of Curbside Report the national average is 357 pounds per household. Costs for the service for 6 months were over $17,800 which is about $7.45 per household per month (based on participating households). If more households participated the program would lower per household collection costs. In the end, low participation and cost were considered prohibitive for the jurisdictions to continue the service after the pilot. The pilot gathered significant data and proved promising to jurisdictions with concentrated population densities such as Steubenville and Martins Ferry that curbside service could be implemented it would just be requiring a cost to service.

Challenges/Barriers

- Availability of curbside recycling service offering by private sector (geographic and rural barriers).
- Voluntary programs (subscription curbside) reduce participation.
- Service costs are higher than residents/communities willing to pay.
- Both counties are low densely populated rural counties (< 200 persons per square mile).
- For long-term service the program would need to be subsidized which is not sustainable. Pay-as-you-throw could be an option.

DROP-OFF

To provide residents with recycling opportunities and access to recycle JBRSWA operates (provides containers and hauls) a drop-off program in both counties. Drop-off locations offer recycling containers where people place their recyclable materials to be collected. People who use drop-offs voluntarily transport recyclable materials to the drop-off location. Materials are collected in a dual stream. In JBRSWA's dual stream, pre-sorted recyclable items such as glass, plastic and metal are accepted in one container, and all paper products in another. (See JB Green Team webpage for the most current list of acceptable materials).

Paper/Cardboard Items	Commingled Items
Books	Carton packaging – milk, juice, broth, soup & other
Newspaper & Ad inserts, magazines, & glossy ads	Cans
Corrugated cardboard	Empty aerosol cans
Paperboard boxes & clean pizza boxes	Clean aluminum foil, pie pans, and to-go containers
Cardboard egg cartons	Glass bottles & jars
Opened mail, envelopes, & greeting cards	Plastics #1-5, bottles, jugs & tubs
Office paper, manila/pastel colored folders, brochures, computer printouts, loose-leaf paper, memos, post-its, index cards, and pastel colored paper	
Paper shopping bags	
Paper tubes	
Shredded paper	

In 2010 and 2011, JBRSWA created better efficiencies of service by converting the drop-off program to standard 6-yard containers (front-load) throughout both counties. In addition to containers, the conversion required investment in front-loader trucks. Standard labels on truck and containers also presented opportunity for brand awareness. In terms of drop-off recycling, infrastructure programs are available full-time (at least 40 hours a week) at 34 rural and 12 urban locations (2017), as shown in Figures H-1 and H-2. Drop-offs are located in 34 of the 65 communities in the Authority providing drop-off availability in 52% of political jurisdictions (some political jurisdictions have more than one location). Containers are uniform in size and signage.

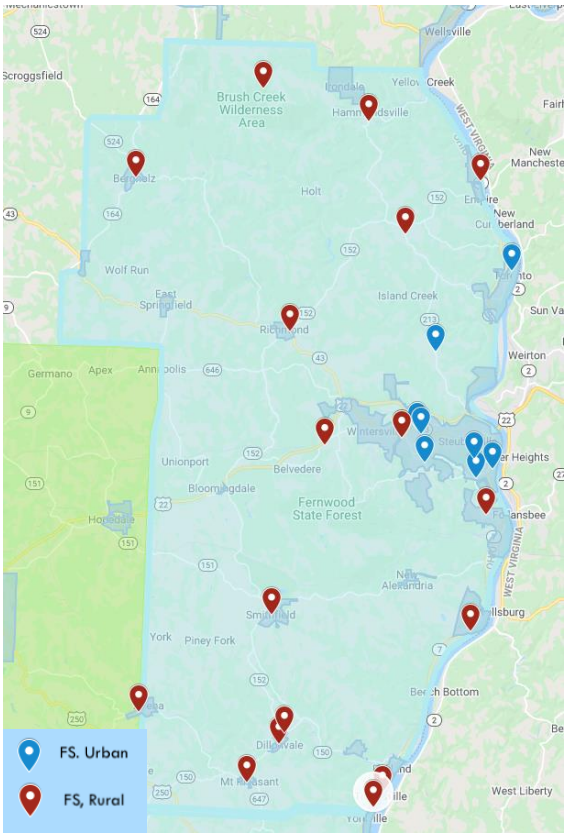


Figure H-1 Jefferson County Urban and Rural Full-Service Drop-off (2017)

In 2012, this program was challenged with higher processing costs because of glass in the drop-off commingled stream. The MRF Processor taking JBRSWA commingled recyclables lacks end markets for glass, even though it is a traditional recyclable. Owning collection equipment allowed JBRSWA to explore implementing a glass only recycling program targeting high-volume generators (restaurants, pubs, etc.) in hopes of removing a bulk of the glass from the commingled stream. In order to have a successful program, JBRSWA needed to develop a relationship with end markets to directly market the collected glass. After market research the relationship was built, and the program began. Since inception, this program has grown in volume and participating businesses. In 2017, JBRSWA serviced 50 glass only containers and directly marketed the glass to an end-processor. The Glass Recycling Program is operating at full capacity. Many businesses are requesting service and are on a wait list. Research was conducted of Ohio SWMD's and communities to benchmark the Glass Recycling Program. It was found that others do not separately track costs and/or tonnages. If a grant was received the data was tracked for grant reporting purposes but not continued.

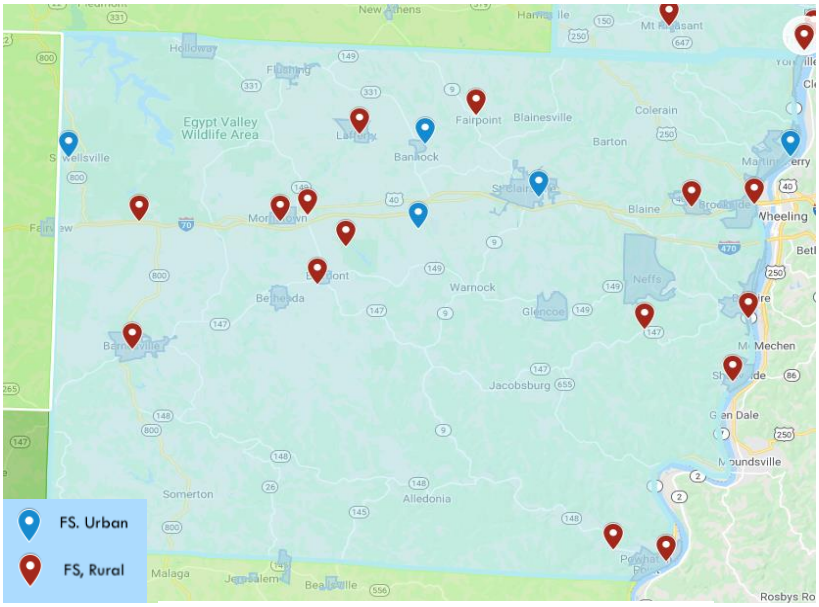


Figure H-2 Belmont County Urban and Rural Full-Service Drop-off (2017)

The number of containers per site varies depending on usage. Frequency of service per location also depends on usage and is monitored and adjusted by the Authority. Tables H-1 and H-2 list the locations, containers, and service frequency in 2017.

In 2017, Jefferson County's program provided drop-off locations in 20 of the 33 communities (12 villages, 2 cities and 6 townships).

Table H-1 Jefferson County Drop Off Locations (CY 2017)

Location	Number of Collection Sites	Number of Fiber Containers	Number of Commingled Containers	Service Frequency per Week
Adena Village	1	2	1	1x
Bergholz Village	1	3	1	1x
Bloomingdale Village	1	1	1	1x
Dillonvale Village	1	2	2	1x
Empire Village	1	1	1	1x
Mingo Junction Village	1	3	2	1x
Mount Pleasant Village	1	2	2	1x
Richmond Village	1	2	2	1x
Smithfield Village	1	2	2	1x
Tiltonsville Village	1	3	2	1x
Wintersville Village	2	4 (Kroger) 3 (Reisbecks)	4 3	3x 3x
Yorkville Village	1	2	1	1x
Steubenville City	6	2 (Lincoln Ave) 1 (Mill Parking Lot) 3 (Eastern Gateway 1 (McKinley Elem) 1 (Old Aquinas) 1 (School of Bright Promise)	1 1 4 1 1 1	1x 1x Fiber 3x, Commingled 4x 1x 1x 1x
Toronto City	1	2	2	Fiber 2x, Commingled 1x
Brush Creek Township	1			Trailer serviced 1x month
Island Creek Township	1	2	1	1x
Knox Township	1	2	2	1x
Saline Township	1	2	2	1x
Springfield Township	1	1	1	1x
Steubenville Township	1	1	1	1x
Wells Township	1	2	1	1x
Total	**27**	**51**	**43**	

Note: Drop-off locations and number of containers may change. This list represents what was operational in 2017.

In 2017, Belmont County's program provided drop-off locations in 14 of the 32 communities (7 villages, 2 cities and 5 townships).

Table H-2 Belmont County Drop Off Location (CY 2017)

Location	Number of Collection Sites	Number of Fiber Containers	Number of Commingled Containers	Service Frequency per Week
Barnesville Village	2	4 (Watt Center)	4	2x

Location	Number of Collection Sites	Number of Fiber Containers	Number of Commingled Containers	Service Frequency per Week
		3 (Harmony)	2	2x
Bellaire Village	2	4 (Imperial Plaza) 2 (76 VFD)	4 1	3x 1x
Belmont Village	2	1 (Barkcamp) 2 (Belmont)	1 2	Bi-weekly 2x
Bridgeport Village	2	4 (Lincoln Ave) 2 (St. Joseph's)	3 2	3x Fiber 2x, Commingled 2x
Martins Ferry City	1	2	1	2x
Morristown Village	2	1 (W. Cross St) 2 (Belmont-Morristown)	1 2	2x 2x
Powhatan Point Village	1	3	2	1x
St Clairsville City	1	8	6	Fiber 2x, Commingled 1x
Shadyside Village	1	4	3	2x
Kirkwood Township	1	1	1	1x
Richland Township	2	3 (Bannock Rd) 1 (Fairgrounds)	3 1	2x 1x
Union Township	1	1	1	1x
Wheeling Township	1	2	1	1x
York Township	1	1	1	1x
Total	**20**	**51**	**42**	

Note: Drop-off locations and number of containers may change. This list represents what was operational in 2017.

JBRSWA also offers expanded collection of paper by providing paper only containers throughout both counties at schools, nonprofits and businesses. JBRSWA has historically had a relationship with an end market processor for paper. Separating the stream for collection helps to provide a more, clean product for the end market processor and is integral for sale of recyclable revenue. In 2017, the number of schools participating is 24. The paper only containers are referred to as the Paper Recycling Program and in this analysis is called out when included in the drop-off programs.

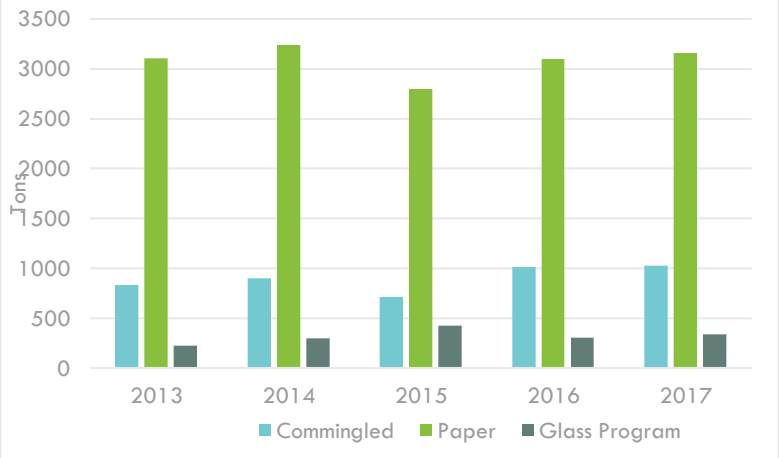


Figure H-3 Drop-off Recyclables

Tonnages remained relatively consistent and show a minimal increase in 2017. The tonnages reported in Figure H-3 reports tonnage from the various programs. Commingled includes recycling tonnage collected from University Partnerships. Paper and Glass Recycling includes materials collected from schools, non-profits, and businesses. Paper and glass are separately hauled and more easily tracked for tonnages. Through research into other solid waste district programs, JBRSWA found that many cannot isolate paper or glass only recycling tonnages from the commingled stream because of the manner in which it is collected. The City of Columbus shared their program services 42 bars and restaurants at a contract cost of roughly $47,000.

Both Counties have a "cell" location where drop-off materials (glass and commingled) are tipped, loaded into a compactor, and picked up by a hauling company to deliver to the processor. At the cell the crew checks the materials for contamination. Also, when the driver picks up containers if the contamination is high and/or contains too much trash the driver will take a photo and report the containers. Even though the containers are well marked with stickers/signs, contamination is an issue at some of the sites. The problem sites are monitored to evaluate whether they need to be removed or relocated.

Assuming entire county population, the average pounds per capita recovered through the drop-off program is 61 pounds per person per year. JBRSWA is a top performer in recovery when compared to neighboring solid waste management districts (Table H-3). The drop-off program has successful best practice attributes to help achieve a higher recovery rate, which include convenient locations, easy to use, clean locations, and public engagement. Even with these attributes the program is not performing as high as Logan County Solid Waste Management District. In Logan County best practices include supporting Pay-as-you-throw policy to recover 96 pounds per person for the drop-off. Mahoning County is recovering more per ton at each location than the Authority mostly because they have a fewer number of sites.

Table H-3 Benchmark Drop-off Program to Neighboring District's

SWMD	Cost per Ton	Ton per Location	lbs/person
JBRSWA	$363	89	61
Mahoning	$98	123	32
CCH	$254	76	57

Source: Quarterly fee reports and Annual District Reports for calendar year 2017.
Solid Waste Management Plans for Mahoning County (2016 data) and CCH (2014 data).

The cost per ton in 2017 was $363 and the six-year average is $219 (historical tonnage and cost analysis include Paper Recycling Program). Table H-4 compares JBRSWA's 2017 program data to neighboring solid waste management districts. It's difficult to benchmark the program to other neighboring solid waste management district programs. Normalizing the program costs per ton or costs per person is not a straight apples-to-apples comparison because JBRSWA has more service offerings wrapped into the overall drop-off costs. As shown in Table H-4, JBRSWA's cost per ton is higher than its neighbors because it includes Paper Recycling Program and Glass Recycling Program service costs.

Table H-4 Regional SWMD Curbside and Drop-off Programs (CY 2017)

SWMD	JBRSWA	Columbiana-Carroll-Harrison	Mahoning
Population	136,701	146,803	237,087
Number of Political Jurisdictions	65 (33 Jefferson + 32 Belmont)	78	26
Subscription Curbside	0	2	0
Non-Subscription Curbside	0	2	11
Full Time Rural Drop-off	34	34	13
Full Time Urban Drop-off	12	23	13
Part Time Drop-off	0	10	2
Total Number Drop-off Locations	46 (excludes universities)	67	34 (includes 6 captive sites)

SWMD	JBRSWA	Columbiana-Carroll-Harrison	Mahoning
Drop-off Program Funded by SWMD	Yes, and service provision	Yes, and service provision	Yes
Drop -Off Costs	$1,518,799	$1,284,965	$411,183

Source: 2017 Annual District Reports for each SWMD
Very little information was gathered on GMMMNW programs so was excluded from the table.

Figure H-4 depicts the historical tonnage collected and programs costs. Programs costs include processing, operations, and capital costs. Prior to 2016, drop-off program costs excluded wages and benefits. Accounting changes in procedure reports include these costs with the drop-off program which began in 2016. Additionally, the cost to process the recyclables rose. Then, in 2017 capital costs for equipment increased program costs. Through these changes and investments, tonnages have remained steady.

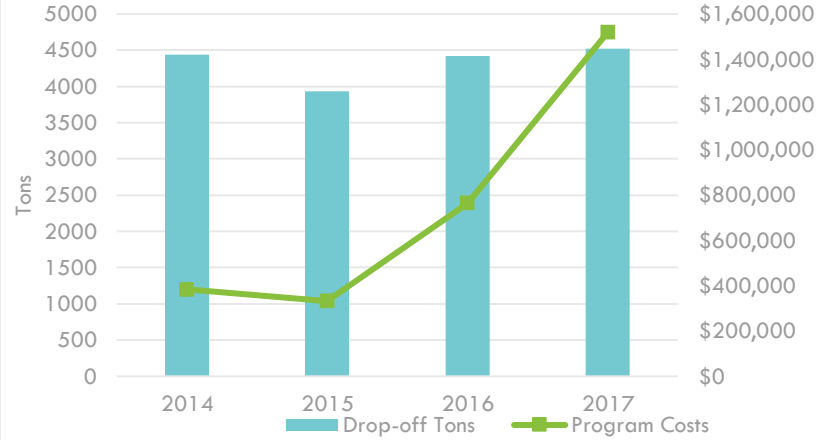


Figure H-4 Drop-off Volume and Costs

Challenges/Barriers

- Low per person tonnage recovery.
- Large expense for JBRSWA.
- Constant monitoring and evaluation of performance needed.
- Increase recyclable processing tip fees.
- MRF used has minimal end market resources for glass collected.
- Issues with illegal dumping.
- Contamination (wish cycling) challenges.
- Wait list for Glass Recycling Program.
- Wait list for Paper Recycling Collection.

TAKE BACK RETAILERS

Buybacks, take-back retailers, reuse centers, and thrift stores are other outlets for diversion. JBRSWA surveys these businesses however if a survey is not returned the recovery of materials to be recycled or reused is not captured. JBRSWA maintains a list of scrap yards, buybacks and take-back retailers. As well as other collection points for materials such as batteries, used oil, etc. These lists are located on JBRSWA's website.

REUSE AND THRIFT STORES

Current opportunities for waste minimization and reuse within the JBRSWA are not organized into an inventory list. Reuse and thrift stores are available throughout both counties. Reuse infrastructure heavily falls on non-profits and their development of reuse centers. JBRSWA is not involved and does not plan to be involved in developing reuse infrastructure. An area of focus that could be expanded is the JBRSWA's role to encourage support of reuse and thrift stores. Additionally, education to address waste minimization

for residents and businesses could be enhanced and added to the website. Programs with proven success to address waste minimization and reuse are volume-based incentive-fee collection systems, education and outreach approaches, creation and promotion of a reuse and repair network. It could be useful to develop a resource guide to donating.

FOOD BANKS AND FOOD DONATION CENTERS

The US EPA food recovery hierarchy, shown in Figure H-5, moves from preferred to least preferred food recovery methods reinforcing the highest and best use of food waste. The top management hierarchy is reducing waste at the source. The second is feeding hungry people. The second hierarchy is where food banks and food donation centers fall. JBRSWA does not actively serve a role in the management or education but there are synergies where JBRSWA could be a resource. Could JBRSWA serve an organizational role to bring all stakeholders to the table to explore the management methods available in each county? Could JBRSWA develop a network? Could JBRSWA provide educational support? These are avenues to explore as the Board looks at programming in this 2021 Plan Update.

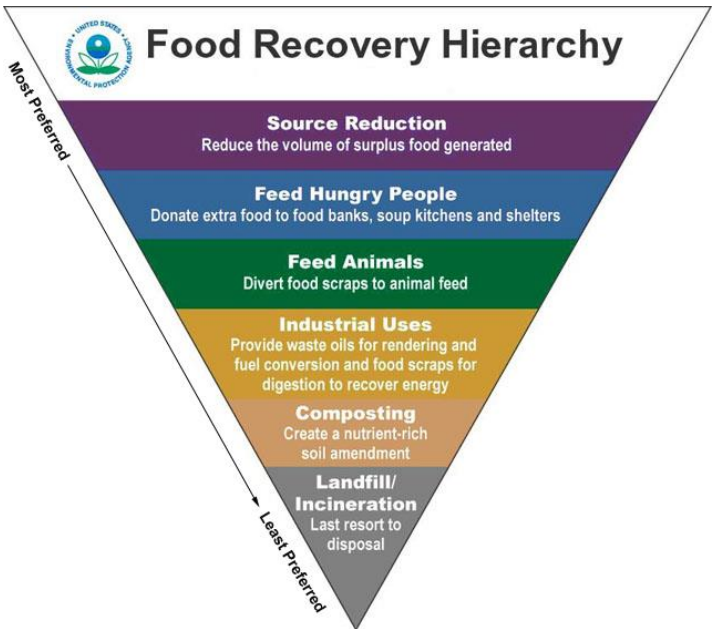


Figure H-5 U.S EPA's Food Recovery Hierarchy

b. Conclusions/Findings

With greater emphasis being placed on achieving the state's diversion rate, it is important to consider how certain components of municipal collection systems ultimately affect the performance of the Authority as a whole. While curbside is a best practice program (convenient, high recovery rate, etc.) the cost is a barrier the political jurisdictions are not able to overcome. Historically, JBRSWA expended resources (staffing and funding) to expand curbside recycling programs. Both counties poverty rates at 14.1% for Belmont County and 17.6% in Jefferson County are higher than the State of Ohio's rate at 13.9%. Pilot programs implemented were geared towards overcoming the challenges but in the end the benefit factor did not outweigh the costs to convince stakeholders to continue the programs. Curbside recycling has proven to not work in this rural area where poverty is higher. The lower population density of rural towns cannot support the cost of curbside collection and communities cannot afford to add the costs of collection and processing to their budgets.

JBRSWA has built a service-provision collection program for recyclables. This includes investing capital in collection equipment, building infrastructure and employing staff to provide the services. Providing a service ensures a great level of commitment, investment and planning. Over the past 5 years, JBRSWA monitored the drop-off program and implemented measures in investment to streamline drop-off operations. In comparison to neighboring SWMD's the program's recovery per person is performing well. Low population densities in each County, 132 persons per square mile in Belmont and 167 persons per square mile in Jefferson, make drop-off recycling programs more attractive.

Additionally, with the drop-off program, JBRSWA has been able to expand services to commercial businesses. Glass only recycling at high generating businesses is popular and requested. In fact, JBRSWA

services offerings are at capacity but based on the frequent requests, businesses are wanting collection service.

Possible opportunities include:

- Get into the business of curbside recycling collection to subsidize costs for political jurisdictions.
- Promote Pay-as-you-throw.
- Provide contract assistance to political jurisdictions for curbside.
- Continual monitoring of drop-off program.
- Expand Glass Recycling Program using best practices and a "SMART" approach to meet demand.
- Continual investment in drop-off program.

2. Commercial/Institutional Sector Analysis

This evaluation of JBRSWA'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 JBRSWA can do more to address the commercial sector. Commercial/institutional sector within JBRSWA consists of the following (non-exhaustive list): commercial businesses, schools and universities, government agencies, office buildings, stadiums, amusement parks, event venues (stadiums, concert halls), hospitals and non-profit organizations.

a. Evaluation

GEOGRPAHICAL

JBRSWA is a two county District including Jefferson and Belmont Counties, geographically located on the eastern border of Ohio. According to "Ohio County Profile" for Jefferson and Belmont Counties prepared by Office of Research the land use/land cover is:

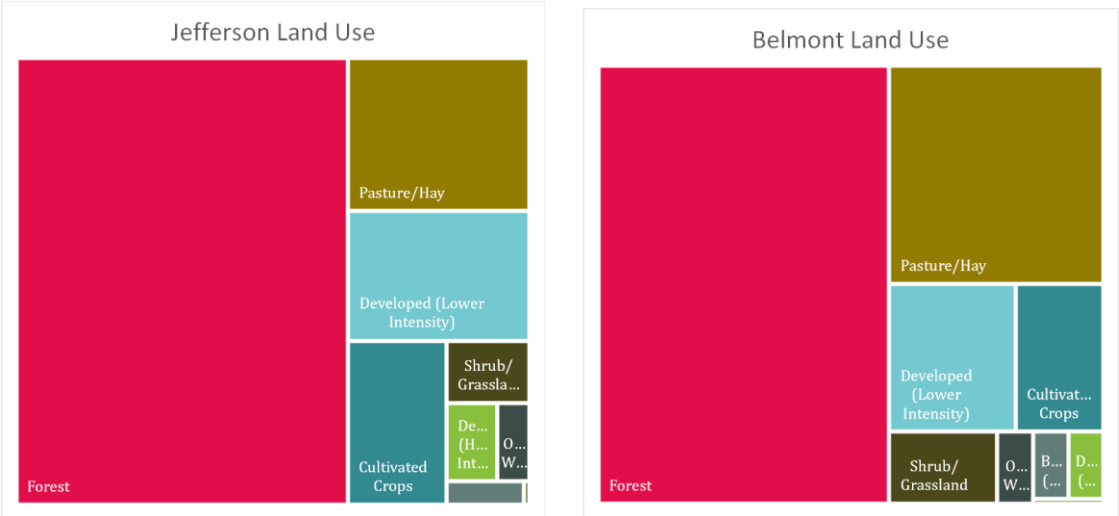


Figure H-6 Land Use in District

The top two land uses for both Counties is forest and pasture/hay.

Jefferson County

Jefferson County is located in eastern Ohio along the Ohio River situated in the Appalachian foothill's region. The County is characterized by extremely steep bluffs along the Ohio River Valley forming a series of low terraces running north to south. Much of the urban population and industrial development occurred within these low-level valleys.[11] About 70% of the county acreage is woodland and 29% is farmland. Agriculture is a major land use and economic force. The largest political jurisdiction (by population) Steubenville is also the county seat. Most of the urban centers are located along State Route 7 corridor. State Route 7 follows the Ohio River north and south along the length of the county on the east. Another major highway is U.S. Route 22. U.S. Route 22 bisects Jefferson County directing traffic west to east.

Land use in Jefferson County is primarily rural. Population density is low and commercial development is primarily along major transportation route corridors. For smaller commercial businesses there is difficulty in accumulating enough recycling and limits the cost-effective marketing options. The commercial basis is small and have concentrated districts or parcels in the higher population density areas.

Belmont County

Belmont County is hilly on the eastern border along the Ohio River Valley and farmland in the western portion of the county. The county is bisected east to west by I-70. Another major highway is State Route 7 which follows the Ohio River north and south along the length of the county on the east. The largest population centers are two townships Pease and Richland. St. Clairsville, located in the center of the county, is the county seat.

Belmont County too, is overwhelmingly rural. Like in Jefferson County, commercial development is along major transportation routes. The commercial basis is small and have concentrated districts or parcels in the higher population density areas.

LABOR FORCE

The labor force in Jefferson County is Health Care & Social Assistance, Manufacturing, and Retail Trade. In Belmont County, the labor force is primarily based in: Health Care & Social Assistance, Retail Trade, and Public Administration.

Table H-5 Top Employers

Jefferson Top Employers	Belmont Top Employers
Buckeye Local Schools	Barnesville Hospital Association.
Edison Local Schools	Belmont Community Hospital
First Energy	Belmont County Government
Franciscan Univ of Steubenville	East Ohio Regional Hospital
Indian Creek Local Schools	Kroger Co
Jefferson County Government	Murray Energy/Ohio Valley Coal
Steubenville City Schools	Nickles Bakery
Titanium Metals Corp/Timet	State of Ohio
Trinity Health System	United Dairy

Source: Ohio County Profiles: Jefferson County and Belmont County published by Ohio Office of Research, 2017

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

[11] Jefferson County, Ohio Land Use Plan. October 2013. Prepared by Ohio rural Community Assistance Program.

commercial surveys, brokers, haulers, and Ohio EPA sourced data from commercial businesses and material recovery facilities (MRFs). Using these data sources, as shown in Table H-6, a total of 7,537 tons are estimated as commercial recycling activities.

Table H-6 Estimated Commercial Stream Recycling

Recycling Data	Quantities (Tons)	Percent of Stream
Residential and Commercial Recycling	13,443	
Estimated Residential Only	5,906	**44%**
Estimated Commercial Only	7,537	**56%**

While the estimations are rough, this demonstration shows 56% of the residential/commercial recycling is attributed to the commercial sector.

FUNCTIONALITY

Businesses can request recycling service from local and/or brokerage companies. JBRSWA 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. JBRSWA provides service in the form of Glass Recycling Program and Paper Recycling Program (businesses are welcome to use drop-off containers) as well as education and technical assistance to the commercial sector.

Event Venues and Parks: A beginning inventory of parks, recreation centers, event centers, museums, etc. was compiled for research and shown in Table H-7. JBRSWA works with event venues and parks to expand recycling. To date JBRSWA has assisted both fairgrounds by providing a 6-yard recycling drop-off; provided recycling receptacles at large events such as the Ultimate Frisbee Tournament, soccer tournament weekends and at the land lab event; etc. In 2017, the Dr. Pepper Snapple Group/Keep America Beautiful Park Recycling Bin grant was received allowing JBRSWA to place bottle and can recycling bins at Steubenville Belleview Park Pool, Toronto Memorial Pool, Stratton Park Pool, Mingo Junction Aracoma Park and Pool and the St. Clairsville Memorial Park and Allen Pool.

Table H-7 Event Venues and Parks

Jefferson Venue	Venue Type	Recycling Available	Belmont Venue	Venue Type	Recycling Available
Friendship Park	Park		**Adventure Creek LLC**	Recreation	
Beatty Park	Park		**Barkcamp State Park**	Park	X
Belleview Upper Field	Park		**Barnesville Memorial Park**	Park	
North End Park	Park		**Captina Creek Birding Trail**	Park	
Rotary Park	Park		**Epworth Park**	Park	
Jim Woods Park	Park		**Martins Ferry Park District and Pool**	Recreation	
Parkdale Tot Lot	Park		**St. Clair Lanes**	Recreation	
Pico Tot Lot	Park		**St. Clairsville, Memorial Park and Allen Pool**	Park and Pool	X
Devonshire Tot Lot	Park		**Village of Powhatan Point Park District and Pool**	Recreation	
The Flats Tot Lot	Park		**Egypt Valley Wildlife Area**	Park	
Linda Way Tot Lot	Park		**Zion Christian Retreat & Nature Center**	Park	

Jefferson Venue	Venue Type	Recycling Available	Belmont Venue	Venue Type	Recycling Available
Belleview Club House, Park & Pool	Park	X	**County Fair (seasonal)**	Festival	X
Toronto War Memorial Pool	Pool	X	**Barnesville Pumpkin Festival (seasonal)**	Festival	
Stratton Park Pool	Pool	X	**Toy & Plastic Brick Museum**	Museum	
Mingo Junction Aracoma Park and Pool	Pool	X	**Belmont County Military Veterans Museum**	Museum	
Toronto Rec Center	Rec Center		**Belmont County Victorian Mansion Museum**	Museum	
Public Library	Library		**Great Western Schoolhouse**		
Fernwood State Forest	Park		**National Imperial Glass Museum**	Museum	
Jefferson County Fairgrounds	Fairgrounds	X	**Sedgwick House Museum**	Museum	
Jefferson Kiwanis Youth Soccer Club	Soccer Park		**Sheriff's Residence Museum**	Museum	
Jefferson Lake State Park	Park		**Stillwater Meeting House**		
Carnegie Downtown Library	Library	X	**Underground Railroad Museum**	Museum	
			Watt Center for History & the Arts		
			Martins Ferry Public Library	Library	X
			Bethesda Public Library	Library	
			Bridgeport Public Library	Library	
			Shadyside Public Library	Library	
			St. Clairsville Public Library	Library	
			Bellaire Public Library	Library	X
			Barnesville Library Annex	Library	
			Barnesville Hutton Memorial Library	Library	
			Victoria Read Public Library	Library	
			Belmont County Fairgrounds	Fairgrounds	X

Note: This is a summary table showing recycling is available at the listed locations. Materials recycled may vary at each location. JBRSWA maintains a master list of type of service available.

Brand awareness of JB Green Team is credited to events directly contacting JBRSWA for assistance in providing diversion at events. In addition, JBRSWA's education coordinator targets venues directly.

Commercial Businesses: Businesses are financially responsible for implementing their own recycling programs and are welcome to use the drop-off program for recycling. Commercial businesses have the opportunity to contract with local haulers for recycling dumpster service. However, there is a lack of recycling service offered by local haulers. This is a major obstacle for commercial sector recycling. JBRSWA provides paper (and cardboard) only recycling and glass only recycling collection services to businesses. In 2017, JBRSWA serviced 24 schools with paper program recycling and 50 businesses/non-profits/school with glass containers. The service routes are operating at their maximum. Businesses wanting service contact JBRSWA office for service. Since the program is operating at maximum capacity, businesses are placed on a waiting list. If businesses drop service, then businesses on the wait list are

contacted to be added. Tonnage data as seen earlier in Figure H-3 is holding flat. If the program is expanded, then additional businesses could be added and potentially increase recovery tonnages.

To help businesses reduce waste and divert materials from the landfill, JBRSWA offers technical assistance and performs waste audits. About 1 waste audit a year is conducted. The number of audits conducted has lessened over the years, mostly because business growth in the two counties is minimal. Waste audits are downloadable and available on the webpage allowing businesses to self-audit. This could be another factor to decrease the number of waste audits conducted. Additionally, service costs are a barrier for many businesses. In the past when audits have been performed businesses have not secured recycling services because private sector haulers do not offer service or associated costs for service are not favorable. The Authority researched three other District's and did not find any correlation to the number of waste audits conducted with higher commercial survey response rates. At best, the waste audits provide an updated contact to send the survey to. JBRSWA annually surveys a list of commercial businesses in all counties to gather recycling data, but continues to have a low response rate.

Schools, Universities, Institutions: There are 5 public school districts in Jefferson County and 8 public school districts in Belmont County. The largest school district in Jefferson County is Steubenville City School District, followed by the Indian Creek Local school district. Indian Creek Local is adjacent to the southwest of Steubenville City School District. In Belmont County, the largest school district is St. Clairsville-Richland City School District. This school district is located in the center of the County along major corridors I-70. There are also a significant number of students enrolled in private schools.

Table H-8 JBRSWA School Districts

PreSchools	Average Enrollment	Serviced with Paper Recycling Service	Serviced with Commingled Recycling Service	Serviced with Glass Recycling Service
St. Anthony Head Start	unknown			
Tiltonsville Head Start	unknown			
CAC Head Start	unknown			
Jefferson County School District	Average Enrollment	Serviced with Paper Recycling Service	Serviced with Commingled Recycling Service	Serviced with Glass Recycling Service
Buckeye Local	1,944	X	1 elementary	
Edison Local	1,949	X (except for HS)		
Indian Creek Local	2,215	X		
Steubenville City	2,252	X		
Toronto City	781	X		
Diocese of Steubenville	730	X	X	
Jefferson County Christian School	195	X		
School of Bright Promise	325			
Mary Seat of Wisdom	Unknown			
Jefferson County Joint Vocational School	325	X		
Belmont County School District	**Average Enrollment**	**Serviced with Paper Recycling Service**	**Serviced with Commingled Recycling Service**	**Serviced with Glass Recycling Service**
Barnesville Village	1,416	X		
Bellaire Local	1,179	X		
Bridgeport	787	X		
Martins Ferry City	1,455	X		
Shadyside Local	813	X	X	

St. Clairsville-Richland City	1,701	X (1 elementary paper only)	X	
Switzerland Ohio Local	214	X		
Union Local	1,472	X	X	
Martins Ferry Christian School		X		
Universities		**Serviced with Paper Recycling Service**	**Serviced with Commingled Recycling Service**	**Serviced with Glass Recycling Service**
Franciscan University	Unknown	X	X	X
Eastern Gateway Community College	Unknown			
Ohio University Eastern Campus		X	X	
Belmont Technical College		X		

Source: Ohio Department of Education (2017), JBRSWA service records

JBRSWA offers Paper Recycling containers (6-yard dumpster) to schools, non-profits and businesses to collect paper and cardboard. There are 24 schools participating in a paper recycling program. The program operates as a fundraiser for participating entities. JBRSWA provides market share revenues based on volume of material collected. All the schools utilize toters (as pictured) to transport paper to the 6-yard containers. Some classrooms have designated recycling bins (14 gallon) to transport the paper to toters. JBRSWA would like to see each classroom equipped with bins and is working on an inventory of classrooms. Grade schools are encouraged to participate in Keep America Beautiful Recycle-Bowl challenge to motivate and increase recycling.

Jefferson County has two colleges: Franciscan University of Steubenville and Eastern Gateway Community College. Franciscan University serves more than 2,400 students. A satellite branch of Ohio University Eastern is located in Belmont County as well as Belmont College. JBRSWA provides collection service for recycling drop-off containers. Colleges and universities also have RecycleMania as a tool to motivate students to recycle more. Kent State University in Portage County participates in RecycleMania, an 8-week period each spring where colleges and universities in the US and Canada report recycling and trash collection each week. The main Kent campus reported a recycling rate of 34.4% and ranked 110th in the competition. JBRSWA directly reaches out via phone calls to the University's for participation in RecycleMania. As a KAB affiliate, the Authority has access to promotional advertising and tools. It's difficult to measure outreach against participation as the collages have various reasons for not participating. Despite JBRSWA outreach, to date there has been no Interest in participating in this competition.

There are a number of hospitals located in both counties and JBRSWA provides paper recycling containers to them all. JBRSWA is working to capture the commingled stream at the hospitals. Currently one hospital (Trinity West) has a commingled container.

Government Agencies, Office Buildings: JBRSWA's drop-off and Paper Recycling programs reach some government office buildings to provide recycling services. JBRSWA's waste audits include source reduction components to assess if the businesses can reduce waste potentially through procurement or office practices.

Challenges/Barriers

- Collecting recycling data from businesses.
- Low survey response rates.
- Architectural barriers, storage container placement, cost of service (container, processing and hauling), and time/service constraints in collecting recyclables.
- Lack of private sector service.
- JBRSWA service offering is at capacity and continue to receive service requests from commercial/institutional sector.
- Challenging to determine business generation.
- Gaps in private sector service offerings and cost of service.

b. Conclusions/Findings

Assistance is available to this sector on the website and is distributed when requested. The commercial/institutional infrastructure has gaps in service. JBRSWA service offerings help eliminate some of the gaps. Private sector partnerships could be resourceful. Possible opportunities include:

- Targeting material specific campaigns or similar business campaigns to foster recycling infrastructure.
- Explore private sector partnerships and funding.
- Adding bins to school classrooms to encourage student participation and ownership in recycling.
- University and school competitions show increased recovery.
- Continue to apply for grants to help with equipment.

3. Industrial Sector Analysis

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

a. Evaluation

In 2017, Jefferson had 35 manufacturing establishments and Belmont had 44. The top manufacturing employers by employment in the county are listed in Table H-9. Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The state of Ohio is a leader in manufacturing jobs with 14,000 establishments. In both Jefferson and Belmont County manufacturing has plunged into a recession and has less establishments and employment in this sector than other sectors.

Table H-9 Top Employers by Employment in Manufacturing Sectors

Business	Type of Business
Jefferson County	
Timet	Manufacturing
JBS Technologies LLC	Manufacturing
Bill Denoon Lumber Co	Manufacturing

Business	Type of Business
Belmont County	
Nickles Bakery	Manufacturing
United Dairy, Inc.	Manufacturing

Source: Lexis Nexis and Ohio County Profiles

The waste stream from the manufacturing sector is not large. Landfilled waste from the industrial sector is dominated by two coal-burning power plants. (Note: A third coal burning power plant located in Shadyside, the R.E. Burger Power Station, closed in 2011.) Flue gas desulphurization (FGD) waste from First Energy's W.H. Sammis Plant and from the co-owned Cardinal Plant contributed 73% of the industrial waste landfilled in 2017. Including waste disposal from these two power plants has a huge impact on calculations for waste generation and planning.

Industries are financially responsible for implementing their own recycling programs and contracting for trash and recycling services. JBRSWA surveys the industrial businesses annually to gather recycling data. JBRSWA offers technical, education, etc. assistance through programs.

b. Conclusions/Findings

Overall, the number of industries is relatively small and contributes low volumes of waste for disposal. The industrial sector is not a focus area for the SWMD.

Ohio EPA offers grant funding for private companies to purchase recycling and processing equipment. Additionally, Ohio EPA's statewide materials exchange if promoted could be of interest to JBRSWA businesses.

4. Residential/Commercial Waste Composition Analysis

This evaluation of JBRSWA'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 JBRSWA should evaluate to further address those wastes.

a. Evaluation

Waste Generation = Wastes Disposed + Wastes Diverted

422,120 tons = 408,677 tons (disposed) + 13,443 tons (diverted)

Of the 422,120 tons generated in JBRSWA in 2017, over 97% was landfilled. While 97% is landfilled the amount landfilled contains a considerable amount of fracking waste. Based on historical analysis, approximately 78% is drilling waste and 32% is MSW waste. Assuming 32% of waste is MSW waste, this amounts to 130,777 tons landfilled. To better understand what materials are being landfilled in order to target materials for recovery, two waste characterization composition commodity percentages were applied to JBRSWA's landfilled tonnage of 130,777 tons.

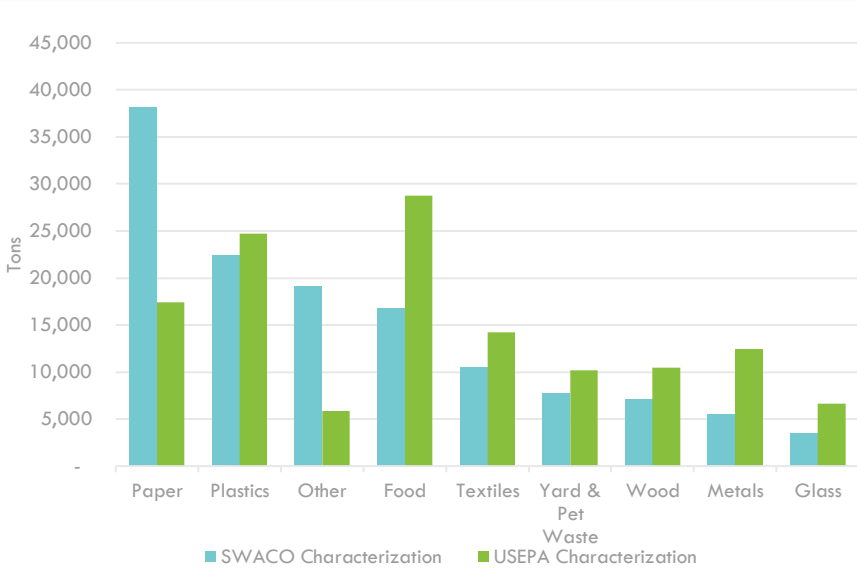


Figure H-7 Estimated MSW Stream Composition

As shown in Figure H-7, the larger components of the residential/commercial trash stream are projected to be paper including cardboard and office paper, plastics and food. These top 3 categories which can be recyclable/compostable make up over half of the residential/commercial waste landfilled.

Fiber (Paper Materials) Waste Stream:
Using the waste composition estimates from Figure H-7 an estimate of at least 17,000 tons of paper category materials are being disposed at the landfill. JBRSWA recycled 7,578 tons of paper in 2017, capturing about 30% of the paper generated in the county for recycling. However, fiber materials (cardboard and paper materials) have potential to be recovered in higher rates. In fact, American Forest and Paper Association stated the U.S paper recovery rate in 2018 is approximately 68.10%[6].

The biggest challenge to capture residential paper is the changing waste stream. A reduction in newspaper readership, increased single serve container and plastic packaging, increased cardboard, even electronic media has played a major role in changing the composition of our recycling stream by reducing the absolute volume of newspaper and office paper.

There are many opportunities to recycle fiber. All JBRSWA residents and improved parcels have access to fiber recycling through the drop-off collection program. In addition, JBRSWA services businesses, institutions, and non-profits with the Paper Recycling Collection. This service offering is at capacity and has a wait list for businesses wanting to participate. JBRSWA believes the biggest opportunity to recover paper materials is in the commercial/institutional sector that are not serviced by collection programs. Lack of collection service by private sector, cost of collection service by private sector, and limitations to JBRSWA service are factors adding to the difficulty of collecting additional fiber from this sector.

Yard Waste and Food Waste Stream:
It is believed most residents manage yard waste and wood waste by smart landscaping, grass-cycling, leaf mulching or mowing in place, and land-applying. Despite Ohio legislation in 1995, attempting to limit and restrict the use of landfills for disposal of yard waste, some residents still 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.

Ohio EPA reports show 631 tons of food waste were diverted from the landfill in 2017. JBRSWA does not have compost facilities or technologies in the Authority to manage food waste diversion. Food waste diverted is managed in another solid waste management district. JBRSWA has not encountered demand from the commercial sector for this management method.

Based on geography, onsite management of organics – at residences, schools, institutions, etc. – or not producing them in the first place, offers the most cost-effective organics management solution. These practices save money by reducing offsite organics management and collection needs.

Plastic Waste Stream:
Residential/commercial estimated waste composition identifies plastics as one of the larger percentages of waste streams being landfilled.

The type of plastic (denoted by its resin code) often determines what type of products it can be used to manufacture. See chart below.

Symbol	Code	Description	Examples
01 PET	#1 PET(E)	Polyethylene terephthalate	Soda & water bottles, salad dressing bottles
02 PE-HD	#2 PEHD or HDPE	High-density polyethylene	Milk jugs, shampoo & conditioner bottles
03 PVC	#3 PVC	Polyvinyl chloride	Window frames, bottles for chemicals, flooring
04 PE-LD	#4 PELD or LDPE	Low-density polyethylene	Plastic bags, buckets, soap dispenser bottles, plastic tubes
05 PP	#5 PP	Polypropylene	Bumpers, car interior trim, industrial fibers, yogurt tubs
06 PS	#6 PS	Polystyrene	Toys, flower pots,, ashtrays, trunks, "Styrofoam"
07 O	#7 O(ther)	All other plastics	Bio-based plastics

Figure H-8 Plastic Resin Codes

The terms "plastic #1" and "plastic #2" refer to a plastic container's resin identification code. Put simply, this code refers to what type of polymer comprises a container. Which type of plastic a container is made from is identified by the recycling symbol on the container. Inside the symbol will be a number, 1-7, which is the resin code.

As with other materials in the recycling industry, acceptability of plastics into a recycling program is largely determined by market forces. #1 and #2 plastics are accepted into nearly every drop-off and curbside recycling program because there is strong post-consumer demand for them from manufacturers. Though plastics #3 through #7 are actually recyclable, there is not a strong market for them in the region. The MRF where JBRSWA materials are taken accepts only #1, #2 and #3 plastics.

Prior to December 2017, most recycling collected in the United States was shipped to China to be manufactured into new products and packaging. However, in January 2017 China's government announced that it would no longer accept certain recycling by the end of 2017. The recycling targeted by China's Operation Blue Skies include mixed paper and mixed plastics. When China stopped accepting targeted materials, it impacted

municipal programs and today some of these programs continue to struggle with the impacts of China's Operation Blue Skies resulting in a tough time securing alternative markets for the recycling targeted. In addition, it has had a negative impact on the revenues derived from recycling in comparison to previous years with stronger market prices.

Increases in container recycling isn't reflected in the recycling rate (tons recovered) since plastic containers have continued their trend of becoming lighter due to improved container design and engineering. This trend of lighter container weights is commonly referred to as "light-weighting." Under weight-based recycling rates, the light-weighting of containers can result in decreasing recycling rates even when the individual number of containers recycled is increasing.

JBRSWA will not be able to recover additional plastics unless processors can find markets. The other alternative is for manufacturers to stop production of plastic containers that cannot be recovered in the downstream management methods. Over the next five years, JBRSWA expects these growing plastic materials to end up in the landfill. JBRSWA offers a financial market grant and Ohio EPA offers a market development grant, should end user manufacturers locate in the region. Because of lack of markets the best strategy is to promote producer responsibility.

b. Conclusions/Findings

The more cost-effective organics management solution is to implement additional education tactics to increase awareness about reduction. JBRSWA could promote programs focused on other landfill alternatives like grasscycling where mowed grass is left on lawns to provide nutrients for the soil or backyard composting. JBRSWA can use social media at the beginning of the fall to promote leaf mulching and again in early spring to promote grasscycling. JBRSWA can also develop a home composting workshop and incorporate organics reduction.

While participation in such programs can be low, programs can raise awareness around waste and landfilling issues. Additionally, offering backyard compost bin sales could help increase awareness and the practice of backyard composting for alternative management methods.

Upstream strategies reduce food at the source before entering the waste stream to be managed and if programs are developed can greatly reduce waste generation. USEPA developed 'Food: Too Good to Waste' toolkit designed to reduce wasteful household food management practices. Information in this toolkit can help implement the campaign in the Authority. JBRSWA could explore promoting food waste tools and tracking systems institutions can implement on-site.

Midstream strategies rescue food. These options include rescuing edible food waste for food insecure residents and donation and redistribution. Donation and redistribution could potentially be a significant opportunity JBRSWA could promote.

To manage food waste downstream there are several strategies which include: animal feed, on-site diversion (food waste processing systems), anaerobic digestion, and composting. At current demand levels these strategies are not within JBRSWA's immediate need to address.

Possible opportunities towards these waste streams include:

- Identify barriers for recovering commercial fiber.
- Share and promote US EPA's food hierarchy.

- Share and promote US EPA's food recovery challenge.
- Utilize social media to bring awareness of food waste.
- Educate institutions on available resources such as LeanPath 360.
- Bring regional partners together to address food waste infrastructure.
- Spotlight food donation and food rescue centers/missions.

5. Economic Incentive Analysis

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

a. Evaluation

Economic incentives in the waste and recycling world are offered to influence behavior. Typical economic incentives include rebates, rewards, grants, volume-based fee structures, etc. The majority of district's offering economic incentives in the state either tie the amount recycled to some sort of financial compensation or reduce the cost of recycling.

The 2015 Plan Update outlined 6 economic incentive programs. Each of these programs are discussed here.

Community Clean-Up Grants: Grants disbursed for community clean-up activities are awarded through the Recycling Initiatives Competitive Funding Project. See description below.

Curbside Programs Economic Incentive: Pilot curbside programs were implemented in Steubenville and Martins Ferry from November 2013 to April 2014. The cities chose not to continue the programs after the pilot. No financial incentives other than implementing the pilots were provided.

Financial Market Grants: Ohio EPA offers grants to enhance market development. JBRSWA will support the grant match businesses that either produce products with recycled materials or recycle solid waste for resale on commodity markets.

Litter Collection Grants: Grants disbursed for litter activities are awarded through the Recycling Initiatives Competitive Funding Project. See description below.

Pay-As-You-Throw Rebates: Financial incentives in the form of rebates are offered to communities implementing PAYT curbside recycling programs. No communities implemented a PAYT program. No rebates were provided.

Recycling Initiatives Competitive Funding Project: The Authority offers competitive funding to local townships, villages, cities, schools and non-profits. Grants finance activities or projects related to recycling, reuse, recycled material, or community cleanups. Two levels of grants are available: Community Award and Comprehensive Grant. Community Award is up to $1,000 with no match. Comprehensive is between $1,001 and $5,000 with a 20% required match of in-kind services. The grants finance activities related to recycling, the reuse of recycled material, or community cleanups. Funded projects have to have a recycling component or theme and Comprehensive grants can have a reuse initiative.

b. Conclusions/Findings

JBRSWA's economic incentives were designed to develop 4 gaps.

1) Litter
2) Closing the Loop
3) Developing Markets
4) Recycling Collection

One of the uses of the Recycling Initiatives Competitive Funding Project is for communities to use economic incentives to address litter. Grants issued through the Recycling Initiatives Competitive Funding Project and through Community Clean-ups are significant for cleaning litter and assisting with abatement activities. The grants assist in developing the programs and identifying gaps and partnerships to set a foundation for litter and clean-up activities.

The Recycling Initiatives Competitive Funding Project is also an economic incentive to close the loop. This funding encourages townships, villages, cities, schools and non-profits to incorporate recycled material in projects. Since grant inception JBRSWA has seen many projects incorporate recycled content material when they otherwise would not. Closing the loop reduces the extraction of virgin materials and supports the manufacturing of materials using reclaimed materials.

The economic incentive designed to develop markets is the Financial Market Grants. Of all the offered grants, this grant has seen the least activity and is probably the lesser known grant. Interaction with the private sector, local governments, and trade associations has not been a focus. It's more challenging to build the markets locally. Building local markets for recyclables is an ongoing economic development process across both counties and support from all levels of government and the private sector. A great place to start is with the economic development offices. Starting businesses or expanding businesses can bring jobs to the local economy.

The economic incentives to encourage recycling collection, Curbside Programs Economic Incentive and Pay-As-You-Throw Rebates did not come to fruition. Five years later the curbside collection gap remains. The major hurdle is collection costs. Thus, JBRSWA has developed an extensive drop-off collection network. These incentives will not continue through the planning period.

JBRSWA demonstrates a low residential/commercial recovery rate. Incentive-based programs that either tie the amount recycled to some sort of financial compensation or reduce the cost of recycling have shown in other District's the potential to significantly increase participation in an available recycling program. This type of incentive can change consumer behavior and can increase the tonnage of recyclables collected. The two grants which tied the amount recycled to some sort of financial compensation, Curbside Programs Economic Incentive and Pay-As-You-Throw Rebates, were not successful to develop the infrastructure. Looking at the developed infrastructure JBRSWA could consider an incentive-based grant or program that directly encourages increased recycling to the drop-off program.

One type of policy and economic incentive-based program that could be implemented with the drop-off program is pay as you throw (PAYT). Logan County SWMD operates PAYT drop-off systems that drive higher diversion rates and provide a stable funding source. Simply explained, drop-off locations are beautified with landscaping, fencing, lights and cameras and include trash roll-offs as well as recycling dumpsters. Trash containers are available for use only with "special" trash bags. The price of the bag is

revenue for JBRSWA. JBRSWA would service the trash and recycling dumpsters. JBRSWA would have to coordinate the bag design, manufacture and selling.

Up-front development of these type of sites could cost about $60,000 each. In addition, there are some perceived barriers to implementing these programs that can be challenging. JBRSWA would need to provide a considerable amount of education to the community stakeholders and residents. The information must be clear and easy to understand.

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.

a. Evaluation

HHW:

The 2015 Plan Update allowed for one collection event per year of HHW if funding and budgeting permitted. JBRSWA has been able to hold two events per year, one in each county except for year 2014. Figure H-8 shows the diverted tons and costs. Except for year 2014, annual diversion is between 25 and 35 tons.

Table H-10 was compiled by collecting data from neighboring SWMD's solid waste management plans. This table shows JBRSWA costs per ton and cost per household is slightly higher than neighboring districts. Excluding 2014, costs are following a rising trendline. The largest cost increase, of $10,000 was seen in 2017. Costs will be monitored and JBRSWA will look at competitive bids for the service to keep costs as low as possible for the service.

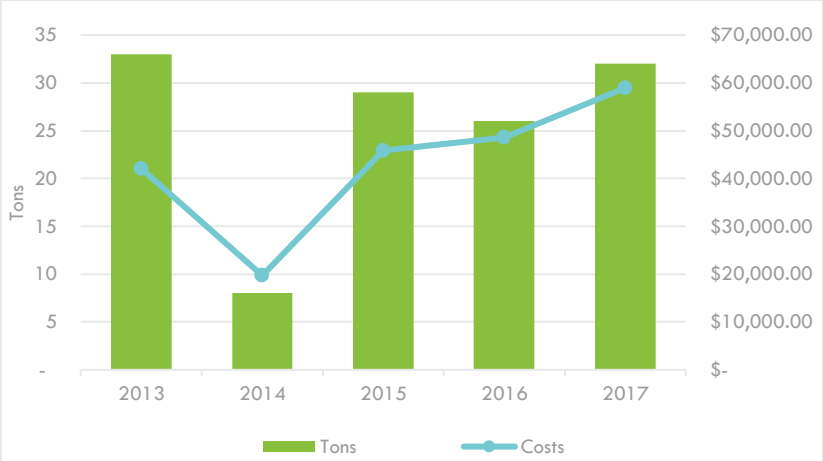


Figure H-9 HHW Program

Household and rechargeable batteries were collected at two office locations year-round through year 2019. In 2017, over 1,187 pounds were collected. Due to issues of corroded batteries and improper handing – lack of tape or sandwich bags, and changes to shipping requirements the year-round collection is no longer available. Batteries are still accepted at the HHW collection events.

Table H-10 HHW Benchmark Costs and Tons

SWMD	Total Costs	Households	Cost/Household	Tons	Cost/Tons
JBRSWA	$58,927.14	64,521	$0.91	32	$1,821.55
GMMNW	$60,000.00	98,820	$0.61	63	$952.38

SWMD	Total Costs	Households	Cost/Household	Tons	Cost/Tons
Columbiana Carroll Harrison	$18,600.00	108,504	$0.17	18	$1,033.33
Mahoning	$21,619.00	98,052	$0.22	21.57	$1,002.27

Source: Solid Waste Management District Approved Plans

Education on alternative outlets is the strategy utilized for proper management of HHW. JBRSWA receives phone inquiries for proper management of HHW and distributes literature. The webpage lists outlets for other difficult to manage waste such as: chargeable batteries, lead-acid batteries, tires, prescriptions, smoke alarms, used motor oil, cell phones and electronics. Year-round programs such as retailer take-back and product stewardship for proper management are available for residents.

The webpage could add more details on purchasing more environmentally friendly products and HHW prevention strategies.

Scrap Tires:
In 1996, regulations banning disposal of whole scrap tires at solid waste landfill facilities and incinerators became effective in the State of Ohio. Approximately 2,065 tons of scrap tires were recycled in 2017, about 391 tons of tires were collected during community scrap tire events.

Opportunities available to properly manage scrap tires and divert them from the landfill include Community Cleanup collection events (scrap tires are accepted at these events), Apex Environmental Landfill, Apex Environmental Transfer Station, and retailer take back (nominal charges applied). A scrap tire outlet list is maintained on JBRSWA's website. Figure H-10 shows diverted tire tons from 2014 through 2017.

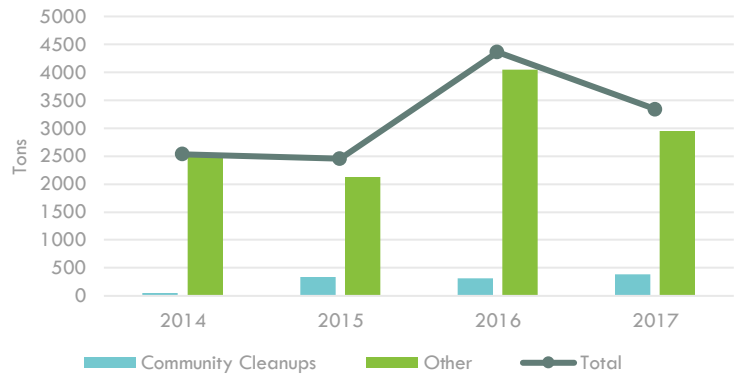


Figure H-10 Scrap Tires Diverted

There are many retail outlets accepting unwanted tires throughout both counties, 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, 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 Authority is addressing consistently.

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. Despite this JBRSWA does not receive many surveys from commercial businesses taking lead-acid batteries back. The past few years collected minimal data to record towards diversion. JBRSWA's webpage lists locations where lead-acid batteries can be recycled.

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 nonworking electronics. JBRSWA 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 JBRSWA uses the webpage and social media.

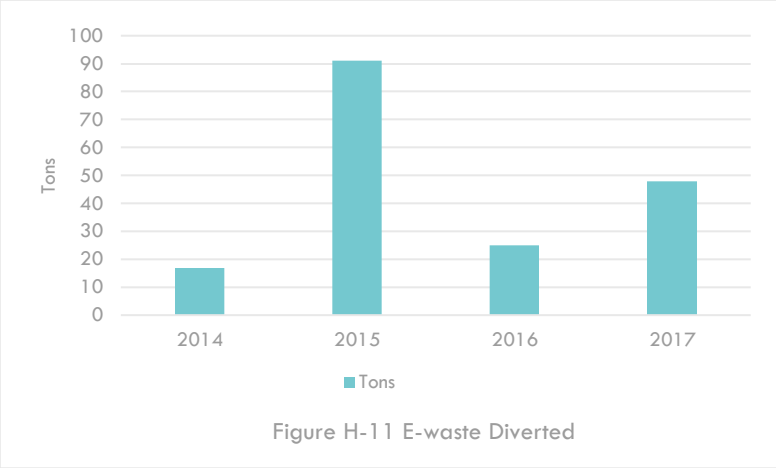


Figure H-11 E-waste Diverted

This program continually evolves. What started as once a year collection events switched to year-round designated drop-off, then to Community Cleanups, and back to once a year collection events. This program is constantly monitored to provide convenience at an optimal cost. Offering collection of e-waste at the Community Cleanups provided a convenient level of service and at the time was more cost effective for implementing the program. However, logistics became a challenge for handling the electronics at various events. Tonnage diverted varies annually and so does the cost.

Surveyed retailer take-back, secondhand retailers, and scrap yards do not always report data. JBRSWA 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.

b. Conclusions/Findings

JBRSWA provides a high level of service to its residents by providing events for managing hard to recycle and restricted materials for diversion. Households produce hazardous wastes containing chemicals that pose environmental risk. Informing the public to these dangers and providing outlets for proper disposal or recycling can be a priority item. Education on using less-harmful ingredients and more environmentally friendly products can be increased on the webpage and social media outlets. Minimal data obtained from lead-acid battery recyclers is a challenge.

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.

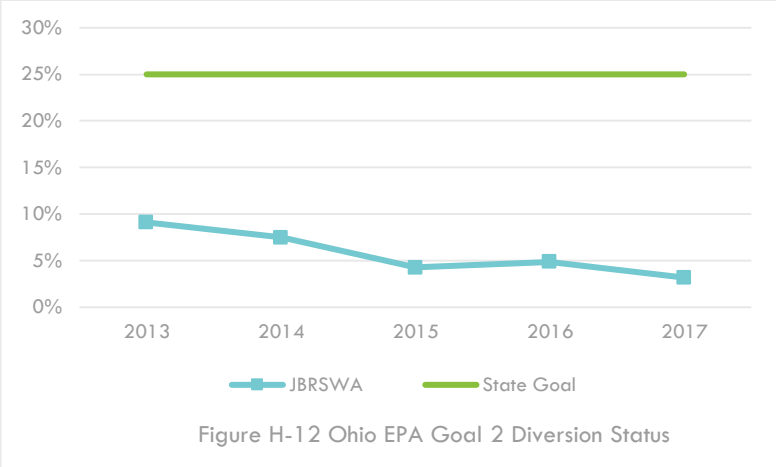


Figure H-12 Ohio EPA Goal 2 Diversion Status

a. Evaluation

Figure H-12 shows the diversion achieved over the past 5 years in comparison to the State residential/commercial waste diversion goal. Historically diversion is declining. Lack of response from commercial businesses is directly impacting the diversion captured for this calculation. Cardboard is holding steady, but paper is trending downward.

Figure H-13 compares to neighboring solid waste management districts. When compared, JBRSWA's diversion rate is low. Both Mahoning and Geauga Trumbull have a large commercial base and success with receiving survey responses to bolster their recycling data.

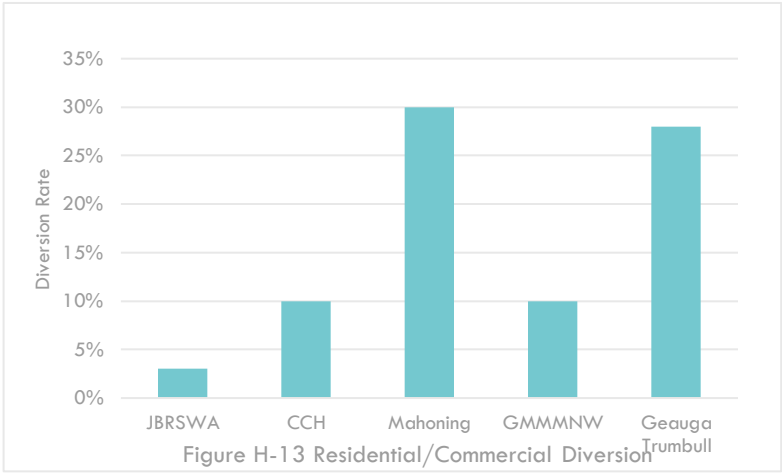


Figure H-13 Residential/Commercial Diversion

b. Conclusions/Findings

In more recent years, commingled recyclable diversion is showing an increasing trend as residents are utilizing the drop-off program. Lack of data from the commercial and industrial sector impedes JBRSWA from reaching the Ohio state diversion rate goals. Data is dependent on responding entities. Basic procedures for collecting data is voluntary reporting and low responses which support declining diversion. Recycling is not always captured through voluntary reporting. JBRSWA could look at ways to increase the response rates to obtain additional data.

Reuse infrastructure heavily falls on non-profits and their development of reuse centers. Potential opportunities to consider include compiling a resource guide to donating as well as assisting in the development of reuse centers. Program areas to consider implementing for this plan update to address waste minimization and reuse models are volume-based incentive-fee collection systems, education and outreach approaches, creation and promotion of a reuse and repair network.

8. Special Program Needs Analysis

Ohio Revised Code 3734.57(G) gives Authority's 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 Authority's 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 Authority.

Health Department Funding:
Health Departments must be certified by the Ohio EPA to operate a solid waste program. Some of the programs/services performed by the Jefferson County Health Departments that are supported with financial assistance by JBRSWA include, landfill and transfer facility inspections, issuance of violation notices for illegal dumping and noncompliance with anti-littering laws and solid waste facility regulations, and proper management of scrap tire disposal and storage activities.

In 2017, the Jefferson County Health Department performed 5 open dumping investigations, 1 scrap tire generator inspection and 19 inspections of the Apex Landfill. Semi-annual reports are provided to JBRSWA. Figure H-14 trends the historical annual funds expended, and the investigations, inspections and man hours reported.

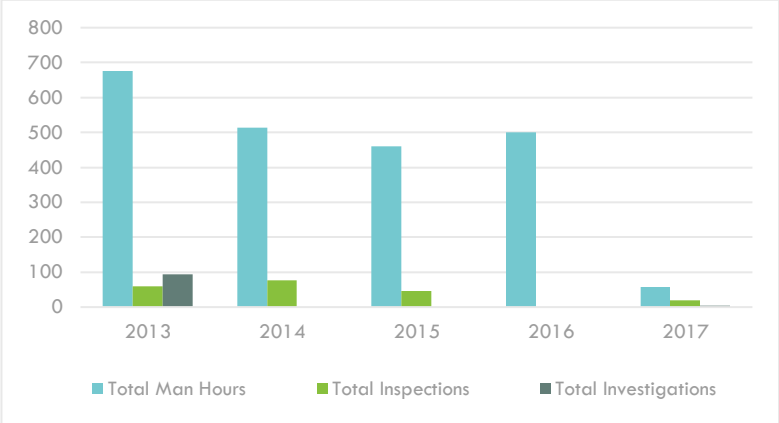


Figure H-14 Health Department

The Belmont County Health Department is not approved by Ohio EPA to administer a solid waste program and does not receive funding from JBRSWA.

Historically the Board has supported providing financial assistance to the Health Department to promote cooperation and coordination between local agencies, and to help ensure compliance with solid waste regulations.

Environmental Enforcement Funding:
In 2011 an Environmental Enforcement program was developed. In the Fall of 2013, one full-time Belmont County Sheriff's Deputy began to work 40 hours per week and in 2014, one full-time Jefferson County Sheriff's Deputy began. Both Deputies are assigned to work in their respective County. JBRSWA pays for the salary and provided funding to purchase both a 4x4 vehicle. Maintenance, insurance and upkeep is the responsibility of their respective County Commissioners. Miscellaneous expenses such as mountable cameras are purchased by JBRSWA. The cameras are used to monitor dump sites and recycling drop-off sites with recurring issues of waste and contamination. JBRSWA's webpage provides phone numbers for each county contact for reporting and complaints.

Table H-11 Environmental Enforcement Program Reports (2016)

	Complaints	Citations	Dump Sites/Road Cleaned	Community Cleanup Assistance
Jefferson	106	20	76	13
Belmont	131	13	73	0

Community Cleanups:
JBRSWA partners with Townships and Cities to offer community cleanup events. These are no-cost opportunities for residents to properly dispose or recycle materials. Volunteers help and sort materials. Most communities accept tires, electronics, and large bulk items. Acceptable items depend on space and collection. Events are advertised in media when dates are finalized.

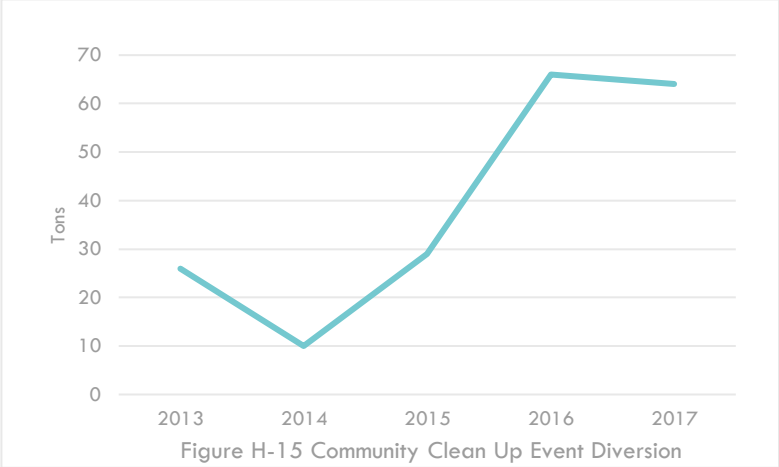


Figure H-15 Community Clean Up Event Diversion

9. Financial Analysis

The purpose of this analysis is to examine JBRSWA's current financial position and assess the financial requirements and revenue sources throughout the next planning period. JBRSWA is currently funded through revenues from tiered disposal fees, designation fees, contract fees, the sale of recyclables collected, and rates and charges.

a. Evaluation

Historical revenues are shown in Figure H-16. Revenues dropped over 30% in 2014. As shown in Figure H-17, fees received from disposal fees declined in 2014 and the next two years. As the fee revenue decreased rates and charges were levied in both counties. Rates and charges were used to pay for the cost of drop-off recycling, community cleanup, and other services provided by JBRSWA to improved parcels and residents in Jefferson and Belmont Counties. In 2016, the Board of Directors adopted designation to assure adequate financing.

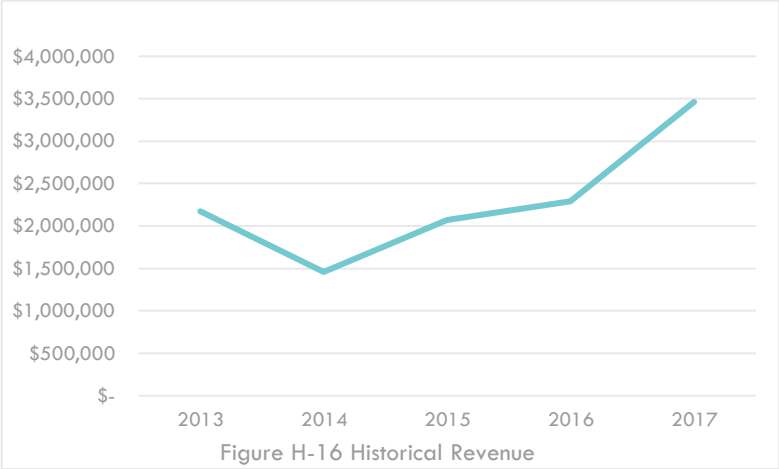


Figure H-16 Historical Revenue

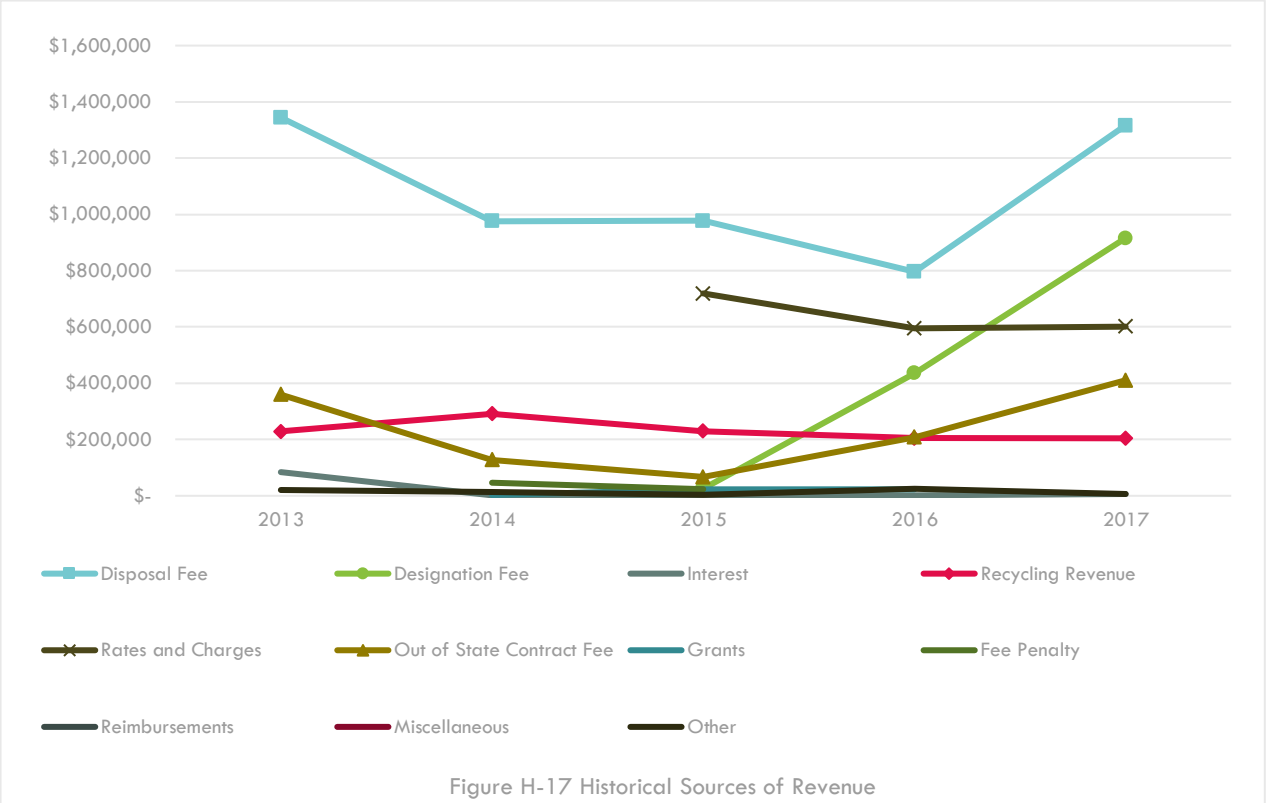


Figure H-17 Historical Sources of Revenue

As shown in Table H-12, the projected 2015 Plan revenue is significantly lower than actual waste receipts. Projections in the 2015 Plan did not forecast designation fee revenues and projected conservative estimates for disposal fees and out-of-state contract fees. As the 2015 Plan was being prepared there was uncertainty surrounding the rail transportation asset sale at Apex Landfill and reduction in out-of-state receipts.

Table H-12 Actual vs Projected Revenues

Year	District Disposal Fees	Designation Fees	Out-of-State Contract Fees	Interest	Recycling Revenue	Miscellaneous	Rates and Charges	Total Revenue ($)
2017 - Actual	$1,316,546	$916,095	$410,694	$6,517	$204,327	$7,089	$601,565	$3,462,832
2017 – 2015 Plan projections	$728,935	$0	$42,785	$337	$191,769	$2,000	$802,560	$1,768,387

Compared to surrounding solid waste management districts, JBRSWA reported the highest revenues in 2017 and highest per capita revenue as seen in Table H-13.

Table H-13 Benchmarked District Revenues

District	Type of Revenue	Fee	Revenue	Per Capita Revenue
JBRSWA	Tier Disposal Fee Contract Fee Designation Fee Improved Parcel	$1/$2/$1 $0.50 $2 $12.54	$3,462,832.36	$25.33

District	Type of Revenue	Fee	Revenue	Per Capita Revenue
CCH	Tier Disposal Fee Designation Fee	$1/$2/$1 $3.50	$706,381.43	$4.81
GMMMNW	Tier Disposal Fee Designation Fee	$2/$4/$2 $2.00	$1,132,430.54	$4.98
Mahoning	Tier Disposal Fee Designation Fee	$1.50/$3/$1.50 $1.50	$2,655,544.67	$11.23

Source: Solid Waste Management District Fee Summary: 2017 Ohio EPA Division of Materials and Waste Management

The disposal fee is $1/$2/$1. For every ton of waste disposed at a municipal solid waste landfill located in Jefferson or Belmont County, JBRSWA receives $1/ton for in-District waste, $2/ton for out-of-District waste, and $1/ton for out-of-state waste. The fluctuations in revenues from disposal fees has a significant impact on revenue and implementation of the planned programming. Revenues from in-district waste disposal are increasing each year. This increase is attributable to fracking well drilling waste. Revenues from out-of-district waste peaked in 2014 and 2015 before leveling. In 2014, the sharp decline of out-of-state disposal tonnages impacted revenues significantly. The waste tonnages began to see growth in 2016.

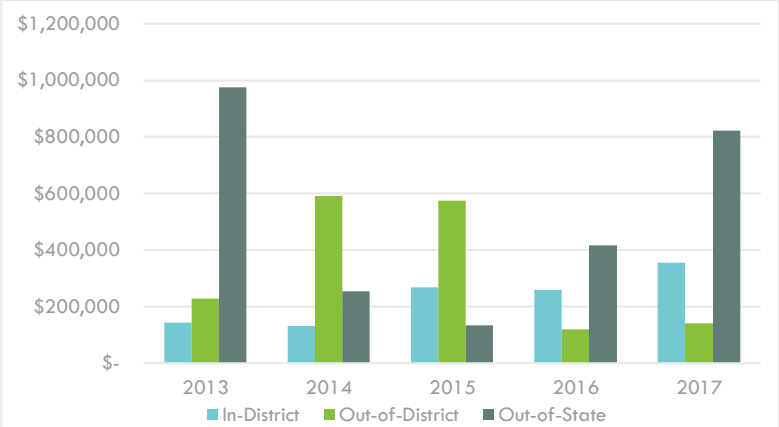


Figure H-18 Historical Disposal Fee Revenue

Recycling revenue is fairly constant holding at about $200,000 annually.

In 2017, rate and charges revenue, averaged about $600,000.

Contract fees of $0.50 per ton are collected on solid waste disposed in Apex Landfill from out-of-state generators. In 2014, the sharp decline of out-of-state disposal tonnages impacted revenues.

Other revenues from grants, fee penalty, reimbursements, and other averaged about $12,000 annually.

The change in waste flows impacted the budget significantly. As disposal fee and out-of-state contract revenues declined JBRSWA made adjustments to expenditures and used the fund balance to support expenditures. Additionally, JBRSWA implemented other revenue mechanisms.

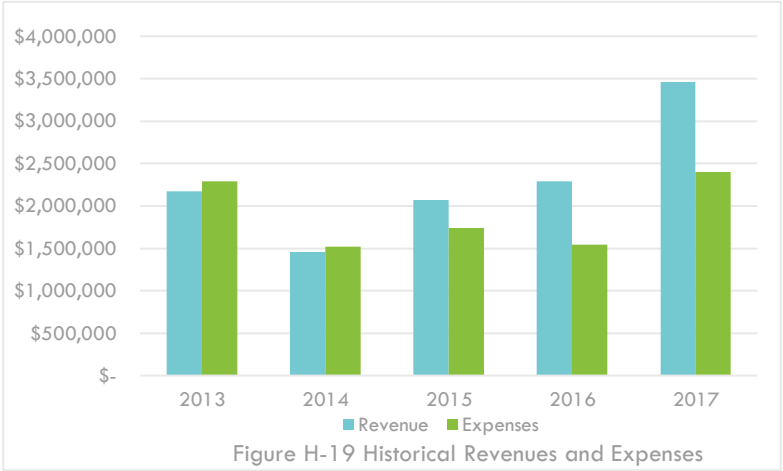


Figure H-19 Historical Revenues and Expenses

JBRSWA's 2015 Plan projected expenditures in the early years at $1.6

million with an annual gradual rise. As shown in Table H-14, the actual expenses were more than forecasted in the plan.

Table H-14 Actual vs Projected Revenues

Year	Total Expenditures ($)
2017 - Actual	$2,399,265
2017 – 2015 Plan projections	$1,649,898

JBRSWA program expenditures are outlined in Figure H-20. The largest program expenses are the drop-off program followed by district administration.

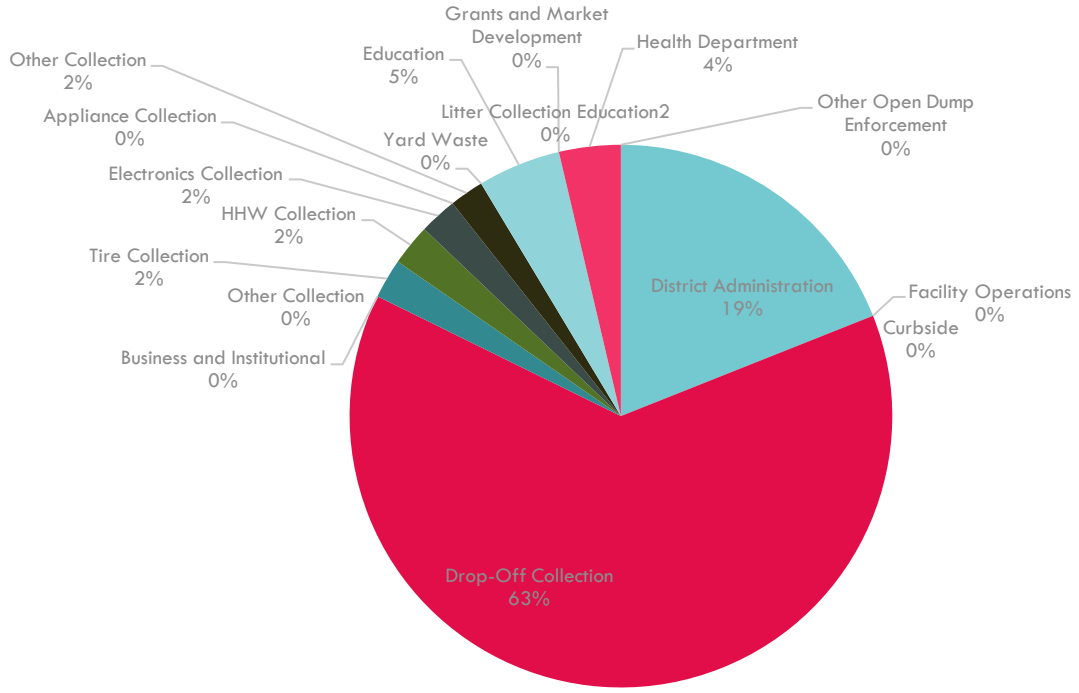


Figure H-20 Expenditures 2017

Comparison of neighboring solid waste management districts program expenses is found in Table H-15. Both Mahoning and Southeastern Solid Waste District (Guernsey, Muskingum, Monroe, Morgan, Noble and Washington Counties), expend less than $10 per person.

Table H-15 Benchmarked District Expenditures

District	Expenditures	Per Capita Expenses
JBRSWA	$2,399,265.24	$17.55
CCH	$1,637,248.62	$11.15
GMMMNW	$664,150.15	$2.92
Mahoning	$2,273,523.52	$9.62

Source: Solid Waste Management District Fee Summary: 2017 Ohio EPA Division of Materials and Waste Management

With the implementation of additional funding sources and the return of out-of-state waste disposal the fund balance is increasing. Figure H-21 shows the historical revenues, expenses and fund balance.

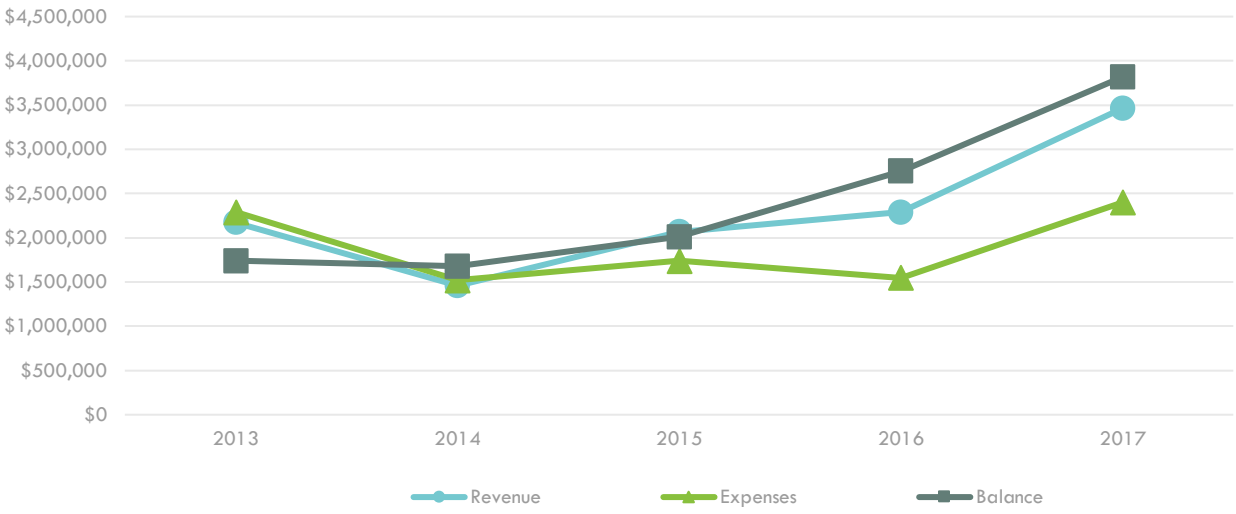


Figure H-21 Historical Fund Balance

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.

a. Evaluation

WASTE IMPACTS

Regionally JBRSWA has been impacted by the landfill wasteshed. Wasteshed is a term used in the materials management field to describe where, and how, materials 'flow' throughout a given geographical area. Much like a watershed, waste is not confined to city or county boundaries and can flow along multiple channels. Unlike water however, the flow of waste is based around economic drivers, the presence of facilities, roads and highways, and contracts between haulers and processors. In 2013 and years prior, landfill waste flows from out-of-state receipts were being disposed in-district at the Apex Landfill. In 2014, that waste flow decreased.

Because of JBRSWA's revenue fee structure the changes in disposal waste flows adversely impacted JBRSWA's budget. Beginning in 2014, JBRSWA put other revenue mechanisms in place to provide constant stable funding. Because of these regional impacts, diversifying the revenue sources will help maintain the needed revenues to implement the plan.

DIVERSION IMPACTS

There are limited recycling facilities, processors, brokers and haulers within the two Counties borders. Recycling markets are at all-time lows and reverberations are being felt throughout the US and in the two counties. Higher costs for recyclable processing and reduction in the types of accepted materials

demonstrate the economic and business models are not working. A fundamental issue is the lack of domestic end markets to handle the sudden oversupply of recycled materials.

Neighboring solid waste districts in the Appalachia area could collaborate and forge ahead to strengthen and grow domestic recycling markets in the region. Workshops could be organized to explore challenges and attempts to identify where regional opportunities for collaboration and partnerships could share synergies, benefits, unified efforts, and mutually beneficial financial outcomes.

b. Conclusions/Findings

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 JBRSWA could potentially expand opportunity and improve performance. Geographically and economically Appalachian Ohio has challenges that could benefit by regional solutions, if explored further. Joining forces and economies of scale, Appalachia districts may be able to explore best available technologies while implementing projects that individually would have been too expensive to develop for a single district.

Because of the funding structure waste flows impact the revenue stream. Keeping a diversified revenue structure will provide more stable revenue.

11. Population Analysis

From 2010 to 2018, Jefferson County population decreased by 5.7% and Belmont County population decreased by 4.1%. Overall the JBRSWA's population declined by 4.9%. While the JBRSWA's population declined, Ohio's population grew 1.3% from the same time period.

Through the planning period (2021-2035) Jefferson County's population is forecasted to decrease 1% and Belmont County's to decline by 3%. Overall JBRSWA population will decrease by 2% during that time. This projection is based on Ohio Department Strategic Analysis (ODSA) Planning Research and Strategic Planning Office projected estimates[12].

Each County has relatively low population densities. In Belmont County the population density is 132 persons per square mile. The County is rural and not heavily populated. Jefferson County is slightly more at 167 persons per square mile. Both are more densely populated on the eastern boundary of each County than in the central or western areas. In addition to this challenge, both counties poverty rates at 14.1% for Belmont County and 17.6% in Jefferson County are higher than the State of Ohio's rate at 13.9%. The lower population density of rural towns cannot support the cost of curbside collection and communities cannot afford to add the costs of collection and processing to their budgets. Additionally, more than a quarter of households in each county has population in renter occupied homes. JBRSWA has found the best method for reaching these residents is drop-off recycling.

While population projections can gauge future demand for services, there are room for errors in projection calculations because of the difficulty associated with forecasting social factors. Based on historical generation rates, JBRSWA does not anticipate major fluctuations or changes due to population.

12. Data Collection Analysis

[12] *Population Projections by Age and Sex, 2015 to 2050 Prepared by Office of Research*. Office of Research, Ohio Development Services Agency. April 2018.

a. Evaluation

This analysis evaluates JBRSWA's current data collection efforts and identifies ways to improve.

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,
- Time commitment,
- Lack of response,
- Survey costs, and
- Errors in reported values.

The data collection process for each sector is described below.

Residential

JBRSWA gathers data from service providers, recyclers, and Ohio EPA annual published data. As part of contracts service providers report volumes to JBRSWA.

Commercial

JBRSWA gathers data from commercial businesses and Ohio EPA annual published data. Businesses surveyed are mailed a cover letter, survey, and postage-paid return envelope. Survey recipients are given the option to submit their completed surveys via the postage-paid return envelope, e-mail or fax. Approximately two to three follow up requests are sent via e-mail or phone 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. The quantity of follow-up phone calls made to each survey recipient varies on a case-by-case basis. Non-responders are prioritized.

JBRSWA makes an effort to understand how materials are obtained and managed by entities that submit recycling information. To avoid double counting JBRSWA strives to identify if there are any materials that might be reported by more than one entity. Surveys from previous years are not included in response rate statistics. Response rates in this sector are low. A 2% response rate was received in 2017. The challenge of capturing accurate diversion data from businesses is evident after multiple years of surveying using mailed paper survey options. Across the state of Ohio, many districts are challenged with low response rates. JBRSWA's survey mechanisms are similar to other district survey mechanisms.

Ohio EPA's efforts to collect recycling data from big box stores and MRF's provide the majority of usable recycling data.

Industrial

JBRSWA gathers data by surveying the industrial sector businesses. The same survey procedure described for the commercial sector is also used for the industrial sector. JBRSWA supported 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). While this is survey formal is no longer maintained, JBRSWA continues to use the survey form. Surveys from previous years are not included in response rate statistics. In 2017, a response rate of 7% was measured.

b. Conclusions/Findings

In attempts to receive better response rates, the survey is streamlined consisting of 2 pages and postage-paid envelopes are included. Unfortunately, the response rates remain low. Data collection requires a considerable amount of time to compile the mailings and track down responses. Additionally, maintaining and updating the contact list for businesses is also time-consuming.

Understanding that data collection is very important to reaching diversion goals, JBRSWA will continue to explore ways to receive a better response rate. It's possible an online platform such as google docs may be useful for soliciting survey responses. Additionally, maybe a focus on a top tier of businesses to solicit responses, such as the largest generators, may solicit a response.

13. Education/Outreach Analysis

The 2015 Plan developed several education and outreach strategies to work towards the 2020 State Plan goals. The 2020 State Plan goals restructured the education and awareness goals with the intention of creating minimum standards for outreach programming but still allow for flexibility for localized outreach and education. The 2020 State Plan refocused the general "awareness" of recycling to changing behavior through outreach. This analysis evaluates JBRSWA's existing education, outreach and technical assistance efforts to determine:

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

GOAL 3: MINIMUM REQUIREMENTS

District Website

JBRSWA maintains a website at www.jbgreenteam.org. The website is a resource providing much of the information that residents would seek. The homepage is key to user navigation and has the ability to be updated regularly to reflect recycling services. The webpage provides an inventory of outlets for materials, drop-off program information (locations, materials accepted), HHW, Community cleanups, and available education and outreach activities. The website contains accurate and up-to-date information and reflects operational and programmatic changes. Additionally, colors, fonts, and graphics/photos create a coherent visual carried across all communications.

Comprehensive Resource Guide

The website is a resource guide. In addition, the JBRSWA plan update lists resources.

Inventory

An inventory of solid waste management options and recycling locations is on the website.

Speaker

Any JBRSWA staff available can serve as speakers/presenters. JBRSWA has two full-time education coordinators, one in Belmont County and one in Jefferson County available. The list of speaking engagements is provided in Appendix I.

GOAL 4: OUTREACH AND EDUCATION

Ohio EPA's Format 4.0 devises an outreach and marketing plan to provide education, technical assistance, and outreach with the ultimate goal to attract more people to participate in recycling. JBRSWA began implementing

changes to their education and outreach programs over 10 years ago. Over the years the Authority grew the activities and programs to balance education (general conveyance of information) to build relationships with people, groups, stakeholders, etc. Maintaining certification with KAB is a helpful contributing factor for engaging. The evaluation presented below briefly describes tactics, programs, activities, etc. implemented and the effectiveness and adequacy to reaching 5 target audience groups, employing best practices, educating, and using social marketing principles and tools.

a. Evaluation

In 2010, the Authority restructured and branded under the JBRSWA aka JB Green Team as part of the efforts to position the organization as a trusted partner and community resource. JB Green Team refreshed with a new logo, and mascots "Jeff" and "Bel". Education campaigns are simple and engaging with regular consistent messaging across multimedia platforms.

Outreach includes the following marketing efforts:

Media Platform	Comments
Facebook	Two-way communication tool. JBRSWA has a presence on the social media platform Facebook and regularly communicates education. Social media also offers an unparalleled way to measure interaction with a target audience through reports on audience engagement. JBRSWA has 9,477 followers.
Website	One-stop shop for easy access of information.
Advertising campaigns	Newspaper ads have been used in the past to advertise HHW events and anti-dumping campaigns. A strategic communications campaigns using best advertising practices and target audiences to measure advertising investments better.
Flyers, posters, etc.	Customizable, print, and online materials.
Brochures	Simple easy to read brochures with prioritized content.
Print/digital advertisements	Mainstream marketing and print/digital advertising.
Presentations/workshops	Customizable and direct messaging presentations to achieve community-based outreach.
Promotional items	Booklets, pencils, stickers, cat litterbags, student activity books.
Quarterly newsletter	The newsletter subscriptions are declining, and content is repetitive of information found on Facebook and the website.

Effectiveness and adequacy: Best education and outreach practices include education campaigns that are simple and engaging with regular consistent messaging across multimedia platforms. JBRSWA made investments to expand education programs to reach 5 target audience groups: Residents, Schools, Industries, Institutions and Commercial Businesses, and Communities and Elected Officials.

The website services as the primary hub of information and contains accurate and up-to-date always information. Education (general conveyance of information) goes hand in hand with operational and programmatic changes. The website and collateral marketing materials reflect such changes. JBRSWA could discover more through website analytics, and draw conclusions based on the general areas downloaded or searched for the information. This will give a baseline in which residents/businesses need more in-depth targeted communications focus.

The Authority uses a wide variety of marketing and media to reach audiences. Flyers, ads, postcards etc. have a consistent recognizable look that ties the resident back to JBRSWA. The JBRSWA brand is frequently in front of audiences through media platforms and speaking engagements. Programs such as HHW and Electronic collection events provide additional advertising opportunity to reinforce the recycling message from JBRSWA. As a benchmark JBRSWA researched Cuyahoga County SWMD's Facebook user count since their education and outreach are often referred to as a model program. Cuyahoga County has roughly 5,000 Facebook followers

reaching roughly 0.4% of Cuyahoga's population, compared to JBRSWA's over 9,000 followers reaching 6% of JBRSWA's population.

Adult Education/Presentations

Targeted events for adult education and awareness include county fairs, festivals, and parades. At these events JBRSWA education coordinators can reach a large audience at one event. Collateral used is brochures and handouts. Education coordinators also have meetings and conduct presentations to the Township Trustee Christmas Party, various township and council meetings, and Soil and Water Conservation annually. This strategy is designed to keep in touch with adult residents and political jurisdictions. Face to face helps to gauge attitudes, streamline communication, and answer any questions with direct knowledge. Also increases brand awareness. Through these education activities and presentations JBRSWA hands out promotional items to reinforce the message.

Effectiveness and adequacy: In general, the Authority attends on average 10 events (festivals, fairs, etc.) has over 500 adult participants annually at events. With this level of success annually, JBRSWA's program is performing well. One element JBRSWA could incorporate is a feedback survey at the end of the presentations. Another element JBRSWA could increase is education to reduce contamination and illegal dumping.

Keep Jefferson County Beautiful/Keep Belmont County Beautiful

JBRSWA has two affiliate members of Keep America Beautiful: Keep Jefferson County Beautiful and Keep Belmont County Beautiful. Through this affiliation, Keep America Beautiful offers various programs and activities for education and outreach. Both counties actively participate and implement:

- The Great American Cleanup
- Outdoor Land Lab
- Trashy Art Fashion Show
- Plant Pride…Not Litter
- Adopt-A-Spot
- America Recycles Day and Stock the Pantry

In 2017 county education coordinators promoted KAB activities with 66 events reaching over 33,815 students and adults. The affiliation with KAB is a best practice and provides social marketing campaigns, materials, and programs that are readily available for use. KAB messaging aligns and supports JBRSWA messaging.

Effectiveness and adequacy: The affiliation with KAB provides JBRSWA with many social marketing principles already designed into the program. In each of the activities implemented the focus is on getting the audience to perform an action. There is internal staff work and commitment to keep up with the affiliation, but it provides resources a best practice and one well worth the investment in time.

Ohio River Valley Water Sanitation Commission Activities (ORSANCO)

JBRSWA encourages participation in this poster contest sponsored by ORSANCO each winter. Top winners are used in posters and on t-shirts for the next summer River Sweep Cleanup. The Annual Cleanup along the Ohio River is held on the third Saturday of every June. Five River Sweep site locations were held in 2017 with 200 volunteers.

A River Sweep Poster contest in 2017 had 75 participants from Jefferson County. JBRSWA promotes the contest through school contacts, JBRSWA website, and Facebook. Local winners are awarded a printed color copy of their poster in a frame along with gift certificates to the contestant and their teacher.

These activities provide yet another face-to-face interaction with all target audiences to deliver messages. This program implements the action by volunteering and participating and calls for change.

Effectiveness and adequacy: This is one of those programs that is full circle for the community. Engagement early from student contests builds excitement and interest in the event. During the event an action is required from the participants – clean up litter, and also provided opportunity for brand awareness. These events serve as the platform to provide additional education information.

Youth Education/Presentations

In addition to the KJCB and KBCB programs and activities, both county education coordinators provide environmental education presentations to preschool through 12th grade students, teachers, parents, and youth groups. Videos, worksheets, lesson plans and craft activities are completed during the presentations. Adults and youths learn how easy it is to do their part for the environment by "Going Green", through recycling, cleaning up their community and beautification projects, just to name a few. Various events include: Kids Days, Farmers Markets, Literacy Nights, Boo at the Mall, etc.

Effectiveness and adequacy: Educating youth is a focus area for the Authority. This program was implemented as expected making sure to tailor for the age-appropriate group. Feedback from audiences and teachers are supportive of the resources provided by JBRSWA.

Paper Recycling Tours

Tours are taken by school students, teachers and parents at the Valley Converting Paper Mill located in Toronto, Ohio. Officials at Valley Converting Paper educate students on how paper is recycled from the beginning. They start with 100% scrap paper and walk them through the manufacturing process showing them how the end product cardboard is made. The students learn how the paper is converted to different sizes and shipped to the end user who makes legal paper, paper hard back books, and desk calendars, just to name a few.

Effectiveness and adequacy: Yet, another way to reinforce the message and visually show the recycling process.

Commercial and Industrial Technical Assistance

The Education Coordinators in each county conduct waste audits and provide education by distributing brochures and giving presentations. Educational Coordinators report to the Program Director who serves as the main point of contact for businesses with questions and requests for assistance. JBRSWA's webpage provides a how to guide to start a business recycling program and a business waste audit form.

Effectiveness and adequacy: Staff begin a dialog on recycling and engage businesses that are interested. May result in a program to capture recyclables. The biggest barriers are lack and cost of recycling service.

Quarterly Business Newsletter

Newsletter articles are created by staff and include information on upcoming events. The newsletter is distributed quarterly via email to subscribers. Over the years, the number of subscribers is steadily decreasing. Conversely, JBRSWA's Facebook page followers is growing. It seems the public prefers social media to gather information. The JB Green Team Facebook page has more "likes" than it does newsletter subscribers, and the information is more instant and real-time. Additionally, Facebook is a two-way communication tool where viewers can ask questions or receive clarity if needed. With the decrease in subscribers, distributing information via a newsletter is not the best use of media collateral for JBRSWA.

Effectiveness and adequacy: The newsletter is no longer an effective outreach material. Because of lack of effectiveness, JBRSWA will not continue developing a newsletter.

b. Conclusions/Findings

The evaluation shows the Authority has programs to address all five of the target audiences. Education and outreach is designed to reinforce the message as much as possible through various touch points and media platforms which adds to the effectiveness of the outreach. High attendance, participation at events and in contests, requests for recycling service, etc. all are measures of success.

14. Processing Capacity Analysis

a. Evaluation

A MRF is a specialized facility that receives, separates and prepares recyclable materials for marketing to end-user manufacturers. Materials collected through drop-off programs are sent to MRFs. Table H-8 identifies the MRFs used by JBRSWA in 2017.

Table H-17 MRF Processing Capacity

Material Recovery Facility	County	Type Ownership	Material Processed	Processing Capacity (tpy)
Valley Converting	Jefferson	Private	ONP and OCC	unknown
River Valley Paper	Summit	Private	Paper	unknown
Waste Management – Pittsburgh Greenstar	In Pennsylvania	Private	SS	unknown
TC Recycling (Tri-County Recycling)	In Pennsylvania	Private	SS	unknown
CAP Glass	In Pennsylvania	Private	Glass	unknown

Notes: SS = single stream, MS = multi stream, tpy = tons per year, tph = tons per hour

In 2013 and 2014, the Authority experienced an increase in processing costs as a result of the Waste Management purchase of Greenstar. Greenstar processed all of the recyclables from the Authority's recycling drop-off programs. Waste Management's new requirements and increased fees for the processing of Authority source separated recyclable materials has caused the Authority to pursue alternative processing facilities to manage recyclables from the Authority. The Greenstar facility is roughly 50 miles from Jefferson County 's "cell" and 70 miles from Belmont County's "cell".

JBRSWA directly services the drop-off, paper and glass programs. Paper is direct hauled to a processor but the other materials are first consolidated. Transportation to processors is a challenge to direct haul cost effectively, plus the service area encompasses two counties. To manage this more effectively each county has a "cell" location to consolidate the recyclables before hauling to a processor.

JBRSWA works hard to locate processors that will cost share or charge reasonable rates for processing. The commingled stream is the most challenging stream to find processors at a reasonable cost. JBRSWA has a history of sending the commingled stream to Waste Management's Greenstar facility but due to rising processing costs located a different processor (TC Recycling) at a more reasonable cost. Glass is consolidated and hauled to CAP Glass in Mt. Pleasant, Pennsylvania. Paper is hauled directly to Valley Converting.[13]

Regional facilities from JBRSWA's County offices are shown in Table H-18.

Table H-18 MRF Processing Capacity

Name	Distance (miles) from Jefferson County Offices	Distance (miles) from Belmont County Offices
Waste Management - Pittsburgh Greenstar	50	70
Kimble Carrollton Transfer Station	30	46
Kimble Transfer & Recycling – Twinsburg	115	138
Waste Management – Poland	100	106
Jasar Recycling	80	77
TC Recycling (Tri-County Recycling)	158	131

[13] Processors subject to change. The processors identified were used in 2019.

APPENDIX I CONCLUSIONS, PRIORITIES, AND PROGRAM DESCRIPTIONS

A. Actions and Priorities

The 2015 Plan was developed to meet the 2009 State Plan goals. To fulfill the directives in Ohio Revised Code Section 3734.50 JBRSWA's plan must demonstrate having strategies and programs in place to address all of the required goals. This 2021 Plan Update is prepared to meet compliance with the 2020 State Plan. Appendices J and K show JBRSWA's progress to meeting Goals 1 and 2 of the 2020 State Plan. In order to obtain approval from Ohio EPA for the solid waste management plan, JBRSWA must demonstrate being able to achieve either Goal 1 or Goal 2. JBRSWA demonstrates adequate infrastructure to meet Goal 1.

The evaluation in Appendix H evaluates JBRSWA's performance in offering and maintaining services as outlined in the 2015 Plan. The process of this evaluation shows whether actual performance is what was expected or desired. If gaps are identified, then suggestions are provided to strengthen programs, improve performance, and/or increase effectiveness. Based on the evaluation, JBRSWA developed a list of actions that could be addressed and a list of priorities that will be addressed in this 2021 Plan Update.

1. Actions (what could be addressed)
    - Deliver high quality and cost-effective service.
    - Evaluate data collection method. Test an electronic platform.
    - Focus data collection efforts to lead-acid battery recyclers to obtain data.
    - Continue to conduct long-term planning for drop-off programs and secure processors.
    - Target material specific campaigns or similar business campaigns to foster recycling infrastructure.
    - Explore private sector partnerships and funding.
    - Add bins to school classrooms to encourage student participation and ownership in recycling.
    - Encourage university and school competitions.
    - Continue to apply for grants Ohio EPA to help with equipment and recycling businesses expansion or development.
    - Collaborate to expand local end markets.
    - Campaign to address drop-off contamination.
    - Continue to focus education on community-based approaches.
    - Reduce food waste through consumer education.
    - Identify barriers for recovering commercial fiber.
    - Share and promote US EPA's food hierarchy.
    - Share and promote US EPA's food recovery challenge.
    - Utilize social media to bring awareness of food waste.
    - Educate institutions on available resources such as LeanPath 360.
    - Bring regional partners together to address food waste infrastructure.
    - Spotlight food donation and food rescue centers/missions.
    - Expand commercial paper recycling.
    - Pilot a PAYT drop-off program.

- Expand glass recycling program.
- Increase education on using less-harmful ingredients and more environmentally friendly products.
- Analyze website analytics to draw conclusions of downloaded or searched information to target communication.
- Collaborate to expand local end markets.

2. Priorities

Not all of the actions identified will be listed as priorities to address in this 2021 Plan Update. JBRSWA has identified the following as priorities to address first in this Plan.

- Deliver high quality and cost-effective service.
  Infrastructure programs such as drop-off, Paper Recycling and Glass Recycling are service offerings provided by JBRSWA. To deliver high quality service, JBRSWA is committed to review operations and equipment needs at least annually to ensure optimized operations. Additionally, JBRSWA will assess the Paper Recycling Collection routes to ensure adding another truck and driver will meet the demand needs.
- Streamline ADR Survey.
  ADR Survey will undergo modifications to streamline data collection for staff with the goal of achieving better response rates and more data.
- Continue to focus education on community-based approaches.
  JBRSWA's focus on community-based approaches for education and outreach demonstrate success in interaction with the community. JBRSWA will take this approach and develop a contamination campaign for drop-off program to encourage behavior change.

B. Programs

1. Residential Recycling Programs

ID	Name	Start Date	End Date	Goal
Full-Time Urban Drop-off – Jefferson County				
FTU5	Island Creek Township, Pleasant Hill Elementary (3297 S.R. 213)	ongoing	ongoing	1 and 2
FTU6	Steubenville (1004 Lincoln Ave.)	ongoing	ongoing	1 and 2
FTU7	Steubenville, Mill Parking Lot (452 S. Third St)	ongoing	ongoing	1 and 2
FTU8	Steubenville, (Fort Steuben Mall behind JC Penney)	ongoing	ongoing	1 and 2
FTU10	Steubenville, Old Aquinas School (625 Lovers Lane)	ongoing	ongoing	1 and 2
FTU11	Steubenville (School of Bright Promise, 256 John Scott Highway)	ongoing	ongoing	1 and 2
Full-Time Urban Drop-off – Belmont County				
FTU1	Martins Ferry (501 N First St)	ongoing	ongoing	1 and 2
FTU2	Richland Township (68329 Bannock Rd)	ongoing	ongoing	1 and 2
FTU3	Richland Township, Fairgrounds (45300 Roscoe Rd)	ongoing	ongoing	1 and 2
FTU4	St. Clairsville (1 Geno Sessi Drive)	ongoing	ongoing	1 and 2
FTU12	St. Clairsville, Belmont County Animal Shelter, (45244 National Rd)	2019	ongoing	1 and 2

Dual-stream recycling drop-off containers serviced (collection) by JBRSWA. Available for use 24/7. Containers are 6-cubic yards. The number of containers and service frequency depends on the location. Drop-off site locations are subject to change at any time for unforeseen reasons or to maintain performance and reasonable costs. Materials accepted include:

Paper/Cardboard Items	Commingled Items
Books	Carton packaging – milk, juice, broth, soup & other
Newspaper & Ad inserts, magazines, & glossy ads	Cans
Corrugated cardboard	Empty aerosol cans
Paperboard boxes & clean pizza boxes	Clean aluminum foil, pie pans, and to-go containers
Cardboard egg cartons	Glass bottles & jars
Opened mail, envelopes, & greeting cards	Plastics #1-5, bottles, jugs & tubs
Office paper, manila/pastel colored folders, brochures, computer printouts, loose-leaf paper, memos, post-its, index cards, and pastel colored paper	
Paper shopping bags	
Paper tubes	
Shredded paper	

Refer to JBRSWA webpage for most current list of acceptable materials.

Collection operations include purchase and upkeep (maintenance) of collection equipment, labor, transportation and processing costs. JBRSWA owns 6-cubic yard containers and front-load trucks. In order to provide these services, JBRSWA employs full-time employees for operations. Operation strategies are regularly evaluated and implemented to help meet performance goals and will be the case for this planning period. Current operations tip commingled recyclables at the "cell" to consolidate for shipping to MRF processor.

ID	Name	Start Date	End Date	Goal
Full-Time Rural Drop-off – Jefferson County				
FTR19	Adena (570 W. Main St)	ongoing	ongoing	1 and 2
FTR43	Amsterdam (348 N Main)	2020	ongoing	1 and 2
FTR20	Bergholz Village (Washington St at Village Garage)	ongoing	ongoing	1 and 2
FTR21	Bloomingdale Village (103 Cadiz St)	ongoing	ongoing	1 and 2
FTR22	Brush Creek Township (6701 Co Rd 55)	ongoing	ongoing	1 and 2
FTR23	Dillonvale Village (465 Main St)	ongoing	ongoing	1 and 2
FTR24	Empire/Stratton (84 Ave)	ongoing	ongoing	1 and 2
FTR25	Knox Township, Kelly's Old Skool (8898 S.R. 213)	ongoing	ongoing	1 and 2
FTR26	Mingo Junction (1130 S Commercial Ave)	ongoing	ongoing	1 and 2
FTR27	Mt Pleasant Village (Corner South & East Streets)	ongoing	ongoing	1 and 2
FTR29	Richmond Village (210 Park St)	ongoing	ongoing	1 and 2
FTR30	Saline Township, Complex (164 Co Hwy 50A)	ongoing	ongoing	1 and 2
FTR31	Smithfield Village (High Street)	2020	ongoing	1 and 2
FTR32	Springfield Township (4569 County Road 75	ongoing	2019	1 and 2
FTR33	Steubenville Township (25 Smithfield St)	ongoing	ongoing	1 and 2
FTR34	Tiltonsville Village (337 Main St)	ongoing	ongoing	1 and 2
FTR35	Toronto City, Helping Hands of Toronto (418 Clark St)	ongoing	ongoing	1 and 2
FTR36	Wells Township (North End Market St)	ongoing	ongoing	1 and 2
FTR37	Wintersville, Kroger's Parking Lot (858 Main St)	ongoing	ongoing	1 and 2
FTR38	Wintersville, Reisbecks Food Market (100 Main St)	ongoing	2019	1 and 2
FTR39	Wintersville, Cross Creek Twp Bldg (Corner Two Ridge & Cadiz Rd)	ongoing	2020	1 and 2
FTR40	Yorkville Village, Handy Market (150 Williams St)	ongoing	ongoing	1 and 2
Full-Time Rural Drop-off – Belmont County				
FTR1	Barnesville, #1 (525 Watt Ave)	ongoing	ongoing	1 and 2
FTR2	Barnesville, #2 (130 E South St)	ongoing	ongoing	1 and 2
FTR3	Bellaire, Bellaire Village Garage (417 E. 37th St)	ongoing	ongoing	1 and 2
FTR4	Pultney Township, Spirit of 76 VFD (53890 Key-Bellaire Rd)	ongoing	ongoing	1 and 2
FTR5	Goshen Township, Barkcamp State Park, (65330 Barkcamp Park Rd)	ongoing	ongoing	1 and 2
FTR6	Belmont, Belmont Village Garage (421 South St)	ongoing	ongoing	1 and 2
FTR8	Bridgeport (109 S Lincoln Ave)	ongoing	2020	1 and 2
FTR9	Bridgeport, St. Joseph's Community Center (55505 National Rd)	ongoing	ongoing	1 and 2
FTR41	Colerain IGA (72690 Colerain Rd.)	2020	ongoing	1 and 2
FTR11	Fairpoint, Wheeling Township Garage (71240 Main St)	ongoing	ongoing	1 and 2

FTR7	Goshen Township, Bethesda Christian Church (40601 Belmont-Bethesda Rd)	ongoing	ongoing	1 and 2
FTR12	Kirkwood Township/Hendrysburg, Old Schoolhouse (35160 Main St.)	ongoing	2019	1 and 2
FTR13	Morristown (201 W. Cross St)	ongoing	2019	1 and 2
FTR14	Morristown (66859 Belmont-Morristown Rd)	ongoing	ongoing	1 and 2
FTR15	Powhatan Point (104 Mellot St)	ongoing	ongoing	1 and 2
FTR16	Shadyside, Shadyside Municipal Garage (East 40th St)	ongoing	ongoing	1 and 2
FTR42	Smith Township, Senior Center (46642 Main St)	2019	ongoing	1 and 2
FTR17	Union Township/Lafferty (43201 Mt. Hope Rd)	ongoing	ongoing	1 and 2
FTR18	York Township (53420 York Dr)	ongoing	ongoing	1 and 2

Full-time Rural drop-offs are also collected in a dual-stream and serviced (collection) by JBRSWA. Available for use 24/7. Containers are 6-cubic yards. The number of containers and service frequency depends on the location. Drop-off site locations are subject to change at any time for unforeseen reasons or to maintain performance and reasonable costs. Materials accepted include:

Paper/Cardboard Items	Commingled Items
Books	Carton packaging – milk, juice, broth, soup & other
Newspaper & Ad inserts, magazines, & glossy ads	Cans
Corrugated cardboard	Empty aerosol cans
Paperboard boxes & clean pizza boxes	Clean aluminum foil, pie pans, and to-go containers
Cardboard egg cartons	Glass bottles & jars
Opened mail, envelopes, & greeting cards	Plastics #1-5, bottles, jugs & tubs
Office paper, manila/pastel colored folders, brochures, computer printouts, loose-leaf paper, memos, post-its, index cards, and pastel colored paper	
Paper shopping bags	
Paper tubes	
Shredded paper	

Refer to JBRSWA webpage for most current list of acceptable materials.

Collection operations include purchase and upkeep (maintenance) of collection equipment, labor, transportation and processing costs. JBRSWA owns 6-cubic yard containers and front-load trucks. In order to provide these services, JBRSWA employs full-time employees for operations. Operation strategies are regularly evaluated and implemented to help meet performance goals and will be the case for this planning period. Current operations tip commingled recyclables at the "cell" to consolidate for shipping to MRF processor.

2. Commercial/Institutional Sector Reduction and Recycling Programs

Name	Start Date	End Date	Goal
Commercial/Institutional Assistance	*Ongoing*	Ongoing	1 and 2

JBRSWA offers two types of assistance 1) technical and 2) infrastructure that both work in tandem with each other to meet the needs of this sector. Even though the Authority actively implements activities to assist the commercial/institutional sector, a program was not listed on the ADR. This program focuses on fulfilling needs to the commercial/institutional sector's recovery infrastructure. The Authority will seek to apply for grants over this next planning cycle to help this program grow.

In 2017, the Dr. Pepper Snapple Group /Keep America Beautiful Park Recycling Program Bin Grant was applied for and received allowing JBRSWA to place bottle and can recycling bins at Steubenville Belleview Park Pool,

Toronto Memorial Pool, Stratton Park Pool, Mingo Junction Aracoma Park and Pool and the St. Clairsville Memorial Park and Allen Pool.

Many schools are serviced by JBRSWA's Paper Recycling Collection. To encourage behavioral changes in the classroom JBRSWA would like to see each participating school classroom equipped with bins to transport the paper to the toters. JBRSWA keeps a database of schools and found the most effective method of reaching the schools is calling. Annually, usually every fall, education specialists call the schools to offer education services and track recycling services. JBRSWA will inventory the classrooms and help the schools apply for grants (JBRSWA and outside grant opportunities) to receive classroom bins. If and when bins are provided to classrooms, students will be provided with a hands-on learning experience by being responsible for moving recyclables from classrooms and office spaces to collection areas.

There could be opportunity to expand commingled collection to hospitals. JBRSWA is planning to meet with hospitals to explore adding commingled collection service. Since JBRSWA's program is at capacity, private sector service offering and right-sizing trash service to be able to show cost neutral benefits will be explored.

Name	Start Date	End Date	Goal
Glass Recycling Drop-off	2012	Ongoing	1 and 2

JBRSWA implements a glass only recycling program targeting high-volume generators (restaurants, pubs, etc.) to remove glass from the commingled stream. JBRSWA conducted market research and developed a relationship with end markets to directly market the collected glass. Since inception, this program has grown in number of participating businesses. In 2017, JBRSWA serviced 50 glass only containers and directly marketed the glass to an end-processor. Many of the businesses use small toters. JBRSWA uses a rear load truck to service the toters.

Individual container tonnage data is not tracked. Materials are tipped at a "cell" location where all source separated glass is loaded into a compactor and transferred for processing. JBRSWA has a contractual arrangement with a hauling company to transport the glass to the processor.

Year	Glass Only Tonnages
2016	306
2017	339
2018	290
2019	226

The Glass Recycling Program is operating at full capacity. Many businesses are requesting service and are on a wait list. If a business drops service then the businesses on the wait list are contacted to be added. The ability of the program to grow beyond the current level is constrained by the Authority's resources (drivers and trucks).

Name	Start Date	End Date	Goal
University Partnerships	Existing	Ongoing	1 and 2

The Authority developed relationships with the following colleges and universities to promote recycling on campus:

- Eastern Gateway Community College
- Franciscan University

- Belmont Technical College
- Ohio University Eastern Campus

The Authority provides 6 cubic yard drop-off recycling containers for each campus and provides collection services. Individual container tonnage data is not tracked.

Name	Start Date	End Date	Goal
Paper Recycling Collection	2010	Ongoing	1 and 2

JBRSWA implements a paper recycling program. Businesses (commercial, institutional, and industrial) and non-profits call JBRSWA to sign up. They are provided 6-yard containers, which JBRSWA services with a front load truck. Source separated paper is directly hauled to processor.

In 2017 JBRSWA serviced 24 schools, non-profits and businesses. In order to entice schools to sign up, JBRSWA offered revenue sharing to schools in the program. The revenue share opportunity is no longer available for new collections added. Participating schools were grandfathered to continue to receive rebates. In 2017, $35,791.01 was paid to participating organizations. The Board reserves the right to change the rebate policies.

The Paper Recycling Collection is operating at full capacity. Many businesses are requesting service and are on a wait list. If a business drops service then the businesses on the wait list are contacted to be added. The ability of the program to grow beyond the current level is constrained by the Authority's resources (drivers and trucks).

To deliver high quality service, JBRSWA is committed to review operations and equipment needs at least annually to ensure optimized operations. JBRSWA will assess the Paper Recycling Collection routes to ensure adding another truck and driver will meet the demand needs. In 2020, the program expanded to add another driver and rear packer truck for small business servicing in Belmont County. In 2021, JBRSWA hopes to expand this collection route by budgeting for another driver and truck in Jefferson County.

Name	Start Date	End Date	Goal
Waste Audits	Existing	Ongoing	1, 2, *and 5*

JBRSWA offers waste assessments and audits to commercial businesses requesting the service. If requested, JBRSWA will conduct a site visit to observe then evaluate the materials generated and managed. Recommendations based on the waste management hierarchy of diversion (reduce, reuse, recycle, compost) are provided. Additionally, JBRSWA conducts a cost analysis of right sizing recycling and right-sizing trash service to identify cost benefits. No waste audits were conducted in 2017.

Many businesses call JBRSWA to request Paper Collection Recycling or Glass Recycling. JBRSWA's in-person engagements with businesses and efforts to build brand awareness over the past years are contributing factors for the many requests. Literature about waste audit services is handed out at in-person events and speaking engagements. Waste audits are also downloadable and available on the webpage and reminded when businesses call in. Web access to materials is helpful and guides businesses to self-audit.

Received phone calls and past waste audits demonstrate lack of service to implement the waste audit findings. JBRSWA's Paper Recycling Collection is at maximum capacity to provide services. This is a challenging barrier to overcome. If and when JBRSWA's collection program expands businesses could be added.

3. Industrial Sector Reduction and Recycling Programs

Name	Start Date	End Date	Goal
Waste Audits	Existing	Ongoing	1, 2, *and 5*

JBRSWA offers this service to the commercial sector as well as the industrial sector. Waste assessments and audits are conducted with industrial businesses requesting the service. If requested, JBRSWA will conduct a site visit to observe then evaluate the materials generated and managed. Recommendations based on the waste management hierarchy of diversion (reduce, reuse, recycle, compost) are provided. Additionally, JBRSWA conducts a cost analysis of right sizing recycling and right-sizing trash service to identify cost benefits.No waste audits were conducted in 2017.

JBRSWA has observed two types of recyclables to manage at manufacturing facilities: process and employee generated. Scrap materials and byproducts from manufacturing processes have value. For manufacturers there is incentive to efficiently manage the range of materials generated for recycling. Over the years, JBRSWA has noticed a trend of organizations trying to reach zero to waste landfill goals. Assistance is requested when an industry has challenges for finding an end market for a specific material. Ohio EPA's Material Marketplace is a recommended source as well as outreach to various end markets known. Employee generated waste is typically bathroom paper towels, bottles, cans, paper and lunchroom waste. Some of these materials can be collected via single stream and through services provided by various haulers operating in the Authority.

4. Restricted/Difficult to Manage Wastes

Name	Start Date	End Date	Goal
Community Cleanup Events	Existing	Ongoing	6

Community Cleanup events have evolved into comprehensive collection diversion events. Most of the community events accept scrap tires, electronics, and appliances for diversion. They also offer large bulk item disposal. JBRSWA sponsors these diversion events. Volunteers help on-site during the event. JBRSWA directly contracts with a private contractor to service electronic collection and properly manage materials during the events. Cleanup days, locations, and materials accepted are advertised via social media, in print media and on the website. In 2017, 28 events were held throughout both Counties, 23 of these accepted electronics, and 27 accepted scrap tires.

Material Collected	2017 Tons
Tires	390
White Goods	3
Electronics	41
Trash	352.87

Name	Start Date	End Date	Goal
HHW Collection Events	Existing	Ongoing	6

JBRSWA aims to host two HHW collection events per year, one in each County. JBRSWA directly contracts with a private contractor to service HHW collection and properly manage materials. Collection days, locations, and

materials accepted are advertised via social media, in print media and on the website. In 2017, JBRSWA collected 32 tons from 348 participating vehicles.

Household batteries can be dropped off at either the Jefferson or Belmont county office locations year-round. In 2017, JBRSWA collected 1,187 pounds of batteries.

Name	Start Date	End Date	Goal
Lead Acid Battery Strategy	Existing	Ongoing	6

Residents have the opportunity to recycle lead-acid batteries through retailer take-back, scrap processors or HHW collection events. JBRSWA's website maintains a list of outlets. JBRSWA will continue to rely on this system for managing lead-acid batteries.

Name	Start Date	End Date	Goal
Yard Waste Strategy	Existing	Ongoing	6

Information regarding yard waste and composting is provided through talks, Facebook, awareness events, brochures, website, etc. The Ohio State Extension offices located in each County also provide information to residents.

Name	Start Date	End Date	Goal
Scrap Tire Strategy	Existing	Ongoing	6

Residents have the opportunity to recycle scrap tires through retailer take-back or if a collection event is available. Information regarding scrap tire recycling opportunities is on the website, Facebook, and other media.

5. Funding/Grants

Name	Start Date	End Date	Goal
Financial Market Grants	Existing	Ongoing	7 and 9

JBRSWA will directly promote market growth by offering financial market grants to businesses that either produce products with recycled materials or recycle solid waste for resale on commodity markets. An application must be filed with the Authority detailing activity and funding request. Grants can be used as a grant match for Ohio EPA's market development grant. The Authority reserves the right to award the full amount requested or partial funding depending on the number of valid applicants and the financial state of the Authority.

Name	Start Date	End Date	Goal
Recycling Initiatives Competitive Funding Project	Existing	Ongoing	7 and 9

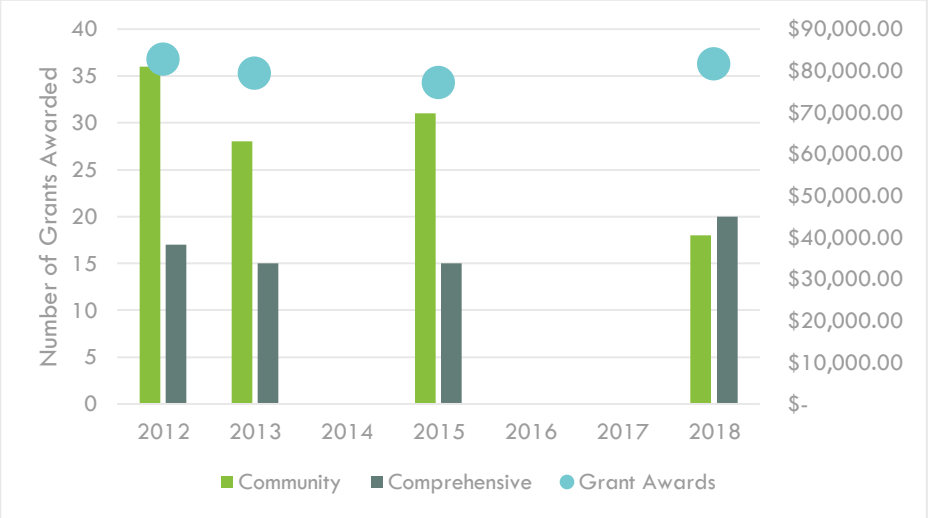
JBRSWA offers competitive funding to local townships, villages, cities, schools and non-profits. Grants finance activities or projects related to recycling, reuse, recycled material, or community cleanups. Two levels of grants are available: Community Award and Comprehensive Grant.

Community Award is up to $1,000 with no match. Projects must contain a recycling component or theme. Schools, government offices and non-profits may seek funds to: implement recycling at sporting events; purchase recycling

bins and create awareness posters; begin a re-use store or program so that unwanted items are not discarded; or buy supplies to perform community litter clean-ups and recycling activities.

Comprehensive is between $1,001 and $5,000 with a 20% required match which may include in-kind services. The Comprehensive Grant projects must include a recycling or reuse initiative. Procurement and application of recycled content items must have a significant recycling component as part of the project in order to qualify for funding. Applicants must commit to completing the final report and supplying recycling and or reuse data.

An application must be filed with the Authority detailing the activity and funding request. The Authority reserves the right to award the full amount requested or partial funding depending on the number of valid applicants and the financial state of the Authority. Issued grant monies must be used for the project or activity applied. All grantees will be required to submit suitable evidence of activity demonstration and may include before and after photos.



The figure above depicts the total dollar amount of grant awards approved and number of grants awarded each year. Years with no amounts shown indicate years when grants were not awarded due to funding concerns. The annual grant budget increased to $100,000 in 2019 from $80,000. At $80,000 the requests exceeded the available funding. Increasing the budget provides more opportunity to fulfill grant requests.

6. *Facility Ownership/Operations*

Name	Start Date	End Date	Goal
Capital Improvement Fund	Existing	Ongoing	*All goals*

JBRSWA will maintain a capital improvement fund to replace equipment and/or purchase new equipment or other capital needs for the Authority programs. JBRSWA purchased 3 new front load trucks in 2017 and a truck, pickup truck, and containers in 2018, and replacement of rear packer in 2019. Every 5 years, beginning in 2024, $1,000,000 is budgeted for replacement of front loaders. In 2021 another driver and truck are budgeted for potential expansion of the commercial routes.

In 2018, a new office location in Belmont County was purchased ($750,000) as well as land for Jefferson County offices ($130,000). JBRSWA had intentions to build on the land but as the plans and other needed documents were being prepared, another property became available that suited office and garage needs for Jefferson County's program. In 2019, earnest money ($50,000) was paid for the property and building in Jefferson County

to house offices and trucks. Transaction was completed in 2020 at a cost of $1,450,000 for purchasing property in Jefferson County and the land originally purchased was sold.

Annually JBRSWA reviews and evaluates operations and performance of service offerings. This process provides the opportunity to adjust or make changes to operations, effectiveness, and suitability. Through this process JBRSWA reserves the right and may elect to perform building and/or site improvements at any time during the planning period and make necessary expenditures for those modifications.

7. Other

Name	Start Date	End Date	Goal
ADR Survey	Existing	Ongoing	1, 2, and 10

Annually JBRSWA conducts a survey of diversion activity data from commercial and industrial sector businesses located in JBRSWA and from other supporting infrastructure (haulers, organic facilities, non-profits, etc.). JBRSWA maintains a list of businesses and past responding businesses and surveys. Commercial and industrial businesses are annually mailed survey packets which include cover letter, survey and postage-paid return envelope. Survey recipients are given the option to submit their completed surveys via mail, email or fax. There are more than 200 commercial businesses and 100 industrial businesses on JBRSWA's mailing list.

To further streamline the survey process, JBRSWA will no longer mail survey packets to the full list of businesses. An active link for an online survey will be posted to the website as well as downloadable forms. A postcard notification will be mailed to the full list of all businesses notifying where to find the survey. Email solicitation will be used for those past responders that provide an email address. Hard copy survey packets will be sent to past responders or largest generators lacking an email which will greatly reduce the number of mailings. To solicit responses JBRSWA will follow up with 3 phone solicitations to the largest generators in attempts to receive survey data.

In 2017, a commercial response of 2% and industrial response of 7% was received for the survey efforts.

Name	Start Date	End Date	Goal
Health Department Funding	Existing	Ongoing	none

The Jefferson County Health Department receives funding from JBRSWA to inspect solid waste landfills and transfer stations, monitor and ensure compliance with anti-littering laws, solid waste regulations, and scrap tire disposal and storage standards. In 2017, the Jefferson County Health Department performed 5 open dumping investigations, 1 scrap tire generator inspection and 19 inspections of the Apex Landfill. Semi-annual reports are provided to JBRSWA.

The Belmont County Health Department is not approved by Ohio EPA to administer a solid waste and does not receive funding from JBRSWA.

The Authority reserves the right to increase or decrease the funding provided for this program based on factors including, but not limited to, whether either Health Department's status as an approved program changes, JBRSWA's funding levels, or the level of funding available to the Health Department from other sources.

Name	Start Date	End Date	Goal
Disaster Debris Management Plan	Existing	Ongoing	none

Disaster debris management planning is the practice of planning for debris disposal in an emergency situation caused by natural disasters such as tornados, floods, and severe storms. Disaster debris management planning is handled differently in each county but each County must declare an emergency before JBRSWA can assist. In these events, JBRSWA assistance may be called upon to provide dumpsters or financial to pay for dumpsters. The Authority provides education regarding separation of recyclable materials and yard waste from other general debris during an emergency situation and provides guidance and assistance to in-Authority municipalities. If funding permits, JBRSWA may provide additional assistance.

Name	Start Date	End Date	Goal
Assistance To Maintain Access to Solid Waste Facilities Within JBRSWA	Existing	Ongoing	none

JBRSWA may provide assistance to maintain regular vehicular access to publicly available solid waste facilities located in JBRSWA including but not limited to providing assistance for road repairs due to excess truck traffic from solid waste haulers.

Name	Start Date	End Date	Goal
Environmental Enforcement	2011	Ongoing	none

In 2011 an Environmental Enforcement program was developed. In the Fall of 2013, one full-time Belmont County Sheriff's Deputy began to work 40 hours per week and in 2014, one full-time Jefferson County Sheriff's Deputy began. Both Deputies are assigned to work in their respective County's. JBRSWA pays for the salary and associated expenses, including vehicle expenses. Maintenance, insurance and upkeep is the responsibility of their respective County Commissioners. Miscellaneous expenses such as mountable cameras are purchased by JBRSWA. The cameras are used to monitor dump sites and recycling drop-off sites with recurring issues of waste and contamination. JBRSWA's webpage provides phone numbers for each county contact for reporting and complaints.

In 2017, Jefferson County deputy reported 120 complaints, 21 issued citations, 40 dump sites/roadways cleaned and transported inmates to 14 Community Cleanup Events. Belmont County deputy was on leave most of the year and reported 29 complaints and 17 sites cleaned.

Name	Start Date	End Date	Goal
Buy Recycled Promotion	Existing	Ongoing	none

JBRSWA promotes the development of recycling markets by promoting the purchase and use of products and goods made with recycled materials. JBRSWA purchased recycled-content products such as office paper whenever purchases were cost-effective. Facebook posts, literature handouts and verbal suggestions are all used to promote the buy recycled message. Additionally, JBRSWA's KAB affiliation provides access to campaign material such as the "Take the Pledge" which is also promoted at speaking engagements and on Facebook.

APPENDIX J REFERENCE YEAR OPPORTUNITY TO RECYCLE AND DEMONSTRATION OF ACHIEVING GOAL 1

A. Residential Sector Opportunity to Recycle

The 2020 State Solid Waste Management Plan requires Authority's to demonstrate adequate infrastructure to provide at least 80% of the residential population in a County with convenient opportunities to recycle. JBRSWA must demonstrate one of the following:

a. Demonstrate that there was adequate infrastructure in the reference year to provide at least 80% of the residential population within each county of the Authority the opportunity to recycle.
b. Demonstrate that the Authority will implement new and/or upgraded recycling infrastructure sufficient to provide at least 80% of the residential population within each county of the Authority the opportunity to recycle.
c. Apply for a waiver from Ohio EPA to provide less than 80% of the residential population with opportunities to recycle.

JBRSWA must ensure that there will be adequate infrastructure throughout the entire planning period covered by the solid waste management plan to give at least 80% of the residential population in each county of the Authority the opportunity to recycle.

Additionally, JBRSWA must:

1) Demonstrate that the Authority will meet the applicable standards established in the Format for the remainder of the planning period.
2) Calculate the solid waste reduction and recycling rate for the residential/commercial sector. If less than 25% in the reference year then demonstrate achieving annual increases in the solid waste reduction and recycling rate for the residential/commercial sector.
3) Demonstrate that commercial and institutional generators of solid waste have adequate opportunities to recycle solid waste.
4) Demonstrate that the Authority will encourage participation in available recycling infrastructure.
5) Demonstrate that the Authority will maintain the required infrastructure throughout the entire planning period.

Technical elements of the demonstration include:

1) Components of the residential infrastructure must collect at least 5 materials from a specified list in the Format.
2) The Authority must demonstrate that the commercial sector has adequate opportunities to collect at least 5 materials from a specified list in the Format.
3) The Format will specify the "credits" for various types of infrastructure. The amount of the credit assigned is dependent upon the type of recycling service being provided.
    - Non-Subscription Curbside: Credit the entire population of each community.
    - Subscription Curbside: Credit 25% of the community population.
    - Full-Time Urban Drop-off: Credit 5,000.
    - Full-Time Rural Drop-off: Credit 2,500.

- Part-Time Urban Drop-off: Credit 2,500.
- Part-Time Rural Drop-off: Credit 2,500.

4) The following minimum standards apply to drop-offs:
   - Residents can easily find and access the site.
   - All drop-off sites must provide a minimum of 6-cubic yards of capacity.
   - There are signs that are adequate to, at a minimum:
     i. Direct the public to the site or indicates the location of the site;
     ii. Lists the materials that are accepted; and
     iii. Provide days and hours of operation
   - The Authority has made a reasonable attempt to meet the demand of the population for use of the drop-off site.
5) "Credit" for infrastructure in a community is limited to the population of an entire community, up to and including the entire credit for a drop-off that would be needed to achieve 100% of the residential population with access to recycling infrastructure.

Technical Elements	Drop-offs
Easily accessible	All sites easily accessible.
Container Size	All containers 6-cubic yards.
Signage	All sites have signage.
Reasonable attempt to meet population demand	Yes
Materials	Paper, plastic bottles and jugs, glass, aluminum cans, steel cans, cartons

Table J-1 Opportunity to Recycle

ID #	Jefferson	2017		2021	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit
Non-subscription curbside					
	NONE	-	-	-	-
Subscription curbside					
	NONE	-	-	-	-
Full-time, urban drop-off					
FTU5	Island Creek Township, Pleasant Hill Elementary (3297 S.R. 213)	6,243	5,000	6,156	5,000
FTU6	Steubenville (1004 Lincoln Ave.)	18,254	5,000	18,000	5,000
FTU7	Steubenville, Mill Parking Lot (452 S. Third St)	18,254	5,000	18,000	5,000
FTU8	Steubenville, (Steuben Mall on Mall Drive)	18,254	5,000	18,000	5,000
FTU9	Steubenville, McKinley Elementary (1400 W. Adams St)	18,254	5,000	Removed	Removed
FTU10	Steubenville, Old Aquinas School (625 Lovers Lane)	18,254	Credit Limit	18,000	5,000
FTU11	Steubenville (School of Bright Promise, 256 John Scott Highway)	18,254	Credit Limit	18,000	Credit Limit
Part-time, urban drop-off					
	NONE				
Full-time, rural drop-off					

ID #	Jefferson	2017		2021	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit
FTR19	Adena (570 W. Main St)	725	2,500	715	2,500
FTR43	Amsterdam (348 N Main)	-	-	480	2,500
FTR20	Bergholz Village (Washington St at Village Garage)	636	2,500	627	2,500
FTR21	Bloomingdale Village (103 Cadiz St)	194	2,500	191	2,500
FTR22	Brush Creek Township (6701 Co Rd 55)	425	2,500	419	2,500
FTR23	Dillonvale Village (456 Main St)	637	2,500	628	2,500
FTR24	Empire/Stratton (Rear 84 Ave)	288	2,500	284	2,500
FTR25	Knox Township, Old Skool (8898 S.R. 213)	1,975	2,500	1,948	2,500
FTR26	Mingo Junction (1130 S Commercial Ave)	3,307	2,500	3,261	2,500
FTR27	Mt Pleasant Village (Corner South & East Streets)	455	2,500	449	2,500
FTR28	Raymond Village (116 Warren St)	405	2,500	-	-
FTR29	Richmond Village (210 S Park St)	460	2,500	454	2,500
FTR30	Saline Township, Complex (164 Co Hwy 50A)	899	2,500	887	2,500
FTR31	Smithfield Village (High Street)	830	2,500	821	2,500
FTR32	Springfield Township (4569 County Rd 75)	1,148	2,500	-	-
FTR33	Steubenville Township (25 Smithfield St)	827	2,500	816	2,500
FTR34	Tiltonsville Village (337 Main St)	1,315	2,500	1,297	2,500
FTR35	Toronto City, Helping Hands of Toronto (418 Clark St)	4,881	5,000	4,813	2,500
FTR36	Wells Township (North End Market St)	2,701	2,500	2,664	2,500
FTR37	Wintersville, Krogers Parking Lot (858 Main St)	3,779	2,500	3,726	2,500
FTR38	Wintersville, Reisbecks Food Market (100 Main St)	3,779	2,500	-	-
FTR39	Wintersville, Cross Creek Twp Bldg (Corner Two Ridge & Cadiz Rd)	3,779	2,500	-	-
FTR40	Yorkville Village, Handy Market (150 Williams St)	589	2,500	581	2,500
Part-time, rural drop-off					
	NONE				
Mixed municipal waste material recovery facility					
	NONE				
Total County Population			67,401		65,937
Total Population Credit			82500		72,500
Percent of Population			122%		110%

*Address differs from Table B-2a and B-2c. Addresses shown in Table J-1 are most recent addresses. Physical addresses may change. JBRSWA reserves the right to adjust locations as needed but regard is placed to maintain a site in the identified political jurisdiction.

Ohio EPA, *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 Steubenville.

JBRSWA met Goal 1 in Jefferson County in the reference year and anticipates meeting the goal at the end of the planning period.

ID #	Belmont	2017		2021	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit
	Non-subscription curbside				
	NONE	-	-	-	-
	Subscription curbside				
	NONE	-	-	-	-
	Full-time, urban drop-off				
FTU1	Martins Ferry (501 N First St)	6,794	5,000	6,730	5,000
FTU2	Richland Township (68329 Bannock Rd)	9,713	5,000	9,622	5,000
FTU3	Richland Township, Fairgrounds (45300 Roscoe Rd)	9,713	5,000	9,622	5,000
FTU4	St. Clairsville, (1 Geno Sessi Drive)	5,151	5,000	5,103	5,000
FTU12	St. Clairsville, Belmont County Animal Shelter (45244 National Rd)	-	-	5,103	5,000
	Part-time, urban drop-off				
	NONE				
	Full-time, rural drop-off				
FTR1	Barnesville, Watt Center (525 Watt Ave)	4,164	2,500	4,125	2,500
FTR2	Barnesville, (130 E South St)	4,164	2,500	4,125	2,500
FTR3	Bellaire Community Drop-off, Bellaire Village Garage (417 E. 37th St)	4,189	2,500	4,150	2,500
FTR4	Pultney Township, Spirit of 76 VFD (53890 Key-Bellaire Rd)	4,397	2,500	4,356	2,500
FTR5	Goshen Township, Barkcamp State Park, (65330 Barkcamp Park Rd)	1,399	2,500	1,386	2,500
FTR6	Belmont Community Drop-off, Belmont Village Garage (421 South St)	448	2,500	444	2,500
FTR7	Bethesda Christian Church (40601 Bethesda-Belmont Rd)	1,259	2,500	1,249	2,500
FTR8	Bridgeport Community Drop-off (109 S. Lincoln Ave)	1,802	2,500	-	-
FTR9	Bridgeport, St. Joseph's Community Center (55505 National Rd)	1,802	2,500	1,785	2,500
FTR10	Bridgeport, Job and Family Services (56104 National Rd)	1,802	2,500	-	-
FTR41	Colerain IGA (72690 Colerain Rd.)	-	-	4,166	2,500
FTR11	Fairpoint Community Drop-off, Wheeling Township Garage (71240 Main St)	1,669	2,500	1,654	2,500
FTR12	Kirkwood Township/Hendrysburg, Old Schoolhouse (35160 Main St.)	389	2,500	-	-
FTR13	Morristown (201 W. Cross St)	295	2,500	-	-
FTR14	Morristown (66859 Belmont-Morristown Rd)	295	2,500	292	2,500

ID #	Belmont	2017		2021	
	Name of Community (City, Village, Township)	Community Population	Population Credit	Community Population	Population Credit
FTR15	Powhatan Point (104 Mellot St.)	1,579	2,500	1,565	2,500
FTR16	Shadyside, Shadyside Municipal Garage (East 40th St)	3,685	2,500	3,651	2,500
FTR42	Smith Township, Senior Center (46642 Main St)	-	-	1,505	2,500
FTR17	Union Township/Lafferty (43201 Mt. Hope Rd)	1,963	2,500	1,945	2,500
FTR18	York Township (53420 York Dr)	933	2,500	924	2,500
Part-time, rural drop-off					
	NONE				
Mixed municipal waste material recovery facility					
	NONE				
Total County Population			69,300		68,722
Total Population Credit			65,000		65,000
Percent of Population			94%		95%

*Address differs from Table B-2a and B-2c. Addresses shown in Table J-1 are most recent addresses. Physical addresses may change. JBRSWA reserves the right to adjust locations as needed but regard is placed to maintain a site in the identified political jurisdiction.

JBRSWA met Goal 1 in Belmont County in the reference year and anticipates meeting the goal at the end of the planning period.

B. Demonstration of Meeting Other Requirements for Achieving Goal 1

1. Residential/Commercial Waste Reduction and Recycling Rate
   As a requirement to achieving Goal 1 JBRSWA must demonstrate that JBRSWA did achieve a 25% 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 3%, with the state goal established at 25%, thus JBRSWA is striving to raise this rate over the planning period.

   If JBRSWA 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. During this planning period changes to the survey effort will be made to capture additional commercial sector information.

2. Encouraging Participation
   JBRSWA 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.

APPENDIX K WASTE REDUCTION AND RECYCLING RATES AND DEMONSTRATION OF ACHIEVING GOAL 2

Even though JBRSWA is demonstrating compliance with Goal 1, it must complete this Appendix to demonstrate the progress towards achieving Goal 2.

Goal 2: Waste Reduction and Recycling Rates
The SWMD shall reduce and recycle at least 25% of the solid waste generated by the residential/commercial sector and at least 66% of the solid waste generated by the industrial sector.

Table K-1 Residential Commercial Annual Rate of Waste Reduction

Year	Population	Recycled	Disposed	Total Generated	Waste Reduction & Recycling Rate (%)	Per Capita Waste Reduction & Recycling Rate (ppd)
2017	***136,701***	***13,443***	***408,677***	***422,120***	***3%***	***0.54***
2018	136,349	11,955	407,595	419,550	3%	0.48
2019	135,925	12,075	406,327	418,402	3%	0.49
2020	135,501	12,196	405,060	417,256	3%	0.49
2021	135,187	12,318	404,121	416,439	3%	0.50
2022	134,873	12,441	403,183	415,623	3%	0.51
2023	134,559	12,565	402,244	414,809	3%	0.51
2024	134,245	12,691	401,305	413,996	3%	0.52
2025	133,931	12,818	400,367	413,184	3%	0.52
2026	133,693	12,946	399,655	412,601	3%	0.53
2027	133,455	13,075	398,944	412,019	3%	0.54
2028	133,217	13,206	398,232	411,438	3%	0.54
2029	132,979	13,338	397,521	410,859	3%	0.55
2030	132,741	13,472	396,809	410,281	3%	0.56
2031	132,679	13,606	396,624	410,230	3%	0.56
2032	132,617	13,742	396,439	410,181	3%	0.57
2033	132,555	13,880	396,253	410,133	3%	0.57
2034	132,493	14,019	396,068	410,087	3%	0.58
2035	132,431	14,159	395,883	410,041	3%	0.59

Source:
Population – Appendix C, Table C-1
Recycled – Appendix E, Table E-4 and E-5
Disposed – Appendix D, Table D-3
Sample Calculation:
Total Generated = Recycled + Disposed
Waste Reduction & Recycling Rate = Recycled / Total Generated
Per Capita Waste Reduction & Recycling Rate = (Recycled x 2000 lbs/ton) / (Population x 365 days)

JBRSWA did not meet the 25% residential/commercial waste reduction rate goal in the reference year, 2017. The 2015 Plan Update projected the 2017 waste reduction rate would be 11%. In 2017 the rate measured 3%. The biggest challenge facing JBRSWA during this planning cycle is gathering data from the commercial sector to increase the waste reduction rate.

Table K-2 Industrial Annual Rate of Waste Reduction

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Non-Recyclable Waste	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2017	***8,469***	***669,107***		***677,576***	***1%***
2018	8,028	662,416		670,443	1%
2019	8,108	655,791		663,899	1%
2020	8,189	649,234		657,423	1%
2021	8,271	642,741		651,012	1%
2022	8,354	636,314		644,667	1%
2023	8,437	629,951		638,388	1%
2024	8,521	623,651		632,173	1%
2025	8,607	617,415		626,021	1%
2026	8,693	611,240		619,933	1%
2027	8,780	605,128		613,908	1%
2028	8,867	599,077		607,944	1%
2029	8,956	593,086		602,042	1%
2030	9,046	587,155		596,201	2%
2031	9,136	581,284		590,420	2%
2032	9,228	575,471		584,698	2%
2033	9,320	569,716		579,036	2%
2034	9,413	564,019		573,432	2%
2035	9,507	558,379		567,886	2%

Source:
Recycled – Appendix F, Table F-4 and F-5
Disposed – Appendix D, Table D-3
Sample Calculation:
Total Generated = Recycled + Disposed
Waste Reduction & Recycling Rate = Recycled / Total Generated

The waste reduction rate for the industrial sector in the reference year 2017 is 1%. This waste reduction rate includes wastes from the captive landfills. If JBRSWA excluded the captive landfills the waste reduction rate is would be higher. JBRSWA did not meet the 66% goal in the reference year but is projecting slight increase in the planning period.

Over 70% of industrial waste disposal is a result of byproduct pollution control measures at the power companies located in the Authority. The waste disposal in the captive landfills by Ohio law is not exempt from being classified as a solid waste. At this time this landfilled waste is unrecyclable thereby making it impossible for JBRSWA to demonstrate compliance with the industrial sector goal.

Excluding captive waste, JBRSWA's waste reduction rate still falls below the 66% goal. The biggest challenge is receiving recycling data from industrial businesses. The industrial sector data collection is a program area JBRSWA is strategizing an effort for increasing the waste reduction rate (see Appendix I).

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)
2017	***21,912***	***1,077,783***	***1,099,696***	***2.0%***
2018	19,983	1,070,010	1,089,994	1.8%
2019	20,183	1,062,119	1,082,302	1.9%

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2020	20,385	1,054,293	1,074,678	1.9%
2021	20,589	1,046,862	1,067,451	1.9%
2022	20,794	1,039,496	1,060,291	2.0%
2023	21,002	1,032,195	1,053,197	2.0%
2024	21,212	1,024,956	1,046,169	2.0%
2025	21,425	1,017,781	1,039,206	2.1%
2026	21,639	1,010,896	1,032,534	2.1%
2027	21,855	1,004,072	1,025,927	2.1%
2028	22,074	997,309	1,019,383	2.2%
2029	22,294	990,607	1,012,901	2.2%
2030	22,517	983,964	1,006,482	2.2%
2031	22,743	977,908	1,000,650	2.3%
2032	22,970	971,909	994,879	2.3%
2033	23,200	965,969	989,169	2.3%
2034	23,432	960,087	983,519	2.4%
2035	23,666	954,261	977,927	2.4%

Recycled – Appendix F, Table F-4 and F-5 and Appendix E, Table E-4 and E-5
Disposed – Appendix D, Table D-3
Sample Calculation:
Total Generated = Recycled + Disposed
Waste Reduction & Recycling Rate = Recycled / Total Generated

APPENDIX L MINIMUM REQUIRED EDUCATION PROGRAMS: OUTREACH AND MARKETING PLAN AND GENERAL EDUCATION REQUIREMENTS

A. Minimum Required Education Program

1. Website

Name	Start Date	End Date	Goal
District Website	Ongoing	Ongoing	1 through 7

JBRSWA maintains a website at www.jbgreenteam.org. The website is a resource providing much of the information that residents and businesses would seek. The homepage is key to user navigation and has the ability to be updated regularly to reflect recycling services, seasonal program info, and simple opportunities. The webpage provides an inventory of the solid waste and recycling infrastructure in JBRSWA. Infrastructure includes the following programs, facilities, and services: solid waste disposal, waste reduction, and recycling. The website is also a "go-to" reference for residents and businesses to search for material specific outlets. JBRSWA staff and/or web host manage and update the website.

The website serves as the primary hub of information and contains accurate up-to-date information. After evaluation the following changes are expected:

- Add US EPA's Food Hierarchy graphic and other food waste infographics.

2. Infrastructure Inventory

Name	Start Date	End Date	Goal
See District Website and SWMP	Ongoing	Ongoing	1 through 7

Infrastructure inventory can be found in the Plan, which is updated every five years. An inventory of solid waste management options and recycling locations is on the website. The website data regarding solid waste management infrastructure is updated at least annually, or more frequently if changes occur. Additionally, the website provides a search opportunity to search for outlets by specific material.

3. Resource Guide

Name	Start Date	End Date	Goal
See District Website	Ongoing	Ongoing	1 through 7

The website provides a search opportunity to search for outlets by specific material and serves as a resource guide. In addition, the JBRSWA plan update lists resources.

4. Speaker/Presenter

Name	Start Date	End Date	Goal
Speaker	Ongoing	Ongoing	1 through 7

JBRSWA has two full-time education coordinators, one in Belmont County and one in Jefferson County available for speaking engagements. Executive Director, administrative assistant and program director are available and assist with speaking engagements.

B. Outreach and Education – Outreach Plan and General Education Requirements

As prescribed by the 2020 State Plan, each Authority will provide education, outreach, marketing, and technical assistance regarding education and reuse through an outreach and marketing plan. Per *Format 4.0* the outreach and marketing plan needs to have the following components:

1. Five target audiences as identified in Ohio EPA Format 4.0.
2. Follow basic best practices when developing and selecting outreach programs.
3. Outreach priority.
4. Education and outreach programs to all appropriate audiences in the context of the priority using social marketing principles and tools.

The outreach and marketing plan needs to demonstrate these best practices:

- Demonstrate that the Authority will address all of the five target audiences;
- Explain how the Authority will align its outreach and education programs with recycling opportunities (both existing and needed); and
- Explain how the Authority will incorporate principles and tools for changing behavior into the outreach and marketing plan.

To align with *Format 4.0* JBRSWA's existing programs were organized by target audience. Some of the existing JBRSWA programs cross several target audiences.

Education/Outreach Program	Target Audience				
	Residents	Schools	Industries	Institutions and Commercial Businesses	Communities and Elected Officials
Commercial Technical Assistance		X		X	
Industrial Technical Assistance			X		
Adult Education/Presentations	X	X			X
Keep Jefferson County Beautiful/Keep Belmont County Beautiful	X	X	X	X	X
Ohio River Valley Water Sanitation Commission Activities (ORSANCO)	X	X	X	X	X

Education/Outreach Program	Target Audience				
	Residents	Schools	Industries	Institutions and Commercial Businesses	Communities and Elected Officials
Youth Education/Presentations		X		X	
Paper Recycling Tours Business Programs	X	X	X	X	X

Supplying information and seeking behavior changes is the central objective for JBRSWA's outreach and marketing. JBRSWA will employ various collateral and promotions. The key is to integrate communication such that promotional efforts are effective with the marketing activities. Incorporating the strategies and best practices described below provides a multi-layered, multi-faceted marketing and outreach strategy. Flyers, ads, postcards, print/digital advertisements, etc. are all JB Green Team branded with consistent recognizable look that ties the resident/business back to JBRSWA.

Name	Start Date	End Date	Goal
Commercial Technical Assistance	Ongoing	Ongoing	4

JBRSWA has technical expertise to assist businesses and institutions with on-site waste management services, contract assistance, securing end markets, and in-house implementation of programs.

Through this program, Paper Recycling Program, and Glass Recycling Drop-off, JBRSWA has signed up 252 businesses with paper collection and 50 businesses with glass recycling programs (includes schools).

Name	Start Date	End Date	Goal
Industrial Technical Assistance	Ongoing	Ongoing	4

JBRSWA has technical expertise to assist businesses and institutions with on-site waste management services, contract assistance, securing end markets, and in-house implementation of programs. No businesses requested technical assistance in 2017.

Name	Start Date	End Date	Goal
Adult Education/Presentations	Ongoing	Ongoing	4

Facebook has proven to be an excellent two-way communication tool. Costs are minimal and it provides the ability to send promotions to followers and track data. JBRSWA has over 9,000 followers. All special collection events (HHW, Community Cleanups, etc.) are advertised and promoted on Facebook. In 2020, JBRSWA education and outreach adapted to online integrations spurred by COVID 19 pandemic and changes to in-person meetings and gatherings. Education staffing are now equipped with laptops and new technology features and are implementing new education tactics. One of the first tactics is the addition of an "Education Corner" on Facebook. Education Corner is a little bit more lengthy Facebook post with statistics and facts. It is designed to be a 2 or 3-part series over a course of the month. The posts also ask for an action response from followers.

JBRSWA also receives a considerable number of phone inquiries.

Targeted events for adult education and awareness include county fairs, festivals, and parades. At these events large audiences are reached. Frequency at these events helps to build brand awareness. In-person interaction answers any questions with direct knowledge. It's also a time when research is conducted. Through conversations JBRSWA gauges which topics and questions are more requested which helps guide social media posts. Collateral used is brochures and handouts. JBRSWA looks to use promotional items made with recycled content.

Education coordinators also conduct meetings and presentations to the Township Trustee Christmas Party, various township and council meetings, and Soil and Water Conservation annually. JBRSWA staff attend/hold meetings on average about 8 annually. These meetings are two-way communication opportunities for dialogue between JBRSWA and the communities. It's an opportunity to educate public employees to available solid waste management programs as well as hear concerns and current issues communities are facing.

Name	Start Date	End Date	Goal
Keep Jefferson County Beautiful/Keep Belmont County Beautiful	Ongoing	Ongoing	4

JBRSWA has two affiliate members of Keep America Beautiful: Keep Jefferson County Beautiful and Keep Belmont County Beautiful. Through this affiliation, Keep America Beautiful offers various programs and activities for education and outreach. Both counties actively participate and implement:

Program	Target Audience	Activities
The Great American Cleanup	Residents (Adults and Youth/Students)	The Great American Cleanup is built on the principles of social marketing. It requires a commitment and an action. Volunteer groups collect litter and perform beautification projects. Runs March 1 through May 31. Volunteers, groups, beautification committees, students, 4-H, Girl/Boy Scouts join in the nation's largest organized cleanup, beautification and community volunteer improvement program.
Outdoor Land Lab	Youth/Students, Teachers/Instructors	A school field trip type of program sponsored each spring by the Jefferson County Soil & Water Office. Jefferson County fifth grade students from public, private and home school, teachers and parents, learn about the environment. Activities concentrate on Solid Waste, Litter and Waste and Reduce, Reuse, Recycle. Open to the Jefferson County Schools this four-day program is held at the Fernwood State Park rain or shine. JBRSWA participates as one of the seven different activity stations and includes a 20 to 25-minute presentation, along the two-mile walking trail. Twenty-seven presentations are completed during the week with the EnviroScape Landfill Model used at our activity station to help students understand how landfills work and the importance of proper disposal.
Trashy Art Fashion Show	Youth/Students	To encourage motivation among school-age children JBRSWA hosts a Trashy Art Fashion Show. Each year students create outstanding art and fashion. These contests help the students realize the importance of reuse, diversion, and that not everything needs to go into the trash. This is tied in with Earth Day to bring broader awareness and social prompts.
Plant Pride…Not Litter	Residents (Adults and Youth/Students)	Activity takes place in April at the Ft. Steuben Mall. Children and parents participate by painting and decorating flowerpots. After students have finished decorating their pots, they also plant flowers and or vegetables to take home. All materials are donated by the Ft. Steuben Mall and local businesses. This activity teaches students community participation and promotes individual pride.

Program	Target Audience	Activities
Adopt-A-Spot	Residents	This program incorporates social marketing principles for behavior change. It requires a commitment and action.. Participants adopt public spaces and make a commitment twice a year to clean and beautify the area for one year. Volunteers are the "P" in Pride by planting flowers, graffiti removal, picking up litter, weeding, gardening and other forms of general cleanup.
America Recycles Day and Stock the Pantry	Residents	America Recycles Day is a nationally recognized day dedicated to promoting recycling programs. Both Counties conduct various activities during the week. One promotion is KAB's "Take the Pledge" which is a commitment to recycle more. Participants are asked to make a pledge and then commit to that pledge. They are also encouraged to share with at least one other person. Additionally, Jefferson and Belmont Counties have taken America Recycles Day one step further. All our paper proceeds generated as well as some donated by others that are recycled at Valley Converting go to local Food Pantries to help out with purchasing food for the holidays. The activity runs from November 1st-15th, with public drop off sites at the Ft. Steuben Mall in Jefferson County.

In 2017 county education coordinators promoted KAB activities with 66 events reaching over 33,815 students and adults. The affiliation and activities designed through KAB incorporate social marketing principles of research, commitments, social norms and behavior change. Another benefit of this affiliation is the range of target audience groups directly increasing the brand awareness and reach of JBRSWA.

Name	Start Date	End Date	Goal
Ohio River Valley Water Sanitation Commission Activities (ORSANCO)	Ongoing	Ongoing	4

Each winter ORSANCO holds a poster contest. JBRSWA encourages participation in this poster contest by using the network of other KAB activities and teacher engagements. JBRSWA promotes the contest through school contacts, JBRSWA website, and Facebook. Local winners are awarded a printed color copy of their poster in a frame along with gift certificates to the contestant and their teacher. An additional incentive was created by using the top winners in posters and on t-shirts for the next summer River Sweep Cleanup. This also promotes the River Sweep Cleanup to gather volunteers. The Annual Cleanup along the Ohio River is held on the third Saturday of every June. Five River Sweep site locations were held in 2017 with 200 volunteers.

A River Sweep Poster contest in 2017 had 75 participants from Jefferson County.

These activities provide another face-to-face interaction with all target audiences to deliver messages. This program requires a commitment and action. Volunteering and participating and calls for behavior change.

Name	Start Date	End Date	Goal
Youth Education/Presentations	Ongoing	Ongoing	4

In addition to the KJCB and KBCB programs and activities, both county education coordinators provide environmental education presentations to preschool through 12th grade students, teachers, parents, and youth groups. A major element of this interaction is education. Education is always needed to reinforce the messages and support the infrastructure. JBRSWA has developed videos, worksheets, lesson plans and craft activities creating a library of resources to pull from. Adults and youths learn how easy it is to do their part for the environment by "Going Green", through recycling, cleaning up their community and beautification projects, just to name a few

developed programs. Some typical events JBRSWA participates in include: Kids Days, Farmers Markets, Literacy Nights, Boo at the Mall, etc.

Name	Start Date	End Date	Goal
Paper Recycling Tours	Ongoing	Ongoing	4

Tours are taken by school students, teachers and parents at the Valley Converting Paper Mill located in Toronto, Ohio. Officials at Valley Converting Paper educate students on how paper is recycled from the beginning. They start with 100% scrap paper and walk them through the manufacturing process showing them how the end product cardboard is made. The students learn how the paper is converted to different sizes and shipped to the end user who makes legal paper, paper hard back books, and desk calendars, just to name a few.

OUTREACH PRIORITY – RECYCLE RIGHT

JBRSWA has an established network of drop-off recycling locations, however, JBRSWA is finding too much trash in the commingled collection receptacles. Outreach priority is on the residential sector to recycle more of the correct materials and less trash.

Target Audience: Residents using drop-off recycling centers

Problem: Illegal dumping and wish-cycling is occurring throughout the SWMD

Goal: Curb illegal dumping and wish cycling by 10% over the next three years

Research:

- Measure baseline contamination rate.
- Create a baseline measurement on number of sites that have issues.
    - Authority identify locations from visual observations.
- Authority work with MRF to provide tonnage estimate of contamination.
- Work with MRF to determine top contamination material.
- Conduct onsite interviews with recycling users at locations.

Implementation:

- Based on interview data, create strategic recycle right communications campaign. This campaign is dependent on research. The Authority expects a combination of social media campaigns, onsite drop-off monitoring, and new handouts targeting the high contamination material will be needed.
- Implement recycle right campaign for 3 months.
- Measure impact of campaign by MRF providing contamination tonnage estimates and identifying top contamination material.

Outreach priority will begin in 2021.

APPENDIX M CAPACITY ANALYSIS

This appendix provides the Authority's strategy for ensuring access to sufficient solid waste management facility capacity to meet the solid waste management needs of JBRSWA for the period covered by the plan. While the primary focus of this strategy is ensuring access to adequate disposal capacity, the Authority will also ensure that it has access to processing capacity for recyclables, and if needed, access to transfer facilities (see Appendix D).

A. Access to Publicly Available Landfill Facilities

Table M-1 Remaining Operating Life of Publicly Available Landfills

Facility	Location	Years of Remaining Capacity
Apex Sanitary Landfill	Jefferson	35.2
Carbon Limestone Landfill LLC	Mahoning	49.3
Mahoning Landfill, Inc.	Mahoning	53.9
Countywide Recycling & Disposal Facility	Stark	70.7
Kimble Sanitary Landfill	Tuscarawas	36.4
American Landfill, Inc.	Stark	65
Suburban Landfill, Inc	Perry	51.6
Pine Grove Regional Facility	Fairfield	57
Northwestern Landfill	Wood County, West Virginia	not available
Brooke County Landfill	Brooke County, West Virginia	not available
Wetzel	Wetzel County, West Virginia	not available
Meadowfill Landfill	Harrison County, West Virginia	not available
Caldwell Landfill	Shelby County, Indiana	not available

Source(s) of Information
Annual District Report Review Forms 2017, 2016, and 2015
2017 Ohio Solid Waste Facility Data Report Tables (Table 13) published by Ohio EPA

Table M-1 lists the municipal solid waste landfills where waste from JBRSWA 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, JBRSWA disposed waste in 8 different in-state landfills and 5 out-of-state landfills. Table M-2 lists the landfill facilities and percentage of JBRSWA waste accepted in 2017. The landfills identified and percentages include direct hauled and transferred waste.

Table M-2 Tons and Percent Waste Sent to Disposal

Facility	Total Tons Disposed	Percent of Waste Disposed in Landfills
Apex Sanitary Landfill	344,447	55.7%
Carbon Limestone Landfill LLC	2,640	0.4%
Mahoning Landfill, Inc.	334	0.1%
Countywide Recycling & Disposal Facility	54	0.0%
Kimble Sanitary Landfill	95,830	15.5%

Facility	Total Tons Disposed	Percent of Waste Disposed in Landfills
American Landfill, Inc.	94,659	15.3%
Suburban Landfill, Inc	33,295	5.4%
Pine Grove Regional Facility	74	0.0%
Northwestern Landfill	33	0.0%
Brooke County Landfill	43,432	7.0%
Wetzel	3,790	0.6%
Meadowfill Landfill	34	0.0%
Caldwell Landfill	14	0.0%
TOTAL	618,636	100%

Source:
2017 Ohio Facility Data Tables (Table 15) published by Ohio EPA
Sample Calculation:
Transferred waste to each landfill was calculated using ratio of total waste hauled to waste reported to each landfill.
Percentage of waste disposed in landfills = landfill total tons / total landfilled waste x 100%

To demonstrate JBRSWA has adequate disposal capacity the landfill that historically took the largest amounts of the Authority's waste must have adequate remaining life for the first 8 years of the planning period. As seen in Table M-2, more than half of the Districts disposal, 55.7%, went to Apex Sanitary Landfill in Jefferson County. The second most utilized landfill was the Kimble Sanitary Landfill where more than 15% of the waste was sent. All landfills that JBRSWA sends waste to have more than fifteen years of capacity remaining (Table M-1). JBRSWA has enough disposal capacity through the planning period of 2035.

In addition to this region having adequate landfill disposal capacity, JBRSWA has access to transfer facilities if there are any regional landfill capacity issues. All disposal facilities (landfill and transfer) utilized by JBRSWA are privately owned and operated.

B. Capacity at Private Landfill Facilities

There is sufficient remaining life at existing captive landfills.

Two coal-fired electric utilities are located in the Authority. The combustion of coal generates large quantities of solid by-products (fly ash, bottom ash, boiler slag and flue gas desulfurization (FGD)), which are typically disposed in landfills. Non-toxic fly ash, bottom ash and slag are regulated as exempt wastes, i.e., they are exempt from the statutory definition of solid waste. FGD is considered an air pollution control waste and is regulated as a residual waste. By Ohio law this material is not exempt from being classified as a solid waste and as a result is included in the total amount of solid waste generated. FirstEnergy is moving towards closing the Steubenville plant by mid-2022.[14]

Table M-3 Remaining Operating Life of Privately Available Landfills

Facility	Location	Years of Remaining Capacity
FirstEnergy Hollow Rock Facility	Jefferson	0
Cardinal FAR 1 Residual Waste Landfill	Jefferson	172

[14] https://www.toledoblade.com/business/energy/2018/08/30/FirstEnergy-plans-to-close-remaining-coal-fired-power-plants-in-by-2020/stories/20180830193

Source(s) of Information:
2017 Ohio Facility Data Report Tables. Table 13.1. Captive Landfill Remaining Capacities and daily Waste Receipt Amounts in 2017

The Authority has no reason to expect a facility will close in the next eight years.

C. 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				
Out-of-District				
none				
Out-of-State				
none				
Total				**0**

Notes: If less than five percent of the solid waste generated was incinerated, then incineration is not accounted for.

APPENDIX N EVALUATING GREENHOUSE GAS

The Waste Reduction Model (WARM)

WARM is a tool that US EPA developed to quantify the effects of waste management decisions on greenhouse gas emissions. The model demonstrates the benefits of alternative management technologies over traditional management methods. The most recent version of WARM was made available in March 2015. An Authority can use a different but comparable modelling program to calculate greenhouse gas emission reductions provided the model accounts for waste management and recycling activities.

WARM is intended to compare municipal solid waste management scenarios. Therefore, use data for only the residential/commercial sector.

Each Authority will run WARM twice and include the results in the solid waste management plan:

- For the first run, enter all quantities recycled in the reference year in the landfill column (for the baseline year) and for the alternative scenario, enter the quantities recycled in the tons recycled column.
- For the second run, enter the quantities of residential/commercial material recycled in the reference year in the tons recycled column (for the baseline scenario), and then enter the quantities projected to be recycled in the sixth year of the planning period in the alternative scenario column.

Include printouts of the results for both runs in the solid waste management plan.

A. GHG Measurement

Gases that trap heat in the atmosphere are called greenhouse gases. The main greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Each gas's effect on the climate depends on how much is in the atmosphere, how long they stay in the atmosphere, and how strongly they impact the atmosphere. Disposal and treatment of materials results in greenhouse gas emissions from collection, transport, landfill disposal, manufacture, etc.

The most common way to measure climate impact of waste management is to state the impact in carbon equivalents. Since waste reduction results in the reduction of several types of greenhouse gases, the conversion to a standard carbon equivalent (CO_2E) measurement allow for a total quantification of the impact. It also provides a standard language for people to compare these actions to others such as transportation and energy conservation efforts. A carbon equivalent CO_2E is simply the amount of CO_2 that would have the same global warming potential as the waste reduction impacts, when measured over a specified timescale. The international reporting standard for CO_2 emissions is metric tons, so carbon dioxide amounts may be reported as $MTCO_2E$, metric tons of carbon equivalent.

Produced by US EPA, the Waste Reduction Model (WARM) was designed to help solid waste planners, municipal leaders, and other stakeholder organizations track and report greenhouse gas emissions reductions. It is a database tool that helps decision makers predict the strategies that most reduce GHG emissions. The WARM model calculates GHG emission across six waste management modalities (source reduction, recycling, composting,

anaerobic digestion, combustion, and landfilling). Modeling different combinations of waste management practices sees which approach leads to the least GHG entering the atmosphere.

This report shows the metric tons of carbon dioxide equivalent ($MTCO_2E$), which describes the global-warming potential of all common greenhouse gases as an equivalent of carbon dioxide. Negative values indicate GHG savings and positive values indicate increasing emissions. In 2017, JBRSWA generated 144,219 tons of MSW (excludes fracking waste) from the residential and commercial sectors, landfilled 91% (130,777 tons), recycled 9% (12,782 tons), and composted less than 0.5% (651 tons).

EPA's estimates of the GHG-related impacts of composting organics was developed within the framework of the larger WARM development effort and therefore, the presentation of results, estimation of emissions and sinks, and description of ancillary benefits is not comprehensive. One of the limitations is the lack of data and resources thus analyzing a small sampling of feedstocks and specific application scenarios for compost. A full range of soil conservation and management practices are not considered. Also, HHW and batteries were excluded because of lack of material category and no relevant proxy.

Total GHG Emissions from Baseline (Year 2017)	(22,250) MTCOE
Total GHG Emissions from Alternative (Year 2026)	(24,799) MTCOE
Incremental GHG Emissions	(2,549)

This is equivalent to:

- Removing emissions from 537 passenger vehicles
- Conserving 286,815 gallons of gasoline
- Conserving 106,205 cylinders of propane used for home barbeques

APPENDIX O FINANCIAL PLAN

Ohio Revised Code Section 3734.53(B) requires a solid waste management plan to present a budget. This budget accounts for how the Authority will obtain money to pay for operating the Authority and how the Authority will spend that money. For revenue, the solid waste management plan identifies the sources of funding the Authority will use to implement its approved solid waste management plan. The plan also provides estimates of how much revenue the Authority expects to receive from each source. For expenses, the solid waste management plan identifies the programs the Authority intends to fund during the planning period and estimates how much the Authority anticipates spending on each program. The plan must demonstrate that planned expenses that will be funded by proceeds of tiered-disposal fees and generation fees levied under ORC 3734.57(B) and 3734.573 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 Authority will have adequate money to implement the approved solid waste management plan.

A. Funding Mechanisms and Revenue Generated

In this section, all of the funding mechanisms expected to be used by JBRSWA are discussed. In addition, anticipated revenues from each source listed below are projected for each year of the planning period.

1. Disposal Fee

Disposal fees are collected on each ton of solid waste that is disposed at landfills in the levying Authority. 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 Authority and disposed at landfills in that Authority. Out-of-district waste is solid waste generated in Ohio counties that are not part of the Authority and disposed at landfills in the Authority. Out-of-state waste is solid waste generated in other states and disposed at landfills in the Authority.

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.

Statute (Ohio Revised Code 3734.57(B)) allows for the Authority to levy fees on any waste disposed in landfills located in the Authority. There is one landfill in the Authority, Apex Sanitary Landfill. As presented in Table O-1, JBRSWA's existing fee structure is: $1.00 per ton of solid waste in-district; $2.00 per ton of solid waste out-of-district; and $1.00 per ton of solid waste out-of-state.

To project revenues, the Authority analyzed historical revenue receipts and changes that happened to revenue sources. Total disposal fee revenue fluctuated from roughly $797,000 to $1,344,000 averaging $1,081,000. Revenue from in-district disposal fees increased beginning in 2015 attributable to fracking well drilling waste. Out-of-district waste revenues increased in 2014 and 2015 as a result of additional contracts during that time. Out-of-state waste revenues have fluctuated considerably. In 2014, revenues declined showing effects of Apex Landfill selling rail transportation assets which eliminated a significant amount of out-of-state solid waste. In 2016, out-of-state waste by rail returned showing increases in waste disposal tonnages and revenue.

Figure O-1 depicts historical fluctuations between disposal fee revenue sources. In-district contributed over 20% of the revenue stream in 2015 declining to about 16% in 2018. Out-of-district dropped from roughly 60% of the revenue stream to roughly 15%. Out-of-state increased from 14% to contributing 70% of the revenue stream. As shown, out-of-state waste disposal revenue is trending as the largest source of disposal fee revenue.

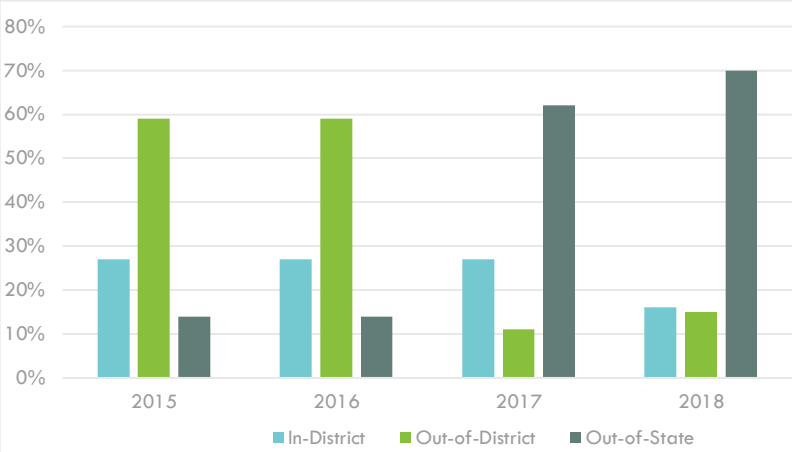


Figure O-1 Disposal Fee Distribution

The 2015 Plan Update estimated 2017 disposal fee revenue at roughly $729,000. The 2015 Plan Update projected disposal fee revenues assuming drilling industry waste would increase then decrease and out-of-state waste would increase. Actual revenues were higher because of higher disposal tons from fracking waste and out-of-state waste disposal volumes returning.

Projecting future disposal fee revenue is challenging due to the economic activity and contract cycles in disposal practices.

In-district revenue projections: Average revenues from 2013 to 2017 is $231,194. Based on desktop research, it appears growth in the Utica shale natural gas extraction will continue in the region. For the first years of the planning period, JBRSWA assumes the in-district waste disposal and subsequent revenues from these operations will continue. For lack of a better indicator, average revenues are flatlined at the amount through the end of the planning period.

Out-of-district revenue projections: Fluctuation over the past 6-years resulted in a historical 5-year average receipts of $330,297. Two years, 2014 and 2015, are substantially higher. Excluding those years as anomalies the average receipts are $162,321 which is more in line with the 2018 receipts of $196,276. Conservatively JBRSWA projects the 2019 revenue receipts will hold constant through the planning period.

Out-of-state revenue projections: Average revenue receipts from 2013 to 2017 is $520,461. An uptick in out-of-state waste revenues began in 2016, almost doubled in 2017, and increased an additional 13% in 2018. Apex Landfill received an expansion of approved disposal capacity and increased maximum daily waste receipts in March 2017. JBRSWA projects the revenue receipts at the 2013 to 2017 average of roughly $500,000 through the planning period.

Table O-1 Disposal Fee Schedule and Revenue (in accordance with ORC Section 3734.57(B))

Year	Disposal Fee Schedule ($/ton)			Revenue ($)			Total Disposal Fee Revenue ($)
	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	
2013	$1	$2	$1	$142,629	$227,355	$974,265	$1,344,250
2014	$1	$2	$1	$130,387	$590,094	$255,073	$975,554
2015	$1	$2	$1	$268,384	$574,428	$134,337	$977,148
2016	$1	$2	$1	$259,198	$119,820	$417,242	$796,260
2017	***$1***	***$2***	***$1***	***$355,370***	***$139,788***	***$821,388***	***$1,316,546***
2018	$1	$2	$1	$209,314	$196,276	$931,329	$1,336,919

Year	Disposal Fee Schedule ($/ton)			Revenue ($)			Total Disposal Fee Revenue ($)
	In-District	Out-of-District	Out-of-State	In-District	Out-of-District	Out-of-State	
2019	$1	$2	$1	$134,153	$294,323	$908,334	$1,336,810
2020	$1	$2	$1	$134,153	$294,323	$908,334	$1,336,810
2021	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2022	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2023	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2024	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2025	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2026	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2027	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2028	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2029	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2030	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2031	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2032	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2033	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2034	$1	$2	$1	$134,153	$294,323	$500,000	$928,476
2035	$1	$2	$1	$134,153	$294,323	$500,000	$928,476

Source(s) of Information:
CY 2013-2017 revenues sourced from JBRSWA quarterly fee reports. All other amounts projected.
Sample Calculations:
Total Revenue from Disposal Fee = In District Fee + Out-of-District Fee + Out-of-State Fee

2. Generation Fee

In accordance with ORC 3734.573, a solid waste management district may levy fees on the generation of solid wastes within JBRSWA. JBRSWA does not receive revenues from generation fees.

Table O-2 Generation Fee Schedule and Revenue

Year	Generation Fee Schedule ($ per ton)	Total Revenue from Generation Fee ($)
2014	n/a	n/a
2015		
2016		
2017		
2018		
2019		
2020		
2021		
2022		
2023		
2024		
2025		
2026		
2027		
2028		

Year	Generation Fee Schedule ($ per ton)	Total Revenue from Generation Fee ($)
2029		
2030		
2031		
2032		
2033		
2034		
2035		
2036		

3. Designation Fee

In 2016, the Board of Trustees adopted facility designations in accordance with Ohio Revised Code 343.014. Facilities that requested to be designated by the Board were required to enter into a designation agreement with the Authority that requires the facility to report the amount of solid waste accepted from JBRSWA, comply with JBRSWA local rules, allow the Authority to audit waste receipts under certain circumstances and provide records if requested by the Authority, and remit a $2.00 per ton contract fee to the Authority. The Board of the JBRSWA will continue to use the $2.00 per ton facility designation fee fund the solid waste plan. The designation contract fee is collected at the first designated landfill or transfer station that receives solid waste generated in JBRSWA and remitted back to the Authority. Table O-3 includes historical as well as future projected revenues expected from the designation contract fee.

Table O-3 Designation Fee Schedule and Revenue

Year	Designation Fee Schedule ($ per ton)	Total Designation Fee Revenue ($)
2013	$0.00	$0
2014	$0.00	$0
2015	$2.00	$25,500
2016	$2.00	$436,433
2017	***$2.00***	***$916,095***
2018	$2.00	$928,461
2019	$2.00	$900,000
2020	$2.00	$900,000
2021	$2.00	$900,000
2022	$2.00	$900,000
2023	$2.00	$900,000
2024	$2.00	$900,000
2025	$2.00	$900,000
2026	$2.00	$900,000
2027	$2.00	$900,000
2028	$2.00	$900,000
2029	$2.00	$900,000
2030	$2.00	$900,000
2031	$2.00	$900,000
2032	$2.00	$900,000
2033	$2.00	$900,000
2034	$2.00	$900,000
2035	$2.00	$900,000

Designation Fee Revenue is projected to step down through the planning period.

4. Loans

Table O-4 is not applicable. JBRSWA does not have outstanding debt due to existing loans and the Board does not expect to secure loans to finance implementing this 2021 Plan.

Table O-4 Loans

Year Debt Was/Will be Obtained	Outstanding Balance	Lending Institution	Repayment Term (years)	Annual Debt Service ($)
n/a	n/a	n/a	n/a	n/a

5. Other Sources of District Revenue

The District receives revenues from: interest, recycling revenue, rates and charges, out of state contract fee, grants, and other miscellaneous revenuer.

Interest: Income is from Authority fund balances. Interest earned is projected assuming a 1% annual percentage yield.

Recycling Revenue: Income from sale of recyclable materials. Recycling revenue fluctuates with the markets. In 2013 and 2014, JBRSWA received revenues from glass and commingled recyclables as well as fiber and scrap metals. The commingled end market outlets and contracts changed no longer providing revenue. Declines in commodity prices caused a 71% decrease in recycling revenue during 2015 from the previous year. Fiber, glass, and scrap continue to demonstrate stable income stream. Recycling revenue is projected assuming roughly a 0.5% annual decrease.

Rates and Charges: Rates and charges levied on improved parcels in both counties. Rates and charges supplement funding to implement the plan and were needed revenue as out-of-state waste receipts declined in 2014 and subsequent years. Annually, JBRSWA evaluates revenues and expenses and decides whether to modify the rates and charges based on actual budget. In 2016 rates and charges were fixed at $9.52 and in 2018 reduced to $4.52. JBRSWA is further reducing the rate to $2.00 per improved parcel in 2021, estimating $128,000 annual revenue throughout the planning period. The Authority does not totally rely on the proceeds from rates and charges to fund all of the costs of providing drop-off recycling, community cleanup, and other services provided to residents and improved parcels within JBRSWA. The Authority relies on other revenue sources as the primary funding mechanisms to provide these services.

Out-of-State Contract: JBRSWA collects an additional contract fee of 50 cents/ton on solid waste disposed in Apex Landfill from out-of-state generators. As out-of-state waste receipts declined so did the revenue. The 5-year average (2013-2017) of $234,872 is forecasted as annual projected revenue through the planning period beginning in 2020.

Miscellaneous and Other: Miscellaneous revenues come from the sale of old equipment, or vehicles and the return of unused portion of community grants and other insignificant miscellaneous items. In 2020, land purchased for Jefferson County offices was sold. Other revenue is projected at $12,000 annually.

Table O-5 Other Revenues and Other Revenue Sources

Year	Interest	Recycling Revenue	Rates and Charges	Out of State Contract Fee	Grants	Fee Penalty	Reimbursements	Miscellaneous	Other	Total Other Revenue
2013	$84,210	$228,751	$0	$360,338	$0	$0	$132,336	$1,350	$19,641	$826,626
2014	$999	$291,254	$0	$127,536	$2,820	$46,576	$0	$0	$14,042	$483,227
2015	$440	$229,321	$719,323	$67,168	$22,820	$23,551	$0	$0	$3,588	$1,066,211
2016	$576	$205,284	$595,178	$208,621	$23,080	$0	$0	$0	$25,001	$1,057,740
2017	***$6,517***	***$204,327***	***$601,565***	***$410,694***	***$0***	***$0***	***$0***	***$0***	***$7,089***	$1,230,191
2018	$19,803	$208,240	$328,480	$465,665	$0	$0	$0	$0	$126,794	$1,148,981
2019	$37,110	$198,300	$306,089	$336,304	$22,123	$0	$4,979	$0	$74,994	$979,899
2020	$20,000	$197,309	$308,750	$234,872	$0	$0	$0	$130,000	$10,000	$900,930
2021	$20,000	$196,322	$128,000	$234,872	$0	$0	$0	$0	$10,000	$589,194
2022	$20,000	$195,340	$128,000	$234,872	$0	$0	$0	$0	$12,000	$590,212
2023	$21,000	$194,364	$128,000	$234,872	$0	$0	$0	$0	$12,000	$590,235
2024	$21,000	$193,392	$128,000	$234,872	$0	$0	$0	$0	$12,000	$589,263
2025	$22,000	$192,425	$128,000	$234,872	$0	$0	$0	$0	$12,000	$589,296
2026	$23,000	$191,463	$128,000	$234,872	$0	$0	$0	$0	$12,000	$589,334
2027	$22,000	$190,505	$128,000	$234,872	$0	$0	$0	$0	$12,000	$587,377
2028	$22,000	$189,553	$128,000	$234,872	$0	$0	$0	$0	$12,000	$586,425
2029	$22,000	$188,605	$128,000	$234,872	$0	$0	$0	$0	$12,000	$585,477
2030	$22,000	$187,662	$128,000	$234,872	$0	$0	$0	$0	$12,000	$584,534
2031	$22,000	$186,724	$128,000	$234,872	$0	$0	$0	$0	$12,000	$583,595
2032	$22,000	$185,790	$128,000	$234,872	$0	$0	$0	$0	$12,000	$582,662
2033	$22,000	$184,861	$128,000	$234,872	$0	$0	$0	$0	$12,000	$581,733
2034	$22,000	$183,937	$128,000	$234,872	$0	$0	$0	$0	$12,000	$580,809
2035	$22,000	$183,017	$128,000	$234,872	$0	$0	$0	$0	$12,000	$579,889

Source(s) of Information:
CY 2013-2018 revenues sourced from quarterly fee reports. All other amounts are projections.
Sample Calculations:
Other Revenue Total = interest + recycling revenue + rates and charges + out of state contract fee + grants + fee penalty + reimbursements + miscellaneous + other

6. Summary of District Revenues

Table O-6 Total Revenue (in accordance with ORC 3734.57, ORC 3734.572 and ORC 3734.573)

Year	Disposal Fees	Generation Fees	Designation Fees	Other Revenue	Total Revenue
2013	$1,344,250	$0	$0	$826,626	$2,170,875
2014	$975,554	$0	$0	$483,227	$1,458,782
2015	$977,148	$0	$25,500	$1,066,211	$2,068,859
2016	$796,260	$0	$436,433	$1,057,740	$2,290,433
2017	$1,316,546	$0	$916,095	***$1,230,191***	**$3,462,832**
2018	$1,336,919	$0	$928,461	$1,148,981	$3,414,361
2019	$1,336,810	$0	$900,000	$979,899	$3,216,709

Year	Disposal Fees	Generation Fees	Designation Fees	Other Revenue	Total Revenue
2020	$1,336,810	$0	$900,000	$900,930	$3,137,740
2021	$928,476	$0	$900,000	$589,194	$2,417,670
2022	$928,476	$0	$900,000	$590,212	$2,418,688
2023	$928,476	$0	$900,000	$590,235	$2,418,711
2024	$928,476	$0	$900,000	$589,263	$2,417,739
2025	$928,476	$0	$900,000	$589,296	$2,417,772
2026	$928,476	$0	$900,000	$589,334	$2,417,810
2027	$928,476	$0	$900,000	$587,377	$2,415,853
2028	$928,476	$0	$900,000	$586,425	$2,414,900
2029	$928,476	$0	$900,000	$585,477	$2,413,953
2030	$928,476	$0	$900,000	$584,534	$2,413,010
2031	$928,476	$0	$900,000	$583,595	$2,412,071
2032	$928,476	$0	$900,000	$582,662	$2,411,138
2033	$928,476	$0	$900,000	$581,733	$2,410,209
2034	$928,476	$0	$900,000	$580,809	$2,409,284
2035	$928,476	$0	$900,000	$579,889	$2,408,365

CY 2013-2018 revenues sourced from quarterly fee reports. All other amounts are projections (refer to Table O-2 and O-5).
Sample Calculations:
Total Revenue = Disposal Fees + Generation Fees + Designation Fee + Other Revenue

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 Authority finances it's operations with 5 main sources of revenue. In 2017, total revenue was $3.4M. The largest sources of revenue are the disposal fee, designation fee, and out-of-state contract fee. The Authority reserves the right to modify the amount of its fees in any of the funding mechanisms during the planning period based on changes in waste volumes, fluctuations in disposal and recycling markets, and other relevant economic factors.

B. Cost of Implementing Plan

Table O-7 Expenses

Line #	Category/Program	2013	2014	2015	2016	2017	2018	2019	2020
1	**1. Plan Monitoring/Prep.**	$13,857	$7,252	$3,791	$0	$0	$0	$15,900	$15,000
1.a	a. Plan Preparation	$13,857	$7,252	$3,791	$0			$15,900	$15,000
1.b	b. Plan Monitoring				$0				
1.c	c. Other				$0				
2	**2. Plan Implementation**	$2,206,917	$1,384,326	$1,641,269	$1,464,033	$2,311,152	$2,836,096	$1,712,821	$3,518,827
2.a	a. District Administration	$940,120	$932,805	$970,561	$383,354	$455,196	$670,788	$484,401	$708,687
2.a.1	Personnel	$814,091	$815,260	$802,533.04	$272,849	$300,588	$300,512	$343,191	$308,687
2.a.2	Office Overhead	$116,498	$104,120	$122,029.35	$102,269	$154,608	$277,399	$141,210	$250,000
2.a.3	Other	$9,531	$13,425	$45,998.99	$8,236	$0	$92,878		$150,000
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	$1,084,744	$402,063	$332,060	$764,364	$1,518,799	$1,773,102	$854,659	$2,386,000
2.d.1	Curbside	$26,396	$18,126						
2.d.2	Drop-off	$1,058,348	$383,937	$332,060	$764,364	$1,518,799	$907,516	$810,816	$936,000
2.d.3	Combined Curbside/Drop-off				$0				
2.d.4	Multi-family				$0				
2.d.5	Business/Institutional				$0				
2.d.6	Other				$0		$865,586	$43,843	$1,450,000
2.e	e. Special Collections	$149,298	$49,218	$184,403	$202,487	$218,580	$160,643	$142,337	$176,800
2.e.1	Tire Collection	$11,115	$8,583	$43,297	$52,037	$56,749	$35,075	$44,217	$45,900
2.e.2	HHW Collection	$42,081	$18,784	$47,313	$48,997	$58,966	$56,133	$24,265	$60,000
2.e.3	Electronics Collection	$7,168	$1,320	$31,410	$14,707	$53,983	$22,695	$35,245	$25,000
2.e.4	Appliance Collection								
2.e.5	Other Collection Drives	$88,933	$20,532	$62,384	$86,745	$48,882	$46,740	$38,610	$45,900
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$32,755	$239	$6,200	$113,829	$118,578	$153,293	$131,065	$167,340
2.g.1	Education Staff	$32,755	$239		$102,925	$75,101	$113,573	$95,403	$127,340
2.g.2	Advertisement/Promotion			$6,200	$10,903	$43,477	$39,721	$35,662	$40,000
2.g.3	Other								
2.h	h. Recycling Market Development	$0	$0	$77,144	$0	$0	$78,269	$64,393	$80,000
2.h.1	General Market Development Activities			$77,144			$78,269	$64,393	$80,000
2.h.2	ODNR pass-through grant								
2.i	i. Service Contracts			$10,918					
2.j	j. Feasibility Studies								
2.k	k. Waste Assessments/Audits								
2.l	l. Dump Cleanup			$3,898					
2.m	m. Litter Collection/Education								
2.n	n. Emergency Debris Management								
2.o	o. Loan Payment			$56,084					
2.p	p. Other							$35,965	
3	**3. Health Dept. Enforcement**	$68,659	$62,507	$57,050	$83,274	$88,113	$72,397	$125,000	$80,000
4	**4. County Assistance**						$109,051		
5	**5. Well Testing**								
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump, Litter Law Enforcement**		$66,980	$35,646					
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**								
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	*****Total Expenses*****	$2,289,432	$1,521,065	$1,737,755	$1,547,307	$2,399,265	$3,017,544	$1,853,722	$3,613,827

Line #	Category/Program	2021	2022	2023	2024	2025	2026	2027	2028
1	**1. Plan Monitoring/Prep.**	$0	$0	$0	$15,000	$20,000	$0	$0	$0
1.a	a. Plan Preparation				$15,000	$20,000			
1.b	b. Plan Monitoring								
1.c	c. Other								
2	**2. Plan Implementation**	$2,239,107	$2,030,576	$2,073,289	$3,442,056	$2,239,613	$2,238,598	$2,539,052	$2,341,019
2.a	a. District Administration	$675,448	$692,711	$710,492	$728,807	$747,671	$717,101	$737,115	$757,728
2.a.1	Personnel	$317,948	$327,486	$337,311	$347,430	$357,853	$368,588	$379,646	$391,035
2.a.2	Office Overhead	$257,500	$265,225	$273,182	$281,377	$289,819	$298,513	$307,468	$316,693
2.a.3	Other	$100,000	$100,000	$100,000	$100,000	$100,000	$50,000	$50,000	$50,000
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	$1,125,699	$895,970	$916,849	$2,263,126	$1,037,520	$1,062,646	$1,338,525	$1,115,181
2.d.1	Curbside								
2.d.2	Drop-off	$875,699	$895,970	$916,849	$2,013,126	$1,037,520	$1,062,646	$1,088,525	$1,115,181
2.d.3	Combined Curbside/Drop-off								
2.d.4	Multi-family								
2.d.5	Business/Institutional								
2.d.6	Other	$250,000			$250,000			$250,000	
2.e	e. Special Collections	$176,800	$176,800	$176,800	$176,800	$176,800	$176,800	$176,800	$176,800
2.e.1	Tire Collection	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
2.e.2	HHW Collection	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
2.e.3	Electronics Collection	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
2.e.4	Appliance Collection								
2.e.5	Other Collection Drives	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
2.f	f. Yard Waste/Other Organics								
2.g	g. Education/Awareness	$171,160	$175,095	$179,148	$183,322	$187,622	$192,051	$196,612	$201,310
2.g.1	Education Staff	$131,160	$135,095	$139,148	$143,322	$147,622	$152,051	$156,612	$161,310
2.g.2	Advertisement/Promotion	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
2.g.3	Other								
2.h	h. Recycling Market Development	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
2.h.1	General Market Development Activities	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
2.h.2	ODNR pass-through grant								
2.i	i. Service Contracts								
2.j	j. Feasibility Studies								
2.k	k. Waste Assessments/Audits								
2.l	l. Dump Cleanup								
2.m	m. Litter Collection/Education								
2.n	n. Emergency Debris Management	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$10,000	$10,000
2.o	o. Loan Payment								
2.p	p. Other								
3	**3. Health Dept. Enforcement**	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
4	**4. County Assistance**								
5	**5. Well Testing**								
6	**6. Out-of-State Waste Inspection**								
7	**7. Open Dump, Litter Law Enforcement**								
7.a	a. Heath Departments								
7.b	b. Local Law Enforcement								
7.c	c. Other								
8	**8. Heath Department Training**								
9	**9. Municipal/Township Assistance**								
10	**10. Compensation to Affected Community (ORC Section 3734.35)**								
	*****Total Expenses*****	$2,329,107	$2,120,576	$2,163,289	$3,547,056	$2,349,613	$2,328,598	$2,619,052	$2,421,019

Line #	Category/Program	2029	2030	2031	2032	2033	2034	2035
1	**1. Plan Monitoring/Prep.**	$15,000	$20,000	$0	$0	$0	$15,000	$20,000
1.a	a. Plan Preparation	$15,000	$20,000				$15,000	$20,000
1.b	b. Plan Monitoring							
1.c	c. Other							
2	**2. Plan Implementation**	$3,394,546	$2,699,678	$2,506,465	$2,564,955	$2,875,199	$3,687,251	$2,751,165
2.a	a. District Administration	$778,960	$800,829	$823,353	$846,554	$870,451	$895,064	$920,416
2.a.1	Personnel	$402,766	$414,849	$427,295	$440,114	$453,317	$466,917	$480,924
2.a.2	Office Overhead	$326,193	$335,979	$346,058	$356,440	$367,133	$378,147	$389,492
2.a.3	Other	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
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	$2,142,636	$1,420,916	$1,200,043	$1,230,044	$1,510,946	$2,292,774	$1,325,557
2.d.1	Curbside							
2.d.2	Drop-off	$2,142,636	$1,170,916	$1,200,043	$1,230,044	$1,260,946	$2,292,774	$1,325,557
2.d.3	Combined Curbside/Drop-off							
2.d.4	Multi-family							
2.d.5	Business/Institutional							
2.d.6	Other		$250,000			$250,000		
2.e	e. Special Collections	$176,800	$176,800	$176,800	$176,800	$176,800	$176,800	$176,800
2.e.1	Tire Collection	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
2.e.2	HHW Collection	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
2.e.3	Electronics Collection	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
2.e.4	Appliance Collection							
2.e.5	Other Collection Drives	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900
2.f	f. Yard Waste/Other Organics							
2.g	g. Education/Awareness	$206,150	$211,134	$216,268	$221,556	$227,003	$232,613	$238,391
2.g.1	Education Staff	$166,150	$171,134	$176,268	$181,556	$187,003	$192,613	$198,391
2.g.2	Advertisement/Promotion	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
2.g.3	Other							
2.h	h. Recycling Market Development	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
2.h.1	General Market Development Activities	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
2.h.2	ODNR pass-through grant							
2.i	i. Service Contracts							
2.j	j. Feasibility Studies							
2.k	k. Waste Assessments/Audits							
2.l	l. Dump Cleanup							
2.m	m. Litter Collection/Education							
2.n	n. Emergency Debris Management	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
2.o	o. Loan Payment							
2.p	p. Other							
3	**3. Health Dept. Enforcement**	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
4	**4. County Assistance**	$0	$0	$0	$0	$0	$0	$0
5	**5. Well Testing**							
6	**6. Out-of-State Waste Inspection**							
7	**7. Open Dump, Litter Law Enforcement**							
7.a	a. Heath Departments							
7.b	b. Local Law Enforcement							
7.c	c. Other							
8	**8. Heath Department Training**							
9	**9. Municipal/Township Assistance**	$0	$0	$0	$0	$0	$0	$0
10	**10. Compensation to Affected Community (ORC Section 3734.35)**							
	*****Total Expenses*****	$3,489,546	$2,799,678	$2,586,465	$2,644,955	$2,955,199	$3,782,251	$2,851,165

The expense line items in Table O-7 are the same as those that the Authority uses to report expenses for the quarterly fee report. In 2015, Ohio EPA update the expense line items on the quarterly fee report. In some case, the line items used to report expenses historical quarterly fee reports will differ from the line items in Table O-7. Each expense allocated to a line item in Table O-7 is explained here:

1. Plan Monitoring/Prep.

1.a Plan Preparation

2013-2019 – The costs shown for 2013 through 2019 are actual expenses for preparing the solid waste management plan.

2020-2035 – The expense line items shown are estimates for consulting fees for plan preparation beginning in 2019 and expected every five years.

2. Plan Implementation

2.a District Administration

2.a.1 Personnel

Expenses line items include cost for payroll, payroll taxes, and benefits for all JBRSWA personnel (including PERS, Medicare, and insurance).

2013-2019 - The costs shown for 2013 through 2018 are actual expenses. In 2016, costs decreased because drop-off operation personnel expenses were moved to line item 2.d.2 Drop-off.

2020-2035 - In 2020, the U.S. national inflation rate is projected to trend around 1.9 percent. JBRSWA is budgeting for a 3% annual rate increase on salaries and 3% annually on fringes and benefits.

2.a.2 Office Overhead

2013-2019 – Office rent, insurance, utilities, supplies (including magazine subscriptions, postage, reproductions, advertising, printing, etc.), office equipment, phone, billing, event registrations, conferences, and travel. The costs shown for 2013 through 2018 are actual expenses. Year 2018 Belmont office staff moved once, and Jefferson office staff relocated twice. The first was at the City's request, the second was because the landlord sold the property. Jefferson office staff are temporarily located until a permanent location is purchased. Additional moving expenses are expected in year 2020.

2020-2035 - Beginning in 2021 and each year thereafter the $250,000 is inflated at 3% annually.

2.a.3 Other

2013-2019 - Includes legal fees and financial audits. The costs shown for 2013 through 2018 are actual expenses. These costs fluctuate depending on legal service needs.

2020 - Other costs are expected to be $150,000 in 2020 for additional legal services needed.

2021-2035 – Other costs through the planning period are held constant at $100,000 annually for 5 years then lowers to $50,000 annually.

2.d. Recycling Collection

2.d.2 Drop-off

2013-2018 - This is the capital and operational costs (includes employee salaries) to operate the dual stream drop-off recycling program (provide drop-off bins, collect recyclables, and process recyclables). In 2014, the number of drop-off sites provided and serviced were reduced, reducing program costs. Costs include capital and operation costs to operate the paper collection program for schools and other organizations, University Partnership drop-off recycling, and glass recycling drop-offs. Schools and non-profits participating in the paper collection program are offered a profit share which varies depending on market.

2017 – Purchased 3 new front-loading trucks.

2018 – Purchased a truck, pickup truck, and containers ($164,000). Costs to process commingled recyclables increased to $150 per ton at the MRF.
2019 – Budget was decreased in 2019, the Authority switched commingled processing to a MRF with lower processing costs.
2020-2035 – Additional costs in 2019 to replace trucks and the rear packer (est. $421,000). Every 5 years, beginning in 2024, $1,000,000 is budgeted for replacement of front loaders. In 2021 another driver is budgeted for potential expansion of the commercial routes as well as a cost for another truck. JBRSWA is budgeting for a 3% annual rate increase on salaries and 3% annually on fringes and benefits. Other service costs are assumed to increase annually at 3%.

2.d.6 Other
2018 - A new office location in Belmont County was purchased ($750,000) as well as land for Jefferson County offices ($130,000).
2019 – Paid earnest money ($50,000) for a property and building in Jefferson County to house offices and trucks.
2020 – 2035 – Budgeting $1,450,000 for purchasing property in Jefferson County and $250,000 every third year for capital expenses for building maintenance and improvements.

2.e. Special Collections
2.e.1. Tire Collection
2013 - 2019 - Expenses for tire collections, management, and processing.
2020 - 2035 –Annual budgeted program costs are held constant at $45,900.

2.e.2. HHW Collection
2013-2019 - The costs shown are actual expenses for managing HHW collections.
2020 – 2035 – Annual budgeted program costs are held constant at $60,000.

2.e.3. Electronics Collection
2013- 2019 – The costs shown are actual expenses for managing electronic collections. After higher costs in 2017, JBRSWA assessed a $10 per unit user fee for CRT TVs/monitors.
2020-2035 – Annual budgeted program costs are held constant at $25,000.

2.e.5. Other Collection Drives– Ohio EPA updated line item expenses on quarterly fee reports in 2015. Additional collection expenses may be recorded in this line item prior to 2015.
2013-2019 - The costs shown are actual expenses for community collections (aka Community Clean-Up Events).
2020-2035 - Annual budgeted program costs are held constant at $45,900.

2.g. Education/Awareness
2.g.1 Education Staff
2013-2018 - The costs shown are actual expenses. Ohio EPA updated line item expenses on quarterly fee reports in 2015. In 2016, JBRSWA began recording costs for education specialist (including PERS, Medicare, and insurance) in this line item.
2019 – There was a change in education staff which slightly lowered the expense.
2020-2035 – JBRSWA is budgeting for a 3% annual rate increase on salaries and 3% annually on fringes and benefits.

2.g.2. Advertisement/Promotion

2013 – 2019 - The costs shown are actual expenses for education supplies, promotions, publications (brochures, flyers, etc.), advertising, school program activities, promotional items, and Keep Jefferson County and Belmont County Beautiful activities and events.
2020-2035 - Annual budgeted program costs are held constant at $40,000. Implementation of the outreach priority will mostly require staff implementation with some need for collateral resources over the three-year span. Budgeted program costs are expected to accommodate the collateral and staff resources needed.

2.h.1 General Market Development Activities
2015 & 2019 – In 2015, twenty-two Community Award Grants were issued for Recycling Initiatives projects.
2020 - 2035 – Every three years a total of $80,000 is available for grant funding to assist businesses with market development in JBRSWA.

2.i Service Contracts
2015 – In 2015, private contract costs for collection programs were allocated to this line item.

2.l Dump Cleanup
2015 – In 2015, matching funds for an Ohio EPA Amnesty Grant to clean illegal dump sites.

2.n Emergency Debris Management
2021 - 2035 – Funds are set aside annually for emergency debris management. If funds are not needed for disaster debris clean-up efforts, funds will not be disbursed.

2.o. Loan Payment
2015 – Payment for vehicles for full-time Sheriff deputies for Environmental Enforcement.

3. Health Dept. Enforcement
2013-2019 - The costs shown are actual expenses to Jefferson County Board of Health to conduct inspections and respond to complaints.
2020-2035 – Annual budgeted program costs are budgeted up to $80,000. Payment shall be released based on invoices submitted for actual services performed pursuant to the agreement between Jefferson County Board of Health and the Authority. Receipts required

4. County Assistance
2018 – JBRSWA provided Harrison County Engineers Department funding to assist with the repairing of the Apex Landfill Access Road, Harrison Co Rd 51. Harrison Co Rd 51 and German Twp Rd 157 are main roads into Apex, and both were being closed due to deteriorated road conditions. The closure of both roads would halt the truck traffic into the Landfill. These expenses were identified on JBRSWA quarterly fee reports in line item allowable use 4. County Assistance. However, JBRSWA used other fees and not tiered disposal fees for this assistance.

7. Open Dump, Litter Law Enforcement
2014-2015 – Costs for Environmental Enforcement, open dump and litter clean up.

Nothing contained in these budget projections should be construed as a binding commitment by the Authority to spend a specific amount of money on a particular strategy, facility, program and/or activity. The Board, with the advice and assistance of the Executive Director and the Director of Finance, will review and revise the budget as needed to implement planned strategies, facilities, programs and/or activities as effectively as possible with the

funds available. Revenues, including but not limited to unused disposal fee revenue (fund balance) not otherwise committed to an existing strategy, facility, program or activity may be used to increase funding to improve the effectiveness of an existing strategy, facility, program or activity and to provide funding for a new strategy, facility, program or activity the Board concludes is justified based on staff and consultant recommendations.

The Authority 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 Authority. The Board shall thereafter approve any adjustments to the budget on an annual or more frequent basis. The Authority is committed to implementing planned strategies, facilities, programs and/or activities in a cost-effective manner.

The Authority is committed to improving the effectiveness and reduce the cost of all Authority strategies, facilities, programs and activities. The Authority Board is authorized to expend Authority funds among other uses included in the Plan Update when costs are reduced. Additionally, the Board is authorized to use reduced costs to provide grant funds or direct funding to evaluate, test and implement new strategies, facilities, programs and activities that are in the best interest of the Authority and are in concert with this Plan Update.

Table O-8 Budget Summary

Year	Revenue ($)	Expenses ($)	Annual Surplus/Deficit ($)	Balance ($)
2012			**Ending Balance**	$1,859,576
2013	$2,170,875	$2,289,432	-$118,557	$1,741,019
2014	$1,458,782	$1,521,065	-$62,283	$1,678,736
2015	$2,068,859	$1,737,755	$331,104	$2,009,840
2016	$2,290,433	$1,547,307	$743,126	$2,752,965
2017	***$3,462,832***	***$2,399,265***	***$1,063,567***	***$3,816,532***
2018	$3,414,361	$3,017,544	$396,817	$4,213,349
2019	$3,216,709	$1,853,722	$1,362,987	$5,576,337
2020	$3,137,740	$3,613,827	-$476,087	$5,100,250
2021	$2,417,670	$2,329,107	$88,563	$5,188,813
2022	$2,418,688	$2,120,576	$298,112	$5,486,925
2023	$2,418,711	$2,163,289	$255,422	$5,742,347
2024	$2,417,739	$3,547,056	-$1,129,316	$4,613,030
2025	$2,417,772	$2,349,613	$68,159	$4,681,189
2026	$2,417,810	$2,328,598	$89,212	$4,770,402
2027	$2,415,853	$2,619,052	-$203,199	$4,567,203
2028	$2,414,900	$2,421,019	-$6,119	$4,561,084
2029	$2,413,953	$3,489,546	-$1,075,593	$3,485,491
2030	$2,413,010	$2,799,678	-$386,669	$3,098,822
2031	$2,412,071	$2,586,465	-$174,393	$2,924,429
2032	$2,411,138	$2,644,955	-$233,817	$2,690,612
2033	$2,410,209	$2,955,199	-$544,990	$2,145,622
2034	$2,409,284	$3,782,251	-$1,372,967	$772,655
2035	$2,408,365	$2,851,165	-$442,800	$329,855

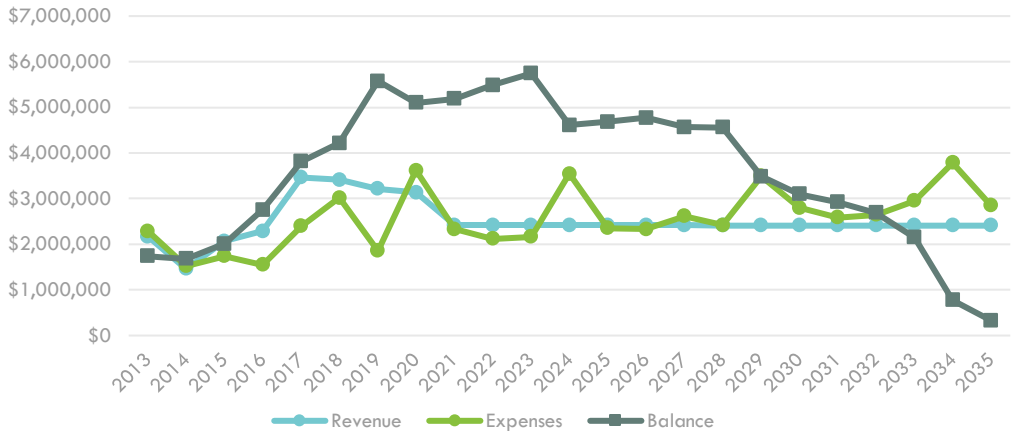


Figure O-2 Historical and Projected Budget

C. Alternative Budget

JBRSWA 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

An Authority that is considering to construct and operate a new solid waste management facility or renovate an existing solid waste facility will provide a budget for the facility. For the purposes of this section, a solid waste management facility means a facility the Authority owns and operates or will own and operate to manage solid waste and/or recyclable materials. Examples of solid waste management facilities include:

- a municipal solid waste landfill or solid waste transfer station
- a yard waste composting facility
- a material recovery facility
- a recycling center
- a permanent household hazardous waste collection facility

JBRSWA is not planning to construct or operate a new solid waste management facility during this planning period.

APPENDIX P DESIGNATION

A. Statement Authorizing/Precluding Designation

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

B. Designated Facilities

The Authority 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 Authority is identifying all Ohio licensed and permitted solid waste landfill, transfer, and resource recovery facilities and all licensed and permitted out-of-state landfill, transfer and resource recovery facilities. The Authority is also identifying recycling and composting programs and facilities that are identified in Appendices B and D.

Waiver Process for the Use of Undesignated Facilities

The Authority is authorized to designate solid waste management facilities. If the Board elects to designate facilities after this *Plan Update* is approved by the Director of the Ohio EPA, the following waiver process may be followed by any person, municipal corporation, township or other entity that wishes to deliver waste to a solid waste facility not designated by the Authority.

In the event that any person, municipal corporation, township or other entity requests permission to use a facility, other than a designated facility, for the disposal of solid waste generated within the Authority, the entity must submit a written request for a waiver of designation to the Board. The request must contain the following information:

1. Identification of the persons, municipal corporation, township or other entity requesting the waiver;
2. Identification of the generators(s) of the solid waste for which the waiver is requested;
3. Identification of the type and quantity (in tons per year) of solid waste for which the waiver is requested;
4. Identification of the time period(s) for which the waiver is requested;
5. Identification of the disposal facility(s) to be used if the waiver is granted;
6. If the solid waste is to be disposed in an Ohio landfill, a letter from the solid waste management Authority where the solid waste will be disposed, acknowledging that the activity is consistent with that Authority's current plan;
7. An estimate of the financial impact to the Authority that would occur with issuance of the requested waiver; and
8. An explanation of the reason(s) for requesting the waiver.

Upon receipt of the written request containing all of the information listed above, the Authority staff will review it and may request additional information necessary to conduct its review. The Board shall act on a waiver request within ninety days following receipt of the request. The Board may grant the request for a waiver only if the Board determines that:

1. Issuance of the waiver is not inconsistent with projections contained in the Authority's approved Plan Update under Section 3734.53 (A)(6) and (A)(7) of the Ohio Revised Code;

2. Issuance of the waiver will not adversely affect implementation and financing of the Authority's approved Plan Update; and
3. The entity is willing to enter into an agreement requiring the payment of a waiver fee to the Authority.

C. Documents

None included.

APPENDIX Q DISTRICT RULES

A. Existing Rules

According to Ohio Revised Code Section 3734.53(C), "the solid waste management plan of a county or joint Authority may provide for the adoption of rules under division (G) of section 343.01 of the Revised Code after approval of the plan under section 3734.521 or 3734.55 of the Revised Code." The Authority reserves the authority for the Board to adopt rules under the provision of Ohio Revised Code. The Authority adopted following rules:

Jefferson Belmont Regional Solid Waste Authority Rule 2016-1.
Facilities Designated To Receive Solid Waste.
No person, municipal corporation, township, or other political subdivision shall deliver, or cause the delivery of, any solid waste generated within the Jefferson Belmont Regional Solid Waste Authority to any solid waste transfer, disposal, recycling, or resource recovery facility other than a facility designated by the Board of Trustees pursuant to the Authority's solid waste management plan, unless such solid waste is exempt under Ohio law.

-Adopted by Resolution April 20, 2015

Jefferson Belmont Regional Solid Waste Authority Rule 2016-2.
Requirement for Approval of Plans and Specifications for the Construction of Solid Waste Facilities.
No person, municipal corporation, township or other political subdivision, shall construct or modify any solid waste transfer, disposal, recycling or resource recovery facility until the general plans and specifications for the proposed improvement have been submitted to and approved by the Board of Trustees of the Jefferson Belmont Regional Solid Waste Authority as complying with Authority's Solid Waste Management Plan pursuant to Section VI(G) of the Plan –Siting Strategy for Facilities.

-Adopted by Resolution April 20, 2015

B. Proposed Rules

The Authority reserves the right to adopt rules under division (G) of section 343.01 and under division (c) of section 3734.53 of the Revised Code. Such rules shall comply with the legislative grant of authority to the Authority to promulgate such rules and to regulate solid waste services, facilities and operation of the Authority in accordance with the Plan or amended Plan of the Authority and/or as authorized by applicable statutes, governmental regulations, local ordinances and rules of the Authority as now existing or hereafter enacted or amended.

The Authority may adopt rules in the future that pertain to the following provisions:

- Siting procedures and criteria contained in Appendix S.
- Other areas of the Plan Update that are in the best interest of the Authority.

Rule adoption shall follow the procedure set forth in ORC 343.01(G).

Rule Making Authority - ORC 343.01

The solid waste management plan provides the authority to the Board of Trustees to adopt, publish, and enforce all of the rule-making powers authorized by Ohio Revised Code 343.01, Divisions (G)(1), (G)(2), (G)(3) and (G)(4) including the following:

ORC 343.01(G)(1)

To the extent authorized by the solid waste management plan of the Authority approved under section 3734.521 or 3734.55 of the Revised Code or subsequent amended plans of the Authority approved under section 3734.521 or 3734.56 of the Revised Code, the board of county commissioners of a county Authority or board of directors of a joint Authority may adopt, publish, and enforce rules doing any of the following:

(1) Prohibiting or limiting the receipt of solid wastes generated outside the Authority or outside a service area prescribed in the solid waste management plan or amended plan, at facilities located within the solid waste management Authority, consistent with the projections contained in the plan or amended plan under divisions (A)(6) and (7) of section 3734.53 of the Revised Code. However, rules adopted by a board under division (G)(1) of this section may be adopted and enforced with respect to solid waste disposal facilities in the solid waste management Authority that are not owned by a county or the solid waste management Authority only if the board submits an application to the director of environmental protection that demonstrates that there is insufficient capacity to dispose of all solid wastes that are generated within the Authority at the solid waste disposal facilities located within the Authority and the director approves the application. The demonstration in the application shall be based on projections contained in the plan or amended plan of the Authority. The director shall establish the form of the application. The approval or disapproval of such an application by the director is an action that is appealable under section 3745.04 of the Revised Code.

In addition, the director of environmental protection may issue an order modifying a rule adopted under division (G)(1) of this section to allow the disposal in the Authority of solid wastes from another county or joint solid waste management Authority if all of the following apply:

(a)The Authority in which the wastes were generated does not have sufficient capacity to dispose of solid wastes generated within it for six months following the date of the director's order;

(b) No new solid waste facilities will begin operation during those six months in the Authority in which the wastes were generated and, despite good faith efforts to do so, it is impossible to site new solid waste facilities within the Authority because of its high population density;

(c) The Authority in which the wastes were generated has made good faith efforts to negotiate with other Authorities to incorporate its disposal needs within those Authorities solid waste management plans, including efforts to develop joint facilities authorized under section 343.02 of the Revised Code, and the efforts have been unsuccessful;

(d) The Authority in which the wastes were generated has located a facility willing to accept the Authority's solid wastes for disposal within the receiving Authority;

(e) The Authority in which the wastes were generated has demonstrated to the director that the conditions specified in divisions (G)(1)(a) to (d) of this section have been met;

(f) The director finds that the issuance of the order will be consistent with the state solid waste management plan and that receipt of the out-of-Authority wastes will not limit the capacity of the receiving Authority to dispose of its in-Authority wastes to less than eight years.

Any order issued under division (G)(1) of this section shall not become final until thirty days after it has been served by certified mail upon the county or joint solid waste management Authority that will receive the out-of-Authority wastes.

ORC 343.01(G)(2)

Governing the maintenance, protection, and use of solid waste collection or other solid waste facilities located within its Authority. The rules adopted under division (G)(2) of this section shall not establish design standards for solid waste facilities and shall be consistent with the solid waste provisions of Chapter 3734. of the Revised Code and the rules adopted under those provisions. The rules adopted under division (G)(2) of this section may prohibit any person, municipal corporation, township, or other political subdivision from constructing, enlarging, or modifying any solid waste facility until general plans and specifications for the proposed improvement have been submitted to and approved by the board of county commissioners or board of directors as complying with the solid waste management plan or amended plan of the Authority. The construction of such a facility shall be done under the supervision of the county sanitary engineer or, in the case of a joint Authority, a county sanitary engineer designated by the board of directors, and any person, municipal corporation, township, or other political subdivision proposing or constructing such improvements shall pay to the county or joint Authority all expenses incurred by the board in connection therewith. The sanitary engineer may enter upon any public or private property for the purpose of making surveys or examinations necessary for designing solid waste facilities or for supervising the construction, enlargement, modification, or operation of any such facilities. No person, municipal corporation, township, or other political subdivision shall forbid or interfere with the sanitary engineer or his authorized assistants entering upon such property for that purpose. If actual damage is done to property by the making of the surveys and examinations, a board shall pay the reasonable value of that damage to the owner of the property damaged, and the cost shall be included in the financing of the improvement for which the surveys and examinations are made.

ORC 343.01(G)(3)

Governing the development and implementation of a program for the inspection of solid wastes generated outside the boundaries of this state that are disposed of at solid waste facilities included in the Authority's solid waste management plan or amended plan. A board of county commissioners or board of directors or its authorized representative may enter upon the premises of any solid waste facility included in the Authority's solid waste management plan or amended plan for the purpose of conducting the inspections required or authorized by the rules adopted under division (G)(3) of this section. No person, municipal corporation, township, or other political subdivision shall forbid or interfere with a board of county commissioners or directors or its authorized representative entering upon the premises of any such solid waste facility for that purpose.

ORC 343.01(G)(4)

Exempting the owner or operator of any existing or proposed solid waste facility provided for in the plan or amended plan from compliance with any amendment to a township zoning resolution adopted under section 519.12 of the Revised Code or to a county rural zoning resolution adopted under section 303.12 of the Revised Code that rezoned or reauthorized the parcel or parcels upon which the facility is to be constructed or modified and that became effective within two years prior to the filing of an application for a permit required under division (A)(2)(a) of section 3734.05 of the Revised Code to open a new or modify an existing solid waste facility.

Rule Making Authority - ORC 3734.53

The solid waste management plan provides the authority to the Board of Directors to adopt, publish, and enforce all of the rule-making powers authorized by Ohio Revised Code 3734.53, Division (C) including the following:

(1) Prohibiting or limiting the receipt at facilities covered by the plan of solid wastes generated outside the Authority or outside a prescribed service area consistent with the projections under divisions (A)(6) and (7) of this section, except that the director of environmental protection may issue an order modifying a rule authorized to be adopted under division (C)(1) of this section to allow the disposal in the Authority of wastes from another county or joint solid waste management Authority if all of the following apply:
    (a) The Authority in which the wastes were generated does not have sufficient capacity to dispose of solid wastes generated within it for six months following the date of the director's order;

(b) No new solid waste facilities will begin operation during those six months in the Authority in which the wastes were generated and, despite good faith efforts to do so, it is impossible to site new solid waste facilities within the Authority because of its high population density;

(c) The Authority in which the wastes were generated has made good faith efforts to negotiate with other Authorities to incorporate its disposal needs within those Authorities solid waste management plans, including efforts to develop joint facilities authorized under section 343.02 of the Revised Code, and the efforts have been unsuccessful;

(d) The Authority in which the wastes were generated has located a facility willing to accept the Authority's solid wastes for disposal within the receiving Authority;

(e) The Authority in which the wastes were generated has demonstrated to the director that the conditions specified in divisions (C)(1)(a) to (d) of this section have been met;

(f) The director finds that the issuance of the order will be consistent with the state solid waste management plan and that receipt of the out-of-Authority wastes will not limit the capacity of the receiving Authority to dispose of its in-Authority wastes to less than eight years. Any order issued under division (C)(1) of this section shall not become final until thirty days after it has been served by certified mail upon the county or joint solid waste management Authority that will receive the out-of-Authority wastes.

(2) Governing the maintenance, protection, and use of solid waste collection, storage, disposal, transfer, recycling, processing, and resource recovery facilities within the Authority and requiring the submission of general plans and specifications for the construction, enlargement, or modification of any such facility to the board of county commissioners or board of directors of the Authority for review and approval as complying with the plan or amended plan of the Authority;

(3) Governing development and implementation of a program for the inspection of solid wastes generated outside the boundaries of the state that are being disposed of at solid waste facilities included in the Authority's plan;

(4) Exempting the owner or operator of any existing or proposed solid waste facility provided for in the plan from compliance with any amendment to a township zoning resolution adopted under section 519.12 of the Revised Code or to a county rural zoning resolution adopted under section 303.12 of the Revised Code that rezoned or reauthorized the parcel or parcels upon which the facility is to be constructed or modified and that became effective within two years prior to the filing of an application for a permit required under division (A)(2)(a) of section 3734.05 of the Revised Code to open a new or modify an existing solid waste facility.

C. Rule Approval Process

The Board of Trustees shall follow the requirements of ORC 343.01(G) for the adopting of proposed rules.

APPENDIX R BLANK SURVEY FORMS AND RELATED INFORMATION

Jefferson-Belmont Regional Solid Waste Authority
228 Technology Way, Steubenville, OH 43953
(740)266-6899 fax (740) 266-6895

www.JBGreenTeam.org

Dear Commercial Business,

Thank you for completing this survey. The information you provide for your company is crucial to monitoring the Jefferson-Belmont Regional Solid Waste Authority's (aka JB Green Team) progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material commercial businesses recycled in the Counties of Jefferson and Belmont, Ohio in 2019. Your company's survey response **will not** be reported individually; all data will be summarized on our Annual District Report.

For assistance completing this form or any questions related to the survey, please email **JBGreenTeam.survey@gmail.com**, or contact JB Green Team with the Jefferson-Belmont Regional Solid Waste Authority; (740) 266-6899.

Please complete and submit this survey no later than **March 18, 2020**.

Options for returning the Completed Survey

- Complete online at following the link from our website: **https://www.jbgreenteam.org/district-survey**
- Email directly to **JBGreenTeam.survey@gmail.com**, Subject Line: 2019 Commercial Survey
- Fax to (740) 266-6895
- Mail to 228 Technology Way, Steubenville, OH 43953

Instructions for Table A:

Please provide all information requested in **Table A** below. Even if your business does not currently recycle or is unable to report quantities of materials recycled, please complete **Table A.** Doing so will allow the JBRSWA to contact you in the future to discuss your recycling needs or options. Your information will **not** be shared with anyone for any other purpose other than to gather this data.

Table A: Company Information		
Name:	County:	Store ID:
Address:	City:	Zip:
Contact Person:	Title:	
Email:	Phone: ( )	Fax:
Type of business: (i.e.grocery, wholesale, boutique, etc.)	Operating days per year:	# of employees:

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by commercial businesses in Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris.

The list in **Table B** is not all-inclusive. If your business recycles a material that is not listed in **Table B**, please enter the name and quantity of that material on a line labeled **"Other."** Some materials may not apply to your operation. Some of the listed materials are broad categories. For example, "Plastics" includes plastics #1-7, plastic films etc. Please refer to the **"Materials Cheat Sheet"** attached to this document for examples of materials and definitions.

If you do not currently track this information internally, your solid waste hauler or recycling processor may be able to provide it upon request. Please note each hauler/processor of the material data given on this survey, no need to including materials collected by JB Green Team.

Table B: Quantities of Recycled Materials [2019 Data]			
Recyclable Material Category	**Amount Recycled in 2019**	**Units (x one)**	**Name of hauler or processor that take the material/other comments**
Appliances / White Goods		☐ lbs. ☐ tons ☐ yd^3	
Household Hazardous Waste		☐ lbs. ☐ tons ☐ yd^3	
Used Motor Oil		☐ lbs. ☐ tons ☐ yd^3	
Electronics		☐ lbs. ☐ tons ☐ yd^3	
Scrap Tires		☐ lbs. ☐ tons ☐ yd^3	
Dry Cell Batteries		☐ lbs. ☐ tons ☐ yd^3	
Lead Acid Batteries			
Food		☐ lbs. ☐ tons ☐ yd^3	
Glass		☐ lbs. ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs. ☐ tons ☐ yd^3	
All other Paper		☐ lbs. ☐ tons ☐ yd^3	
Plastics		☐ lbs. ☐ tons ☐ yd^3	
Textiles		☐ lbs. ☐ tons ☐ yd^3	
Wood		☐ lbs. ☐ tons ☐ yd^3	
Rubber		☐ lbs. ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs. ☐ tons ☐ yd^3	
Yard Waste		☐ lbs. ☐ tons ☐ yd^3	
Other:			

If your business uses a Drop-off site provided by the JB Green Team for recycling, please indicate which site in Table C.

Table C: Please provide any additional information, comments, suggestions, questions etc.

Thank you again for taking the time to complete this survey. Please contact JB Green Team with any questions.

Jefferson-Belmont Regional Solid Waste Authority aka JB Green Team
Phone: (740) 266-6899
Email: JBGreenTeam.survey@gmail.com

Materials Cheat Sheet

Food
- Compostable food waste
- Food donations

Glass
- Bottles (any color)
- Jars

Ferrous Metals
- Mild Steel
- Carbon Steel
- Stainless Steel
- Cast Iron
- Wrought Iron

Non-Ferrous Metals
- Aluminum
- Copper
- Brass
- Silver
- Lead
- Misc. Scrap Metals

All Other Paper
- Office paper
- Paperboard
- Newspapers
- Folders
- Telephone Books
- Magazines
- Catalogs
- Junk Mail

Plastics
- Plastics #1-7
- Plastic Bottles
- Plastic Jugs
- Shrink Wrap
- Plastic Films
- Coat Hangers

Textiles
- Fabrics
- clothes
- Carpet

Wood
- Bark
- Woodchips
- Sawdust
- Scrap Wood
- Shipping Pallets
- Boards

Commingled Recyclables

- This is a mix of several different materials that are placed into one container and hauled for recycling. It can include all or a combination of the materials listed above.

Examples of materials that fall under "other"

- Appliances
- Household Hazardous Waste
- Used Motor Oil
- Electronics
- Scrap Tires
- Dry Cell Batteries
- Any other solid waste that is recycled at your facility

Estimating recycling tonnages - if you are not able to obtain exact tonnages of materials recycled, there are numerous ways to estimate the amount of material recycled in any Biven year. Below are some common conversion factors that may assist you with your estimations:

Material Type	Density (lb/cu yd)
Mixed Paper Recycling	484
Bottles and Cans	200
Single Stream Recycling	139
Cardboard	100

- (size of container (in cubic yards) X number of collections per month x 12) X density (see table above) = Total Pounds per Year
- 2,000 pounds = l ton

For more assistance, contact the JB Green Team.

Jefferson-Belmont Regional Solid Waste Authority
228 Technology Way, Steubenville, OH 43953
(740)266-6899 fax (740) 266-6895

www.JBGreenTeam.org

Dear Industrial Business,

Thank you for completing this survey. The information you provide for your company is crucial to monitoring the Jefferson-Belmont Regional Solid Waste Authority's (aka JB Green Team) progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material commercial businesses recycled in the Counties of Jefferson and Belmont in 2018. Your company's survey response **will not** be reported individually; all data will be summarized on our Annual District Report.

For assistance completing this form or any questions related to the survey, please email **JBGreenTeam.survey@gmail.com**, or contact JB Green Team with the Jefferson-Belmont Regional Solid Waste Authority; (740) 266-6899.

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- Fax to (740) 266-6895,
- Mail to 228 Technology Way, Steubenville, OH 43953

Instructions for Table A:

Please provide all information requested in **Table A** below. Even if your business does not currently recycle or is unable to report quantities of materials recycled, please complete **Table A.** Doing so will allow the JBRSWA to contact you in the future to discuss your recycling needs or options. Your information will **not** be shared with anyone for any other purpose other than to gather this data.

Table A: Company Information		
Name:	County:	Store ID:
Address:	City:	Zip:
Contact Person:	Title:	
Email:	Phone: ( )	Fax:
Primary NAICS:	Secondary NAICS:	# of full time employees:

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by industrial businesses in Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris. The list in **Table B** is not all-inclusive. If your business recycles a material that is not listed in **Table B**, please enter the name and quantity of that material on a line labeled **"Other."** Some materials may not apply to your operation. Some of the listed materials are broad categories. For example, "Plastics" includes plastics #1-7, plastic films etc. Please refer to the **"Materials Cheat Sheet"** attached to this document for examples of materials and definitions.

If you do not currently track this information internally, your solid waste hauler or recycling processor may be able to provide it upon request. Please note each hauler/processor of the material data given on this survey, including the JB Green Team if we collect that material from your company.

Table B: Quantities of Recycled Materials			
Recyclable Material Category	**Amount Recycled in 2019**	**Units (x one)**	**Name of hauler or processor that take the material/other comments**
Appliances / White Goods		☐ lbs. ☐ tons ☐ yd^3	
Household Hazardous Waste		☐ lbs. ☐ tons ☐ yd^3	
Used Motor Oil		☐ lbs. ☐ tons ☐ yd^3	
Electronics		☐ lbs. ☐ tons ☐ yd^3	
Scrap Tires		☐ lbs. ☐ tons ☐ yd^3	
Dry Cell Batteries		☐ lbs. ☐ tons ☐ yd^3	
Lead Acid Batteries		☐ lbs. ☐ tons ☐ yd^3	
Food		☐ lbs. ☐ tons ☐ yd^3	
Glass		☐ lbs. ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs. ☐ tons ☐ yd^3	
All other Paper		☐ lbs. ☐ tons ☐ yd^3	
Plastics		☐ lbs. ☐ tons ☐ yd^3	
Textiles		☐ lbs. ☐ tons ☐ yd^3	
Wood		☐ lbs. ☐ tons ☐ yd^3	
Rubber		☐ lbs. ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs. ☐ tons ☐ yd^3	
Yard Waste		☐ lbs. ☐ tons ☐ yd^3	
Ash (recycled ash only)		☐ lbs. ☐ tons ☐ yd^3	
Non-Excluded Foundry Sand		☐ lbs. ☐ tons ☐ yd^3	
Flue Gas Desulfurization Waste		☐ lbs. ☐ tons ☐ yd^3	
Yard Waste		☐ lbs. ☐ tons ☐ yd^3	
Other: specify		☐ lbs. ☐ tons ☐ yd^3	
Other: Non-creditable		☐ lbs. ☐ tons ☐ yd^3	

Please refer to page 4 for helpful definitions.

Table C: Please provide any additional information, comments, suggestions, questions etc.

Thank you again for taking the time to complete this survey. Please contact JB Green Team with any questions.

Jefferson-Belmont Regional Solid Waste Authority, aka JB Green Team
Phone: (740) 266-6899
Email: JBGreenTeam.survey@gmail.com

Helpful Definitions:

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.

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.

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

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.

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.

Helpful Notes for Completing Table 1:

- ***Non-ferrous metals*** *do not include iron or its alloys or compounds.*
- ***Sludge*** *should include only those wastes which are classified as a solid waste, and should not include sludges disposed in a lagoon.*
- ***Concrete, asphalt, scrap metals*** *and other materials from construction and demolition operations are not considered to be solid waste*
- *If reporting* ***scrap tires****, please indicate by circling the correct units of measure, whether the number(s) reported represents number or tonnage of tires.*
- *Materials that qualify as hazardous waste (such as fluorescent light bulbs) cannot be considered to be solid waste.*
- *If you report tonnage in the row labeled "Other", please specify the materials that are being reported in this category*.

APPENDIX S SITING STRATEGY

Section 343.01(G)(2) of the Ohio Revised Code authorizes the Board to adopt a rule requiring the submission of general plans and specifications to the Board for a determination by the Board that the proposed solid waste facility complies with the Jefferson Belmont Regional Solid Waste Authority's Solid Waste Management Plan (the "Plan"). On April 20, 2015, the Authority's Board of Trustees adopted Rule 2016-2 as follows:

"*Requirement for Approval of Plans and Specifications for the Construction of Solid Waste Facilities.*

No person, municipal corporation, township or other political subdivision, shall construct or modify any solid waste transfer, disposal, recycling or resource recovery facility until the general plans and specifications for the proposed improvement have been submitted to and approved by the Board of Trustees of the Jefferson Belmont Regional Solid Waste Authority as complying with Authority's Solid Waste Management Plan pursuant to Section VI(G) of the Plan –Siting Strategy for Facilities."[15]

The following siting strategy shall govern proposals for the construction of a new solid waste facilities or the modification of an existing solid waste facility within JBRSWA.

I. PURPOSE AND OBJECTIVE

The Authority's Siting Strategy for Solid Waste Facilities ensures that proposals to construct a new Solid Waste Facility within the Authority or modify an existing Solid Waste Facility within the Authority comply with the Plan Update. The Board shall not approve the general plans and specifications for any proposed Solid Waste Facility or the modification of any existing in-Authority 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; (2) obstruct or interfere with the maximum feasible utilization of existing in-Authority Solid Waste Facilities; (3) adversely affect the quality of life of residents; or (4) have significant adverse impacts upon the local community and its resources that cannot be eliminated.

Except as otherwise provided herein, all proposed Solid Waste Facilities shall be subject to this Siting Strategy and shall comply with the requirement to submit general plans and specifications to the Board.

II. PROCEDURE IMPLEMENTING SITING STRATEGY

The following procedure and process shall be followed in the event the construction of a new Solid Waste Facility or the modification of an existing in-Authority Solid Waste Facility is proposed within the Authority:

A. Conditions Precedent to the Review and Approval or Denial of Plans and Specifications

Permits for the installation of a Solid Waste Facility require an extensive technical review by the Ohio Environmental Protection Agency (Ohio EPA) to assure compliance with Ohio EPA standards. The time required and the scope of the review may result in significant modifications to the proposed Solid Waste

[15] Ohio EPA's Format version 3.0 required the Siting Strategy to be located in Section VI(G) of the Authority's Solid Waste Management Plan. Under Ohio EPA's Format version 4.0, the Siting Strategy has been relocated to this Appendix S.

Facility. Those modifications may affect such matters as the size of the Solid Waste Facility, the surface dimensions of any Solid Waste disposal or transfer areas, the quantify of Solid Waste that may be accepted at the Solid Waste Facility on a daily basis, the number and size of vehicles delivering Solid Waste to the Solid Waste Facility, and other aspects of the Solid Waste Facility that potentially impact the Authority and its residents. Similar considerations exist with respect to any required zoning permits from the host community. Changes required by the Director of the Ohio EPA in the application for a permit-to-install a Solid Waste Facility or by the host community could require that the Applicant's proposal for the Solid Waste Facility be revised by the Applicant and reevaluated by the Board. Multiple reviews will require the expenditure of limited funds for the review of a Solid Waste Facility and impose a burden on the Authority. Therefore, in order to assure the Authority and its residents that the resources will be available to conduct a complete and thorough review of a proposal for a Solid Waste Facility, no such proposal shall be approved, nor shall any review by the Board of a proposal for a Solid Waste Facility commence prior to the issuance of a final, non-appealable permit for the installation of a Solid Waste Facility by the Director of the Ohio EPA.

B. Submittal of Plans and Specifications

Following issuance of a final, non-appealable permit-to-install by the Ohio EPA, any person, firm, entity, municipal corporation, township or other political subdivision proposing to construct a new Solid Waste Facility or modify an existing Solid Waste Facility within JBRSWA shall submit general plans and specifications to the Board at 228 Technology Way, Steubenville, OH 43953. If the proposed construction or modification does not require a permit-to-install from Ohio EPA, the Applicant shall notify the Board in writing that a permit-to-install is not required at the time the Applicant submits its general plans and specifications to the Board. The general plans and specifications required herein shall be prepared by professional engineers, architects, surveyors, geologists and/or other professionals as required by these rules or as requested by the Board. Such general plans and specifications shall include, but are not limited to, the following documents and information:

1. Type of Solid Waste Facility: A description of the type of Solid Waste Facility (treatment, storage, disposal, transfer, recycling, processing, resource recovery, and legitimate recycling facility as defined by the Ohio Revised Code or Ohio Administrative Code) proposed to be constructed or modified, including: the equipment and technology to be used (such as automated systems, mixed waste processing, or unseparated recyclable materials combined by the generator in a single collection container ("single stream")); the materials to be accepted at the Solid Waste Facility (e.g., asbestos, construction and demolition debris, automobile shredder residue, exempt waste (specify type), industrial solid waste; municipal solid waste, residual solid waste, source separated recyclables).

2. Site Plan Map: A site plan showing the placement, height, and size of all natural and man-made features and buildings to be constructed or modified at the proposed site; all proposed means of vehicle ingress and egress to and traffic within the proposed site; the location and dimensions of proposed parking areas, location of abutting public streets, arterial streets, highways, county and township roads; the location and description of public utilities located on the site or within 300 feet of the property boundaries of the site, including water, sewer, gas, electric, and any underground gas, petroleum, or petrochemical pipelines; and the location and nature of development located within 2,500 feet of the property boundaries of the site.

3. Drawings: Architectural drawings or artist's renderings of the proposed Solid Waste Facility with sufficient detail to depict the appearance of the proposed Solid Waste Facility upon completion of construction or modification and, in the case of a landfill, surface contours (gradients) both at the start of operation and upon final closure.

4. Survey: A survey by a registered surveyor showing: the location of the principal Solid Waste Facility; all proposed Solid Waste management units and supporting or ancillary buildings or structures; the distance from each such unit or improvement to the property lines of the site; and a contour map of the site including existing elevations of the Solid Waste Facility and the approximate final grade and elevations to be established following completion of the disposal areas, if disposal is the proposed use, and the grade and elevation of any proposed buildings or structures to be constructed at the Solid Waste Facility. The survey shall present all uses and names of property owners within 2,500 feet of the property lines of the Solid Waste Facility.

5. Size and Capacity: The projected size (daily and annual volumes, Authorized Maximum Daily Waste Receipts or processing capacity) of the proposed Solid Waste Facility including, in the case of a landfill, the proposed phases for development (construction) of disposal capacity and the corresponding acreage for each such phase.

6. Landscaping: A landscaping plan showing all proposed temporary and permanent landscaping, fencing, berms, and buffers at the Solid Waste Facility.

7. Lighting: A lighting plan showing all proposed exterior lighting for structures, onsite roadways, gates, and fencing, and identifying the lighting type, height, intensity, and shielding.

8. Utility Plan: A plan outlining the necessary public utility services for the proposed Solid Waste Facility including the proposed vendor or public entity provider of such necessary public utility services.

9. Traffic or Transportation Plan: A plan showing the proposed routes to and from the proposed Solid Waste Facility and the types and anticipated number and weight of transfer and direct haul vehicles utilizing the proposed Solid Waste Facility, including identification of the routes to be used when transfer vehicles, direct haul vehicles, rail cars or other modes of transportation either enter the Authority to deliver Solid Waste or transport Solid Waste generated within the Authority to the Solid Waste Facility.

10. Hours of Operation: Identification of the proposed Solid Waste Facility's hours of operation including the projected date for commencement of operation.

11. Anticipated Source of Solid Waste and Recyclable Materials: (a) identification of the types of commercial, industrial, agricultural, residential and institutional generators of Solid Waste and other waste materials that are expected to use the Solid Waste Facility and an estimate of the ratio of Jefferson Belmont Regional Solid Waste Authority-generated Solid Waste to the total quantity of Solid Waste that will be disposed, received, treated, stored or processed at the proposed Solid Waste Facility; (b) an estimate of the types and quantity of materials other than Municipal Solid Waste (e.g., construction and demolition debris, contaminated soil, asbestos, automobile shredder residue, and exempt waste) that will be disposed, received, treated, stored, or processed at the proposed Solid Waste Facility; (c) an estimate of the types and quantity of Solid Waste and other materials that will be delivered to the facility by rail; and (d) if recycling activities will be conducted at the proposed Solid Waste Facility, a detailed description of such recycling activity, including all materials to be recycled, technology to be utilized and anticipated percentage of Solid Waste reduction and recyclable materials to be recovered as a result of the operation of the proposed Solid Waste Facility, and the anticipated amount of residual waste that will be generated.

12. Control of Onsite Debris: A description of Applicant's proposed management and control procedures to minimize the potential for debris from the Solid Waste Facility being deposited on arterial streets and county and township roads.

13. Other Relevant Information: Any other information the Applicant considers necessary for the Board to evaluate in determining whether the proposed Solid Waste Facility complies with each of the criteria specified in these rules.

14. Applicant's Report: When the Applicant submits its general plans and specifications and provides all other information required by these rules, the Applicant shall, in addition, submit a written report to the Board explaining why, in the Applicant's opinion, the proposal complies with the Plan.

C. Board Review

1. General Procedures

If the Board finds that (a) the Applicant has obtained a final non-appealable permit to install by the Director of Ohio EPA for the proposed Solid Waste Facility, and (b) the Applicant has obtained all required zoning permits and approvals from the host community, the Board shall notify the Applicant in writing that the Siting Strategy review process is commencing and the Board will proceed to determine whether the Applicant has adequately demonstrated that the proposed Solid Waste Facility will be constructed or modified and operated in compliance with the standards established herein. The Board may obtain the assistance of the County Sanitary Engineer of Jefferson County or Belmont County to assist with the review of the general plans and specifications for the proposed construction or modification. In addition to or in place of the County Sanitary Engineer, the Board may employ such engineers, consultants, and advisors as it deems necessary to assist with the review of the general plans and specifications.

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 from the date that the Board determines that additional information is required.

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 the Facility Evaluation Criteria listed below. The Board may conduct a townhall or a period for submitting written comments for the purpose of receiving comments from relevant stakeholders and members of the public in order to identify potential impacts and issues of concern regarding the proposed construction or modification. The Board may request information and opinions from other appropriate agencies or experts regarding potential impacts and issues of concern. The Sanitary Engineer, or other consultants, engineers or advisors employed by the Board, if requested by the Board, shall prepare a report summarizing the review. The report may include a recommendation to the Board as to whether the general plans and specifications comply with the Plan and satisfy the criteria stated 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-Authority 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-Authority Solid Waste Facility complies with the Plan Update and the criteria stated herein.

2. Facility Evaluation Criteria

a. The Applicant must demonstrate to the Board that, by clear and convincing evidence, the proposed Solid Waste Facility:

i) is consistent with the goals, objectives, projections, and strategies contained in the Plan and will be operated in compliance with all JBRSWA rules;

ii) will not adversely affect the Board's ability to finance and implement the Plan;

iii) will not have a significant adverse impact on the quality of life of residents within the Authority, or the local community and its resources, that cannot be eliminated;

iv) will not obstruct or interfere with the maximum feasible utilization of existing in-Authority Solid Waste Facilities;

v) is consistent with the proposed land use of the area in which the Solid Waste Facility would be sited, as determined in Jefferson County or Belmont County planning standards, or the planning standards of any other political subdivision that has developed land use or zoning plans;

vi) will be constructed, installed, operated, and maintained to be harmonious and appropriate in appearance with the existing or intended character of the area;

vii) will be adequately served by, and will not impose excessive additional requirements at public cost for public services, including but not limited to the following: delivery of water; wastewater treatment; maintenance, improvement and reconstruction of arterial streets used by the vehicles delivering Solid Waste to the Solid Waste Facility; emergency services including police and fire protection; and state and local regulatory personnel responsible for enforcement of vehicle weight limitations, security of solid waste transportation regulations (e.g., verification of the use of enclosed Solid Waste containers or tarps on open top vehicles), and the licensing and inspection of Solid Waste Facilities and enforcement of waste and nuisance regulations;

viii) will not require converting any county or township road to an arterial street for purposes of truck access to the Solid Waste Facility or, if otherwise, will fully offset such costs through payment of impact fees sufficient to recover the public cost of converting a county or township road to an arterial street and thereafter maintaining such arterial street;

ix) will not be detrimental to the economic welfare of the community based on consideration of waste disposal costs, revenues and expenditures by the host community, job creation, tax revenues based on the value of the proposed improvements and the effect of the proposed Solid Waste Facility on property values including the generation of tax revenues for public schools;

x) will have vehicular approaches, including but not limited to the construction of turn lanes, traffic lights, street signage and on-site roads to manage traffic, all of which will be designed to minimize interference with traffic on public streets and highways;

xi) will not result in the destruction, loss or damage of cultural, natural, scenic, or historic features of the Authority or the host community, cause or contribute to the taking of any endangered or threatened species

of plants, fish or wildlife, or result in the destruction or adverse modification of critical habitat of endangered or threatened species as identified in 50 CFR part 17 ("endangered or threatened species" means any species listed pursuant to Section 4 of the Endangered Species Act, 16 U.S.C. § 1533; "destruction or adverse modification" means a direct or indirect alteration of critical habitat which appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using such habitat; and "taking" means harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing or collecting or attempting to engage in such conduct);

xii) will not involve the excessive production of traffic, noise, smoke, dust, fumes, or odors, and has a written plan to manage, control and minimize these issues;

xiii) will not create a risk of fire, explosion, or other hazardous conditions, because of proximity to petroleum, gas, or chemical pipelines;

xiv) will not create a risk of improper disposal or runoff of contaminants or pollution into natural water courses, surface water bodies, or public water supplies;

xv) shall not be located within 2,500 feet (measured from any property line of the Solid Waste Facility) of a historical site identified in a municipal, county or state historic preservation plan, the National Register of Historic Places or the Ohio Registry of Archaeological Landmarks, and shall not cause or contribute to the destruction or loss of any historic or archaeological site.

xvi) if the facility proposed to be constructed or modified is a Solid Waste landfill facility, then the facility shall not be located within 10,000 feet measured from any property line of a publicly owned or operated airport. Owners and operators of a new or modified Solid Waste landfill located within a three mile radius of any airport runway end shall demonstrate to the Board that it does not pose a hazard to aviation by bird strike, litter, smoke, dust, or other emissions.

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 or proposed modification of an existing in-Authority Solid Waste Facility will comply with this Siting Strategy and the Solid Waste Management Plan Update.

b. In addition to the criteria under Section C(2)(a), above, a proposed Solid Waste Facility must meet the following additional siting requirements, such that:

i) the Solid Waste Facility shall be located adjacent to a state highway or major arterial street which does not create traffic, for ingress and egress for the facility, through an area developed primarily for residential purposes;

ii) any temporary, moveable or permanent building or structure including, without limitation, any landfill cells or other solid waste management units, shall not be located closer than two hundred fifty (250) feet from the property lines of the facility, and, if located within one thousand (1,000) feet of a residence, such building, structure, landfill cell or other solid waste management unit shall be obscured by a suitable barrier not less than ten (10) feet high;

iii) will include designed sight barriers along all setback lines of any Solid Waste Facility that otherwise lack natural screening, which shall consist of berms parallel to the property lines of the property at least ten (10) feet in height with plantings not more than ten (10) feet apart of evergreen trees (sufficiently spaced

two-year transplants or older at the time of planting which will grow to not less than ten (10) feet in height) or shrubbery planted not more than five (5) feet apart in staggered rows on the berms (trees or shrubs that comprise a sight barrier must be replaced if they die);

iv) shall be fenced with an eight (8)-foot chain link fence with three (3) strands of barbed wire at the top angled forty-five degrees (45°) toward the outside of the premises (such fence shall be located inside of any berms or screening);

v) shall be connected to an municipal water supply system and municipal sanitary sewer system for the treatment of sanitary waste (and, if applicable, leachate generated by the Solid Waste Facility), if such systems exist and are available, and shall have received any necessary pretreatment or other permits as required. If such systems are not available, then the facility must demonstrate it will have water and wastewater systems in place capable of meeting fire and emergency response and management of leachate, surface runoff and other liquid waste management needs;

vi) cannot exceed fifty (50) acres in area and must comply with all state required setbacks from the property lines of the maximum fifty (50) acre parcel;

vii) will not have any landfill cells or other waste management units exceeding fifty (50) feet in height;

viii) in the case of a Transfer Facility, shall have a tipping floor of no more than 10,000 square feet and shall not process more than 300 tons of Solid Waste per day unless the owner or operator demonstrates that a facility exceeding such capacity can be operated and maintained without creating adverse impacts, including, but not limited to, noise, odor, visual, traffic, litter, on residential, commercial, institutional and governmental uses located within 1,000 feet off the Transfer Facility;

ix) shall not be proposed for any location that is within one mile of a school, hospital, or place of worship, county, municipal or township park, licensed child day care facility, public library or, to the extent not included in the preceding list, any other improved parcel where the public gathers and the construction and operation of a Solid Waste Facility would adversely effect the use and enjoyment of the improved parcel.

D. 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 shall enter into a development agreement with the Authority which memorializes the obligations that are the basis of the Board's conclusion that the general plans and specifications demonstrate the proposed facility or its modification complies with the Plan Update. The party proposing to construct a Solid Waste Facility shall have an ongoing obligation to comply with the Plan Update and the development agreement.

III. WAIVER

A determination by the Board to construct or modify any Authority-owned Solid Waste Facility shall be deemed to comply with the Plan Update and the other requirements of the Siting Strategy without further review.

Waiver for Legitimate Recycling Facilities

The Board has a strong commitment to encourage the development of recycling and waste reduction activities that are consistent with the waste reduction, reuse and recycling goals as may be required by the Ohio Revised Code, the Ohio Administrative Code, the State Solid Waste Management Plan and the Plan Update. Upon adequate demonstration to the Board of the likelihood of attainment of certain waste reduction goals, the Board may waive application of the Siting Strategy for any facility determined by the Board as likely to qualify as a "legitimate recycling facility" as defined in Section 3745-27-01(C)(2) of the Ohio Administrative Code.

In the event an Applicant desires a waiver from the application of the Siting Strategy for a legitimate recycling facility, the Applicant shall submit sufficient information to the Board regarding the proposed facility, the waste reduction method to be implemented, technology to be used in the operation of the facility, the source and type of waste to be received at the facility, the materials to be removed from the waste stream and the anticipated amount of waste reduction.

The Board shall review the proposal following the general procedures and process in Section C(1) of this Siting Strategy and determine whether the waste reduction standards required by OAC Section 3745-27-01(C)(2) are likely to be satisfied at the proposed facility. In the event the Board determines that such facility is likely to qualify as a legitimate recycling facility, the Board may grant a waiver of the application of the Siting Strategy to the proposed facility.

Such waiver may be made contingent upon the execution of a development agreement by which the proposed facility will be obligated to meet the proposed waste reduction standards on a continuing basis and such other obligations regarding operation of the facility as the Board shall require, including inspection of the facility during the operating hours of the facility, and such recordkeeping and reporting requirements as may be necessary to establish compliance with the waste reduction goals. Failure to comply with the terms of any such agreement may result in the revocation of Board approval for operation of any such facility. As part of any such development agreement, the Board may require such bond or other assurances in such amounts as the Board determines, in its discretion, shall be necessary to assure that funds are available for the removal of the facility or conversion of the facility to a legal use in the event of non-compliance with waste reduction standards or other obligations as set forth in the development agreement.

IV. SEVERABILITY

If any provision hereof is ruled invalid by any court of competent jurisdiction, such decision shall not affect the validity of any other provision hereof. Additionally, in the event any provision hereof is determined to be a facility design standard within the meaning of ORC § 343.01(G)(2), such provision shall not be considered in the Board's review of any proposed Solid Waste Facility under these regulations.

V. OPERATIONAL STANDARDS

The following standards apply to the operation of Solid Waste Facilities:

A. **Quiet Enjoyment:** Odors, noise and vibration shall be minimized by the proper use of berms, walls, natural planting screens and soundproofed equipment and buildings. A Solid Waste Facility shall not create noise levels beyond 60dBA during the hours of 6 a.m. to 6 p.m. measured at the property line. All

road surfaces within the property lines of a Solid Waste Facility shall be paved or gravel to minimize mud and dust.

B. **Security Lighting:** Any security lighting deemed necessary by the Applicant (or by this Siting Strategy) shall be the sodium vapor type and aligned so that no portion of the illuminated field extends into any adjoining residential property.

C. **Emergency Public Water Supply:** All Solid Waste Facilities shall have an adequate water supply to provide for quick delivery of water to any part of the facility for the purpose of extinguishing fires. Capacity shall be such that at least one thousand (1,000) gallons of water per minute can be applied to any fire, continuously, for at least ten (10) hours, unless the owner or operator demonstrates that less capacity is reasonable for the purpose of extinguishing fires.

D. **Litter:** All litter shall be collected from the Solid Waste Facility site by the end of each day the facility operates and properly disposed or stored in a covered container.

E. **Vehicle Wheel Wash:** To prevent mud and dirt from being tracked on to local roads, vehicle operators shall wash any excess mud or dirt from the tires of their vehicles prior to exiting a Solid Waste Facility.

F. **Street and Highway Access:** Under no circumstances shall trucks use private drives or private access routes from the Solid Waste Facility property which are within one hundred fifty (150) feet of any residence.

G. **Gates:** The entrance to a Solid Waste Facility shall have a gate which shall be closed and locked at all times that the Solid Waste Facility is not open.

H. **Hours of Operation:** All Solid Waste Facility operations, other than the maintenance of equipment within a fully enclosed building, shall be conducted only between the hours of 6:00 a.m. and 6:00 p.m. Monday through Friday, and 7:00 a.m. and 3:00 p.m. on Saturdays and legal holidays. A sign stating the hours of operation and prohibiting unauthorized dumping (e.g., during non-operating hours or unacceptable waste) shall be placed in a conspicuous location at the entrance to the facility. Keys for admittance to the Solid Waste Facility shall be given to the local fire department. Solid Waste Facilities shall have qualified personnel on duty at all times to direct the operations of the Solid Waste Facility.

VI. DEFINITIONS

For the purposes of this Siting Strategy, the following definitions shall apply:

A. **Applicant** shall mean a person, firm, entity, municipal corporation, township or other political subdivision that proposes to construct or modify a Solid Waste Facility within the Jefferson Belmont Regional Solid Waste Authority and has submitted an application with regard thereto under Chapters 3745-27, 3745-29, 3745-30, or 3745-37 of the Ohio Administrative Code, including without limitation an application for a registration certificate, permit-to-install, alternate infectious waste treatment technology approval, or operating license.

B. **Authorized Maximum Daily Waste Receipts** means the maximum amount of solid waste a solid waste disposal facility may receive or process on any calendar day. The waste receipt limit shall be expressed in tons per day for facilities utilizing scales or cubic yards per day for all other facilities. The tons to cubic yards ratio shall be one ton equals three cubic yards unless the solid waste is baled, in which case the ratio is one ton equals one cubic yard.

C. **Board** means the Board of Trustees of the Jefferson Belmont Regional Solid Waste Authority.

D. **Modify** or **Modification** shall mean an enlargement, or significant change in operation, of an existing in-Authority 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 Solid Waste or other waste materials, manner of delivery or operation, or activities conducted at the facility.

E. **Plan** means the solid waste management plan of the Jefferson Belmont Regional Solid Waste Authority, as required in Ohio Revised Code Sections 3734.53 to 3734.56.

F. **Solid Waste** has the same meaning as in Section 3734.01 of the Ohio Revised Code.

G. **Solid Waste Facilities** shall mean all solid waste treatment, collection, storage, disposal, transfer, recycling, processing, and resource recovery facilities.

H. **Jefferson Belmont Regional Solid Waste Authority**, **"JBRSWA,"** or **"Authority"** means all the incorporated and unincorporated territory comprising the Jefferson Belmont Regional Solid Waste Authority established and maintained pursuant to Ohio Revised Code Section 343.011.

I. **Host Community** means the unit of local government, such as a city, village or township, in which a Solid Waste Facility is or would be located.

J. **Transfer Facility** has the same meaning as in Ohio Administrative Code § 3745-27-01(S

APPENDIX S SITING STRATEGY

Section 343.01(G)(2) of the Ohio Revised Code authorizes the Board to adopt a rule requiring the submission of general plans and specifications to the Board for a determination by the Board that the proposed solid waste facility complies with the Jefferson Belmont Regional Solid Waste Authority's Solid Waste Management Plan (the "Plan"). On April 20, 2015, the Authority's Board of Trustees adopted Rule 2016-2 as follows:

"Requirement for Approval of Plans and Specifications for the Construction of Solid Waste Facilities.

No person, municipal corporation, township or other political subdivision, shall construct or modify any solid waste transfer, disposal, recycling or resource recovery facility until the general plans and specifications for the proposed improvement have been submitted to and approved by the Board of Trustees of the Jefferson Belmont Regional Solid Waste Authority as complying with Authority's Solid Waste Management Plan pursuant to Section VI(G) of the Plan –Siting Strategy for Facilities."[1]

The following siting strategy shall govern proposals for the construction of a new solid waste facilities or the modification of an existing solid waste facility within JBRSWA.

I. PURPOSE AND OBJECTIVE

The Authority's Siting Strategy for Solid Waste Facilities ensures that proposals to construct a new Solid Waste Facility within the Authority or modify an existing Solid Waste Facility within the Authority comply with the Plan Update. The Board shall not approve the general plans and specifications for any proposed Solid Waste Facility or the modification of any existing in-Authority 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; (2) obstruct or interfere with the maximum feasible utilization of existing in-Authority Solid Waste Facilities; (3) adversely affect the quality of life of residents; or (4) have significant adverse impacts upon the local community and its resources that cannot be eliminated.

Except as otherwise provided herein, all proposed Solid Waste Facilities shall be subject to this Siting Strategy and shall comply with the requirement to submit general plans and specifications to the Board.

II. PROCEDURE IMPLEMENTING SITING STRATEGY

The following procedure and process shall be followed in the event the construction of a new Solid Waste Facility or the modification of an existing in-Authority Solid Waste Facility is proposed within the Authority:

A. Conditions Precedent to the Review and Approval or Denial of Plans and Specifications

Permits for the installation of a Solid Waste Facility require an extensive technical review by the Ohio Environmental Protection Agency (Ohio EPA) to assure compliance with Ohio EPA standards. The time required and the scope of the review may result in significant modifications to the proposed Solid Waste

[1] Ohio EPA's Format version 3.0 required the Siting Strategy to be located in Section VI(G) of the Authority's Solid Waste Management Plan. Under Ohio EPA's Format version 4.0, the Siting Strategy has been relocated to this Appendix S.

APPENDIX T MISCELLANEOUS PLAN DOCUMENTS

During the process of preparing a plan, the policy committee signs three official documents certifying the plan. These documents are as follows:

1. *Certification Statement for the Draft Solid Waste Management Plan* –The Policy committee signs this statement to certify that the information presented in the draft solid waste management plan submitted to Ohio EPA is accurate and complies with the Format 4.0.

2. *Resolution Adopting the Solid Waste Management Plan* (adopted prior to distributing the draft plan for ratification) – The policy committee signs this resolution to accomplish two purposes:

- Adopt the draft solid waste management plan.
- Certify that the information in the solid waste management plan is accurate and complies with the Format 4.0.

The policy committee signs this resolution after considering comments received during the public hearing/public comment period and prior to submitting the solid waste management plan to political jurisdictions for ratification. The policy committee should not make any changes to the solid waste management plan after signing the resolution.

3. *Resolution Certifying Ratification of the Solid Waste Management Plan* – The policy committee signs this resolution to certify that the solid waste management plan was ratified properly by the political jurisdictions within the solid waste management district. The policy committee signs this resolution after the solid waste management plan is ratified and before submitting the ratified plan to Ohio EPA.

Other documents to include in Appendix T include:

- Public notices

Copies of notices sent to:

- adjacent SWMDs;
- the director of Ohio EPA;
- the 50 industrial, commercial or institutional facilities that generate the largest quantities of solid waste within the SWMD; and
- the local trade associations representing the industrial, commercial or institutional facilities generating the largest quantities of solid waste in the SWMD.

Certification Statement for the Draft Plan

We, as the Board of Trustees of the Jefferson-Belmont Regional Solid Waste Management Authority, 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, 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 Ohio EPA *District Solid Waste Management Plan Format*, version 4.0.

Joe Luckino — 10-5-2020
Representing Jefferson County Commissioners — Date Signed

James Mavromatis — 10-5-2020
Representing CEO of Steubenville — Date Signed

Vacant position — Date Signed
Representing Jefferson County Health Department

Scott Fabian — 10-05-2020
Representing Jefferson County Townships — Date Signed

Domenick Mucci — Date Signed
Representing Jefferson County Solid Waste Generators

George Irvin, Jr — 10-5-2020
Representing the Jefferson County Public — Date Signed

Mitch Morelli — Date Signed
Representing the Jefferson County Public

Jerry Echemann — 10.5.20
Representing Belmont County Commissioners — Date Signed

John Davies, Mayor — Date Signed
Representing CEO of Martins Ferry

Robert Sproul *Representing Belmont County Health Department*	10-5-2020 Date Signed
Anthony Kolanski *Representing Belmont County Townships*	10-5-2020 Date Signed
Robert Krajnyak *Representing Belmont County Solid Waste Generators*	10-5-2020 Date Signed
Mark McVey *Representing Belmont County Public*	Date Signed
Chuck Dawson *Representing Belmont County Public*	10-5-2020 Date Signed
Michael C Bianconi *Member at Large*	Date Signed

Public Notice
Jefferson-Belmont Regional Solid Waste Authority
Public Comment Period and Hearing Notice for 2021 Solid Waste Management Plan

The Jefferson-Belmont Regional Solid Waste Authority ("JB Green Team") has prepared a draft solid waste management plan expected to take effect in 2021 as required by Section 3734.54 of the Ohio Revised Code. The Authority is establishing a 30-day written comment period (October 23, 2020 to November 23, 2020at 12:00pm) on the draft solid waste management plan. The 2021 Plan is available for review on the Authority's website at https://www.jbgreenteam.org or, at the following locations during normal business hours:

JB Green Team Jefferson County Office: 228 Technology Way, Steubenville, OH 43952, Phone: 740-266-6899

Jefferson County Commissioners Office: 301 Market St., 1st Floor, Steubenville, OH 43952, Phone: 740-283-8500

JB Green Team Belmont County Office: 67895 Pickering Road, St. Clairsville, OH 43950, Phone: 740-296-5376

Belmont County Commissioners Office: 101 W. Main St., St. Clairsville, OH 43950, Phone: 740-699-2155

A public hearing on the draft 2021 solid waste management plan will be held on Tuesday, November 24, 2020 at the following locations and times:
10:00am at JB Green Team Belmont Office, 67895 Pickering Rd, St. Clairsville, Ohio 43950
2:00pm at JB Green Team Jefferson Office, 228 Technology Way, Steubenville, Ohio 43952
5:00pm Tiltonsville City Hall, 222 Grandview Ave, Tiltonsville, Ohio 43963

The 2021 Plan is an update to the previously approved solid waste plan. The 2021 Plan establishes a fifteen-year planning period (2021-2036) and includes a budget to finance the plan, 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 Authority rules.

The 2021 Plan includes details existing programs including residential/commercial recycling and collection programs, education and outreach programs for target audiences, industrial strategies, household hazardous waste recycling, scrap tire management, and electronics recycling. The District demonstrates achieving goals required by the State of Ohio for recycling and waste reduction for residential, commercial and industrial solid wastes. The 2021 Plan complies with State Plan Goal #1: Infrastructure Goal.

The 2021 Plan includes a demonstration of access to at least fifteen years of solid waste landfill capacity to meet the solid waste management needs of the Authority's residents, businesses, and institutions. The 2021 Plan authorizes the Board to establish facility designations in accordance with ORC Section 343.014. The 2021 Plan includes a detailed budget outlining revenues and operational costs for programs. The Authority currently levies solid waste disposal fees pursuant to ORC Section 3734.57(B) in the amount of $1.00 per ton of solid waste in-district; $2.00 per ton of solid waste out-of-district; and $1.00 per ton of solid waste out-of-state). The 2021 Plan maintains this disposal fee throughout the planning period.

Comments on the 2021 Plan will be accepted for a thirty (30) day period extending from October 23, 2020 to November 23, 2020. During this period, anyone may comment on the draft plan by forwarding their comments, in writing, to: Anita Petrella, Executive Director, Jefferson-Belmont Regional Solid Waste Authority, 228 Technology Way, Steubenville, OH 43952 or via email to: apetrella@jbgreenteam.org.

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ADNo: 185694 Customer Number: L01783
Customer Name: JB GREEN TEAM Company:
Address: 228 TECHNOLOGY WAY ANITA PETRELLA
City/St/Zip: STEUBENVILLE ,OH 43952
Phone: (740) 266-2695 Solicitor: SH
Category: 80 Class: 598 Rate: OL-0 Start: 11-5-2020 Stop: 11-8-2020
Lines: 161 Inches: 15.65 Words: 527

Credit Card: Expire:
Order Number:
Cost: 370.30 Extra Charges: 2.00 Adjustments: .00
Payments: .00 Discount: .00
Balance: 372.30

Public Notice
Jefferson-Belmont Regional Solid Waste Authority
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The 2021 Plan is an update to the previously approved solid waste plan. The 2021 Plan establishes a fifteen-year planning period (2021-2036) and includes a budget to finance the plan, 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 Authority rules.

The 2021 Plan includes details existing programs including residential/ commercial recycling and collection programs, education and outreach programs for target audiences, industrial strategies, household hazardous waste recycling, scrap tire management, and electronics recycling. The District demonstrates achieving goals required by the State of Ohio for recycling and waste reduction for residential, commercial and industrial solid wastes. The 2021 Plan complies with State Plan Goal #1: Infrastructure Goal.

The 2021 Plan includes a demonstration of access to at least fifteen years of solid waste landfill capacity to meet the solid waste management needs of the Authority's residents, businesses, and institutions. The 2021 Plan authorizes the Board to establish facility designations in accordance with ORC Section 343.014. The 2021 Plan includes a detailed budget outlining revenues and operational costs for programs. The Authority currently levies solid waste disposal fees pursuant to ORC Section 3734.57(B) in the amount of $1.00 per ton of solid waste in-district; $2.00 per ton of solid waste out-of-district; and $1.00 per ton of solid waste out-of-state). The 2021 Plan maintains this disposal fee throughout the planning period.

Comments on the 2021 Plan will be accepted for a thirty (30) day period extending from October 23, 2020 to November 23, 2020. During this period, anyone may comment on the draft plan by forwarding their comments, in writing, to: Anita Petrella, Executive Director, Jefferson - Belmont Regional Solid Waste Authority, 228 Technology Way, Steubenville, OH 43952 or via email to:

apetrella@
jbgreenteam.org.

HS adv. Nov. 5, 8, 2020

The Times-Leader Legals Print Ad Proof

ADNo: 216037 Customer Number: L36358
Customer Name: Company: JB GREEN TEAM
Address: 228 TECHNOLOGY WAY
City/St/Zip: STEUBENVILLE ,OH 43952
Phone: (740) 266-6899 Solicitor: SH
Category: 10 Class: 1000 Rate: LE-0 Start: 11-5-2020 Stop: 11-8-2020
Lines: 161 Inches: 15.65 Words: 526

Credit Card: Expire:
Order Number:
Cost: 513.39 Extra Charges: .00 Adjustments: .00
Payments: .00 Discount: .00
Balance: 513.39

Public Notice
Jefferson-Belmont Regional Solid Waste Authority
Public Comment Period and Hearing Notice for 2021 Solid Waste Management Plan

The Jefferson-Belmont Regional Solid Waste Authority ("JB Green Team") has prepared a draft solid waste management plan expected to take effect in 2021 as required by Section 3734.54 of the Ohio Revised Code. The Authority is establishing a 30-day written comment period (October 23, 2020 to November 23, 2020 at 12:00pm) on the draft solid waste management plan. The 2021 Plan is available for review on the Authority's website at https://www.jbgreenteam.org or, at the following locations during normal business hours:

JB Green Team Jefferson County Office: 228 Technology Way, Steubenville, OH 43952, Phone: 740-266-6899

Jefferson County Commissioners Office: 301 Market St., 1st Floor, Steubenville, OH 43952, Phone: 740-283-8500

JB Green Team Belmont County Office: 67895 Pickering Road, St. Clairsville, OH 43950, Phone: 740-296-5376

Belmont County Commissioners Office: 101 W. Main St., St. Clairsville, OH 43950, Phone: 740-699-2155

A public hearing on the draft 2021 solid waste management plan will be held on Tuesday, November 24, 2020 at the following locations and times:
10:00am at JB Green Team Belmont Office, 67895 Pickering Rd, St. Clairsville, Ohio 43950
2:00pm at JB Green Team Jefferson Office, 228 Technology Way, Steubenville, Ohio 43952

5:00pm Tiltonsville City Hall, 222 Grandview Ave, Tiltonsville, Ohio 43963

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apetrella@
jbgreenteam.org.

T.L. Nov. 5, 8, 2020

JB GREEN TEAM

Jefferson County Office
228 Technology Way
Steubenville, OH 43953
(740)266-6899

Belmont County Office
67895 Pickering Road
St. Clairsville, OH 43950
(740)296-5376

www.JBGreenTeam.org
Executive Director Anita Petrella

Jefferson-Belmont Regional Solid Waste Authority

facebook

October 19, 2020

To Whom It May Concern:

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Please see the attached public notification for details on the public comment period and hearing.

Should you have any question or comments, please contact me at apetrella@jbgreenteam.org, or (740) 266-6899 with questions and comments.

Sincerely,

Anita L Petrella Ex. Dir.

Anita Petrella, Executive Director

Jefferson Belmont Regional Solid Waste Authority

Enclosure: Public Notice

JB GREEN TEAM

Jefferson County Office
228 Technology Way
Steubenville, OH 43953
(740)266-6899

Belmont County Office
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www.JBGreenTeam.org
Executive Director Anita Petrella

Jefferson-Belmont Regional Solid Waste Authority

facebook

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Sincerely,

Anita L Petrella Ex. Dir.

Anita Petrella, Executive Director

Jefferson Belmont Regional Solid Waste Authority

Enclosure: Public Notice

RESOLUTION 2020-02

Re: **Declaring Adoption of the amended Solid Waste Management Plan for Jefferson Belmont Regional Solid Waste Authority.**

The Board of Trustees (the "Board") of the Jefferson Belmont Regional Solid Waste Authority (the "Authority"), met in regular session on December 14, 2020 at, 67815 Pickering Rd, St. Clairsville, Ohio 43950 with 9 members present.

Mr. Echemann moved the adoption of the following RESOLUTION:

WHEREAS, the Board completed the draft amended Solid Waste Management Plan and submitted it to the Ohio Environmental Protection Agency for review and comment on April 17, 2020, and the Ohio Environmental Protection Agency provided a non-binding advisory opinion on June 1, 2020;

WHEREAS, the Board considered the Ohio Environmental Protection Agency 's non-binding advisory opinion and revised the amended Plan as the Board determined to be necessary or appropriate;

WHEREAS, the Board conducted a 30-day public comment period from October 23 to November 21, 2020 and held a public hearing November 24, 2020, to allow members of the public to provide comments regarding the amended Plan; and

WHEREAS, the Board determines that additional revisions to the amended Plan are appropriate based on public comments that were submitted to the Board.

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Jefferson Belmont Regional Solid Waste Authority as follows:

1. The Board of Trustees hereby adopts the final amended Plan for Jefferson Belmont Regional Solid Waste Authority; and

2. The Board of Trustees certifies that, to the best of its knowledge and belief, the statements, demonstrations, and all accompanying materials that comprise the Authority's final amended Plan, and availability of and access to sufficient solid waste management facility capacity to meet the solid waste management needs of the Authority for the 15-year period covered by the Plan, are accurate and are in compliance with the requirements of Sections 3734.53 to 3734.56 of the Ohio Revised Code, Ohio Administrative Code 3745-27-90, and the state *Solid Waste Management Plan Format*, version 4.0.

3. The Board of Trustees directs that copies of the adopted Plan be delivered to the respective Boards of County Commissioners of Jefferson and Belmont Counties, and to the legislative authority of each municipal corporation and township under the jurisdiction of the Authority for ratification.

4. The Board of Trustees determines that this Resolution was adopted at an open meeting conducted in accordance with Ohio's Sunshine Law, Section 121.22 of the Ohio Revised Code.

Mr. Sproul seconded the motion and the roll being called upon its adoption, the vote resulted as follows:

Voting for the Resolution	Voting Against the Resolution
Joe Luckino Representing Jefferson County Commissioners	
James Mavromatis Representing CEO of Steubenville	

Vacant Position
Representing Jefferson County Health Department

Scott Fabian
Representing Jefferson County Townships

Domenick Mucci
Representing Jefferson County Solid Waste Generators

George Irvin, Jr
Representing the Jefferson County Public

Mitch Morelli
Representing the Jefferson County Public

Jerry Echemann
Representing Belmont County Commissioners

John Davies, Mayor
Representing CEO of ~~Martins~~ Ferry

Robert Sproul
Representing Belmont County Health Department

Anthony Kolanski
Representing Belmont County Townships

Robert Krajnyak
Representing Belmont County Solid Waste Generators

Mark McVey
Representing the Belmont County Public

Chuck Dawson
Representing the Belmont County Public

Michael C Bianconi
Member at Large

Total votes FOR the resolution: 9 Total votes AGAINST the resolution: 0

ATTEST:

Natalie Lysle Date: 12-14-2020
Natalie Lysle
Administrative Assistant,
Jefferson Belmont County Regional Solid Waste Authority,

Resolution Certifying Ratification
Jefferson Belmont Regional Solid Waste Authority
2021 Solid Waste Management Plan

A resolution declaring that the amended Solid Waste Management Plan (2021 Plan) for Jefferson Belmont Regional Solid Waste Authority has been ratified in accordance with Section 3734.55 of the Ohio Revised Code.

WHEREAS, the Authority conducted a 30-day public comment period from October 23 - November 21, 2020 and held a public hearing November 24, 2020, and the Solid Waste Management District Policy Committee adopted the Solid Waste Plan on December 14, 2020, and;

WHEREAS, this Solid Waste Management Authority Board has received copies of resolutions and ordinances approving the 2021 Plan from the majority of the Boards of County Commissioners, the majority of the legislative authorities representing the municipalities with the largest populations in their respective counties, and from legislative authorities representing at least 60 percent of the population within the Authority.

NOW, THEREFORE, BE IT RESOLVED that the Solid Waste Management Authority Board of Jefferson Belmont Regional Solid Waste Authority declares the 2021 Plan for the Jefferson Belmont Regional Solid Waste Authority 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 Environmental Protection Agency for final approval.

This resolution shall be in effect immediately upon its adoption.

Motion made by ROBERT T. KRAJNYAK seconded by Jerry Echemann

Voting for the Resolution	Voting Against the Resolution
Joe Luckino Representing Jefferson County Commissioners	
James Mavromatis Representing CEO of Steubenville	
~~Vacant Position~~ Andrew Henry Representing Jefferson County Health Department	
Scott Fabian Representing Jefferson County Townships	
Domenick Mucci Representing Jefferson County Solid Waste Generators	

George Irvin, Jr
Representing the Jefferson County Public

Mitch Morelli
Representing the Jefferson County Public

Jerry Echemann
Representing Belmont County Commissioners

John Davies, Mayor
Representing CEO of Martins Ferry

Robert Sproul
Representing Belmont County Health Department

Anthony Kolanski
Representing Belmont County Townships

Robert Krajnyak
Representing Belmont County Solid Waste Generators

Mark McVey
Representing the Belmont County Public

Chuck Dawson
Representing the Belmont County Public

Michael C Bianconi
Member at Large

Total votes FOR the resolution: 12 Total votes AGAINST the resolution: 0

ATTEST:
Jefferson Belmont County Regional Solid Waste Authority, Administrative Assistant Date:

Natalie Lysle April 12, 2021

APPENDIX U RATIFICATION RESULTS

Table U-1 Ratification Results

Jefferson-Belmont Regional Solid Waste Authority Plan Approval Table *2021 Plan*				
Political Subdivision	**2021 Population**	**Approved Plan**	**Disapproved Plan**	***Resolution DATE***
Jefferson County	**66,465**			
Adena village *(adjusted to include Harrison Co. portion)*	715	*715*		*3/9/21*
Amsterdam village	480	*480*		*3/8/21*
Bergholz village	627	*627*		*3/9/21*
Bloomingdale village	191	*191*		*1/7/21*
Dillonvale village	628	*628*		*3/9/21*
Empire village	284	*284*		*3/3/21*
Irondale village	363	*363*		*3/16/21*
Mingo Junction village	3,261			
Mount Pleasant village	449	*449*		*3/11/21*
New Alexandria village	258			
Rayland village	399			
Richmond village	454			
Smithfield village (DISOLVED)	-			
Steubenville city	18,000	*18,000*		*3/9/21*
Stratton village	280			
Tiltonsville village	1,297			
Toronto city	4,813			
Wintersville village	3,726	*3,726*		*3/4/21*
Yorkville village	581			
Brush Creek township	419	*419*		*2/10/21*
Cross Creek township	4,937	*4,937*		*2/3/21*
Island Creek township	6,156	*6,156*		*2/9/21*
Knox township	1,948	*1,948*		*1/1/21*
Mount Pleasant township	1,296	*1,296*		*2/22/21*
Ross township	687	*687*		*3/22/21*
Salem township	2,530	*2,530*		*1/18/21*
Saline township	887	*887*		*2/24/21*
Smithfield township	2,539	*2,539*		*2/1/21*

Springfield township	1,132	*1,132*		*1/4/21*
Steubenville township	816	*816*		*2/8/21*
Warren township (2)	1,728			
Wayne township (2)	1,923	*1,923*		*2/6/21*
Wells township	2,664	*2,664*		*3/9/21*
Jefferson County Commissioners				*2/25/21*
2021 Jefferson County Population Total	**66,465**			
60% Jefferson Co. Approval Needed	**39,879**			
Total Jefferson Co. Population Approved	**53,397**			
Percent Jefferson County Approved	**80%**			
Belmont County	**68,722**			
Barnesville village	4,125	*4,125*		*1/19/21*
Bellaire village	4,150			
Belmont village	444			
Bethesda village	1,247	*1,247*		*3/31/21*
Bridgeport village	1,785	*1,785*		*2/23/21*
Brookside village	595			
Fairview village	0	*0*		
Flushing village	856			
Holloway village	325			
Martins Ferry city	6,730	*6,730*		*2/17/21*
Morristown village	292	*292*		*3/10/21*
Powhatan Point village	1,565	*1,565*		*1/20/21*
St. Clairsville city	5,103	*5,103*		*3/15/21*
Shadyside village	3,651	*3,651*		*3/22/21*
Wilson village (majority in Monroe Co.)	*37*			
Yorkville village	452			
Colerain township	4,166	*4,166*		*2/4/21*
Flushing township	*777*	*777*		*3/1/21*
Goshen township	1,386	*1,386*		*1/18/21*
Kirkwood township	385			
Mead township	2,212	*2,212*		*2/15/21*
Pease township	4,343	*4,343*		*2/10/21*
Pultney township	4,356	*4,356*		*2/11/21*
Richland township	9,622	*9,622*		*3/8/21*
Smith township	1,505	*1,505*		*3/11/21*
Somerset township	1,215	*1,215*		*3/6/21*
Union township	1,945	*1,945*		*2/2/21*

Warren township (2)	1,754	*1,754*		*1/4/21*
Washington township	503	*503*		*3/19/21*
Wayne township (2)	*655*	*655*		*3/4/21*
Wheeling township	1,654	*1,654*		*2/26/21*
York township	924	*924*		*2/16/21*
Belmont County Commissioners				*1/20/21*
2021Belmont County Population Total	**68,722**			
60% Belmont Co. Approval Needed	**41,233**			
Total Belmont Co. Population Approved	**61,515**			
Percent Belmont County Approved	**90%**			
2021 Authority Population Total	**135,187**			
60% Authority Approval Needed	**81,112**			
Total Authority Population Approved	**114,912**			
Percent Authority Approved	**85%**			