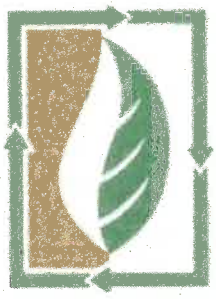

LAKE COUNTY SOLID WASTE DISTRICT

Draft 2018 Solid Waste Management Plan

LAKE COUNTY SOLID WASTE MANAGEMENT DISTRICT

05.01.2018

Ratified by the Lake County Solid Waste District
on 08.30.2018

Inside front cover

The Lake County Solid Waste District is the leading resource in Lake County for information, expertise and programs that support sustainable materials management and reduce the environmental impact of waste. Our work empower residents, communities and organizations to manage their waste responsibly by reducing, reusing, recycling and composting. The Solid Waste Management District also oversees the disposal of solid waste products. It supports youth educational programs, recycling initiatives and county wide special collections of computers, scrap tires, and household hazardous waste events during the year. District's Goals for Waste Reduction

LAKE COUNTY SOLID WASTE DISTRICT

District's Goals for Waste Reduction

1. Promote Awareness

2. Provide Assistance

3. Achieve Results

Screenshot from Lake County Solid Waste District's website:
https://www.lakecountyohio.gov/utilities/Divisions/Solid-Waste-Management-District

LAKE COUNTY SOLID WASTE PLAN 2018
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I SOLID WASTE MANAGEMENT DISTRICT INFORMATION

Table i-1 Solid Waste Management District Information

SWMD Name	Lake County Solid Waste District
Member Counties	Lake County
Coordinator's Name (main contact)	Timothy Gourley
Job Title	District Coordinator and Solid Waste Division Superintendent
Street Address	2039 Blasé Nemeth Road
City, State, Zip Code	Painesville, Ohio 44077
Phone	(440) 350-2908
Fax	(440) 350-2920
E-mail address	tim.gourley@lakecountyohio.gov
Webpage	http://www.lakecountyohio.gov/utilities/Divisions/SolidWaste

Table i-2 Members of the Policy Committee

Member Name	Representing
County	**Lake**
County Commissioners	Daniel P. Troy
Municipal Corporations	Kenneth Filipiak
Townships	Chuck Hillier
Health District	Ron Graham
Generators	Dave Enzerra
Citizens	Patricia Fowler
Public	Mary Ellen K. Abel

Table i-3 Chairperson of the Policy Committee

Name	Daniel P. Troy
Street Address	105 Main Street
City, State, Zip Code	Painesville, Ohio 44077
Phone	(440) 350-2745
Fax	(440) 350-2672
E-mail address	dan.troy@lakecountyohio.gov

Table i-4 Board of County Commissioners

Commissioner Name	County	Chairperson/President
John R. Hamercheck	Lake	President
Jerry C. Cirino	Lake	
Daniel P. Troy	Lake	

Technical Advisory Committee

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

Business Waste Reduction Committee

Business Waste Reduction Committee	
Member Name	**Representing**
Tim Gourley	LCSWMD Coordinator
Jennifer Bell	Clerk, Lake County Commissioners
Patricia Fowler	City of Wickliffe
Beth Bolas	The Ohio State Extension
Chris LeGros	CT Consultants, Inc.
Bonnie Rice	The City of Mentor

Consultant Information

Company	CT Consultants, Inc.
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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]

2. Solid Waste Management Plan

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

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

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

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

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

C. District Overview

The Lake County Solid Waste Management District is a single county district comprised of Lake County, Ohio. The District is made up of 23 political subdivisions, with the City of Mentor being the largest municipality. The District's original Solid Waste Management Plan was approved by Ohio EPA on September 1, 1992 and the last plan update was approved by Ohio EPA on June 26, 2012 for a 15 year planning period.

Role and Function: The Lake County Solid Waste District is the program administrator and leading resource for information, expertise and programs that support sustainable materials management and reduce the environmental impact of waste. Our work empowers residents, communities and organizations to manage their waste responsibly by reducing, reusing, recycling and composting. The Solid Waste Management District also oversees the disposal of solid waste products. It supports youth educational programs, recycling initiatives and county wide special collections of computers, scrap tires, and household hazardous waste events during the year.

The District's goals are to (1) promote awareness; (2) provide assistance to local jurisdictions, residents, and the private sector; and (3) achieve results of waste reduction.

The District does not own any facilities nor provide any direct services. The District is supported by the Lake County Board of Commissioners, who is also the owner of the Lake County Solid Waste Facility. The operation of the County landfill is contracted to a private company. The solid waste management system (hauling, processing, landfilling, composting, and recycling) is operated exclusively by private companies, and the local residential trash collection hauling system as well as processing and recycling are determined by locally by each of the County's municipalities and townships.

Structure: The District's coordinator is also the Superintendent of the County's Solid Waste Division and manager of the Lake County Solid Waste Facility, and the District operates out of one centralized office located on adjacent to the landfill and shared with Lake County Solid Waste Division. In addition to sharing county staff, the District utilizes two main partnerships - The Ohio State University Lake County Extension Service and Lake County General Health District – to carry out its educational and programing responsibilities.

The District also has a Lake County Business Waste Reduction Committee (BWRC) to assist in implementing the District Plan. The Business Waste Reduction Committee focuses its work on implementing the District's Waste Reduction Plan for commercial businesses and industries in the district. The purpose of the committee is to a) identify and promote ways commercial industrial, governmental and non-profit establishments in the District can reduce and/or recycle waste and b) facilitate the proactive sharing of information resources and expertise in support of waste minimization efforts across the county, and c) document the results of those activities.

Changes and Major Accomplishments: The structure and role of the District has largely remained the same since the District was established in 1989 with the exception of the addition of the BWRC in 1993. The BWRC has been a leader in the State and recognized by the OEPA for its efforts. The District is committed to reinvigorating the committee as it primary means of increasing awareness and recycling success in the commercial/institutional and industrial sectors.

D. Waste Reduction and Recycling Goals

As explained earlier, a SWMD must achieve goals established in the state solid waste management plan. The current state solid waste management plan is the *2009 Solid Waste Management Plan* (2009 State Plan). The 2009 State Plan established nine goals as follows:

1. The SWMD shall ensure that there is adequate infrastructure to give residents and commercial businesses opportunities to recycle solid waste.

2. The SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector and at least 66 percent of the solid waste generated by the industrial sector.

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

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

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

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

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

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

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

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

Each SWMD is encouraged to devote resources to achieving both goals. However, each of the 52 SWMDs varies in its ability to achieve both goals. Thus, a SWMD is not required to demonstrate that it will achieve both goals. Instead, SWMDs have the option of choosing either Goal 1 or Goal 2 for their solid waste management plans. This affords SWMDs with two methods of demonstrating compliance with the State's solid waste reduction and recycling goals. Many of the programs and services that a SWMD uses to achieve Goal 1 help the SWMD make progress toward achieving Goal 2 and vice versa.

A SWMD's solid waste management plan will provide programs to meet up to eight of the goals. Goal 8 (market development) is an optional goal. Goal 9 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 SWMD will use to achieve the nine goals.

CHAPTER 2 DISTRICT PROFILE

Purpose

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

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

Understanding these characteristics helps the policy committee make decisions about the types of programs that will most effectively address the needs of residents, businesses, and other waste generators within the SWMD's jurisdiction. Population distribution, density, and change affect the types of recycling opportunities that make sense for a particular community and for the SWMD as a whole. The make-up of the commercial and industrial sectors within the SWMD influences the types of wastes generated and the types of programs the SWMD provides to assist those sectors with their recycling and waste reduction efforts. Unique circumstances, such as hosting an amusement park, a large university, or a coal burning power plant present challenges, particularly for providing waste reduction and recycling programs.

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

A. Profile of Political Jurisdictions

1. *Counties in the Solid Waste Management District*

The Solid Waste Management District is a single county district comprised of Lake County, Ohio.

2. *County Overview*

Lake County is located in the northeast corner of the state along the Lake Erie shore, sandwiched between Cuyahoga County to the west and Ashtabula County to the east. The county is part of the Cleveland-Elyria MSA. According to the U.S. Census Bureau, the County encompasses 228 square miles of land and is the smallest county in Ohio by land area. The District is made up of 23 political subdivisions: 9 cities, 9 villages and 5 townships.

It is a highly diverse county with dense suburban development on the western edge bordering Cuyahoga County and rural farmland with low-density residential development on the eastern end. According to the "Ohio County Profile of Lake County" prepared by Office of Research, less than half of the land in the county is developed, mostly with lower density residential uses. Specifically, the land use/land cover is:

- 6.4% Developed, with higher intensity uses (commercial/industrial),
- 41.7% Developed, with lower intensity uses (primarily residential)
- 36.7% Forest, wetlands, and grasslands
- 14.3% Pasture, cropland

Interstate 90 and State Route 2 expressways traverse the District east to west, providing businesses and residents easy access to the metropolitan centers of Cleveland, Erie, and beyond (Buffalo, Chicago, etc.). In fact, many people who live in the western portion of the County work in Cleveland or its suburbs. With its location adjacent to Cuyahoga County and available land and infrastructure, Lake County is expected to continue to experience growth though at a very slow rate. However, within the County, certain communities are expected to grow at much higher rates while the older built out communities are expected to see population decline.

B. Population

1. Reference Year Population

Table 2-1, "Population of District in the Reference Year" presents the District's estimated population for 2015, which is the same as the population for Lake County - no adjustments were made to the County's population. The source for the reference year population is the Population Estimates Division, U.S. Census Bureau. The City of Mentor is the largest municipality in the county, both in terms of population with 20% of the population, and land area with 11.7% of the county.

Table 2-1 Population of District in 2015 (Reference Year)

County		Largest Political Jurisdiction		
Name	**Population**	**Community Name**	**Population**	**Percent of Total County Population**
Lake	229,245	Mentor	46,901	20%

2. Population Distribution

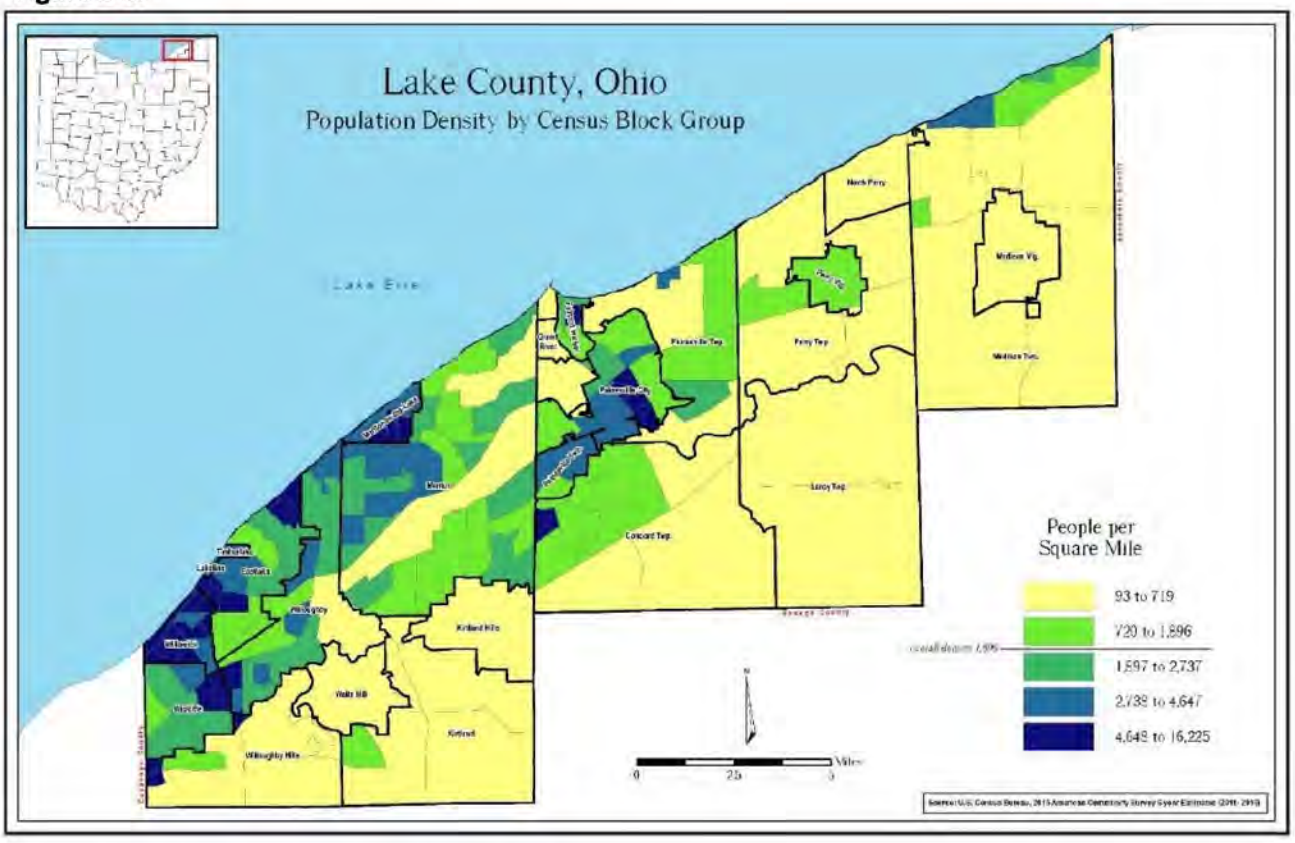
Lake County has 9 cities, 9 villages and 5 townships. Overall, the population density in Lake County is approximately 1,011 persons per square mile. Nearly 7 out of 10 people (69%) in the county live in a city, where there is an average density of 1,846 persons per square mile (see Table 2-2). Another 26% live in rural townships where the population density is significantly less, just 508 persons per square mile. Approximately 5% of the county's residents live in small villages ranging in population from 226 people (Lakeline Village) to 3,184 people (Madison Village). Figure 2-1 illustrates the population density by census block for Lake County and highlights the concentration of the population in the western half of the county.

Using the SWMD's definition of rural areas (areas with less than 5,000 population), 6% of Lake County's residents live in rural areas which make up 21% of the County's land area.

Table 2-2. Population Distribution in Lake County

	Cities	**Villages**	**Unincorporated Townships**
Percent of Population	69%	5%	26%
Population Density (persons per square mile)	1,846	495	508

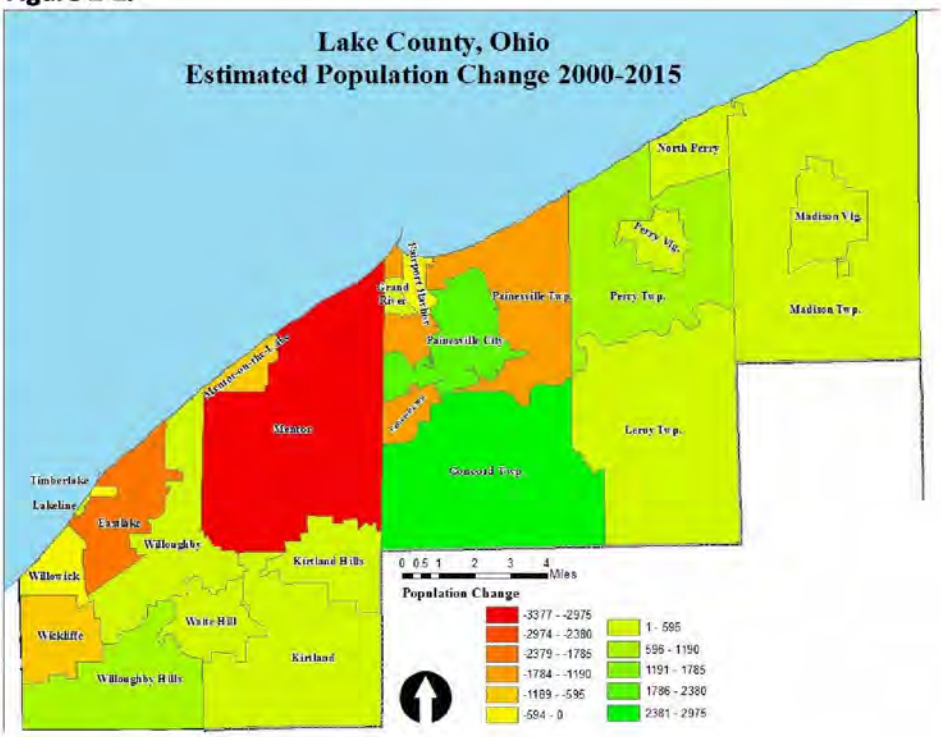
Figure 2-1.



3. *Population Change*

Since 2000, Lake County's population has increased by 1%, with 1,734 new residents. This trend is generally in line with the state of Ohio's population change of 2% in that same period (Ohio Development Services Agency). When examining recent population trends at the community level, the older built-out municipalities located in the northwestern and north central portions of the county have experienced population declines, while many communities in the eastern and southern parts of the county have grown, see Figure 2-2. For example, Perry Village has grown by 36% since 2000 (with an additional 432 residents) and Painesville City has increased by

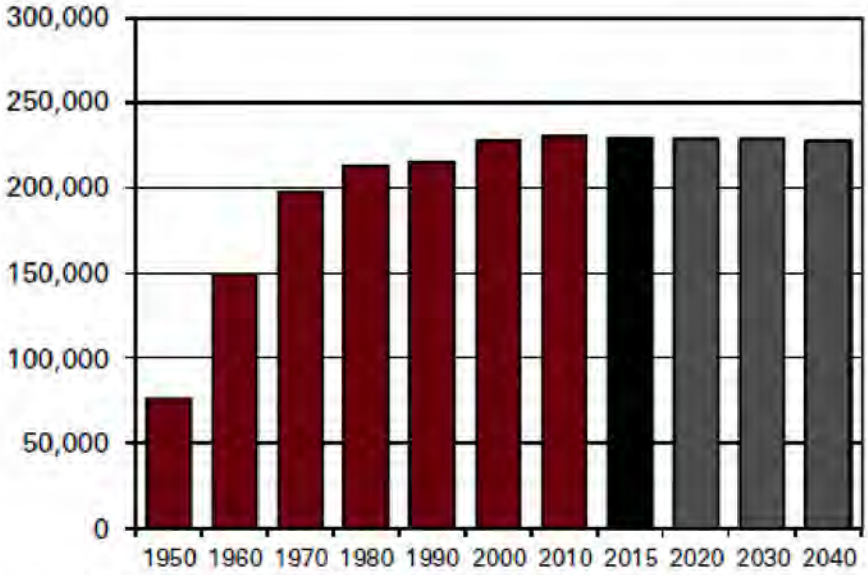
Figure 2-2.



2,273 residents (13%). The unincorporated townships (also located in the eastern part of the county) have grown by 10%, with 5,304 additional residents.

Between 2015 and 2025, Lake County's population is projected to decline slightly (by 925 people, less than 0.4%) from 229,245 to 228,320, and then increase slightly for the next 10 years to 228,550. These projections are from the Ohio Development Services Agency, which does not provide population projections for jurisdictions below the county level. Figure 2-3 illustrates how little change is expected in population growth over the next two decades.

Figure 2-3. Lake County Population Projection



Source: Ohio Development Services Agency

4. Implications for Solid Waste Management

While the county as a whole is not expected to have much population growth, the trend has been for the population to move out from the mature suburbs in the west to the more rural areas of the county to the east and south east. As the population of the county spreads out into less developed areas, providing recycling programs in an efficient and environmentally friendly manner becomes more of a challenge.

Population affects waste generation rates but factors of population growth such as household income, people per household, and economic activity also contribute, as well as types of housing units. Economic activity and population growth affect household income, and household income impacts per capita waste generation. In addition, studies show that higher income households tend to produce higher amounts of waste. Yet, it is also believed that higher income households tend to achieve higher participation rates of recycling. These complex factors are all simultaneously involved and affect each other because they dynamically occur over time.

C. Profile of Commercial and Institutional Sector

According to Ohio Development Services Agency's profile for Lake County, there are 6,036 private sector business establishments in the county. ESRI reports that there are 4,298 businesses that are commercial/retail/office type uses. Of the commercial/retail/office businesses, the 2015 American Community Survey reports 810 establishments in retail trade, 609 in the finance and insurance agency, 605 in the health care and social assistance industry, and 539 in the professional, scientific and technical services industry. ESRI reports approximately 357 public administration establishments or roughly 4% of the total business sector. Yet, similar to the population distribution, the location of businesses and institutional entities varies throughout the county. For example, the city of Mentor is home to the Great

Lakes Mall and another 325 shopping venues making it the sixth largest retail district in Ohio, while numerous other communities have very little commercial development.

According to the Ohio Development Services Agency, major/notable commercial and institutional employers include: Lake County Government; Lake Hospital System; Mentor Exempted Village Schools; and Willoughby-Eastlake City Schools.

Located along Lake Erie with nearly 30 miles of shoreline, the County is also home to numerous state and metropolitan parks and beaches, marinas, wineries and other entities that draw visitors from across the region.

D Profile of Industrial Sector

According to the 2015 American Community Survey, there are approximately 589 manufacturing businesses (NAICS code 31-33) and has roughly 20,000 paid employees, the largest out of all NAICS sectors. The fabricated metal product manufacturing sector (NAICS 332) is the largest manufacturing sector (259 establishments, 44%), while the second largest is machinery manufacturing (NAICS 333; 79 or 10%). Not surprisingly, this sector has generated over 11,000 tons of ferrous metal waste, which is the second largest type of waste generated after paper (according to the results of the 2015 Survey).

The manufacturing industry in Lake County is comprised primarily of small to medium sized businesses, with 47% of manufacturing establishments having 9 employees or fewer (Table 2-3), though there are several major corporations in the county. According to the Ohio Development Services Agency, major/ notable industrial/utility employers include: ABB Inc.; Avery Dennison Corp; FirstEnergy Corp; Lincoln Electric Holding Inc.; Lubrizol Corp; and STERIS Corp.

Table 2-3. Employment Size of Manufacturing Establishments in Lake County

Range of Employees	Number
All establishments	589
Establishments with 1 to 4 employees	171
Establishments with 5 to 9 employees	104
Establishments with 10 to 19 employees	95
Establishments with 20 to 49 employees	121
Establishments with 50 to 99 employees	49
Establishments with 100 to 249 employees	36
Establishments with 250 to 499 employees	12
Establishments with 500 to 999 employees	1

Source: 2015 American Community Survey, US Census Bureau

The State of Ohio Development Services Agency has reported a drop (-7%) of manufacturing businesses in the County between 2009 and 2014. However, at the same time, the number of persons employed by manufacturing establishments increased by over 12%, indicating that perhaps the level of manufacturing activity is actually increasing. In contrast, the retail and service industry has experienced declines in both the number of establishments (-3.4%) and number of employees (-2.1%) during the same period.

E. Other Characteristics

The County has several characteristics that make it unique and affect waste generation. For example, Lake County has Lakeland Community College, a popular two-year school located in Kirtland. Lake County also has the Perry Nuclear Power Plant. Given the county's location along Lake Erie, there are a number of nurseries in the county.

CHAPTER 3 WASTE GENERATION

Purpose of Chapter 3

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

The SWMD's policy committee calculated how much solid waste was generated for the residential/commercial and industrial sectors. Residential/commercial waste is essentially municipal solid waste 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 policy committee added the quantities of waste disposed of in landfills and reduced/recycled.

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

The policy committee obtained disposal data from Ohio EPA. Owners/operators of solid waste facilities submit annual reports to Ohio EPA. In these reports, owners/operators summarize the types, origins, and amounts of waste that were accepted at their facilities. Ohio EPA adjusts the reported disposal data by adding in waste disposed in out-of-state landfills.

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

A. Solid Waste Generated in Reference Year

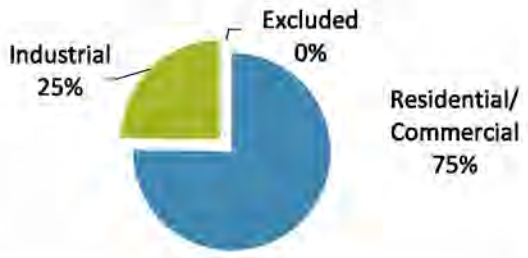
Table 3-1 summarizes the distribution of waste generation within Lake County SWMD for the year 2015.

Table 3-1. Solid Waste Generated in Reference Year

Type of Waste	Quantity Generated (2015)	
	(tons)	%
Residential/ Commercial	309,604	75%
Industrial	101,749	25%
Excluded*	0	
Total	411,352	100%

*excluded waste comprises less than 1% of waste disposed and is not addressed in this Plan.

Figure 3-1: Waste Type as Percentage of Total Waste Generated

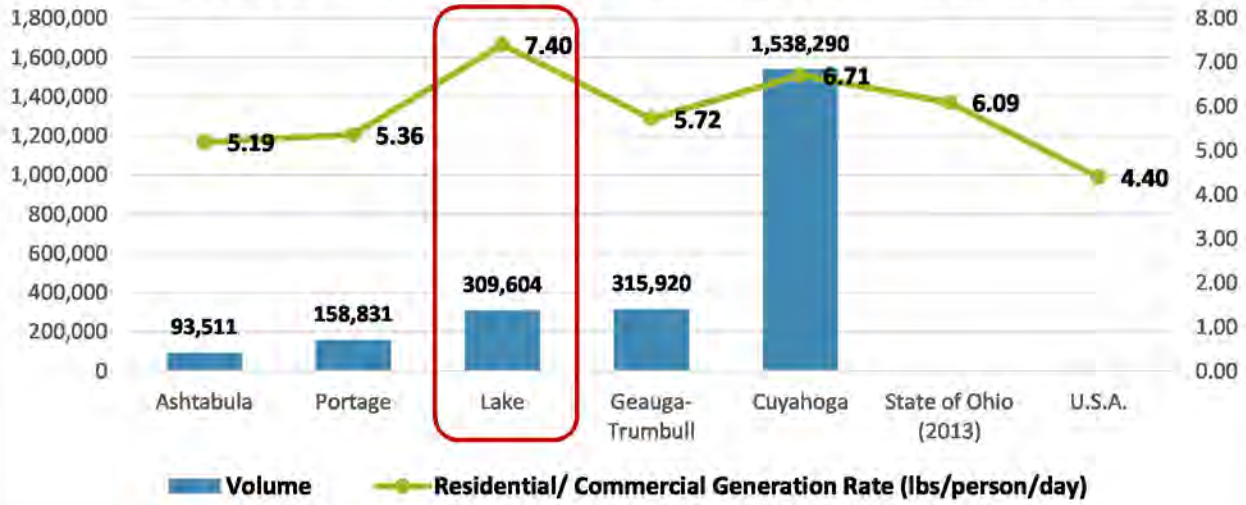


The SWMD collected recycling and waste disposal data to calculate waste generation. Of the total waste generated within Lake County SWMD, approximately 75% consisted of residential/commercial waste and the remaining 25% consisted of industrial waste (Figure 3-1). The amount of excluded waste disposed was less than 1% of for 2015 and is not addressed in this Plan.

1. Residential/Commercial Waste Generated in Reference Year

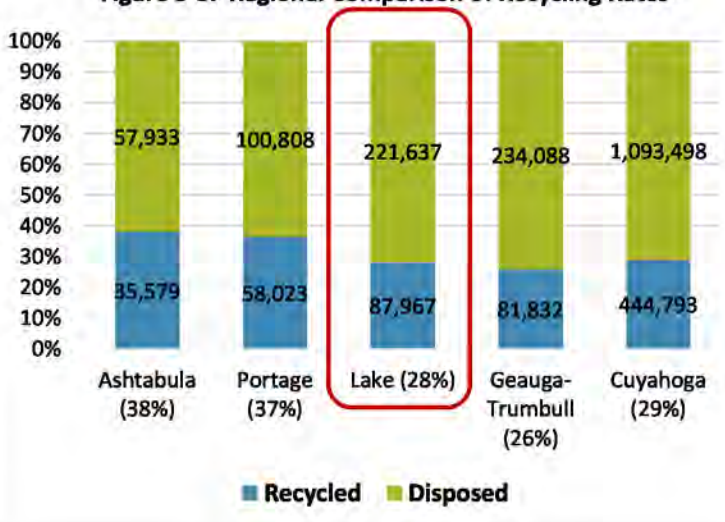
During the reference year, the SWMD generated 309,604 tons of waste in the residential/commercial sector. This amount includes a relatively high rate of yard waste, which is reported as composted materials. The Great Lakes Mall also contributes to the amount of waste generated in the District, as well as the high number of commercial businesses. Using the 2015 County population estimate of 229,245 people, the amount of waste generated on a per capita basis is calculated to be 7.40 pounds per person per day in 2015. This is a high rate compared to surrounding districts (which range from 5.36 to 6.71), the state of Ohio (6.09), and the nation (4.40) (Figure 3-2.).

Figure 3-2. Regional Comparison of Residential/Commercial Waste Generation Rates



Of the waste generated in the SWMD, approximately 28% was recycled and 72% was disposed. In comparison to SWMDs in the region, Ashtabula County and Portage County have significantly higher recycling rates, while Geauga-Trumbull and Cuyahoga SWMDs have similar rates to Lake County SWMD's rate.

Figure 3-3. Regional Comparison of Recycling Rates



2. Industrial Waste Generated in Reference Year

Industrial waste generation was calculated by adding together the recycling data obtained through the survey to waste disposal data obtained from landfill and transfer facility annual operating reports. Industrial generation was determined to be 101,749 tons.

There are a number of manufacturing and related industries in the District. One industry, Polychem Corp, is the second largest plastic poly strapping/strapping machines manufacturer in the world. They manufacture all of the plastic strapping they sell, and in 2015 reported recycling nearly 57,500 tons of material, 99% of which is plastic. There is also a large printing company (Activities Press) that generates a significant amount of paper waste. However, the District has reason to believe that the amount of waste recycled (and therefore generated) is higher than reported, due to the lack of responses to the recycling survey conducted as part of this plan update.

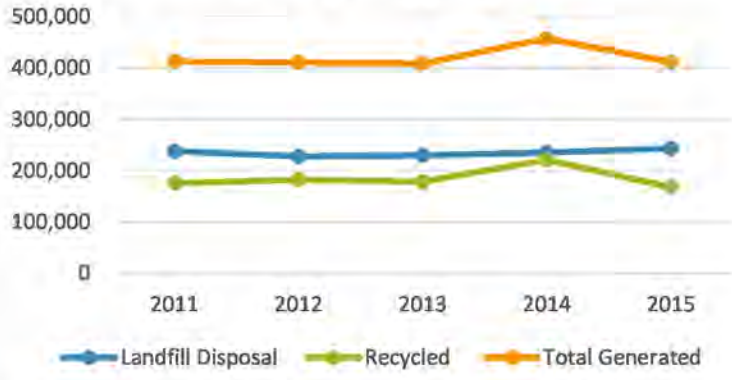
3. Excluded Waste Generated in Reference Year

In the reference year (2015), excluded waste comprised less than 1% of total waste disposed and therefore is not discussed as part of this Plan.

B. Historical Waste Generated

Figure 3-4 "Historical Waste Generation and Management" shows the historical trends of waste recycling, disposal, and generation. Generally the total generation has remained consistent around 408,000-412,000 tons with the exception of an uptick in 2014 due to an increase in recycling that year.

Figure 3-4. Historical Waste Generation and Management (tons)



1. Historical Residential/Commercial Waste Generated

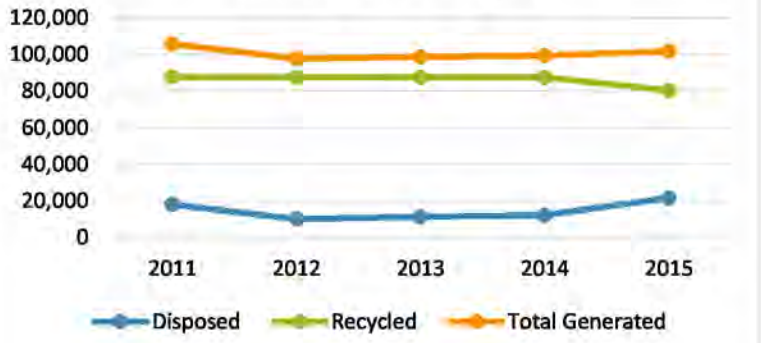
Despite a 2% decline in the District's population, the amount of waste generated by the residential/ commercial sector has increased by 1% since 2011, from 307,324 tons in 2011 to 309,604 tons in 2015, as shown in Figure 3-5. This has resulted in an increased per capita rate of 7.40 pounds per person per day in 2015, up from 7.20 pounds per person per day in 2011.

Figure 3-5. Historical Residential/Commercial Waste Reduction, Disposal and Generation (tons)

2. *Historical Industrial Waste Generated*

Over the last five years, industrial waste has fluctuated between a high of 105,621 tons in 2011 to a low of 97,574 tons, with varying tonnage in between those amounts in 2013, 2014 and 2015, see Figure 3-6. The fluctuations have been caused primarily by the amount of waste disposed. The amount of industrial waste recycled is lower in 2015 than in previous years based on the lower number of surveys received.

Figure 3-6. Historical Industrial Waste Reduction, Disposal and Generation (tons)



C. Waste Generation Projections

As noted earlier, Lake County, Ohio is located in the northeastern area of the state, along Lake Erie, approximately 20 miles east of Cleveland. The County has a number of older cities that are built out, yet at the same time, the communities in the eastern and southern portions of the county have a significant amount of growth potential, especially along the I-90 expressway corridor. Because of this, the residential/ commercial sector is expected have an increasing amount of waste generated in the future, including through the first six years of the planning period (2018 to 2023), see Table 3-2 and Figure 3-7.

Table 3-2 Waste Generation Projections (Waste in Tons)

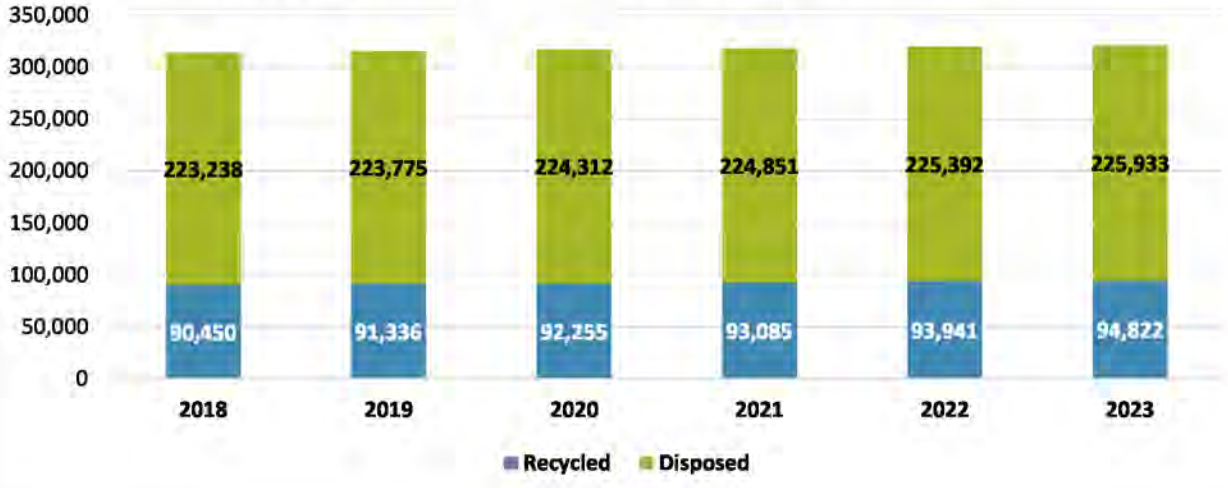
Year	Residential Commercial Waste	Industrial Waste	Total
2018	313,688	91,344	405,032
2019	315,111	91,344	406,455
2020	316,567	91,344	407,911
2021	317,937	91,344	409,281
2022	319,333	91,344	410,677
2023	320,755	91,344	412,099

Figure 3-7. Waste Projected to be Generated (tons)

1. *Residential/Commercial Waste Projections*

Waste generation projections were estimated by analyzing historical trends of waste generation, disposal, and recycling, population trends and planning period program design impacts. The waste disposal analysis in Appendix D uses the average annual percentage change in residential/commercial waste disposed between 2011 and 2015 (0.24%) multiplied by the yearly population projections supplied by the Ohio Department of Strategic Research to forecast beyond 2015. The waste reduction analysis in Appendix E projects a 1% increase for recycling. This results in the waste generation projections over the 6-year period shown on Table 3-2 and Figure 3-8 with a small (0.5%) annual increase.

Figure 3-8. Residential/Commercial Waste Projections



2. *Industrial Waste Projections*

Waste generation projections for industrial businesses in Lake County involved analyzing historical trends of waste generation, disposal, and recycling and predicted Ohio manufacturing employment for the region. The "2022 Job Outlook for Cleveland-Elyria-Mentor Metropolitan Statistical Area," produced by Ohio Department of Job and Family Services, projected a decline of about 6.9% for manufacturing employment in the MSA, though Lake County continues to be attractive to manufacturing businesses. Given the industrial outlook, fluctuations in disposal tonnage and the difficulty in obtaining survey data, the waste disposal analysis in Appendix D holds tonnage constant at 80,249 tons, and the waste reduction analysis in Appendix F holds industrial waste recovery constant at 11,095 tons for the planning period.

Figure 3-9. Industrial Waste Projections

CHAPTER 4 WASTE MANAGEMENT

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

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

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

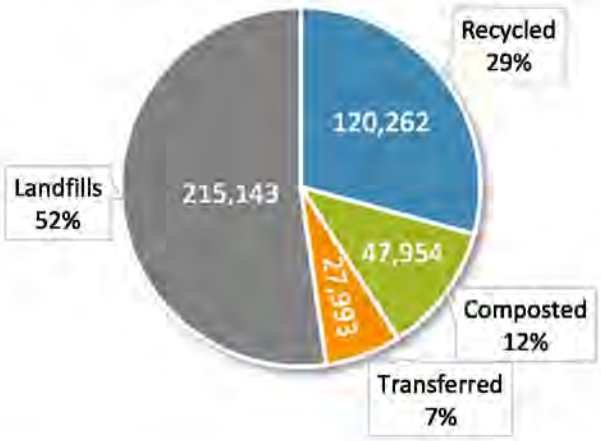
Although the policy committee needs to ensure that the SWMD will have access to all types of needed facilities, Ohio law emphasizes access to disposal capacity. In the solid waste management plan, the policy committee must demonstrate that the SWMD will have access to enough landfill capacity for all of the waste the SWMD will need to dispose of. If there isn't adequate landfill capacity, then the policy committee develops a strategy for obtaining adequate capacity. Ohio has more than 40 years of remaining landfill capacity. That is more than enough capacity to dispose of all of Ohio's waste. However, landfills are not 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 SWMD has the ability to control which landfill and transfer facilities can, and by extension cannot, accept waste that was generated within the SWMD. The SWMD accomplishes this by designating solid waste facilities (often referred to flow control). A SWMD's authority to designate facilities is explained in more detail later in this chapter.

A. Waste Management Overview

The District has managed waste through a combination of landfills, recycling programs and facilities, transfer stations, and composting facilities. Figure 4-1, "Reference Year Waste Management Methods" depicts how much of the total waste generation (411,352 tons in 2015) was managed by each of the various waste management methods. This distribution has been the historic trend and is expected to continue for the planning period.

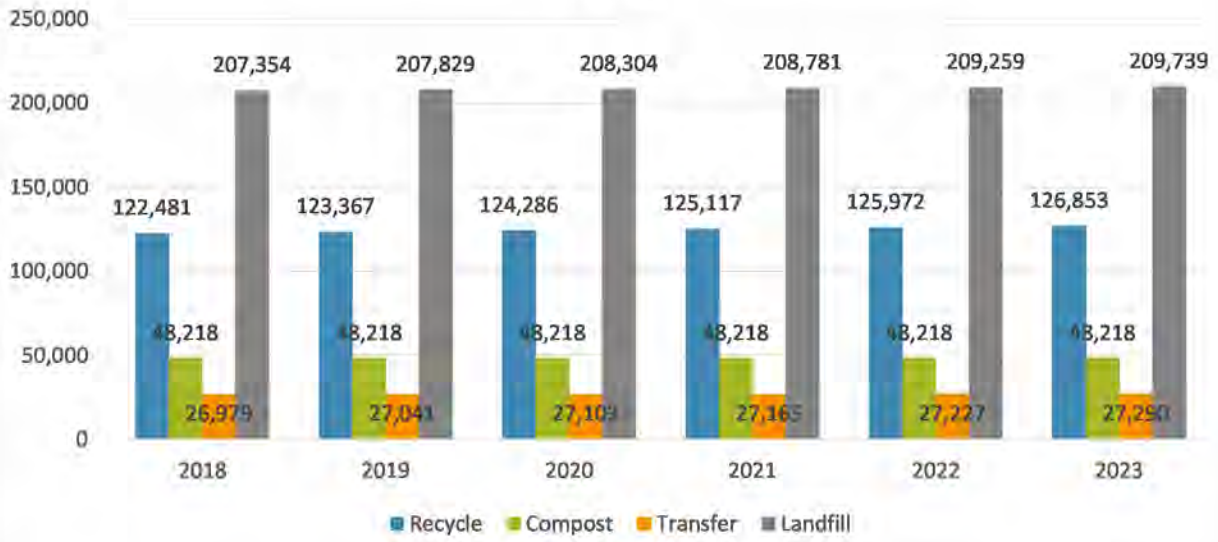
Figure 4-1. Reference Year (2015) Waste Management Methods (in tons)



Compared to other SWMDs, the District has a relatively large portion (12%) that was composted. Lake County's unique soils and climate along the Lake Erie shore support more than 100 wholesale nurseries, many of them located in the eastern portion of the County. These businesses contribute to the large amount of composted material that has been reported for many years.

The waste management methods historically used in the District are projected to continue in similar proportions as in the past. Figure 4-2 below shows recycling, composting, and disposal (both landfilled and transferred) for the first six years of the planning period.

Figure 4-2. Waste Management Methods, 2018-2023
(in tons)



B. Profile of Waste Management Infrastructure

1. *Solid Waste Management Facilities*

a. Landfills

Landfills used by the SWMD include the Lake County Solid Waste Facility landfill –the only landfill located in the district, plus eight out-of-district but in-state landfills. The District did not use any out-of-state facilities. The source of information is Ohio EPA. Table 4-2, "Landfill Facilities Used by the District in the Reference Year" contains the information concerning waste that was disposed of at these facilities.

The in-district Lake County Solid Waste Facility landfill (established in 1976) is located in Painesville and Perry Townships and provides the majority of solid waste disposal for the District. The facility accepts municipal solid waste (no industrial waste) and is publically owned and operated. The entire landfill site includes 400 acres of land, of which 250 acres are presently incorporated in the landfill operation licensed by the Ohio Environmental Protection Agency (OEPA). The landfill is divided into four waste cells, three of which are filled and closed, and the fourth that is in current operation. The site has space for expansion. Lake County applied and was approved for a new permit-to-install (PTI) in 2016. This permit expands the landfill by 7.4 million cubic yards of airspace extending the life of the landfill by roughly 35 years. The Lake County Landfill receives approximately 800 tons of garbage each day.

The general operation of the landfill is the responsibility of county personnel in the Lake County Solid Waste Division. This includes maintenance of the closed waste cells, compliance reporting to the OEPA, and periodic landfill license renewal. County personnel also operate the truck scales used to weigh incoming loads for calculation of tipping fees. Most of the waste comes from contract haulers that are billed on a monthly basis; however operators handle cash receipts from residents and other occasional haulers. While the landfill is publically available, a large majority of waste received comes from in-county residential customers.

b. Transfer Facilities

There were seven transfer facilities that accepted waste from the SWMD during the reference year, all located outside the District but within the state. Information for this section was obtained from Ohio EPA.

c. Compost Facilities

There were fourteen composting and yard waste management facilities that provided services to the SWMD in 2015. During 2015, these facilities composted approximately 47,934 tons of material. Eleven of the facilities are located within the SWMD and three facilities are located out-of-District.

Figure 4-3. Inventory of In-District Composting Facilities

The eleven in-district compost facilities are all registered with Ohio EPA as either a Class III or a Class IV composting facilities. The locations are shown in Figure 4-3; ownership structure, size of service area and class are listed in Figure 4-4. Class III facilities (C3R) accept yard waste, agricultural waste and animal waste. Class IV facilities (C4R) accept only yard waste. There are no Class II facilities in the District that would allow for Class III materials as well as food scraps.

Figure 4-4. Description of In-District Composting Facilities

Facility Name	Class	Ownership	Publicly Accessible	Size of Service Area
Heisley Road Landfill Compost Facility	C4R	Private	Y	Regional
D.B. Bentley, Inc.	C3R	Private	N	Regional
Lake Metroparks Farmpark	C3R	Public	Y	Limited
DeMilta Sand & Gravel Inc.	C4R	Private	N	Regional
Village of Fairport Harbor	C4R	Village	Y	Local
Pro Tree Service, Inc.	C4R	Private	N	Local
Perry Township Landfill Yard Waste Fac.	C4R	Public	Y	Local
McCallister's Landscaping and Supply	C4R	Private	N	Local
The Perfect Touch Landscape Co	C4R	Private	N	Regional
City of Wickliffe Composting Facility	C4R	City	Y	Local
Hallmark Excavating	C4R	Private	N	Regional

d. Processing Facilities

There are no processing facilities located within the SWMD.

e. Other Waste Management Facilities

There are no other types of waste management facilities located within the SWMD.

f. Existing Open Dumping Sites

In 2015, the Lake County General Health District continued to work with the owner of the one open dump known to exist in Lake County. This dump site is located on Blackbrook Road in Painesville Township, and includes residential solid waste and construction debris. The Lake County General Health District reported that there are no other active dump sites that it is aware of. The one ash site known to have existed in the District (located at the Fairport Nursery in Painesville Township) has been inactive for approximately 10 years.

2. Waste Collection

There were eight haulers providing collection services for solid waste and recyclables to District residents in 2015, including Republic Waste Services, Waste Management of Ohio, Recycle Midwest, Major Waste Disposal, Universal Disposal, Kimble, Allied Waste and Buckeye Industries.

Twenty-two of the 23 communities in the SWMD had curbside waste collection service through contracted haulers in 2015; 11 had nonsubscription service and 11 had subscription service. Provision of solid waste services is privatized in the SWMD, no public haulers provide hauling services. Municipalities with either nonsubscription or subscription service take proposals/quotes from private sector service providers to deliver the specified services. Public-private contracts determine collection frequency, materials collected, size of containers, and type of collection. In municipalities with subscription service, Townships do not have a contract with the haulers, residents are required to set up service on their own with a hauler.

Figure 4-5. Profile of Curbside Service in Reference Year

Community	Type of Service	Contracted	Service Provider
Concord Township	Subscription	No	Major Waste Disposal, Universal Disposal
Eastlake City	Nonsubscription	Yes	Republic Waste
Fairport Harbor Village	None in 2015	N/A	(Began subscription service in 2016, current provider - Tony Scheiber's Hauling)
Grand River Village	Nonsubscription	Yes	Republic Waste
Kirtland City	Nonsubscription	Yes	Waste Management Of Ohio
Kirtland Hills Village	Nonsubscription	Yes	Waste Management Of Ohio
Lakeline Village	Nonsubscription	Yes	Republic Waste
Leroy Township	Subscription	No	Major Waste Disposal, Universal Disposal
Madison Village	Subscription	Yes	Waste Management of Ohio
Madison Township	Subscription	No	Major Waste Disposal, Universal Disposal, Waste Management of Ohio
Mentor City	Subscription	Yes	Waste Management of Ohio
Mentor-on-the-Lake City	Nonsubscription	Yes	Republic Waste
North Perry Village	Subscription	Yes	Waste Management of Ohio
Perry Township	Subscription	No	Universal Disposal
Perry Village	Subscription	Yes	Universal Disposal
Painesville City	Nonsubscription	Yes	Waste Management of Ohio (Switched to Republic Waste 7/2016)
Painesville Township	Subscription	No	Waste Management of Ohio
Timberlake Village	Nonsubscription	Yes	Republic Waste
Waite Hill Village	Nonsubscription	Yes	Recycle Midwest
Wickliffe City	Subscription	Yes	Kimble Services

Figure 4-5. Profile of Curbside Service in Reference Year			
Community	**Type of Service**	**Contracted**	**Service Provider**
Willoughby City	Nonsubscription	Yes	Waste Management Of Ohio
Willoughby Hills City	Nonsubscription	Yes	Republic Waste
Willowick City	Subscription	Yes	Kimble Services

C. Solid Waste Facilities Used in the Reference Year

Table 4-1, "Methods of Managing Waste" identifies how waste generated in the District in the reference year was managed and projects the amounts of waste expected to be managed by each management method.

Table 4-1 Methods for Managing Waste

Year	Generate[1]	Recycle[2]	Compost[3]	Transfer[4]	Landfill[5]
2015	***411,352***	***120,262***	***47,954***	***27,993***	***215,143***
2018	405,032	122,481	48,218	26,979	207,354
2019	406,455	123,367	48,218	27,041	207,829
2020	407,911	124,286	48,218	27,103	208,304
2021	409,281	125,117	48,218	27,165	208,781
2022	410,677	125,972	48,218	27,227	209,259
2023	412,099	126,853	48,218	27,290	209,739

Sources of Information:

1. *Generate:* see Appendix G - Table G-1 for reference year amount and Table G-2 for projections.
2. *Recycle: see* Appendix E for residential/commercial material and Appendix F for industrial material, less composted material.
3. *Compost: see* Appendix E, Table E-4 for total material managed at compost facilities in reference year (there was no composted materials for the industrial sector), and Table E-7 for projections.
4. *Transfer:* see Appendix D, Table D-6.
5. *Landfill:* see Appendix D, Table D-6 total disposed, less transferred waste.

1. *Landfill Facilities*

As seen in Table 4-2, "Landfill Facilities Used by the District in the Reference Year", the Lake County Solid Waste Facility in the District reported receiving 88% of the SWMD's waste.

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

Facility Name	Location		Waste Accepted from SWMD (tons)	Percent of all SWMD Waste Disposed	Remaining Capacity (years)
	County	State			
In-District					
Lake County Solid Waste Facility	Lake	Ohio	189,100	88%	35*
Out-of-District					
Lorain County Landfill LLC	Lorain	Ohio	7,768	4%	11.7
Carbon Limestone Landfill LLC	Mahoning	Ohio	8	0%	60.7
Port Clinton Landfill, Inc.	Ottawa	Ohio	21	0%	68.0
Countywide Recycling & Disposal Facility	Stark	Ohio	13	0%	75.6
Kimble Sanitary Landfill	Tuscarawas	Ohio	7	0%	30.8
Evergreen Recycling & Disposal	Wood	Ohio	0	0%	35.5

Geneva Landfill	Ashtabula	Ohio	16,403	8%	85.9
American Landfill, Inc.	Stark	Ohio	2,593	1%	84.5
Out-of-State					
None				0%	
	Total		215,914	100%	453

According to the 2015 Ohio Facility Data Report, the Lake County Solid Waste Facility had only 5 years of capacity remaining. Lake County applied and was approved for a new permit-to-install (PTI) in 2016. This permit expands the landfill by 7.4 million cubic yards extending the life of the landfill by roughly 35 years.

2. Transfer Facilities

Approximately 12% of the disposed waste generated in the District was transferred in 2015 (Figure 4-6), meaning a refuse truck picked up waste from clients and hauled that waste to a transfer facility. Waste was tipped, reloaded into transfer trucks, and hauled to landfills for disposal.

Table 4-3 describes the amount of waste disposed by the District to seven different transfer facilities. The total amount of District generated waste transferred was 28,015 tons, and 44% was transferred to four different facilities in adjacent Cuyahoga County.

Figure 4-6. Waste Disposed 2015

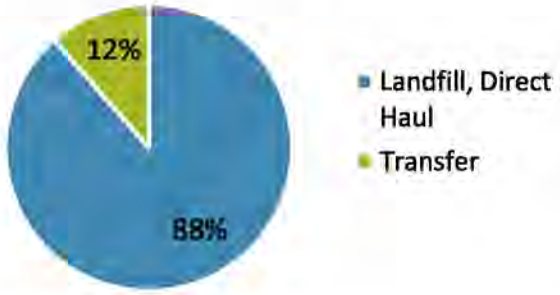


Table 4-3 Transfer Facilities Used by the District in the Reference Year

Facility Name	Location		Waste Accepted from District (tons)	Percent of all District Waste Transferred	Landfill Where Waste was Taken to be Disposed
	County	State			
In-District					
None					
Out-of-District					
Kimble Transfer & Recycling Facility - Canton	Stark	Ohio	7	0%	Kimble Sanitary Landfill
PennOhio Coal Co, dba Kimble Transfer & Recycling	Summit	Ohio	9,849	35%	Kimble Sanitary Landfill
Harvard Road Transfer Station	Cuyahoga	Ohio	144	1%	Noble Rd Landfill
BFI Glenwillow Transfer Station	Cuyahoga	Ohio	6,332	23%	Lorain County Landfill LLC; Countywide Recycling & Disposal Facility
Cleveland Transfer/Recycling Station	Cuyahoga	Ohio	3,338	12%	American Landfill Inc.
Universal Disposal Inc.	Geauga	Ohio	5,966	21%	Lorain County Landfill LLC; Kimble Sanitary Landfill
Broadview Heights Recycling Center	Cuyahoga	Ohio	2,379	8%	Noble Rd Landfill
Out-of-State					
None				0%	
	Total		**28,015**	**100%**	

3. Composting Facilities

There were 14 composting facilities used by the District in 2015, 11 of which are located in the District and three others that are located in neighboring Geauga County (Table 4-4). These facilities managed yard waste, animal wastes, and food waste generated by the County and reported tonnage related to these activities. Tonnage creditable for waste reduction in 2015 was 47,934 tons. (Animal wastes are not creditable because they have traditionally never been disposed in solid waste landfills.) Approximately 96% of compost and yard waste materials collected during the reference year were processed within the SWMD. Information in this section was obtained from Ohio EPA's 2015 Compost Facility Data Report.

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

Facility Name	Location (County)	Material Composted (tons)	Percent of all Material Composted
In District			
Heisley Road Landfill Compost Facility	Lake	18,918	39%
D.B. Bentley, Inc.	Lake	-	0%
Lake Metroparks Farmpark	Lake	47	0%
DeMilta Sand & Gravel Inc.	Lake	2,059	4%
Village of Fairport Harbor	Lake	-	0%
Pro Tree Service, Inc.	Lake	1,033	2%
Perry Township Landfill Yard Waste Fac.	Lake	915	2%
McCallister's Landscaping and Supply	Lake	579	1%
The Perfect Touch Landscape Co	Lake	1,422	3%
City of Wickliffe Composting Facility	Lake	18,695	39%
Hallmark Excavating	Lake	2,424	5%
Out-of-District			
Mapledale Farm Inc.	Geauga	6	0%
Abate Landscaping	Geauga	121	0%
Hauser Landscaping	Geauga	1,716	4%
Total		**47,934**	

4. Processing Facilities

One processing facility provided recycling services to the District in 2015 - Waste Management Cleveland which is located out-of-District, in the adjacent Cuyahoga County. This facility is classified as a Materials Recovery Facility (MRF), see Table 4-5.

Table 4-5 Processing Facilities Used in the Reference Year

Name of Facility	Location		Facility Type	Recyclables Accepted from District (tons)
	County	State		
In-District				
None		OH		
Out-of-District				
Waste Management - Cleveland MRF	Cuyahoga	OH	MRF	1,527
Out-of-State				
None				
			Total	**1,527**

5. Other Waste Management

In the past, Stericycle Inc. located in the Geauga/Trumbull Solid Waste District has accepted and incinerated 1 ton of waste or less from the District. In 2015, no waste was reported from the SWMD.

D. Use of Solid Waste Facilities during the Planning Period

1. Landfills

When considering the total amount of disposed waste, 78% was disposed in the District at the Lake County Solid Waste Facility. Lake County applied and was approved for a new permit-to-install (PTI) in 2016. This permit expands the landfill by 7.4 million cubic yards of airspace extending the life of the landfill by roughly 35 years. In addition, the eight out-of-district landfills listed on Table 4-2 "Landfill Facilities Used by the District in the Reference Year" that accepted waste from the SWMD have an average remaining capacity of 56 years. The SWMD expects waste to be disposed of similarly to how waste was disposed in the reference year.

2. Transfer Facilities

The SWMD expects flows through transfer facilities to be similar to flows in the reference year. As shown in Figure 4-7, "Historic Waste Distribution Transferred and Direct Hauled" this distribution has been the historic trend. In the reference year, approximately 12% of the waste landfilled passed through transfer stations. The District however, does not direct any wastes to any facility. Therefore, the actual amount of wastes taken to a transfer station for any year is dependent upon the waste haulers and their method of operation.

Figure 4-7. Historic Waste Distribution Transferred and Direct Hauled

3. Composting Facilities

The district does not anticipate any changes in the manner in which composting facilities manage the District yard and food waste.

E. Siting Strategy

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

Although unlikely, the policy committee can conclude that that it is in the SWMD's best interest to construct a new solid waste landfill facility to secure disposal capacity. In that situation, Ohio law requires the policy committee 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 policy committee must include its siting strategy in the solid waste management plan. If this solid waste management plan includes a siting strategy, then that strategy is summarized in this chapter and presented in full in Appendix S.

The siting strategy shall be implemented by the Lake County Department of Utilities under the general direction of the District Coordinator. The District will establish a Facilities Siting Committee to undertake the site survey and ranking scheme reviews in connection with the siting of facilities.

The process includes a preliminary site survey which includes background data (i.e. physical features, land use, and environmental characteristics) and any Ohio EPA restrictions. A ranking scheme is developed with several factors such as access to site, soil conditions and land use and zoning. Each factor will be analyzed quantitatively and depending on the type of facility will receive a certain number of points proposed. The process will include at least one public information meeting following the ranking of sites for consideration for a particular facility. The Facilities Siting Committee will develop the dispute resolution process to be used when necessary in siting solid waste facilities Please see Appendix S for the full strategy.

F. Designation

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

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

Even if the policy committee grants the board of directors the authority to designate in a solid waste management plan, the board of directors decides whether or not to act on that authority. If it chooses to use its authority to designate facilities, then the board of directors must follow the process that is prescribed in ORC Section 343.014. If it chooses not to designate facilities, then the board of directors simply takes no action.

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

1 Description of the SWMD's Designation Process

The Board of Directors of the Lake County Solid Waste Management District is authorized to establish facility designations in accordance with Section 343.014 of the ORC after this plan has been approved by the Director of the Ohio Environmental Protection Agency.

2 List of Designated Facilities

Though the District has the authority, it has not designated facilities for disposal, transfer, resource recovery, or recycling.

G. Maps of Existing Facilities

Maps of existing facilities indicating where solid wastes are being disposed of, resource recovery facilities and all recycling activities in the district are provided below.

Figure 4.8 In-District Facilities

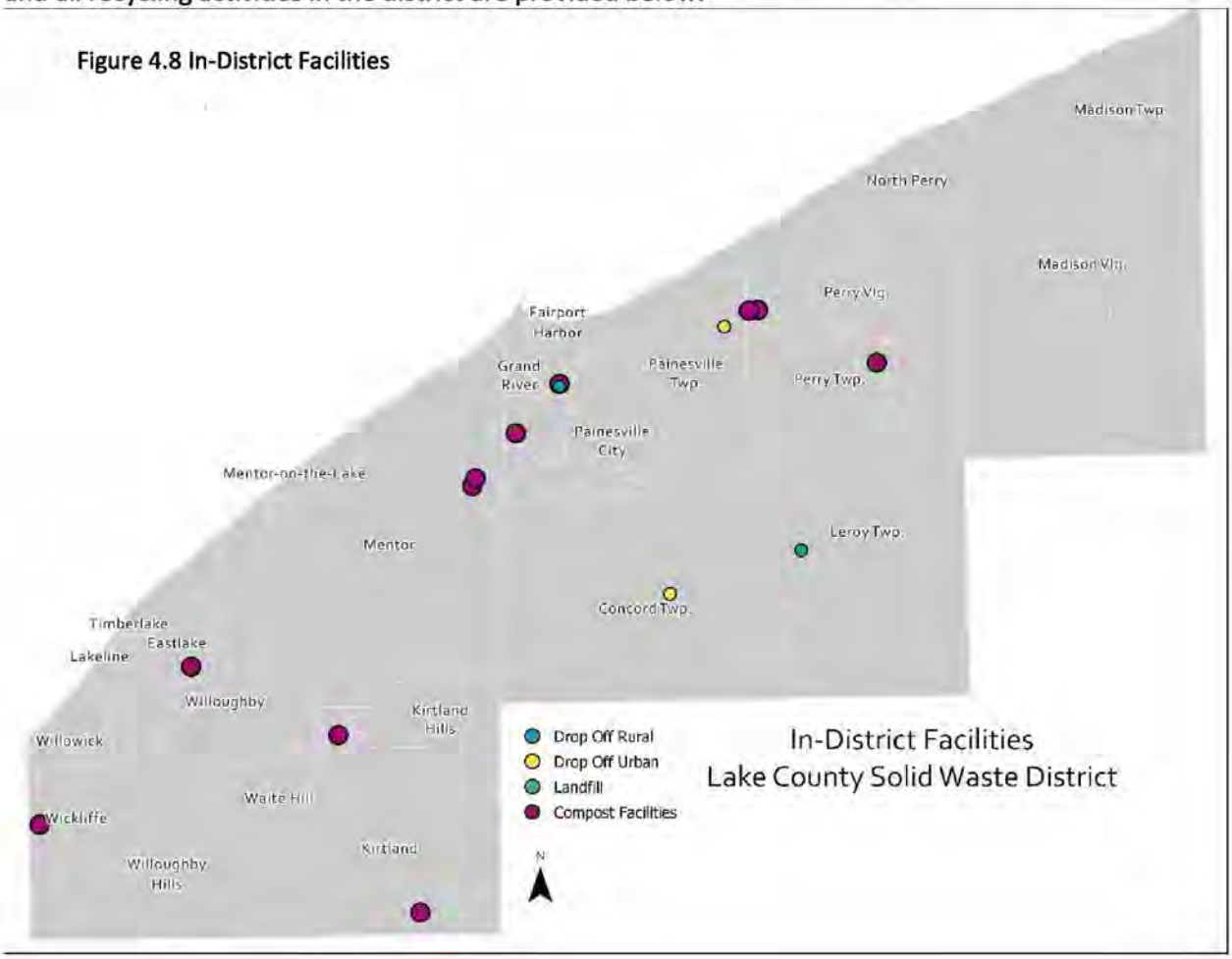
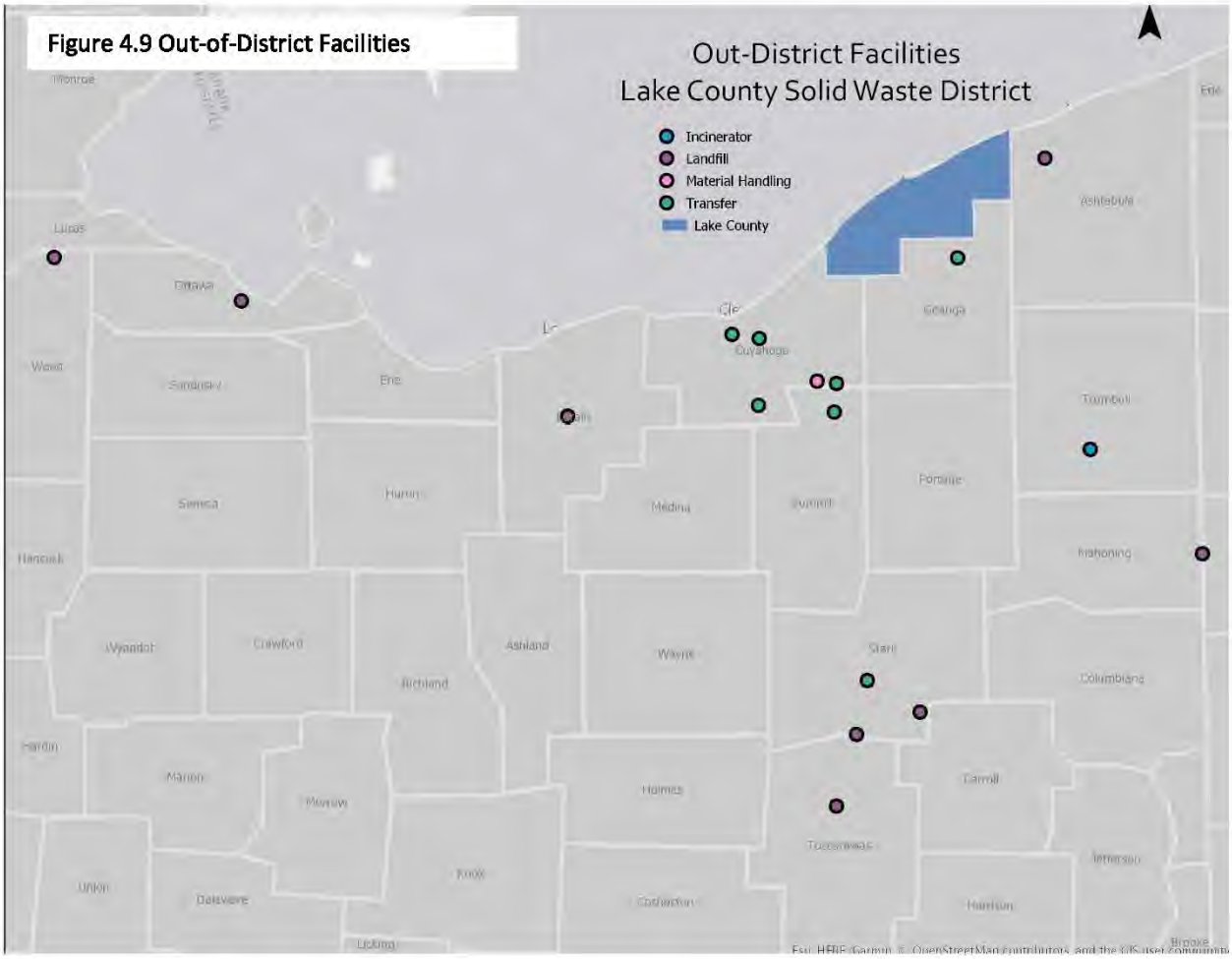


Figure 4.9 Out-of-District Facilities



CHAPTER 5 WASTE REDUCTION AND RECYCLING

Purpose of Chapter 5

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

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

Before deciding upon the programs and services that are necessary and will be provided, the policy committee performed a strategic, in-depth review of the SWMD's existing programs and services, recycling infrastructure, recovery efforts, finances, and overall operations. This review consisted of a series of 12 analyses that allowed the policy committee to obtain a holistic understanding of the SWMD by answering questions such as:

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

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

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

A. Solid Waste Management District's Priorities

1. Strategic Analysis

During these analyses, the Policy Committee completed a strategic process of evaluating its reduction and recycling efforts. To do this, the status of the reduction and recycling efforts were evaluated in the context

of factors described in Format 4.0. Appendix H contains the full strategic evaluation which uses historical comparisons, performance, weaknesses, participation, impacts, costs, etc. where applicable.

A review of the residential recycling tonnage demonstrates the success of the curbside recycling under the authority of the individual communities, both in an increase in the number of communities offering curbside recycling and the amount of recyclable material collected.

Figure 5-1 Historical Trends for Residential Recycling

2. Conclusions

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

- Residential recycling programs provide adequate infrastructure; by 2017, every traditional single-family household in the County has access to curbside recycling (either through subscription or nonsubscription service).
- Maintaining curbside recycling is a high priority, but the Policy Committee recognizes that there are a number of households in the county that live in apartment buildings and these types of housing units typically do not offer recycling services. There is a definite need to foster recycling in apartment complexes.
- Commercial/Institutional Sector infrastructure is a large component in the SWMD, but more can be done to influence recycling. This sector has been the focus of the Business Waste Reduction Committee but the committee can do more. This Plan update includes enhancements to the BWRC to reinstitute programs and increase awareness among the business sector.
- The SWMD is not well engaged with the industrial sector; and collecting recycling data from commercial and industry businesses is challenging due to a variety of factors, plus it takes considerable time and effort to gather and analyze. Issues encountered include: low participation rates, time commitment, and lack of response.

- Composting continues to play a large role in the District's management plan due in part to the nature of the local nursery industry; yard waste comprises and average of 55% of total recycled waste for the residential/commercial sector.
- After yard waste, the material categories reported as most recycled in 2015 include corrugated cardboard (14%), other paper (9%) and ferrous metals (6%).
- The SWMD's special collections have been successful and will be continued throughout the planning period – with some expansion to include all household electronics. Price adjustments are necessary as the cost to collect these special items continues to increase.
- With the decline in the number of drop-off locations, there is a need for a convenient, centralized district-managed drop-off location. A logical solution is to provide a drop-off location at the County landfill, where it would be conveniently located off SR 2.
- With the elimination of the District's funding to local governments to support residential curbside recycling and drop-off collection points, there has been a decline in reporting, which is reflected in the relatively small increase in residential recycling tonnage between 2014 and 2015.

3. Priorities

After evaluating the list of actions, the Policy Committee identified priorities for implementation during this planning period. Based on the most supported and highest priority issues, identified priorities include:

a. Establish a new recyclable drop-off location at the County Landfill.

b. Establish a multi-family recycling pilot program to incentivize local property management firms to provide recycling opportunities to apartment dwellers.

c. Increase education and outreach programs through poster contests, elementary school education programs, and expand outreach at the local public libraries and senior centers.

d. Continue the successful special collection programs and expand the computer collection program to accept a wider range of household electronics (anything with a cord).

e. Continue successful programing such as the Master Gardeners program.

f. Enhance the annual survey and outreach to local governments to increase participation in reporting the amount of recyclable tonnage collected from residential households.

g. Reinvigorate the BWRC with targeted efforts to connect with local businesses through the chambers of commerce, and special promotions such as the existing "Go Green with the Captains" program, re-instituting the environmental steward award program and promoting the State's market waste exchange program.

h. Expand recycling efforts at the expanded Lake County Government Administration Building in downtown Painesville, which will consolidate a number of County departments under one roof.

i. Recognize businesses and agencies that are participating in recycling, and whose programs and/or activities can motivate others to do the same.

B. Program Descriptions

This section describes programs and services available during the planning period. For complete descriptions see Appendix I and Appendix L.

Residential Recycling Infrastructure

Curbside Recycling Services

Over the years, the District has experienced a number of changes in curbside recycling. In 2005, the District replaced its county-wide residential curbside recycling program with a county-wide drop off collection program due to lack of funds. In subsequent years, the District continued to have frequent conversations with the communities regarding alternate program options. In 2003, the District developed a grant program to assist communities in providing drop-off locations and curbside recycling programs. By 2009, seven (7) of the twenty-three (23) communities had curbside recycling programs in place, which increased to 22 by 2015 and by 2016 included all 23 communities.

Table 5-1 Curbside Recycling Services

ID#	Name of Curbside Service/Community Served	Service Provider	When Service Was/Will be Available
NCS1	Eastlake City	Republic Waste	Ongoing
NCS2	Grand River Village	Republic Waste	Ongoing
NCS3	Kirtland City	Waste Management of Ohio	Ongoing
NCS4	Kirtland Hills Village	Waste Management of Ohio	Ongoing
NCS5	Lakeline Village	Republic Waste	Ongoing
NCS6	Mentor-on-the-Lake City	Republic Waste	Ongoing
NCS7	Painesville City	Republic Waste (Switched from Waste Management of Ohio 7/16)	Ongoing
NCS8	Timberlake Village	Republic Waste	Ongoing
NCS9	Waite Hill Village	Public Service Department (Switched from Recycle Midwest 5/17)	Ongoing
NCS10	Willoughby City	Waste Management of Ohio	Ongoing
NCS11	Willoughby Hills City	Recycle Midwest (Switched from Republic Waste 4/15)	Ongoing
SC1	Concord Township	Major Waste Disposal, Universal Disposal	Ongoing
SC2	Leroy Township	Major Waste Disposal, Universal Disposal	Ongoing
SC3	Madison Township	Major Waste Disposal, Universal Disposal, Waste Management of Ohio	Ongoing
SC4	Madison Village	Waste Management of Ohio	Ongoing
SC5	Mentor City	Waste Management of Ohio	Ongoing
SC6	North Perry Village	Waste Management of Ohio	Ongoing
SC7	Painesville Township	Waste Management of Ohio	Ongoing
SC8	Perry Township	Universal Disposal	Ongoing
SC9	Perry Village	Universal Disposal	Ongoing
SC10	Wickliffe City	Kimble	Ongoing
SC11	Willowick City	Kimble	Ongoing
SC12	Fairport Harbor	Tony Scheiber	(Began in 2016) Ongoing

Table 5-1 describes the curbside recycling services provided in the Lake County SWMD service areas. Municipalities obtain bids/proposals from service providers and enter into a contract for recycling services. Townships do not contract with the haulers, instead residents are required to set up service on their own with a hauler - information on recycling opportunities is made available on the townships' websites. Curbside service is available for pickup either a weekly or biweekly basis, depending on the community and hauler. For municipalities, the local government contracts with the private service provider and specifies the frequency, materials collected, size of containers and type of collection. All municipalities are expected to continue service throughout the planning period. However, changes do occur, such as in the case of the Village of Waite Hill. As a cost savings measure, the village decided in 2016 to provide the curbside recycling service in house using the Service Department and discontinued its contract with Recycle Midwest, effective May 2017.

Drop-off Recycling Locations

Table 5-2 Drop-off Recycling Locations

ID#	Name of Drop-off/Community Served	Service Provider	When Service was/ will be Available
FTU1	Concord Township Hall/Concord Township	Major Waste Disposal	ended 4/2016
FTU2	Wickliffe Coulby Park/ Wickliffe	Waste Management	ended 2/2015
FTU3	Lake County Solid Waste Facility/ Painesville and Perry Townships	Waste Management	ongoing
FTR1	Fairport Harbor Village Senior Center/Fairport Harbor	Royal Oak Recycling	ended 2016
FTR2	Leroy Township Fire Station/ Leroy Township	Royal Oak Recycling	ongoing

Following the elimination of the District's grants to municipalities, and with the expansion of curbside recycling service in all locales in the SWMD, all but two of the community operated drop-off centers have closed. Concord Township encourages residents to contact their trash hauler to see if they offer curbside recycling options (many of them do) and the Township provides links to haulers on the Township's website.

The Leroy Township Fire Station and the County Landfill are the only drop off facilities left in the County, and both sites accept limited types of material. The Leroy Township Fire Department has three Paper Retriever bins available 24/7 located in the Fire Station parking lot which accept only paper. The Lake County Landfill accepts only appliances and tires for a fee.

In response to the elimination of drop-off programs, beginning in 2018 the District will open an expanded drop-off recycling facility at the County owned solid waste facility. The District will contract with the landfill operator to supply and service recycling containers. The drop-off will be a part-time facility targeting mainly residents in the surrounding townships (Painesville, Perry, Leroy and Concord Townships) though it will be available to all Lake County residents. The collection of recyclables will include paper, cardboard, glass, metal, plastics. Other possible considerations include Styrofoam, used oil/grease and carpeting. See Appendix I for more details.

Multi-Family Unit Recycling

Beginning in 2019, the District will implement a new pilot program for multi-family apartment buildings. Property management firms who contract with a private recycling hauler with a commitment of 2 years will be reimbursed financially by the District for 6 months' worth of the cost. Property management firms that manage the large-scale apartment complexes in the three Lake County cities with the highest

concentration of multi-family dwelling units (Mentor, Willoughby and Willoughby Hills) are the primary target audience for this new program.

Commercial/Institutional Sector Reduction and Recycling Programs

Schools and Institutions Recycling

Royal Oak Recycling provides collection of paper recyclables throughout the District including public schools (targeting students, teachers, and administrators within all of the Lake County public school systems), private schools, places of worship, and nonprofit agencies including the Lake County Metroparks. The company provides annual tonnage reports to the District and in 2015, 918 tons of recyclables were collected. The Paper Retriever found in many parking lots throughout the County promotes the recycling services offered.

Collection Services (small businesses, government offices, etc.)

Lake County employees participate in a recycling program at the Lake County Government Administration building in Painesville. Materials recycled include paper and old corrugated cardboard. The District intends to expand the recycling program once the expansion of the county administration building in downtown Painesville is complete. The building expansion includes a new five-story addition that will more than double the office space, enabling the County Commissioners to consolidate various county departments under one roof. The expansion provides the opportunity to provide recycling services to a larger number of county employees, and the District will expand the variety of materials collected, including the potential of collecting organics (food scraps) for composting.

Large Venue Recycling

Lake County Captains Baseball Outreach Program. Since 2003, the Lake County Captains minor league baseball team (an affiliate of the Cleveland Indians) has been hosting an annual "Go Green" weekend at Classic Park in Eastlake. Each year, the District is a sponsor and participates in a game-day recycling event during the "Go Green" weekend labeled ***"Go Green with the Captains!"*** The event is very well attended and a cost effective method to reach a large number of businesses and residents. As a result of the working relationship with the stadium management, the District assisted with developing a recycling program for plastic and aluminum beverage containers. The Lake County Captains completed the 2015 survey and estimated they collected 16 pallets of bundled cardboard during their season, plus additional quantities of food, other paper, plastics commingled recycling and yard waste. However, the District was not able to obtain data for the specific day of the event in order to determine if quantity of recyclables spikes for this one game. The primary purpose of the program is to raise awareness of the need for and benefits of recycling.

Award/Recognition

The District's Business Waste Reduction Committee will re-institute the environmental steward award for Lake County businesses. This type of recognition for model recycling behavior directly reinforces desirable recycling behaviors.

Other Programs

For a number of years, the Business Waste Reduction Committee (BWRC) focused its work on implementing the District plan. In the past, the BWRC had 12 members representing District affiliates as well as commercial and industrial business leaders, however, the committee has been largely inactive for the last few years. Because the commercial, institutional and industrial sectors play such a vital role in

the District's (and OEPA's) mission of reducing, recycling and recovering materials, the District will reinvigorate the BWRC by appointing new members who represent commercial and industrial businesses that are recycling/recovering a large percentage of waste, or have the potential to do so. The purpose of the BWRC is to:

- Identify and promote ways the commercial, industrial, governmental and non-profit establishments in the District can reduce and/or recycle waste, and
- Facilitate the proactive sharing of information, resources and expertise in support of waste minimization and
- Document the results of those activities.

The strategic objectives of the BWRC going forward include:

1. Promoting the successes achieved by the Lake County business community regarding sector wide waste reduction, reuse, and recycling by: reinstituting an Environmental Steward Award to recognize exemplary waste reduction leadership; working closely with the Lake County Chambers of Commerce for outreach opportunities; and including business/industry content for the District's social media/website outreach plan.
2. Providing value-added services that support the waste minimization efforts of commercial, industrial, governmental and non-profit organizations, such as: maintaining and promoting the recycler resource listing for industry/business user; promoting the State's waste exchanges; researching options for hard to dispose of items; and continuing to sponsor the "Go Green with the Captains" recycling day during the Lake County Captains annual "Go Green" weekend.
3. Achieving significant, yearly increases in the number of retail, commercial, educational and industrial organizations that report their waste reduction and recycling data to the district.

In alignment with these objectives, BWRC responsibilities include 1) identifying specific roles of BWRC members and support organizations (e.g., the Ohio State University Extension, Lake County), 2) prioritizing short and long term areas of focus, 3) creating strategies, action plans and metrics to achieve desired results, and 4) identifying and communicating any additional resource needs that may be required to achieve and sustain progress.

Industrial Sector Reduction and Recycling Programs

Award/Recognition

The Environmental Steward Award will also be available for industrial businesses.

Other Programs

The Business Waste Reduction Committee focuses its work on both the commercial and industrial business sectors in its efforts to increase awareness and participation in recycling programs and surveys.

Restricted/Difficult to Manage Wastes

Yard Waste

Lake County's Yard Waste Management Plan is a Community-Based Program with support from the private sector. The yard waste totals demonstrate the District's history of collections with a significant amount of tonnage documented to OEPA by composting sites. Communities in Lake County manage individual yard waste programs to meet the needs of their residents. It is a community cost and operated

by private companies as part of their solid waste collection. As an additional service, OSU's Master Gardner staff provides services to communities and residents in finding alternative methods to dispose of yard waste. See Appendix I for additional information.

Household Hazardous Waste

The District's Solid Waste Management Plan must include a strategy for managing household hazardous waste (HHW), including lead acid batteries pesticides, automobile products, household cleaners, paint products; and miscellaneous materials such as mercury items, glue, flares, etc. As part of its Household Hazardous Waste (HHW) Management Plan, the District will continue to provide an education program, telephone hotline, as well as, its biannual HHW Collection Program which is detailed in Appendix I. A specific objective of the District HHW Plan is to educate residents on HHW.

Scrap Tires

The annual collection of used tires is held at the County Fairgrounds. Up to six tires may dropped off for free during this event. There is a charge for tires with rims, oversized tires, and each additional tire over the six that are accepted for free. The District will continue to sponsor and operate this yearly event. Additionally, residents of Lake County can take their tires to the Lake County Solid Waste Facility in Painesville and Perry Townships for recycling. There is a charge per tire and a limit of six (6) passenger tires or light truck tires dropped off at one time. This service is performed by the contractor hired by the Lake County Commissioners for the operation of the Lake County Solid Waste Facility. Also, the Lake County Engineer offers collection once annually for road departments from Lake County townships to deliver used tires for recycling.

Electronic Equipment

The District provides collection of used computers, computer equipment, ink cartridges and cellular telephones at an annual collection held at the Lake County Fairgrounds. The electronics are recycled by a certified electronics recycling firm contracted by the District. This event is well attended by the public. During the planning period, the District plans to expand computer collection to include all household electronics i.e. anything with a cord without refrigerant. Collection will continue once annually.

Pharmaceuticals

The Lake County General Health District partners with the Lake County Solid Waste District to administer the Pharmaceutical Drug Collection & Disposal Program. According to statistics from the US Drug Enforcement Agency (DEA), prescription pain relievers are the drug of choice for new drug users instead of marijuana or cocaine and have fueled an alarming epidemic. This important program, funded by the Lake Erie Protection Fund and the Lake County ADAMHS Board, addresses environmental concerns and public safety. Prescription and non-prescription drugs are being found in our rivers, streams and ground water. These drugs are considered to be emerging contaminants of concern partly due to the harmful effects that low concentrations are already having on the fish population. Our existing wastewater treatment plants and septic systems are not designed to remove these contaminants.

There are 7 drop off facilities in Lake County.

- Lake County Sheriff's Office
- Eastlake Police Department
- Mentor Police Department
- Willoughby Police Department
- Willoughby Hills Police Department

- Madison Township Police Department
- Lakeland Community College Police Department (Kirtland)

By partnering with law enforcement in this program, residents can responsibly dispose of prescription pain killers such as oxycodone and hydrocodone commonly known as Percocet, Vicodin and OxyContin. Removing these narcotics from the medicine cabinet and properly disposing of them will help reduce the potential of drug abuse and accidental drug misuse. Using the collection bins instead of flushing unwanted drugs down the toilet or putting them in the trash also helps to reduce the amount of these contaminants in our environment.

All pharmaceutical drugs collected in these bins are destroyed safely by incineration. Only pharmaceutical drugs are accepted, no needles or syringes. Items recycled include unused medications, expired medications, prescription pills, non-prescriptions pills, syrups, creams, pain relievers, cold/flu medicine, vitamins, and pet medications.

Data Collection

In addition to relying on data that OEPA collects at the state level and makes available on its website, the District undertakes three different types of surveys to collected data.

Annual surveys – Community Recycling
Once annually, OSU Extension conducts a survey of all local governments to collect tonnage information on leaves, grass, newspaper, chipboard, plastics #1 and #2, glass and metals. In order to enhance the program and improve results, the District will create and post a fillable survey form on the District's website, and conduct annual meetings with local service directors/representatives from the communities in advance of the survey to improve participation rates. The District Coordinator will continue to review the survey results and remove tonnage from the community surveys that might be reported by composting facilities to avoid double counting.

In addition, the District will expand the type of information gathered to include: the total amount of solid waste (in tons) that was sent to landfills in the reporting year; the total amount of recyclables and organics that were recycled (in tons) for that year, as well as a breakdown by material type; the number of households participating in curbside recycling program, and information of other recycling collection programs in the community that are open to the public. This data will enable the District to calculate recycling rates and tonnage per household and per capita by community.

Annual surveys – Commercial and Industrial Recycling
In the past, the Business Waste Reduction Committee prepared an annual survey to gather sample data from targeted commercial and industrial businesses on their recycling efforts, but that activity was discontinued prior to 2015.

As part of the District's efforts to reactivate BWRC with new members from the commercial and industrial sectors, the District also intends for the BWRC to once again conduct annual, though smaller, targeted surveys. Each year the BWRC will select a sample of businesses that have participated in surveys in the past and are known to recycle. The goal is to gather information on all businesses that have previously participated over the course of three years in order to refresh the data in a timely manner. The data received from the survey will be used to help the BWRC identify recipients for the Environmental Steward Award. The BWRC will also evaluate the results and consider ways to increase outreach and programming for the commercial and industrial sectors.

Periodic Comprehensive surveys – Commercial and Industrial Recycling
As part of the Plan Update, in 2016 the SWMD mailed over 1,400 surveys (along with a cover letter and a postage-paid return envelope) to commercial, institutions and industries in the District to gather data on 2015 recycling efforts. The District received responses from 151 entities, 88 from commercial/institutional establishments and 63 from industrial businesses. This participation rate is a small fraction of the approximately 6,000 private sector businesses (commercial and industrial) in the District. The District in enhance this data collection effort during the planning period by: providing an electronic fillable survey form to reduce the cost of data entry; increasing outreach to recipients using social media and email blasts; and engaging more with the commercial and industrial sectors through increased committee membership from the private sector, interaction with the Chambers of Commerce and the awareness through the Environmental Steward Award program.

Outreach, Education, Awareness, and Technical Assistance

Web Page
The District maintains a website meeting the requirements of Goal 3 of the 2009 State Plan. The site explains the goals of the district, provides a calendar for the special collection events (e.g. HHW, scrap tire, and electronics) and provides information on the Pharmaceutical disposal program, education and outreach with OSU Lake County Extension, information about the Business Waste Reduction Committee, as well as information about the Lake County Solid Waste Facility. The District also has links to the individual communities' websites for further information on their services. The Policy Committee intends to update and improve the website during the planning period to make it easier to navigate.

In addition, there are a number of District partners that provide recycling and recovery information and/or links to the District's website, including OSU Extension, the Lake County General Health District and many of the 23 local communities.

Resource Guide
OSU Lake County Extension maintains a resource guide with names and contact information of various opportunities for recycling throughout the county. The resource guide is updated periodically to ensure locations and contact information remains valid.

Education Provider
Lake County's Ohio State University Extension and the Lake County Solid Waste District work collaboratively to support education programs that teach elementary students how they can help the earth. Through monthly activities, students learn about litter prevention, reduction, re-using and recycling. An OSU Program Assistant leads programs that educate students on how plastics are not all equal. These types of programs ignite family discussions on recycling and enhance students' understanding of preserving landfill space. Current strategies that will continue throughout the planning period include:

1. Clean and Green Lake County Poster Contest – Annual contest sponsored by the LCSWD for children in kindergarten through high school throughout Lake County. The purpose it to promote recycling education with a focus on Lake County through a competition to create a logo to be used by the District. School Principles and Art Teachers are contacted in autumn with participation instructions. Deadline for submissions is March and winners are selected by the County

Commissioners from the three divisions (K-5th grade, middle school and high school). The all-around winner's logo is used in District advertising/promotion and giveaways. Historically participation has been approximately 900 entries coming from across the county.

Commissioners Award Clean & Green Poster Contest Winners by NewsPosts, Publish Date: Tuesday, April 25, 2017
Out of over 900 students from 24 schools in Lake County, the Board of Commissioners presented the awards for this year's Clean & Green Poster Contest Winners during the April 25, 2017 Commissioners Meeting.

Here is the overall winning logo!

From the left: Commissioner Jerry Cirino, Middle School Winner Autumn Farrar from Willoughby Middle School, Commissioner Daniel Troy, Elementary and Overall Winner Kaitlyn Valentic from All Saints, High School Winner Lindsey Rich of Lake Catholic and Commissioner John Hamercheck. Congratulations to all the winners of the 2017 Clean and Green Lake County Poster Contest!

Enhancements to the program during the planning period include:

a. Advertising the contest on the District's website
b. Including additional prizes for the winners (financially supported by a sponsor)
c. Develop giveaways using the artwork from prior winners (calendar, coloring books etc.)
d. Increase the budget for additional giveaways

2. <u>In Class Recycling Education Programs</u> – Offered to K-3 grades, OSU Extension provides monthly in-class programs about recycling topics from October to May annually. In 2015, 14 schools in four school districts received the programs and the District anticipates that two more schools will be added by 2019. The programs include topics such as making paper and "Green Jeopardy". Teachers evaluate the program each year for OSU to consider refinements.

Outreach at Libraries and Senior Centers

In an effort to expand awareness of recycling, the District will prepare and install education displays at libraries and senior centers throughout the County. These colorful and eye-catching displays will highlight recycling facts to promote adult recycling. This will be implemented by OSU Extension and will require:

a. Additional budget of $7,000 for the first year and $5,000 for the for preparation of signage and display items
b. Preparation of recycling messages
c. Coordination with the 12 public libraries and local senior centers for installation and rotation of display items.

Disaster Debris Assistance

Responding to natural disasters, such as flood events, tornados and severe storms, requires a great deal of coordination and time. The District is committed to assisting the Emergency Management Agency during a disaster event. The District Coordinator will serve as the debris manager during a debris-generating event. As debris manager, the District Coordinator will coordinate operations and finance areas of debris management. Coordination duties will include contacts with affected jurisdictions and scheduling and coordination of resources conducting debris operations. Finance support will include: contacts and negotiations with contractors; contract negotiations; support of and coordination with jurisdiction officials for expenses and scheduling; and documentation of all resources, personnel, materials and costs for reimbursement purposes.

C. Waste Reduction and Recycling Rates

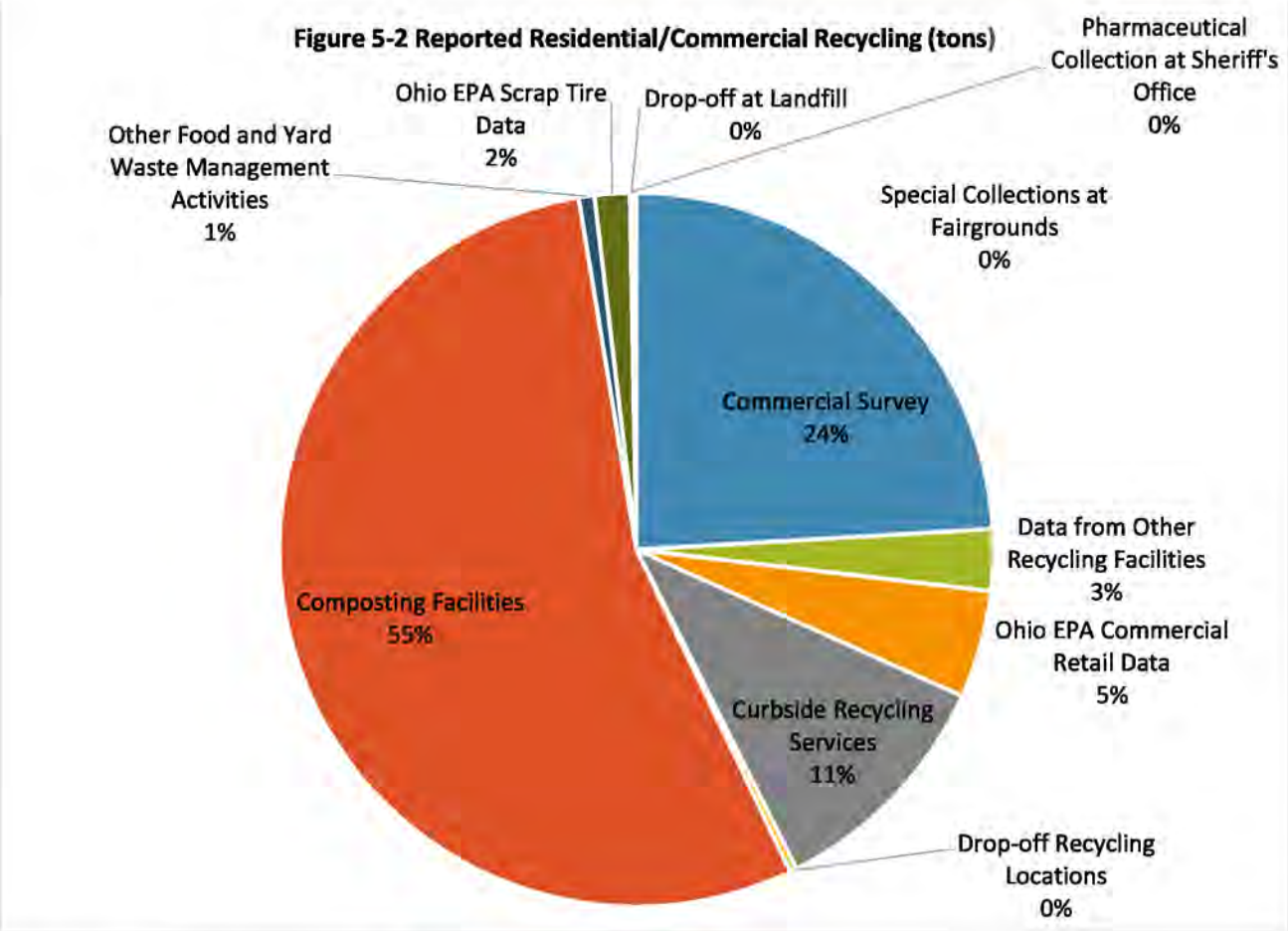
1. *Residential/Commercial Recycling in the District*

The SWMD receives data from a variety of sources, including local communities regarding their curbside programs. As noted earlier, composting facilities account for recycling about 55% percent of the residential/commercial reported recycling, while commercial survey data accounts for 24% and residential curbside recycling makes up 11%.

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

Year	Projected Quantity Collected (tons)	Residential/ Commercial WRR[1] (%)
2018	90,450	29%
2019	91,336	29%
2020	92,255	29%
2021	93,085	29%
2022	93,941	29%
2023	94,822	30%

[1]WRR = Waste Reduction and Recycling Rate



2. Industrial Recycling in the District

Table 5-4 Industrial Waste Reduction and Recycling Rate

Year	Projected Quantity Collected (tons)	Industrial WRR[1] (%)
2018	80,249	88%
2019	80,249	88%
2020	80,249	88%
2021	80,249	88%
2022	80,249	88%
2023	80,249	88%

[1]WRR = Waste Reduction and Recycling Rate

Data on industrial recycling tonnage for the reference year (2015) was obtained from the survey conducted for this Plan Update. Projections keep the quantity of recyclable materials collected constant for the first six years of the planning period based on the difficulty obtaining data from the industrial sector.

CHAPTER 6 BUDGET

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

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

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

This chapter of the solid waste management plan provides an overview of the SWMD's budget. Detailed information about the budget is provided in Appendix O.

A. Overview of the SWMD's Budget

The cost and financing of Plan implementation of the Lake County Solid Waste District will be presented for the period January 1, 2018 through December 31, 2032. The overall period makes up the 15-year planning period for this Plan Update.

In the past, the SWMD has received support from Lake County in the form of transferred funds from the landfill in order to balance the budget. Due to the need for the County to set aside money for upgrades to the landfill, transfer payments ended in 2012, Figure 6-1. As a result the SWMD phased out its funding for curbside recycling and most of the funding for drop-off locations.

Figure 6-1. Revenue and Expenses Trend 2011-2015

Based on recent past trends, the SWMD estimates it needs an annual budget between $375,000 and $469,000 during the first six years (2018-2023) to implement the 2018 Plan. The SWMD relies heavily on the In-District and Out-of-District disposal fees for implementation, with only minor amounts received from other sources such as user fees. In 2015, it spent the majority of its funds on special collections (40%) and education/awareness programs (31%) and expects to continue to devote the majority of funds to them.

Budgeted program expenses allow for new programming and/or enhancement of programs. An emphasis is placed on establishing a new drop-off recycling facility at the County Landfill in Painesville Township and a new pilot program aimed at multi-family recycling, expanding the current computer collection program and increasing educational programing. In addition, the District's Business Waste Reduction Committee (BWRC) will be enhanced to increase outreach to the business community (commercial/institutional, and industry). In total, the District will provide a well-rounded program to complement the planned strategies and provide information to assist all sectors in making wise environmental choices.

Based on the revenue and expenses projections, the District and Board do not consider funding to be an issue of concern during this planning period. However, the District will consider a new fee – establishing a generation fee- in the event it is needed. The need for a $2/ton fee will be reviewed if the SWMD's fund balance falls below $150,000 (roughly 50% of its current balance, and the minimum needed to run the District for one year). Before a discussion to establish a generation fee would begin, the District would first re-evaluate the estimated expenditures to determine the minimum annual budget to sustain the SWMD's core operations as mandated by Ohio EPA through the Ohio Revised Code. If the establishment of a generation fee would be needed, a separate ratification process would be required to implement any projected change.

B. Revenue

There are a number of mechanisms SWMDs can use to raise the revenue necessary to finance their solid waste management plans. Two of the most commonly used mechanisms are disposal fees and generation fees. Before a SWMD can collect a generation or disposal fee it must first obtain approval from local communities through a ratification process. Ratification allows communities in the SWMD to vote on whether they support levying the proposed fee.

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 SWMD. There are three components, or tiers, to the fee. The tiers correspond to where waste came from – in-district, out-of-district, and out-of-state. In-district waste is solid waste generated by counties within the SWMD and disposed at landfills in that SWMD. Out-of-district waste is solid waste generated in Ohio counties that are not part of the SWMD and disposed at landfills in the SWMD. Out-of-state waste is solid waste generated in other states and disposed at landfills in the SWMD.

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

- The in-district fee must be at least $1.00 and no more than $2.00;
- The out-of-district fee must be at least $2.00 and no more than $4.00; and
- The out-of-state fee must be equal to the in-district fee.

Generation fees (see Ohio Revised Code Section 3734.573)
Generation Fees are collected on each ton of solid waste that is generated within the levying SWMD and accepted at either a transfer facility or landfill located in Ohio. The fee is collected at the first facility that accepts the SWMD's waste. There are no minimum or maximum limits on the per ton amount for generation fees.

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

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

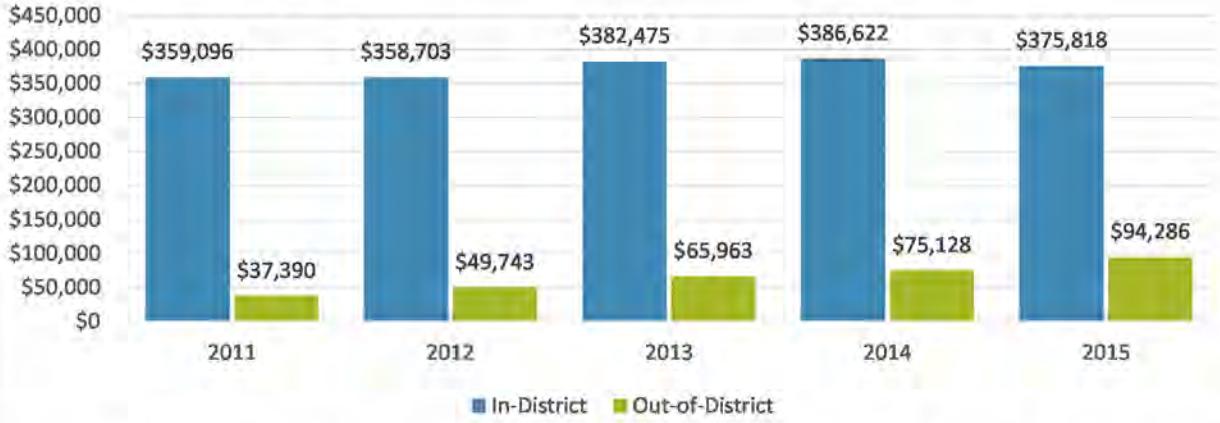
Other Sources of Revenue
There are a variety of other sources that SWMDs can use to earn revenue. Some of these sources include:

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

1. Disposal Fees
The District will continue to collect district disposal fees from the Lake County Solid Waste Facility, which went into effect on January 1, 1994, throughout the planning period. The current in-district fee is $2.00 per ton, the out-of-district (but in-state) fee is $4.00 per ton, and the out-of-state fee is $2.00 per ton; the District will maintain this same rate structure throughout the planning period. To project revenue from disposal fees the SWMD analyzed recent data both in regards to amount of in-district and out-of-district waste received at the Lake County Solid Waste Facility as well as the revenue received. Over the last 5 years revenue from the In-District fee has increased approximately 1% annually, while the Out-of-District revenue has increased an average of 26% annually, Figure 6-2.

This is due to the more aggressive stance taken by the Geneva Landfill in order for them to recoup out-of-district pass-through fees. The District believes that by 2015, the haulers have been more accurate in reporting the origin of their waste, and therefore the ratio of in-district to out-of-district tonnage and therefore revenue should remain fairly consistent in the future.

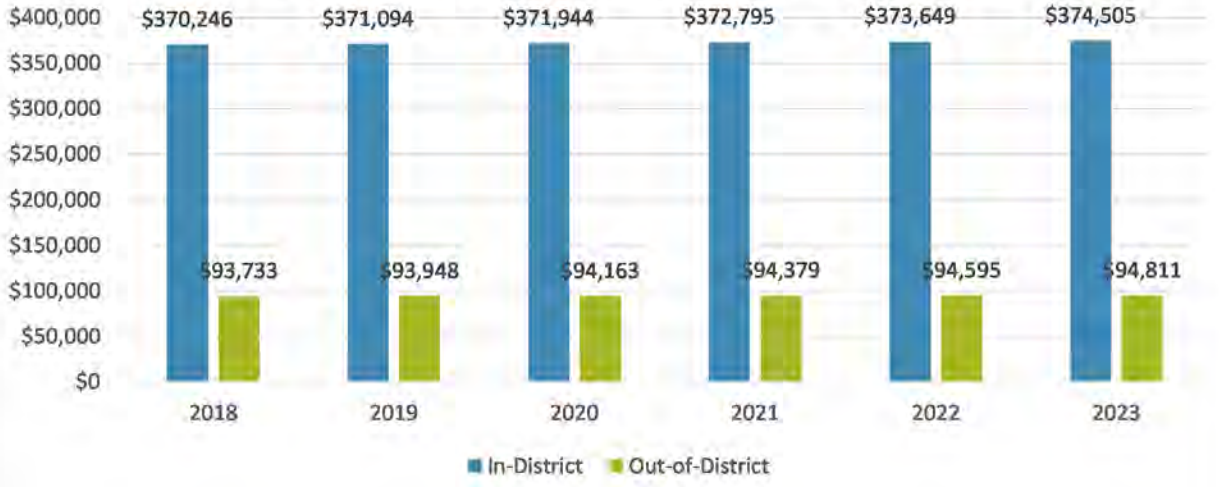
Figure 6-2. In-District vs Out-of-District Disposal Fee Trends



Appendix H analyzes historic disposal fee revenues which was used to forecast future revenues anticipated from the disposal fee.

While the District has experienced some fluctuations in the amount of waste disposed, there has been a general upward trend and the District projects an average annual increase of 0.23% over the first six years of the planning period. This is important since this tonnage relates to the revenue projections for District operations and the intent is not to overstate projected revenues. The Policy Committee projects that the percentage of waste disposed In-District compared to Out-of-District will remain constant, and increase at a similar rate as for the tonnage (0.23% annually).

Figure 6.3 Projected Disposal Fee Revenue 2018-2023



2. *Generation Fees*

The SWMD did not collect a generation fee in the reference year and does not, at this time, intend to collect a generation fee during the planning period. However, the District will consider a new fee – establishing a generation fee- in the event it is needed. The need for a $2/ton fee will be reviewed if the SWMD's fund balance falls below $150,000 (roughly 50% of its current balance). Before a discussion to establish a generation fee would begin, the District would first re-evaluate the estimated expenditures to determine the minimum annual budget to sustain the SWMD's core operations as mandated by Ohio EPA through the Ohio Revised Code. If the establishment of a generation fee would be needed, a separate ratification process would be required to implement any projected change.

3. *Other Funding Mechanisms*

Revenue from Selling Recyclable Materials
The SWMD previously collected occasional revenue from the sale of recyclables. Recycling revenue is not projected during the planning period due to the unpredictability of such revenue.

User Fees
The District charges a nominal fee to residents who drop off scrap tires at the Lake County Solid Waste Facility, and for tires over a certain amount that are dropped off at the annual scrap tire special collection at the Lake County Fairgrounds. The Policy Committee has determined that a price adjustment is necessary. In the last three years, the District collected an average of $2,156 per year. User fees are projected to remain low, though increase by 0.5% annually for the first six years of the planning period due to the price increases related to scrap tires recycling fees included in this plan.

Other/Grants
In 2015, the $27 of "other revenue" was a one-time reconciliation correction; no "other" revenue is projected for the planning period. The District will pursue ODNR grants as applicable to fund eligible District programs including grants for education, drop-off recycling and special venue recycling. However, the District is not relying on grant funding to carry out implementation of the plan, therefore the District's budget does not include any grants money to finance any District programs during the planning program.

4. *Summary of Revenue*

Table 6-1, "Summary of Revenue" includes all funding mechanisms that will be used and the total amount of revenue generated by each method for each year of the planning period. The SWMD's primary funding mechanism is the disposal fee. The SWMD also receives nominal revenue from user fees.

Table 6-1 Summary of Revenue

Year	Disposal Fees	Generation Fees	Other Revenue			Total Revenue
			Recycling Revenue	User Fee	Other	
Reference Year						
2015	$470,104	$0	$0	$2,338	$27	$472,469
Planning Period						
2018	$463,980	$0	$0	$2,373	$0	$466,353
2019	$465,042	$0	$0	$2,385	$0	$467,427
2020	$466,107	$0	$0	$2,397	$0	$468,504
2021	$467,174	$0	$0	$2,409	$0	$469,583
2022	$468,243	$0	$0	$2,421	$0	$470,665
2023	$469,316	$0	$0	$2,433	$0	$471,749

Source(s) of Information: CY 2010-2014 revenues sourced from quarterly fee reports. All other amounts are projections (refer to Table O-2 and O-5).
Sample Calculations: 2018 Total Revenue ($466,353) = Disposal Fees ($463,980) + Generation Fees ($0) + Recycling Revenue ($0) + User Fee ($2,373) + Other ($0).

C. Expenses

Ohio's law authorizes SWMDs to spend revenue on 10 specified purposes (often referred to as the 10 allowable uses). All of the uses are directly related to 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 a SWMD's budget is used to implement the approved solid waste management plan (allowable use 2). 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 for yard waste and scrap tires);
- providing outreach and education;
- providing services (such as curbside recycling services); and
- paying for community clean-up programs.

Table 6-2, "Summary of Expenses" summarizes the SWMD's overall budget for the first six years of the planning period. An annual inflation factor of 2% has been applied to most cost projections. Further cost detail for individual programs is found in Appendix O.

Table 6-2 Summary of Expenses

Expense Category	Year						
	Reference	Planning Period					
	2015	2018	2019	2020	2021	2022	2023
District Administration	$3,486	$3,673	$3,746	$3,821	$3,898	$3,976	$4,055
Recycling Collection							
Drop-off (community)	$0	$0	$0	$0	$0	$0	$0
Multi-family	$0	$0	$10,000	$15,000	$20,000	$25,000	$30,000
Drop-off at Landfill	$0	$12,500	$25,000	$25,000	$25,000	$25,000	$25,000
Lake County Gov Admin Bldg Drop-off	$1,836	$2,313	$2,360	$3,539	$3,610	$3,682	$3,756
Special Collections							
Tire Collection	$9,149	$9,709	$9,904	$10,102	$10,304	$10,510	$10,720
HHW Collection	$114,798	$121,825	$127,916	$134,312	$141,028	$148,079	$155,483
Electronics Collection	$1,298	$3,378	$3,445	$3,514	$3,585	$3,656	$3,729
Education and Outreach	$96,086	$113,720	$112,076	$112,440	$112,810	$113,189	$113,574
Health Dept. Enforcement	$82,654	$82,654	$82,654	$82,654	$82,654	$82,654	$82,654
Other (Plan Preparation)	$0	$25,000	$15,000	$15,000	$30,000	$50,000	$40,000
Total Expenses	**$309,308**	**$374,772**	**$392,102**	**$405,383**	**$432,889**	**$465,746**	**$468,972**

Source(s) of Information: Lake County Solid Waste Management District

Sample Calculations: 2015 Total Expenses ($309,308) = District Administration ($3,486) + Drop-off (community) ($0) + Multi-family ($0) + Drop-off at Landfill ($0) + Lake County Gov Admin Bldg Drop-off ($1,836) + Tire Collection ($9,149) + HHW Collection ($114,798) + Electronics Collection ($1,298) + Education and Outreach ($96,086) + Health Dept. Enforcement ($82,654) + Other (Plan Preparation) ($0)

D. Budget Summary

Table 6-3, "Budget Summary" compares the net difference between the anticipated revenue and likely expenses. In all years, it is expected that the District's revenues will exceed expenses in each of the first six years of the planning period.

Table 6-3 Budget Summary

Year	Revenue	Expenses	Net Difference	Ending Balance
Reference Year				
2015	**$472,469**	**$309,308**	**$163,161**	**$228,008**
Planning Period				
2018	**$466,353**	**$374,772**	**$91,581**	**$566,860**
2019	$467,427	$392,102	$75,325	$642,186
2020	$468,504	$405,383	$63,121	$705,307
2021	$469,583	$432,889	$36,694	$742,001
2022	$470,665	$465,746	$4,918	$746,919
2023	$471,749	$468,972	$2,777	$749,696

Source(s) of Information: Tables 6-1 and 6-2.

Sample Calculations: 2018 Ending Balance ($566,860) = (Revenue ($466,353) – Expenses ($374,772) = Net Difference ($91,581)) + Ending Balance from 2017 ($475,280)

APPENDIX A MISCELLANEOUS INFORMATION

Reference Year
Planning Period
Goal Statement
Explanations of Differences in Data
Material Change in Circumstances

A. Reference Year

The reference year for this solid waste management plan is 2015.

B. Planning Period (first and last years)

The planning period for this solid waste management plan is for fifteen years: 2018 to 2032.

C. Goal Statement

The Lake County Solid Waste Management District (SWMD) declares in this Plan that the SWMD will achieve **Goal #2 of the 2009 State Plan**:

> "Goal #2 - Reduce and/or recycle at least 25 percent of the solid waste generated by the residential/commercial sector and at least 66 percent of the solid waste generated by the industrial sector."

D. Explanations of Differences in Data

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

Due to the low rate of response from the District's survey of industrial businesses for reference year recycling, the District has adjusted downward the quantity of materials recovered by the industrial sector, from 87,421 tons to 80,249 tons.

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

There are no differences between previously reported financial data and the data used in this plan.

E. Material Change in Circumstances/Contingencies

The District will use its normal operational procedures to monitor plan implementation and determine whether and when a material change of circumstances that requires a plan amendment has occurred in the District. The Policy Committee, with the assistance of District staff, performs an annual review of the implementation of the District Plan. The meeting schedules of the Policy Committee and the Lake County Board of County Commissioners are frequent and the meeting agendas are comprehensive enough to allow the Policy Committee and the Board to determine and respond to changing circumstances.

The SWMD continually monitors and evaluates solid waste activities within the District that would indicate significant changes in how the solid waste stream is managed. Circumstances that may result in a material change include, but are not limited to the following:

- The SWMD's fund balance falls below $150,000 (roughly 50% of its current balance). This amount is needed to operate district programs for one year.
- Solid waste generation in the District decreases by 25% or more.
- Changes in strategies for waste reduction or recycling such as, but not limited to, a decrease by 25% in the number of local communities providing curbside recycling programs.
- Private recycling activities decrease by 25% or more.
- Delay of more than one year in Program Implementation.
- Legislative changes.

Should any member of the Board or the District Coordinator believe that a material change of circumstances has occurred, the member or the Director will notify the President of the Board of County Commissioners and place an item on the agenda for the next meeting or schedule a special meeting, as appropriate.

The County Commissioners will review the changed circumstances and, utilizing any of the applicable criteria described above or based on the estimated impact of the change on the projections, timetables, programs, and activities contained in the approved District Plan, will approve or disapprove a resolution to recommend the preparation of a formal Plan Amendment.

The County Commissioners may refer this matter to the Policy Committee for further analysis or for a preliminary recommendation. The County Commissioners will make a determination on whether to request that a Plan Amendment be prepared by the Policy Committee within 90 days after the matter is first placed on its agenda, unless the time period is formally extended by the County Commissioners. Upon making the determination, the County Commissioners will provide press releases to newspapers of general circulation within the District informing the public of its decision. The Board will also notify the Ohio Environmental Protection Agency.

If a recommendation for a Plan Amendment is adopted, the Policy Committee will prepare the Plan Amendment to address the material change in circumstances. The schedule for the development of the Plan Amendment, and the approval, ratification, and implementation, will be established by the Policy Committee, depending upon the extent of the amendment required to address the change in circumstances.

APPENDIX B RECYCLING INFRASTRUCTURE INVENTORY

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

1. Curbside Recycling Services

Over the years, the District has experienced a number of changes in curbside recycling. In 2005, the District needed to switch its county-wide residential curbside recycling program to a county-wide drop off collection program due to lack of District funds. In subsequent years, the District continued to have frequent conversations with the communities regarding alternate program options. In 2003, the District developed a grant program to assist communities in providing drop-off locations and curbside recycling programs. By 2009, seven (7) of the twenty-three (23) communities had curbside recycling programs in place.

Beginning in 2011, the District's financial support was phased out over a five year period ending in 2015. Despite the reduced financial District support, many communities continued to establish curbside recycling programs and by 2015, 22 of the 23 communities had an established curbside program. In 2016, the village of Fairport Harbor, the only remaining community without a curbside recycling program, instituted a curbside recycling subscription service.

Because these curbside programs have been instituted by the communities and have been up and running in some communities for several years, the District believes these programs will successfully continue throughout the planning period.

Tables B-1a and B-1b on the following pages highlight the details of the various curbside recycling programs within the District.

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)	Service will Continue Throughout Planning Period (Y/N)
NCS1	Eastlake City	Republic Waste	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	1,158	Y
NCS2	Grand River Village	Republic Waste	Lake	Contract btwn village & private hauler	Weekly	paper, cardboard, glass, metal, plastic	single-stream, manual w/18 gal containers	N	16	Y
NCS3	Kirtland City	Waste Management of Ohio	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	401	Y
NCS4	Kirtland Hills Village	Waste Management of Ohio	Lake	Contract btwn village & private hauler	Weekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, manual w/18 gal containers	N	28	Y
NCS5	Lakeline Village	Republic Waste	Lake	Contract btwn village & private hauler	Weekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	26	Y
NCS6	Mentor-on-the-Lake City	Republic Waste	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	309	Y
NCS7	Painesville City	Waste Management of Ohio	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-7	single-stream, auto with 65 gal carts	N	553	Y
NCS8	Timberlake Village	Republic Waste	Lake	Contract btwn village & private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	39	Y
NCS9	Waite Hill Village	Recycle Midwest	Lake	Contract btwn village & private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, manual w/blue bags	N	41	Y (2017, Village became provider)
NCS10	Willoughby City	Waste Management of Ohio	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	1,337	Y
NCS11	Willoughby Hills City*	Republic Waste	Lake	Contract btwn city & private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	443	Y
Total									4,351	

[1] Paper includes: newspaper, other paper, paper, & junk mail; cardboard includes corrugated cardboard; 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.

In 2015, 11 of the District's 23 communities provided nonsubscription curbside recycling service, which accounts for 38% of the County's population. Six of the nine cities and five of the nine villages (but none of the townships) provided a nonsubscription recycling program. Each municipality contracted directly for the nonsubscription curbside recyclable collection and managed the program directly instead of the County. Up until 2015 the District had provided an annual grant to each community to subsidize a portion of the total cost, and required grant recipients to submit annual documentation of program results. As noted in Table B-1a, there were two providers – Republic Waste and Waste Management

of Ohio – that serviced the 11 communities with the nonsubscription curbside recycling programs, and together, these private haulers collected 4,351 tons of recyclables. None of these were pay-as-you-throw programs.

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

ID #	Name of Curbside Service	County	How Service is Provided	Collection Frequency	Materials Collected[1]	Type of Collection	PAYT (Y/N)	Tonnage of Materials Collected from SWMD	Service to Continue Throughout Planning Period (Y/N)
SC1	Concord Township	Lake	Contract btwn homeowner and private hauler	Weekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	382	Y
SC2	Leroy Township	Lake	Contract btwn homeowner and private hauler	Weekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	21	Y
SC3	Madison Township	Lake	Contract btwn homeowner and private hauler	Weekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	364	Y
SC4	Madison Village	Lake	Contract btwn municipality and private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	184	Y
SC5	Mentor City	Lake	Contract btwn municipality and private hauler	Weekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	2,653	Y
SC6	North Perry Village	Lake	Contract btwn municipality and private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	70	Y
SC7	Painesville Township	Lake	Contract btwn homeowner and private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 65 gal carts	N	681	Y
SC8	Perry Township	Lake	Contract btwn homeowner and private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	9	Y
SC9	Perry Village	Lake	Contract btwn municipality and private hauler	Biweekly	paper, cardboard, glass, metal, plastic	single-stream, auto with 65 gal carts	N	52	Y
SC10	Wickliffe City	Lake	Contract btwn municipality and private hauler	Weekly	paper, cardboard, glass, metal, plastic 1-6	single-stream, auto with 64 gal carts	N	272	Y
SC11	Willowick City	Lake	Contract btwn municipality and private hauler	Biweekly	paper, cardboard, glass, metal, plastic 1-7, no Styrofoam	single-stream, auto with 64 gal carts	N	502	Y
Total								5,190	

[1] Paper includes: newspaper, other paper, paper, & junk mail; cardboard includes corrugated cardboard; 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.

In 2015, 11 of the District's 23 communities (including the city of Mentor, the County's largest municipality) offered subscription curbside recycling service to residents. For subscription service in the above cities and villages, the municipality contracted with one service provider and negotiated the frequency, materials collected, size of containers and type of collection. Residents who chose to subscribe to the service were serviced by the provider contracted by the municipality. Townships do not contract with the haulers, instead residents are required to set up service on their own

with one of the various haulers that service the community. Information on recycling opportunities is typically made available on each townships' websites. Curbside service is available for pickup either a weekly or biweekly basis, depending on the community and hauler.

2. Drop-Off Recycling Locations

With the phase out of District financing for drop-off locations between 2011 and 2015 and the increase in communities that offer curbside recycling, the number of drop-off sites has been reduced considerably. At the start of 2015, there were only two full-time urban drop-off sites and two full-time rural drop-off locations. Since 2015, the decline in drop-off locations has continued so that by 2016, there were no drop-off sites that meet the minimum standards to be a creditable drop-off site. (To be a creditable recycling site for achieving Goal 1, a drop-off must meet a number of criteria including collecting at least five of the materials designated as highly amenable to recycling in the 2009 State Plan: corrugated cardboard, newspaper, mixed paper, glass containers, steel containers, and aluminum containers.)

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 Met All Minimum Standards (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period(Y/N)
FTU1	Concord Township Hall, 7229 Ravenna Rd	Major Waste Disposal	Lake	Contract btwn township and private hauler	24 hrs/7 days	paper, cardboard, glass, metal, plastic	Y	280	N (reduced service began 4/2016)
FTU2	Wickliffe Coulby Park	Waste Management	Lake	Contract btwn municipality and private hauler	24 hrs/7 days	paper, cardboard, glass, metal, plastic 1-6	N (ended 2/2015)		N
FTU3	Lake County Solid Waste Facility	Lake County	Lake	Contract between County and operator of Landfill	M-F 7am-3:30pm; Sat 9am-1pm	appliances and tires	N		Y
Total								280	

[1] Paper includes: newspaper, other paper, paper, & junk mail; cardboard includes corrugated cardboard; 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.

All full-time creditable urban drop-off sites (sites that collect the minimum number of recyclable material) have been discontinued as of April 2016. Concord Township maintains large recycle bins in the parking lot at Town Hall Campus, but only paper and cardboard are accepted. The County Landfill accepts appliances and tires during normal business hours.

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[1]	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								

There were no part-time, urban drop-off sites in the District in the reference year.

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)	Service will Continue Throughout Planning Period (Y/N)
FTR1	Fairport Harbor Village Senior Center	Royal Oak Recycling	Lake	Contract btwn municipality and private hauler	24 hrs/7 days	Paper, Cardboard	N	19.2[2]	Y
FTR2	Leroy Township Fire Station	Royal Oak Recycling	Lake	Contract btwn municipality and private hauler	24 hrs/7 days	Paper	N	5.5[2]	Y
Total								24.7	

(1) Paper includes: newspaper, other paper, paper, & junk mail; cardboard includes corrugated cardboard.

(2) Royal Oak reports a total tonnage amount directly to the OEPA.

Limited full-time rural drop-off service was provided in 2015, but in both cases, the sites collected a limited number of types of material. The Fairport Harbor Village Senior Center accepted paper and cardboard, but this service was discontinued in 2016. The Leroy Township Fire Station continues to provide a drop-off facility, serviced by Royal Oak Recycling: paper retriever bins, available 24/7, are located in the Fire Station parking lot; only paper is accepted.

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[1]	Drop-off Meets All Minimum Standards? (Y/N)	Weight of Materials Collected from the SWMD (tons)	Service will Continue Throughout Planning Period (Y/N)
PTR1	NONE								

There were no part-time, urban drop-off sites in the District in the reference year.

3. Mixed Solid Waste Material Recovery Facilities

Table B-3 Mixed Solid Waste Material Recovery Facility

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

Sample Calculation:
Recovery Rate = Weight of Materials Recovered ÷ Total Waste x 100 (not applicable)

A mixed solid waste materials recovery facility provides residents with access to recycling opportunities by removing recyclables from the trash for the residents. The District 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 of Curbside Recycling and Trash Collection Service Providers in the Reference Year***

Name of Provider	Counties Served	Trash Collection Services				Curbside Recycling Services		
		PAYT (Y/N)	Residential	Commercial	Industrial	Residential2	Commercial2	Industrial 2
1. Republic Waste	Lake	N	X	X		X		
2. Waste Management of Ohio	Lake	N	X	X	X	X		
3. Recycle Midwest	Lake	N	X			X		
4. Major Waste Disposal	Lake	N	X	X	X	X		
5. Universal Disposal	Lake	N	X	X	X	X		
6. Kimble	Lake	N	X			X		
7. Allied Waste	Lake	N		X				
8. Buckeye Industries	Lake	N		X	X			

As noted in Table B-4, there were 8 private haulers in the District providing recycling and trash collection services during the reference year. All of the private haulers that provided residential trash collection also provided residential curbside recycling programs. According to negotiated contracts between the municipalities and private haulers, the haulers are required to provide recycling services to residential customers. Residents living in unincorporated areas directly contract services with private haulers.

C. Composting Facilities

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

Facility Name	Compost Facility Classification	Publicly Accessible (Y/N)	Location	Food Waste (tons)	Yard Waste (tons)	Total
1. Mapledale Farm Inc	C3R	N	12613 Woodin Rd, Chardon, Geauga Co	0.00	6.44	6
2. Abate Landscaping	C4R	N	7080 Mulberry Rd, Chesterland, Geauga Co	0.00	120.87	121
3. Hauser Landscaping	C4R	N	15340 Newcomb Rd, Middlefield, Geauga Co	0.00	1,715.77	1,716
4. Heisley Road Landfill Compost Facility	C4R	Y	6011 Heisley Rd, Mentor, Lake Co	0.00	18,917.67	18,918
5. D.B. Bentley, Inc	C3R	N	2630 Narrows Rd, Painesville, Lake Co	0.00	0.00	0
6. Lake Metroparks Farmpark	C3R	Y	8800 Chardon Rd, Kirtland, Lake Co	0.00	47.39	47
7. DeMilta Sand & Gravel Inc	C4R	N	921 Erie Rd, Eastlake, Lake Co	0.00	2,058.56	2,059
8. Village of Fairport Harbor	C4R	Y	1340 East St, Fairport Harbor, Lake Co	0.00	0.00	0
9. Pro Tree Service, Inc	C4R	N	8753 Overlook Drive, Kirtland, Lake Co	0.00	1,033.33	1,033
10. Perry Township Landfill Yard Waste Fac.	C4R	Y	4720 Webb Road, Perry, Lake Co	0.00	915.00	915
11. McCallister's Landscaping and Supply	C4R	N	2519 North Ridge Rd, Painesville, Lake Co	0.00	578.67	579
12. The Perfect Touch Landscape Co	C4R	N	5879 Heisley Rd, Mentor, Lake Co	0.00	1,421.67	1,422
13. City of Wickliffe Composting Facility	C4R	Y	East 289th St, Wickliffe, Lake Co	0.00	18,695.04	18,695
14. Hallmark Excavating	C4R	N	482 Blackbrook Rd, Painesville Twp, Lake Co	0.00	2,424.00	2,424
Total				0	47,934	47,934

Table B-5 identifies 14 composting facilities that accepted compostable materials from the District in 2015. Three of the facilities are located in Geauga County; the rest are in Lake County. A Class 3 facility accepts source-separated yard waste, agricultural waste, and animal waste. A Class 4 facility accepts source-separated yard waste only. There are no Class 2 facilities in the District, which are facilities that accept food scraps. These facilities provide yard waste composting and yard waste land application systems, supported in large part by the nurseries in Lake County which utilize yard waste (primarily leaves) as an organic supplement to their soils. Compost facilities (all classes) track material volumes delivered and report to Ohio EPA, which is how the District tracks composting activities. Two facilities, the Heisley Road Landfill Compost Facility and the City of Wickliffe account for nearly 80% of all yard waste reported to OEPA.

In addition, OSU Extension conducts extensive annual surveys to collect recyclable tonnage for leaves, brush and grass clippings from all communities in the District involved with collection of yard waste. The District utilizes the OEPA reported data and survey results to prepare annual reports and the District Coordinator confirms that all reported information uses tonnage units and not cubic yards. The District Coordinator removes tonnage from the community surveys that might be reported by composting facilities to avoid double counting. Because the survey effort

is extensive and involves staff from OSU and the District for quality control and review, the District believes the survey results are true representation of the tonnage associated with yard waste management.

Yard waste collection is also provided by local communities. Eleven communities provide seasonal yard waste collection services, while three others offer locations where tree branches, clippings, etc. can be dropped off. Leaf pick-up is announced on community websites less often then yard waste collection (six instances) and services vary widely. Concord Township contracts an outsider hauler once a year to pick up leaves from residents while North Perry Village collects leaves from October through December on a weekly basis. Willoughby, Willoughby Hills, and Painesville City have similar leaf collection services as North Perry Village. Painesville Township is similar to Concord Township, only performing leaf pick-up twice per year. Perry Village, Perry Township and Concord Township offer mulch to residents at no charge. After the holidays, four municipalities provide Christmas tree pick-up while three others offer drop-off locations.

D. Other Food Waste and Yard Waste Management Programs

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

Facility or Activity Name	Activity Type	Location	Food Waste (tons)	Yard Waste (tons)
Walmart and haulers (listed on 2015 Compost report)	Commercial	Lake Co	623	0
Total			623	0

Source: OEPA 2015 Draft Compost Facility Planning Report

Walmart has embraced a zero waste goal, and diverts food waste from the waste stream through composting, conversion to animal feed and energy production through anaerobic digestion. Walmart has three locations in Lake County: Eastlake, Mentor and Madison.

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)
Waste Management - Cleveland MRF	Cuyahoga	Ohio	MRF	1,527
Total				1,527

Source: OEPA 2015 Ohio Material Resource Recovery Facilities Report

Haulers operating in the District used the Waste Management Material Handling Facility in Cleveland during the reference year.

APPENDIX C POPULATION DATA

A. Reference Year Population

Table C-1a Reference Year Population Adjustments

	Lake
Before Adjustment	229,245
Additions	
Lake County	0
Subtractions	
Lake County	0
After Adjustment	229,245

Source(s) of Information: Ohio Research Office, 2015 Population Estimates by County, City, Village and Township, May 2016.

Table C-1b Total Reference Year Population

Unadjusted Population	Adjusted Population
229,245	229,245

Source(s) of Information: Ohio Research Office, 2015 Population Estimates by County, City, Village and Township, May 2016.

The Lake County Solid Waste District encompasses the entire area of the county. All of the cities and villages in the county are wholly located within the county and no additions or subtractions are made to the County's total population.

Reference year population is obtained from the Ohio Department of Development's Office of Strategic Research (ODOD, OSR). OSR provided estimate populations for 2015 based on the 2010 census data by governmental unit. The total population in the Lake County Solid Waste District is 229,245 for the Plan's reference year of 2015.

B. Population Projections

Table C-2 Population Projections

Year	Lake	Total District Population
2015	229,245	229,245
2016	229,116	229,116
2017	228,987	228,987
2018	**228,858**	**228,858**
2019	228,729	228,729
2020	228,600	228,600
2021	228,544	228,544
2022	228,488	228,488
2023	228,432	228,432
2024	228,376	228,376
2025	228,320	228,320
2026	228,332	228,332
2027	228,344	228,344
2028	228,356	228,356
2029	228,368	228,368
2030	228,380	228,380
2031	228,414	228,414
2032	228,448	228,448

Source of Information: Ohio Development Services Agency, Office of Research, Population Projections: County Totals in 5-Year Increments. March 2013, with method of extrapolating for intervening years depicted in Table C-3.

Table C-3 Projected Annual Change

Year	Annual Change persons/year	Lake County
2015	229,245	229,245
2016	-129	229,116
2017	-129	228,987
2018	-129	228,858
2019	-129	228,729
2020	228,600	228,600
2021	-56	228,544
2022	-56	228,488
2023	-56	228,432
2024	-56	228,376
2025	228,320	228,320
2026	12	228,332
2027	12	228,344
2028	12	228,356
2029	12	228,368
2030	228,380	228,380
2031	34	228,414
2032	34	228,448
2033	34	228,482
2034	34	228,516
2035	228,550	228,550

Sample Calculations: Population for Year 2030 minus Population for Year 2025 and divided by 5 for yearly increments:
(228,380-228,320)/5 = 12 additional persons per year

Assumptions: Utilizes the Ohio Development Services Agency data without adjustment.

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 2010 census data and projected estimates for 2015, 2020, 2025, 2030, and 2035. To determine population estimates between these years, straight-line interpolation was used.

The State's Development Services Agency anticipates that by 2020, Lake County's population will decline slightly (0.4%) over the next ten years (an estimated loss of 925 people); and then after 2025, will start to increase slowly by approximately 0.1% per year.

APPENDIX D DISPOSAL DATA

A. Reference Year Waste Disposed

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

Facility Name	Location		Waste Accepted from the SWMD			
	County	State	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)
43 Lake County Solid Waste Facility	Lake	Ohio	189,100	0	0	189,100
47 Lorain County Landfill LLC	Lorain	Ohio	1	7,617	151	7,768
50 Carbon Limestone Landfill LLC	Mahoning	Ohio	0	0	8	8
62 Port Clinton Landfill, Inc	Ottawa	Ohio	21	0	0	21
76 Countywide Recycling & Disposal Facility	Stark	Ohio	13	0	0	13
79 Kimble Sanitary Landfill	Tuscarawas	Ohio	6	0	0	7
87 Evergreen Recycling & Disposal	Wood	Ohio	0	0	0	0
4 Geneva Landfill	Ashtabula	Ohio	5,086	11,119	199	16,403
76 American Landfill, Inc.	Stark	Ohio	0	2,180	414	2,593
Total			**194,228**	**20,915**	**771**	**215,914**

[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 of Information: OEPA Annual District Report Review Form for 2015.

Sample Calculation: Total Waste Accepted at Lake County Solid Waste Facility=Residential/Commercial+Industrial+Excluded
189,100 tons = 189,100+0+0

Waste flows to the landfills either by direct haul or through a transfer facility. In 2015, the District utilized nine (9) landfills. Approximately 88% 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. The majority of direct hauled waste (88%) was disposed in one landfill –Lake County Solid Waste Facility, the only In-District landfill, while 8% was disposed in the Geneva Landfill in adjacent Ashtabula County. The majority of waste disposed out of the district was industrial tonnage and this is because the Lake County Landfill does not accept industrial waste. None of the waste generated in the District was disposed in out-of-state landfill facilities.

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

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

Source of Information: OEPA Annual District Report Review Form for 2015
Sample Calculation: Not Applicable

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

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

Residential/ Commercial	Industrial	Excluded	Total
194,228	20,915	771	215,914

A wide variety of wastes are disposed in municipal solid waste landfills, including 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 be accepted at landfills. In 2015, the District disposed nine times more waste from residential and commercial sources than from industrial sources (194,228 tons residential/commercial compared to 20,915 tons of industrial), and only a very small amount of excluded waste.

Table D-2: Waste Transferred in Reference Year[1]

Facility Name	Location		Waste Received from the SWMD			
	County	State	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)
Kimble Transfer & Recycling Facility - Canton	Stark	Ohio	6.7	0.0	0.0	6.7
PennOhio Coal Co, dba Kimble Transfer & Recycling	Summit	Ohio	9,834.9	0.0	14.1	9,849.0
Harvard Road Transfer Station	Cuyahoga	Ohio	136.5	0.0	7.8	144.4
BFI Glenwillow Transfer Station	Cuyahoga	Ohio	6,187.4	144.4	0.0	6,331.8
Cleveland Transfer/Recycling Station	Cuyahoga	Ohio	3,336.9	1.4	0.0	3,338.3
Universal Disposal Inc	Geauga	Ohio	5,527.5	438.0	0.0	5,965.5
Broadview Heights Recycling Center	Cuyahoga	Ohio	2,379.1	0.0	0.0	2,379.1
Total			**27,409.0**	**583.9**	**21.9**	**28,014.7**

[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 of Information: OEPA Annual District Report Review Form for 2015

Sample Calculation: Total Waste Received at Kimble Transfer & Recycling Facility = Residential/Commercial+Industrial+Excluded
6.7 tons = 6.7+0+0

In cases where waste is hauled from a transfer facility to a landfill, the county of origin is not recorded at the landfill. This means a load of trash disposed in a landfill from a transfer facility could have waste mixed from several counties. When a transfer facility hauls to more than one landfill, it becomes difficult to track which landfill received a county's waste. For planning purposes the waste hauled through transfer facilities is listed separately identifying possible destination landfills. Approximately 13% of the District's disposed waste was transferred, meaning a refuse truck picked up waste from clients within the District and hauled that waste to a transfer facility. Waste was tipped, reloaded into transfer trucks, and hauled to landfills for disposal.

Table D-2 describes the relatively small amount of waste disposed by the District to seven different transfer facilities. None of the transfer facilities are located within the SWMD. The total amount of District generated waste transferred was 28,015 tons; 44% was transferred to four different facilities in adjacent Cuyahoga County, while 35% was transferred to a facility in Summit County and 21% to a facility in Geauga County.

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

Facility Name	Facility Type	Location		Waste Accepted from the SWMD			
		County	State	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)
Stericycle, Inc	Incinerator	GT	Ohio	0	0	0	0
Total				0	0	0	0

Source of Information: OEPA Annual District Report Review Form for 2015
Sample Calculations: Total = Residential/Commercial+Industrial+Excluded (Not applicable)

The District has no publicly available incinerators and no waste-to-energy facilities. In 2015, Stericycle Inc located in the Geauga/Trumbull Solid Waste District reported accepting and incinerating no waste from Lake County SWMD, though in the past, negligible amounts have been reported.

Table D-4: Total Waste Disposed in Reference Year

	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)	% of Total Waste Disposed
Direct Hauled	194,228	20,915	0	215,143	88%
Transferred	27,409	584	0	27,993	12%
Incinerated	0	0	0	0	0%
Total	221,637	21,499	0	243,136	100%
Percent of Total	91%	9%	0%	100%	

Source of Information: Tables D-1 thru D-3.
Sample Calculations: Total Residential/Commercial tons = Direct Hauled+Transferred+Incinerated
221,637 = 194,228 + 27,409 + 0

Total disposal refers to the sum of waste direct hauled and transferred. According to Ohio EPA Format 4.0, if excluded waste is 10 percent or less of total disposal in the reference year, then SWMD's are not required to account for excluded waste in the solid waste management plan. Over 90% of the waste disposed in Lake County is residential/commercial waste. Industrial waste comprises 9% and excluded waste is less than 1%, as noted in Table D-4 Supplement, therefore, excluded waste is not addressed in this Plan Update, and not included in the total amount of waste disposed for planning purposes. Therefore, the total amount of waste disposed used in this Plan is 243,136 tons, as shown in Table D-4.

Table D-4 Supplement (Incinerated and Excluded Wastes as Percentages of Total Waste Disposed)

	Residential/ Commercial (tons)	Industrial (tons)	Excluded (tons)	Total (tons)
Direct Hauled	194,228	20,915	771	215,914
Transferred	27,409	584	22	28,015
Incinerated	0	0	0	0
Total	221,637	21,499	793	243,929
Percent of Total	91%	9%	0%	100%

Sample Calculations: Total Direct Hauled tons = Residential/Commercial + Industrial + Excluded
215,914= 194,228 + 20,915 + 771

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]
2011	233,890	5.14	219,588	17,893	2,551	240,032
2012	229,885	5.19	217,637	10,074	1,745	229,455
2013	229,857	5.21	218,599	11,158	428	230,185
2014	229,230	5.34	223,451	12,052	932	236,435
2015	229,245	5.30	221,637	21,499	0*	243,136

Sources of Information: OEPA Annual District Report Review Form for years 2011-2015
Sample Calculations: *Excluded waste in 2015 was less than 1% and is therefore not addressed in this plan.
2015 Rate (ppd) = ((2015 Res/Commercial Waste (tons) * 2,000 pounds/ton) /365 days/yr) /2015 Pop
5.30 pounds per day= ((221,637 *2,000)/365 days)/229,245

1. *Residential/Commercial Waste*

Residential/commercial disposal has fluctuated somewhat between 2011 and 2015; yet in each case, the change from one year to the next was 2.2% or less. The largest swing occurred between 2013 and 2014 when the tonnage increased by nearly 4,900 tons, only to decline the next year by about 2,000 tons. In total, there has been an average annual increase of 0.24% as depicted by the trend line in Figure D-1. The amount of waste generated per person has increased 0.16 pounds during that period, increasing to 5.30 pounds per person per day from 5.14 in 2011.

Figure D-1. Residential /Commercial 2011-2015 Disposal Analysis

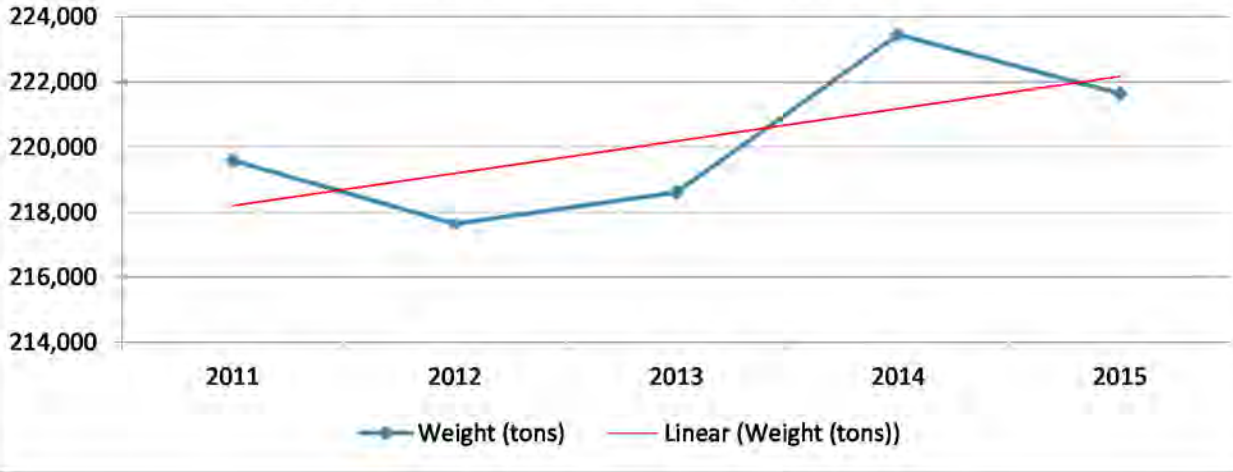
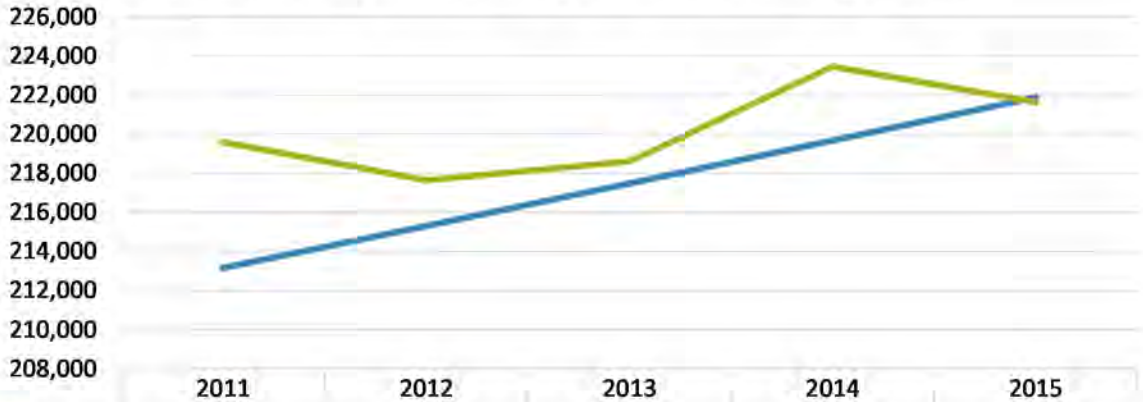


Figure D-2 below compares the historical data to projections made in the 2012 Plan. Disposal projections made in the 2012 Plan forecasted a very similar amount for 2015 compared to the actual amount, though the in-between years fluctuated.

Figure D-2. Residential/Commercial Projected vs Actual Tonnage Disposed



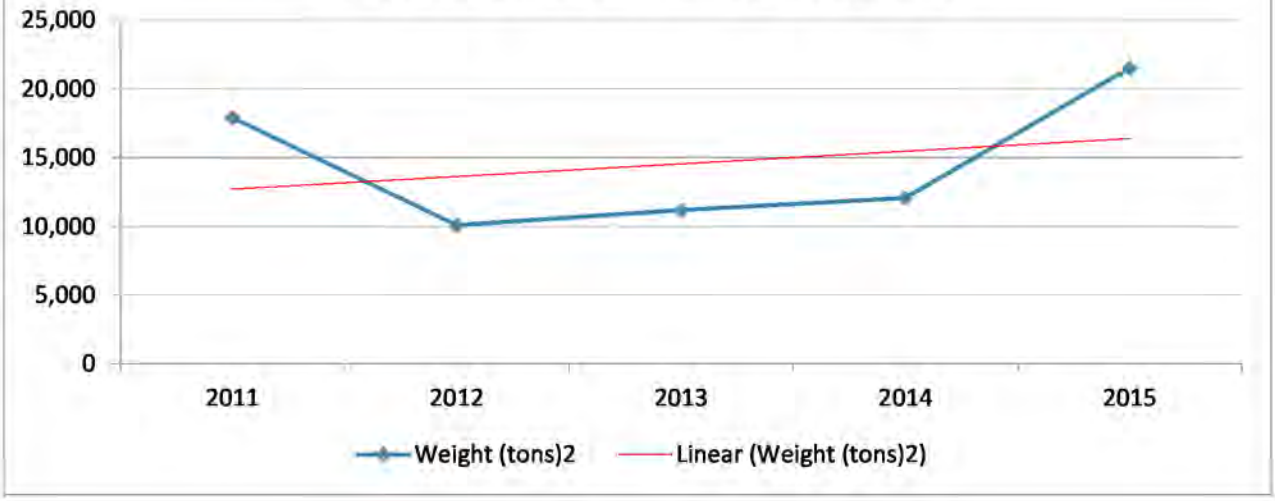
	2011	2012	2013	2014	2015
Projected	213,158	215,305	217,474	219,662	221,872
Actual	219,588	217,637	218,599	223,451	221,637

Reflecting on the 2012 Plan projections and actual disposal, the District will base disposal projections from historical waste disposal, which is 0.24% per year.

2. *Industrial Waste*

An analysis of industrial disposal indicates considerable fluctuations between 2011 and 2015, as depicted in Figure D-3. At face value, data years 2011 and 2015 appear to be outliers because disposal tonnages were considerably higher than in the intervening years. In reflecting on the large increase in the amount of industrial waste disposed at the Geneva Landfill, the District notes that this is due to haulers who in the past had disposed of waste classified as municipal waste at the Lake County Landfill, but that in 2015, the District reclassified certain loads as industrial waste rather than municipal waste and therefore redirected the haulers to the Geneva Landfill because the Lake County Landfill does not accept industrial waste.

Figure D-3. Industrial 2011-2015 Disposal Analysis



Projections made in the 2012 Plan are higher than the actual amount reported, as shown in Figure D-4. However, despite the fluctuations, for 2015 the projected tonnage is only 10% higher than actual disposal shown. Given the variability in historical quantities of industrial waste disposed, the District, based on Ohio EPA's recommendation, will use the average of historical data for years 2012 through 2014 (11,095 tons) and keep it constant for the planning period.

Figure D-4. Industrial Projected vs Actual Tonage Disposed

	2011	2012	2013	2014	2015
Projected	20,675	21,426	22,193	22,976	23,775
Actual	17,893	10,074	11,158	12,052	21,499

3. Excluded Waste

Excluded waste includes slag, uncontaminated earth, non-toxic fly ash, spent, non-toxic foundry sand, material from mining, and construction and demolition debris. The amount of excluded waste disposed in Lake County has declined considerably, and in 2015, 793 tons were disposed (down from 2,551 tons in 2011).

According to Ohio EPA Format 4.0, if excluded waste is 10 percent or less of total disposal in the reference year, then SWMD's are not required to account for excluded waste in the solid waste management plan. In 2015, the amount of excluded waste comprised 0.3% of the total tonnage disposed.

C. Disposal Projections

Based on the analysis of the waste disposal between 2011 and 2015, the District believes the best method for projecting disposal amounts for the planning period is to use the 0.24% average annual percentage change for residential/commercial disposal and for industrial disposal, the District will use the average of historical data for years 2012 through 2014 (11,095 tons) and keep it constant for the planning period.

Residential/Commercial	0.24%	average annual percentage change
Industrial	0.00%	average annual increase based on volatility of previous years

The District believes the Residential/Commercial annual rate of increase is a conservative estimate, at least for the first six years of the planning period.

Table D-6 Projections for Waste to be Disposed and Transferred (tons)

Year	Residential/ Commercial Solid Waste	Industrial Solid Waste	Total Waste	Waste Transferred (as part of Total Disposal)	
	Weight (tons)	Weight (tons)	Weight (tons)	Weight (tons)	Percent 11.51%
2015	221,637	21,499	243,136	27,993	
2016	222,169	11,095	233,264	26,856	
2017	222,703	11,095	233,798	26,918	
2018	223,238	11,095	234,333	26,979	
2019	223,775	11,095	234,870	27,041	
2020	224,312	11,095	235,407	27,103	
2021	224,851	11,095	235,946	27,165	
2022	225,392	11,095	236,487	27,227	
2023	225,933	11,095	237,028	27,290	
2024	226,476	11,095	237,571	27,352	
2025	227,020	11,095	238,115	27,415	
2026	227,566	11,095	238,661	27,478	
2027	228,113	11,095	239,208	27,541	
2028	228,661	11,095	239,756	27,604	
2029	229,210	11,095	240,305	27,667	
2030	229,761	11,095	240,856	27,730	
2031	230,313	11,095	241,408	27,794	
2032	230,866	11,095	241,961	27,858	

Source(s) of Information: Population from Table C-1

Sample Calculations:

Residential/Commercial disposed waste: 2015 tonnage (221,637) x 0.24 = 2016 tonnage (222,169).

Industrial disposed waste: 2016 tonnage = Average of years 2012, 2013 and 2014 = (10,074+11,158+12,052) = 33,284/3 = 11,095.

The District anticipates that the District's projected waste disposed in the District during the planning period will be taken to the Lake County Landfill, and it is the only in-district disposal site.

Table D-7: Waste Disposal at Lake County Landfill Projections

Year	In-District	Out-of-District	Out-of-State	Total
2011	178,829	9,435	0	188,264
2012	178,560	12,330	0	190,890
2013	189,267	16,640	0	205,907
2014	192,632	19,299	0	211,932
2015	**189,100**	**23,999**	**0**	**213,099**
2016	184,279	23,326	0	207,605
2017	184,701	23,380	0	208,080
2018	**185,123**	**23,433**	**0**	**208,557**
2019	185,547	23,487	0	209,034
2020	185,972	23,541	0	209,513
2021	186,398	23,595	0	209,992
2022	186,824	23,649	0	210,473
2023	187,252	23,703	0	210,955
2024	187,681	23,757	0	211,438
2025	188,111	23,812	0	211,923
2026	188,542	23,866	0	212,408
2027	188,974	23,921	0	212,895
2028	189,407	23,976	0	213,383
2029	189,841	24,031	0	213,872
2030	190,276	24,086	0	214,362
2031	190,712	24,141	0	214,853
2032	191,150	24,196	0	215,346

Table D-7 highlights the District's projections for the amount of solid waste to be disposed at the Lake County Solid Waste Facility during the planning period, and the breakdown between waste originating from in the district compared to amount of waste originating outside the district.

For projection purposes, the tonnage for 2011, 2012, 2013, 2014 and 2015 (reference year) and the breakdown between in-district and out-of-district was reviewed. In 2011, in-district waste comprised 95% of the total received at the Lake County Landfill, while out-of-district waste made up the remaining 5%. By 2015, the amount of in-district waste had declined to 88.7% and out-of-district waste had increased to 11.3%. The reason for this increase is based on the number of haulers with waste originating in Geauga County who were taking their loads to the Lake County Landfill and claiming the waste to be in-district (originating in Lake County). The Geneva Landfill began a stringent campaign to prevent this type of misrepresentation as it was losing out on the out-of-district fees it was due. The Lake County Landfill cooperated with the Geneva Landfill's efforts to more accurately document tonnage from out-of-district, which is why the amount of out-of-district waste increased. The District believes that the current percentage of out-of-district waste received in the last few years is a more accurate reflection of reality and that the current breakdown of roughly 89% in-district to 11% out-of-district will remain the same throughout the planning period.

There are no construction and demolition debris (C&DD) processing facilities in the District.

APPENDIX E RESIDENTIAL/COMMERCIAL REDUCTION AND RECYCLING DATA

A. Reference Year Recovery Data

Table E-1 Commercial Survey Results

NAICS	Appliances/ "White Goods"	Electronics	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Card-board	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste	Used Motor Oil	Scrap Tires	
42	0.0	0.0	14.7	0.0	0.1	3,365.0	2,024.8	322.0	54.7	310.4	0.1	132.6	45.6	16.5	820.8	1.1	0.0	
44	0.0	5.0	16.2	0.0	922.0	2.3	9.0	6,625.1	207.3	846.8	0.0	507.0	36.0	0.0	0.0	1,494.0	0.0	
45	0.0	0.0	0.3	0.0	0.0	12.5	0.5	742.0	0.0	393.6	0.0	1,401.0	24.0	1.0	0.0	0.0	0.0	
49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	268.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
51	0.0	0.0	0.0	0.0	0.0	0.0	2.1	7.4	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
54	0.0	0.0	0.0	0.0	0.0	282.0	0.0	19.0	51.0	0.0	0.0	648.0	0.0	3.3	0.0	0.0	0.0	
56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
61	0.0	0.0	0.9	0.0	0.0	5.0	0.3	10.8	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
62	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.5	11.3	0.5	0.0	0.0	0.0	3.4	0.0	0.0	0.0	
71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
72	0.0	0.0	0.0	25.5	1.5	0.0	3.9	89.0	30.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
81	0.0	0.3	0.9	0.0	0.0	8.3	1.3	0.2	2.5	0.4	0.0	0.0	0.0	62.3	0.0	0.1	0.7	
92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Unadjusted Total	0.0	5.3	32.9	25.5	923.9	3,675.0	2,041.8	7,847.3	678.6	1,571.5	0.1	2,688.6	105.6	86.5	820.8	1,495.1	0.7	21,999.2
Adjustments															820.8		0.7	-821.5
Adjusted Total	**0.0**	**5.3**	**32.9**	**25.5**	**923.9**	**3,675.0**	**2,041.8**	**7,847.3**	**678.6**	**1,571.5**	**0.1**	**2,688.6**	**105.6**	**86.5**	**0.0**	**1,495.1**	**0.0**	**21,177.7**

Source(s) of Information: District sourced data from businesses
Sample Calculations: Adjusted Total (21,177.7) = Unadjusted Total (21,999.2) – Adjustments (821.5)

Table E-1 summarizes commercial/institutional recycling data obtained from SWMD survey efforts. The District conducted a commercial survey in 2016 to obtain data on recycling tonnage for calendar year 2015. The District obtained a mailing list from a commercial provider, which included 1,114 commercial businesses/institutions. In total, 88 surveys were returned from commercial businesses/institutions. Over 78% (69) respondents reported that they recycle, and 58 of the companies provided at least some information on the tonnage and composition of the materials they recycle. Some materials reported as recycled are considered non-creditable, such as construction and demolition debris and hazardous waste; data for these materials is not included in this table.

Data from the survey was aggregated by North American Industry Classification System (NAICS). Businesses considered by OEPA to be in the "Commercial" or "Institutional" sector are those classified under sectors 42 through 92. No other NAICS codes were added to Table E-1. Adjustments were made to prevent double-counting, including tonnage reported for yard waste and scrap tires. In some instances a business did not respond to the reference year survey but did respond to a previous survey. Supplemental data from a previous survey was used in this table when the business was verified as operating in the reference year, the nature of the business did not significantly change, and the business still produced the same type of recyclables. The amount of materials used from previous surveys is 2,282 tons (10.4%). The amount of recycled materials shown in Table E-1 is 21,177.7 tons or 24 % of total residential/commercial recycling tonnage.

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	Total
Buybacks																
Royal Oak Paper									918							
Scrap Yards																
None																
Brokers																
None																
Processors/MRF's																
Waste Management - Cleveland MRF								256	1,271							1,527
Unadjusted Totals	0	0	0	0	0	0	0	256	2,189	0	0	0	0	0	0	2,445
Adjustments																**0**
Adjusted Totals	0	0	**0**	**0**	**0**	**0**	**0**	**256**	**2,189**	**0**	**0**	**0**	**0**	**0**	**0**	**2,445**

Source(s) of Information: 2015 Material Recovery Facility and Commercial Recycling Data from Ohio EPA website. Also referred to as Ohio EPA MRF Data Report.
Sample Calculations: Adjusted Total All Other Paper (2,189) = All Other Paper Unadjusted Total (918 + 1,271) – Adjustments (0)

Table E-2 reports recycling data from scrap yards, brokers, buybacks, processors and MRFs. Processors and MRF quantities reported in Table E-2 were obtained from Ohio EPA MRF Data Reports.

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	
Walmart Recycling in Ohio	0	49	0	2,046	12	1	0	0	0	0	0	257	
Lowe's Companies, Inc	0	4	0	254	0	212	0	30	0	0	0	0	
Home Depot Corporation	0	0	0	125	0	7	0	109	0	0	0	0	
Target Corporation	0	9	0	517	5	8	0	0	0	0	0	3	
Dollar General Corporation	0	0	0	286	1	0	0	0	0	0	0	0	
Big Lots Corporation	0	0	0	76	0	0	0	0	0	0	0	0	
Kohl's Corporate Office and Headquarters	0	10	0	202	0	0	0	0	0	0	0	0	
JC Penny Distribution Center	0	7	0	55	2	0	0	0	0	0	0	0	
Unadjusted Total	0	79	0	3,562	19	228	0	139	0	0	0	260	4,288
Adjustments												3	3
Adjusted Total	**0**	**79**	**0**	**3,562**	**19**	**228**	**0**	**139**	**0**	**0**	**0**	**257**	**4,285**

Source(s) of Information: 2015 Material Recovery Facility and Commercial Recycling Data from Ohio EPA website. Also referred to as Ohio EPA MRF Data Report.
Sample Calculation: Adjusted Total Cardboard (3,562) = Unadjusted Total Cardboard (2,046+254+125+517+286+76+202+55) – Adjustments (0).

Quantities reported in Table E-3 were obtained from the Ohio EPA MRF Data Report. Adjustments were made to exclude 3 tons of "other" to prevent double counting.

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	Lead-Acid Batteries	Food	Glass	Ferrous Metals	Non-Ferrous Metals	Corrugated Cardboard	All Other Paper	Plastics	Wood	Rubber	Commingled Recyclables (Mixed)	Yard Waste	Pharma-ceuticals	*Unadjusted Total*	*Adjustments*	*Adjusted Total*
Curbside Recycling Services								1,683	1,207		799	4,830	753			269			9,541		9,541
Drop-off Recycling Locations								29	101		0	126	22			3			280		280
Local Municipal Yard Waste Collections																	1,784		1,784	1,764	20
Lake County Government Program [a]												66							66	66	0
Lake Co Captains Baseball Outreach Program[b]																			0		0
School Recycling [c]												41							41	41	0
Composting Facilities							0										47,934		47,934		47,934
Other Food and Yard Waste Management Activities							623												623		623
Ohio EPA Scrap Tire Data					1,403														1,403		1,403
Pharmaceutical Collection at Sheriff's Office																		3	3		3
Drop-off at Landfill	101				21														122	21	101
Special Collections at Fairgrounds		126		23	41	5													195	41	154
Unadjusted Total	101	126	0	23	1,465	5	623	1,712	1,308	0	799	5,165	775	0	0	272	49,718	3	62,094	2,035	60,059
Adjustments					62							209					1,764		2,035		
Adjusted Total	101	126	0	23	1,403	5	623	1,712	1,308	0	799	4,956	775	0	0	272	47,954	3	60,059		

Source(s) of Information: District sourced data; 2015 OEPA County Tire Numbers report dated 7/19/16; 2015 OEPA Draft Compost Facility Planning Report dated 5/26/16.
Sample Calculations: Curbside Recycling Services Adjusted Total (9,541) = Unadjusted Total Curbside (1,683+1,207+799+4,830+753+269) – Adjustments (0)

(a) Reported as part of commercial survey in Table E-1.
(b) Reported as part of total 2015 tonnage of recyclables recovered from the ballpark, specific tonnage of recovered materials from the one day event is not available for 2015.
(c) Reported as part of Royal Oak's tonnage on Table E-2.

Quantities reported in Table E-4 were obtained from a compilation of reports and indicate the amount of waste diverted through programs and services. Adjustments were made to exclude quantities believed to be included in other sources, including 62 tons of "Scrap Tires", 209 tons of "All Other Paper", and 1,764 tons of "Yard Waste".

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

Material	Quantity	
	tons	% of total tons
Appliances/ "White Goods"	101	0%
Household Hazardous Waste	126	0%
Used Motor Oil	1,495	2%
Electronics	28	0%
Scrap Tires	1,403	2%
Dry Cell Batteries	0	0%
Lead-Acid Batteries	38	0%
Food	649	1%
Glass	2,635	3%
Ferrous Metals	4,983	6%
Non-Ferrous Metals	2,270	3%
Corrugated Cardboard	12,465	14%
All Other Paper	7,843	9%
Plastics	2,426	3%
Textiles	0	0%
Wood	2,828	3%
Rubber	106	0%
Commingled Recyclables (Mixed)	359	0%
Yard Waste	47,954	55%
Other (Aggregated)	260	0%
Total	87,967	100%

Source(s) of Information: Tables E-1 through E-4.

The SWMD diverted 87,967 tons from the residential/commercial sector. Table E-5 reports quantities of each material diverted. As noted in the table and illustrated in Figure E-1, yard waste makes up a significant majority of tonnage (55%), followed by corrugated cardboard (14%) and ferrous metals (6%).

Figure E-1. Residential/Commercial Waste Reduced/Recycled (tons)

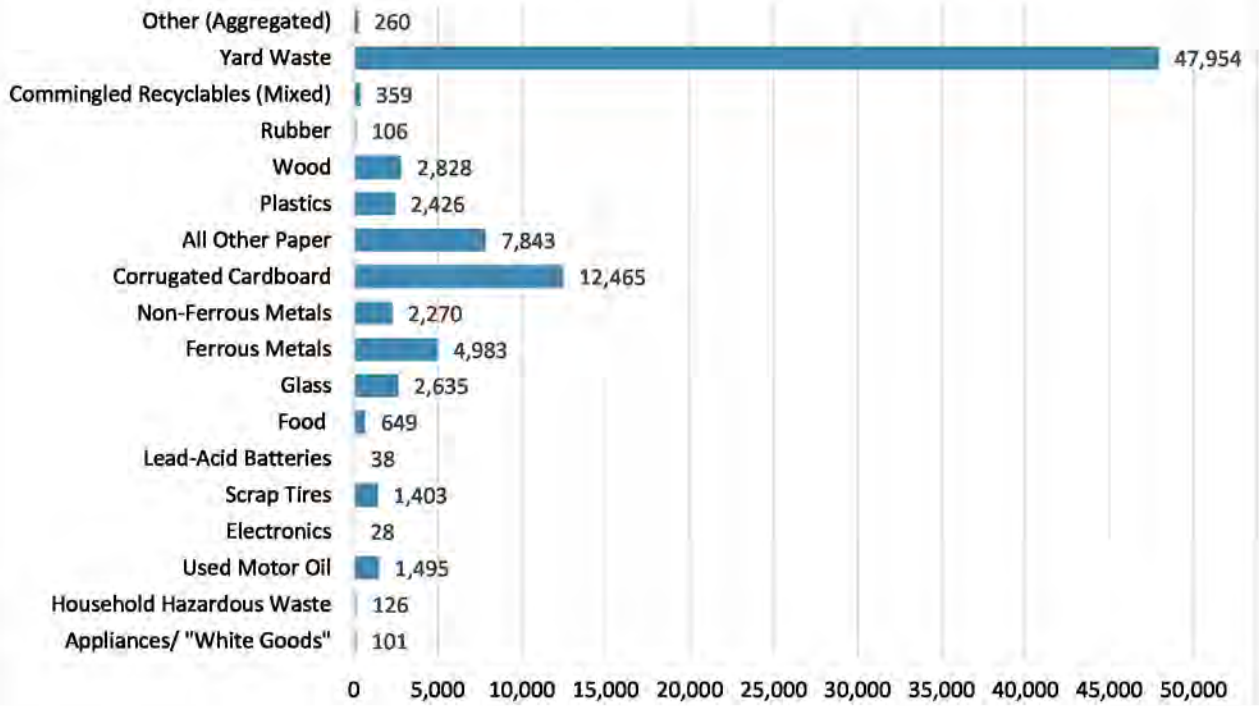


Table E-6 Quantities Recovered by Program/Source

Program/Source of R/C Recycling Data	Quantities	
	Tons	% of Total
Commercial Survey	21,178	24%
Data from Other Recycling Facilities	2,445	3%
Ohio EPA Commercial Retail Data	4,285	5%
Curbside Recycling Services	9,541	11%
Drop-off Recycling Locations	280	0%
Composting Facilities	47,954	55%
Other Food and Yard Waste Management Activities	623	1%
Ohio EPA Scrap Tire Data	1,403	2%
Pharmaceutical Collection at Sheriff's Office	3	0%
Drop-off at Landfill	101	0%
Special Collections at Fairgrounds	154	0%
Total	87,967	100%

Source(s) of Information: Tables E-1 through E-4.

Table E-6 reports quantities diverted for each program/source. With composting being the highest percent of material recovered, the composting facilities are likewise the source with the highest quantities, followed by recycling reported through the commercial survey (24%) and curbside recycling services (11%).

B. Historical Recovery

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

Year	1. Commercial Survey	2. Data from Other Recycling Facilities	3. Ohio EPA Commercial Retail Data	4. Curbside Recycling Services	5. Drop-off Recycling Locations	6. Composting Facilities	7. Other Food and Yard Waste Management Activities	8. Ohio EPA Scrap Tire Data	9. Pharmac-eutical Collection at Sheriff's Office	10. Drop-off at Landfill	11. Special Collections at Fairgrounds	Totals
2011	23,876	0	3,416	2,780	4,525	51,184	0	1,696	7	134	116	87,735
2012	28,190	9,694	3,252	5,366	2,432	44,036	0	1,805	2	99	137	95,013
2013	25,849	2,651	2,456	6,850	1,402	49,715	0	1,674	2	77	166	90,842
2014	24,152	2,362	4,455	9,118	1,110	90,357	493	1,390	3	65	156	133,661
2015	***21,178***	***2,445***	***4,285***	***9,541***	***280***	***47,954***	***623***	***1,403***	***3***	***101***	***154***	***87,967***

Source(s) of Information: Tables E-1 through E-4.

Table E-7 identifies historical recycling tonnage from the various programs/sources. While more detailed evaluations are included in Appendix H, general observations include:

1. Commercial survey data fluctuates based on responses received and where double counted materials were removed. Data increased in 2012 and has declined each year since. Commercial reporting via the survey is a challenge given the low response rate. Over the 5-year period commercial recycling decreased an average of 675 tons per year.
2. Data from other Recycling Facilities:
   - Buybacks are facilities that buy recyclable materials from the public. Buybacks are a challenging sector to receive data from. The District has had only one buyback facility report data – ABITIBI in 2012 and 2013, which was then replaced by Royal Oak Recycling in 2014. However, tonnage reported by Royal Oak Recycling is only 34% of the amount previously collected by ABITIBI.
   - Only one MRF is reportedly receiving materials from the SWMD, and this facility has had a significant decline in tonnage since 2012, from 7,060 tons in 2012 to 1,527 tons in 2015.
3. Ohio EPA Commercial Retail data fluctuates based on reporting entities, though overall, there is an upward trend. In 2014, there was a large increase in Ohio EPA Commercial Retail data mostly due to Walmart reporting a 285% increase (+1,434 tons), mostly in cardboard. Commercial Retail data declined in 3 of the 5 years, yet increased an average of 12% (217 tons) per year between 2011 and 2015. To minimize the effects of variation the District looked at data from more years (2010 to 2016) and notes that from 2010 to 2011, recovery increased by 1,405 tons (70%) and between 2015 and 2016, recovery increased by 11% according to OEPA's draft report for 2016, again indicating an upward trend.
4. Ohio EPA Scrap Tire data fluctuates based on reporting entities; the data indicates an average decline of 73 tons per year.

5. Program sources:
   - Curbside reporting increased an average of 1,695 tons per year (40% annually) since 2011, when only 2,780 tons were collected.
   - Conversely, with the closing of drop-off locations, the data show an average decline of 1,061 tons per year since in 2011, when the tonnage reported was 4,525.
   - Composting data shows significant fluctuations during the 5-year period. Fluctuations are due primarily to weather events. For example, in early November 2014, there was an unusually heavy snow storm that caused a large amount of tree damage and debris. This contributed to an unusually high amount of composted material, over 90,000 tons, an increase of 82% from the previous year. In contrast, the average annual increase over the 5-year period was 8%. Based on OEPA's draft report for 2016, composting tonnage for the District was 55,102 tons, a 15% increase from 2015.
   - The drop-off facility at the landfill showed a decline in tonnage from 2011 to 2014 (from 134 tons to 65 tons), but then a 56% increase between 2014 and 2015. The Lake County Solid Waste Facility accepts appliances and scrap tires, though data for the scrap tires is not included in this total. Appliances collected at the landfill declined an average of 8% over the five-year period, with an average of 95 tons accepted annually.
   - Tonnage collected at Special Collection Events at the Fairgrounds have generally increased about 8% annually, from 116 tons in 2011 to 154 tons in 2015. Programs include events for HHW (twice annually), electronics (annually) and scrap tires, though scrap tire data is not included in this total.
   - Pharmaceutical collections have seen a steady 18% annual increase in tonnage between 2012 and 2015, from 1.86 tons to 3.0 tons. However, this is still less than 50% of what was collected in 2011.

In total, the historical residential/commercial recovery over the five years shows a 4% annual average percent change, as noted in Table E-7a.

Table E-7a Historical Recycling Analysis – Residential/ Commercial

Year	Weight (tons)	Annual Percent Change	Annual Tonnage Change
2011	87,735		
2012	95,013	8%	7,277
2013	90,842	-4%	-4,171
2014	133,661	47%	42,819
2015	**87,967**	**-34%**	**-45,694**
2011 - 2015 Average			
Average Annual Percentage Change			4%
Average Tons Over 5 Year Period			99,043
Average Annual Tonnage Change			58

C. Residential/Commercial Recovery Projections

There are numerous factors to consider when analyzing historical data in order to project the amount of materials to be recovered in the future. Table E-7a1 indicates the annual percentage change for each program for the years that data was available, while Table E-7a2 highlights average percent changes. The annual projections used by the District, and shown in Table E-7a3 are based on a combination of historical trends and expected increases in recovery from the various programs and activities the District will pursue during the planning period.

Table E-7a1 Annual Percent Change in Tons Recovered

	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Locations	Composting Facilities	Other Food/Yard Waste Manag't Activities	Ohio EPA Scrap Tire Data	Pharmaceutical Collection at Sheriff's Office	Drop-off at Landfill	Fairgrounds Special Collections	Totals
2011			70%			0%						
2012	18%	0%	-5%	93%	-46%	-14%	0%	6%	-75%	-26%	18%	8%
2013	-8%	-73%	-24%	28%	-42%	13%	0%	-7%	30%	-23%	22%	-4%
2014	-7%	-11%	81%	33%	-21%	82%	0%	-17%	12%	-16%	-6%	47%
2015	***-12%***	4%	***-4%***	***5%***	***-75%***	***-47%***	***26%***	***1%***	***10%***	***56%***	***-2%***	***-34%***
2016	na	na	11%	na	na	15%	3%	-1%	na	na	na	na

Table E-7a2 Average Annual Percentage Change in Tons Recovered

Timeframe	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Locations	Composting Facilities	Other Food/Yard Waste Manag't Activities	Ohio EPA Scrap Tire Data	Pharmaceutical Collection at Sheriff's Office	Drop-off at Landfill	Fairgrounds Special Collections	Totals
2011 to 2015	-2%	-20%	12%	40%	-46%	8%	7%	-4%	-6%	-2%	8%	4%
2011 to 2016			12%			10%	6%	-4%				
2012 to 2016									18%			

Table E-7a3 identifies the projections for the planning period, programs where the projection includes an * are programs that are to be enhanced during the planning period in order to achieve the projected increase.

Table E-7a3 Annual Percentage Increase for the Planning Period

	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Locations	Composting Facilities	Other Food/Yard Waste Manag't Activities	Ohio EPA Scrap Tire Data	Pharmaceutical Collection at Sheriff's Office	Drop-off at Landfill	Fairgrounds Special Collections	Totals
Planning projections	1%*	0%	2%	5%*	0%	0%	2%	0%	5%	5%*	5%*	1%

* Through 2020, then reduced to 4% for 2021 through 2025 and to 3% for the rest of the planning period.

Table E-7a3 indicates the District's projections related to residential and commercial recovery tonnage by program and source. Each source and program was individually analyzed, based on historic trends (which in some cases includes data for 2010 and/or 2016) as well as anticipated increases resulting from new, expanded or enhanced programs included in this Plan. However, given the uncertainty and difficulty in projecting some of the more volatile and unpredictable programs, such as data from other recycling facilities and composting facilities, the District will hold some quantities to be recovered constant using historical data as a guide.

While more detailed analyzes are included in Appendix H, key points regarding the projections include:

1. Commercial Survey: There were a considerable number of commercial and institutional businesses in the District that did not reply to the survey in 2016 to collect data for this Plan (reference year 2015), although many of these same businesses did respond in earlier large scale survey efforts. The District plans to increase outreach through the Business Waste Reduction Committee to improve commercial survey data (to document recycling that is likely occurring and currently underreported) as well as to increase recycling efforts. With these increased efforts, the District projects commercial survey data to increase approximately 212 tons a year or 1% annually.
2. Data from other recycling facilities including buybacks and MRF data has fluctuated significantly, therefore, the District will use the quantity from 2015 and hold it constant for the planning period.
3. Despite fluctuations in Ohio EPA Commercial Retail data between 2010 and 2016, there is a quantifiable upward trend in quantities reported. This information is collected by OEPA in an annual statewide survey. Since 2015, OEPA has partnered with the Ohio Chamber of Commerce, the Ohio Council of Retail Merchants and The Ohio Manufacturers' Association to encourage survey participation. Lake County has a number of major retailers who already participate and with both the state and Lake County District's efforts (though the BWRC) to increase awareness, recovery is projected to increase 2% annually, up through 2023 and then held constant for the remainder of the planning period. This is conservative based on the average annual increase of 12% between 2011 and 2016, and given the number of major retailers located in the District.
4. Curbside data is projected to increase 5% annually through 2020 as more and more households take advantage of increased curbside recycling service, especially the 11 communities that have non-subscription service, and then tapering off to 4% for 2021 through 2025 and to 3% for the rest of the planning period. These projections recognize that as time goes by increases are likely to be smaller as the "newness" of the program wears off. Yet, these projections are also very dependent on local governments maintaining these programs and providing annual reports to the District. The District will work with local communities to improve their contracts with haulers to ensure more consistent data collection and to improve the district's and communities' websites, as highlighted in Appendices H and I.
5. Community drop-off data has declined considerably as more communities have discontinued drop-off sites and shifted to curbside recycling programs. Locations that were in operation in 2016 are expected to remain. Therefore, the drop-off quantity is estimated to be 200 tons in 2016 and projected to remain constant throughout the planning period.
6. Composting data has historically fluctuated and can be heavily influenced by the weather. The District is using 48,218 tons for 2017, which is the average amount reported between 2011 and 2015 (less the outlier reported in 2014), and holding this amount constant for the planning period.

7. Other food and yard waste management data is expected to increase 2% annually given the historical data and the increasing awareness of the need to address food waste. While the average annual increase for the three years of data available (2014-2016) is 7%, it is difficult to predict how this will increase. The District has identified this material as an area for further study, especially given the numerous restaurants and grocery stores in the district.
8. Ohio EPA Scrap Tire data has fluctuated over the years with an average annual amount of 1,559 tons for 2011 through 2016. The District will hold scrap tire quantity constant through the planning period at the 2016 quantity of 1,388 tons, which is a conservative amount.
9. Recent trends for pharmaceutical collections data indicates an average annual increase of 18% between 2012 and 2016. The District projects a conservative annual increase of 5%, and notes that education efforts to increase online promotion at the local level will help ensure the amount recovered continues to increase. Pharmaceuticals comprise a very small proportion of recovered materials, and a 5% increase between 2018 and 2019 is roughly 0.16 tons. This program is done in cooperation with the Lake County General Health District.
10. Historical data for the drop-off at the County Landfill indicates that between 2011 and 2014 the quantity declined annually, until 2015 when it increase by over 50%. This could be in response to the number of drop-off locations that have closed, the landfill's easy access of SR 20, and the fact that it is in Perry Township where subscription curbside service has a very low amount. The District is expanding the drop-off collection facilities at the landfill with a new program with easily accessible containerized collection. This new program is expected to achieve tonnage data increases and the District projects and annual increase of 5% during the planning period.
11. Special collections at the County Fairgrounds has an annual increase of 8% between 20111 and 2016, though the majority of the growth was in 2012 and 2013. The District is expanding its collection of computers and increasing education and outreach regarding the special collections, which are expected to boost tonnage data. Therefore, the District is projecting a 5% annual increase.
12. In addition, the District is starting a pilot program to encourage multi-family management companies to provide recycling programs to tenants, which should also help increase the quantities of materials recovered in the District during the planning period.

The impact of these projections is shown on Table E-8, and in total results in an annual average increase of 1% in recovered materials from 2018 through the planning period.

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

Year	Commercial Survey	Data from Other Recycling Facilities	Ohio EPA Commercial Retail Data	Curbside Recycling Services	Drop-off Recycling Locations	Composting Facilities	Other Food and Yard Waste Management Activities	Ohio EPA Scrap Tire Data	Pharma-ceutical Collection at Sheriff's Office	Drop-off at Landfill	Special Collections at Fairgrounds	Totals
2015	***21,178***	***2,445***	***4,285***	***9,541***	***280***	***47,954***	***623***	***1,403***	***3***	***101***	***154***	***87,947***
2016	21,390	2,445	4,774	10,018	200	55,102	640	1,388	3	106	161	**96,227**
2017	21,603	2,445	4,285	10,519	200	48,218	653	1,388	3	111	169	**89,595**
2018	21,819	2,445	4,371	11,045	200	48,218	666	1,388	3	117	178	**90,450**
2019	22,038	2,445	4,458	11,597	200	48,218	679	1,388	3	123	187	**91,336**
2020	22,258	2,445	4,547	12,177	200	48,218	693	1,388	4	129	196	**92,255**
2021	22,481	2,445	4,638	12,664	200	48,218	707	1,388	4	135	206	**93,085**
2022	22,705	2,445	4,731	13,171	200	48,218	721	1,388	4	142	216	**93,941**
2023	22,932	2,445	4,826	13,697	200	48,218	735	1,388	4	149	227	**94,822**
2024	23,162	2,445	4,826	14,245	200	48,218	750	1,388	4	157	238	**95,633**
2025	23,393	2,445	4,826	14,815	200	48,218	765	1,388	5	164	250	**96,469**
2026	23,627	2,445	4,826	15,260	200	48,218	780	1,388	5	173	263	**97,184**
2027	23,864	2,445	4,826	15,717	200	48,218	796	1,388	5	181	276	**97,916**
2028	24,102	2,445	4,826	16,189	200	48,218	812	1,388	5	190	290	**98,665**
2029	24,343	2,445	4,826	16,675	200	48,218	828	1,388	6	200	304	**99,432**
2030	24,587	2,445	4,826	17,175	200	48,218	844	1,388	6	210	319	**100,218**
2031	24,833	2,445	4,826	17,690	200	48,218	861	1,388	6	220	335	**101,023**
2032	25,081	2,445	4,826	18,221	200	48,218	879	1,388	7	231	352	**101,847**
Annual % increase	1%	0%	2% (till 2023, 0% for remainder)	5.0% (till 2020, 4% till 2025, 3% for remainder)	0%	0%	2.0%	0%	5.0%	5.0%	5.0%	**1%**

Source(s) of Information: District calculations using percentages listed in last row. Data highlighted in Blue are from draft 2016 OEPA reports issued in 2017.
Sample Calculations:

- Commercial survey: projected to increase by 1% annually. 2018 tons (21,819) * 1.01 = 2019 tons (22,038).
- Curbside recycling: projected to increase by 5% annually. 2018 tons (11,045) * 1.05 = 2019 tons (11,597).
- Drop-off recycling locations: projected to remain constant at the estimated 2016 amount of 200 tons.
- Scrap tires: projected to remain constant at 2016 amount of 1,388 tons.

The District anticipates that the projected materials to be recovered as noted in Table E-8 will be recycled at the same facilities used in the Reference Year as identified in Appendices B and E.

APPENDIX F INDUSTRIAL WASTE REDUCTION AND RECYCLING DATA

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 Disulfurization	Used Oil	Electronics	Fluorescent Bulbs	Lead-Acid Batteries	Total
22	0.0	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.47	0.0	0.0	0.0	0.0	0.0	0.0	0.2	11
31	0.0	0.1	0.4	0.1	0.3	0.5	0.1	0.0	0.0	0.0	156.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	157
32	0.0	0.0	126.2	9.2	9,793.0	171.5	57,160.1	0.00	484.5	0.0	0.0	0.0	0.0	0.0	16.3	0.00	0.1	0.0	67,761
33	0.0	0.2	9,699.9	528.1	532.6	111.5	208.1	17.00	738.7	0.1	21.4	0.0	0.0	0.0	461.0	1.4	0.0	0.2	12,320
Unadjusted Total	0.0	0.3	9,833.7	537.4	10,325.8	283.5	57,368.3	17.0	1,223.2	0.1	180.8	0.0	0.0	0.0	477.3	1.4	0.1	0.4	80,249
Adjustments																			0
Adjusted Total	**0.0**	**0.3**	**9,833.7**	**537.4**	**10,325.8**	**283.5**	**57,368.3**	**17.0**	**1,223.2**	**0.1**	**180.8**	**0.0**	**0.0**	**0.0**	**477.3**	**1.4**	**0.1**	**0.4**	**80,249**

Source(s) of Information: District surveys.
Sample Calculations: Adjusted Total Ferrous Materials (9,833.7) = Unadjusted Total (7.3+0.4+126.2+9,699.9) – Adjustments (0)

Table F-1 accounts for material credited for waste reduction and recycling as reported by the industrial businesses. Industrial recycling data was obtained from SWMD survey efforts and aggregated by North American Industry Classification System (NAICS). Businesses considered by OEPA to be in the "Industrial" sector are those classified under sectors 31-33. There were no NAICS codes added to Table F-1.

The District conducted an industrial survey in 2016 to obtain data on recycling tonnage for calendar year 2015. The District obtained a mailing list from a commercial provider, which included 301 industrial businesses. In total, 63 surveys were returned by industrial businesses. Over 87% (55) of respondents reported that they recycle, and 50 of the companies provided at least some information on the tonnage and composition of the materials they recycle. Some materials reported as recycled are considered non-creditable, such as construction and demolition debris, liquid industrial waste, and hazardous waste, and data for these materials are not included in this table.

In some instances an industrial business did not respond to the reference year survey but did respond to a previous survey. Supplemental data from a previous survey was used in this table when the business was verified as operating in the reference year, the nature of the business did not significantly change, and the business still produced the same type of recyclables. The amount of materials used from previous survey is 4,153 tons (5.2%).

Table F-2 Data from Other Recycling Facilities

Program and/or Source of Materials/Data	Food	Glass	Ferrous Metals	Non-Ferrous	Corrugated	All Other Paper	Plastics	Textiles	Wood	Rubber	Commingled	Ash	Non-Excluded	Flue-Gas Desulfurization Waste	Other:	
Buybacks																
None																
Scrap Yards																
None																
Brokers																
None																
Processors/MRF's																
None																
Unadjusted Totals	0	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**	**0**

Sample Calculations: NA

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

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

Sample Calculations: NA

The District does not survey or source industrial data from buybacks, processors, scrap yards and MRFs.

Table F-4 Industrial Material Recovered in Reference Year

Material	Quantity	
	Tons	% Of Total
Food	0	0%
Glass	0	0%
Ferrous Metals	9,834	12%
Non-Ferrous Metals	537	1%
Corrugated Cardboard	10,326	13%
All Other Paper	283	0%
Plastics	57,368	71%
Textiles	17	0%
Wood	1,223	2%
Rubber	0	0%
Commingled Recyclables (Mixed)	181	0%
Ash	0	0%
Non-Excluded Foundry Sand	0	0%
Flue Gas Disulfurization	0	0%
Other (Aggregated)	479	1%
Total	**80,249**	**100%**

Source(s) of Information: District surveys.
Sample Calculations: Ferrous Metal Material Recovered Percent of Industrial Total (12%) = Total Ferrous Metal Material Recovered (9,834) /Total Industrial Tons Recovered (0+0+9,834+537+10,326+283+57,368+17+1,223+0+181+0+0+0+479)

The SWMD diverted 80,249 tons from the industrial sector. Table F-4 reports quantities of each material diverted. As noted in the table and illustrated on Figure F-1, plastics comprise 71% of all materials recycled by industries in Lake County, followed by corrugated cardboard (13%) and ferrous metals (12%).

Figure F-1. Industrial Waste Reduced/Recycled (tons)

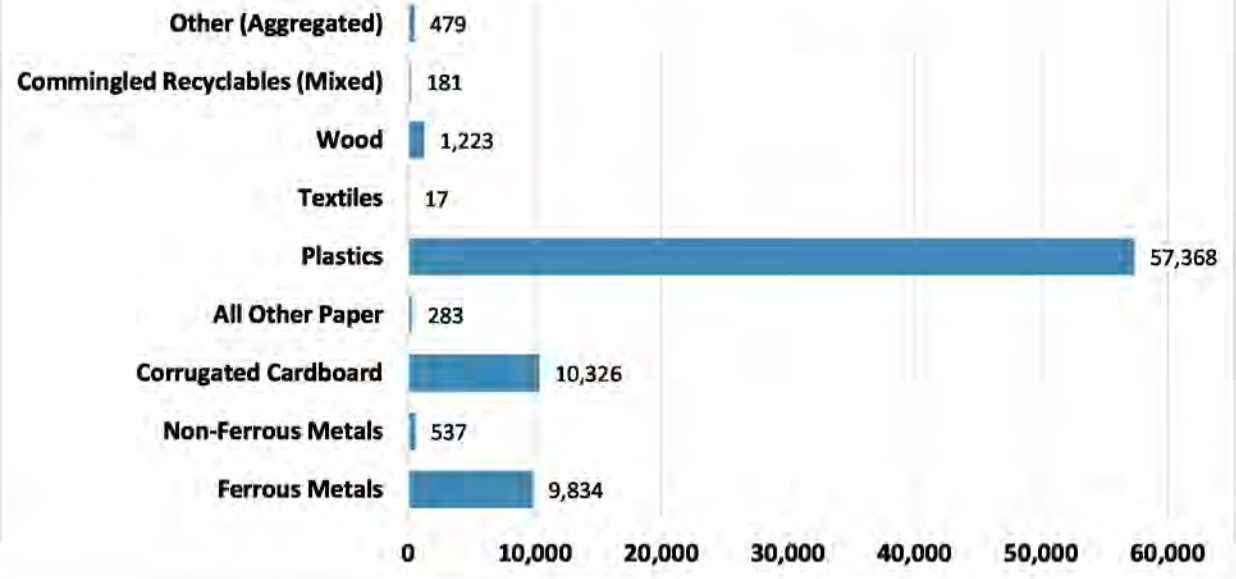


Table F-5 Quantities Recovered by Program/Source

Program/Source of Industrial Recycling Data	Quantity (Tons)
Industrial survey	80,249
Data from other recycling facilities	0
None	0
Total	**80,249**

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

B. Historical Recovery

Table F-6 Historical Industrial Recovery by Program/Source

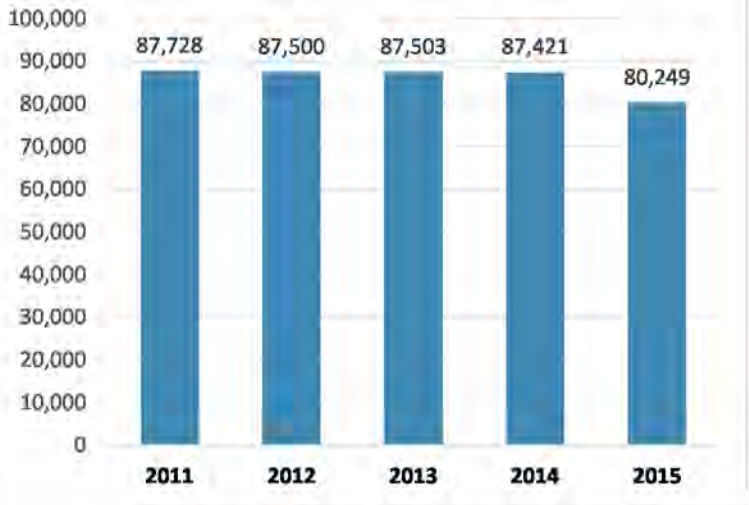
Year	Industrial survey	Data from other recycling facilities	None	Totals
2011	87,728	0	0	87,728
2012	87,500	0	0	87,500
2013	87,503	0	0	87,503
2014	87,421	0	0	87,421
2015	80,249	0	0	80,249

Source(s) of Information: District survey data.

Data from the industrial sector is obtained solely surveys, as noted in Table F-1, F-5 and F-6. Historical data shown for the industrial surveys is similar in years 2011 through 2014 because of the low responses in surveys and the use of supplemental data from prior years. The reduced quantity in 2015 is due to a low survey response rate despite a concerted effort, and supplemental data was only used when the business was verified as operating in the reference year, the nature of the business did not significantly change, the business still produced the same type of recyclables, and the data was not more than three years old.

Based on the historical data available, the amount of material recycled by industrial businesses has declined an average of 2% a year, from 87,728 tons in 2011 to 80,249 in 2015.

Figure F-2. Historic Industrial Survey Data



C. Industrial Recovery Projections

Table: F-7 Industrial Recovery Projections by Program/Source

Year	Industrial survey	Data from other recycling facilities	None	Totals
2015	**80,249**	**0**	**0**	**80,249**
2016	80,249	0	0	**80,249**
2017	80,249	0	0	**80,249**
2018	80,249	0	0	**80,249**
2019	80,249	0	0	**80,249**
2020	80,249	0	0	**80,249**
2021	80,249	0	0	**80,249**
2022	80,249	0	0	**80,249**
2023	80,249	0	0	**80,249**
2024	80,249	0	0	**80,249**
2025	80,249	0	0	**80,249**
2026	80,249	0	0	**80,249**
2027	80,249	0	0	**80,249**
2028	80,249	0	0	**80,249**
2029	80,249	0	0	**80,249**
2030	80,249	0	0	**80,249**
2031	80,249	0	0	**80,249**
2032	80,249	0	0	**80,249**
2033	80,249	0	0	**80,249**

Source(s) of Information: District calculations.
Sample Calculations: 2018 Industrial Survey (80,249) + Other Data (0) + None (0) = Total 2018 (80,249)

In order to estimate recovery projections through the planning period, the SWMD consulted research conducted by Ohio Department of Job and Family Services, Bureau of Labor Market Information (BLMI) for employment projections. BLMI updates employment projections every two years for use in long-range economic and employment trends. Lake County is included in the Cleveland-Elyria-Mentor Metropolitan Statistical Area. The "2022 Job Outlook for Cleveland-Elyria-Mentor Metropolitan Statistical Area" indicates manufacturing employment is expected to decrease approximately 6.9% from 2012 to 2022. However, Lake County continues to be attractive to manufacturing businesses, and manufacturing employment has actually increased since 2009.

Given the uncertainty of the future of manufacturing and the difficulty in obtaining data, the District projects the industrial recovery will be the same tonnage as reported for 2015 (80,249 tons), held constant for the planning period.

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)		
2011	233,890	219,588	87,735	307,324	7.20	17,893	87,728	105,621	2,551	415,495
2012	229,885	217,637	95,013	312,650	7.45	10,074	87,500	97,574	1,745	411,968
2013	229,857	218,599	90,842	309,440	7.38	11,158	87,503	98,661	428	408,529
2014	229,230	223,451	133,661	357,111	8.54	12,052	87,421	99,473	932	457,516
2015	**229,245**	**221,637**	**87,967**	**309,604**	**7.40**	**21,499**	**80,249**	**101,749**	**0**	411,352

Source(s) of Information: Tables D-5, E-7, and F-6.

Sample Calculations: 2011 Residential/Commercial Per capita generation rate = ((tons generated x 2000 pounds) ÷ 365 days/yr) ÷ population)
7.20 = (307,324 x 2,000)/365)/233,890

Table G-1a Reference Year and Historical Waste Generated Annual Percentage Change

Year	Annual % Change (tons)			
	Residential/ Commercial	Industrial	Excluded	Total
2011	-	-	-	-
2012	2%	-8%	-32%	-0.8%
2013	-1%	1%	-75%	-0.8%
2014	15%	1%	118%	12.0%
2015	-13%	2%	-100%	-10.1%
Average Annual Change	0.70%	-0.85%	-22.33%	0.05%

Sample Calculations:
2015 R/C Annual percentage change = ((2015 RC generated (Table G-1) ÷ 2014 R/C generated) - 1) x 100
-13% = ((309,604 / 357,111) -1) x 100

Figure G-1. Historical Waste Generated

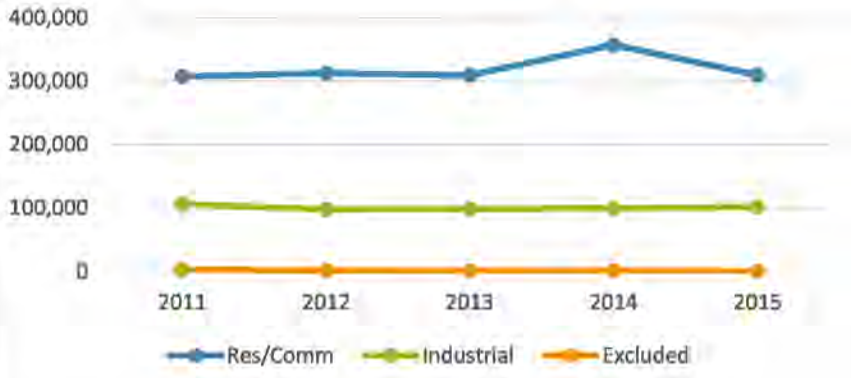
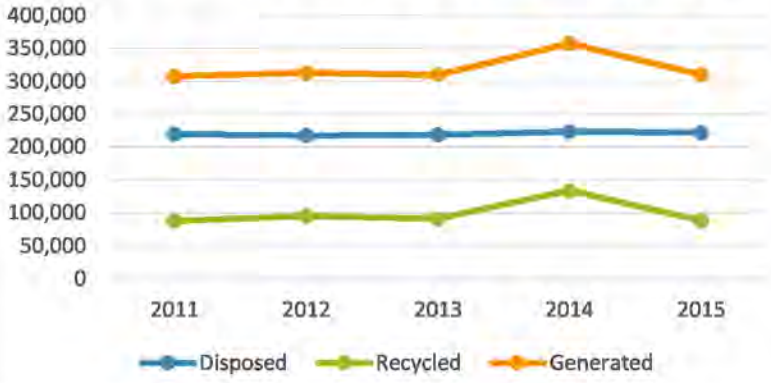


Table G-1 provides another opportunity to evaluate the SWMD's historical data to ensure that the data is as accurate as possible. The information needed to complete the generation analysis was obtained from analyses of the disposal and recycling information in Appendices D, E, and F.

1. Residential/Commercial Waste

Historically the residential/ commercial generation demonstrates a steady and relatively flat waste generation ranging between 307,000 and 313,000 tons, except for the anomaly in 2014 due to a large influx of composted material. The percent of waste generated that is recycled also demonstrates a steady and relatively flat generation, again with the exception of 2014 data, see Figure G-2.

Figure G-2. Historical Residential/Commercial Waste Reduction, Disposal and Generation (tons)



2. Industrial Waste

Historically the industrial generation has remained between 97,000 and 106,000 tons. Analyzing the components that make up generation shows increased disposal and relatively flat recycling, with the exception of the dip in 2015. The increased disposal results in a need to address recycling efforts with local industrial businesses.

Figure G-3. Historical Industrial Waste Reduction, Disposal and Generation (tons)

3. Excluded Waste

Historically, excluded waste has been less than 2,600 tons. In 2015, it was less than 1% of total waste disposed and is therefore not addressed in this plan.

B. Generation Projections

Table G-2 Generation Projections

Year	Population	Residential/ Commercial				Industrial			Total (tons)	Annual Percentage Change		
		Disposal (tons)	Recycle (tons)	Generation (tons)	Per Capita Generation (ppd)	Disposal (tons)	Recycle (tons)	Generation (tons)		Residential/ Commercial	Industrial	Total
2015	***229,245***	***221,637***	***87,948***	***309,584***	***7.40***	***21,499***	***80,249***	***101,749***	***411,332***	-------	-------	-------
2016	229,116	222,169	96,227	318,396	7.61	11,095	80,249	91,344	409,740	2.8%	-10.2%	-0.4%
2017	228,987	222,703	89,595	312,298	7.47	11,095	80,249	91,344	403,642	-1.9%	0.0%	-1.5%
2018	**228,858**	**223,238**	**90,450**	**313,688**	**7.51**	**11,095**	**80,249**	**91,344**	**405,032**	**0.4%**	**0.0%**	**0.3%**
2019	228,729	223,775	91,336	315,111	7.55	11,095	80,249	91,344	406,455	0.5%	0.0%	0.4%
2020	228,600	224,312	92,255	316,567	7.59	11,095	80,249	91,344	407,911	0.5%	0.0%	0.4%
2021	228,544	224,851	93,085	317,937	7.62	11,095	80,249	91,344	409,281	0.4%	0.0%	0.3%
2022	228,488	225,392	93,941	319,333	7.66	11,095	80,249	91,344	410,677	0.4%	0.0%	0.3%
2023	228,432	225,933	94,822	320,755	7.69	11,095	80,249	91,344	412,099	0.4%	0.0%	0.3%
2024	228,376	226,476	95,633	322,109	7.73	11,095	80,249	91,344	413,453	0.4%	0.0%	0.3%
2025	228,320	227,020	96,469	323,490	7.76	11,095	80,249	91,344	414,834	0.4%	0.0%	0.3%
2026	228,332	227,566	97,184	324,750	7.79	11,095	80,249	91,344	416,094	0.4%	0.0%	0.3%
2027	228,344	228,113	97,916	326,028	7.82	11,095	80,249	91,344	417,372	0.4%	0.0%	0.3%
2028	228,356	228,661	98,665	327,326	7.85	11,095	80,249	91,344	418,670	0.4%	0.0%	0.3%
2029	228,368	229,210	99,432	328,642	7.89	11,095	80,249	91,344	419,986	0.4%	0.0%	0.3%
2030	228,380	229,761	100,218	329,979	7.92	11,095	80,249	91,344	421,323	0.4%	0.0%	0.3%
2031	228,414	230,313	101,023	331,336	7.95	11,095	80,249	91,344	422,680	0.4%	0.0%	0.3%
2032	228,448	230,866	101,847	332,713	7.98	11,095	80,249	91,344	424,058	0.4%	0.0%	0.3%

Source(s) of Information: District calculations.

Sample Calculations: Total Generation 2018 = Residential/Commercial Generation (Disposal + Recycle) + Industrial Generation (Disposal + Recycle)

405,032 tons = 223,238 tons + 90,450 tons + 11,095 tons + 80,249 tons

2018 Per Capita Generation = (Generation x 2,000) / 365 x Population

7.51 pounds/person/day = (313,688 tons x 2,000 / 365) / 228,858

Total waste generation for each year of the planning period is displayed in Table G-2 Generation Projections. The historical data reflects some fluctuation mostly due to extreme weather that impacted composting tonnage. Due to the unpredictability of weather events and industrial recycling and disposal, the planning period projections for composting (included in recycling tonnage) and industrial generation are held constant.

APPENDIX H STRATEGIC EVALUATION

During these analyses, the Policy Committee completed a strategic process of evaluating its reduction and recycling efforts. To do this, the status of the reduction and recycling efforts were evaluated in the context of factors described in Format 4.0.

Residential Recycling Infrastructure Analysis

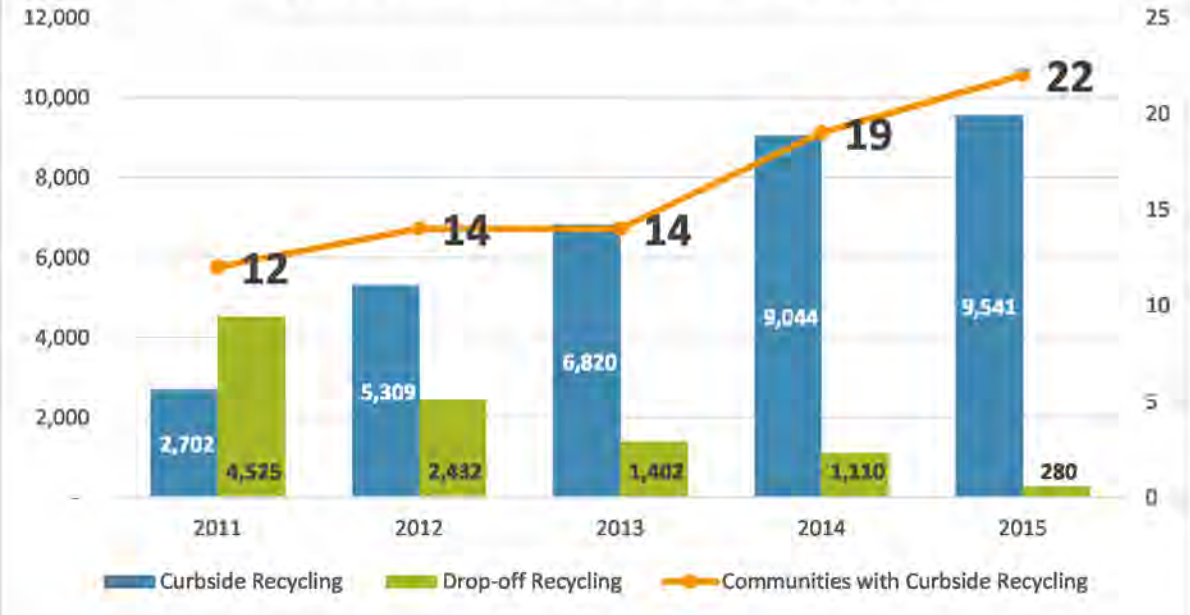
This evaluation of the SWMD's existing residential recycling infrastructure determines whether the needs of the residential sector are being met and if the infrastructure is adequately performing. The residential recycling infrastructure consists of a number of components including curbside programs, drop-off recycling programs, special collection programs, compost facilities, buy-back retailers, reuse centers, thrift stores, and local food banks.

Local curbside recycling programs and drop-off sites constitute the primary methods for residential recycling. In 2015, recycling tonnage reported by these two methods was 11% for the residential/commercial sector, 3rd highest after composting (55%) and commercial (combined 32%) The SWMD's role in instituting this network of available opportunities varies. This analysis provides a detailed discussion of the SWMD's role and analyzes the system.

1. Curbside Recycling

A review of the residential recycling tonnage between 2011 (when nine communities had nonsubscription service and four had subscription service) and 2015 clearly demonstrates the success of the curbside recycling under the authority of the individual communities, both in an increase in the number of communities offering curbside recycling and the amount of recyclable material collected. As shown in Figure H-1, curbside recycling tonnage has continually increased since 2011 from 2,702 to 9,541 tons; a 44% increase.

Figure H-1 Historical Trends for Residential Recycling



As of 2016, single stream curbside recycling programs are available to all 23 political entities (18 incorporated municipalities and 5 townships). Eleven of the incorporated municipalities have non-subscription curbside service and seven municipalities have subscription curbside recycling. Both are achieved through contracts between the municipality and the hauler. In contrast, residents in all five townships have subscription curbside recycling available from a handful of haulers. Curbside recycling has virtually replaced the community drop-off sites.

Overall curbside programs are performing well and continue to capture an increasing amount of recyclables. Some of the success of the local curbside recycling programs is attributable to the District's financial support, which ended in 2014. When the District was providing grant money, it required local communities to report tonnage quarterly in order to receive the funding. This ensured good reporting from each of the communities. However, with the end of the grant program, reporting has been less consistent, which accounts for the slower growth in recycled tonnage between 2014 and 2015, shown in Figure H-1. The District recognizes the need to streamline and simplify reporting in order to make it easier for communities to document their annual tonnage for the District's records.

Moving forward without the grant program, the District is concerned that the momentum from the growth of curbside service since 2011 will subside without a monetary incentive. In this environment it becomes important for Lake County SWMD to evaluate each municipal program to determine which individual programs are the most effective, and help support those that are not as effective. Yet recovery tonnage data and types of material can be difficult to obtain, due in part to varying levels of administrative support at each municipality and township. Therefore, it is also important for the District to address the challenges of data collection.

BY THE NUMBERS

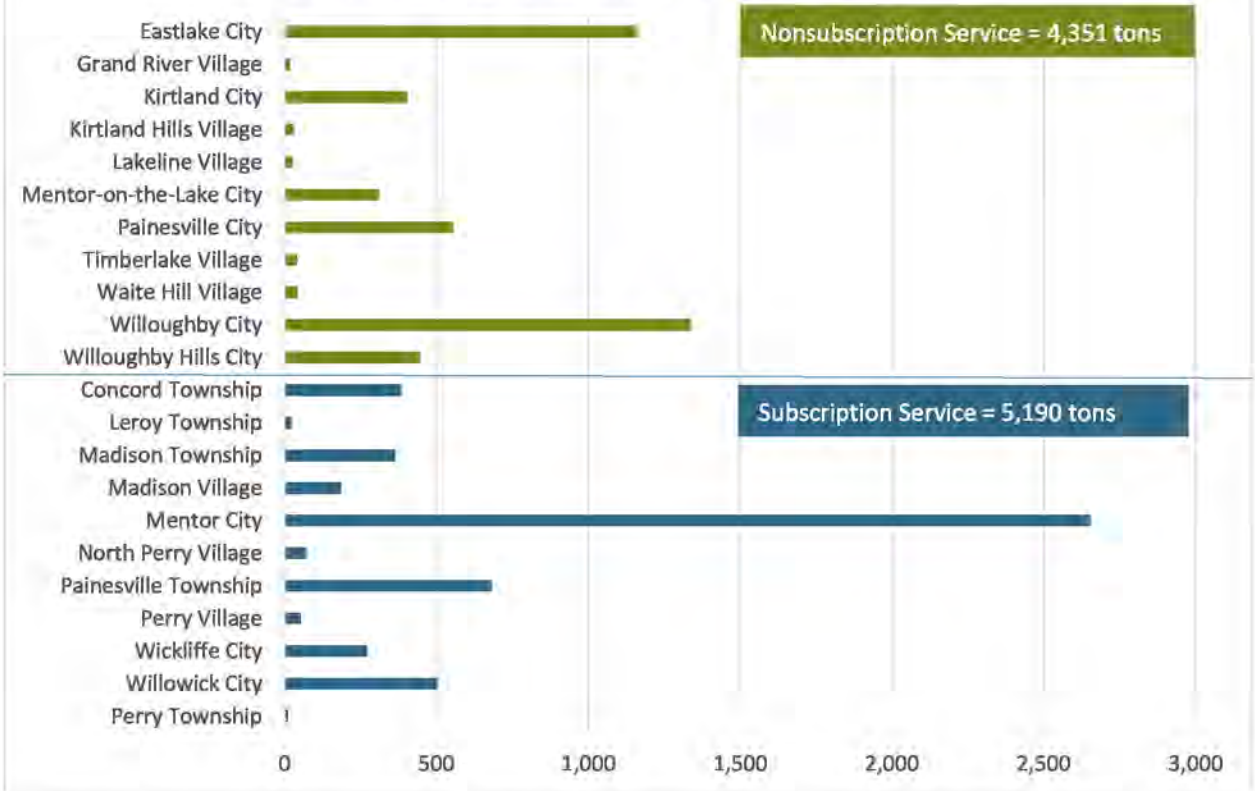
In order to successfully evaluate programs to identify those that are working well, it is necessary to have reliable data to be able to measure success. One basic metric is the difference between nonsubscription curbside programs and subscription curbside programs. There are an equal number of communities that have each type of curbside collection service, and more tonnage is collected through the subscription curbside service than through the nonsubscription service, see Table H-1.

Table H-1. Curbside Collection by Program Type

	Number of Communities	Weight of Materials Collected
Nonsubscription Curbside	11	4,351
Subscription Curbside	11	5,190
Grand Total	22	9,541

Figure H-2 further illustrates the large differences in quantities collected by each community. While it is easy to compare communities by total pounds collected, this number can be misleading, especially when comparing communities that vary greatly in population and housing units and for communities that have a high percentage of apartment units (which are typically not eligible to participate in curbside service). A better measure is to compare average number of pounds collected per serviceable occupied house in the community, see Table H-2.

Figure H-2. 2015 Curbside Recycling by Community (tons)



The average recovery rate in 2015 was 5.35 pounds per home collected per week and 12 communities exceeded the average. But a closer look reveals that there is a significant difference between communities with nonsubscription curbside program and subscription curbside, 7.05 pounds per house per week compared to 4.46 per house per week.

Table H-2. Average Curbside Collection Tonnage by Program Type, per unit per week (2015)

	# of Communities	Recycling Materials Collected (tons)	Houses	Average Pounds/ Home/Week	# of Communities that exceed Average
Nonsubscription Curbside	11	4,351	23,750	7.05	8
Subscription Curbside	11	5,190	44,803	4.46	4
Grand Total	22	9,541	68,553	5.35	12

Comparing similar metrics for each community that offers a curbside recycling collection program is a good way to determine which programs may be succeeding and which ones may need better education and outreach. Figures H-3 and H-4 illustrate recovery data for communities with curbside recycling collection in 2015. The results reflect a wide range of recovery, with the city of Mentor-on-the-Lake representing the District average of roughly 5.35 pounds collected per house per week.

Figure H-3. 2015 Recovery Reported by Communities with Nonsubscription Service Pounds/House/Week

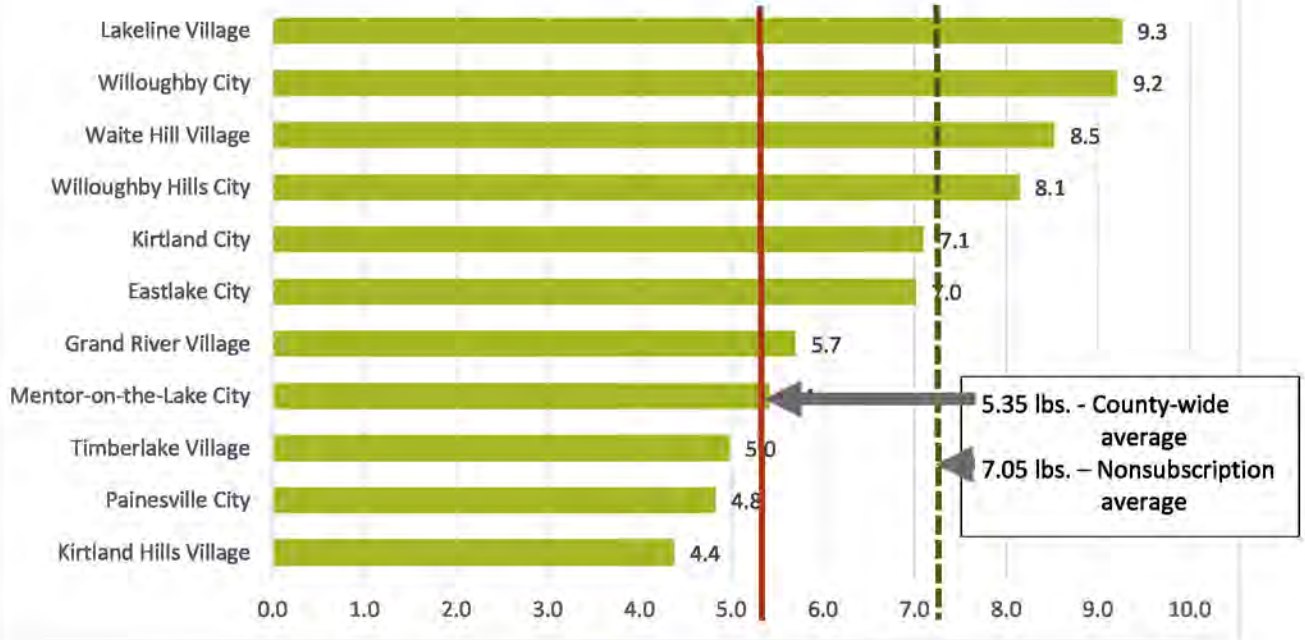
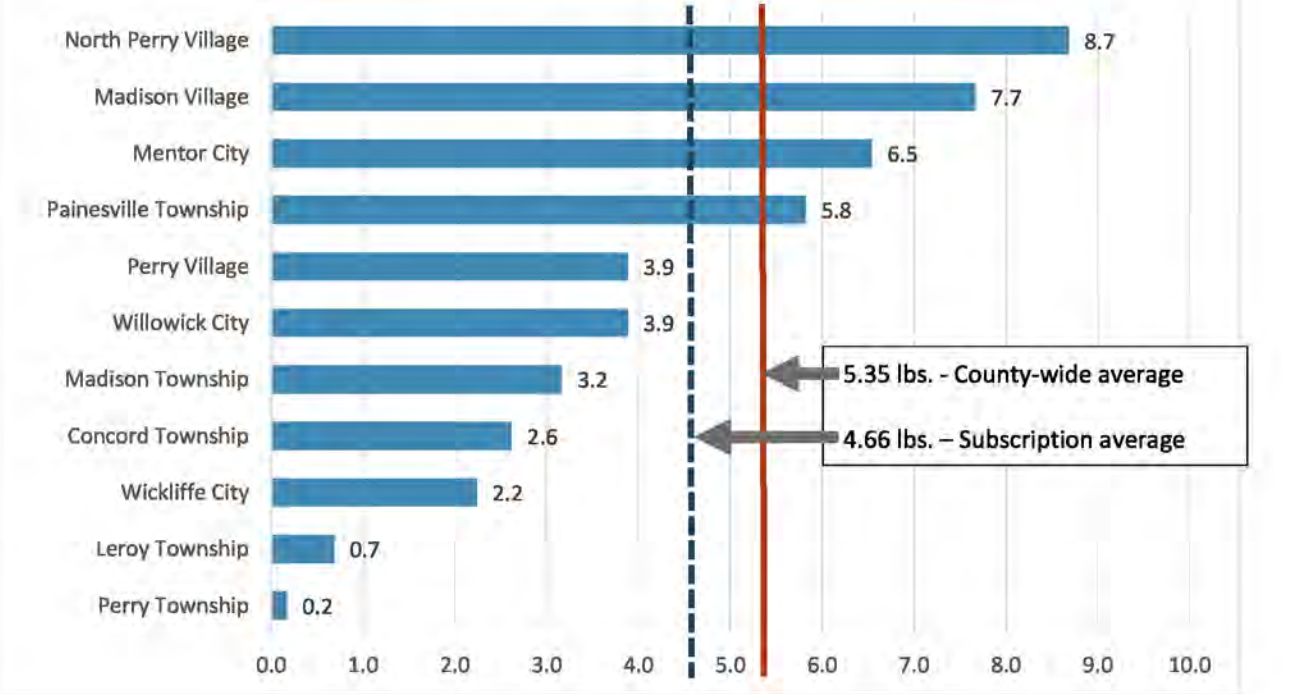


Figure H-4. 2015 Recovery Reported by Communities with Subscription Curbside Service - Pounds/House/Week



To put this in perspective, the city of Mentor recovered approximately 2,653 tons, considerably higher than the District average of 433.7 tons per community (9,541 tons recovered /22 communities), whereas Lakeline Village recovered only 26 tons. Although it is clear that the city of Mentor collected more total tons of material, the village actually had a more effective and successful program when examined on a per occupied home basis. Converting the actual tons collected into a unit measure based on all potential participants provides an equal standard for large and small communities and therefore a more accurate view of overall performance.

Perry Township had a very low recovery rate of 9 tons annually. One explanation for this is the fact that the Lake County Landfill is located in the township and has a drop-off facility and residents may be taking advantage of this drop-off instead of paying for the subscription service.

Additional analysis would be possible if the District were gathering information on the number of homes participating in each community's program in order to determine if the number of households participating increases with nonsubscription service. Establishing additional metrics to compare programs would enable the District to identify opportunities for improvement. Another analysis that could be done is to assess the fees for each community, and help negotiate more favorable fees county-wide.

Types of Collection Methods

Studies show that use of wheeled carts for automated recycling increases the amount of materials recovered and increases participation due to user acceptance and convenience. This collection method is dominate in the District, with contract specifications in 19 communities that require providing either a 64 or 65 gallon cart. Communities with the large wheeled carts recover an average of 5.34 pounds per home per week, compared to 4.78 pounds when only an 18 gallon container is provided (but this is a small sample of only two communities use the 18 gallon containers). Only one community (Waite Hill) used blue bags for collection of recyclables, and on a per household basis, recovered over 8.5 pounds per home per week, but again, with such a small sample there could be other factors that influence Waite Hill's numbers.

Frequency

Of the 22 communities that had curbside recycling service in 2015, 14 had service provided on a biweekly basis and 8 had weekly service. For both subscription and nonsubscription service programs, the pounds collected per house per week was higher for the biweekly service than for the weekly service.

Contamination

The District is concerned about the rate of contamination associated with single stream collection method where households use one bin for all recyclable items. While participation is easier, research shows that it leads to more contamination which decreases the quality of materials recovered. This causes overwhelming problems related to the viability of reusing recycled materials.

In all 22 of the communities where curbside recycling was available, single-stream collection service was provided, and all accepted a wide range of items, including paper, cardboard, glass, metal, and plastic. The District is discussing the need to shift its education efforts to focus on the "Dos and Don'ts" of recycling in order to improve local recycling programs. In addition to a specific education campaign, other Districts have had success by conducting a one-day audit to inspect carts and tag those that contain nonrecyclable items. Still another option is to require providers (as part of their contracts) to notify residents when contents are incorrect, increasing awareness of accepted items. For example, one community requires its collectors to leave a tag on the container identifying incorrect materials in

designated containers. After two or more tags for that customer and that type of container, the collector may refuse to empty the container.

Strategies to Improve Recycling Tonnage Collected

The greatest challenge the District faces in making improvements to the overall residential diversion rate is its lack of direct authority over the local residential collection systems. Therefore, the District must maximize its role as educator, motivator and mediator to encourage more effective curbside collection programs. The District must foster the cooperation and buy-in from all stakeholders, including: elected officials, service directors, residents, and service providers. Clearly, the District's experience so far is that nonsubscription service achieves higher results.

A more complete analysis of each community's recycling rate would be possible if more information about each program was provided to the District. For example, the amount of waste disposed by each community is not currently reported. This type of information, if collected, could help identify how the communities differ in their waste generation and recycling rates.

While each municipality negotiates its own contract with its selected hauler, there are some contracting best practices the District can encourage that support recycling, such as requirements for reporting the total amount of waste disposed, the number of households participating in the recycling service, directly reporting recovered quantifies and materials to the District, and the distribution of educational materials on a regular basis.

In addition, studies have investigated the effect of household size, age composition, education levels and other economic factors on household waste generation. Johnstone and Labonne provide a concise literature review of the economics of solid waste generation. Their analysis finds a strong correlation between waste generation and per-capita income, and that urban populations tend to have higher disposal rates than nonurban populations.[3] These types of comparisons could be conducted for the Lake County SWMD's communities if the relevant information was collected.

Other options to explore with municipalities include education about the implementation of Pay-As-You-Throw collection, variable rate structures and other features that may bring about a change in behavior. Moving forward the District plans to develop a strategy to regularly engage and inform local decision makers and service managers to create greater awareness of new trends and opportunities in residential collection programs, share ideas, improve social media outreach, and discuss options for banding together to improve contract negotiations .

2. Drop-off Recycling

With the increase in the number of curbside recycling programs in the local communities, the number of drop-off facilities declined from 18 sites in 2011 to 4 in 2015. While this does not appear to have had a negative impact on the amount of residential recycling overall (as of 2016, all residents have access to curbside recycling), only 38% of the county's population has non-subscription service, where paying for curbside recycling is not a choice. Considering the rest of the County where subscription service is a choice, the District understands that there are households that do not want to pay for (or cannot afford) the subscription service. Continuing to provide a full-scale drop-off location is important to the District. But none of the remaining drop-off sites accept the full complement of materials designated as highly amenable to recycling. In fact, the few community drop-off sites that continue to exist are limited and

[3] Johnstone, Nick and Julien Labonne; 2004; "Generation of Household Solid Waste in OECD Countries: An Empirical Analysis Using Macroeconomic Data," Land Economics 80[4]: 529-538.

only accept paper and cardboard, and the County Landfill's drop-off program currently accepts only appliances and tires for recycling.

It would be beneficial to the District to have at least drop-off site where residents could take recyclable materials. One option is to expand the current drop-off site at the County Landfill. The location is conveniently located on SR 2 and accessible to a number of District residents.

3. Multi-family Units

As noted earlier, curbside recycling service is limited to eligible housing units, which means that a large number of the District's households (e.g. those living in apartment units) do not have easy access to recycling, especially now with the decline in drop-off locations. An analysis of the different types of housing units in each community in the District reveals that nearly 6,000 of the District's 101,632 housing units are apartments in large apartment buildings (defined as a building with 20 or more apartment units in the building). And, over 90% of these large apartment complexes are concentrated in just six of the District's communities, see Table H-3. Apartment dwellers are an untapped opportunity to increase recycling. It is up to the property management companies to establish a collection program, but there is little incentive for the companies to do so. This is a challenge the District will pursue as outlined in Appendix I.

Table H-3. Municipalities with Large Apartment Complexes

City	Total Housing Units	Buildings with 20 or more units			
		20 to 49 units in structure	*50 or more units in structure*	Total Apartment Units (20+)	% of Total Housing Units
1. Willoughby Hills	4,765	*253*	*1,713*	1,966	41%
2. Willoughby	11,646	*465*	*766*	1,231	11%
3. Mentor	20,709	*323*	*276*	599	3%
4. Painesville	8,194	*320*	*276*	596	7%
5. Willowick	6,339	*186*	*406*	592	9%
6. Eastlake	8,253	*213*	*287*	500	6%
Subtotal 6 communities	59,906	*1,760*	*3,724*	5,484	9%
Remainder of County	41,726	*326*	*164*	490	1%
Total	101,632	*2,086*	*3,888*	5,974	6%

In order to develop a successful program that results in increased recycling, the District has investigated similar programs currently provided by other SWMD, including Hamilton County and Butler County. In Hamilton County, the HCSWMD requires participants (open to condominium associations and apartment property managers) to sign a Memorandum of Understanding that establishes key requirements, The HCSWMD provides technical assistance, pays the first six months of the recycling contract, provides education materials for residents and promotes on the District's website the fact that the property participates in the program. According to Hamilton County SWMD's materials, over 50 properties participate in the program. Butler County SWMD's program has been operating since 2013, funded by a grant form OEPA, and had 12 apartment complexes participating at the time its best practices sheet was prepared. Butler County has a number of apartment complexes in Oxford, home of Miami University. Some considerations include Butler County SWMD's experience that fliers are more cost effective than magnets and the need to work with each property manager to identify the most convenient resources and infrastructure to ensure success at each property,

Commercial/Institutional Sector Analysis

As shown in Table H-4, there were an estimated 27,908 tons recycled from commercial recycling activities. After yard waste composting, recycling activities carried out by the commercial and institutional sectors generate the second largest amount of residential/commercial materials recycled. This is not surprising given the high proportion of commercial land uses in the County. Finding ways to increase recycling efforts and improve reporting data are two of the District's highest priorities for the commercial/institutional sector.

Table H-4. Commercial Recycling by Source, 2015

Source	Tons
Commercial Survey	21,178
Data from Other Recycling Facilities	2,445
Ohio EPA Commercial Retail Data	4,285
Total Commercial Recycling	27,908

This evaluation of the SWMD's existing commercial/institutional sector determines if existing programs are adequate to serve the sector, if there are needs that are not being met, and if the SWMD can do more to address this sector. The commercial/institutional sector within the SWMD consists of the following (non-exhaustive list): commercial businesses, schools and colleges, government agencies, office buildings, stadiums and other large event venues, hospitals and non-profit organizations.

Lake County is situated along the Lake Erie shore, sandwiched between Cuyahoga County to the west and Ashtabula County to the east, and is part of the Cleveland-Elyria MSA. It is a highly diverse county with dense suburban development on the western edge bordering Cuyahoga County and rural farmland with low-density residential development on the eastern end. According to the "Ohio County Profile of Lake County" prepared by Office of Research, less than half of the land in the county is developed, mostly with lower density residential uses. Specifically, the land use/land cover is:

- 6.4% Developed, with higher intensity uses (commercial/industrial),
- 41.7% Developed, with lower intensity uses (primarily residential)
- 36.7% Forest, wetlands, and grasslands
- 14.3% Pasture, cropland

The city of Painesville, the county seat, and Mentor, the county's largest city are located in the central part of the county. However, most of the older built-out communities are located in the northwest quadrant between Interstate 90 and the lake. Most of the commercial development is located in the older downtown areas, in the area surrounding the Great Lakes Mall in Mentor and along the State Route 2 and US Route 20 corridors, though there are clusters of concentrated commercial businesses/institutions, and retail throughout the county. In addition to these commercial areas, the County is home to a community college, hospitals, numerous local and county government facilities and over 100 nurseries. According to the Ohio Development Services Agency, major/notable commercial and institutional employers include: Lake County Government; Lake Hospital System; Mentor Exempted Village Schools; and Willoughby-Eastlake City Schools.

Located along Lake Erie, the County is also home to numerous state and metropolitan parks and beaches, marinas, wineries and other entities that draw visitors from across the region. Commercial businesses and non-profits contract with private service providers for recycling services.

The Lake County Business Waste Reduction Committee (BWRC) oversees the District's industrial and commercial sources of education and recycling information and out-reach/educational programs. Yet, working with the business community remains a challenge, and in recent years the BWRC has not been as active as it has been in the past, except for its annual sponsorship of the "Go Green with the Captains" event.

1. Retail Recycling

There are over 16 million square feet of retail floor area in Lake County, of which 5.7 million square feet is in the city of Mentor. But the retail environment is rapidly changing due to advancements in technology, shifting preferences, and economic conditions, and many large-scale chains are repositioning, scaling back both store size and store counts, and looking for new ways to compete as consumers often spend less, shop less frequently, and shift more of their purchases to online storefronts. The impact that these changes will have on waste generation and recycling rates is unknown, especially because in some cases the packaging materials and amounts may remain the same or even increase with a shift to mail delivery and distribution centers.

The Great Lakes Mall, with 4 department stores and other big box retailers such as Dick's and its cluster of retail stores surrounding it, in Mentor, has more than 1.3 million square feet and is the epicenter of retail activity in Lake County. This location also has the greatest number of businesses (490+), of which 39.5% (195) are retailers. They include the mall anchors (Dillard's, Sears, Macy's, and J.C. Penney's), big box retail in nearby open-air centers (TJ Maxx, Burlington Coat Factory, Marshall's, etc.), mid-box "category" merchants (Ashley Furniture, Petco, Michael's, Best Buy, Toys R Us, etc.), and numerous specialty stores, most of which are national chains.

Information on recycling by retailers and similar commercial businesses is obtained primarily from the District's Commercial Survey efforts and the state's statewide survey. However, available data doesn't provide a complete picture of how much material is actually recycled. That means there is more recycling going on than is being reported. The commercial survey participation rate for 2015 data was lower than in previous years. Challenges to increasing data reporting and increases in recycling efforts include: developing a survey instrument that is easy to complete, educating businesses on how to report their recycling efforts, and working with haulers to provide important benchmark information so that businesses can keep track of their efforts and set recycling goals. These are activities that the BWRC intends to tackle in order to improve both recycling and reporting on the part of local businesses.

2. Ohio EPA Commercial Retail Data

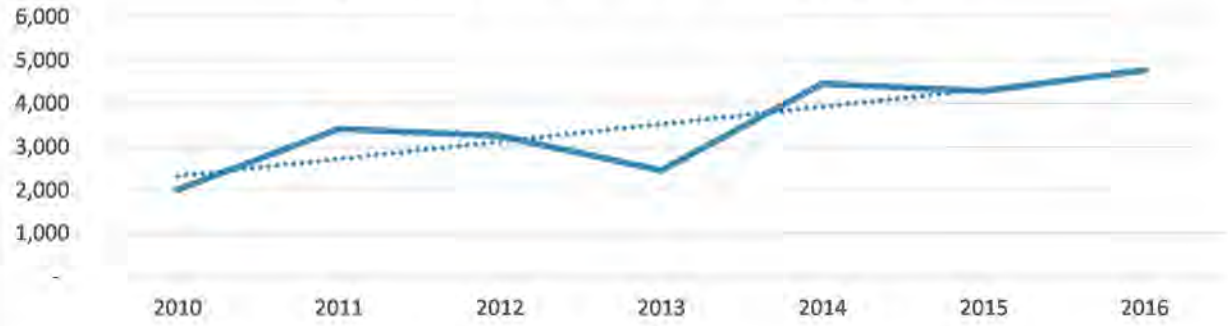
In the last few years, Ohio EPA has increased its outreach to commercial and industrial businesses encouraging them to participate in the statewide survey to report their recycling activities. Lake County has a number of major retailers who participate in the survey, increasing from just two retailers in 2010 to 10. However, as evident in Table H-5, there are a few retailers whose participation in the survey has not been consistent. Still, despite the inconsistencies, there is a noticeable upward trend in reported tonnage, see the trend line in Figure H-5.

Table H-5. Lake County Retailers Participating in the OEPA's Commercial Retail Recycling Annual Survey

	2010	2011	2012	2013	2014	2015	2016
1. Aldi Inc. Hinckley Division				268	286		483
2. Big Lots Corporation			52	69	69	76	74
3. Dollar General Corporation			214	214	264	286	323
4. Home Depot Corporation		274	267	245	409	242	245
5. JC Penney Distribution Center				66		64	
6. Kohl's Corporate			138	140	179	212	156
7. Lowe's Companies, Inc.	185	582	539	209	328	500	389
8. Michaels Corporation					35		

9. Target Corporation		349	384	461	667	542	543
10. Walmart Recycling In Ohio	1,826	2,211	1,659	785	2,219	2,365	2,560
Total	**2,011**	**3,416**	**3,252**	**2,456**	**4,455**	**4,288**	**4,774**

Figure H-5. OEPA Commercial Retail Recycling Data



According to the Ohio Council of Retail Merchants, "The retail industry is committed to improving sustainability by reducing [its] environmental footprint through the recycling of a wide variety of materials and products" and members of the organization are encouraged to participate in the statewide recycling survey.

Meijer's is a large scale retailer that has consistently participated in the statewide recycling survey, but to date does not have a presence in Lake County, though the company has publically stated that it has purchased property in the city of Mentor. Home improvement chains like Home Depot, Lowe's, and Menard's are also seeing strong sales and adding stores. This all indicates that there is likely to be increased reporting by these large-scale chains in Lake County. The BRWC is reinstituting its Environmental Steward Award program and could recognize these companies on its website in the hopes of encouraging other retails to participate.

3. Tourism

Another industry that plays a role in contributing to the amount of per-capita waste disposal is tourism. Tourism to Lake County, fueled by being on the shores of Lake Erie, and having a number of tourist destinations, may increase the amount of municipal solid waste generated. Visitors' purchasing and consumption habits are likely different between vacation and home, and individuals also may be unfamiliar with local practices and discard materials they might otherwise choose to recycle. Tourism may be one explanation for such a seemingly high per-capita disposal rate in Lake County. To date, the District has not focused on obtaining recycling data from major tourist destinations, with the exception of the Lake County Metroparks, which contract with Royal Oak recycling. This is an area where the District and the BWRC could partner with the Lake County Visitors Bureau to increase awareness at hotels, parks and other popular destinations on the importance of recycling.

Lake County's reputation in agricultural circles is legendary. Blessed with some of the most fertile soil anywhere, the region earned the distinction as the Nursery Capital of the World, and the award-winning wine industry has ripened as an emerging tourism destination. Agricultural tourism and related specialty shopping and dining are areas where the more rural townships and villages are seeing expanded opportunities. For example, nearly 20 wineries between Madison and Geneva draw visitors for tours and tastings. Yet, the nurseries are already participating in composting efforts and are a big part of the reason why data reported by composting facilities accounts for 55% of the District's recycling tonnage.

4. Food Management

While retailers are being shaken up with changes as noted above, restaurant sales in the District have grown at a pace slightly faster than inflation since the end of the recession. In Lake County few food service businesses report their efforts to donate or compost food. This is an area that the District believes warrants greater analysis.

Research indicates that one-third of food mass (tons) grown for human consumption is wasted. And once food is discarded, only 5% is currently recovered or reused. Food waste is the largest single item in the MSW stream. Plus burying food in a landfill prohibits the reuse of important nutrients, such as phosphorous, that are essential and nonsubstitutable for food production and human growth but are finite on earth.

The infrastructure for waste management of organics is not well developed in the Lake County SWMD. Research shows that a food waste management system that is more sustainable from a social, economic, and environmental standpoint can be efficient economically. Alternative food waste disposal programs include source reduction, donation, composting, and recycling of cooking oil.

As of 2016, five states have banned food waste generated from commercial sectors from landfills. While this is extreme and not likely to be acceptable in Lake County, there is evidence to show that when such restrictions are imposed, they spur innovation and food waste reduction. For example, one community was successful in working with restaurants and institutions to divert food scrapes through a program where waste is picked up and delivered to a composting facility. By developing the program in an area where these restaurants and institutions are concentrated, the hauling company was able to reduce the fee by 10% to 15% less per pickup because the businesses were close together, stressing the importance of local cooperation. This type of program could be successful in certain parts of Lake County such as Mentor and other places where large concentrations of restaurants exist, as well as easy access to local composting facilities. The District is interested in further studying best practices for establishing a food collection system for restaurants – either for food surplus that is suitable for consumption and can be donated and/or for management of food scraps.

5. Schools, Churches and Other Institutions

There are 13 school districts in Lake County. Lakeland Community College and other learning centers, technical, vocational and private schools, as well as a number of other institutional uses such as churches also exist. Recycling activities at each of these facilities is on the onus of the entity to subscribe with a private sector service provider. The SWMD provides technical assistance when approached by the schools.

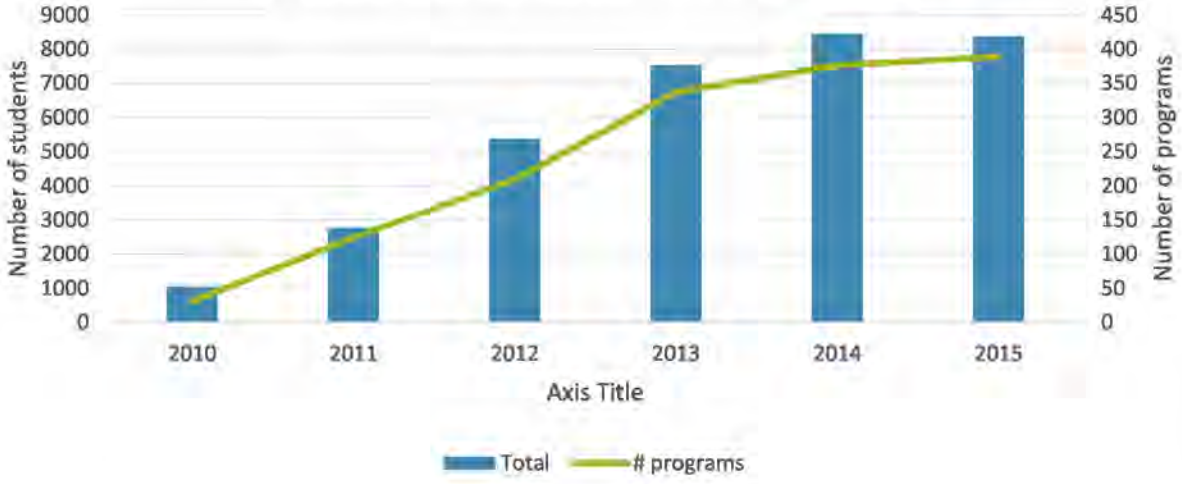
Royal Oak Recycling provides collection of paper recyclables throughout the District including schools for students, teachers, and administrators within all of the Lake County public school systems. The company provides annual tonnage reports to the District and in 2015, 918 tons of recyclables were collected. The Paper Retriever found in many parking lots throughout the County promotes the recycling services offered.

In 2014, Royal Oak took over the contract from ABITIBI to collect paper at participating schools (both public and private), churches, municipalities, municipal drop off facilities, and certain commercial businesses. While the number of collection facilities remained the same, there was a decrease of nearly 2,000 tons reported by ABITIBI in 2013 and by Royal Oak in 2014. This reduction could be attributed to several factors. A comparison of 2015 data from Royal Oak and 2009 data from ABITIBI indicates that the number of facilities remained the same, yet there were variations in the participating facilities. There were six fewer churches which participated in 2015 (and a decrease of 611 tons). Schools (both private and public) accounted for approximately 42% of the total tonnage collected by ABITIBI in 2009 and by Royal

Oak in 2015 however there were 763 less tons collected in 2015. The number of total schools were roughly the same (53 in 200 and 52 in 2015) but there was a great deal of variation in the schools which no longer reported.

The OSU Extension provides educational programming to schools and other organizations in the District. In 2015, OSU provided programming at 14 public elementary schools (in four of the District's school districts), and at a variety of events, for a total of 389 programs that were attended by nearly 8,400 participants. As noted in Figure H-6, this is significant growth since 2010, when only 31 programs were provided to 1,051 participants.

Figure H-6. Growth in OSU's Educational Programming



6. Government Agencies, Office Buildings

Currently, the District does not obtain data directly from private haulers regarding services provided to businesses and local governments, except for data received from Royal Oak Recycling. This is an area for the District to investigate. Based on a review of available local recycling contracts, a number of municipalities with nonsubscription service have a requirement in their contract for the provider to supply and service recycling containers at the respective City or Village Hall. However, data on tonnage collected at these government facility sites was not reported separately to the communities. The District, in its efforts to assist local communities with contract negotiations, can include a requirement for both the collection and reporting of recyclables at City/Village Hall.

Lake County Board of County Commissioners instituted a recycling program at the main Lake County Government administration building in Painesville. The District contracts with a service provider to provide one 6-cubic yard container behind the building, and empty it two times a week. In 2017, the County Commissioners began planning for the expansion of the County Administration building, adding a new 5-story addition and more than doubling the size of the building. This will enable the County Commissioners to consolidate county departments into one facility. As part of this expansion, the District will be expanding the variety of materials collected and in doing so expects more people to participate in on-site recycling. The District will monitor the quantities and could even collect organic material for composting.

Industrial Sector Analysis

This evaluation of the SWMD's industrial sector determines if existing programs are adequate to serve the sector, if there are needs that are not being met, and if the SWMD can do more to address the industrial sector.

According to the 2015 American Community Survey, there are approximately 589 manufacturing businesses (NAICS code 31-33) and has roughly 20,000 paid employees, the largest out of all NAICS sectors. The fabricated metal product manufacturing sector (NAICS 332) is the largest manufacturing sector (259 establishments, 44%), while the second largest is machinery manufacturing (NAICS 333; 79 or 10%). Not surprisingly, this sector has generated over 11,000 tons of ferrous metal waste and is the second largest type of waste generated after paper (according to the results of the 2015 Survey).

The State of Ohio Development Services Agency has reported a drop (-7%) of manufacturing businesses in the County between 2009 and 2014. Yet, at the same time, the number of persons employed by manufacturing establishments increased by over 12%, indicating that the perhaps the level of manufacturing activity is actually increasing.

There are several major corporations in Lake County. According to the Ohio Development Services Agency, major/notable industrial/utility employers include: Lubrizol Corp; ABB Inc.; Avery Dennison Corp; FirstEnergy Corp; Lincoln Electric Holding Inc.; and STERIS Corp. However, the manufacturing industry in Lake County is comprised primarily of small to medium sized businesses, with 47% of manufacturing establishments having 9 employees or fewer (Table H-6).

Table H-6. Manufacturing Establishments by Employment - Lake County

Range of Employees	Number
All establishments	589
Establishments with 1 to 9 employees	275
Establishments with 10 to 49 employees	216
Establishments with 50 to 99 employees	49
Establishments with 100 to 249 employees	36
Establishments with 250 to 499 employees	12
Establishments with 500 to 999 employees	5

Source: 2015 American Community Survey, US Census Bureau

When the District conducted the Industrial Survey, targeted efforts to obtain recycling data from the largest employers in the District resulted in gathering data five of the top eight employers in the data base obtained from a private company. As noted in Table H-7 below, there is not a direct correlation between the number of employees and amount of recyclables.

Table H-7. Lake County's Largest Industrial Employers

Company Name	Employees	2015 Tons Reported	Comments
1. The Lubrizol Corporation	1,300	386	Reported 1,233 tons in 2010
2. STERIS Corporation	1,043	NR	2 locations, neither reported in 2010
3. FirstEnergy Corp.	926	NR	Did not report in 2010
4. ABB Automation Inc.	675	27	Reported 153 tons in 2010
5. Lincoln Electric Holdings, Inc.	540	6,410	Reported 6,469 tons in 2010
6. NHVS International, Inc.	325	NR	Did not report in 2010
7. Avery Dennison Corporation	300	1,890	8 locations, only one reported in 2010
8. Parker-Hannifin Corp.	271	34	Reported 8 tons in 2010

Based on the Industrial Survey results, three types of materials make up 96% of the recycled material from industrial: plastics, cardboard and ferrous metals, as noted in Table H-8.

Table H-8 Industrial Waste Reduced/Recycled in Reference Year

Material	Quantity	
	Tons	%
Plastics	57,368	71%
Corrugated Cardboard	10,326	13%
Ferrous Metals	9,834	12%
Wood	1,223	2%
Non-Ferrous Metals	537	1%
Other (Aggregated)	479	1%
All Other Paper	283	0%
Commingled Recyclables (Mixed)	181	0%
Textiles	17	0%
Total	**80,249**	**100%**

The Lake County Business Waste Reduction Committee (BWRC) oversees the District's industrial and commercial sources education and recycling information and out-reach/educational programs. In the past, this committee would meet throughout the year to review results of an annual survey, strategize effort for ways to improve outreach to all businesses and develop new business recycling opportunities. However, the Committee has not met since 2012. Working with the industrial business community remains a challenge mostly because reporting is voluntary. Industrial businesses are known to be large consumers of recycled materials.

There are opportunities to increase the BWRC's efforts to assist this sector however there would be limitations on time available of SWMD staff, and would likely require additional staff resources. For example, the Cuyahoga County SWMD has a "Business Specialist" on staff to develop and conduct seminars three times a year as a way of reaching out to businesses in the District. The focus of the program is to help businesses understand the benefits of recycling, including how proper recycling methods can save them money. Ideas for topics that the Lake County BWRC can use for designing outreach efforts to both commercial and industrial businesses include:

- how easy it is to implement zero waste events in the workplace,
- hands-on waste audits and how to interpret waste audits,
- finding the proper recycling container size and placement,
- recycling prompts, and
- negotiating waste and recycling contracts.

Residential/Commercial Waste Composition Analysis

Waste composition is community specific and changes over time due to the same factors that make communities unique. For example, residential housing type (e.g., single-family versus multifamily), socioeconomic status (e.g., income, race, and education), development patterns and density (e.g., urban versus rural), the proximity to the closest waste management facilities, and climate and seasonal factors all affect waste volume and composition.

This evaluation looks at the wastes that typically make up the largest portions of the residential/commercial waste stream and determines whether the SWMD currently has or should have programs to address those wastes.

Municipal solid waste (MSW), also referred to as residential/commercial waste, includes common items that are discarded after being used, such as packaging, food, grass clippings, newspapers, computers, tires, and appliances. According to US EPA's "Advancing Sustainable Materials Management: Facts and

Figures 2014" materials that typically make up the largest portions of the residential/commercial waste stream have changed over time and are currently paper and paperboard (26.5%), food (14.9%), yard trimmings (13.3%), plastics (12.9%), and rubber, leather & textiles (9.5%).

The SWMD generated 309,603 tons of municipal solid waste in 2015, including 47,934 tons of known yard waste. Applying the US EPA waste generation estimates to the SWMD's waste generation gives an approximation of materials generated, see Table H-9. Due to the extensive amount of composting already done in the District, the calculations in Table H-9 were conducted two ways - using the amount of waste generated WITH yard waste and WITHOUT yard waste. This evaluation looks at the availability of and need for programs to recover the three other largest categories: paper, food and plastics.

Table H-9. Estimated Waste Generated by Material

Material	US EPA % Generated		Estimated Lake County Tons Generated	
	With Yard Waste	Without Yard Waste	With Yard Waste	Without Yard Waste
Paper	26.5%	30.6%	82,045	79,980
Food	14.9%	17.2%	46,131	44,970
Yard Trimmings	13.3%	–	41,177	–
Plastics	12.9%	14.9%	39,939	38,934
Rubber, Leather & Textiles	9.5%	11.0%	29,412	28,672
Metals	9.0%	10.4%	27,864	27,163
Wood	6.2%	7.2%	19,195	18,712
Glass	4.4%	5.1%	13,623	13,280
Other	3.3%	3.8%	10,217	9,960
Total	100.0%	100.0%	309,604	261,669

Source: US EPA's "Advancing Sustainable Materials Management: Facts and Figures 2014." Calculations by District.

The SWMD disposed 221,637 tons of municipal solid waste in 2015. About 87,967 tons were recycled and composted, which leaves a large amount of material still being landfilled. Applying the US EPA waste disposal estimates to the SWMD's waste landfilled gives an approximation of types of materials landfilled. As shown in Table H-5 food waste, plastics, and paper/paperboard are the three largest categories of materials being landfilled in the United States. Table H-10 applies the average composition of materials landfilled to the SWMD's disposed tonnage to estimate the composition of materials landfilled in 2015.

Table H-10. US EPA Estimated Waste Disposal by Material

Material	US EPA % Discards	Lake County SWMD (Tons)	
		Estimated Quantities Landfilled	Tons Recovered
Food	21.6%	47,874	649
Plastics	18.5%	41,003	2,426
Paper and Paperboard	14.3%	31,694	20,308
Rubber, Leather & Textiles	10.8%	23,937	106
Metals	9.4%	20,834	7,253
Wood	8.1%	17,953	2,828
Yard Trimmings	7.9%	17,509	47,954
Glass	5.2%	11,525	2,635
Other	4.2%	9,309	3,809
Total	100%	221,637	87,967

Source: US EPA's "Advancing Sustainable Materials Management: Facts and Figures 2014." Calculations by District

Yet studies show that regions can vary significantly on waste generation and disposal. Without a District specific waste characterization, it is impossible to know how closely the District mirrors the USA average. Therefore, the purpose of this exercise is simply to demonstrate how much of each type of material could be ending up in a landfill. This helps the District determine if existing programs need to be adjusted or new programs initiated. Not surprising, the three types of materials most likely to end up in landfills are food, plastics and paper.

Commentary on the District's programs for Paper and Food include:

1. Paper.

In 2015, paper and cardboard comprised 23% of recycled tonnage for the Residential/Commercial sector. This is not surprising, because paper is one of the common suite of materials accepted by all service providers through curbside and drop off collections. Single-family households have curbside recycling. Schools, institutions, offices and commercial businesses have opportunities through Royal Oak Recycling, which currently has over 100 sites in Lake County. Yet it is assumed that gaps still exist in collection services to these entities.

Waste minimization and recycling are two available options to manage paper waste. Waste minimization stops the waste before it starts and recycling is separating the materials from the waste stream and using them as virgin feedstock to manufacture new products. Waste minimization is a management method that has had little promotion by the SWMD. Recycling of paper comes down to available collection methods.

2. Food.

The SWMD reports indicate that food makes up less than 1% of the recycled tonnage, mostly from Walmart's food recovery programs. Yet according to hypothetical estimates from Table H-10, the District could have about 47,000 tons of food disposed in landfills.

Food waste is a difficult stream to manage in large part because of the collection methods and monitoring of composting and technology approaches. Options to manage food waste include waste minimization, donation, composting, and technologies (anaerobic digesters, in-vessel technologies, etc.). Waste minimization is a management method that has had little promotion by the SWMD. Teaching about making better use of food through storage, portion size, recipe suggestions for leftovers can help prevent food waste. The SWMD provides limited outreach to the residential/commercial sector regarding the available options to manage food waste. The District could explore education options with the OSU Extension.

Economic Incentive Analysis

By definition, economic incentives encourage increased participation in recycling programs. In accordance with Goal 6 of the 2009 State Solid Waste Management Plan, the SWMD is required to explore how to incorporate economic incentives into source reduction and recycling programs.

In the past, the SWMD had various incentive programs, but the last grant program aimed at assisting local communities in curbside and drop-off recycling ended in 2014. This analysis evaluates the feasibility of implementing new incentives. One recognized benefit of the Lake County Solid Waste Management District providing grants to local communities for curbside recycling was the requirement that the local communities provide timely data on recycling amounts and details on the types of materials recycled. With the total elimination of the grant program, it has become much harder to obtain this information.

Research shows that common flat-rate fee system for waste collection and disposal does not provide any incentive for waste generators to reduce waste generation. Two programs that can contribute to improved performance improvement include (1) unit pricing, also known as Pay as You Throw (PAYT), which charges for waste disposal services by volume or usage, and (2) recycling rewards programs, which provide cash or other economic incentives for recycling.

The Policy Committee recognizes the need to provide incentives to improve recycling in areas where there currently are little to no intrinsic benefits, such as with multi-family properties. The multi-family pilot program (discussed in greater detail in Appendix I) seeks to incentivize recycling programs at the numerous large-scale multi-family developments that are concentrated in limited locations in the District. The District believes that developing such an incentive program is likely to increase the quantities of materials recycled in the most efficient and environmentally friendly way.

Restricted and Difficult to Manage Waste Streams Analysis

Goal 5 of the 2009 State Solid Waste Management Plan requires SWMDs to provide strategies for managing scrap tires, yard waste, lead-acid batteries, household hazardous waste (HHW), and obsolete/end-of-life electronic devices. This analysis evaluates the existing programs offered for managing restricted wastes and difficult to manage wastes.

There are strategies and alternative management options to address all of the wastes (scrap tires, yard waste, lead acid batteries, HHW, and obsolete/end-of-life electronic devices) required by Goal 5 available for SWMD residents. The District has been providing special collection programs and community based programs for these types of waste materials for numerous years, though the quantities of each have fluctuated somewhat. In addition, the OSU Lake County Extension maintains an extensive online list of recyclers and other web-based information including the benefits of recycling, and hazards of improper handling.

1. Household Hazardous Waste

The District currently conducts a biannual HHW Collection Program (which is explained in detail in Appendix I) the cost of which, based on a comparison to other Districts, is not out of line.

2. Scrap Tires and Appliances

The Lake County Solid Waste Facility accepts scrap tires and appliances during normal business hours for a small fee. This service is performed by the contractor hired by the Lake County Commissioners for the operation of the Lake County Solid Waste Facility. The District also partners with the OSU Extension on special collection events that are held at the Fairgrounds. In addition, scrap tire and lead-acid batteries are directed to retailer take-back outlets within the SWMD through the online directory. Based on the number of facilities where scrap tires can be taken, the District does not believe additional efforts are necessary.

3. Electronic Equipment

As there is an ever increasing supply of electronics, there is a continual need to find ways to dispose of them. The District provides collection of used computers, computer equipment, ink cartridges and cellular telephones at an annual collection held at the Lake County Fairgrounds. The electronics are recycled by a certified electronics recycling firm contracted by the District, who provides a credit to the District for hard drives that are recovered. While electronics collections are expensive programs for other SWMDs, Lake County SWMD's program is not because of the arrangements the District has with the contractor. During the planning period, the District plans to expand the computer collection program to include all household electronics i.e. anything with a cord without refrigerant, and based on conversations with the

contractor, the program will continue to be cost effective due an increase in the types of materials for which the District will receive credits.

While the District will continue all of these programs during the planning period, there are opportunities for improvement, including conducting an assessment of the fees charged to drop off (such as comparing them to surrounding SWMDs, contract negotiations with the vendor, alternative handling processes, and additional education and outreach.

4. Mattress Disposal

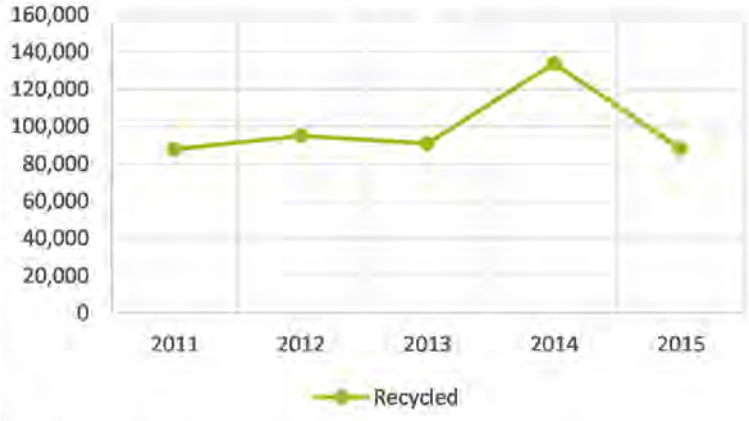
The District has done research on methods for mattress disposal, and developing a public/private partnership could improve the ability to recycle difficult to manage materials. One example is the city of Boulder, Colorado, which contracts with the nonprofit Eco-Cycle to operate the Boulder County Recycling Center, which processes 52,000 tons of materials per year. Eco-Cycle also runs the Center for Hard-to-Recycle Materials (CHaRM), which opened in 2001 as one of the first facilities in the nation to collect electronics and other unusual materials such as plastic bags, yoga mats, and now mattresses and box springs. Eco-Cycle is partnering with Spring Back Colorado in Denver to disassemble the old mattresses and box springs and sell the springs as scrap metal and the soft materials to businesses to make carpet pads. A startup that operates out of Spring Back Colorado's facilities creates dog beds from recycled latex foam mattresses.

Diversion Analysis

This analysis evaluates the quantities of waste reduced/recycled in 2015 and four prior years. Waste diversion is defined as the amount of waste recycled and the amount of waste diverted from entering the waste stream through source reduction activities. Waste diversion activities include waste minimization (also called source reduction), reuse, recycling, and composting. The diversion analysis takes a look at the diversion programs, infrastructure, rate and trends, and materials.

Residential/commercial diversion in the SWMD trends are relatively linear line, except for a one-time up-tick in 2014, as shown in Figure H-7. The tonnage in 2014 is attributed to higher reported yard waste composting.

Figure H-7 Residential/Commercial Recycling Trend (in tons)



The material categories reported as most recycled in 2015 include yard waste (55%), cardboard (14%), other paper (9%), and ferrous metals (6%). Based on the District's data, the majority of cardboard and paper are collected from commercial businesses.

While the SWMD is achieving consistent diversion there are more materials being landfilled that could potentially be reduced or recycled to increase the diversion. Also, current opportunities for waste minimization and reuse are largely unexploited for the residential/commercial sectors. Reuse infrastructure heavily falls on non-profits and their development of reuse centers. The District does promote Goodwill and the Salvation Army as options for reuse; however now with the website improvements, options for and the benefits of reuse can be promoted more extensively.

Potential opportunities to consider include compiling a resource guide to donating as well as assisting in the development of reuse centers.

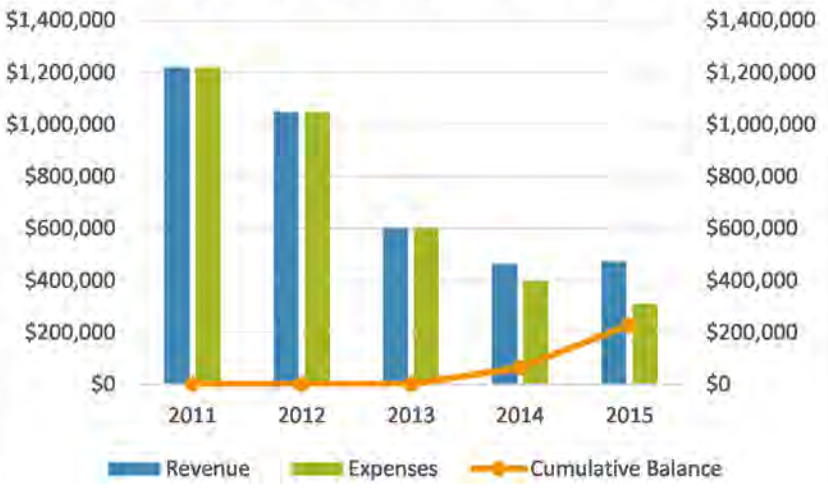
Special Program Needs Analysis

Ohio Revised Code 3734.57(G) gives SWMDs the authority to fund a number of activities that are not related to achieving the goals of the state solid waste management plan. In addition, there are other programs that SWMDs fund that are not addressed in either the state plan or law. The SWMD does not fund any activities or programs that fall into this category.

Financial Analysis

This analysis evaluates the SWMD's financial position currently and during the planning period. Figure H-8 depicts the revenues and expenses between 2011 and 2015. In the past, the SWMD has received support from Lake County in the form of transferred funds from the landfill in order to balance the budget. Due to the need for the County to set aside money for upgrades to the landfill, transfer payments ended in 2012, Figure H-8. As a result the SWMD phased out its funding for curbside recycling and most of the funding for drop-off locations.

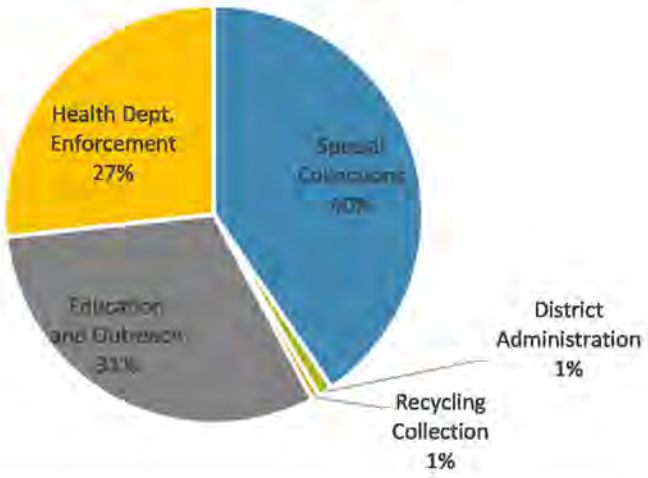
Figure H-8. Revenue and Expenses Trend 2011-2015



The District intends to continue its current district disposal fees, which are $2.00 per ton, the out-of-district (but in-state) fee is $4.00 per ton, and the out-of-state fee is $2.00 per ton. In 2015, the disposal fee generated 99.5% of the District's revenue. The Districts revenues fund the solid waste recycling, reuse, and reduction programs as outlined in the solid waste management plan.

As noted in Figure H-9, the amount of revenue the District collected for 2014 and 2015 remained somewhat constant, while the District's expenses declined.

Figure H-9. Expenses in 2015



As noted in Figure H-9, the District spends very little of its resources on administration because the District staff is employed by the County, and the District Coordinator also serves as the Superintendent of the County's Solid Waste Division. All office overhead expenses are covered under the County Solid Waste Division expenses, so the

District has no overhead expenses. In addition, with the County as owner of the Landfill, which provides drop-off opportunities for limited materials (appliances and tires), the County's Solid Waste Division and Solid Waste Facility implement programs that help achieve the District's goals.

1. HHW Collection Program

The quantity of materials recovered through District's HHW special collection program represents less than 1% of the total residential/commercial material recovered in 2015. The cost of the program for 2015 was $114,798 or $0.46 per pound, or $911.33 per ton (which is less than the cost reported by the Summit/Akron Solid Waste Management Authority for 2010). Not included in this figure are costs associated with promoting the program and staff time.

2. Electronics Collection Event

Among electronic waste products there are certain items that are higher in value, and ones that are lower in value. High-value items typically include laptops, monitors, smart phones, tablets, flat screen TVs, and generally any electronics that have good re-sell value. Low-value items, also known as Universal Waste Electronic Devices (UWED), are ones that are more susceptible to losing worth when oil prices drop because they are difficult to re-sell as commodities. These types of items typically include keyboards, CRT TVs, cords, printers, microwaves, scanners, routers, and in general MOST electronic items that are disposed of.

Recycling vendors can charge upwards of $0.50 per pound for e-waste. During the District's special electronics collection event it recovered 23 tons at a cost of $1,298, which is less than $0.03 per pound, or $56.43 per ton.

Regional Analysis

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

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

Jurisdictional collaboration is not new. Medical, public safety, utilities, water/sewer, entertainment entities have all capitalized upon the beneficial dynamics of regionalization. Solid waste managers are similarly familiar as RCRA's Sub- Title D lined landfill mandates (late 1980's) and there subsequent waste reduction and recycling goals were all catalyst for the formation of Ohio's MSWD (HB 592) and similar governing agencies across the US. As such, by joining forces and economies of scale, communities have been able to explore best available technologies while implementing projects that individually would have been too expensive to develop for a single entity. Urban, rural plus small and large communities have benefited as costs and volume responsibilities are spread over a larger population of participants while educational, management and purchasing power are shared.

The SWMD already partners with The Ohio State University Lake County Extension Service and Lake County General Health District to carry out its educational and programing responsibilities. The District

also partners with other SWMDs to bid cost effective services for HHW collection and with the Lake County Narcotics Agency on the pharmaceutical drug collection and disposal program. Additional stakeholders in the region that may have a key interest and involvement in SWMD programs, problems, and solutions include:

- Chambers of Commerce in Lake County
- Neighboring SWMD's (Ashtabula, Geauga-Trumbull, Cuyahoga, Portage, Summit and Lorain)
- Lake County Soil and Water Conservation District
- Neighboring Soil and Water Conservation Districts
- The Lake County Visitors Bureau
- Lake County Metroparks
- Lake County Mayors and Managers Association
- Private service providers (Waste Management, Republic Waste, Major Waste Disposal, Universal Disposal, Kimble, etc.)
- Non-profit organizations

Regional partnerships could help with costs and provide more opportunities for programs. A partnership opportunity explored could be coordination between the District's Business Waste Recovery Committee and local Chambers of Commerce.

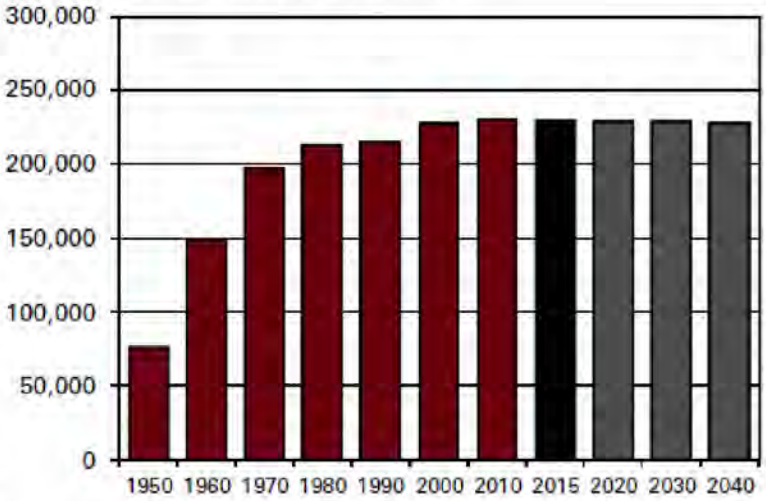
Collaboration among Local Communities. Although the District is responsible for developing a solid waste management plan, local government officials are the ones responsible for creating policies that reinforce proper waste management practices within the community. It is not uncommon for such programs to be developed independently, without the benefit of the shared experiences of neighboring communities of the pitfalls or mistakes experienced. And, in some cases, the goals and requirements of the Lake County Solid Waste Management Plan are not taken into account. The District understands that to achieve these goals and objectives a network of informed elected officials is necessary. To achieve this goal, the District recognizes the need to expand its efforts to bring local communities together share information, and hopefully collaborate on joint efforts to maximize grant-funded opportunities. Discussions and shared resources over time could provide elected officials and their representatives with the tools and understanding to implement sound waste management practices within their communities. Speakers can be invited to the conference meetings to present topics that reflect those issues considered by the local communities to have the greatest impact on solid waste and recycling performance in the County. Although the Service Directors would be the desired participants, communities would be encouraged to select additional representatives to participate in these sessions as well. Individual assistance would also be provided on an as needed basis.

Population Analysis

Since 2000, Lake County's population has increased by 1%, with 1,734 new residents. This trend is generally in line with the State of Ohio population change of 2% in that time period (Ohio Development Services Agency). When examining recent population trends at the community level, the older built-out municipalities located in the northwestern portion of the county have experienced population declines, while many communities in the eastern portion have grown. For example, Perry Village has grown by 36% since 2000 (with an additional 432 residents) and Painesville City has increased by 2,273 residents (13%). The unincorporated townships (also located in the eastern part of the county) have grown by 10%, with 5,304 additional residents.

Between 2015 and 2025, Lake County's population is projected to decline slightly (by 925 people, less than 0.4%) from 229,245 to 228,320, and then increase slightly for the next 10 years to 228,550. These projections are from the Ohio Development Services Agency, which does not provide population projections for jurisdictions below the county level. Figure 2-3 illustrates how little change is expected in population growth over the next two decades.

Figure H-10 Lake County Population



Source: Ohio Development Services Agency

While the county as a whole is not expected to have much population growth, the trend has been for the population to move out from the mature suburbs in the west to the more rural areas of the county to the east and south east. As the population of the county spreads out into less developed areas, providing recycling programs in an efficient manner becomes more of a challenge.

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

Data Collection Analysis

Unlike other centralized urban services, such as metered water, gas, or electricity, solid waste and residential recycling materials can be difficult to track. Waste disposal and recovered materials volumes are weighed and recorded at the facilities where the trucks transporting them are unloaded. Then the tonnage from all facilities within the District is aggregated to determine the total disposal volume of waste generated. In addition, the SWMD conducts regular surveys to understand/track recycling efforts. Additional recycling data is obtained from Ohio EPA. Collecting recycling data has historically been time consuming and challenging to obtain. Yet much more data is needed in order to truly be instrumental in improving the District's planning and programming efforts.

Indeed, one of the major hurdles preventing the District from properly evaluating the pros and cons of any of the collection systems is the lack of universal reporting requirements and protocols. Reliable data and statistics are difficult to obtain as there a number of businesses, and some service providers (and sometimes even municipalities) who fail to report or choose not to participate in surveys, etc. The problem of missing data is complicated further by misreporting and the lack of consistency in reporting. It is suspected that the numerous sources of the reported data inadvertently skew the results. The accuracy of the formulas utilized to calculate tonnages from the individual municipalities and for the types of materials collected vary from company to company. And even at the Lake County Solid Waste Facility,

there are haulers misreporting the origin of the materials, which has caused spikes in data related to industrial tonnage and out-of-district tonnage.

This analysis evaluates the SWMDs 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. Regardless, the primary objective of the SWMD is to divert materials from landfills, therefore an accurate measurement of diversion from landfills is needed. The data collection process for each sector is described below.

1. Residential

The SWMD gathers data from Ohio EPA annual published data. In addition, OSU Extension conducts surveys of local government to collect tonnage information on leaves, grass, newspaper, chipboard, plastics #1 and #2, glass and metals. The District also relies on local communities to report recycling data. Data collection and data tracking at a more refined community and neighborhood level is one area where the District can improve. To be useful in documenting changes in recycling efforts over time, data should be obtained on a regular basis directly from the haulers and should include data on a number of metrics including the number of homes participating in each community's recycling program, total amount of waste disposed, and recovered quantifies and materials.

2. Commercial and Industrial

The SWMD gathers data from Ohio EPA annual published data, including 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).

In addition, as part of the required Plan Update and annual reporting, the SWMD gathers data by surveying the commercial and industrial sector businesses. As part of the Plan Update, the District engages the services of the consultant assisting with the plan update to work with the OSU Extension in conducting a comprehensive survey of businesses.

In 2016 the SWMD mailed over 1,400 surveys (along with a cover letter and a postage-paid return envelope) to commercial, institutions and industries in the District to gather data on 2015 recycling efforts. The District received responses from 151 entities, 88 from commercial/institutional establishments and 63 from industrial businesses, which is considerably lower than 461 surveys received in 2010, despite a concerted follow-up calling and email campaign. Over 82% of the respondents indicated they recycle. Issues and challenges encountered with the 2016 survey effort include:

- Low participation rates
- SWMD time commitment
- Lack of response to follow-up calls and emails
- Cost

3. What can be Improved?

Motivating more stakeholders to provide vital information, resolving the issue of accuracy, and streamlining the way data is reviewed and managed could lead to better informed decision making and the development of more effective programs, both for the District and also Lake County communities and businesses.

Radio-frequency identification (RFID) tagging. This enables the origins of material and waste generation to be identified and recorded. When collection trucks are equipped with scales, the weight of garbage and recyclables can be directly linked with households or buildings at specific collection locations. RFID tagging has thus supported community-specific municipal waste management planning and increased individual accountability for waste discards and recycling. With RFID tagging it is possible to verify the households and businesses that tend to recycle more, which means they can be awarded with economic or other incentives (e.g., cash-back programs). The effectiveness of unit-pricing programs can be increased using RFID-based technology, thanks to more accurate automated monitoring that identifies specific users that discard recyclables improperly and assesses fines accordingly.

4. Documenting Materials Donated For Reuse.

One activity that is not well documented in the District is the amount of material donated for reuse. For example, the city of Wickliffe has two yellow clothing collection bins located at Coulby Park and at the various Wickliffe City Schools and other locations around town. Residents may donate clothing to Planet Aid by placing their clothing in these bins. Planet Aid is a non-profit organization dedicated to improving the lives of people in developing countries. Their objectives include development, relief aid, and protecting the environment. Planet Aid was founded in 1997 and has since then collected and resold used clothing as a means to raise funds for development projects overseas, such as schools, health programs or HIV/AIDS prevention in Africa, Asia and Central America. This is only one example of the many different types of material donation programs available in the District. While these programs are listed in the District's Comprehensive Resource Guide compiled and maintained by OSU Extension, this information is not quantified and documented as material kept out of the landfills.

Processing Capacity Analysis

Residential and commercial curbside collection and drop-off materials are processed at one of four privately owned facilities in the region: Waste Management (Akron), Allied Waste Services (Glenwillow), Kimble Recycling (Twinsburg) and Green Innovations (Solon). Waste Management's facility in Akron, Ohio is a clean MRF that accepts both single-stream and multi-stream recyclables. In 2015, Waste Management accepted recyclables from 9 of the District's communities, while Allied Waste Services processed materials from 8, Kimble from two and Green Innovations from one. Given the number of facilities in the area, and past practices, the District anticipates that recyclable materials collected will be taken to these facilities during the planning period and does not see an issue with processing capacity.

Conclusions

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

- Residential recycling programs provide adequate infrastructure; by 2017, every traditional single-family household in the County has access to curbside recycling (either through subscription or nonsubscription service).
- Maintaining curbside recycling is a high priority, but the Policy Committee recognizes that there are a number of households in the county that live in apartment buildings and these types of housing units typically do not offer recycling services. There is a definite need to foster recycling in apartment complexes.

- Commercial/Institutional Sector infrastructure is a large component in the SWMD, but more can be done to influence recycling. This sector has been the focus of the Business Waste Reduction Committee but the committee can do more. This Plan update includes enhancements to the BWRC to reinstitute programs and increase awareness among the business sector.
- The SWMD is not well engaged with the industrial sector; and collecting recycling data from commercial and industry businesses is challenging due to a variety of factors, plus it takes considerable time and effort to gather and analyze. Issues encountered include: low participation rates, time commitment, and lack of response.
- Composting continues to play a large role in the District's management plan due in part to the nature of the local nursery industry; yard waste comprises and average of 55% of total recycled waste for the residential/commercial sector.
- After yard waste, the material categories reported as most recycled in 2015 include corrugated cardboard (14%), other paper (9%) and ferrous metals (6%).
- The SWMD's special collections have been successful and will be continued throughout the planning period – with some expansion to include all household electronics. Price adjustments are necessary as the cost to collect these special items continues to increase.
- With the decline in the number of drop-off locations, there is a need for a convenient, centralized district-managed drop-off location. A logical solution is to provide a drop-off location at the County landfill, where it would be conveniently located off SR 2.
- With the elimination of the District's funding to local governments to support residential curbside recycling and drop-off collection points, there has been a decline in reporting, which is reflected in the relatively small increase in residential recycling tonnage between 2014 and 2015.

APPENDIX I ACTIONS, PRIORITIES, AND PROGRAM DESCRIPTIONS

A. Actions and Priorities

1. Potential Actions

Based on the conclusions and findings from Appendix H, the Policy Committee has compiled a list of actions that the SWMD *could* undertake to address any issues or gaps in service, *if* the District had the necessary capacity and resources to do so.

- Increase options for residential recycling:
  - Expand access to drop-off facilities for residential customers – a new location at the County Landfill provides an alternative to curbside.
  - Establish a multi-family recycling pilot program to incentivize local property management firms to provide recycling opportunities to apartment dwellers.
- Maintain access to curbside recycling:
  - Develop an education and outreach plan for subscription curbside recycling.
  - Develop an incentive, reward, or recognition program.
  - Provide contracting assistance to local communities.
- Engage with the commercial and industrial sectors:
  - Increase participation in surveys to document recyclable materials recovered - make it available online.
  - Reinvigorate the BWRC and re-institute the environmental steward award program to recognize businesses and institutions that are already achieving high rates of recovery/recycling and promote best practices to motivate others.
  - Work with local chambers of commerce to improve outreach and provide technical assistance, and provide contracting assistance to the commercial and industrial sector businesses.
  - Develop a food waste program for restaurants.
  - Expand the District's use of social media to increase awareness of programs, recycling benefits, best practices, etc.
- Improve recycling options and outreach at schools and local governments:
  - Make information available to teachers to assist them in preparing lesson plans for in-class recycling education.
  - Expand recycling at the expanded Lake County Government Administration Building, which will consolidate a number of County departments under one roof.
  - Enhance outreach to local governments by hosting more meetings with local government officials and service directors to share ideas and best practices in order to increase awareness of the need for and benefits of recycling, in the hopes of increasing participation rates.
  - Increase education and outreach programs through enhanced poster contests, elementary school education programs, and expanded outreach at the local public libraries and senior centers.

  - Add all school districts to the in-class recycling education programs.
- Maintain high levels of composting:
  - Continue successful programing such as the Master Gardeners program.
  - Establish a composting collection bin at the Lake County Government Administration Building.
- Continue special collections services. Expand the computer collection program to accept a wider range of household electronics (anything with a cord).
- Improve data collection.
  - Provide contract assistance to local governments and ensure haulers are required to provide the type of detailed information needed to analyze recycling rates.
  - Develop online tools for surveying and data collection to make it easier for communities, businesses and haulers to supply the necessary data.

2. Priorities

After evaluating the list of actions, the Policy Committee identified priorities for implementation for this planning period. Based on the most supported and highest priority issues, identified priorities include:

a. Establish a new recyclable drop-off location at the County Landfill.

b. Establish a multi-family recycling pilot program to incentivize local property management firms to provide recycling opportunities to apartment dwellers.

c. Increase education and outreach programs through poster contests, elementary school education programs, and expand outreach at the local public libraries and senior centers.

d. Continue the successful special collection programs and expand the computer collection program to accept a wider range of household electronics (anything with a cord).

e. Continue successful programing such as the Master Gardeners program.

f. Enhance the annual survey and outreach to local governments to increase participation in reporting the amount of recyclable tonnage collected from residential households.

g. Reinvigorate the BWRC with targeted efforts to connect with local businesses through the chambers of commerce, and special promotions such as the existing "Go Green with the Captains" program, re-instituting the environmental steward award program and promoting the State's market waste exchange program.

h. Expand recycling efforts at the expanded Lake County Government Administration Building in downtown Painesville, which will consolidate a number of County departments under one roof.

i. Recognize businesses and agencies that are participating in recycling, and whose programs and/or activities can motivate others to do the same.

B. Programs

The objectives of the Lake County Solid Waste District's solid waste reduction, reuse, and recycling programs are to reduce the size of the waste stream requiring disposal and promote environmentally sound practices regarding the use of our natural resources. The programs are aimed at:

- Changing people's attitudes to recognize the need for reduction, reuse, and recycling of solid wastes and away from the careless discard of used products and materials;
- Providing the information for individuals, groups, businesses, and organizations to undertake these activities;
- Creating networks of technical support to implement reduction, reuse, and recycling activities.

The District's programs have been designed to not only meet, but exceed, the goal of a per capita reduction in the solid waste stream of 25% for residential/commercial, of an overall recycling rate of 66% for industrial, and to increase annual per capita recycling in the District.

The District developed its Waste Reduction and Recycling Plan based on several important considerations regarding how the waste reduction and recycling goals are to be achieved and implemented. The first consideration was that it is desirable that all generators of solid waste, the residential, commercial (and government), and industrial sectors, contribute to reducing the amount of solid waste generated in Lake County. Since private sector recyclers and scrap dealers are already playing an important role in commercial and industrial recycling and waste reduction activities, these areas are left to the private sector and market forces.

The role of the District is to not compete with the private sector in these areas, but to enhance recycling by educating, providing technical assistance, and coordinating community-based business and private sector recycling activities to the greatest extent possible. Another important role of the District is to monitor the progress being made in meeting waste reduction and recycling goals in each sector and to provide additional support as may be needed to meet the Plan's goals.

Residential Recycling Infrastructure

Curbside Recycling Services

In 2015, 11 cities and villages in the District offered non-subscription curbside recycling services to all residents of their community. Nine of these communities will continue their programs unchanged and two communities (Painesville City ID# NCS7 and Waite Hill ID# NCS9) will make changes to their programs. Descriptions of the changes to existing non-subscription curbside recycling programs are provided under the heading "Non-subscription Curbside Recycling."

Also in the reference year (2015), 11 communities offered subscription curbside recycling service to residents. All of these communities will continue their programs unchanged. Two additional communities (Fairport Harbor and Painesville City) will implement subscription curbside service. The ID numbers for the two new services are SC12 for Fairport Harbor and SC13 for Painesville City. Descriptions of the new subscription curbside recycling programs are provided under the heading "Subscription Curbside Recycling."

Non-Subscription Curbside Recycling

ID	Name	Start Date	End Date	Goal(s)
NCS7	Painesville City	2011	2016	1 & 2

In July 2016, the city of Painesville switched its refuse and recycling contract with Waste Management for non-subscription recycling service to Recycle Midwest and subscription service. This change is further described below under Subscription Curbside Recycling for #SC13.

ID	Name	Start Date	End Date	Goal(s)
NCS9	Waite Hill	2017	Ongoing	1 & 2

In 2017, the village of Waite Hill ended its contract with Recycle Midwest. In an effort to reduce costs to the Village, the service will be provided publically through the Service Department. The Service Department will pick up bagged recycling biweekly on Thursdays, before the regular weekly trash pickup on Friday, in the same manner in which the service was provided by Recycle Midwest. The Village made this change in an effort to reduce costs to the Village without compromising the service provided to residents. The Village will use its existing equipment (dump trucks) to provide the service. The Village announced the change in its May 2017 newsletter (The WH Village Voice), and on its website.

Subscription Curbside Recycling

ID	Name	Start Date	End Date	Goal(s)
SC12	Fairport Harbor	2016	Ongoing	1 & 2

In 2016, the village of Fairport Harbor began a subscription curbside recycling program, through a contact with Tony Scheiber Hauling for both trash and recycling collection. Recycling is picked up curbside on the same day as trash pickup. Materials collected include paper, cardboard, glass, metal, and plastic. The Village has an announcement posted on its website.

ID	Name	Start Date	End Date	Goal(s)
SC13	Painesville City	2016	Ongoing	1 & 2

In July 2016, the city of Painesville switched its refuse and recycling contract with Waste Management for non-subscription recycling service to Recycle Midwest and subscription service. The change means that residents have the option to sign up for curbside recycling service. Customers will receive a blue 65 gallon recycling bin with a light blue lid that is marked RECYCLE. The single-stream automated service is provided on an every other week schedule, with recyclables collected on the same day as the resident's rubbish collection. Materials accepted in the recycling bin include: cardboard, newspapers, junk-mail, magazines, cereal boxes, glass bottles and jars, aluminum and steel cans and numbers 1 through 7 plastics. Subscribers are billed quarterly for recycling service directly by Republic Services. In addition, yard waste is collected on an every other week schedule as well between April 1 and December 15 on the same day as the recycling collection. The City provides on its website a detailed brochure with the collection schedule, materials accepted for recycling, and Republic's customer service number to call if more information is needed. All Painesville residents are required to have garbage pickup through Republic but the recycling service is optional.

Drop-off Recycling Locations

Following the elimination of the District's grants to municipalities, the number of community-focused drop-off centers have decreased since 2011 due to financial feasibility. There were two full-time urban drop-off locations in the District at the end of 2015. One of the two (Concord Township ID# FTU1) underwent changes in 2016; a description of the changes is provided under the heading "Full-Time, Urban Drop-offs." The drop-off services at the Lake County Solid Waste Facility (ID# FTU3) will remain unchanged.

In 2015, there were no part-time urban drop-off locations in the District. The District will be providing a new part-time urban drop-off location at the Lake County Solid Waste Facility (ID# PRU1), and a description of the new program is provided under the heading "Part-Time, Urban Drop-offs."

There were two full-time rural drop-offs in the reference year, each accepting only paper. The facility in Fairport Harbor (ID# FTR1) was discontinued in 2016, as described under the heading "Full-Time, Rural Drop-offs." The drop-off program at the Leroy Township Fire Station (ID# FTR2) will remain unchanged.

There were no part-time rural drop-offs in the reference year and none will be established during the planning period.

Full-Time, Urban Drop-offs

ID	Name	Start Date	End Date	Goal(s)
FTU1	Concord Township Hall	2016	Ongoing	1 & 2

In 2016, Concord Township ended its more extensive drop-off collection program due to increased costs and abuse of the service. Prior to 2016, the drop-off facility at the Township Hall Campus (7229 Ravenna Road) accepted plastic, food cans and glass drop-off site. The reasons for discontinuing the popular service include increased costs and abuse of the service. The Township still provides large recycling bins (for only paper and cardboard) in the parking lot of the Town Hall Campus. The Township receives money for recycling from these bins. The Recreation Department uses the funds for events planned for the Township. The Fire Department continues to collect aluminum cans as part of the Departments Fire Prevention Bureau and uses the proceeds to help fund the Township's fire prevention education program. Cans can be left at both of the Township's fire stations. The change to the Township's recycling program was posted on the Township's website, along with a recommendation for residents to contact their trash hauler to arrange for recycling collection service on a subscription basis.

Part-Time, Urban Drop-offs

ID	Name	Start Date	End Date	Goal(s)
PTU1	Solid Waste Facility Recycling Drop Off	2018	2023	1 & 2

In 2018, the District will open a new drop off location for recyclables at the County owned solid waste facility that straddles Painesville Township (population 16,900) and Perry Township (population 6,483). There is so much local use of the facility already that the District expects this new collection facility will be successful. It is anticipated that the following will be involved to undertake this effort:

- The District will contract with the current landfill operator to provide and service containers for a variety of recyclables. There is considerable space available at the landfill site and the property can easily accommodate the placement of the containers in a secure location.
- The initial contract will be for 5 years, after which the District will evaluate the program to determine if it should be continued or changed.
- The collection of recyclables will include paper, cardboard, glass, metal, plastics. Other possible considerations include Styrofoam, used oil/grease and carpeting.
- The containers will be available to all Lake County residents Tuesday, Wednesday and Thursday from 7am to 3:30pm, at no charge.
- The primary audience will be the townships surrounding the landfill – Perry Township, Painesville Township, Leroy Township and Concord Township; however the service will be made available to all Lake County residents.
- Advertising/promotion will be via the District's website, telephone hotline through OSU Extension and billboards, including a billboard located along SR 2 near the turnoff for the landfill. The District will also encourage the local communities to include information about the new program and a link on the communities' websites.

- Users will check in at the landfill scale house (to ensure users are Lake County residents) and be directed to the drop off location. While it is expected that an outdoor site will be used, the facility can accommodate indoor collection as well.
- At this time, no improvements to the existing buildings are anticipated.
- The opening of the Drop Off will be coordinated with a Community Day event hosted by the landfill in conjunction with the landfill operator.
- The District will pay for the operator to provide and service the containers. As part of the contract, the provider will supply information regarding the user profiles (number and zip codes of users) amount and types of materials collected, as well as any other data that may be easily obtained.

Full-Time, Rural Drop-offs

ID	Name	Start Date	End Date	Goal(s)
FTR1	Fairport Harbor Village Senior Center	Existing	2016	1 & 2

The Fairport Harbor Village Senior Center had been accepting paper and cardboard since 2006 through a contract with ABITIBI/Royal Oak, and in 2015 19.2 tons of material was collected. This service was discontinued in 2016, at the same time that the Village contracted with Tony Scheiber Hauling to provide subscription curbside recycling collection.

ID	Name	Start Date	End Date	Goal(s)
FTR2	Leroy Township Fire Station	Existing	Ongoing	1 & 2

Leroy Township continues to provide a drop-off facility for residents at the Leroy Township Fire Station. The Township contracts with Royal Oak Recycling to provide paper retriever bins in the parking lot. The bins are available 24/7, and only paper is accepted, 5.5 tons were collected in 2015. This service is expected to continue throughout the planning period.

Part-Time, Rural Drop-offs

ID	Name	Start Date	End Date	Goal(s)
	No program available			

Mixed Solid Waste Materials Recovery Facility

Name	Start Date	End Date	Goal
No program available			

Multi-Family Unit Recycling

The District will establish a new pilot program to encourage and facilitate recycling at multi-family apartment properties.

Name	Start Date	End Date	Goal
Multi Family Recycling Pilot	2019	2023	1, 2 & 4

Beginning in 2019, the District will implement a new five-year pilot program for multi-family unit buildings. The purpose of the program to provide a convenient and seamless means of recycling for residents who live in multi-family communities, in order to increase recycling rates and decrease waste sent to the

landfill. This will create recycling opportunities for an underserved market (residential apartment dwellers) who do not have access to curbside services unless their property management company offers it. It is anticipated that the following will be involved to undertake this effort:

- The program will provide a financial incentive to entice the target properties to participate, with the expectation that the property managers will realize a savings on trash collection and therefore will continue the recycling program after the initial period ends.
- District staff and the Business Waste Reduction Committee will spearhead outreach efforts to make property management firms aware of the program. This outreach effort will include acquiring lists of apartment properties in the three cities in the District with the highest concentrations of apartment complexes (Mentor, Willoughby and Willoughby Hills). For example, the District has already acquired a list of apartments from the city of Mentor. The list includes contact information and the number of units in each complex.
- The target audience for establishing the program is large-scale multi-family complexes where the concentration of units makes it feasible to establish a recycling program. The real target audience for behavioral changes is residents.
- The District will work with the property management firm to figure out the logistics of how to execute the recycling program on site – where to locate bins, etc.
- The District will enter into a memorandum of understanding with property management firms who contract with a private recycling hauler with a commitment of two years. The property management firm will be reimbursed financially by the District for 6 months' worth of the cost, up to $5,000.
- The District will develop and provide recycling outreach and educational materials to distribute to residents. These materials will explain proper recycling habits. The District will also provide an electronic version of the education materials that can be emailed by the property manager to residents as a reminder a couple of months after the program begins.
- All communication efforts will have the logo of the apartment complex and the SWMD.
- The District will recognize the apartment complexes that participate in the program on its website.
- The District will measure success by requiring property managers to report quantities collected to the District and the District will keep track of recycling trends, the number of multi-family complexes that participate in the program, and how many continue to provide recycling after the expiration of the MOU.
- The District expects to start off with two participants in the first year and increase the number of participants (and therefore the financial commitment) each year for the duration of the pilot program.

Other Residential Recycling Programs (list individually below)

Name	Start Date	End Date	Goal
Contracting assistance	Existing	Ongoing	1, 2 & 4

The District is available to assist communities with recycling programs by developing creative solutions for recycling, preparing bidding packets, and assisting with contract negotiations.

- There is no cost to the District, but the assistance is dependent on District staff time.

Commercial/Institutional Sector Reduction and Recycling Programs

Schools and Institutions Recycling

Name	Start Date	End Date	Goal
School and Institutions Paper Collection (Royal Oak)	Existing	Ongoing	1 & 2

Royal Oak Recycling provides collection of paper recyclables to over 100 sites throughout the District.

- The target audience includes any establishment that generates paper waste, such as offices, government entities, parks, churches, and schools.
- Entities contract with Royal Oak Recycling to provide and service recycling containers.
- The company promotes the use of green Paper Retriever container with recommendations for placing in highly visible locations (e.g. parking lots) to encourage use by the students, employees and even the local community.
- In 2015, Royal Oak reported servicing 107 locations, including:
  - 16 commercial locations (including one grocery store)
  - 7 government offices including OSU Extension
  - 4 park facilities
  - 19 churches
  - 3 libraries
  - 6 non-profit organizations
  - 11 private schools
  - 41 public schools

- The company provides annual tonnage reports to the District and in 2015, 918 tons of recyclables were collected.
- The District is not financially responsible for this program.

Collection Services (small businesses, government offices, etc.)

Name	Start Date	End Date	Goal
Lake County Government Administration Building Program	Existing	Ongoing	1 & 2

Lake County employees who work at the main County Administration Building in downtown Painesville participate in a recycling program that is a component of the County Facilities solid waste program.

- The District contracts with a service provider (Waste Management) to provide one 6-cubic yard container behind the Administration Building, and empty it two times a week.
- Materials recycled include paper and old corrugated cardboard.
- The targeted audience is employees of Lake County who work at the main administration building.
- Employees are given small cardboard recycling boxes for their desks and the building's janitorial staff empty the containers on an as-needed basis.
- The District intends to expand the recycling program as part of the new construction of an expanded facility. Expansion of the County Administration building includes adding a new 5-story addition, which more than doubles the size of the building, in order to consolidate county departments into one facility.
- As part of the building expansion project, the District will be expanding the variety of materials collected and in doing so expects more people to participate in on-site recycling.

- The District will monitor the quantities and could even collect organic material for composting.

Large Venue Recycling

Name	Start Date	End Date	Goal
Lake County Captains Baseball Outreach Program	Existing	Ongoing	1, 2 & 4

The District continues the sponsorship of a recycling day event during the Lake County Captains annual "Go Green" weekend. This "Go Green with the Captains" event held at a Lake County Captains game at Classic Park in Eastlake is very well attended and a cost effective method to reach a large number of residents and businesses.

- The primary purpose of the event is to raise awareness of the need for and benefits of recycling.
- The District's Business Waste Reduction Committee is a sponsor – which means the District pays a sponsorship fee to the Captain's baseball team.
- As part of the sponsorship, the District is provided a display table to showcase its educational materials and hand out recycling related giveaways. As part of the sponsorship, the County Commissioners participate in a public service announcement on a local radio program to promote the "Go Green" weekend, and during the game participate in a dialogue with the Captain's announcer, talking about the benefits and best practices of recycling.
- In 2015, the event was held on July 18. As part of its contract with the District, OSU Extension assisted in the preparation and management of the displays, attended the table for 4 hours, and provided a prize wheel with giveaways including baseball trading cards with the District's information on the back.
- The stadium contracts with a recycling contractor, but specific data on the quantities of recycled materials collected during the Go Green weekend are not available.
- Each year, the District uses a portion of its advertising budget to design, produce and/or buy giveaways that promote recycling to distribute at the event.
- The cost of the sponsorship for this event, which includes the radio time, discussions with the game announcer during the game and a display table at the event, continue to increase on an annual basis.

Waste Assessments/Waste Audits

Name	Start Date	End Date	Goal
No programs available			

Contracting Assistance

Name	Start Date	End Date	Goal
No programs available			

Workgroup/Roundtable

Name	Start Date	End Date	Goal
The Business Waste Reduction Committee (BWRC)	Existing	Ongoing	1, 2 & 4

The Business Waste Reduction Committee was established over 20 years ago with a focus on implementing the District plan. In the past, the BWRC met between four and six times a year to review the annual surveys of recyclable tonnage information from industries, commercial businesses, recyclers,

waste haulers, and compost facilities. However, the BWRC has not met since the last comprehensive commercial and industrial surveys were undertaken as part of the 2012 plan update. As part of this Plan Update, and with the understating of how important the commercial, industrial and other nonresidential sectors are to the success of the District's recycling and recovery efforts, the District is committed to reinvigorating the Business Waste Reduction Committee.

- The purpose of the BWRC is to:
  a) identify and promote ways the commercial, industrial, governmental and non-profit establishments in the District can reduce and/or recycle waste, and
  b) facilitate the proactive sharing of information, resources and expertise in support of waste minimization and
  c) document the results of those activities.
- During its peak, the BWRC included over 12 members, comprised of both District affiliated persons as well as representatives of local commercial and industrial businesses. Due to its inactivity, the committee membership in 2015 consisted only of the core team of District affiliated persons, as noted in the table below.

Business Waste Reduction Committee Membership (2015)	
Member Name	**Representing**
Tim Gourley	LCSWMD Coordinator
Jennifer Bell	Clerk, Lake County Commissioners
Patricia Fowler	City of Wickliffe
Beth Bolas	The Ohio State Extension
Chris LeGros	CT Consultants, Inc.
Bonnie Rice	The City of Mentor

For this Plan Update, the District Coordinator and BWRC core group will begin recruiting new members to once again establish a solid working group of dedicated individuals who are committed to the goals of the District and the BWRC. The District will reach out to business leaders from companies that are large generators of recycled/recovered materials, as it has been the BWRC's experience that once these representatives are on board, they are able to ensure all of their facilities participate in recycling programs and reporting, and are influential among their peer groups.

Strategic Objectives of the BWRC

4. Promote the successes achieved by the Lake County business community regarding sector wide waste reduction, reuse, and recycling.
5. Provide value-added services that support the waste minimization efforts of commercial, industrial, governmental and non-profit organizations.
6. Achieve significant, yearly increases in the number of retail, commercial, educational and industrial organizations that report their waste reduction and recycling data to the district.

In alignment with these objectives, BWRC responsibilities include 1) identifying specific roles of BWRC members and support organizations (e.g., the Ohio State University Extension, Lake County), 2) prioritizing short and long term areas of focus, 3) creating strategies, action plans and metrics to achieve desired results, and 4) identifying and communicating any additional resource needs that may be required to achieve and sustain progress.

Action Plan for Accomplishing Strategic Objectives

For Objective 1:

- Develop a business recognition program for waste reduction leadership – this includes reinstituting an Environmental Steward Award for exemplary Lake County businesses
- Contact Lake County Chambers of Commerce for outreach opportunities
- Include business/industry content for the District's social media/website outreach plan

For Objective 2:

- Update recycler resource listing for industry/business use and promote listing on website/social media
- Promote the State's waste exchanges and research options for hard to dispose of items
- Continue sponsoring the "Go Green with the Captains" recycling day during the Lake County Captains annual "Go Green" weekend.

For Objective 3:

- Develop an on-line survey form
- Conduct personal meetings with targeted businesses to document tonnages
- Network within the business communities for contacts from large generators/employers to secure tonnage recycled.

Award/Recognition

Name	Start Date	End Date	Goal
Environmental Steward Award	2018	Ongoing	1, 2 & 4

Research shows that recognition is critical. Desirable behavior that is recognized so the achievements are noticeable to others can bring about behavior changes. The BWRC will re-institute the environmental steward award for Lake County businesses to recognize high performers, promote best practices and motivate others to follow. The BWRC, once new members representing business and industry are on board, will develop the awards/recognition program as one of its responsibilities, including determining the categories and criteria for the award(s), methods for outreach to increase awareness and participation, and the type of award (plaque, financial) and recognition of the winners. It is important to include the business and industrial representatives in this discussion in order to ensure the program is properly geared toward the intended award recipients as a way of enticing behavior change.

Categories to consider include:

Category	Recognition
Achievement	Recognizes outstanding recycling and waste minimization efforts
Projects and Initiatives	Recognizes a finite project that demonstrated cost effectiveness or potential cost savings while increasing the overall recycling rate.
Overall program	Recognizes outreach efforts that are robust and constantly improving, while demonstrating a commitment to improve the overall recycling program.
Innovation	Recognizes a program that demonstrates unique and innovative approaches to recycling.

Other Programs (list individually with a table and description)

Name	Start Date	End Date	Goal
No other programs			

Industrial Sector Reduction and Recycling Programs

Waste Assessments/Waste Audits

Name	Start Date	End Date	Goal
No programs available			

Collection Services

Name	Start Date	End Date	Goal
No programs available			

Contracting Assistance

Name	Start Date	End Date	Goal
No programs available			

Workgroup/Roundtable

Name	Start Date	End Date	Goal
See Business Waste Reduction Committee (BWRC) under Commercial/Institutional Sector Reduction and Recycling Programs			

Award/Recognition

Name	Start Date	End Date	Goal
See Environmental Steward program under Commercial/Institutional Sector Reduction and Recycling Programs			

Restricted/Difficult to Manage Wastes

Yard Waste

Lake County's Yard Waste Management Plan is a Community-Based Program with support from the private sector. The yard waste descriptions are summarized below.

Name	Start Date	End Date	Goal
Yard Waste Collection from Municipalities/Private Haulers	Existing	Ongoing	1, 2 & 5

There are 14 composting facilities that accepted compostable materials from the District in 2015, including three facilities owned/ operated by a municipality or township and one at Lake Metroparks Farmpark. Much of the yard waste comes from the communities in the District that collect yard waste from residents, including 11 communities that provide seasonal yard waste collection services, while three others offer locations where tree branches, clippings, etc. can be dropped off.

- Communities in Lake County manage individual yard waste programs to meet the needs of their residents. It is a community cost.
- A sampling of the services provided during the reference year include:
  - Concord Township contracts an outsider hauler once a year to pick up leaves from residents
  - North Perry Village collects leaves from October through December on a weekly basis.
  - Willoughby, Willoughby Hills, and Painesville City have similar leaf collection services as North Perry Village.
  - Painesville Township is similar to Concord Township, only performing leaf pick-up twice per year.
  - Perry Village, Perry Township and Concord Township offer mulch to residents at no charge.
  - After the holidays, four municipalities provide Christmas tree pick-up while three others offer drop-off locations.
- The majority of the communities collect leaves and brush. The brush is chipped and offered to the residents for their use or is used at community facilities.
- The service departments that manage these programs are the key to the success of the District's yard waste management program.
- Communities that have yard waste collected by a private hauler as part of their solid waste collection program also include the collection of grass clippings along with leaves and brush. Yard waste from this type of collection is delivered to compost facilities and tonnage is reported to the individual communities.
- No changes are anticipated during the planning period.

Name	Start Date	End Date	Goal
Yard Waste Program – Master Gardeners Program	Existing	Ongoing	1, 2, 4 & 5

OSU Extension's Master Gardner staff provides services to communities in finding alternative methods to dispose of yard waste.

- This program is part of OSU Extension Service, and there is no additional cost to the District beyond the contract with OSU Extension for its yearly educational programming.
- Volunteers from throughout Lake County are instructed by OSU Extension Service Agents on a variety of gardening topics including proper composting techniques. The Master Gardeners then meet with the general public in settings like monthly garden meetings or garden club gatherings.
- Also, OSU staff work closely with the nurseries in the District, assisting them with funding applications and technical options to maximize sustainable practices in their operations.
- Because this program is effectively run and has successful outreach, no changes will be made during the planning period.

Household Hazardous Waste

Name	Start Date	End Date	Goal
HHW Program	Existing	Ongoing	2 & 5

The District's Solid Waste Management Plan must include a strategy for managing household hazardous waste (HHW), including lead acid batteries. According to the Ohio EPA, household hazardous waste is defined as being made up of the following five categories of commonly-found hazardous products in the home: pesticides and herbicides; automobile products; household cleaners; paint products; and miscellaneous materials such as mercury items, glue, flares, etc. These materials are identified as HHW

because they have one or more of the following properties: they are corrosive, toxic, reactive, or flammable.

A specific objective of the District HHW Plan is to educate residents on HHW. The ultimate objective is to keep HHW out of the solid waste disposal stream where it can cause environmental degradation if disposed in landfills or incinerators. To ensure that no negative environmental or health impacts occur from HHW material the program provides proper disposal and general education for the residents of Lake County. Common household hazardous products collected:

- Automotive Products - antifreeze, gasoline, car batteries, used motor oil, windshield washer solution, carburetor cleaner, chrome polish, auto body filler, and transmission fluid.
- Paint and Related Products - latex, oil-based paints, paint thinner, turpentine, varnishes, mineral spirits, adhesives, kerosene, and lighter fluid.
- Household Cleaners - rust remover, aluminum cleaner, lye, oven cleaner, drain opener, rug cleaners, furniture polish, floor polish containing solvents, tile cleaner, disinfectants, and spot remover.
- Pesticides – fungicides, insecticides, weed killer, and poisons.
- Miscellaneous – household batteries, passenger car tires, fluorescent bulbs and ballasts, solvent glues and cements, nail polish, flares, asbestos, pool chemicals, photo chemicals and mercury containing items.
- Household batteries.

As part of its Household Hazardous Waste (HHW) Management Plan, the District has provided an education program, telephone hotline, as well as, a comprehensive HHW Collection Program which are detailed below. These programs are advertised on the District's website and calendar of special collections and shared with the local communities.

1. HHW Public Education and Information Program. The District provides a public education and information program on household hazardous waste. The target audience for this public education and information program consists of both school - age children and adults in Lake County. The number of people reached on an annual basis through direct contact is estimated to be over 6,000. This information is assimilated into the communities through newspaper articles, HHW brochures and fliers, classroom and group organization presentations, as well as the numerous telephone calls from interested residents throughout the County.
2. HHW Telephone Hotline. The OSU Extension Lake County office fields telephone calls from residents concerning HHW buying practices and disposal. This provides the residents with human contact to answer their questions and concerns instead of a recorded device. Each question can raise a host of additional questions not accessible with a recording. The offices are open from 8:30 am until 4:30pm Monday through Friday. After hours calls are set up so that messages are taken and the caller is then contacted the following work day, thus providing a 24 hour service.
3. HHW Collection Days Program. The Lake County Solid Waste District holds two HHW collection days annually in Painesville at the Lake County Fairgrounds.
   - Materials collected include all household hazardous wastes, including lead acid batteries.
   - The Lake County Solid Waste District has participated in a HHW co-operative for the past several years, consisting of other Solid Waste Districts in Northern Ohio. The co-op bids out collection services for HHW collection events. Due to the volume of material for collection represented by the participating Districts more competitive pricing results.

- The District has contracted with a supplemental vendor for the collection of batteries during both HHW collections.
- A portion of the used oil collected is used to heat a building at the Lake County Solid Waste Facility.
- Annual tonnage at the HHW collections has been constant over the years, and was 126 tons in 2015, with 3,198 cars counted as participants.
- There are no changes proposed to the program; however, there are concerns that the favorable pricing through the co-op is tenuous and the cost to conduct the collections will continue to increase.

Scrap Tires

There are two different methods that the District relies on for the Scrap Tire Program, as described below.

Name	Start Date	End Date	Goal
Scrap Tire Special Collection Program	Existing	Ongoing	2 & 5

The annual collection of used tires is held at the County Fairgrounds and targeted to all residents of Lake County.

- There is a limit of six (6) passenger tires or light truck tires per resident permitted at no charge. There is a charge for tires with rims, oversized tires, and each additional tire over the minimum.
- The reference year event was held on May 2, 2015, included 439 vehicles and 41 tons of tires were collected.
- This event is advertised on the District's website and highlighted on the Special Collections Calendar posted and distributed to local communities. Most of the local communities provide information about the event on their website and a link to the calendar and the District's website.
- The District contracts with a hauler to remove the tires that are collected at this event, and the hauler directly reports the tonnage to OEPA.
- The only change to the program is developing an alternative handling process for rim removal, in order to reduce the cost of tire collection and removal. In addition, the per tire drop-off cost will be increased as the cost to recycle the tires increases.

Name	Start Date	End Date	Goal
Drop-off At Lake County Landfill	Existing	Ongoing	2 & 5

Residents of Lake County can take their tires to the Lake County Solid Waste Facility year-round.

- The facility is open for drop-off for recycling during the landfill's normal business hours (Monday-Friday 7AM-3:30PM and Saturday 9AM-1PM).
- There is a charge per tire; and a limit of six (6) passenger tires or light truck tires dropped off at one time.
- This service is performed by the contractor hired by the Lake County Commissioners for the operation of the Lake County Solid Waste Facility.
- In 2015, 21 tons of tires were collected.
- No changes to the program are anticipated, however the per tire drop-off cost will be increased as the cost to recycle the tires increases.

Electronic Equipment

There are two different methods that the District relies on for the Electronics Program, as described below.

Name	Start Date	End Date	Goal
Computer/Electronics Special Collection	Existing	Ongoing	2 & 5

The District provides collection of used computers, computer equipment, ink cartridges and cellular telephones at an annual collection held at the Lake County Fairgrounds. This annual event is well attended by the public.

- The electronics are recycled by a certified electronics recycling firm contracted by the District, who provides a credit to the District for hard drives that are recovered.
- Over 22.6 tons of electronics were collected at the 2015 event, at a low cost of $1,298 ($56.43 per ton) because of the credit for hard drives.
- During the planning period, the District plans to expand computer collection to include all household electronics i.e. anything with a cord without refrigerant.
- During the planning period:
  - Collection will continue once annually.
  - The District will expand the computer collection program to include all household electronics i.e. anything with a cord without refrigerant, and based on conversations with the contractor, the program will continue to be cost effective due an increase in the types of materials for which the District will receive credits, so the only cost increase will come from TV monitors.

Name	Start Date	End Date	Goal
Local Computer/Electronics Collection	Existing	Ongoing	2 & 5

In addition to the special collection event described above, two local communities provide electronics drop-off services for their residents:

- The city of Willoughby Hills accepts electronics at the City Service Department.
- The city of Eastlake accepts electronics at the City Maintenance Garage.

Lead-Acid Batteries

Name	Start Date	End Date	Goal
See HHW Program	Existing	Ongoing	

Appliances

Name	Start Date	End Date	Goal
Drop-off at Landfill	Existing	Ongoing	5

Appliances are accepted at the Lake County Solid Waste Facility and managed by the contracted operator.

- The Lake County Solid Waste Facility contracts for operations of the facility and as part of the contract the operator is obligated to accept and recycle appliances.
- The tonnage recycled has fluctuated over the years, with an annual average of 94 tons.

- Appliances will continue to be accepted at the landfill during the landfill's normal business hours (Monday-Friday 7AM-3:30PM and Saturday 9AM-1PM).
- No changes to the program are anticipated.

Pharmaceuticals

Name	Start Date	End Date	Goal
Pharmaceutical Drug Collection and Disposal Program	Existing	Ongoing	5

The Lake County General Health District and Solid Waste District administer the Pharmaceutical Drug Collection & Disposal Program. Abuse of both legal and illegal drugs has fueled an alarming epidemic and high rates of death from overdoses, and this program helps reduce the potential for abuse.

- This program addresses both public health and safety concerns as well as environmental concerns.
- The program is open to all Lake County residents, and enables residents to remove controlled substances from the medicine cabinet in a swift time frame and properly dispose of them thereby reducing confusion, the potential of drug abuse and accidental drug misuse as well as the unwanted disposal of drugs down the toilet or in the trash.
- The Lake County Narcotics Agency is an important partner who supports the law enforcement departments in central collection, storage, transport and destruction of the collected medications. All pharmaceutical drugs collected in the bins are destroyed safely by incineration. Only pharmaceutical drugs are accepted, no needles or syringes.
- Items recycled include unused medications, expired medications, prescription pills, non-prescriptions pills, syrups, creams, pain relievers, cold/flu medicine, vitamins, and pet medications.
- There are 7 collection sites for residents of Lake County:
  - Eastlake Police Dept.
  - Lake County Sheriff Office
  - Lakeland C.C Police Dept.
  - Madison Twp. Police Dept.
  - Mentor Police Dept.
  - Willoughby Hills Police Dept.
  - Willoughby Police Dept.
- The disposal hours for all locations are Monday through Friday 7AM to 8PM, Saturday 9AM to 5PM and Sunday 1PM to 5PM (except that Lakeland is not open on Sundays).
- This drug collection and disposal program was made possible by a grant from the Lake Erie Protection Fund through the Ohio Lake Erie Commission. The monies for the Lake Erie Protection Fund are supported by the citizens of Ohio through their purchase of the Lake Erie License plate. Additional grant monies were contributed to this project by the Lake County ADAMHS Board.
- At the start of this program in 2010, the District reported collecting nearly 7.5 tons, which by 2012 had dropped to 1.86 tons. Since then, the quantity collected has increased by an annual average rate of 18%.
- There is no cost to the District for this program.
- There are no changes to this program during the planning period.

Other Material Specific Programs

Food Waste

Name	Start Date	End Date	Goal
No programs			

Glass

Name	Start Date	End Date	Goal
No programs			

Funding/Grants

Incentive Based Grants

Name	Start Date	End Date	Goal
No programs			

Improvement Grants

Name	Start Date	End Date	Goal
No programs			

Economic Incentives

Volume-Based Billing/Pay-As-You-Throw Trash Collection Services

Name	Start Date	End Date	Goal
No programs			

Financial Award Programs (e.g. RecycleBank, "Get Caught Recycling")

Name	Start Date	End Date	Goal
No programs			

Other Economic Incentive Programs (list individually with a table and description)

Name	Start Date	End Date	Goal
See Multi-family Recycling program			

Market Development Programs

Name	Start Date	End Date	Goal
No programs			

Feasibility Studies

Name	Start Date	End Date	Goal
No programs			

Facilities

Materials Recovery Facilities/Recycling Centers

Name	Start Date	End Date	Goal
No programs			

Landfills

Name	Start Date	End Date	Goal
No programs			

Closed Facility Maintenance (Closure/Post-Closure Care)

Name	Start Date	End Date	Goal
No programs			

Transfer Facilities

Name	Start Date	End Date	Goal
No programs			

Composting Facilities

Name	Start Date	End Date	Goal
No programs			

Data Collection

In addition to relying on data that OEPA collects at the state level and makes available on its website, the District undertakes three different types of surveys to collected data.

Name	Start Date	End Date	Goal
Plan Update Comprehensive Survey	Existing	Ongoing	4

As part of the Plan Update, in 2016 the SWMD mailed over 1,400 surveys (along with a cover letter and a postage-paid return envelope) to commercial, institutions and industries in the District to gather data on 2015 recycling efforts.

- For each Plan Update, the District has contracted with a consultant to assist with the preparation of the Plan Update. As part of that contract, the consultant has conducted a comprehensive survey, analyzed the results and shared the results with the District Policy Committee (or the BWRC in 2010-2012 as part of the last Plan Update) to help determine how programs should be adjusted. Additional assistance has been provided by OSU Extension in making follow-up calls to increase participation.
- In 2016, the District received responses from 151 entities, 88 from commercial/institutional establishments and 63 from industrial businesses, which is considerably lower than 461 surveys received in 2010 (when over 8,750 surveys were sent), despite a concerted follow-up calling and email campaign.
- Issues and challenges encountered with the 2016 survey effort include:

  - Overall low participation despite the higher response rate for 2016 compared to 2010 due to the lower number of surveys sent (1,412 sent in 2016 with a response rate of 10.4%, compared to 8,758 in 2010 with a response rate of 5.3%).
  - SWMD time commitment.
  - Lack of response to follow-up calls and emails.
  - Cost, which continues to increase with the cost of postage, printing, and data entry.
- This comprehensive survey is conducted once every five years. The cost for OSU Extension to assist with the survey is covered as part of the District's overall contract.
- Enhancements to this program in the planning period include:
  - Providing an electronic fillable survey form to reduce the cost of data entry.
  - Increasing outreach to recipients using social media and email blasts.
  - The BWRC engaging more with the commercial and industrial sectors through increased committee membership from the private sector, interaction with the Chambers of Commerce and the awareness through the Environmental Steward Award program.

Name	Start Date	End Date	Goal
Annual Community Survey	Existing	Ongoing	4

Once annually OSU Extension conducts a survey of all local communities and tire repair/tire dealers to collect recyclable tonnage data on tires and from residential generators.

- Effective 2017, the District will no longer be surveying for tire tonnages from repair shops and tire dealers in Lake County. This is being discontinued as it is unnecessary because scrap tire data is being reported directly to OEPA and is more comprehensive and reliable.
- OSU Extension will continue to survey communities for tonnage information on leaves, brush, grass, newspaper, chipboard, plastics #1 and #2, glass and metals.
- The District utilizes the OEPA reported data and survey results to prepare annual reports and the District Coordinator confirms that all reported information uses tonnage units and not cubic yards.
- The District Coordinator removes tonnage from the community surveys that might be reported by composting facilities to avoid double counting.
- Enhancements to this program in the planning period include:
  - Contacting the service director or the community's hauler annually to provide the time frame for when the survey will be conducted.
  - Annual meetings with the Service Directors/Representatives from the communities in advance of the survey to talk about importance of the data.
  - Adding a fillable survey form to the District website and encouraging participants to fill out the electronic version to cut down on data entry and potential recording errors.
  - Expanding the type of information gathered to include: the total amount of solid waste (in tons) that was sent to landfills in the reporting year; the total amount of recyclables and organics that were recycled (in tons) for that year, as well as a breakdown by material type; the number of households participating in curbside recycling program, and information of other recycling collection programs in the community that are open to the public.
- In the near term, the District hopes to create an annual report to track the communities' efforts and progress over the years. The report will contain the following information for each community: the total amount of solid waste (in tons) that was sent to landfills in the reporting year; the total amount of recyclables and organics that were recycled (in tons) for that year; that

year's total recycling rate; and the previous year's total recycling rate. The District will then use the report to motivate communities to continue to improve their recycling efforts. The pressure that is put on other communities by those that recycle is a form of social norms and diffusion.

- The data will enable the District to calculate recycling rates and tonnage per household and per capita by community.
- The cost for OSU Extension to conduct the survey is covered as part of the District's overall contract. There are no additional costs to the District.

Name	Start Date	End Date	Goal
Annual Commercial and Industrial Survey	2019	Ongoing	4

In the past, the Business Waste Reduction Committee prepared an annual survey to gather sample data from targeted commercial and industrial businesses on their recycling efforts, but that activity was discontinued prior to 2015. As part of the District's efforts to reactivate BWRC with new members from the commercial and industrial sectors, the District also intends for the BWRC to once again conduct annual smaller targeted surveys.

- Each year the BWRC will select a sample of businesses that have participated in surveys in the past and are known to recycle. The goal is to gather information on all businesses that have previously participated over the course of three years in order to refresh the data in a timely manner.
- The BWRC will use a fillable survey form similar to the one developed for the Plan Update Survey, and encourage participants to complete the survey online.
- The data received from the survey will be used to help the BWRC identify recipients for the Environmental Steward Award.
- The BWRC will also evaluate the results and consider ways to increase outreach and programming for the commercial and industrial sectors.

Health Department Support (Allowable Use 3)

Name	Start Date	End Date	Goal
Lake County General Health District	Existing	Ongoing	

The District has on ongoing contract with the Lake County General Health District. During the 15-year planning period, the Lake County General Health District (LCGHD) will undertake enforcement responsibility and sampling activities related to solid waste management in Lake County. These activities will be funded by the District in accordance with ORC 3734.57, ORC 3734.572, and ORC 3734.573.

It is noted that LCGHD activities associated with the household hazardous waste program are limited to directing calls received from residents to either the District Coordinator or OSU Extension for assistance. The activities to be conducted by the Health District are described in a May, 2003 agreement between the Health District and the Lake County Commissioners.

Basically, the Lake County General Health District performs licensing, inspection, rule enforcement, complaint investigation and technical assistance for:

- All active landfills
- All closed landfills
- Residual Wastes (complaints only)

- Demolition Wastes (complaints only at present)
- Construction Wastes (complaints only at present)
- Composting Sites
- Open dumping (complaints)
- Household Hazardous Waste (questions only)
- Tire Facilities
- Tire Transporters

The Lake County General Health District staff monitors compliance with landfill (closed and open) methane gas migration plans; performs off-site, surface and ground water monitoring; attends training events and meetings; performs public education; reviews and comments on State rule changes; responds to solid waste spills; and participates in Policy Committee meetings.

County Assistance

Name	Start Date	End Date	Goal
No program			

Open Dumping/Litter Enforcement

Name	Start Date	End Date	Goal
No program			

Open dump/tire dump cleanup

Name	Start Date	End Date	Goal
No program			

Litter law enforcement (boards of health and sheriff offices) (allowable use 7)

Name	Start Date	End Date	Goal
No program			

Municipal Corporation/Township Assistance

Name	Start Date	End Date	Goal
No program			

Disaster Debris/Disaster Assistance

Name	Start Date	End Date	Goal
Disaster Debris Program	Existing	Ongoing	

Responding to natural disasters, such as flood events, tornados and severe storms, requires a great deal of coordination and time. The District is committed to assisting the Emergency Management Agency during a disaster event. The District Coordinator will serve as the debris manager during a debris-generating event. As debris manager, the District Coordinator will coordinate operations and finance areas of debris management. Coordination duties will include contacts with affected jurisdictions and scheduling and coordination of resources conducting debris operations. Finance support will include: contacts and negotiations with contractors; contract negotiations; support of and coordination with

jurisdiction officials for expenses and scheduling; and documentation of all resources, personnel, materials and costs for reimbursement purposes.

Closed Facility Maintenance/Post-Closure Care

Name	Start Date	End Date	Goal
No program			

Facility Ownership/Operations

Name	Start Date	End Date	Goal
No program			

Waste-to-energy projects

Name	Start Date	End Date	Goal
No program			

APPENDIX JREFERENCE YEAR OPPORTUNITY TO RECYCLE AND DEMONSTRATION OF ACHIEVING GOAL 1

A. Residential Sector Opportunity to Recycle

Table J-1 Demonstration of Residential Opportunity to Recycle

ID #	Name of Community (City, Village, Township)	2015	
		Community Population	Population Credit
Non-subscription curbside			
NCS1	Eastlake City	18,232	18,232
NCS2	Grand River Village	397	397
NCS3	Kirtland City	6,793	6,793
NCS4	Kirtland Hills Village	641	641
NCS5	Lakeline Village	223	223
NCS6	Mentor-on-the-Lake City	7,386	7,386
NCS7	Painesville City	19,776	19,776
NCS8	Timberlake Village	660	660
NCS9	Waite Hill Village	465	465
NCS10	Willoughby City	22,631	22,631
NCS11	Willoughby Hills City	9,382	9,382
Subscription curbside			
SC1	Concord Township	18,245	4,561
SC2	Leroy Township	3,252	813
SC3	Madison Township	15,599	3,900
SC4	Madison Village	3,182	796
SC5	Mentor City	46,901	11,725
SC6	North Perry Village	892	223
SC7	Painesville Township	16,900	4,225
SC8	Perry Township	6,463	1,616
SC9	Perry Village	1,627	407
SC10	Wickliffe City	12,545	3,136
SC11	Willowick City	13,957	3,489
Full-time, urban drop-off			
FTU1	Concord Township Hall, 7229 Ravenna Rd	18,245	5,000
FTU2	Wickliffe Coulby Park	Ended 2/15	0
FTU3	Lake County Solid Waste Facility, Painesville & Perry Twp	16,900	0
Part-time, urban drop-off - NONE			
Full-time, rural drop-off			
FTR1	Fairport Harbor Village Senior Center	3,096	0
FTR2	Leroy Township Fire Station	3,252	0
Part-time, rural drop-off - NONE			
Mixed municipal waste material recovery facility- NONE			
Total County Population		229,245	
Total Population Credit		126,477	
Percent of Population		55%	

The SWMD committed to achieving Goal #2 in the 2012 Plan Update. As of 2016, curbside recycling is available to all residents in the SWMD, either through non-subscription services (as is the case for 11 of the 23 municipalities) or through subscription services. However, based on the OEPA rules on how access is calculated, it is not possible to achieve access for 90% of residents simply through curbside recycling. Therefore, the District again commits to achieving Goal #2 with this Plan update.

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

The purpose of Appendix K is to demonstrate the SWMD's progress toward achieving the waste reduction and recycling rates established in Goal #2 of the 2009 State Solid Waste Management Plan. The Lake County SWMD opts to achieve Goal 2 in this 2018 Plan and will demonstrate in this chapter that the SWMD has achieved the prescribed recycling rates, and expects to continue to achieve these rates during the planning period.

According to Goal #2 of the 2009 State Solid Waste Management Plan, the SWMD must demonstrate having achieved the 25% residential/commercial waste reduction and recycling goal and the 66% industrial waste reduction and recycling goal in the reference year. In addition, the plan must demonstrate that the SWMD will continue to meet or exceed the 25 percent residential/commercial waste reduction & recycling goal and the 66 percent industrial waste reduction and recycling goal in all remaining years of the planning period.

Table K-1 Annual Rate of Waste Reduction: Residential/Commercial Solid Waste

Year	Population	Recycled	Disposed	Total Generated	Waste Reduction & Recycling Rate (%)	Per Capita Waste Reduction & Recycling Rate (ppd)
2015	***229,245***	***87,948***	***221,637***	***309,584***	***28.41%***	***2.10***
2016	229,116	96,227	222,169	318,396	30.22%	2.30
2017	228,987	89,595	222,703	312,298	28.69%	2.14
2018	**228,858**	**90,450**	**223,238**	**313,688**	**28.83%**	**2.17**
2019	228,729	91,336	223,775	315,111	28.99%	2.19
2020	228,600	92,255	224,312	316,567	29.14%	2.21
2021	228,544	93,085	224,851	317,937	29.28%	2.23
2022	228,488	93,941	225,392	319,333	29.42%	2.25
2023	228,432	94,822	225,933	320,755	29.56%	2.27
2024	228,376	95,633	226,476	322,109	29.69%	2.29
2025	228,320	96,469	227,020	323,490	29.82%	2.32
2026	228,332	97,184	227,566	324,750	29.93%	2.33
2027	228,344	97,916	228,113	326,028	30.03%	2.35
2028	228,356	98,665	228,661	327,326	30.14%	2.37
2029	228,368	99,432	229,210	328,642	30.26%	2.39
2030	228,380	100,218	229,761	329,979	30.37%	2.40
2031	228,414	101,023	230,313	331,336	30.49%	2.42
2032	228,448	101,847	230,866	332,713	30.61%	2.44

Sources of Information: Tables C-2, E-8, and D-4.

Sample Calculations: 2015 Waste Reduction & Recycling Rate = 2015 Total Generated tons (309,584)/2015 Recycled tons (87,948) = 28.41%

2015 Per Capita Waste Reduction & Recycling Rate (2.1) = ((2015 Recycled (87,948) x 2000) /365) / 2015 Population (229,245)

The Waste Reduction Rate for the Lake County Solid Waste Management District is calculated for the residential/commercial sector in Table K-1. This table displays the District's current reduction rate used as well as the projections for the planning period.

The District's waste reduction rate is a simple calculation of total amount of waste generated divided by the amount of waste recycled. For the District's reference year, the WRR was 28.41%. Throughout the planning period, the District's Residential/Commercial WRR is projected to increase to 30.61% in 2032. This is a function of a fairly flat rate of population change, plus a projected rate of 1% annual growth in the amount of recycling (discussed in Appendix E) and a slower rate of annual increase (0.24%) in the amount of waste disposed (discussed in Appendix D).

Table K-2 Annual Rate of Waste Reduction: Industrial Solid Waste

Year	Waste Reduced and Recycled (tons)	Waste Disposed (tons)	Non-Recyclable Waste	Waste Generated (tons)	Waste Reduction and Recycling Rate (percent)
2015	***80,249***	***21,499***	***0***	***101,749***	***78.87%***
2016	80,249	11,095	0	91,344	87.85%
2017	80,249	11,095	0	91,344	87.85%
2018	80,249	11,095	0	91,344	87.85%
2019	80,249	11,095	0	91,344	87.85%
2020	80,249	11,095	0	91,344	87.85%
2021	80,249	11,095	0	91,344	87.85%
2022	80,249	11,095	0	91,344	87.85%
2023	80,249	11,095	0	91,344	87.85%
2024	80,249	11,095	0	91,344	87.85%
2025	80,249	11,095	0	91,344	87.85%
2026	80,249	11,095	0	91,344	87.85%
2027	80,249	11,095	0	91,344	87.85%
2028	80,249	11,095	0	91,344	87.85%
2029	80,249	11,095	0	91,344	87.85%
2030	80,249	11,095	0	91,344	87.85%
2031	80,249	11,095	0	91,344	87.85%
2032	80,249	11,095	0	91,344	87.85%

Sources of Information: Tables F-7 and D-4.
Sample Calculations: 2015 Waste Reduction & Recycling Rate = 2015 Total Generated tons (101,749)/2015 Recycled tons (21,499) = 78.87%

Table K-2 shows the Waste Reduction Rate for the District's industrial sector calculated for the reference year (2015) and throughout the planning period.

The District's waste reduction rate for the industrial sector is calculated in the same manner as for the residential/commercial sector: total amount of waste generated divided by the amount of waste recycled. For the District's reference year, the industrial sector's WRR was 78.87%. Given the age of some of the data used in the analysis and difficulties obtaining data, the District will keep both total waste disposed and waste reduced/recycled constant for the planning period using the 2015 tonnage recycled in 2015 (80,249) and the average of waste disposed between 2011 and 2015 (11,095).

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)
2015	***168,196***	***243,136***	***411,332***	***40.89%***
2016	176,476	233,264	409,740	43.07%
2017	169,844	233,798	403,642	42.08%
2018	**170,699**	**234,333**	**405,032**	**42.14%**
2019	171,585	234,870	406,455	42.22%
2020	172,504	235,407	407,911	42.29%
2021	173,335	235,946	409,281	42.35%
2022	174,190	236,487	410,677	42.42%
2023	175,071	237,028	412,099	42.48%
2024	175,882	237,571	413,453	42.54%
2025	176,719	238,115	414,834	42.60%
2026	177,433	238,661	416,094	42.64%
2027	178,165	239,208	417,372	42.69%
2028	178,914	239,756	418,670	42.73%
2029	179,681	240,305	419,986	42.78%
2030	180,467	240,856	421,323	42.83%
2031	181,272	241,408	422,680	42.89%
2032	182,096	241,961	424,058	42.94%

Sample Calculations:

2018 Waste Generated (405,032) = 2018 Waste Reduced and Recycled (170,699) + 2018 Waste Disposed (234,333)
2018 Waste Reduction and Recycling Rate (42.14%) = 2018 Waste Reduced and Recycled (170,699) / 2018 Waste Generated (405,032).

The District's total WRR slowly increases during the planning period, from an overall rate of 40.89% in 2015 to 42.94% in 2032.

APPENDIX L MINIMUM REQUIRED EDUCATION PROGRAMS: OUTREACH AND MARKETING PLAN AND GENERAL EDUCATION REQUIREMENTS

The 2009 State Plan requires each SWMD to comply with certain minimum education and outreach requirements to advance Goal 3 and Goal 4 as noted below:

Goal 3: Waste Reduction and Recycling Rates. The SWMD shall provide the following required programs:

- A website;
- A comprehensive resource guide;
- An inventory of available infrastructure; and
- A speaker or presenter.

Goal 4: Outreach and Education – Outreach Plan and General Requirements. The SWMD shall provide education, outreach, marketing, and technical assistance regarding reduction, recycling, composting, reuse, and other alternative waste management methods to target audiences using best practices.

A. Minimum Required Education Programs

1. Web Page

There are a number of websites in the District that provide information about recycling opportunities available to residents and businesses.

Name	Start Date	End Date	Goal
Lake County Solid Waste District Webpage	Existing	Ongoing	3

The SWMD has a page on the Lake County website:

http://www.lakecountyohio.gov/utilities/Divisions/SolidWaste/SolidWasteDistrict/tabid/359/Default.aspx

- The webpage is updated as needed, at least annually, and is maintained by the District Coordinator.
- The website includes an explanation/overview of the District's duties and goals, and provides informational pages on the pharmaceutical disposal program, the Business Waste Reduction Committee, and the education outreach efforts conducted by the Lake County OSU Extension.
- As the Solid Waste Management District is an entity under the Lake County Utilities Department, the County's webpage that has the tab for the Solid Waste Management District also has a tab for the County Solid Waste Division webpage. The Division's webpage includes information on the landfill history, hours and pricing for recycling programs, a link to the Landfill's special collection events calendar. There are also links to each of the community programs, haulers available to the County, and a link to the OSU extension page.
- The Policy Committee will work with the County Utilities Department in 2018 and 2019 to reformat the current website to be more user friendly, provide access information more easily,

and include the recycling annual surveys in an electronic format. The Utilities Department includes staff members with expertise in marketing and information technology, and the District is able to collaborate with them on website improvements.

- The District Coordinator will continue to expand and update the content on the website as needed. In addition, the District has a new Facebook page that will be used to expand the District's online outreach.
- The District relies on cross links with the local communities to increase awareness at the local level and drive residents and businesses to the District's website.

Name	Start Date	End Date	Goal
Lake County General Health District Webpage	Existing	Ongoing	3

The Lake County General Health District also provides a significant amount of information on their website related to solid waste. https://www.lcghd.org/?page_id=4196

Under the topic of Environmental Health > Solid Waste, the LCGHD has web pages for compost sites, construction and demolition debris, infectious waste, landfill and recycling and pharmaceutical recycling. Guidance and fact sheets are provided on these webpages. The LCGHD updates this information as needed, and at least once a year.

Name	Start Date	End Date	Goal
Local Jurisdictions Webpages	Existing	Ongoing	3

Most of the local jurisdictions post information on the community's recycling program. Some provide links to the Recycling Resource Guide, and to the District's and OSU Extension's websites.

2. Comprehensive Resource Guide

Name	Start Date	End Date	Goal
Lake County Solid Waste District Resource Guide	Existing	Ongoing	3

The Lake County Solid Waste Management District maintains a guide of recycling options posted on its website. The 12-page pdf document (last updated in June 2017) provides a comprehensive list of recycling/collection facilities, County facilities, and local area businesses with drop-off sites for numerous types of recyclable materials, including: Aluminum cans, aluminum foil, antifreeze, appliances, asphalt, auto fluids, batteries (vehicle, dry cell and NiCad/rechargeable), brush, bubble wrap, cardboard, cell phones, compact discs, compact fluorescent bulbs, computers, concrete, document shredding, electronics, ferrous metals, fluorescent bulbs, game consoles, grass clippings, household hazardous waste, ink jet cartridges, leafs, mercury thermostats and thermometers, used motor oil, office machines, packing peanuts, phone books, plastic bags (#2 and #4), plastic plant trays and pots, stone, Styrofoam, televisions, tires, toner cartridges, used oil filters, and yard waste.

The guide is posted on the District's website
http://www.lakecountyohio.gov/utilities/Divisions/SolidWasteDivision/CommunityRecyclingOptions.aspx
It is updated annually to ensure the information stays accurate. Many local communities provide a link to the resource guide on their website.

3. Infrastructure Inventory

Name	Start Date	End Date	Goal
Lake County Solid Waste District Inventory	Existing	Ongoing	3

The Lake County Solid Waste Division (responsible for the County landfill) and the District maintain a list of the infrastructure inventory as part of the solid waste management plan. The websites also provide an inventory including the landfill, links to community websites, and service providers. The Lake County Department of Utilities is responsible for maintaining and updating the inventories.

4. Speaker/Presenter

Name	Start Date	End Date	Goal
Ohio State University Extension	Existing	Ongoing	3

The District contracts with the OSU Extension for educational programming. An OSU Program Assistant prepares and leads monthly programs and activities to help students learn about litter prevention, reduction, re-using and recycling. In addition, OSU Program Assistant attends a number of special events where she is able to distribute educational literature to help event attendees understand the importance and need for recycling.

In the reference year (2015) the OSU Program Assistant reached 8,377 participants, conducted 389 programs (15 different topics); 335 of which were monthly programming at 14 elementary schools in 4 school districts, speaking to kindergartens through 4th graders. She also attended the following events with a display table and giveaways:

- America Recycles Day event @ Mentor Library
- Beach Cleanup at Fairport Beach
- Beach Fest at Headland's Beach
- City of Mentor Earth Day
- Cityfest at Mentor Civic Center
- Earth Day at Penitentiary Glen
- Extreme Recess @ Civic Center
- Go Green Night at the Captain's Game
- Kirtland Garden Club
- Mentor Library story hour

Current programming/strategies that will continue throughout the planning period include:

1. In Class Recycling Education Programs – Offered to K-3 grades, OSU Extension provides monthly in-class programs about recycling topics from October to May annually. In 2015, 14 schools in four school districts received the programs and the District anticipates that two more schools will be added by 2019. The programs include topics such as making paper and "Green Jeopardy". Teachers evaluate the program each year for OSU to consider refinements.
2. Speaker at Special Events. The Program Assistant will continue to be available to speak as needed at special events.
3. Clean and Green Lake County Poster Contest. This is an annual contest sponsored by the LCSWD for children in kindergarten through high school throughout Lake County.
4. Fiber Collection Assistance. The OSU Extension office also provides assistance with fiber collection programs at county and local governments, public and private schools, religious and non-profit organizations.

In 2015, OSU Extension distributed over 7,500 baseball cards, book markers and flyers that provided recycling information, special collection events dates and the hotline number.

B. Outreach and Marketing Plan

The District has an outreach and marketing plan that provides education, outreach, marketing, and technical assistance[4] regarding reduction and reuse to the five target audiences required by the State's 2009 Plan: the residential sector, commercial/institutional sector, industrial sector, political leaders and schools. The following section describes the programs the District will provide, which were developed based on the strategic analyses described in Appendix H.

The ultimate goal of the District's efforts is to get more people to participate in recycling programs and recycle more waste. To do this, the District will emphasize changing residents' and businesses' behaviors so they aren't just aware of the recycling resources available within the District but will also actively participate in the programs in order to help the district achieve its overarching goals.

1. Residential Sector

As of 2016, residents in every local community have access to curbside recycling – 11 communities have nonsubscription service and 12 have subscription service – plus there are some, though limited, opportunities for recycling at drop-off sites. Therefore the goals of the district's outreach and marketing plan directed toward the residential sector are to increase awareness of each household's opportunity for recycling, and then provide them with the understanding and motivation to actively participate in the local programs in order to increase recycling and decrease the amount of material disposed at landfills.

Name	Start Date	End Date	Goal
Go Green With the Captains	Existing	Ongoing	4

The District has participated in this program (also discussed in Appendix H as a "large facility" program) since1993. In addition to the recycling plan that was established for the Lake County Captains at Classic Park, this program also targets the residential sector for education and outreach on recycling initiatives. This program markets programs and existing infrastructure, educates with fact sheets and technical assistance on how to recycle and reaches a large residential audience in Lake County.

The District has an exhibit booth with giveaways, fact sheets and activities; and each fan receives a District promotional item at the stadium's entrance when they arrive at the ballgame. The scoreboard lights up the dates of the District's special collections and recycling facts.

Having this booth gives the District the opportunity to interact face-to-face with residents and learn specifically about their recycling habits. The District will work with the OSU Program Assistant to update the outreach materials and develop informal survey forms in order to learn why Lake County residents do

[4] Education, outreach, and technical assistance as used in this Plan, are defined as follows:
Education generally refers to conveying information or knowledge. Examples of education include pamphlets, brochures, webpages, newsletters, fact sheets, direct mail, bill stuffers, seminars, and workshops.
Outreach generally refers to building relationships with people in order to advise them about a topic. Outreach engages people through a variety of means intended to foster collaboration and participation in addressing the topic of concern.
Technical assistance refers to providing help and support. Examples include working with a community on a contract for recycling service, conducting a waste audit for a business, and helping a resident find a recycling drop-off.

or do not recycle. The District will develop materials that provide details each community's recycling services.

Because all residents have access to either nonsubscription or subscription curbside service, specific questionnaires will be developed for each type in order to learn about the different reasons why people do or do not recycle when they have nonsubscription curbside service (and are already paying for it) and why those with subscription curbside service do or do not subscribe. The District has not conducted such as survey, so it will be enlightening to obtain and analyze the results.

Things to ask on the questionnaires:

- Which community do they reside in, do they have access to a nonsubscription or subscription curbside recycling service (if they don't know, the community information will be available so they can know), and do they use the service?
- If they don't use the service, why don't they?
    - What are their barriers to recycling?
    - What would convince them to recycle?
- If they do use the service, why do they?
    - How often do they use a recycling service?
    - If regularly, then find out what motivates them to recycle?
    - Do they know what is acceptable to recycle and what is not?
    - Do they recycle everything that is accepted through their recycling service?
    - Do they recycle things that aren't accepted through their recycling service?

Once the District accumulates information on residents' views and habits, then the District will develop marketing materials to address the barriers to recycling, knowledge (or lack of knowledge) about what is acceptable, etc. and then pair that with information obtained from the haulers on contamination rates.

The District will work with OSU Extension to develop metrics for the event, keep track of the number of survey participants, and over time, identify trends in responses compared to changes in amounts of recycling tonnage reported for each community in the District.

Name	Start Date	End Date	Goal
Outreach at Libraries and Senior Centers	2018	Ongoing	4 & 5

The District will implement an adult education program at the 12 local libraries and senior centers around Lake County to target residents living in the District. Based on the decline in ability to market recyclable materials, the District will develop a marketing message that focuses on contamination in recycling to help residents understand the hidden costs, the consequences of contamination to recyclable materials and how to improve their recycling habits, and details on special collections held by the District where they can take items typically not accepted as part of their curbside recycling program.

This program will include:

- Developing special exhibits about the typical recyclable materials collected in the various curbside recycling services, unacceptable materials that cause contamination, and ways to dispose of the unrecyclable items that can be left on display at a location for a few months. This will entail creating three versions of the display.
- A special program will be developed that will include a speaker (OSU program assistant) who will be available to speak at each of the public libraries once a year. At the end of the program, the speaker will distribute the same questionnaire developed for the "Go Green with the Captains" program described above.

- The District will develop and distribute a durable flyer or other materials that can easily be displayed at homes, on refrigerators, etc. to remind residents of the types of items that can and cannot be placed in their recycling bins.

Name	Start Date	End Date	Goal
Recycling Hotline Inquiries	Existing	Ongoing	4, 5 & 6

The OSU Extension Lake County office fields telephone calls from residents concerning HHW buying practices and disposal. This provides the residents with human contact to answer their questions and concerns instead of a recorded device. Each question can raise a host of additional questions not accessible with a recording. The offices are open from 8:30 am until 4:30pm Monday through Friday. After hours calls are set up so that messages are taken and the caller is then contacted the following work day, thus providing a 24 hour service.

This program will continue during the planning period. The District will coordinate with OSU Extension to quantify the number of calls received, document the types of questions and create a Frequently Asked Questions section for its website where it can post the answers to FAQ.

Name	Start Date	End Date	Goal
Announcements of Special Collection Events	Existing	Ongoing	4

The District markets/advertises its special collection events in a number of ways in order to broadcast the programs throughout the entire District. In 2015, the District spent approximately $7,000 on special collection announcements in two local newspapers, three periodicals and printed schedules that were distributed to all of the communities and their service directors. In addition, information on the special collections, and the collection calendar is posted on the District's website, OSU's website, distributed to local communities so they can post on their websites and press releases sent to local cable channels.

These announcements will continue, but the District will expand its use of social media to spread the word about the special collections.

Name	Start Date	End Date	Goal
Clean and Green Lake County Cleanup Program	Existing	Ongoing	4

In April and May 2015, the District in partnership with the Lake County Commissioners held its annual clean and green cleanup program, and associated poster contest (see below).

Each year, the Commissioners declare a six week period in early spring as the Clean and Green Lake County program timeframe. The Commissioners encourage residents, businesses and civic organizations to identify areas in their neighborhoods in need of attention and to undertake clean-up activities. The District provided bags and gloves for residents to participate in the cleanup program. The District schedules its annual special scrap tire collection on one of the weekends during the event and the electronics special collection during another weekend in order to assist residents in the clean-up efforts.

2. Commercial/Institutional Sector

Name	Start Date	End Date	Goal
Business Waste Reduction Committee	Existing	Ongoing	4

In the planning period, the Policy Committee has put an emphasis on reinvigorating the BWRC in order to enhance outreach to the business community and the industrial manufacturing sector, which has been inactive for the past few years. In the past, the BWRC's main tasks were focused on the Lake County Captains recycling day and providing education and recycling information for the commercial and industrial sectors.

With a commitment to reinvigorating the BWRC, the Policy Committee will begin by doubling the membership (currently comprised of six people who are affiliated with the District) to add members from the commercial and industrial sectors. Once the committee membership is expanded, the BWRC will spend the first few meetings (meeting every two months) developing its work plan, which will include: prioritizing its short-term and long-term areas of focus, identifying strategies and metrics that it will use to measure success, develop a specific action plan.

Three of the primary goals of the BWRC are to:

- Promote the successes of the Lake County business community in recycling and reducing waste. This will be achieved by reinstituting the Environmental Steward Award to publicly recognize businesses that show exemplary success in the recycling efforts. The BWRC will develop the recognition program with input from businesses to determine how best to market the award program, advertise the criteria and celebrate the winners.
- Provide value-added services that are instrumental in helping businesses succeed at recycling. The BWRC will achieve this by promoting the state's market waste exchange through a targeted social media campaign aimed businesses who are most likely to benefit from the exchange, distributing information on recycling opportunities – both on the District's website and through social media, and providing technical assistance regarding source reduction to the District's major solid waste generators in the commercial and industrial sectors. Based on the District's surveys, businesses in five NAICS
- Develop an online survey form to encourage local businesses to report their recycling amounts. The survey will also ask those that say they don't recycle, why they do not recycle. Feedback from the 2016 survey indicates that for the 18% of the survey respondents who indicated they do not recycle, the most common response was they do not want to pay for a recycling service.

3. Industrial Sector

Name	Start Date	End Date	Goal
BWRC	Existing	Ongoing	4

This program is discussed above under the Commercial/Institutional Sector. The Policy Committee will focus on appointing additional members to the committee including people who represent local industries.

4. Political Leaders

As previously noted, the greatest challenge the District faces in making improvements to the overall residential diversion rate is its lack of direct authority over the local residential collection systems. Therefore, the District must maximize its role as educator, motivator and mediator to encourage more effective curbside collection programs. The District must foster the cooperation and buy-in from all stakeholders, including: elected officials, service directors, residents, and service providers. The District seeks to engage political leaders in the following efforts with the specific goal to increase residential recycling rates.

Name	Start Date	End Date	Goal
Annual Survey	Existing	Ongoing	4

The annual survey that OSU extension administers to all of Lake County Solid Waste District's 23 communities serves not only to gather the necessary data (as discussed in Appendix I), but also to engage community leaders and provide opportunities for outreach. Several enhancements are planned for the planning period. The first is offering the survey through the District website. In addition to providing ease of access for communities, it will also lead city, village, and township representatives to the District's webpage ensuring that they will be kept up to date on all of the District's programs and initiatives.

Name	Start Date	End Date	Goal
Community Meetings with Service Directors and Elected Officials	Existing	Ongoing	4

In 2015, the District held its annual meeting with service directors and local officials with the primary goal of soliciting cooperation in gathering data for the annual survey of recycling tonnage. As part of the Strategic Analysis in Appendix H, the District understands that to achieve its recycling goals in the absence of financial incentives, a network of informed elected officials is necessary. To achieve this goal, the District will expand its efforts to bring local communities together to not only gather more and better data, but also to share information, and hopefully collaborate on joint efforts to maximize grant-funded opportunities.

At these meetings, the District will be able to discuss and address any concerns that the communities or their residents may have and identify ways to increase recycling objectives such as providing incentives. This conversation serves to establish an open dialogue and deepen the relationship between the District and the individual communities to meet their needs as well as impart the necessity of their participation in recycling efforts for the District.

Discussions and sharing lessons learned and best practices, will provide elected officials and their representatives with the tools and understanding to implement sound waste management practices within their communities. Depending on the success of these meetings, the District will identify potential speakers to present topics that reflect those issues considered by the local communities to have the greatest impact on their solid waste and recycling performance. Although the Service Directors are the targeted participants, communities will be encouraged to select additional representatives to participate in these sessions as well. Individual assistance would also be provided on an as needed basis.

It is hoped that by sharing success stories and resolving service issues, the District will foster the growth of more non-subscription collection programs during the planning period.

Name	Start Date	End Date	Goal
Local Communities' Websites	Existing	Ongoing	4

The District relies on cross links with the local communities to increase awareness at the local level and drive residents and businesses to the District's website. The District's goal for the planning period is to work with the local communities to develop a consistent message throughout the District about how to recycle properly and to better equip residents with knowledge of the various options available to them.

To accomplish this goal, the District will work with the communities and service directors at the meetings discussed above, to identify the most important types of information that should be made available to residents. The Policy Committee believes that one of the major topics to disseminate is about contamination. Regardless of the topic to pursue, consistent education is key. The District will work with the service directors to develop a common set of recycling instructions that apply to every community and encourage all communities to make the information available to residents via their websites.

5. Schools

Name	Start Date	End Date	Goal
In Class Recycling Education Programs	Existing	Ongoing	3 & 4

Lake County's Ohio State University Extension and the Solid Waste District work collaboratively to support education programs that teach elementary students how they can help the earth. Through monthly activities, students learn about litter prevention, reduction, re-using and recycling. OSU Program Assistant leads programs that educate students on how plastics are not all equal. These types of programs ignite family discussions on recycling and enhance students' understanding of preserving landfill space. Thus these educational programs reach not only school children but also the families of these children! Current strategies that will continue throughout the planning period include:

1. Clean and Green Lake County Poster Contest – Annual contest sponsored by the LCSWD for children in kindergarten through high school throughout Lake County. The purpose it to promote recycling education and an anti-littering/cleanup message with a focus on Lake County through a competition to create a logo to be used by the District. School Principles and Art Teachers are contacted in autumn with participation instructions. Deadline for submissions is March and winners are selected by the County Commissioners from the three divisions (K-5th grade, middle school and high school). The all-around winner's logo is used in District advertising/promotion and giveaways. Historically participation has been approximately 900 entries coming from across the county.

Enhancements to the program during the planning period include:

- Advertising the contest on the District's website
- Including additional prizes for the winners in order to entice more participants(perhaps financially supported by a sponsor)
- Develop giveaways using the artwork from prior winners (calendar, coloring books etc.), which will include increasing the budget for additional giveaways

2. In Class Recycling Education Programs – Offered to K-3 grades, OSU Extension provides monthly in-class programs about recycling topics from October to May annually. In 2015, 14 schools received the programs and the District anticipates that two more schools will be added by 2019. The programs include topics such as making paper and "Green Jeopardy". Teachers evaluate the program each year for OSU to consider refinements. The programs not only teach students the importance of recycling but also show them how to recycle, for instance they are taught how to identify and sort recyclables. Educating children at a young age eliminates barriers to recycling in the long run that you often hear from adults; for instance, that recycling is too complicated.

OSU Extension maintains detailed records of its programming, and the data indicate that the interest in these programs has continued to increase.

C. Outreach Priority

Name	Start Date	End Date	Goal
Multi Family Recycling Pilot	2019	2023	1, 2 & 5

After assessing recycling programs for each target audience, the policy committee has identified the challenges (see Appendix H), and determined that while residential recycling programs provide adequate infrastructure to traditional single-family households in the County, the challenge continues to be incentivizing multi-family apartments to participate. Maintaining curbside recycling is a high priority, but the Policy Committee recognizes that there are a number of households in the county that live in apartment buildings and these types of housing units typically do not offer recycling services. Residents of the apartment buildings are at the mercy of the decisions that their property managers make in terms of curbside service and they have been underserved.

The Plan calls for establishing a recycling pilot program in 2019. The BWRC will conduct an outreach campaign in the three cities where the multi-family developments are most concentrated (Mentor, Willoughby and Willoughby Hills). The BWRC will obtain the list of property management firms in each city and distribute information about the pilot program. The BWRC will work with two interested property management firms to establish a contract with a private recycling hauler with a commitment of 2 years, and the BWRC will enter into a Memorandum of Understanding with the property manager to reimburse the firm 6 months' worth of the cost (up to $5,000). The BWRC will be responsible for providing outreach materials and guides to property management companies and will engage with them to market the program to their residents.

Success will be determined by the number of apartment buildings that begin service. The onus will then be on the property management company to advertise the service to their residents, though the District and OSU will supplement the companies with education and outreach materials, including materials that can be emailed to residents as a follow-up once the program has begun.

APPENDIX M WASTE MANAGEMENT CAPACITY ANALYSIS

A. Access to Publicly-Available Landfill Facilities

Table M-1 Remaining Operating Life of Publicly-Available Landfills

Facility	Location	Years of Remaining Capacity
Lake County Solid Waste Facility	Lake	35.0
Lorain County Landfill LLC	Lorain	11.7
Carbon Limestone Landfill LLC	Mahoning	60.7
Port Clinton Landfill, Inc	Ottawa	68.0
Countywide Recycling & Disposal Facility	Stark	75.6
Kimble Sanitary Landfill	Tuscarawas	30.8
Evergreen Recycling & Disposal	Wood	35.5
Geneva Landfill	Ashtabula	85.9
American Landfill, Inc.	Stark	84.5
Pine Grove Regional Facility	Fairfield	60.1
Cherokee Run Landfill	Logan	29.1

Source(s) of Information: Lake County 2016 PTI; and OEPA Facility Data Report Tables, 2015 and 2014.

Over the past three years, the SWMD disposed waste in 11 different in-state landfills. The majority of the SWMD's waste (88%) was disposed in-district at the Lake County Solid Waste Facility in Painesville Township. Lake County owns this facility. To demonstrate the SWMD has adequate disposal capacity the landfill that historically took the largest amounts of the SWMD's waste must have adequate remaining life for the first eight years of the planning period.

The facility will provide the necessary disposal capacity for District waste and capacity for the disposal of out-of-District waste as well. In 2009, a policy statement regarding the disposal of waste at the facility was adopted by the District that states:

"The Lake County Solid Waste Facility shall accept all solid waste generated within Lake County and routed to the facility for disposal. Out-of-District waste will be accepted at the facility with the following provisions:

- The County would set the amount of Out-of-District waste, such that the total amount of Lake County waste and Out-of-District waste not exceed 400,400 tons per year.
- Whenever the life expectancy of the landfill falls below 5 years, the Solid Waste Plan will be modified to incorporate volume developed from adjacent county owned property and a PTI (Permit to Install) applied for from the Ohio Environmental Protection Agency for not less than a 10 year period. The Solid Waste Policy Committee will review the policy relative to the Out-of-District waste during its required plan review process. The review will take into consideration: 1) public health and environmental impact on Lake County, 2) projected life expectancy of the landfill, 3) financial impact on Lake County, 4) current and proposed EPA rules relative to operation and siting of landfills, and 5) every five (5) years the plan will be reviewed by the District.
- Lake County, as owner/operator of the landfill, will develop the arrangements for obtaining Out-of-District waste as part of the District Plan.

- The owners/operators of the Lake County Solid Waste Facility will develop guidelines, rules, and policies to ensure to the extent possible that the contributing Out-of-District solid waste meets all HB592 requirements relative to recycling and prohibitive wastes.
- The Lake County Solid Waste Facility will develop inspections, monitoring, and enforcement procedures related to Out-of-District waste consistent with HB592 provisions.

In 2015, the Lake County Solid Waste Facility had only 5 years of capacity remaining. In 2016, Lake County applied and was approved for a new permit-to-install (PTI) in order to increase capacity at the landfill. This permit expands the landfill by 7.4 million cubic yards of airspace extending the life of the landfill by roughly 35 years. However, the landfill does not accept industrial waste, so it is important to ensure there is capacity at nearby landfills. In the last three years, the majority of industrial waste has been disposed at three landfills: Lorain County Landfill, Geneva Landfill and American Landfill. All three of these facilities had over 11 years of capacity remaining at the end of 2015.

The first 8 years of the SWMD's planning period are 2018 through 2025. The Lake County Solid Waste Facility and the three landfills that accept the majority of the SWMD's industrial waste all have adequate remaining life to manage the SWMD's waste.

B. Access to Captive Landfill Facilities

There are no captive landfills within the SWMD.

C. Incinerators and Energy Recovery Facilities

The SWMD does not account for incinerated waste as it is less than 1% of waste generated. No entity within the SWMD is exploring alternative waste options that involve technologies to use waste to produce energy such as waste derived fuels, pyrolysis, gasification or incineration with energy recovery.

D. Schedule for Closure or Expansion of Existing Solid Waste Facilities and Establishment of New Facilities.

In 2016, Lake County applied and was approved for a new permit-to-install (PTI) in order to increase capacity at the landfill. This permit expands the landfill by 7.4 million cubic yards of airspace extending the life of the landfill by roughly 35 years. The District does not anticipate the need to close or expand the Lake County Landfill during the planning period, or to establish a new facility.

APPENDIX N EVALUATING GREENHOUSE GAS EMISSIONS

WARM is a tool that U.S. EPA developed to quantify the effects of waste management decision on greenhouse gas emissions. The model demonstrates the benefits of alternative management technologies over traditional management methods. WARM was applied to the reference year data and data projected for the sixth year of the planning period (year 2023). Only residential/commercial waste has been included in this analysis.

Not all SWMD reported recycling and waste had specific material composition breakdown as identified in WARM's model material composition categories. Some of the category totals were combined to create corresponding input entries available in WARM. For instance, the "Mixed Metals" waste category in Table N-1 represents the sum of the estimated tonnages for ferrous metals, non-ferrous metals and appliances.

Table N-1 shows the waste categories as well as the amounts recycled, landfilled, and composted which were entered into the model.

Table N-1. Inputs of Quantities of Recycled Materials for WARM: 2015 and 2023

WARM Waste Category	2015	2023
Glass	2,635	3,489
Corrugated Containers	12,465	16,504
Yard Trimmings	47,954	63,492
Mixed Paper General	7,843	10,384
Mixed Metals	7,392	9,787
Mixed Plastics	2,426	3,212
Mixed Recyclables	3,446	4,563
Food Waste	649	859
Personal Computers	28	37
Tires	1,403	1,857

The results from the WARM exercise are included on the following pages. Scenario 1 illustrates the results for reference year 2015 recycled waste and Scenario 2 illustrates the results for anticipated recycled waste in year 2023.

Scenario 1- 2015: Summary Report (MTCO2E)

GHG Emissions from Baseline Waste Management ($MTCO_2E$): (3,924)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$
Glass	-	2,635.0	-	NA	NA	53
Corrugated Containers	-	12,465.0	-	NA	NA	2,928
Yard Trimmings	NA	47,954.0	-	-	-	(8,623)
Mixed Paper (general)	-	7,843.0	-	NA	NA	992
Mixed Metals	-	7,392.0	-	NA	NA	150
Mixed Plastics	-	2,426.0	-	NA	NA	49
Mixed Recyclables	-	3,446.0	-	NA	NA	145
Food Waste	NA	649.0	-	-	-	353
Personal Computers	-	28.0	-	NA	NA	1
Tires	-	1,403.0	-	NA	NA	28

GHG Emissions from Alternative Waste Management Scenario ($MTCO_2E$): (119,349)

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$	Change (Alt - Base) $MTCO_2E$
Glass	-	2,635.0	-	-	NA	NA	(729)	(782)
Corrugated Containers	-	12,465.0	-	-	NA	NA	(38,899)	(41,827)
Yard Trimmings	NA	NA	-	-	47,954.0	-	(7,016)	1,606
Mixed Paper (general)	-	7,843.0	-	-	NA	NA	(27,692)	(28,684)
Mixed Metals	-	7,392.0	-	-	NA	NA	(32,084)	(32,234)
Mixed Plastics	-	2,426.0	-	-	NA	NA	(2,481)	(2,531)
Mixed Recyclables	NA	3,446.0	-	-	NA	NA	(9,735)	(9,880)
Food Waste	-	NA	-	-	649.0	-	(114)	(467)
Personal Computers	-	28.0	-	-	NA	NA	(70)	(71)
Tires	-	1,403.0	-	-	NA	NA	(528)	(556)

Total Change in GHG Emissions ($MTCO_2E$): (115,425)

This is equivalent to...

Removing annual emissions from	**24,300**	Passenger Vehicles
Conserving	**12,988,081**	Gallons of Gasoline
Conserving	**4,809,378**	Cylinders of Propane Used for Home Barbeques
Conserving	**619**	Railway Cars of Coal
	0.00664%	Annual CO_2 emissions from the U.S. transportation sector
	0.00571%	Annual CO_2 emissions from the U.S. electricity sector

Scenario 1 2015: Summary Report (energy)

Energy Use from Baseline Waste Management (million BTU): **5,352**

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU
Glass	-	2,635.0	-	NA	NA	707
Corrugated Containers	-	12,465.0	-	NA	NA	(3,060)
Yard Trimmings	NA	47,954.0	-	-	-	6,563
Mixed Paper (general)	-	7,843.0	-	NA	NA	(1,623)
Mixed Metals	-	7,392.0	-	NA	NA	1,983
Mixed Plastics	-	2,426.0	-	NA	NA	651
Mixed Recyclables	-	3,446.0	-	NA	NA	(237)
Food Waste	NA	649.0	-	-	-	(15)
Personal Computers	-	28.0	-	NA	NA	8
Tires	-	1,403.0	-	NA	NA	376

Energy Use from Alternative Waste Management Scenario (million BTU): **(964,398)**

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU	Change (Alt - Base) Million BTU
Glass	-	2,635.0	-	-	NA	NA	(5,600)	(6,307)
Corrugated Containers	-	12,465.0	-	-	NA	NA	(187,903)	(184,843)
Yard Trimmings	NA	NA	-	-	47,954.0	-	28,005	21,442
Mixed Paper (general)	-	7,843.0	-	-	NA	NA	(160,401)	(158,778)
Mixed Metals	-	7,392.0	-	-	NA	NA	(487,764)	(489,747)
Mixed Plastics	-	2,426.0	-	-	NA	NA	(94,219)	(94,870)
Mixed Recyclables	NA	3,446.0	-	-	NA	NA	(51,084)	(50,847)
Food Waste	-	NA	-	-	649.0	-	379	394
Personal Computers	-	28.0	-	-	NA	NA	(816)	(824)
Tires	-	1,403.0	-	-	NA	NA	(4,995)	(5,371)

Total Change in Energy Use (million BTU): **(969,750)**

This is equivalent to...

Conserving	**8,432**	Households' Annual Energy Consumption
Conserving	**166,910**	Barrels of Oil
Conserving	**7,805,577**	Gallons of Gasoline

Scenario 1 2015: Summary Report (MTCE)

GHG Emissions from Baseline Waste Management (MTCE): **(1,070)**

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total MTCE
Glass	-	2,635.0	-	NA	NA	15
Corrugated Containers	-	12,465.0	-	NA	NA	799
Yard Trimmings	NA	47,954.0	-	-	-	(2,352)
Mixed Paper (general)	-	7,843.0	-	NA	NA	271
Mixed Metals	-	7,392.0	-	NA	NA	41
Mixed Plastics	-	2,426.0	-	NA	NA	13
Mixed Recyclables	-	3,446.0	-	NA	NA	40
Food Waste	NA	649.0	-	-	-	96
Personal Computers	-	28.0	-	NA	NA	0
Tires	-	1,403.0	-	NA	NA	8

GHG Emissions from Alternative Waste Management Scenario (MTCE): **(32,550)**

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total MTCE	Change (Alt - Base) MTCE
Glass	-	2,635.0	-	-	NA	NA	(199)	(213)
Corrugated Containers	-	12,465.0	-	-	NA	NA	(10,609)	(11,407)
Yard Trimmings	NA	NA	-	-	47,954.0	-	(1,914)	438
Mixed Paper (general)	-	7,843.0	-	-	NA	NA	(7,552)	(7,823)
Mixed Metals	-	7,392.0	-	-	NA	NA	(8,750)	(8,791)
Mixed Plastics	-	2,426.0	-	-	NA	NA	(677)	(690)
Mixed Recyclables	NA	3,446.0	-	-	NA	NA	(2,655)	(2,694)
Food Waste	-	NA	-	-	649.0	-	(31)	(127)
Personal Computers	-	28.0	-	-	NA	NA	(19)	(19)
Tires	-	1,403.0	-	-	NA	NA	(144)	(152)

Total Change in GHG Emissions (MTCE): **(31,480)**

This is equivalent to...		
Removing annual emissions from	**24,300**	Passenger Vehicles
Conserving	**12,988,081**	Gallons of Gasoline
Conserving	**4,809,378**	Cylinders of Propane Used for Home Barbeques
Conserving	**619**	Railway Cars of Coal
	0.00664%	Annual CO_2 emissions from the U.S. transportation sector
	0.00571%	Annual CO2 emissions from the U.S. electricity sector

Scenario 2 2023: Summary Report (MTCO2E)

GHG Emissions from Baseline Waste Management ($MTCO_2E$): (5,090)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$
Glass	-	3,489.0	-	NA	NA	71
Corrugated Containers	-	16,504.0	-	NA	NA	3,877
Yard Trimmings	NA	-	-	63,492.0	-	(9,290)
Mixed Paper (general)	-	3,744.0	-	NA	NA	474
Mixed Metals	-	10,384.0	-	NA	NA	210
Mixed Plastics	-	9,787.0	-	NA	NA	198
Mixed Recyclables	-	3,212.0	-	NA	NA	135
Food Waste	NA	-	-	4,563.0	-	(803)
Personal Computers	-	37.0	-	NA	NA	1
Tires	-	1,857.0	-	NA	NA	38

GHG Emissions from Alternative Waste Management Scenario ($MTCO_2E$): (140,727)

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$	Change (Alt - Base) $MTCO_2E$
Glass	-	3,489.0	-	-	NA	NA	(965)	(1,035)
Corrugated Containers	-	16,504.0	-	-	NA	NA	(51,503)	(55,380)
Yard Trimmings	NA	NA	-	-	63,492.0	-	(9,290)	0
Mixed Paper (general)	-	3,744.0	-	-	NA	NA	(13,219)	(13,693)
Mixed Metals	-	10,384.0	-	-	NA	NA	(45,071)	(45,281)
Mixed Plastics	-	9,787.0	-	-	NA	NA	(10,011)	(10,209)
Mixed Recyclables	NA	3,212.0	-	-	NA	NA	(9,074)	(9,209)
Food Waste	-	NA	-	-	4,563.0	-	(803)	0
Personal Computers	-	37.0	-	-	NA	NA	(93)	(93)
Tires	-	1,857.0	-	-	NA	NA	(699)	(736)

Total Change in GHG Emissions ($MTCO_2E$): (135,637)

This is equivalent to...

Removing annual emissions from	**28,555**	Passenger Vehicles
Conserving	**15,262,432**	Gallons of Gasoline
Conserving	**5,651,551**	Cylinders of Propane Used for Home Barbeques
Conserving	**727**	Railway Cars of Coal
	0.00780%	Annual CO_2 emissions from the U.S. transportation sector
	0.00671%	Annual CO_2 emissions from the U.S. electricity sector

Scenario 2 2023: Summary Report (energy)

Energy Use from Baseline Waste Management (million BTU): **41,552**

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU
Glass	-	3,489.0	-	NA	NA	936
Corrugated Containers	-	16,504.0	-	NA	NA	(4,052)
Yard Trimmings	NA	-	-	63,492.0	-	37,079
Mixed Paper (general)	-	3,744.0	-	NA	NA	(775)
Mixed Metals	-	10,384.0	-	NA	NA	2,786
Mixed Plastics	-	9,787.0	-	NA	NA	2,626
Mixed Recyclables	-	3,212.0	-	NA	NA	(221)
Food Waste	NA	-	-	4,563.0	-	2,665
Personal Computers	-	37.0	-	NA	NA	10
Tires	-	1,857.0	-	NA	NA	498

Energy Use from Alternative Waste Management Scenario (million BTU): **(1,413,626)**

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU	Change (Alt - Base) Million BTU
Glass	-	3,489.0	-	-	NA	NA	(7,416)	(8,352)
Corrugated Containers	-	16,504.0	-	-	NA	NA	(248,788)	(244,737)
Yard Trimmings	NA	NA	-	-	63,492.0	-	37,079	0
Mixed Paper (general)	-	3,744.0	-	-	NA	NA	(76,570)	(75,795)
Mixed Metals	-	10,384.0	-	-	NA	NA	(685,192)	(687,978)
Mixed Plastics	-	9,787.0	-	-	NA	NA	(380,099)	(382,724)
Mixed Recyclables	NA	3,212.0	-	-	NA	NA	(47,615)	(47,394)
Food Waste	-	NA	-	-	4,563.0	-	2,665	0
Personal Computers	-	37.0	-	-	NA	NA	(1,079)	(1,089)
Tires	-	1,857.0	-	-	NA	NA	(6,611)	(7,110)

Total Change in Energy Use (million BTU): **1,455,179**

This is equivalent to...		
Conserving	**12,653**	Households' Annual Energy Consumption
Conserving	**250,461**	Barrels of Oil
Conserving	**11,712,821**	Gallons of Gasoline

Scenario 2 2023: Summary Report MTCE

GHG Emissions from Baseline Waste Management (MTCE): **(1,388)**

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total MTCE
Glass	-	3,489.0	-	NA	NA	19
Corrugated Containers	-	16,504.0	-	NA	NA	1,057
Yard Trimmings	NA	-	-	63,492.0	-	(2,534)
Mixed Paper (general)	-	3,744.0	-	NA	NA	129
Mixed Metals	-	10,384.0	-	NA	NA	57
Mixed Plastics	-	9,787.0	-	NA	NA	54
Mixed Recyclables	-	3,212.0	-	NA	NA	37
Food Waste	NA	-	-	4,563.0	-	(219)
Personal Computers	-	37.0	-	NA	NA	0
Tires	-	1,857.0	-	NA	NA	10

GHG Emissions from Alternative Waste Management Scenario (MTCE): **(38,380)**

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total MTCE	Change (Alt - Base) MTCE
Glass	-	3,489.0	-	-	NA	NA	(263)	(282)
Corrugated Containers	-	16,504.0	-	-	NA	NA	(14,046)	(15,104)
Yard Trimmings	NA	NA	-	-	63,492.0	-	(2,534)	0
Mixed Paper (general)	-	3,744.0	-	-	NA	NA	(3,605)	(3,734)
Mixed Metals	-	10,384.0	-	-	NA	NA	(12,292)	(12,349)
Mixed Plastics	-	9,787.0	-	-	NA	NA	(2,730)	(2,784)
Mixed Recyclables	NA	3,212.0	-	-	NA	NA	(2,475)	(2,511)
Food Waste	-	NA	-	-	4,563.0	-	(219)	0
Personal Computers	-	37.0	-	-	NA	NA	(25)	(25)
Tires	-	1,857.0	-	-	NA	NA	(191)	(201)

Total Change in GHG Emissions (MTCE): **(36,992)**

This is equivalent to...		
Removing annual emissions from	**28,555**	Passenger Vehicles
Conserving	**15,262,432**	Gallons of Gasoline
Conserving	**5,651,551**	Cylinders of Propane Used for Home Barbeques
Conserving	**727**	Railway Cars of Coal
	0.00780%	Annual CO_2 emissions from the U.S. transportation sector
	0.00671%	Annual CO2 emissions from the U.S. electricity sector

APPENDIX O FINANCIAL PLAN

This appendix discusses the District's financial trends (income and expenditures) and its plan for funding existing, enhanced and new programs during the planning period. The analysis and conclusions discussed in this appendix are based on the findings from the strategic analyses and financial evaluation conducted as part of Appendix H which were used in determining the programs to be provided.

A. Funding Mechanisms and Revenue Generated

1. Disposal Fee

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	
2011	$2	$4	$2	$359,096	$37,390	$0	$396,486
2012	$2	$4	$2	$358,703	$49,743	$0	$408,446
2013	$2	$4	$2	$382,475	$65,963	$0	$448,438
2014	$2	$4	$2	$386,622	$75,128	$0	$461,750
2015	**$2**	**$4**	**$2**	***$375,818***	***$94,286***	***$0***	***$470,104***
2016	$2	$4	$2	$368,558	$93,306	$0	$461,863
2017	$2	$4	$2	$369,401	$93,519	$0	$462,920
2018	**$2**	**$4**	**$2**	**$370,246**	**$93,733**	**$0**	**$463,980**
2019	$2	$4	$2	$371,094	$93,948	$0	$465,042
2020	$2	$4	$2	$371,944	$94,163	$0	$466,107
2021	$2	$4	$2	$372,795	$94,379	$0	$467,174
2022	$2	$4	$2	$373,649	$94,595	$0	$468,243
2023	$2	$4	$2	$374,505	$94,811	$0	$469,316
2024	$2	$4	$2	$374,505	$94,811	$0	$469,316
2025	$2	$4	$2	$374,505	$94,811	$0	$469,316
2026	$2	$4	$2	$374,505	$94,811	$0	$469,316
2027	$2	$4	$2	$374,505	$94,811	$0	$469,316
2028	$2	$4	$2	$374,505	$94,811	$0	$469,316
2029	$2	$4	$2	$374,505	$94,811	$0	$469,316
2030	$2	$4	$2	$374,505	$94,811	$0	$469,316
2031	$2	$4	$2	$374,505	$94,811	$0	$469,316
2032	$2	$4	$2	$374,505	$94,811	$0	$469,316

Source(s) of Information: Landfill Tonnage Reports 2011, 2012, 2013, 2014 and 2015.

Sample Calculations: 2015 Total Disposal Fee Revenue ($470,104) = 2015 In-District revenue ($375,818) + Out-of-District revenue ($94,286) + Out-of-State revenue ($)

The Lake County Waste Management District intends to fund its solid waste programs primarily through revenue generated from district disposal tier fees on solid waste disposed at the Lake County Solid Waste Facility.

The District will continue its current district disposal fees throughout the planning period. The in-district fee is $2.00 per ton, the out-of-district (but in-state) fee is $4.00 per ton, and the out-of-state fee is $2.00 per ton.

The District's disposal (tier) fee schedule and projected revenues generated from these fees are presented in Table O-1. The primary input for this analysis is the amount of waste being disposed at the Lake County Landfill and the proportion that is from in-district compared to out-of-district. In order to project future revenue, it is important to analyze the projections for waste disposal.

For projection purposes, the tonnage for 2011, 2012, 2013, 2014 and 2015 (reference year) and the breakdown between in-district and out-of-district was reviewed. In 2011, in-district waste comprised 95% of the total received at the Lake County Landfill, while out-of-district waste made up the remaining 5%. By 2015, the amount of in-district waste had declined to 88.7% and out-of-district waste had increased to 11.3%. The reason for this increase is based on the number of haulers with waste originating in Geauga County who were taking their loads to the Lake County Landfill and claiming the waste to be in-district (originating in Lake County). The Geneva Landfill began a stringent campaign to prevent this type of misrepresentation as it was losing out on the out-of-district fees it was due. The Lake County Landfill cooperated the Geneva Landfill's efforts to more accurately document tonnage from out-of-district, which is why the amount of out-of-district waste increased. The District believes that the current percentage of out-of-district waste received in the last few years is a more accurate reflection of reality and that the current breakdown of roughly 89% in-district to 11% out-of-district will remain the same throughout the planning period.

The breakdown between in-district and out-of-district tonnage is important because it directly affects revenue. As noted in Table O-1, in-district disposal fees generated more than 90% of the revenue received from disposal fees in 2011. However, by 2015, the in-district revenue had decreased to only 80% of total disposal fees, in direct relationship to the change in the percentage of disposed waste attributable to in-district tonnage. At the same time, out-of-district revenue increased to 20% of total disposal fees in 2015.

During the planning period, the District has taken a conservative approach and assumed the proportion of in-district and out-of-district tonnage will remain constant and therefore the proportion of in-district vs out-of-district revenue will also stay constant. However, given OEPA's concerns that disposal fee revenue will not continue to grow at recent rates throughout the planning period, the District holds revenue constant beginning in the seventh year of the planning period.

2. Generation Fee

The District does not have a generation fee; revenue from such fees are not projected for the planning period, and therefore Table O-2 is not relevant.

3. Designation Fees

The District does not have a designation fee; revenue from such fees are not projected for the planning period, and therefore Table O-3 is not relevant.

4. Debt/Loans

The District has no debt or loans and no revenue from loans are projected for the planning period, and therefore Table O-4 is not relevant.

5. Other Sources of District Revenue

Table O-5 Other Sources of Revenue

Year	Recycling Revenue	Transfer from Landfill Support	User Fee	Other	Total Other Revenue
2011	$959	$820,628	$0	$0	$821,587
2012	$868	$637,760	$0	$0	$638,628
2013	$1,278	$151,001	$0	$0	$152,279
2014	$0	$0	$1,780	$0	$1,780
2015	***$0***	***$0***	***$2,338***	***$27***	***$2,365***
2016	$0	$0	$2,350	$0	$2,350
2017	$0	$0	$2,361	$0	$2,361
2018	**$0**	**$0**	**$2,373**	**$0**	**$2,373**
2019	$0	$0	$2,385	$0	$2,385
2020	$0	$0	$2,397	$0	$2,397
2021	$0	$0	$2,409	$0	$2,409
2022	$0	$0	$2,421	$0	$2,421
2023	$0	$0	$2,433	$0	$2,433
2024	$0	$0	$2,433	$0	$2,433
2025	$0	$0	$2,433	$0	$2,433
2026	$0	$0	$2,433	$0	$2,433
2027	$0	$0	$2,433	$0	$2,433
2028	$0	$0	$2,433	$0	$2,433
2029	$0	$0	$2,433	$0	$2,433
2030	$0	$0	$2,433	$0	$2,433
2031	$0	$0	$2,433	$0	$2,433
2032	$0	$0	$2,433	$0	$2,433

Source(s) of Information: District quarterly financial

Sample Calculations: 2018 Total Other Revenue ($2,373) = 2018 Recycling revenue ($0) + Transfer from Landfill Support revenue ($0) + User Fee revenue ($2,373) + Other revenue ($0)

Revenue from Selling Recyclable Materials

The SWMD previously collected occasional revenue from the sale of recyclables, but the District did not receive any revenue from recyclables in 2014 or 2015, as shown in Table O-5. Recycling revenue has been unpredictable and not a reliable source of revenue. Recycling revenue is not projected during the planning period, because of the unpredictable nature.

Transfer of Tipping Fees from Landfill

Table O-5 indicates the District received revenue from the County Commissioners from the tipping fees from the Lake County Solid Waste Facility 2011 and 2012. While the 2012 Plan anticipated that transfers from the Lake County Solid Waste Facility would continue throughout the planning period (through 2026), transfer payments were discontinued in 2013 so the County could earmark money for expansion of the landfill (which was approved in 2016).

User Fees

The District charges a nominal fee to residents who drop off scrap tires at the County Landfill, and for the scrap tire special collection at the Lake County Fairgrounds has some fees related to oversized tires, tires

with rims and excessive number of tires. The Policy Committee has determined that a price adjustment is necessary. In 2014 through 2016, the District collected an average of $2,156 per year. User fees are projected to remain low, though an annual 0.5% increase through the first six years of the planning period was applied due to the adjustments to pricing included in this plan, but are then held constant at the 2023 amount for the remainder of the planning period.

Grants

The District will pursue ODNR grants as applicable to fund eligible District programs including grants for education, drop-off recycling and special venue recycling. However, the District is not relying on grant funding to carry out implementation of the plan, therefore the District's budget does not include any grants money to finance any District programs during the planning program,.

Other

The small $27 in "other" revenue reported in 2015 in Table O-5 is due to a bookkeeping reconciliation, and no "Other" revenue is projected for the planning period.

6 *Summary of District Revenues*

Table O-6 Total Revenue

Year	Disposal Fees	Generation Fees	Designation Fees	Other Revenue	Total Revenue
2011	$396,486	$0	$0	$821,587	$1,218,073
2012	$408,446	$0	$0	$638,628	$1,047,073
2013	$448,438	$0	$0	$152,279	$600,717
2014	$461,750	$0	$0	$1,780	$463,530
2015	***$470,104***	***$0***	***$0***	***$2,365***	***$472,469***
2016	$461,863	$0	$0	$2,350	$464,213
2017	$462,920	$0	$0	$2,361	$465,282
2018	**$463,980**	**$0**	**$0**	**$2,373**	**$466,353**
2019	$465,042	$0	$0	$2,385	$467,427
2020	$466,107	$0	$0	$2,397	$468,504
2021	$467,174	$0	$0	$2,409	$469,583
2022	$468,243	$0	$0	$2,421	$470,665
2023	$469,316	$0	$0	$2,433	$471,749
2024	$469,316	$0	$0	$2,433	$471,749
2025	$469,316	$0	$0	$2,433	$471,749
2026	$469,316	$0	$0	$2,433	$471,749
2027	$469,316	$0	$0	$2,433	$471,749
2028	$469,316	$0	$0	$2,433	$471,749
2029	$469,316	$0	$0	$2,433	$471,749
2030	$469,316	$0	$0	$2,433	$471,749
2031	$469,316	$0	$0	$2,433	$471,749
2032	$469,316	$0	$0	$2,433	$471,749

Source(s) of Information: Tables O-1 and O-5.

Sample Calculations: 2015 Total Revenue ($472,469) = disposal fees ($470,104) + generation fees ($0) + designation fees ($0) +other revenue ($2,365).

Table O-6 includes all funding mechanisms that will be used and the total amount of revenue generated by each method for each year of the planning period. The SWMD's primary funding mechanism is the disposal fee. The SWMD also receives miscellaneous revenue (less than 1% of total revenue) from other sources such as user fees and other. As recommended in Format 4.0, projected increases in revenue are shown through year six of the planning period and held constant at the 2023 amounts for the remainder of the planning period.

B. Cost of Implementing Plan

The cost of implementing the Lake County Solid Waste Management Plan is presented for the period January 1, 2018 through December 31, 2032. The overall period makes up the 15-year planning period for this Plan Update. The District is projecting to spend $374,772 in 2018, the first year of the planning period, and $468,972 in 2023, the 6th year of the planning period.

The summary of annual costs for all District facilities, activities, and programs from 2011 through 2032 is presented in Table O-7 Expenses. The table includes historical data that shows actual expenses for years 2011 through 2015, estimated expenses for 2016 and 2017, and projected expenses for 2018 through 2032. An annual inflation factor of 2% is applied to most cost projections. Additional discussion on exceptions to this percentage increase for inflation follows in the subsections below.

Note the reduction in expenses in 2024. The District has identified two projects that will be undertaken during the first six years of the planning period and then evaluated as part of the next plan update to determine if they should be continued. Further cost detail for individual programs follows in the section titled "Explanation of Expenses".

Table O-7 Expenses

Line #	Category/Program	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
1	**1. Plan Monitoring/Prep.**	**$50,641**	**$3,655**	**$0**	**$0**	**$0**	**$14,756**	**$35,000**	**$25,000**	**$15,000**	**$15,000**	**$30,000**	**$50,000**	**$40,000**	**$15,000**	**$15,000**	**$30,000**	**$50,000**	**$40,000**	**$15,000**	**$15,000**	**$30,000**	**$50,000**
1.a	a. Plan Preparation	$50,641	$3,655	$0	$0	$0	$14,756	$35,000	$25,000	$0	$0	$15,000	$35,000	$25,000	$0	$0	$15,000	$35,000	$25,000	$0	$0	$15,000	$35,000
1.b	b. Plan Monitoring	$0	$0	$0	$0	$0	$0	$0	$0	$15,000	$15,000	$15,000	$15,000	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	**2. Plan Implementation**	**$1,078,367**	**$961,710**	**$537,923**	**$330,675**	**$226,654**	**$229,861**	**$232,814**	**$268,537**	**$295,935**	**$308,153**	**$320,707**	**$333,614**	**$346,891**	**$300,555**	**$309,626**	**$319,123**	**$329,067**	**$339,480**	**$350,385**	**$361,806**	**$373,767**	**$386,296**
2.a	a. District Administration	$93,648	$97,081	$112,953	$5,655	$3,486	$3,530	$3,601	$3,673	$3,746	$3,821	$3,898	$3,976	$4,055	$4,136	$4,219	$4,303	$4,389	$4,477	$4,567	$4,658	$4,751	$4,846
2.a.1	Personnel	$93,648	$97,081	$109,337	$2,048	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.a.2	Office Overhead	$0	$0	$3,616	$3,607	$3,461	$3,530	$3,601	$3,673	$3,746	$3,821	$3,898	$3,976	$4,055	$4,136	$4,219	$4,303	$4,389	$4,477	$4,567	$4,658	$4,751	$4,846
2.a.3	Other	$0	$0	$0	$0	$25	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.b	b. Facility Operation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.c	c. Landfill Closure/Post-Closure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d	**d. Recycling Collection**	**$800,181**	**$645,417**	**$242,318**	**$111,950**	**$1,836**	**$2,220**	**$2,268**	**$14,813**	**$37,360**	**$43,539**	**$48,610**	**$53,682**	**$58,756**	**$3,831**	**$3,908**	**$3,986**	**$4,066**	**$4,147**	**$4,230**	**$4,315**	**$4,401**	**$4,489**
2.d.1	Curbside	$307,672	$332,189	$222,294	$82,930	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.2	Drop-off (community)	$492,509	$313,229	$20,024	$29,021	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.3	Combined Curbside/Drop-off	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.4	Multi-family	$0	$0	$0	$0	$0	$0	$0		$10,000	$15,000	$20,000	$25,000	$30,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.5	Business/Institutional	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.6	Drop-off at Landfill	$0	$0	$0	$0	$0	$0	$0	$12,500	$25,000	$25,000	$25,000	$25,000	$25,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.d.7	Lake Co Gov Admin Bldg Collection	$0	$0	$0	$0	$1,836	$2,220	$2,268	$2,313	$2,360	$3,539	$3,610	$3,682	$3,756	$3,831	$3,908	$3,986	$4,066	$4,147	$4,230	$4,315	$4,401	$4,489
2.e	**e. Special Collections**	**$82,317**	**$109,697**	**$105,756**	**$116,023**	**$125,246**	**$127,751**	**$130,306**	**$134,912**	**$141,265**	**$147,928**	**$154,916**	**$162,245**	**$169,932**	**$177,996**	**$186,453**	**$195,325**	**$204,631**	**$214,393**	**$224,634**	**$235,378**	**$246,649**	**$258,473**
2.e.1	Tire Collection	$4,544	$7,074	$6,009	$8,844	$9,149	$9,332	$9,519	$9,709	$9,904	$10,102	$10,304	$10,510	$10,720	$10,934	$11,153	$11,376	$11,604	$11,836	$12,072	$12,314	$12,560	$12,811
2.e.2	HHW Collection	$76,706	$101,331	$99,174	$106,013	$114,798	$117,094	$119,436	$121,825	$127,916	$134,312	$141,028	$148,079	$155,483	$163,257	$171,420	$179,991	$188,991	$198,440	$208,362	$218,780	$229,719	$241,205
2.e.3	Electronics Collection	$1,067	$1,292	$573	$1,166	$1,298	$1,324	$1,351	$3,378	$3,445	$3,514	$3,585	$3,656	$3,729	$3,804	$3,880	$3,958	$4,037	$4,118	$4,200	$4,284	$4,370	$4,457
2.e.4	Appliance Collection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.e.5	Pharmaceutical Collection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.e.6	Other Collection Drives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.f	f. Yard Waste/Other Organics	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.g	**g. Education/Awareness**	**$102,222**	**$109,515**	**$76,896**	**$97,047**	**$96,086**	**$98,416**	**$99,066**	**$113,720**	**$112,076**	**$112,440**	**$112,810**	**$113,189**	**$113,574**	**$113,968**	**$114,369**	**$114,779**	**$115,196**	**$115,622**	**$116,056**	**$116,500**	**$116,952**	**$117,413**
2.g.1	Education Staff (OSU contract)	$82,400	$82,400	$61,800	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400	$82,400
2.g.2	Advertisement/Promotion	$3,766	$5,722	$8,096	$7,047	$5,686	$7,516	$7,666	$19,820	$18,176	$18,540	$18,910	$19,289	$19,674	$20,068	$20,469	$20,879	$21,296	$21,722	$22,156	$22,600	$23,052	$23,513
2.g.3	BWRC/Contracted Services	$16,055	$21,393	$7,000	$7,600	$8,000	$8,500	$9,000	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500	$11,500
2.h	h. Recycling Market Development	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.i	i. Service Contracts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.j	j. Feasibility Studies	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.k	k. Waste Assessments/Audits	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.l	l. Dump Cleanup	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.m	m. Litter Collection/Education	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.n	n. Emergency Debris Management	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.o	o. Loan Payment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2.p	p. Other	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	**3. Health Dept. Enforcement - *Lake County General Health District***	**$89,065**	**$81,708**	**$62,794**	**$68,008**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**	**$82,654**
4	4. County Assistance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	5. Well Testing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	6. Out-of-State Waste Inspection	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	7. Open Dump, Litter Law Enforcement	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	8. Heath Department Training	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	9. Municipal/Township Assistance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	**10. Compensation to Affected Community (ORC Section 3734.35)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Total Expenses	$1,218,073	$1,047,073	$600,717	$398,683	$309,308	$329,327	$352,896	$374,772	$392,102	$405,383	$432,889	$465,746	$468,972	$397,585	$406,603	$431,047	$460,937	$461,294	$447,142	$458,505	$485,407	$517,876

Source(s) of Information:
Sample Calculations:
Assumptions: Green cells indicate new expense. Gray cells indicate no program provided by the District

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Explanation of Expenses

1 ***Plan Monitoring/Preparation***

1.a Plan Preparation

2011-2012; 2016-2018; 2021-2023	One of the Policy Committee's responsibilities is to prepare the solid waste management plan. This is the cost to hire a consultant to assist in the SWMD's solid waste management plan updates. The cost for 2011 to 2012 and 2016 are the actual fees paid for the plan updates. The SWMD assumed the cost of the contract for the 2021 to 2023 plan update would be the same.

1.b Plan Monitoring

2019-2032	One of the Policy Committee's responsibilities is to monitor implementation of the solid waste management plan, including implementing the new and enhanced programs outlined in this plan update. This is the cost for assistance to ensure continual progress is made.

2 ***Plan Implementation***

2.a District Administration

The District's original Plan called for administration of District programs by the Lake County Department of Utilities. This arrangement has continued and will be in effect during this Plan Update planning period from January 1, 2018 through December 31, 2032. Specific day to day responsibility for the running of District programs rests with the District Coordinator.

The District Coordinator's duties include a) coordination of the Policy Committee's annual review of plan implementation; b) the preparation of the 5-year plan updates; and c) preparation of annual reports to OEPA as required by the Agency. The annual review work involves an analysis of the adequacy of each program and the District's funding sources, as well as a description of program refinements and adjustments. The plan update work involves inventory updates, program and funding source evaluations, and other analysis as required by the Ohio EPA.

2.a.1 Personnel

2011-2014	This is the cost for payroll and benefits (including PERS, Medicare, and insurance) for one full-time coordinator. In 2014, personnel costs were assumed by the Lake County Commissioners.

2.a.2 Office Overhead

2013-2032	This is the indirect office overhead cost for miscellaneous supplies (including postage and miscellaneous printing). Actual costs for 2013 – 2016 are shown, projected costs increase 2% annually.

2.a.3 *Other*

2015	This $25 entry is a one-time data entry correction.

2.d Recycling Collection

2.d.1 *Curbside*

2011-2014	This is actual amount of grant funds awarded to local communities in support of their local curbside recycling programs. This grant program ended in 2014.

2.d.2 *Drop-off*

2011-2014	This is actual amount of grant funds awarded to local communities in support of their local drop-off recycling programs. This grant program ended in 2014.

2.d.4 *Multi-family*

2019-2023	Beginning in 2019, the District will implement a new five-year pilot program to encourage recycling programs at multi-family developments. The District will provide $10,000 in the first year of this pilot program. The District will use the funds to reimburse property management firms for 6 months of the cost of a building recycling program (up to $5,000) when the property management firm enters into a minimum 2-year contract with a private recycling hauler. The program provides a financial incentive for apartment property managers to participate. Once the program is underway, the District intends to increase the amount of money available to new program participants by $5,000 each year. The District will evaluate the effectiveness of this program during its next plan update.

2.d.6 *Drop-off at Landfill*

2018-2023	Beginning in mid-2018, the District will open a drop off location for recyclables at the County owned solid waste facility. The District will contract with a private entity to provide multiple containers for the collection of recyclables including but not limited to paper, cardboard, glass, metal, plastics. Other possible considerations include Styrofoam, used oil/grease and carpeting. Additional costs of this program include advertising/promotion via the District website, telephone hotline through OSU Extension and billboards (and itemized under section 2.g. The contracted service provider will provide the containers and remove the materials on a regular basis. There will be no improvements needed to the facility. Currently, there is so much use of the facility locally that the District believes that an enhanced drop-off facility will be successful. The District has programed this for five years and will reevaluate as part of the next plan update.

2.d.6 *Lake County Government Administration Building Drop-off*

2015-2032	The District has provided a drop off location for recyclables at the County Administration Building in Painesville. The District contracts with a service provider to provide one 6-cubic yard container behind the building, and empty it two times a week. In 2017, the County Commissioners began a large-scale expansion of the downtown Painesville County Administration building. Once the expansion (which will more than double the amount of office space) is complete, the District will expand the recycling program to include a wider range of recyclable material. In anticipation of the increased cost, the District projects a one-time 50% increase in the monthly collection fee with the current contractor.

2.e Special Collections

2.e.1 *Tire Collection*

2018-2032	Tire collection will continue once annually. The projected cost reflects the actual cost in 2015 projected to increase 2% annually.

2.e.2 *HHW Collection*

2018-2032	HHW collection will continue twice annually. The projected cost reflects the actual cost in 2015 projected to increase 2% annually, until 2019, and then by 5% annually. This is based on the uncertainty of continuing the low cost contract that was possible through a consortium that negotiated a contract.

2.e.3 *Electronics Collection*

2018-2032	Electronics collection will continue twice annually. The projected cost reflects the actual cost in 2015 projected to increase 2% annually. In 2018, the cost will increase by $2,000 when the District expands the program to accept all household electronics. Even with the increase in the types of items collected, the overall cost of the electronics collection remains relatively low due to the expanded credits the District will earn from shredding the items (except for the TV monitors).

2.e.4 *Appliance Collection*

2018-2032	The County Landfill operator accepts appliances at the landfill and contracts for their removal. There is no expense to the District for this service.

2.f Yard Waste/Other Organics

2018-2032	Local communities and private haulers provide yard waste collection and composting services to district residents and businesses. There is no expense to the District for this service.

2.g Education/Awareness

2.g.1 *Education Staff*

2018-2032	The District has had a contract with the Ohio State University Extension - Lake County to provide educational services to the Solid Waste District since 1990. The contract with the organization remains the same throughout the planning period.

2.g.2 *Advertisement/Promotion*

2011-2032	This is the cost for outreach, education program supplies and prize money for the poster contest. Additional money is budgeted starting in 2018 for additional materials and other items as noted below: Itemized costs for promotional materials for various programs are as follows: • $2,000 is allocated annually for increased prize money/give-aways for the Clean and Green Lake County Poster Contest. This will cover the cost to develop giveaways using the artwork from prior winners (calendar, coloring books etc.) and is based on OSU Extensions experience. • $5,000 is allocated annually for developing education materials for outreach at local libraries and senior centers, based on OSU Extension's current budget for educational and promotional materials. The marketing message will include signage, display items and recycling messages. The District will prepare and install education displays at libraries and senior centers throughout the County. These colorful and eye-catching displays will highlight recycling facts to promote adult recycling. This will be implemented by OSU Extension. • There is an additional $2,000 allocated for the first year to cover the one time cost of increased displays for the library and senior center programs • $2,000 annually for renting a billboard along US 20 near the Lake County Landfill advertising the expanded drop-off facility at the landfill, as well as printing/reproduction of educational literature to hand out to residents who visit the facility.

2.g.3 *BWRC*

2011-2017	In 2011 and 2012, the BWRC was responsible for conducting an annual survey, doing a stewardship award, and sponsoring the one-day event "Go Green with the Lake County Captains." The BWRC has not been active since 2012, except for the continued annual sponsorship of the "Go Green" event.

2018-2032	The BWRC will be reinvigorated, will reinstitute the Environment Steward Award and will continue its sponsorship of the • $2,000 annually for the Environmental Steward award program to cover the cost of newsletter printing and sending to all of the local Chambers Of Commerce and award printing. • $9,500 is allocated for the one day event "Go Green with the Lake County Captains." This amount covers air time on a local radio for the County Commission (representing the District's Policy Committee) to talk about the District's programs and promote the event, as well as give-away promotional material to distribute at the event.

2.n Emergency Debris Management

2011-2032	The District partners with Lake County Public Utilities at no cost to the District.

3 Health Dept. Enforcement

The District has partnered with the Lake County General Health District (LCGHD) for many years. The activities to be conducted by the Health District are described in a May, 2003 agreement between the Health District and the Lake County Commissioners.

2011-2032	The District contracts with the Lake County General Health District to perform licensing, inspection, rule enforcement, complaint investigation and technical assistance. The contract was renewed in 2015 for $82,654 per year. The District projects this amount will remain the same throughout the planning period.

10. Compensation to Affected Community (ORC Section 3734.35)

2011-2032	Lake County, as owner of Lake County Solid Waste Landfill, fulfills its obligation to Painesville Township under the host community subsidy program in compliance with ORC Section 3734.35. There is no expense to the District for this expense.

C. Budget Summary

Table O-8, "Budget Summary" identifies the projected surplus/deficit for each year based on the anticipated revenue and likely expenses and the accumulative balance. In all years, it is expected that the District's revenues will exceed expenses. If this turns out to be the case, the District will reassess the success of its new programs, such as the multi-family pilot to determine if they can be expanded.

Table O-8 Budget Summary

Year	Revenue	Expenses	Annual Surplus/Deficit ($)	Balance ($)
2010			**Ending Balance**	$0
2011	$1,218,073	$1,218,073	$0	$0
2012	$1,047,073	$1,047,073	$0	$0
2013	$600,717	$600,717	$0	$0
2014	$463,530	$398,683	$64,847	$64,847
2015	***$472,469***	***$309,308***	**$163,161**	**$228,008**
2016	$464,213	$329,327	$134,886	$362,894
2017	$465,282	$352,896	$112,386	$475,280
2018	$466,353	$374,772	$91,581	$566,860
2019	$467,427	$392,102	$75,325	$642,186
2020	$468,504	$405,383	$63,121	$705,307
2021	$469,583	$432,889	$36,694	$742,001
2022	$470,665	$465,746	$4,918	$746,919
2023	$471,749	$468,972	$2,777	$749,696
2024	$471,749	$397,585	$74,164	$823,860
2025	$471,749	$406,603	$65,146	$889,005
2026	$471,749	$431,047	$40,702	$929,707
2027	$471,749	$460,937	$10,812	$940,520
2028	$471,749	$461,294	$10,455	$950,975
2029	$471,749	$447,142	$24,607	$975,582
2030	$471,749	$458,505	$13,244	$988,826
2031	$471,749	$485,407	-$13,658	$975,168
2032	$471,749	$517,876	-$46,127	$929,042

Source(s) of Information: Tables O-3 and O-4.

Sample Calculations: 2018 Annual Surplus/Deficit = 2018 Revenue ($466,353) - 2018 Expenses ($374,772) = 2018 surplus ($91,581).

D. Alternative Budget

The District does not consider funding to be an issue of concern during this planning period, and is not submitting an alternative budget.

E. Major Facility Project

The District's Plan does not include a major facility project.

APPENDIX P DESIGNATION

A. Statement Authorizing/Precluding Designation

The Board of Directors of the Lake County Solid Waste District is hereby authorized to establish facility designations in accordance with Section 343.014 of the Ohio Revised Code after this plan has been approved by the director of the Ohio Environmental Protection Agency.

If necessary, the Board of Directors shall develop procedures for issuing a waiver to allow solid waste to flow to undesignated facilities. The procedures shall be developed in accordance with Section 343.01 (I) (2) of the ORC. The District shall act on a waiver request in accordance with its procedures within 90 days after receipt of the request. The District shall establish steps to evaluate the impact of the issuance of the waiver upon:

- Projections contained in the District's approved (or ordered to be implemented) plan under section 3734.353(A)(6) and (A)(7); and
- Implementation and financing of the District's approved Plan.

Only after evaluating the waiver request and finding that: 1) it is not inconsistent with plan projections, and 2) it will not adversely impact plan implementation and financing, may the District issue a waiver allowing solid waste to be taken to an undesignated facility.

B. Designated Facilities

There are no designated facilities in the Lake County Solid Waste District.

APPENDIX Q DISTRICT RULES

A. Existing Rules

The Lake County Solid Waste Management District's Solid Waste Management Plan authorizes the Board of the District to adopt rules applying to:

- Prohibiting or Limiting of Out-of-District Wastes.
- Maintenance, Protection, and Use of Facilities.
- Zoning Exemption.

There are no rules currently in effect in the District.

B. Proposed Rules

The Board of the Lake County Solid Waste Management District is hereby authorized to make, publish and enforce rules in accordance with Division (F) of Section 343.01 of the Revised Code and Division (C) of Section 3734.53 of the Revised Code, to the extent any such rules are determined by the Board from time to time to be necessary or desirable to implement any provision or to accomplish any objective of this Solid Waste Management Plan or any amended Plan.

Those rules may include, without limitation and subject to modification or further specification as the Board of County Commissioners in its discretion may deem necessary or desirable, rules that are substantially to the following effect:

1. Prohibiting or Limiting Out-Of-District Wastes.

Solid wastes generated outside the District shall not be received at any solid waste facilities covered by the Solid Waste Management Plan or any amended Plan to the extent that the receipt of those waste would decrease the capacity available for receipt of solid wastes at those facilities to an amount less than the amount required from time to time for the wastes generated within the District or projected to be required from time to time for the wastes generated within the District or brought into the District during any applicable forecast period.

2. Maintenance, Protection and Use of Facilities

Solid waste collection, transfer, disposal, recycling or resource recovery facilities located within the District shall be maintained, protected and used in accordance with such rules as may be adopted from time to time by the Board of Directors in accordance with the Solid Waste Management Plan or any amended Plan. Those rules shall not establish design standards for solid waste transfer, disposal, and recycling and resource recovery facilities and shall be consistent with Sections 3734.01 to 3734.13 of the Revised Code and the rules adopted under those sections.

3. Zoning Exemption

The owner of operator of any solid waste facility or proposed solid waste facility provided for in the Solid Waste Management Plan or any amended Plan shall be exempt 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 redistricted 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.

Consistent with the provisions of the Solid Waste Management Plan or any amended Plan designating the solid waste disposal, transfer, and resource recovery facilities, and recycling activities contained in the Plan where solid wastes generated within the District will be taken for disposal, transfer, resource recovery or recycling, and in order to implement those provisions included in the Plan pursuant to Division (A)(12) of Section 3734.53 of the Revised Code, each person, municipal corporation, township, or other political subdivision shall deliver, or cause the delivery of, any solid wastes generated within the District to the respective solid waste transfer, disposal, recycling, or resource recovery facility or facilities designated in the Solid Waste Management Plan or any amended Plan in accordance with Section 343.01(H)(2) of the Revised Code upon the request of the legislative authority of that municipal corporation or township.

The Prosecuting Attorney of the County where a violation of Division (F)(2) or (3) or (H)(1) or (2) of Section 343.01 of the Revised Code, including any rule made and published in accordance with and pursuant thereto, has occurred, is occurring or may occur, upon the request of the Board Directors, shall take such appropriate action in respect thereof as may be authorized by Sections 343.03 and 343.99 of the Ohio Revised Code, or as otherwise may be authorized and appropriate.

4. Contingent Funding or Financing

The District anticipates that it will adopt any and all rules necessary to implement the contingent funding mechanism or mechanisms chosen by the Board as described in this plan.

APPENDIX R BLANK SURVEY FORMS AND RELATED INFORMATION

In 2016, the District conducted a survey of commercial and industrial businesses to obtain information about their composting, collection and recycling amounts for this Plan's 2015 reference year. The information presented in this Plan Update includes information obtained from these surveys, direct contact with communities, businesses and manufacturers, as well as solid waste and recycling service providers.

The Lake County Solid Waste Management District (Lake SWMD) worked with CT Consultants, Inc. to develop and follow a detailed survey methodology. Using this survey methodology, the Lake SWMD collected what it feels is comprehensive and representative industrial generation, disposal, and recycling data for its commercial and industrial sectors. As part of its survey methodology, the Lake SWMD attempted to obtain usable surveys from as many businesses within all appropriate NAICS categories as possible.

The Lake SWMD first obtained a list of commercial, institutional and industrial establishments from the Harris Directory. The Lake SWMD next contacted each company to determine the person responsible for solid waste management. The Lake SWMD then mailed over 1,400 surveys packages (along with a cover letter and a postage-paid return envelope) to all commercial, institutions and industries entities on the list to gather data on 2015 recycling efforts.

The Lake SWMD (OSU and CT Consultants) made follow-up phone calls to all non-respondents. The Lake SWMD also made phone calls to respondents that provided incomplete or questionable data. To confirm the accuracy of collected data, the Lake SWMD conducted site visits to observe waste and recycling activities. The Lake SWMD then contacted industrial entities where reported data was not consistent with what was observed. The Lake SWMD also compared current data from a respondent to data that respondent reported in previous survey rounds and investigated questionable figures.

The information collected was used to verify, enhance and correct inconsistencies with the 2015 Annual District Report (ADR). This Plan Update is based on information collected from current surveys and contacts and supersedes the 2015 ADR data.

The results of the 2016 survey of 2015 recycling quantities and materials include:

- In total, the Lake SWMD received responses from 151 entities – 88surveys from establishments that fall within the 14 NAICS attributed to commercial and institutional entities and 63 surveys from establishments that fall within the four NAICS attributed to industrial businesses. Over 82% of the respondents indicated they recycle.
- Using collected data, the Lake SWMD calculated two generation rates for each NAICS – one using data from fully completed surveys and a second using data from incomplete surveys (i.e. containing data for either disposal or recycling but not both).
- In order to eliminate counting an entity's data twice, the Lake SWMD screened companies by address and against listings in the Harris Directory. The Lake SWMD then eliminated multiple listings. The Lake SWMD also eliminated data from buyback centers.
- Issues and challenges encountered with the 2016 survey effort include:
    - Low participation rates – which is related to the reduction in the number of surveys sent (1,412 sent in 2016 with a response rate of 10.4%, compared to 8,758 in 2010 with a response rate of 5.3%)
    - SWMD time commitment

  - Lack of response to follow-up calls and emails
  - Cost, which continues to increase with the cost of postage, printing, and data entry.
- Enhancements to this program in the planning period include:
  - Providing an electronic fillable survey form to reduce the cost of data entry.
  - Increasing the outreach to recipients
  - The BWRC engaging more with the commercial and industrial sectors through increased committee membership from the private sector, interaction with the Chambers of Commerce and the awareness through the Environmental Steward Award program.

Samples of the survey forms distributed for the Commercial Survey and Industrial Survey are included on the following pages.

Dear Commercial Business,

Thank you for completing this survey. The information you provide for your company is crucial to monitoring the Lake County Solid Waste Management District's progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material commercial businesses recycled in the Lake County Solid Waste Management District and Ohio in 2015. Your company's survey response **will not** be reported individually; all data will be summarized by the North American Industry Classification System (NAICS) category.

For assistance completing this form or any questions related to the survey, please contact Timothy Gourley, the Lake County Solid Waste Management District's Coordinator, at tim.gourley@lakecountyohio.gov or (440) 350-2908.

Please complete and submit this survey no later than April 15, 2016.

Options for Returning the Completed Survey

- Email directly to Timothy Gourley at tim.gourley@lakecountyohio.gov, Subject Line: 2015 Commercial Survey
- Fax to (440) 350-2666, Attention: Timothy Gourley
- Mail to Timothy Gourley at 105 Main Street, Painesville, Ohio 44077

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 Lake County Solid Waste Management District to contact you in the future to discuss your recycling needs.

Table A: Company Information			
Name:	County:	Store I.D.	
Address:	City:		Zip:
Contact Person:	Title:		
Email:	Telephone Number (include area code): ( ) —		
Primary NAICS:	Secondary NAICS:	Number of full-time employees:	
Provide the name(s) of your recycling hauler, processor and/or broker:			
Would you like to be contacted by your local solid waste management district for recycling assistance? ☐ Yes ☐ No			

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by commercial businesses in Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris.

The list in ***Table B*** is not all-inclusive. If your 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. The Lake County Solid Waste Management District may also be able to provide you with assistance.

Table B: Quantities of Recycled Materials: Commercial Businesses			
Recyclable Material Category	**Amount Recycled in 2015**	**Units**	**Comments**
Lead-Acid Batteries		☐ lbs. ☐ tons ☐ yd^3	
Food		☐ lbs. ☐ tons ☐ yd^3	
Glass		☐ lbs. ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs. ☐ tons ☐ yd^3	
All Other Paper		☐ lbs. ☐ tons ☐ yd^3	
Plastics		☐ lbs. ☐ tons ☐ yd^3	
Textiles		☐ lbs. ☐ tons ☐ yd^3	
Wood		☐ lbs. ☐ tons ☐ yd^3	
Rubber		☐ lbs. ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs. ☐ tons ☐ yd^3	
Yard Waste		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	

Table C: Please provide any additional information, comments, suggestions, questions etc.

Thank you again for taking the time to complete this survey. Please contact Timothy Gourley with any questions.

Timothy Gourley, Coordinator
Lake County Solid Waste Management District
Phone: (440) 350-2908
Email: tim.gourley@lakecountyohio.gov

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 given year. Below are some common conversion factors that may assist you with your estimations:

Material Type	Density (lb/cu yd)
Mixed Paper Recycling	484
Bottles and Cans	200
Single Stream Recycling	139
Cardboard	100

- (size of container (in cubic yards) X number of collections per month X 12) X density (see table above) = Total Pounds per Year
- 2,000 pounds = 1 ton

For more assistance, contact your solid waste management district.

Dear Industrial Facility,

Thank you for completing this survey. The information you provide for your company is crucial to monitoring the Lake County Solid Waste Management District's progress towards achieving Ohio's recycling goals. Your information will be combined with information submitted by other businesses and used to calculate the amount of material industrial businesses recycled in the Lake County Solid Waste Management District and Ohio, in 2015. Your company's survey response **will not** be reported individually; all data will be summarized by each North American Industry Classification System (NAICS) category.

For assistance completing this form or any questions related to the survey, please contact Timothy Gourley, the Lake County Solid Waste Management District's Coordinator, at tim.gourley@lakecountyohio.gov or (440) 350-2908.

Please complete and submit this survey no later than April 15, 2016.

Options for Returning the Completed Survey

- Email directly to Timothy Gourley at tim.gourley@lakecountyohio.gov, Subject Line: 2015 Industrial Survey
- Fax to (440) 350-2666, Attention: Timothy Gourley
- Mail to Timothy Gourley at 105 Main Street, Painesville, Ohio 44077

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 Lake County Solid Waste Management District to contact you in the future to discuss your recycling needs.

Table A: Company Information			
Name:		County:	
Address:		City:	Zip:
Contact Person:		Title:	
Email:		Telephone Number (include area code): ( ) —	
Primary NAICS:	Secondary NAICS:	Number of full-time employees:	
Provide the name(s) of your recycling hauler, processor and/or broker:			
Would you like to be contacted by your local solid waste management district for recycling assistance? ☐ Yes ☐ No			

Instructions for completing Table B:

Table B provides a list of common materials that are recycled by industrial facilities in Ohio. Please indicate the unit of each quantity of material that is reported (pounds, tons or cubic yards). Provide any comments related to each material as necessary. Please do not report any liquid waste, hazardous waste or construction & demolition debris.

The list in ***Table B*** is not all-inclusive. If your facility recycles a material that is not listed in ***Table B***, please enter the name and quantity of that material on a line labeled **"Other."** Some materials may not apply to your operation; simply

enter "0" for those materials. Some of the materials are listed in broad categories. For example, "Plastics" include plastics #1-7, plastic films, etc. Please refer to the ***"Materials Cheat Sheet"*** attached to the end of this document for examples of materials and definitions.

If you do not currently track this information internally, your solid waste hauler or recycling processor may be able to provide it upon request. The Lake County Solid Waste Management District may also be able to provide you with assistance.

Table B: Quantities of Recycled Materials: Industrial Businesses			
Recyclable Material Category	**Amount Recycled in 2015**	**Units**	**Comments**
Food		☐ lbs. ☐ tons ☐ yd^3	
Glass		☐ lbs. ☐ tons ☐ yd^3	
Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Non-Ferrous Metals		☐ lbs. ☐ tons ☐ yd^3	
Corrugated Cardboard		☐ lbs. ☐ tons ☐ yd^3	
All Other Paper		☐ lbs. ☐ tons ☐ yd^3	
Plastics		☐ lbs. ☐ tons ☐ yd^3	
Textiles		☐ lbs. ☐ tons ☐ yd^3	
Wood		☐ lbs. ☐ tons ☐ yd^3	
Rubber		☐ lbs. ☐ tons ☐ yd^3	
Commingled Recyclables		☐ lbs. ☐ tons ☐ yd^3	
Ash (recycled ash only)		☐ lbs. ☐ tons ☐ yd^3	
Non-Excluded Foundry		☐ lbs. ☐ tons ☐ yd^3	
Flue Gas Desulfurization		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	
Other:		☐ lbs. ☐ tons ☐ yd^3	

Table C: Please provide any additional information, comments, suggestions, questions etc.

Thank you again for taking the time to complete this survey. Please contact Timothy Gourley with any questions.

Timothy Gourley, Coordinator
Lake County Solid Waste Management District
Phone: (440) 350-2908
Email: tim.gourley@lakecountyohio.gov

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
- Electronics
- Non-hazardous chemicals (solids only)
- Stone/Clay/Sand
- Yard Waste
- Sludge
- Tires
- Any other solid waste that is recycled at your facility

Estimating recycling tonnages – if you are not able to obtain exact tonnages of materials recycled, there are numerous ways to estimate the amount of material recycled in any given year. Below are some common conversion factors that may assist you with your estimations:

Material Type	Density (lb/cu yd)
Mixed Paper Recycling	484
Bottles and Cans	200
Single Stream Recycling	139
Cardboard	100

- (size of container (in cubic yards) X number of collections per month X 12) X density (see table above) = Total Pounds per Year
- 2,000 pounds = 1 ton

For more assistance, contact your solid waste management district.

APPENDIX S SITING STRATEGY

The siting strategy shall be implemented by the Lake County Department of Utilities and shall be under the general direction of the District Coordinator. The District, if and when the need arises, will establish a Facilities Siting Committee to undertake the site survey and ranking scheme reviews in connection with the siting of facilities.

1. Preliminary Site Survey/Site Review Investigation Process:

   The District will develop a site review investigation process or procedure to be followed in the siting of new solid waste management facilities. The process will incorporate the site survey, ranking scheme, and procedure for resolving site impasses through meditation, which make up the District's siting strategy. The siting committee will also develop a schedule for completing the siting process.

   The District will also develop the baseline information needed in undertaking the site review investigations. The objective of this work will be to gather and assemble in one place all of the background information on the physical features, land use, ordinances affecting land use, socioeconomic, environmental and other relevant data on the District, as well as the existing Ohio EPA regulations and siting criteria and other requirements related to facilities siting. This information, to be used in the site review and ranking scheme process, will be presented in a suitable technical format such as GIS (geographic information system) plotting. The District has developed a set of preliminary exclusionary siting criteria based mainly on Ohio EPA's siting restrictions.

   The siting committee will be responsible for revising the criteria to conform to any new Ohio EPA regulations and may also add additional restrictions for siting solid waste facilities.

2. Public Participation

   The Facilities Siting Committee will be established with the objective of having as broad a public representation on the Committee as possible.

   After the Site Review Investigation Process has been developed, the District will hold a public information meeting on the process and the site survey and ranking scheme. The Policy Committee and Facilities Siting Committee will seek public input in the review process for the siting of individual facilities. This process will include at least one public information meeting following the ranking of sites for consideration for a particular facility.

3. Ranking Scheme

   A preliminary ranking scheme has been devised. The following factors will be considered when reviewing potential sites.

   - Access to Site
   - Soil Conditions
   - Ground Water Wells in the Vicinity

- Availability of Public Utilities
- Site Visibility
- Land Use and Zoning
- Archaeological, Historical, Cultural, and Recreational Significance
- Lake County District Solid Waste Capacity

Each factor will be analyzed quantitatively and depending on the type of facility will receive a certain number of points proposed. Each type of proposed facility will receive different quantitative levels for each factor. For example, a proposed landfill will have a more severe effect on ground water wells than a recycling center or incinerator, and, therefore, the level of points assigned to this factor will reflect this. The Facilities Approval Committee will be responsible for assigning the quantitative levels to each factor. This will be done before any proposed sites are considered.

4. Resolving Site Impasses through Mediation

The Facilities Siting Committee will develop the dispute resolution process to be used when necessary in siting solid waste facilities. A mediator will be used in a case where a controversy develops among the parties involved in siting a solid waste facility. Some examples are disputes between the facility operator and neighbors, the District, or the landowners.

APPENDIX T
MISCELLANEOUS PLAN DOCUMENTS

District resolutions, certification statements, public notices, other notices (e.g. a copy of the notice sent to the 50 largest generators)

District Resolutions

During the process of preparing this 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 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

For the Lake County Solid Waste Management District, comprised of Lake County

We as representatives of the Solid Waste Management District Policy Committee, do hereby certify that to the best of our knowledge and belief, the statements, demonstrations and all accompanying materials that comprise the 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 are accurate and are in compliance with the requirements in *the District Solid Waste Management Plan Format,* revision 4.0.

Daniel P. Troy — County Commissioner or Designee — 6/21/17 — Date Signed

Municipal Officer or Designee — 6/21/17 — Date Signed

Township Representative — 6/23/17 — Date Signed

Chris Fortenmarco RS. — Health Commissioner or Designee — 6/21/17 — Date Signed

Solid Waste Generator Representative — 6/22/17 — Date Signed

Mary Ellen K. Abel — Member Representing General Interests of Citizens — 6/21/2017 — Date Signed

Certification Statement for the Draft Plan – Continued

Patricia A. Fowler
Member Representing General Interests of Citizens

6/22/2017
Date Signed

Resolution Adopting the Draft, Amended Solid Waste Management Plan

The policy committee for the Lake County Solid Waste Management District (District) passed a resolution adopting the amended solid waste management plan for the District.

WHEREAS, this policy committee completed the draft, amended solid waste management plan and submitted it to the Ohio Environmental Protection Agency for review and comment on June 27, 2017. The Ohio Environmental Protection Agency provided comments in a non-binding advisory opinion issued on August 11, 2017.

WHEREAS, this policy committee reviewed the non-binding advisory comments received from the Ohio Environmental Protection Agency and took into consideration these comments and incorporated changes into the draft, amended solid waste management plan where necessary.

WHEREAS, the policy committee conducted a 30-day public comment period and held a public hearing on April 25, 2018 to provide the public an opportunity to have input into the draft, amended solid waste management plan.

NOW, THEREFORE, BE IT RESOLVED that the policy committee for the Lake County Solid Waste Management District:

1. adopts the draft, amended solid waste management plan for the Lake County Solid Waste Management District; and

2. certifies to the best of its knowledge and belief, the statements, demonstrations, and all accompanying materials that comprise the District's draft, amended 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 Authority for the planning period covered by the Plan, are accurate and are in compliance with the requirements in the *District Solid Waste Management Plan Format*, version 4.0, the *2009 State Solid Waste Management Plan*, and the Ohio Revised Code.

This resolution shall be in effect immediately upon its adoption.

Voting for the Resolution:

County Commissioner or Designee

Municipal Officer or Designee

Voting against the resolution:

County Commissioner or Designee

Municipal Officer or Designee

Township Representative

Township Representative

Health Commissioner or Designee

Health Commissioner or Designee

Solid Waste Generator Representative

Solid Waste Generator Representative

Member Representing General Interests of Citizens

Member Representing General Interests of Citizens

Public Representative

Public Representative

This is to certify that the foregoing is a true and correct copy of the resolution passed by the policy committee for the Lake County Solid Waste Management District on the 1st day of May, 2018, and recorded in the Journal of said policy committee in Lake County under the date of May 1, 2018.

5/1/2018
Date

Secretary for the Policy Committee

Resolution Certifying the Draft, Amended Solid Waste Management Plan was Ratified

The policy committee for the Lake County Solid Waste Management District (District) passed a resolution declaring that the District's draft, amended solid waste management plan was ratified in accordance with Section 3734.55 of the Ohio Revised Code.

WHEREAS, the policy committee adopted the draft, amended solid waste management plan on May 1, 2018;

WHEREAS this policy committee received copies of resolutions and ordinances approving the draft, amended solid waste management plan from the boards of county commissioners, the legislative bodies of the largest municipality in each county within the District, and from legislative jurisdictions representing at least 60 percent of the residential population within the District;

NOW, THEREFORE, BE IT RESOLVED that the policy committee for the Lake County Solid Waste Management District declares that the draft, amended solid waste management plan for the Lake County Solid Waste Management District was ratified in accordance with Section 3734.55 of the Ohio Revised Code, and the policy committee shall submit the draft, amended solid waste management plan to the director of the Ohio Environmental Protection Agency for review.

This resolution shall be in effect immediately upon its adoption.

Voting for the Resolution:	**Voting against the resolution:**
County Commissioner or Designee	County Commissioner or Designee
Municipal Officer or Designee	Municipal Officer or Designee
Township Representative	Township Representative
Health Commissioner or Designee	Health Commissioner or Designee
Solid Waste Generator Representative	Solid Waste Generator Representative

Resolution Certifying the Draft, Amended Solid Waste Management Plan was Ratified

The policy committee for the Lake County Solid Waste Management District (District) passed a resolution declaring that the District's draft, amended solid waste management plan was ratified in accordance with Section 3734.55 of the Ohio Revised Code.

WHEREAS, the policy committee adopted the draft, amended solid waste management plan on May 1, 2018;

WHEREAS this policy committee received copies of resolutions and ordinances approving the draft, amended solid waste management plan from the boards of county commissioners, the legislative bodies of the largest municipality in each county within the District, and from legislative jurisdictions representing at least 60 percent of the residential population within the District;

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Municipal Officer or Designee	Municipal Officer or Designee
Township Representative	Township Representative
Health Commissioner or Designee	Health Commissioner or Designee
Solid Waste Generator Representative	Solid Waste Generator Representative

Patricia A. Fowler
Member Representing General Interests of Citizens

Member Representing General Interests of Citizens

Mary Ellen Abel
Public Representative

Public Representative

This is to certify that the foregoing is a true and correct copy of the resolution the passed the policy committee for the Lake County Solid Waste Management District on the _____day of _____, 2018, and recorded in the Journal of said policy committee in Lake County, under the date of _____.

8/30/18
Date

Secretary for the Policy Committee

FOR RELEASE: March 15, 2018

CONTACT: Timothy A. Gourley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities
Phone: (440) 350-2908
Email: tim.gourley@lakecountyohio.gov

PUBLIC NOTICE

LAKE COUNTY, OH, March 23 thru April 21, 2018 - The Lake County Solid Waste Management District Policy Committee has completed the update of the District's 15-year Solid Waste Management Plan. The Plan Update has been developed to meet HB592 requirements for solid waste planning for the Lake County District. The official planning period of the Plan Update is from January 1, 2018 through December 31, 2032.

The Policy Committee welcomes input from the public during the comment period which is herein established from March 23, 2018 through April 21, 2018. The final draft of the District Waste Management Plan will be available at the following locations for public review and comment during the comment period:

1. Office of Lake County Commissioners, Administration Center
   105 Main Street Painesville, OH 44077
2. Lake County municipal and township offices
3. Lake County Public Libraries
4. http://www.lakecountyohio.gov/utilities/Divisions/SolidWasteManagementDistrict.aspx

The purpose of the Plan is to assure that the District has at least 15 years of acceptable solid waste disposal capacity; to provide strategies for reducing solid waste that is landfilled by at least 25% for the residential and commercial sector and 66% for the industrial sector; and to develop strategies of managing wastes that will be prohibited from disposal in landfills in the future. There is sufficient disposal capacity at the Lake County Solid Waste Facility for the management of all solid waste generated within the District throughout the planning period.

The final draft Plan update contains and/or makes provisions for:

- Assistance to communities to secure competitive solid waste and recycling bids for collection services.
- A pilot program for recycling for multi-family locations throughout the County.
- Drop-off recycling at the Lake County Solid Waste Facility.
- An expanded informational and education program conducted by OSU Extension, Lake County.
- Collections of household hazardous waste, waste tire, used telephone books and old electronics.
- Budgets for the District programs will be funded through the tier fees levied on waste delivered to the Lake County Solid Waste Facility and revenue from landfill tipping fees.

Solid Waste Management Policy Committee
Lake County Solid Waste Management District

###

FOR RELEASE: March 15, 2018

CONTACT: Timothy A. Gourley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities
Phone: (440) 350-2908
Email: tim.gourley@lakecountyohio.gov

PUBLIC NOTICE

LAKE COUNTY, OH, April 25, 2018 - The Lake County Solid Waste Management District Policy Committee has completed the update of the District's 15-year Solid Waste Management Plan. The Plan Update has been developed to meet HB592 requirements for solid waste planning for the Lake County District. The official planning period of the Plan Update is from January 1, 2018 through December 31, 2032.

The Policy Committee will conduct a public hearing on the final draft of the District Waste Management Plan on April 25, 2018 at 5:00 p.m. at the Lake County Administration Building Utilities Department 2nd Floor Conference Room in Painesville which is located as follows:

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

The purpose of the Plan is to assure that the District has at least 15 years of acceptable solid waste disposal capacity; to provide strategies for reducing solid waste that is landfilled by at least 25% for the residential and commercial sector and 66% for the industrial sector; and to develop strategies of managing wastes that will be prohibited from disposal in landfills in the future. There is sufficient disposal capacity at the Lake County Solid Waste Facility for the management of all solid waste generated within the District throughout the planning period.

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- Budgets for the District programs will be funded through the tier fees levied on waste delivered to the Lake County Solid Waste Facility and revenue from landfill tipping fees.

Solid Waste Management Policy Committee
Lake County Solid Waste Management District

###

LAKE COUNTY SOLID WASTE DISTRICT

March 6, 2018

Ernie Stall, Environmental Specialist 3
Ohio Environmental Protection Agency
Division of Materials and Waste Management
Planning Unit
Central Office
50 W. Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

Dear Ernie:

Please be advised that the Lake County Solid Waste Management District has posted the draft plan update to the District's website for public review and comment. The comment period extends from March 23, 2018 to April 21, 2018. The public hearing is scheduled for April 25, 2018 at the

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

Comments concerning the Lake County Solid Waste Management District Plan may be sent to the Lake County Solid Waste Management District at P. O. Box 490 105 Main St., Painesville, Ohio 44077.

Sincerely,

Timothy A. Gourley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities

LAKE COUNTY SOLID WASTE DISTRICT

March 6, 2018

Dear Solid Waste Generator:

Please be advised that the Lake County Solid Waste Management District has posted the draft plan update to the District's website for public review and comment. The comment period extends from March 23, 2018 to April 21, 2018. The public hearing is scheduled for April 25, 2018 at the

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

Comments concerning the Lake County Solid Waste Management District Plan may be sent to the Lake County Solid Waste Management District at P. O. Box 490 105 Main St., Painesville, Ohio 44077.

Sincerely,

Timothy A. Courley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities

LAKE COUNTY SOLID WASTE DISTRICT

March 6, 2018

Ashtabula County Solid Waste Management District
Ashtabula County Environmental Services
25 West Jefferson Street
Jefferson, Ohio 44047

Dear Solid Waste District Director:

Please be advised that the Lake County Solid Waste Management District has posted the draft plan update to the District's website for public review and comment. The comment period extends from March 23, 2018 to April 21, 2018. The public hearing is scheduled for April 25, 2018 at the

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

Comments concerning the Lake County Solid Waste Management District Plan may be sent to the Lake County Solid Waste Management District at P. O. Box 490 105 Main St., Painesville, Ohio 44077.

Sincerely,

Timothy A. Gourley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities

LAKE COUNTY SOLID WASTE DISTRICT

March 6, 2018

Cuyahoga Solid Waste District
4750 East 131 Street
Garfield Heights, OH 44105-7130

Dear Solid Waste District Director:

Please be advised that the Lake County Solid Waste Management District has posted the draft plan update to the District's website for public review and comment. The comment period extends from March 23, 2018 to April 21, 2018. The public hearing is scheduled for April 25, 2018 at the

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

Comments concerning the Lake County Solid Waste Management District Plan may be sent to the Lake County Solid Waste Management District at P. O. Box 490 105 Main St., Painesville, Ohio 44077.

Sincerely,

Timothy A. Gourley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities

LAKE COUNTY SOLID WASTE DISTRICT

March 6, 2018

Geauga-Trumbull Solid Waste Management District
5138 Enterprise Boulevard
Warren, Ohio 44481

Dear Solid Waste District Director:

Please be advised that the Lake County Solid Waste Management District has posted the draft plan update to the District's website for public review and comment. The comment period extends from March 23, 2018 to April 21, 2018. The public hearing is scheduled for April 25, 2018 at the

Lake County Administration Center
Lake County Department of Utilities
2nd Floor of Nolan Building
105 Main Street
Painesville, OH 44077

Comments concerning the Lake County Solid Waste Management District Plan may be sent to the Lake County Solid Waste Management District at P. O. Box 490 105 Main St., Painesville, Ohio 44077.

Sincerely,

Timothy A. Courley, R.S., M.P.H.
Solid Waste Management District Coordinator
Solid Waste Division Superintendent
Lake County Department of Utilities

APPENDIX U RATIFICATION RESULTS

Table U-1 Ratification Summary

Table U-1 Ratification Results

Lake County Board of County Commissioners	Approved	Rejected	Date Resolution Adopted
	X		5/29/2018
Community	**Population**		**Date Resolution Adopted**
	Approved	Rejected/not acted upon	
Cities			
Eastlake City	18,172		5/22/2018
Kirtland City	6,824		6/20/2018
Mentor City	47,121		5/15/2018
Mentor-on-the-Lake City	7,404		7/24/2018
Painesville City	19,813		7/16/2018
Wickliffe City	12,736		5/14/2018
Willoughby City	22,860		7/10/2018
Willoughby Hills City	9,550		5/14/2018
Willowick City	14,148		7/17/2018
Townships			
Concord Township	18,164		7/18/2018
Leroy Township		3,244	not acted upon
Madison Township	15,634		7/10/2018
Painesville Township	16,852		5/14/2018
Perry Township		6,454	not acted upon
Villages			
Fairport Harbor Village	3,080		7/17/2018
Grand River Village		402	not acted upon
Kirtland Hills Village	642		6/18/2018
Lakeline Village	220		7/9/2018
Madison Village	3,168		7/2/2018
North Perry Village	886		6/7/2018
Perry Village	1,629		5/14/2018
Timberlake Village		655	not acted upon
Waite Hill Village	459		5/14/2018
Total	219,362	10,755	
County Population			230,117
Ratification percentage			95%

Copies of the resolutions from the political jurisdictions ratifying or declining to ratify the solid waste management plan are available from the SWMD.