Brown County Solid Waste Authority

800 Mt. Orab Pike, Georgetown Ohio 45121

Phone (937) 378-3431, Fax (937) 378-6289 email dwickerham@abcap.net

June 2, 2021

Matthew Hittle, Environmental Specialist
Ohio Environmental Protection Agency
Division of Materials and Waste Management
50 W. Town St., Suite 700
Columbus, Ohio 43215

Dear Mr. Hittle;

I am pleased to present the ratified version of the Brown County Solid Waste Authority's Solid Waste Plan Update. The Authority has complied with necessary steps to ratify a Draft Solid Waste Plan. We have received resolutions in support of the Draft Plan from political subdivisions in Brown County representing 93% of the District's population. We have also received resolutions from the Brown County Commissioners and the Village of Georgetown, the largest incorporated municipality in our district. In our regular May meeting, we passed a resolution certifying the ratification. These documents can be found in appendix C of the attached Plan.

The ratified version of the Plan Update contains a few corrections to the Draft Plan submitted to OEPA based on the Non-Binding Advisory Opinion (NBAO). In most cases, the NBAO suggested additional information to clarify a program or a strategy for the public. We appreciate the input from OEPA and we share the goal of making our Solid Waste Plan accessible and crystal clear to the public. In each case we added details or narration intended to eliminate any possibility of confusion.

We did receive a comment during the Public Hearing that we should consider increasing our out-of-district disposal fee from $3.00/ton to $3.50/ton. The Board discussed this suggestion, but ultimately decided that the existing fee structure is adequate for the current needs. Additional comments were related to typos in the text of the Plan and were corrected.

If you have any questions during final plan review, please do not hesitate to call. I appreciate your help in drafting this Plan Update. I feel together we have created a useful plan that will benefit the environment and the citizens of Brown County.

Sincerely,

Daniel Wickerham, Coordinator

District Solid Waste Management Plan

Brown County, Ohio

Ratification Certified 5/13/2021

I. Introduction

A. Plan Approval Date, Counties in District, and Planning Period Length

1. Under current approved (or ordered to be implemented) plan:
   Date of Ohio EPA approval or order to implement March 3rd, 2015
   Counties within district Brown
   Years in planning period 18

2. Plan to be implemented with approval of this document
   Counties within district Brown
   Years in planning period 20
   Year 1 of the planning period 2020

B. Reasons for Plan Submittal

Mandatory five-year plan update.

C. Process to Determine Material Change in Circumstances

The BCSWA will utilize the following process to determine if a material change in circumstances has occurred within the District that would require a plan amendment prior to the mandatory update.

From the time of the first indication of a potential material change in circumstances, BCSWA will complete the determination within 90 days. Upon final determination, BCSWA will send a letter of notification identifying the material change(s) to the Director of the Ohio EPA and to each contiguous (or otherwise affected) solid waste district.

When one or a combination of the following criteria is met, a material change will be deemed to exist:

1) The primary landfill or recycling facility has temporarily (6 months or longer) ceased operations; has gone into closure; or is unable to be designated, removing the District's assured access to sufficient disposal capacity.

2) The revenue stream for plan implementation is eliminated or reduced for any reason to a point that would prevent the BCSWA funding its core programs necessary to meet Goal #1 and remain in compliance with OEPA. If the reduction in funding is temporary in nature and the District's financial reserves are able to support the necessary programs, the funding interruption would not constitute a Material Change in Circumstances. The BCSWA has developed a process to reduce expenses in the possibility of a reduction (or increase) in funding. This process is detailed in Section VIII-D.

3) Waste generation increases to a level beyond the capacity of the existing landfill or recycling facility; or waste generation decreases to a level which will not support the continued operation of either facility.

4) Plan implementation procedures are changed or impacted and result in a significant increase in time or cost to implement plan strategies in accordance with the approved plan.

The monitoring procedures, which may be used to help evaluate the above criteria, include:

- Monthly Solid Waste Authority meetings.
- Preparation of the quarterly Ohio EPA Report on Solid Waste District Disposal Fees.
- Preparation of the Ohio EPA Annual District Report.

D. District Formation and Certification Statement

The BCSWA was established by county resolution March 20, 1989. There have been no changes in the initial resolution since that time. The BCSWA consists of a nine person board. The board consists of representatives from government, industry, and the public. Appendix A contains a copy of the resolution which created the BCSWA.

Appendix B includes all public notices as they appeared in local newspapers publicizing hearings and comments on the district plan.

Appendix C includes: 1) a certification statement signed by a majority of the members of the BCSWA asserting that the contents of the plan are true and accurate, 2) a resolution adopting the resolution prior to ratification, 3) a resolution certifying that the plan has been properly ratified, 4) a document listing all political jurisdictions in Brown County that voted on ratification of the plan, the population represented by each, and the percentage population of Brown County as represented by the political jurisdictions that ratified the plan, and 5) one copy of all resolutions from political jurisdictions ratifying the plan.

E. & F. BCSWA Board Members

The BCSWA is an Authority as authorized under ORC Section 3734.54. As such, The BCSWA is governed by a 9 member board representing government, industry and public interest. A separate Policy Committee and Board of Directors is not required. The members of the BCSWA, all representing Brown County, are listed below:

Tony Applegate, County Commissioner, Chairman
Barry Woodruff, County Commissioner
Daryll R. Gray, County Commissioner
Tyler Thompson, Georgetown Village Administrator
Gary Pickerill, Township Trustee Representative
Mark Klump, Board of Health Representative
Ed Tibbe, Public Representative
Jeff Wiederhold, Public Representative
Ray Becraft, Industrial (Generator) Representative

G. District Address and Phone Number

Daniel Wickerham, Coordinator
Brown County Solid Waste Authority
800 Mt. Orab Pike,
Suite 101
Georgetown, OH 45121-1184
(937) 378-3431 voice
(937) 378-6289 fax
(513) 403-2495 cell
dwickerham@abcap.net e-mail

H. Technical Advisory Committee and Other Subcommittees

1. Assisting in the Planning Process

The BCSWA has not chosen to develop a formal technical advisory committee or any other sub-committees. The BCSWA receives regular input from residents, recyclers, transporters, landfill operators and other solid waste professionals within the County. The following individuals regularly attend the monthly solid waste meetings and have been involved in the planning process:

Tyler Rumpke, Landfill Manager
Rumpke Waste Systems
9427 Beyers Road
Georgetown, Ohio 45121
(937) 378-4126
(937) 378-4799 fax

Dan Wickerham, Director
Adams Brown Recycling Station
9262 Mount Orab Pike
Georgetown, Ohio 45121
(937) 378-3431

Bryan Stephens, Deputy
Brown County Sheriff's Office
750 Mt. Orab Pike
Georgetown, OH 45121
(937) 378-4435

Zac Corbin
Brown County. Prosecutor
740 Mt. Orab Pike., Suite 1
Georgetown, OH 45121
(937) 378-4151
(937) 378-4151 fax

Kyle Arn, Health Commissioner
Brown County Health Department
826 Mt. Orab Pike
Georgetown, OH 45121
(937) 378-6892

Danielle Thompson
Brown County Soil & Water Conservation District
702 S. Main Street
Georgetown, OH 45121
(937) 378-4424

Christy Clary
County Extension Director
325 W. State Street, Bldg. B
Georgetown, OH 45121
(937) 378-6716

2. Implementing the Plan
The individuals listed above will also have continuing responsibility during the implementation of this plan.

II. Executive Summary

The purpose of the Brown County Solid Waste Plan is to predict the solid waste needs of Brown County for the next 20 years and make adequate provisions for waste disposal, recycling, and composting. This is accomplished by first gathering information from several sources, next extrapolating that information to make a reasonable projection of the total waste generated, then developing strategies to reduce or dispose of that waste, and finally assuring that facilities exist with sufficient capacity to accommodate the strategies.

In preparing this plan, the Brown County Solid Waste Authority has followed a specific methodology laid out in version 3.0 of the Format, a guidance document published by Ohio EPA for this purpose. Because all projections need a reference point from which to start, the first order of business is to select a reference year. This is the year for which we collect as much information as possible about population, landfill disposal, recycling, industrial activity, etc. This is also the year from which all projections start. Our reference year is 2018.

The Format is comprised of 9 sections, each with a specific purpose. Each section builds upon the last and prepares for the next. In navigating the Solid Waste Plan, it is useful to know that the plan is presented in simple outline form. Tables are used often throughout to present information. Tables are identified with the Roman numeral for the section in which they are found and a sequential number within that chapter. For example, the first table in section three is Table III-1. Each section is summarized below:

I. Introduction: This section describes the legal organization of the District and the individuals involved with the Plan. The Brown County Solid Waste Authority is governed by a board of 9 people representing the Commissioners, the Township Trustees, the Incorporated Villages, the Board of Health, Large Waste Generators, and the Public. Daniel Wickerham is the Coordinator for the Solid Waste District and can be reached at 513-403-2495 for questions or comments about this Plan.

II. Executive Summary: This is the section you are reading. It is useful for getting an overview of the Plan and specific information important to the citizens of Brown County.

III. Inventories: In this section we identify all the facilities that have a part in managing Brown County's Waste in the Reference Year. In Brown County, the vast majority of waste went to Rumpke's Brown County Landfill in Georgetown. Rumpke provided nearly all of the waste hauling service to the county as well, with the only exceptions being individuals who haul their own waste and the Village of Ripley that offers municipal waste collection. Adams Brown Recycling played a major role in the recycling activities sponsored by the District, including Drop-Off Recycling, School Recycling, and Curbside Recycling. The amount of metals recycled through private for-profit scrap yards both in-district and out-of-district has increased since the last plan update. A Yard Waste drop-off site in Georgetown is open to the public and managed by Adams Brown Recycling. One open dump site and five target enforcement dumping areas are also inventoried in Brown County. Illegal dumping is down significantly since the formation of the solid Waste District.

IV. Reference Year Population, Waste Generation, and Waste Reduction: Section four lays the foundation for the remainder of the Plan. The population in Brown County in 2018 is 43,602. The average amount of residential and commercial solid waste generated is just under 5 pounds per person per day. This is in line with national averages and includes residential and commercial waste landfilled, recycled, and yard waste composted. Table IV-5 breaks this generation down by sector. Tables IV-6 and IV-7 divide compost and recycling by type and sector. Tables IV-10 and IV-11 detail waste composition by type and sector. The only information in this section that stands out against the national averages is

industrial steel recycling. Eighty-three percent of all *industrial* material recycled in Brown County is steel. Realizing that nearly all industries in Brown County are involved in steel fabrication or machining, this statistic seems credible. The District's specific waste reduction strategies in place during the Reference year are introduced in this section.

V. Planning Period Projections and Strategies: Table V-1 projects the population change in Brown County until 2040. Brown County is considered an "out-migration area" by the U.S. Census Bureau, with working age men and women moving to more urban areas somewhat faster than the replacement rate. The population is projected to decrease to 38,700 in 2040 by the Ohio Department of Development. Table V-2 multiplies the projected population by an estimated per person waste generation rate to establish the amount of waste that must be planned for. Table V-5 projects waste reduction specific to each strategy.

VI. Methods of Management. Facilities and Programs to be Used: In Section VI we continue with the Format's methodology to anticipate the facilities needed to handle Brown County's waste during the planning period. The Brown County Landfill has ample capacity to handle all of Brown County's waste throughout the planning period. Alternative disposal sites are identified in the event that the Brown County Landfill was unable to accept our waste at any time during the planning period. Capacities needed for recycling and composting are also projected in this section. An authorization to designate facilities for the purpose of directing the flow of solid waste is contained in VI-E. A siting strategy for new solid waste facilities is contained in VI-G.

VII. Measurement of Progress Toward Waste Reduction Goals: In section VII we detail how the Brown County Solid Waste Plan will satisfy the goals of the1995 & 2020 Ohio Solid Waste Plan. The Ohio Solid Waste Plan makes two provisions for Solid Waste Districts to show compliance. The first provision, referred to as Goal 1, is to provide recycling access to 90% of the District population. Goal 2 is to prove that 25% of the Residential and Commercial Waste is recycled, and 66% of the Industrial waste is recycled. Using a formula provided in the Format, Brown County has demonstrated recycling access that far exceeds the minimum standard, thus fulfilling State Goal 1. Although our plan is not approved under Goal 2, our extensive programs, along with private recycling activities, have diverted 28% of Residential and Commercial waste and 98% of Industrial waste from the landfill in 2018.

VIII. Cost and Financing of Plan Implementation: This section details the cost and revenue necessary to implement the Solid Waste Plan. Funding is provided by a tipping fee currently in place on all waste (except Exempt Waste) disposed at the Brown County Landfill. The fee structure is $1.50 for each ton of in-district waste, $3.00 per ton of out-of-district but in-state waste, and $1.50 for each ton of out-of-state waste. While the Brown County Solid Waste Authority sets the fee, limits are mandated by the Ohio Revised Code. This fee structure, referred to as a Disposal Fee, generated just over one-million dollars in 2018. About half of that is due to a contract that Rumpke holds to accept transfer waste from Montgomery County. It should be noted that the amount of waste received at the Brown County Landfill is beyond the legal control of the Brown County Solid Waste Authority. Therefore, we have limited control of the fees we receive. For this reason, Section VIII sets forth a methodology for increasing or decreasing expenses and programs as revenue is increased or decreased. The expected revenue is projected on Table VIII-1 and expenses are projected on Table VIII-8.

IX. District Rules: Section IX deals with rules enacted under 343.01 and 3734.53 of the Ohio Revised Code. The Brown County Solid Waste Authority has not enacted rules at this time, but reserves the right to do so as necessary.

At the heart of the Solid Waste Plan are strategies designed to reduce our District's dependence on landfills. Because of the nature of the Format, information on strategies is found throughout the plan. For convenience sake, we have briefly outlined key strategies here. We will start with five new exciting strategies:

Over two-thirds of Brown County Residents live outside of a curbside recycling collection area, and rely on drop-off recycling sites to recycle. The future of drop-off recycling is being threatened nationwide due to excessive amounts of garbage and non-recyclable waste placed in or near our collection boxes. The **Recycling Contamination** strategy takes the contamination issue head-on to ensure the future viability of this essential service. Security cameras will be employed at problem sites and a reward program will be initiated for information leading to the arrest and conviction of those unwilling to follow the rules. To help those recyclers trying to do the right thing, a **Recycling Audit in a Bag** program will be created. Volunteer recyclers can opt to put their drop-off recyclables in a specially marked bag and receive feedback on how they are doing directly from the education staff at the Material Recovery Facility.

A Special Cleanup Assistance program has been created to bring the benefits of the Township and Village Cleanup days directly to specific properties that need a little attention. The program is income-based and requires the concurrence of the village or township where the property is located, as well as the Health Department and Sheriff's Department. Although this new program will be used sparingly, it is expected to be of great benefit to the entire community when needed.

A common question receive by the Solid Waste District is in regards to how to recycle household batteries. We will be rolling out a new strategy to provide recycling opportunities for **Household Batteries.** Local retail establishments will have an opportunity to become part of the solution without incurring personal expense. The District will underwrite the cost of this program, working with both Call 2-Recycle and our own household hazardous waste contractor.

Academic Scholarships will be used as an incentive to encourage high-school students bound for college to research and write an essay relating to solid waste management.

In addition to these new strategies, this Solid Waste Plan Update includes some significant improvements to some our proven strategies.

The **Yard Waste Drop-Off** site at Adams Brown Recycling will be expanded to increase capacity for the convenience of the residents. This site has proven popular and is sometimes overwhelmed during nice weather. A concrete pad or additional roll-off boxes will be installed during the planning period.

Household Hazardous Waste Collection Day will be increased to two times per year. This change will double the opportunity to take advantage of this vital service.

The **School Box Recycling program** is set for a makeover. The roll-off collection boxes will be replaced with new rear-load boxes. The new boxes will have a smaller footprint and will be serviced on a weekly schedule. Because the boxes will remain on the school site, they will be painted in the school's colors to increase buy-in from the staff and students. This improvement will make the program look better in the community and will provide for more efficient sorting at the Material Recovery Facility.

Nearly all the established programs that Brown County residents have come to rely on will be continued in this plan. This includes recycling programs such as **Drop-Off Recycling** (17 sites), **Curbside Recycling** (all villages), **Buy Back Recycling**, and **Commercial Cardboard Recycling** routes. Special waste collection events will continue, such as **Township Cleanup Days, Waste Tire Collection Days**

and **Year-round Electronic Waste Collection.** Also, our **Education and Awareness** programs and **Litter Law Enforcement** strategy will be maintained throughout the planning period.

Finally, we have considered potential strategies that would be implemented if funds became available and the need was confirmed. These include the Expansion of Curbside Recycling into densely populated areas, Improvements to the Adams Brown Recycling Material Recovery Facility, and solid waste grants to local government and nonprofit groups.

Consideration is given to setting up a facility to accept garbage in Georgetown for a per-pound fee. This would be targeted to residents that prefer to self-haul their garbage and those with oversize items for disposal. It would not be designed to compete with the landfill, but rather complement the landfill services, with all garbage ultimately going to the Brown County Landfill.

We are also beginning a conversation about the opportunity to franchise waste collection for parts of the Solid Waste District. We believe that the thoughtful use of a waste collection contract could reduce illegal dumping, decrease recycling contamination, and lower waste disposal cost for residents. Several of our larger villages contract for waste collection to benefit their residents, this idea could bring this same benefit to more citizens of Brown County. Page V-25 discusses this concept in somewhat greater detail.

Table ES-1. General Information

District name: Brown County Solid Waste Authority		
District ID #:	Reference year: 2018	Planning period: 2020-2040
Plan Status (underline one): D RD DR Approved (date) / / OI (date) / / DA		Reason for Plan Submittal: Mandatory Update

Abbreviations: D = draft, RD = ratified draft, DR = draft revised, OI = ordered to be implemented, DA = draft amended

Table ES-2. District Coordinator/Office

Name:	Daniel Wickerham
Address:	800 Mt. Orab Pike
City/State/Zip	Georgetown, OH 45121
Phone:	937-378-3431
Fax:	937-378-6041
email:	dwickerham@abcap.net

Table ES-3. Plan Data Summary

Plan Data					
		Reference Year 2018	2025 (year 5)	2030 (year 10)	2040 (final year)
Population:		43,602	41,100	40,070	38,700
Generation	Industrial	9,154	9,154	9,154	9,154
	Residential/ Commercial	39,654	38,707	38,689	39,278
	Exempt	10,512	5,004	4,879	4,712
	Total:	59,320	52,865	52,722	53,144
Waste Reduction	Industrial Recycling	9,009	9,009	9,009	9,009
	Residential/ Commercial Recycling	9,332	9,799	10,294	11,545
	Yard Waste Composting	1,736	1,853	1,946	2,183
	WR Total:	20,077	20,661	21,249	22,737
Disposal	Landfill-in-District	38,143	32,204	31,472	30,408
	Landfill-out-of-District	1,100	0	0	0
	Total Landfill	39,243	32,204	31,473	30,407
Waste Reduction Rate		33.8%	39.1%	40.3%	42.8%

Table ES-4. Existing Disposal Facilities

Existing Disposal Facilities Used in the Reference Year				
Name	County	District tons	Total tons	Years left
Rumpke Brown Co. Landfill	Brown Co, OH	38,143	264,418	112.5
Rumpke Hamilton Co. Landfill	Hamilton Co., OH	17	1,794,804	8.2
Mason Co. Landfill	Mason Co. KY	1,076	unknown	unknown
Other Kentucky Landfills	Pendleton Co. KY	7	unknown	unknown

III. Inventories [ORC Section 3734.53(A) (1)-(4)]

A. The Reference Year

2018 is established as the reference year. Due to the small size and relatively simple waste flows of our single county rural district, we were able to start on the planning process by developing programs and delaying some of the collection of inventory information until the 2018 data became available. We feel that using the latest information available only improves the planning process.

B. Existing Solid Waste Landfills

There is only one solid waste landfill located in the BCSWD, the RWS Brown County Sanitary Landfill (3916), owned and operated by Rumpke Waste Inc. This landfill received 97% of all solid waste generated in our district in 2018.

2.76% of Brown County waste (1,083.6 tons) went to Kentucky landfills as reported to OEPA by the Kentucky DEQ. The largest share of this waste went to the nearby Mason County Landfill, which reported 1,076.18 tons received from Brown County in 2018.

.04% of Brown County Waste went to Rumpke's Hughes Rd. Landfill (#33318). These 16.57 tons of waste were classified entirely as Industrial waste.

Table III-1. Landfills Used by the District

Facility Name	Type of Landfill[1]	Location		Waste Received from the SWMD (TPY- 2012)			
		County	ST	Residential/ Commercial[2]	Industrial[3]	Exempt[4]	Total
In-district facilities							
Rumpke Landfill (3916)	PA-PO	Brown	OH	27,680.10	128.22	10,334.68	38,143.00
Out-of-district facilities							
Rumpke landfill (33318)	PA-PO	Hamilton	OH	0.00	16.57	0.00	16.57
Out-of-state facilities							
Kentucky	NA		KY	906.10	0.00	177.50	1,083.60
Totals				28,586.20	144.79	10,512.18	39,243.17

1. "PA" for publicly-available or "C" for captive; enter "GO" for government-owned or "PO" for privately-owned; and "PD" for in-district facilities w/ public debt.
2. "Residential/Commercial includes asbestos, other, and general solid waste.
3. "Industrial Waste" means any non-hazardous residue resulting from an industrial or manufacturing process
4. "Exempt Waste" means materials such as construction and demolition debris and non-toxic foundry sand.

Sample Calculation: none necessary, all info from OEPA 2018 Annual District Review Form
Assumptions: None

C. Existing Incinerators and Resource Recovery Facilities

There are no permitted Incinerators or Resource Recovery Facilities for solid waste in Brown County, nor did any Brown County waste go to an out-of-district Incinerator or Resource Recovery Facility. Table III-2 has been omitted.

D. Existing Transfer Facilities

There are no permitted Transfer Facilities for solid waste in Brown County, nor did any Brown County waste go to an out-of-district Transfer Facility. Table III-3 has been omitted.

E. Existing Recycling and Household Hazardous Waste Collection Activities

Curbside Recycling is provided by Adams Brown Recycling and funded by the District. This service is provided free of charge to residents living in one of the 9 incorporated and one unincorporated villages in Brown County. The total curbside material collected from all routes (399.62 tons in 2018) is an actual scaled weight and believed to be very accurate. The total number of curbside participants in Brown County in all villages is 1,868 households. Curbside routes are designed for maximum efficiency. Some of the smaller villages are combined in one route, while the larger villages are divided into smaller routes. The recycling totals reported per village on Table III-4 are estimated as a percent of the total based on participation in each village. For example, Aberdeen Village has 195 households that participate in curbside recycling of the 1,868 total participants in the District. 195 (Aberdeen participants) divided by 1,868 (total participants) multiplied by 399.62 (total volume collected) equals 41.7 tons collected from the Aberdeen curbside route. While this method of calculation is not perfect, it provides a reasonable estimate without incurring unnecessary cost. County Offices are also serviced on the village curbside routes for efficiency. Because different offices are collected on different routes, the volumes are included in the village estimates.

A distinction is made between Community Drop-off recycling sites and School Drop-off recycling sites. While both types of sites accept the same materials, the school sites collect a much higher percentage of paper. Also, the school sites are located for the convenience of the school staff, although many staff and parents use the school boxes for personal materials. To reduce traffic on school campuses, the school boxes are not promoted to the general public, and are not used in the access calculation in this plan update.

The Community Drop-off recycling sites on Table III-5 are placed for the convenience of the general population. Both the Community Drop-off and the School Drop-off recycling programs use closed-top 30 yard roll-off boxes and are serviced by Adams Brown Recycling. The Adams Brown Recycling drop-off site, and the Pleasant Township site behind the old Shopko are all in Pleasant Township and qualify as urban sites. All of the remaining drop-off sites are considered rural.

Adams Brown Recycling also operates a buy-back facility in Georgetown, that pays for aluminum cans and other non-ferrous metals. D&S Auto sales, located in Hamersville, buys ferrous metals and car bodies. Cohen Recycling outside of Sardinia buys both ferrous and non-ferrous metals, as well as some selected electronics. Although Cohen Recycling is located just outside Brown County, many Brown County residents use this Highland County facility. We have been very careful to eliminate car bodies, rail-road scrap, CDD and other non-creditable recyclables, as well as out-of-district customers from the numbers in Table III-5.

The District hosts an annual one-day Household Hazardous Waste (HHW) collection event. The BCSWA organizes and pays for this service, utilizing the ABR facility and employing a licensed contractor and hauler (generally Environmental Enterprises Inc.).

We also host three Scrap Tire Amnesty Days. One day is located in the northern part of the county, one in the central part, and one in the south. The BCSWA organizes and pays for this service, utilizing a registered scrap tire hauler (usually Rumpke). These events are held in August when the tires are less likely to be full of water.

Table III-4. Residential Curbside Recycling Activities Used by the District

Curbside Recycling Name Mailing Address Phone Number	Type of Curb-side[1]	Popu-lation Served	Frequency of Collection	Average # of HHs Participating[2]	Service Area		Types of Materials Accepted	Recyclables Processed from the SWMD (TPY)
					County	Townships /Cities		
Aberdeen Village[3] Curbside	NS	1,608	Every two weeks	195	Brown	Aberdeen	Newspapers Office Paper Cardboard Magazines Aluminum Cans Mixed Plastic Steel Cans	41.7
GeorgetownVillage[3] Curbside	NS	4,280	Every week	580	Brown	Georgetown		124.1
Mt. Orab Village[3] Curbside	NS	3,479	Every two weeks	521	Brown	Mt. Orab		111.5
Ripley Village[3] Curbside	NS	1,701	Every two weeks	226	Brown	Ripley		48.3
Fayetteville Village[3] Curbside	NS	315	Every two weeks	34	Brown	Fayetteville		7.3
Sardinia Village[3] Curbside	NS	1,144	Every two weeks	118	Brown	Sardinia		25.2
St. Martin[3] Curbside	NS	42	Every two weeks	16	Brown	St. Martin		3.4
Hamersville Village[3] Curbside	NS	505	Every two weeks	64	Brown	Hamersville		13.7
Higginsport Village[3] Curbside	NS	243	Every two weeks	32	Brown	Higginsport		6.8
Russellville Village[3] Curbside	NS	514	Every two weeks	82	Brown	Russellville		17.5
County Office Collection[3]	NS	NA	Every two weeks	NA	Brown	Georgetown		Unknown-This amount is included in various curbside routes.

1. Enter "NS" for curbside programs paid for by a governmental entity, or non-voluntary programs in which residents are required to pay directly for the service; enter "S" for curbside programs which are paid for directly by the resident on a voluntary basis.
2. This is the number of HHs registered. Although the service is free and available to all within the village, participants must register to get a bin and receive mailings. Files are updated yearly.
3. Serviced by Adams Brown Recycling, 9262 Mt.Orab Pike, Georgetown, OH 45121 (937) 378-3431
Sample Calculation: Tons collected from Aberdeen = number of participants in Aberdeen divided by total participants in the District multiplied by the total tons processed from curbside recycling in the District: 195 (Aberdeen participants)/1,868 (total participants) x 399.62 (total tons collected) = 41.7 tons collected from Aberdeen
Assumptions: registered HHs equal Participating HHs
Source(s) of information: Adams Brown Recycling

Table III-5. Drop-offs, Buybacks, Hauler Collection, Other Recycling Activities, and HHW Collection Used by the District

Facility/Activity Name Mailing Address Phone Number[1]	Type of Facility or Activity[2]	Types of Materials Accepted	Service Area			Hours Availa-ble to Public	Recyclables Processed from the SWMD (TPY)	% of Material from sector: Residential - R Commercial-C Industrial – I	Processing Capacity (tons)	
			County	Townships/ Cities	Popu-lation Served				Daily (TPD)	Annual (TPY)
Drop-off Recycling Facilities-Community Boxes										
Clark Township Hamersville Park 101 Mill St. Hamersville, OH 45130	PA/DO	See footnote[3]	Brown	Clark Township	3,030	24/7	37.33	Unknown	NA	NA
Byrd Township Community Center 10126 OH-125, Russellville, OH 45168	PA/DO	See footnote[3]	Brown	Byrd Township	723	24/7	16.31	Unknown	NA	NA
Franklin Township Lake Waynoka 1 Waynoka Drive Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Franklin Township	1,619	24/7	49.60	Unknown	NA	NA
Green Township Greenbush Park 16003 US 68 Mt. Orab, OH 45154	PA/DO	See footnote[3]	Brown	Green Township	3,496	24/7	23.02	Unknown	NA	NA
Green Township 409 N. High St. Mt. Orab, OH 45154	PA/DO	See footnote[3]	Brown	Green Township	3,496	24/7k	130.21	Unknown	NA	NA
Huntington Township Aberdeen Village River Crossing Marathon 2530 US-52 Aberdeen, OH 45101	PA/DO	See footnote[3]	Brown	Huntington Township	2,714	24/7	29.28	Unknown	NA	NA
Jackson Township Ash Ridge Township Hall 8592 Ash Ridge-Arnheim Road., Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Jackson Township	1,546	24/7	16.95	Unknown	NA	NA

Jefferson Township 123 N. Kendle St. Russellville, OH 45168	PA/DO	See footnote[3]	Brown	Jefferson Township	1,381	24/7	26.39	Unknown	NA	NA
Lewis Township Old Higginsport School 308 Gaines St. Higginsport, OH 45131	PA/DO	See footnote[3]	Brown	Lewis Township	2,640	24/7	21.25	Unknown	NA	NA
Perry Township Hall 3854 St. Rt. 50 East Fayetteville, OH 45118	PA/DO	See footnote[3]	Brown	Perry Township	4,624	24/7	38.98	Unknown	NA	NA
Perry Township Lake Lorelei 49 Keil Drive Fayetteville, OH 45118	PA/DO	See footnote[3]	Brown	Perry Township	4,624	24/7	31.88	Unknown	NA	NA
Union Township Ohio Valley Manor 5280 US 68 Ripley, OH 45167	PA/DO	See footnote[3]	Brown	Union Township	2,989	24/7	12.08	Unknown	NA	NA
Union Township Corner of 3rd and Cherry Street Ripley, OH 45167	PA/DO	See footnote[3]	Brown	Union Township	2,989	24/7	49.66	Unknown	NA	NA
Washington Township Veteran's Park 13309 Purdy Road Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Washing-ton Township	2,287	24/7	58.99	Unknown	NA	NA
Sterling Township 15136 Eastwood Road Williamsburg, OH 45176	PA/DO	See footnote[3]	Brown	Sterling Township		24/7	16.95	Unknown	NA	NA
Pleasant Township Adams Brown Recycling 9262 Mt. Orab Pike Georgetown, OH 45121	PA/DO	See footnote[3]	Brown	Pleasant Township	5,501	24/7	34.16	Unknown	NA	NA
Pleasant Township Behind Old Shopko 4869 St. Rt. 125 Georgetown, OH 45121	PA/DO	See footnote[3]	Brown	Pleasant Township	5,501	24/7	67.43	Unknown	NA	NA

Table III-5. (continued) Drop-offs, Buybacks, Hauler Collection, Other Recycling Activities, and HHW Collection Used by the District

Facility/Activity Name Mailing Address Phone Number	Type of Facility or Activity	Types of Materials Accepted	Service Area			Hours Available to Public	Recyclables Processed from the SWMD (TPY)	% of Material from sector: Residential - R Commercial-C Industrial – I	Processing Capacity (tons)	
			County	Townships/ Cities	Population Served				Daily (TPD)	Annual (TPY)
Drop-off Recycling Facilities-School Boxes										
Chatfield College 20918 OH-251 Fayetteville, OH 45118	PA/DO	See footnote[3]	Brown	St. Martin	NA	24/7	2.50	Unknown	NA	NA
Eastern Junior High 11479 US Rt. 62 Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Sardinia	NA	24/7	6.89	Unknown	NA	NA
Eastern High 11575 US Rt. 62 Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Sardinia	NA	24/7	7.03	Unknown	NA	NA
Fayetteville-Perry Elementary/Middle 140 North East Street Fayetteville, OH 45118	PA/DO	See footnote[3]	Brown	Fayetteville	NA	24/7	11.94	Unknown	NA	NA
Georgetown Elementary 935 Mt. Orab Pike Georgetown, OH 45121	PA/DO	See footnote[3]	Brown	Georgetown	NA	24/7	2.63	Unknown	NA	NA
Georgetown Jr/Sr. High 987 Mt. Orab Pike Georgetown, OH 45121	PA/DO	See footnote[3]	Brown	Georgetown	NA	24/7	6.93	Unknown	NA	NA
Hamersville Elementary 1950 SR 125 Hamersville, OH 45130	PA/DO	See footnote[3]	Brown	Hamersville	NA	24/7	14.44	Unknown	NA	NA

Table III-5. (continued) Drop-offs, Buybacks, Hauler Collection, Other Recycling Activities, and HHW Collection Used by the District

Facility/Activity Name Mailing Address Phone Number	Type of Facility or Activity	Types of Materials Accepted	Service Area			Hours Available to Public	Recyclables Processed from the SWMD (TPY)	% of Material from sector: Residential - R Commercial-C Industrial - I	Processing Capacity (tons)	
			County	Townships/ Cities	Population Served				Daily (TPD)	Annual (TPY)
RUHL Elementary 500 S. Second Street Ripley, OH 45167	PA/DO	See footnote[3]	Brown	Ripley	NA	24/7	8.62	Unknown	NA	NA
RUHL Middle 2300 Rains-Eitel Road Aberdeen, OH 45101	PA/DO	See footnote[3]	Brown	Aberdeen	NA	24/7	2.23	Unknown	NA	NA
RUHL High 1317 S. Second Street Ripley, OH 45167	PA/DO	See footnote[3]	Brown	Ripley	NA	24/7	.87	Unknown	NA	NA
Sardinia Elementary 7742 Tri County Highway Sardinia, OH 45171	PA/DO	See footnote[3]	Brown	Sardinia	NA	24/7	6.05	Unknown	NA	NA
Southern Hills CTC 9193 Hamer Road Georgetown, OH 45121	PA/DO	See footnote[3]	Brown	Georgetown	NA	24/7	7.26	Unknown	NA	NA
Western Brown Elementary 474 W. Main Street Mt. Orab, OH 45154	PA/DO	See footnote[3]	Brown	Mt. Orab	NA	24/7	13.52	Unknown	NA	NA
Western Brown Middle 472 W. Main Street Mt. Orab, OH 45154	PA/DO	See footnote[3]	Brown	Mt. Orab	NA	24/7	10.71	Unknown	NA	NA
Western Brown High 476 W. Main Street Mt. Orab, OH 45154	PA/DO	See footnote[3]	Brown	Mt. Orab	NA	24/7	10.71	Unknown	NA	NA

Table III-5. (continued) Drop-offs, Buybacks, Hauler Collection, Other Recycling Activities, and HHW Collection Used by the District

Facility/Activity Name Mailing Address Phone Number	Type of Facility or Activity	Types of Materials Accepted	Service Area			Hours Available to Public	Recyclables Processed from the SWMD (TPY)	% of Material from sector: Residential - R Commercial-C Industrial - I	Processing Capacity (tons)	
			County	Townships/ Cities	Population Served				Daily (TPD)	Annual (TPY)
Buyback Recycling Facilities										
Adams Brown Recycling 9262 Mt. Orab Pike Georgetown, OH 45121 (937) 378-3431	PA/BB	Aluminum Cans Appliances, Clear, Brown & Green Glass, mixed Plastic, Lead-Acid Batteries, Magazines, Mixed Paper, Cardboard, Office Paper, Old Newspaper, #1&#2 Plastic, Steel Cans, Electronics Non-ferrous metals	Brown	All of Brown County	43,602	40hr./ week	1,547.03	R-75% C-25% I-0%	12.5	3,500
D&S Auto Sales 1834 St. Rt. 125 Hamersville, OH, 45130 (937) 379-1969	PA/SY	Ferrous metals	Brown	All of Brown County	43,602	40hr./ week	930	Unknown	4,200+/year	
Cohen Recycling 1390 Oak Leaf Road Sardinia, OH 45171 (937) 446-4100	PA/SY	Ferrous metals Non-ferrous Metals	Located in Highland, serving Highland, Brown Adams	All of Brown County	43,602	40hr./ week	11,016	R-33% C-14% I-52%	25,000+/year	

Table III-5. (continued) Drop-offs, Buybacks, Hauler Collection, Other Recycling Activities, and HHW Collection Used by the District

Facility/Activity Name Mailing Address Phone Number	Type of Facility or Activity	Types of Materials Accepted	Service Area			Hours Available to Public	Recyclables Processed from the SWMD (TPY)	% of Material from sector: Residential - R Commercial-C Industrial - I	Processing Capacity (tons)	
			County	Townships/ Cities	Popu-lation Served				Daily (TPD)	Annual (TPY)
Hauler Collection										
Rumpke Waste 9427 Beyers Road Georgetown, OH 45121 937/378-4126	HC	Cardboard	Brown	Georgetown, Mt. Orab	NA	NA	93	C- 100%	NA	NA
HHW Collection Programs										
Brown County Solid Waste Authority 800 Mt. Orab Pike Georgetown, OH 45121 937-378-3956	PA/DO	HHW	Brown	All	43,602	6hr./year	.45 tons oil/antifreeze & 13.39 other HHW recycled	R-100%	NA	NA
Other Recycling										
Scrap Tire Amnesty Days	PA/DO	Scrap Tires	Brown	All	43,602	18hr./ year	185.06	R-100%	NA	NA

1. All Community Drop-off and School Drop-off serviced by Adams Brown Recycling, 9262 Mt.Orab Pike, Georgetown, OH 45121 (937)378-3431
2."PA" = publicly-available, "PUO" = private use only, "DO" = drop-off facility, "BB" = buy-back recycling center, "SY" = scrap yard, "HC" = hauler collection.
3. All Community Drop-off and School Drop-off boxes accept aluminum cans, steel food cans, #1 & #2 plastic, glass bottles, newspaper, cardboard, magazines, books, office paper

Sample Calculation: None necessary

Assumptions: None

Source(s) of information: 2018 ADR (Adams Brown Recycling, Environmental Enterprises Inc., Rumpke, D&S Auto, Cohen Recycling),

F. Existing Composting/Yard Waste Management Facilities

During the reference year (2018), there were three sources of yard waste.

The largest processor of yard waste in Brown County is Bzak landscaping, a mulch and landscaping supply company with four locations in south-east Ohio, including one in Georgetown. In 2018, Bzak estimated grinding 1,736 tons of brush from Brown County. Since portable grinding equipment is only brought in as needed, processing capacity is scalable, and limited only by demand for the finished mulch product. Feedstock material is supplied by tree service companies, local highway departments and the Adams Brown Recycling Yard Waste site. Residential drop-off is not permitted under normal circumstances. The Bzak site is manned and refuses any material that is not good feedstock for mulch. The tonnage of material at the Bzak facility is calculated by weight using USEPA's estimate of 500 lbs. per cubic yard for chipped brush. Since the Adams Brown Recycling material, as well as a portion of the Mt. Orab material is taken to the Bzak site, care is taken to eliminate double counting when calculating the Annual District Report yard waste volumes.

The Adams Brown Recycling Yard Waste Drop-off site is provided for the convenience of Brown County residents. Two roll-off containers are available for residential quantities of brush and grass clippings at a clean and improved site. The roll-offs are positioned at a lower elevation against a concrete wall to facilitate unloading of the public's vehicles. When full, the roll-offs are simply hauled to the Bzak facility, about 2 miles away. This facility is necessary because the Bzak facility is not designed for residential traffic. The Adams Brown Recycling Yard Waste Drop-off is open all daylight hours. The Adams Brown Recycling site receives only a nominal amount of non-compostable material which is removed when discovered. This material is not tracked, but would amount to less than one ton per year. The material collected at the Adams Brown Recycling site is weighed on certified truck scale at the recycling center.

The Village of Mt. Orab runs a yard waste collection program for the benefit of village residents. When a resident has yard waste to dispose of, the resident calls the village office to schedule a curbside pickup. When enough pickups are requested to justify a collection, the village calls a tree service company and provides a list of address needing yard waste pick-up. The village is billed by the tree service company on a per-hour basis. The Solid Waste Authority provides a cost-share to the village for this service. The brush is usually chipped on site and given to a local resident or taken to the Bzak facility.

Since our last Solid Waste Plan update, Green Brothers Enterprises has ceased operation, the Village of Georgetown Composting site has been replaced by the Adams Brown Recycling Yard Waste Drop-off site, and the inactive Village of Aberdeen Composting site has been closed.

Table III-6. Composting/Yard Waste Management Activities Used by the District

Facility Name or Activity	Facility Type[1]	Location		Waste Received from the SWMD		Processing Capacity		Non-compostables landfilled (TPY)	Compost Produced (TPY)
		County	Address City ST Zip Phone	Type	Amnt (TPY)	Daily (TPD)	Annual (TPY)		
Bzak	PUO/M	Brown	5081 Camp Run Rd. Georgetown, OH 45121 937/378-9986	Yard Waste	1,736	Unknown	Unknown	nominal	1,736
Adams Brown Recycling	PA/DO	Brown	9262 Mt. Orab Pk. Georgetown, OH 45121 937/378-9986	Yard Waste	386[2]	Unknown	Unknown	nominal	0
Mt. Orab Yard Waste Collection	PA	Brown	Village of Mt. Orab 100 S. High Street Mt. Orab OH, 45154 937/444-2692	Yard Waste	Unknown	Unknown	Unknown	nominal	0
Totals					1,736[3]	-	-		1,736

1."PA" = publicly-available, "PUO" = private use only, accepts yard waste from commercial trimmers but not the public, "DO" for drop-off facility; "CF" for compost facility, M = produces mulch for sale

2. Material collected at the Adams Brown Site is taken to the Bzak site for processing

3. To avoid double counting, this total is equal to Bzak's TPY and is not a sum of this column

Sample Calculation: Bzak received 6,944 cubic yards of chipped brush at 500 lb/yd^3 = 3,472,000 lbs./2000=1,736 TPY

G. Existing Open Dumps and Waste Tire Dumps

Table III-8 lists the one active dumpsite in Brown County. In addition, the table includes five locations that are often targeted by illegal dumpers. Because the Litter Officer investigates and removes all the garbage from these sites as the dumping occurs, they do not qualify as open dumps. The small number of illegal dumpsites in our rural county is due to aggressive enforcement by the Litter Control Officer. All sites on Table III-8 are continually monitored by the Litter Control Officer.

H. Ash, Foundry Sand, and Slag Disposal Sites

There are no Ash, Foundry Sand or Slag Disposal Sites in Brown County. Table III-9 has been omitted.

Table III-7. Facilities Used by the District Which Are Located Outside Ohio: Additional Data

Facility Name/ Type of Facility	Facility Mailing Address Name Address City ST Zip Phone	Facility Owner Name Address City ST Zip Phone	Facility Operator/Manager Name Address City ST Zip Phone	Daily Waste Receipt Limit, if known (TPD)1	Number of Days Facility is Open During Year, if known2
Maysville Mason Co. Landfill	Mason County Landfill 7055 Sherman-Clarkson Rd Maysville, KY 41056 (606) 759-7049	Mason County Landfill 7055 Sherman-Clarkson Rd Maysville, KY 41056 (606) 759-7049	Mason County Landfill 7055 Sherman-Clarkson Rd Maysville, KY 41056 (606) 759-7049	unknown	310

Source of information: Mason County Landfill

Table III-8. Open Dumps and Waste Tire Dumps Located in the District

Location	Latitude	Longitude	Access	Content	Area Size	Township	Status
Balcony Hill – Old	38° 39' 01.29"N	83° 43' 56.37"W	Public	Junk / Tires	2-4 acres	Huntington	Open
Delhi-Arnheim	38° 54' 15.44"N	83° 49' 41.67"W	Public	NA	<1 acre	Franklin	Target Enforcement
Yankeetown Rd	38° 56' 23.17"N	84° 01' 12.36"W	Public	NA	<1 acre	Clark	Target Enforcement
Glady Rd	39° 12' 21.37"N	83° 56' 42.42"W	Public	NA	<1 acre	Perry	Target Enforcement
Bethel-New Hope Rd	38° 57' 39.40"N	83° 56' 43.88"W	Public	NA	<1 acre	Clark	Target Enforcement
Macon	38° 57' 48.83"N	83° 43' 46.13"W	Public	NA	<1 acre	Eagle	Target Enforcement

Source: Brown County Litter Control Officer

I. Map of Facilities and Sites

Appendix E contains maps showing locations of each facility and disposal site listed in III.B through III.H.

J. Existing Collection Systems - Haulers

Rumpke is the only private solid waste hauler operating in Brown County. During the reference year, the village of Ripley collected and transported its own waste to Rumpke's Brown County Landfill. In 2020, Ripley disbanded its solid waste fleet and signed a contract with Rumpke for waste collection. Because of the convenient location of the landfill, many private individuals haul their own solid waste to the landfill. This information has been provided by Rumpke.

Since source separated yard waste is not accepted at the landfill, this material is not collected by either hauler. Yard Waste must be composted at home or taken to the Adams Brown Recycling Yard Waste Drop-off site. Individuals must either bring the material themselves or make private arrangements. Residents of Mt. Orab can call the Village office to receive curbside yard waste collection on a limited basis.

The Brown County Health Department does not require licensing of solid waste haulers.

Table III-10. Solid Waste Haulers Operating in the District

Name of Hauling Company	Mailing Address: Street City ST Zip Phone	Description of Collection Routes (Include townships, cities, villages in the district where waste is collected.)	Type of Materials Collected	Tons Collected from the District (TPY)	Name of Facilities Used by Haulers
Rumpke Transportation Rear-load service	9427 Beyers Road Georgetown, OH 45121 937/378-4126	All of Brown County	Residential	17,043	Rumpke Brown County Landfill
Rumpke Transportation Roll-off and Front-load service	9427 Beyers Road Georgetown, OH 45121 937/378-4126	All of Brown County	Commercial & Industrial	9,655	Rumpke Brown County Landfill
Ripley Board of Public Affairs	14 Third St. Ripley, OH 45167 937/392-1449	Village of Ripley	Residential and Commercial	1,239	Rumpke Brown County Landfill
Private Individuals	N/A	Private residences, locations throughout the county	Residential and Commercial	10,206	Rumpke Brown County Landfill

IV. Reference Year Population, Waste Generation, and Waste Reduction [ORC Section 3734.53(A)(5)-(6)]

A. Reference Year Population and Residential/Commercial Waste Generation

The July 1st, 2018 population of Brown County is estimated at 43,602 by the U.S. Census Bureau. The Ohio Department of Development also publishes this same estimate. No adjustments or calculations are necessary due to the fact that no incorporated areas cross the county line. Population information is presented in Table IV-1

Total District Residential/Commercial Waste generation is determined by summing General Waste to the Brown County Landfill (27,680.1 tons), General Waste sent to out-of-state (KY-906.1 tons), and Residential/Commercial Recycling from the 2018 Annual District Review Form (11,067 tons).

Open dumping is not factored in because we believe that the amount illegally dumped is approximately equal to the amount cleaned up in any given year. Since we have a very effective Litter Law Enforcement program, illegal dumping is held to a minimum. Of the amount that is illegally dumped, most of it is discovered and cleaned up by the guilty party via a court issued Compliance Order. If guilt cannot be established, the Litter Collection Crew will clean the site. The amount that goes undetected is offset by the previous year's dumping discovered and cleaned by Litter Collection Crew. Once collected, the illegal dumping waste goes to the landfill or the recycling center and is counted in the regular waste activity. Therefore, to avoid double counting, this amount is not included in Table IV-1.

Table IV-1. Reference Year Population and Residential/Commercial Generation

County Name	Population		Generation Rate (lbs./person/day)	Total District Res/Com Generation (TPY)
	Before Adjustment	After Adjustment		
Brown County	43,602	43,602	4.98	39,654
Totals	43,602	43,602	4.98	39,654

Sample Calculation: 39,654 tons x 2000lbs. /43,602 population /365 days = 4.98 lbs./person/day
Assumptions: The amount of illegal dumping equals the amount of illegal dumping cleaned up in any given year.
Source of information: Ohio Department of Development, U.S. Census Bureau, Ohio EPA Solid Waste Flows from 2018 Annual District Review Form

B. Industrial Waste Generation

The Harris Ohio Industrial Directory for 2018 listed 41 firms in Brown County with a Primary SIC Code of 20 or 22 – 39. We added two industries that had manufacturing facilities in Brown County but were missed because they had corporate offices elsewhere. We removed 23 listing for a variety of reasons including misclassification, duplication, being located outside Brown County, etc. We crossed referenced the Harris Industrial Directory information to the Ohio Development Services Agency, Ohio Industry Series. Because of the low number of industrial firms in Brown County, we often were able to recognize individual firms in their data, even though the information is reported per NAICS sector. Web searches and phone calls were also used to vet employment information. This brought our total industrial employment to 796 employees working at 20 firms.

We made an attempt to contact each of the 20 industrial firms located in Brown County. This was possible because we are a rural county with a relatively small industrial base. Ultimately, we were able to

complete surveys for 16 firms representing 93% of the total industrial employment in the District. For the majority of those firms, we already had an established working relationship because we survey them each year for the Annual District Report. In general, the larger businesses had more accurate records regarding recycling and waste disposal volumes. Smaller businesses were simply estimating amounts. In the end, the most useful tool for determining industrial recycling and waste generation has been a high degree of cooperation from the landfill and local scrap yards.

Past experience has shown that mailed surveys are rarely returned and are even less often accurate. Instead, we have found phone interviews receive a more exact response. Questions can be asked in multiple ways to access accuracy. Irrelevant questions can be eliminated and positive leads can be followed. Additionally, we can provide helpful feedback and suggestions specific to each business. For landfill disposal, we determine the type of waste and the waste company used (Rumpke or Ripley Municipal). In some cases we would contact the waste company to determine the type of container used and the frequency of service. For recycling, we also determine the company used and cross-reference when possible. Materials that are purchased for recycling (ferrous & non-ferrous metals and some paper products) tend to have the most reliable data. Often a company that does not track actual volumes can provide total income from recycling. By knowing the approximate value of each commodity, a reasonable volume estimate can be extrapolated. Donated recyclables, often from the office or break room, are often put in publicly available drop-off containers or curbside bins and therefore volumes are not known. These volumes are relatively minor and generally not included to avoid double counting.

We found that in general, most industries with at least five employees used some sort of a dumpster for waste collection. Even if the dumpster was collected along with Commercial or Residential waste, we were able to estimate waste volume by the size of container and frequency of service, factoring in percent full and waste density. Industries with four or less employees most often used "hand service" waste collection, meaning trash cans plus whatever bulk items were put out. It is very hard to judge with any amount of accuracy the amount of waste collected from a hand service stop.

Waste from the 4 businesses we were unable to survey were calculated by applying the same generation rate per employee from the responding industries in that same SIC code. In all four cases, the number of employees from the responding industries in that specific SIC code were much greater than the number of employees from the nonresponding industries. For this reason, we believe this estimate is somewhat reliable, particularly because the possible error introduced into the calculation is quite low due to the small numbers.

It is interesting to note that Brown County has one of the highest industrial recycling percentages in Ohio. This is due to the small overall number of industries in Brown County and the fact that the overwhelming majority of these industries make products out of metal. In fact, 82% of all industrial employees in Brown County are employed in an industry that makes its primary products from metal. Scrap metals have a high relative value and thus provide a strong economic incentive for recovery.

A sample form to be filled out by the Solid Waste Coordinator and survey results can be found in Appendix F.

Table IV-3 Industrial Waste Generation Survey Respondents vs. Unreported

SIC	Survey Respondents				Amounts Based Upon Secondary Data (Unreported)				Total Industrial Waste Generated (Tons)
	# of Industries	# of Em-ployees	Tons of Waste Generated	Generation Rate	# of Industries	# of Em-ployees	Tons of Waste Generated	Generation Rate	
20	1	13	16.64	1.28	0	0	0	0	16.64
22	0	0	0.00	0	0	0	0	0	0.00
23	1	5	9.98	2.00	0	0	0	0	9.98
24	2	63	29.29	.46	1	6	2.76	.46	32.05
25	0	0	0.00	0	0	0	0	0	0.00
26	1	28	1,226.50	43.8	0	0	0	0	1,226.50
27	0	0	0.00	0	0	0	0	0	0.00
28	0	0	0.00	0	0	0	0	0	0.00
29	0	0	0.00	0	0	0	0	0	0.00
30	0	0	0.00	0	0	0	0	0	0.00
31	0	0	0.00	0	0	0	0	0	0.00
32	2	35	16.64	.48	0	0	0	0	16.64
33	0	0	0.00	0	0	0	0	0	0.00
34	2	140	3,172.14	22.66	1	18	407.88	22.66	3,580.02
35	4	229	1,785.23	7.80	2	30	234.00	7.80	2,019.23
36	0	0	0.00	0	0	0	0	0	0.00
37	1	150	3,948.43	26.32	0	0	0	0	3,948.43
38	1	75	70.56	.94	0	0	0	0	70.56
39	1	4	1.28	.32	0	0	0	0	1.28
Totals (tons)	16	742	10,276.69	13.85	4	54	644.64	11.94	10,921.33

Sample Calculations:
For survey respondents with volume and frequency of waste receptacle only (SIC 23 for example):
6 yard dumpster x 52 weeks per year x 80% full x 80 lbs. per yard / 2000 lbs. per ton = 9.98 tons per year

For unreported business SIC 24 :6 unreported employees(estimate from Harris Directory) x .46 tons per employee per year (from reporting industries SIC 24) = 2.76 tons SIC 24 unreported

C. Exempt Waste

The majority of Exempt Waste (5,229.99) and CD&D Waste (5,104.69) originating from Brown County was disposed of at the Brown County Landfill (10,334.68 tons total). The 5,229.99 tons of Exempt Waste was uncontaminated earth from a construction project in Georgetown. It was used as Alternative Daily Cover. This material was an anomaly for the Brown County Landfill. The previous 8 years saw a combined total of less than 25 tons of Exempt Waste. On the other hand, CD&D waste has seen a steady increase over the last 8 years. The majority of this CD&D waste is the result of single family housing construction. A small amount of Exempt Waste was disposed of in a Kentucky landfill (177.5 tons).

Table IV-4. Exempt Waste Generated in the District and Disposed in Publicly-Available Landfills

Type of Waste Stream	Generation Rate (lbs./person/day)	Total Exempt Waste Generation (TPY)
CD&D	.64	5,104.69
Exempt	.68	5,407.49
Totals	**1.32**	**10,512.18**

Sample Calculation: CD/D=5,104.69 tons x 2000 lbs./ 43,602 population /365 days = .64 lbs./person/day
Assumptions: none

D. Total Waste Generation

Table IV-5. Reference Year Total Waste Generation for the District

Type of Waste	Generation Rate (lbs/person/day)	Tons/Year
Residential/ Commercial	4.98	39,654
Industrial	1.37	10,921
Exempt[1]	1.32	10,512
Total Waste Generation	7.68	61,087

1. "Exempt Waste" includes only materials which are exempted from the definition of solid waste, such as construction and demolition debris, but are processed at solid waste facilities such as landfills.
2. We know that the total generation is 7.45 lbs./person/day and 59,320 tons total from landfill and recycling records. The survey method of industrial waste calculation estimates a higher number than landfill records. If the survey method was adopted as the most accurate, the R/C number would go down a corresponding amount. This is discussed in detail in IV.-G "Reconciliation of Waste Generation".

E. Reference Year Waste Reduction

Data source and quality:
Tables IV-6 and IV-7 contain information from the 2018 ADR. The BCSWA did an especially careful job of surveying for the 2018 ADR knowing that 2018 would be used as the reference year for this plan update. All amounts are based on survey responses from businesses, industry, and recycling processors. Due to the small number of businesses and recycling processors, double counting was eliminated on a case-by-case basis. This approach also allowed a comparison of data from different levels to improve accuracy. When surveying a business, we ask the type of material recycled, the amount, and the facility receiving the material. If the material did not go to one of our three surveyed processors, we could be confident that the material was not double counted. If the material did go to one of our three surveyed processors, we would cross-reference the amount with the processor and reduce the processors volume by an equal amount. In the case of a disagreement in the reported volumes, a couple of phone calls would generally show which number was most reliable.

Adams Brown Recycling (ABR) tracks material by source-county and source business if relevant. This allows us to avoid claiming the same volume at the producer and recycler level. ABR also divides total materials among the various local solid waste districts to eliminate two districts claiming the same volume. Because ABR manages our District's recycling programs, and receives a subsidy for this service, ABR is very willing to provide detailed information to the BCSWA.

The two scrap yards receiving materials from businesses in Brown County received a list of businesses having reported sending material to that facility. The amounts were verified if possible and reduced from the scrap yards' total. The scrap yards also adjusted volumes to only report materials from Brown County and to eliminate train boxcars, metals from demolition activities, and metals resulting from motor vehicle salvage.

1. Reference Year Waste Reduction-Residential/Commercial Sector

Table IV-6. Reference Year Residential/Commercial Waste Reduction in the District

Type of Waste Source Reduced	*TPY*	*Type of Waste Recycled*	*TPY*	*Incineration, Composting, Resource Recovery*		
				Total Waste Received	*Residual Landfilled*	*Net Waste Processed*
NA	*0*	*White Goods*	*1,440.3*	*Incineration*	*Ash*	*Net Incineration*
		HHW	*13.4*	*0*	*0*	*0*
		Used Motor Oil	*40.6*	*Composting*	*Residuals*	*Net Compost*
		Electronics	*14.5*	*1,735.7*	*0*	*1,735.7*
		Scrap Tires	*123.86*	*Resource Recovery*	*Ash*	*Net RR*
		Dry Cell Batteries	*.05*	*0*	*0*	*0*
		Lead-Acid Batteries	*336.73*			
		Food Waste	*51.1*			
		Glass	*85.83*			
		Ferrous Metals	*4,271.3*			
		Non-Ferrous Metals	*761.99*			
		Corrugated Cardboard	*1,564.25*			
		All Other Paper	*398.87*			
		Plastics	*157.13*			
		Textiles	*70*			
		Other - Antifreeze	*1.74*			
Subtotals	*0*		*9,331.65*	*1,735.7*	*0*	*1,735.7*
Grand Total					*11,067.35*	

All information provided on Table IV-6 came directly from 2018 ADR. Double counting was eliminated before completing Table IV-6. No calculations or extrapolations were required. No assumptions made.

The BCSWA does not claim source reduction amounts due to the difficulty in proving and quantifying data. There are no MSW incinerators serving our district. All amounts used were reported on surveys. Extrapolation and data from previous surveys was not used in developing Tables IV-6 and IV-7.

Residential/Commercial Waste Reduction Activities:

Single Stream Recycling was introduced as a new strategy to replace Dual Stream Recycling and Mixed Fiber Collection during the last plan. By upgrading the Adams Brown Recycling Material Recovery Facility during the last planning period, we were able to switch our curbside and drop-off collections to single stream. This change allowed for increased hauling efficiencies and better service to our residents. The disadvantage of this strategy is that some people interpret single stream to mean that it is okay to include garbage with recyclables.

Drop-Off Recycling is one of our most effective strategies in terms of cost-effective recycling. The program is maintained by Adams Brown Recycling. A closed top 30 cubic yard roll-off container is placed in 16 sites throughout the county (14 rural + 2 urban). All drop-off sites are inventoried on Table III-5. Each roll-off container is painted bright green and is clearly labeled. Although the Drop-off Recycling sites are placed for the convenience of those residents without access to Curbside Recycling, they are available to anyone wishing to recycle materials. The sites are available 24 hours per day, seven days per week. In 2018, 660.5 tons of single stream recyclable materials were collected. The primary advantages of Drop-Off Recycling are relatively low cost per ton, high volumes, and around the clock convenience. The main disadvantage is a relatively high amount of garbage mixed with the recyclables, either through misinterpreting acceptable materials or to avoid the cost of proper disposal.

Our **School Box Recycling** program has placed a 30 yard roll-off recycling container at every school building in Brown County. Table III-5 has details of all 14 sites. The school boxes accept the same materials that the community boxes collect. In practice, the school boxes are heavy on paper. While the school boxes are technically publically available, we do not promote their locations to the general public to minimize non-school traffic on school campuses. That said, many school staff and parents bring in their home recyclables to drop-off while at school. In 2018, the School Box Recycling program collected 112.3 tons of materials. The greatest disadvantages of the School Box Recycling program are the logistical challenges of timing of service (boxes generally cannot be serviced when school is starting or letting out because of high traffic flows) and limited space on some campuses for truck operations. Advantages include convenience for school staff and reinforcing the message of our education program that recycling is important!

Curbside Recycling is a free service (non-subscription) to anyone living in one the nine incorporated villages in Brown County and the former village of St. Martin. An itemized list of all curbside routes can be found on Table III-4. This program accepts aluminum cans, steel food cans, #1 & #2 plastic, newspaper, cardboard, office paper, magazines, and books for recycling in a single stream. Service is provided by Adams Brown Recycling. To participate, a resident must call the recycling station to register. The participant is given a marked 65 gallon rolling cart to be placed at the curb on the designated day. A rear-load packer truck picks up recyclables in most communities every other week. To reduce confusion resulting from the every-other week servicing, a calendar is mailed at the beginning of the year to each registered participant with each collection day highlighted. All holidays and make-up routes are noted on the calendar as well. In the Village of Georgetown, collection is weekly. When registering, each participant also receives a list of acceptable and unacceptable materials. In the reference year, 399.6 tons of recyclables were collected through the curbside program. The overwhelming advantage of this program is the great convenience for those who participate. The disadvantage of the curbside program is the relatively high cost. The every-other week schedule is sometimes a source of confusion, but is a workable compromise between convenience and cost.

Commercial Collection of Cardboard is available to all businesses in Brown County. A six-yard container is provided to be serviced with our rear-load truck. The current cost of this service is $45.00 per month for weekly collection. This service is provided by Adams Brown Recycling. In 2018, 12 businesses participated in this program. Commercial rear-load service allows all Brown County businesses to participate in cost-effective cardboard recycling regardless of location. Because we commit to provide this service regardless of location in the county and because of the varying market value of cardboard, this strategy does require a degree of subsidy to be sustainable.

Buy Back Recycling is available for those who wish to sell aluminum cans, lead-acid batteries and other non-ferrous scrap metal for cash. The Buy Back site also accepts donations of electronics, white goods and ferrous scrap for recycling. CRT's and fluorescent lightbulbs are accepted for a fee. The program is operated by Adams Brown Recycling with no direct cost to the district. The Buy Back location is near the center of the county in Pleasant Township, and serves the entire County. In 2018, 1,274 tons were purchased, returning $601,076 to the local economy. The advantage of Buy Back Recycling is that it is largely self-supporting and provides a direct financial incentive for residents to recycle. The disadvantage of Buy Back Recycling is that recycling volumes are subject to market fluctuations.

The BCSWA maintains a **Yard Waste Drop-Off** site at Adams Brown Recycling in Georgetown. This site is available free of charge to all Brown County residents. Yard waste is collected and loaded into open top roll-off containers and transported to a local mulch producer. Because the material is stored in roll-off containers and removed frequently, a Class IV permit is not needed. In 2018, 386.33 tons of yard waste was handled by our collection site. The advantage of the yard waste collection program is the low maintenance cost relative to the tonnage produced. The disadvantage of this strategy is that the Brown County yard waste collection site is less convenient for residents with bulky loads farther away from the county seat. The new yard waste site is evaluated on the basis of tons received.

The Village of Mt. Orab also has a **Village Yard Waste Collection** service for Mt. Orab residents. Yard waste is collected at the curb and transported to a commercial yard waste facility. This yard waste volume is counted as part of commercial facility tonnage to avoid double counting. This is a premium service that is funded by the village with a modest cost share from the BCSWA. The disadvantage is that many municipalities are not in a financial situation to offer this level of service.

Household Hazardous Waste day is a once per year amnesty collection for the entire county that collects household paint and chemicals. These services are provided at no charge to the public. Adams Brown Recycling provides manpower, a location, and management for the HHW Day. A contractor (most often Environmental Enterprises Inc.) is contracted to receive, pack, transport, and dispose of hazardous waste. In 2018, 31,616 pounds of HHW were managed by EEI. Also 810 gallons of used motor oil and 75 gallons were collected by Halo Resource Management on HHW day. The advantages of HHW Day are the popularity of the event, the awareness opportunity for issues relating to safe disposal of HHW, and diversion of the material collected. The disadvantage of HHW is the great cost and the fact that only a small amount of the HHW going into the landfill is diverted. Due to the one day nature of this event, we expect wide fluctuations in HHW volumes each year due to weather and other factors.

Electronics Collection is maintained year-round at Adams Brown Recycling's drive-through buyback center. With the exception of radioactive devices, electronics includes everything with a cord or battery. The most common items received include tv's, computers, cell phones and home sound systems. Although ABR charges $.40 per pound for televisions; computers and other electronics are accepted for free. This also gives us an outlet for electronics inappropriately placed in our drop off recycling boxes or collected during the township cleanup days. Most items are sent to Green Wave Recycling in Indiana for proper recycling, although items without circuit boards (i.e. toaster oven or hair dryer) will go directly in the metal recycling stream. In 2018, ABR collected and recycled 11.05 tons of electronics. The advantage of this strategy is the year-round availability of the program (an improvement from earlier one day per year collections). The disadvantage is the potentially long distance from the ends of our district to the collection site.

Lead Acid Battery recycling opportunities are maintained throughout the year and are available to all residents of Brown County. Adams Brown Recycling also purchases lead-acid batteries at the buyback. Also, all auto part stores in Brown County charge a core charge when selling a battery and refund the core charge when a lead-acid battery is exchanged. Because of the value of these batteries, no funding of this program is necessary by the BCSWA. Our only role is in promotion and awareness of the available resources. 73.6 tons of batteries were recycled by ABR in 2018, and an additional 263 tons were recycled by independent retailers. An inventory of Buy Back programs can be found in Table III-5. The advantage of this program is the diversion of hazardous materials from the landfill at no cost to the district.

Scrap Tires are collected during 3 separate collection days. We use a northern, a central, and a southern Brown County site for the convenience of the public. We typically run the three days on successive Saturdays in October. This seems to be a slow time for the tire scrap tire transporter, a good time for farmers, and the tires are generally dryer than in the spring. The central location is hosted by Adams Brown Recycling. The northern and southern sites are provided by township trustees. A licensed transporter (usually Rumpke) provides tire removal. This free service is available to all Brown county residents, although a ten tire per household limit is imposed when necessary. In 2018, we were fortunate to receive a Litter Management Grant from OEPA. With this grant, we were able to add a few additional scrap tire collection days in the spring. In total, 185 tons of tires were collected and recycled during our amnesty events. During the planning period, we expect our amnesty events to yield closer to 100 tons per year. Since receiving our last scrap tire recycling grant, OEPA has added a requirement that future grant funded tire collection events will charge a minimum of $.50 per tire to help make the public aware that tire disposal costs money. If we receive a grant in the future, we will follow the requirements of the funding source. The advantage of the tire collection program to the district is the diversion of waste tires from illegal dumps and roadsides. The disadvantage is that we have trained some of the residents of Ohio to save their used tires for the collection days rather than taking responsibility for proper disposal at the point of sale.

Township Cleanups are funded and coordinated by the BCSWA. All 16 townships in Brown County participate, creating access for all Brown County residents. The Township Trustees are responsible for scheduling, selecting a site, and providing manpower for the event. Rumpke provides waste containers, hauling, and disposal. Townships make arrangements with local township residents to haul the steel to a steel recycler for cash. All Freon bearing appliances are taken to Adams Brown Recycling for recovery. In 2018, this strategy accounted for 599 tons of garbage landfilled. The advantages of the Township cleanups are: a reduction in illegal dumping, cost savings to our citizens, an opportunity to work directly with all 48 Township Trustees, and increased steel recycling. The disadvantage of Township cleanups is that a percentage of the residents have come to rely on the Township Cleanups and allow their regular garbage to accumulate until the annual event.

Open Dump/Waste Tire Pile/Roadside Litter Cleanups are conducted by the Litter Collection Crew on an as needed basis and funded by the BCSWA. The Litter Collection Crew is made up of inmates from the Brown County Jail and is supervised by a Deputy Sheriff. A specific site is eligible for this program if it is on public property, a public right-of-way, or on private property if ordered by the court and the responsible party is unable or unwilling to pay. In the latter case, legal action is taken to recoup all funds expended. Often this policy allows a site that is a public health threat to be remediated in a timely manner. The BCSWA makes decisions on a case-by-case basis with input from the Brown County Sheriff's Department, the Brown County Prosecutor, the Brown County Health Department, the Ohio EPA, and Brown County citizens. The advantage of this program is a quick response time, often reducing the threat to public health or stopping a problem before it grows. Also, the Roadside Litter Collection program has the advantage of being very visible in our community. Cleaning local roads is universally supported by local public officials. The disadvantage is that we are limited in our efforts by the number of eligible inmates at the Brown County Jail. During the reference year, due to issues with the jail facilities, the local inmate population was temporarily reduced. This hampered our ability to provide this service. Remodeling and expansion of the jail facility is expected to alleviate this situation in the near future. An inventory of known open dump sites can be found in Table III-8.

The Litter Law Enforcement Program is funded by the BCSWA. A Sheriff's Deputy serves as the Litter Control Officer by contractual arrangement with the Brown County Sheriff. The Officer's jurisdiction covers the entire county. A monthly report is given at each BCSWA meeting. We credit the low number of illegal dumps in Brown County to this program. Having a uniformed senior officer working on this issue sends a message that illegal dumping will not be tolerated in Brown County. In 2018; 50 complaints of littering, open dumping, or open burning were investigated. 10 cases were cleaned up by the perpetrator and 3 cases were brought before the Brown County Municipal Court. The advantage of this program is the cost effectiveness of preventing, rather than cleaning up, illegal dump sites. The disadvantage is that often these results are hard to measure.

The BCSWA funds a **Landfill Monitoring Program** to ensure the health and safety of our community. The Brown County Board of Health is an approved health department and has jurisdiction over Rumpke's Brown County Landfill in Georgetown. While we have historically funded the Health Department for landfill oversight, the importance of this program was highlighted when the landfill operator received a large contract to accept out-of-district transfer waste. Due to public concern, the BCSWA increased funding to allow more frequent inspections. The Brown County Board of Health now conducts weekly inspections. In addition, the Health Department responds to citizen complaints for blowing litter and nuisance odors. In 2018, the Brown County Health Department responded to 22 nuisance complaints, conducted 56 landfill inspections, and collected 2 air monitoring samples. While the daily volume of waste received at the landfill has diminished somewhat, we are still tasked with monitoring that waste indefinitely. Advantages of this program include local control and an increased number of inspections to ensure that the landfill is operating properly. The disadvantage is the public misperception that the Solid Waste District has regulatory authority over the business decisions of the landfill.

The BCSWA has developed a successful district wide **Education and Awareness Program** utilizing a three prong approach. The BCSWA contracts with Adams Brown Recycling, the Brown County Soil & Water Conservation District, and the Ohio State University Extension program for these services. The Solid Waste Coordinator oversees these activities. Each organization has developed a waste management, recycling, and conservation message for its unique audience. This message includes not only the need for waste minimization and recycling, but also detailed information on how and where to recycle. Through this approach, we address a large audience with our message and the message the public receives is reinforced in many ways. Because Brown County is an agrarian based community, these organizations carry a lot of credibility among our public. Additionally, each agency has its own expertise. The Adams Brown Recycling Education Specialist is responsible for school programs, tours of the recycling center, signage on the recycling boxes, paid ads for recycling, providing recycling bins for special venue activities, scheduling the roll-off recycling display, and answering recycling questions via email and telephone. The Soil & Water Education Specialist is responsible for school programs, organizing Green Camp, and hosting backyard compost training. The OSU 4-H agent is tasked with promoting recycling among the thirty-one 4-H clubs, training the Litter Officer from each club, organizing the Litter Hunt at the Brown County Fair and organizing the Recycled Sculpture Contest between the 4-H clubs. The OSU Agriculture Agent is responsible for promoting proper waste management among the agricultural community including proper pesticide container disposal, ag. plastic disposal, and out of date veterinarian medicine disposal. Although specific programs usually have a specific target audience, the sum of the programs is intended to address all residents and businesses in Brown County. In 2018, the Education and Awareness Program made presentations to 894 students in a classroom setting plus 515 members of various civic clubs. 35 individuals engaged with the Soil & Water Educator to learn about back-yard composting. 31 students attended our 8th annual week-long Green Camp. 17 tours of the Landfill and MRF were led with 300 people participating. 8,300 solid waste fact sheets were distributed and 2,125 curbside flyers were mailed. 22 newspaper articles were written and 53 newspaper ads were purchased. The Educational Specialist participated in 2 radio talk shows in 2018. 125 first-grade students entered a recycling themed coloring contest, five 4-H clubs participated in a window shade contest and 2 clubs participated in a recycled sculpture contest. 33,903 people were reached by our social media posts through Facebook and Twitter. A more thorough explanation of the division of duties and measurement of effectiveness is presented in Section V-E. "Unchanged Strategies". The strength of the Education and Awareness Program is the quality of the various staff and support received from all three organizations for a relatively modest investment. The primary weakness is the difficulty inherent in measuring results.

The Glass reFactory is a project initiated by Adams Brown recycling to create a value-added use for hard to recycle bottle glass. Glass bottles are sorted by color and melted in a furnace at over 2,100 degrees Fahrenheit. The molten glass is gathered from the furnace and pressed into decorative shapes. The most common product of the Glass reFactory is sun catchers. Sun catchers are small discs with a design in relief for display in a window or other well-lit area. The intended outcome of this project is less dependence on outside subsidies for recycling activities. Since ABR is by design unable to make a profit, all funds generated are used to create greater recycling opportunities. To this end, the Glass reFactory's goals are aligned with the BCSWA's goals. Although the Glass reFactory has been self-supporting for

several years, the BCSWA provided some of the initial investment in the project. The unintended outcome of the Glass reFactory has been the overwhelming local interest in the project and the resulting opportunity for all recycling awareness. The advantage of the Glass reFactory is that the above mentioned outcomes have come at no year-to-year cost to the Authority. The disadvantage is the Glass reFactory still has a lot of unrealized potential. We expect the program to continue at no cost to the BCSWA, but maintain it as a strategy to acknowledge the benefits received and remain in a position to assist financially if necessary.

Waste Audits are performed for local businesses and industries as requested at no cost. The Education Specialist and Staff from Adams Brown Recycling perform the actual audit. Because the staff performing the waste audits is already subsidized by the BCSWA, no specific funds are required. Businesses are made aware of the program through press releases, the local chamber of commerce, and targeted mailings. Waste Audits are informal and customized to the requirements of the specific businesses. In 2018, two commercial businesses took advantage of the Waste Audit program. This resulted in both companies initiating a recycling program. Typically, the Waste Audit will start with a phone conversation regarding current recycling activities and waste volumes. Next, a walk-through will be performed to look at the specific waste streams. Following the walk-through, research will be carried out and opportunities developed. Specific suggestions will be made by phone, personal visit, or by written report as the situation warrants. The advantage of the Waste Audit program is the opportunity to eliminate waste at its source. The disadvantage of the program is that Brown County has a small industrial and commercial base, and therefore less interest in Waste Audits than we would like. This strategy is evaluated based on the number of audits performed annually.

Although not a strategy itself, **Adams Brown Recycling** is essential to the successful implantation of several key strategies. The Brown County Solid Waste Authority and ABR have enjoyed a long and mutually beneficial relationship. ABR is a private non-profit organization and therefore is not driven by a profit motive. ABR is a division of the Adams Brown Community Action Agency. The BCSWA provides funds to ABR as outlined in many of the individual programs. The advantage of this relationship has been successful recycling programs at a low cost. The BCSWA expects this relationship to continue throughout the planning period.

2. Reference Year Waste Reduction-Industrial Sector

Table IV-7. Reference Year Industrial Waste Reduction in the District

<table>
<tr><th rowspan="2">Type of Waste Reduced</th><th rowspan="2">TPY</th><th rowspan="2">Type of Waste Recycled</th><th rowspan="2">TPY</th><th colspan="3">Incineration, Composting, Resource Recovery</th></tr>
<tr><th>Total Waste Received</th><th>Residual Landfilled</th><th>Net Waste Processed</th></tr>
<tr><td>NA</td><td>0</td><td>Ferrous Metals</td><td>7,567.13</td><td rowspan="2">Incineration
0</td><td rowspan="2">Ash
0</td><td rowspan="2">Net Incinerated
0</td></tr>
<tr><td></td><td></td><td>Non-ferrous Metals</td><td>203.72</td></tr>
<tr><td></td><td></td><td>Cardboard</td><td>1,238.3</td><td rowspan="3">Composting
0</td><td rowspan="3">Residuals
0</td><td rowspan="3">Net Compost
0</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Subtotals</td><td>0</td><td></td><td>9,009.15</td></tr>
<tr><td colspan="5">Grand Total</td><td colspan="2">9,009.15</td></tr>
</table>

All information provided on Table IV-7 came directly from surveys of industries in Brown County. No calculations or extrapolations were required. No assumptions made.

Industrial Waste Reduction Activities:

Industrial Waste reduction is encouraged by the following existing strategies. Details are the same as listed above for each strategy, except as noted.

Buy Back Recycling is available to industries as well as the general public.

Drop-Off Recycling is oriented toward residential recycling, but serves as an outlet for some industrial waste, particularly break room waste. Due to the fact that the Drop-Off boxes are unmanned and the break room waste is indistinguishable from residential waste, no volume is tracked in Table IV-7.

The **Education and Awareness** strategy extends to industries as well as commercial businesses. ABR's education staff can provide technical education assistance or design a kick-off campaign for an industry wishing to reduce its waste. No specific amount of waste reduction is claimed in Table IV-7 due to difficulty in tracking specific waste reduction Education and Awareness.

Waste Audits for industries are essentially the same as described above for commercial businesses. In relation to industries, Waste Audits often include a degree of marketing assistance not normally necessary for non-industrial businesses. Marketing assistance is simply help provided to a particular industry trying to locate a market for a particular waste product. If ABR cannot handle the commodity directly, then ABR attempts to locate a recycler or broker to handle the material. In practice, Waste Audits are not heavily used, due to the small number of industries in Brown County. In 2018, although two commercial businesses took advantage of the Waste Audit program, none were considered industries. While the utilization of Waste Audits will vary, we stand ready to assist Brown County industries with waste audits and marketing assistance. No specific amount of waste reduction is claimed in Table IV-7 due to the difficulty in documenting reduction from Waste Audits.

In practice, industries in Brown County have a high recycling rate (98.4%) due to the inherent value of their byproducts. Metals are among the easiest, oldest, and most profitable items to recycle.

We know that in 2019, one of our largest industries ceased operation in Brown County. We will adjust our projections to take this into account for the planning period. We assume the remaining industries will continue to recycle at a similar rate to the reference year.

F. Total Waste Generation: Historical Trends of Disposal Plus Waste Reduction

Table IV-8 reflects disposal and waste reduction/recycling quantities from past ADRs. This information has been collected carefully over the years and is believed to be accurate. There are a few interesting trends and anomalies when disposal and recycling volumes are looked at over this time scale. The recycling number took a jump in 2012 when two steel scrap yards began reporting information to the Authority. In the same manner, two commercial mulch operations also began reporting in 2012, causing the Yard Waste number to rise dramatically that year. Apart from those anomalies, the ebb and flow of the economy can be seen in these recycling and waste totals. Interestingly, we see a substantial increase in recycling and landfill disposal in 2018. This seems to correlate with on the ground impressions that the economic recovery from the Great Recession is just now reaching rural Brown County. The fact that the recycling volume rose by 25% and the disposal volume increased by 19% the same year lends credit to the idea that these two trends are connected.

Table IV-8. Total Waste Generation Based Upon Disposal Plus Waste Reduction

Year	Management Method Used in TPY						Total Waste
	Source Reduction & Recycling	Yard Waste Composting	YW Land Appl.	Inciner-ation	MSW Composting	Landfill Disposal	
2000	5,291	195	0	0	0	29,144	34,630
2001	6,047	1,130	0	0	0	29,408	36,585
2002	4,922	1,740	0	0	0	28,422	35,084
2003	5,596	2,581	0	0	0	27,332	35,509
2004	5,796	1,466	0	0	0	32,185	39,447
2005	7,271	2,190	0	0	0	33,593	43,054
2006	7,287	750	0	0	0	32,638	40,675
2007	7,104	720	0	0	0	32,743	40,603
2008	8,510	738	0	0	0	32,537	41,785
2009	6,614	1,172	0	0	0	31,511	39,297
2010	6,927	570	0	0	0	30,785	38,282
2011	8,575	633	0	0	0	31,167	40,375
2012	15,384	1,948	0	0	0	29,917	47,249
2013	15,388	1,710	0	0	0	31,926	49,024
2014	15,335	1,861	0	0	0	30,269	47,464
2015	13,675	1,681	0	0	0	32,564	47,920
2016	14,076	1,833	0	0	0	32,086	47,995
2017	14,718	1,739	0	0	0	33,077	49,535
Reference 2018	18,341	1,736	0	0	0	39,243	59,320

Sample Calculation: 2018: 18,341 recycling + 1,736 composting + 39,243 landfill = 59,320 total
Source: Numbers taken from ADRs.
Assumptions: None

G. Reconciliation of Waste Generation

During our last Plan Update, volume, we discovered a discrepancy in terminology. The Format defines Industrial solid waste to include "Industrial process waste" as well as "non-process waste" including "cafeteria and packaging waste". Landfills are required to report Industrial Solid Waste as "any non-hazardous solid waste which results from or is the residue of a manufacturing or industrial process" per OEPA's MSW Log Instructions (OAC 3745-29-01). This definition more closely resembles the Format's "Industrial process waste" definition. In making the determination if a waste stream is "Industrial waste", the local landfill operator described the waste as "profile waste", meaning that the waste company would view or sample a particular waste stream to determine its content. If the material was found to be non-hazardous and acceptable for landfill disposal, the profile of that waste would be recorded with the disposal records.

It has been long recognized that industrial waste surveys yield different results (usually much higher) than the landfills report receiving. This has been often attributed to industrial waste that is collected along with commercial waste and therefore cannot be reported separately. It seems that an additional discrepancy is caused by a difference in terminology.

Since we are confident that the overall disposal number is correct, any "Industrial waste" adjustment would be subtracted from the "Commercial waste" column. For the purposes of this plan, we find that the more restrictive definition of Industrial waste (or process waste) to be more useful because it deals with the character of the waste rather than the origin. Office paper from an industry is essentially the same as office paper from a commercial enterprise, just as a beverage container from an industrial break room is the same as a beverage container from a residence. The only ramification of using the lower industrial number is that our Industrial Waste Diversion number will be slightly higher and our Residential/Commercial Waste Diversion number will be slightly lower. Since we meet the 2009 State Goal for both numbers in either scenario, and since our plan is approved under the "Access Standard", the effect is only academic. Therefore, we will consider the Disposal Recycling and Generation amounts as reported on the 2018 Annual District Report Form the most useful and accurate number.

Table IV-9. Adjusted Reference Year Total Waste Generation for the District

Survey Method: Not Used

Type of Waste	Generation Rate (lbs/person/day)	Tons/Year
~~Residential/Commercial~~	~~4.76~~	~~37,887~~
~~Industrial~~	~~1.37~~	~~10,921~~
~~Exempt~~	~~1.32~~	~~10,512~~
~~Total Waste Generation~~	~~7.45~~	~~59,320~~

Landfill Records: Used for Plan

Type of Waste	Generation Rate (lbs/person/day)	Tons/Year
Residential/Commercial	4.98	39,654
Industrial	1.15	9,154
Exempt	1.32	10,512
Total Waste Generation	7.45	59,320

Sample Calculation: Industrial: 9,154 tons x 2000 lbs. per ton /43,602 population / 365 days per year = 1.15 lbs./person/day
Assumptions: None

H. Waste Composition

1. Waste Composition-Residential/Commercial Sectors

To estimate the residential/commercial waste composition, we used two sources. Recycling information came directly from the 2018 ADR. These are known amounts rather than estimates and are measured in tons. The composition of the landfilled materials came from a 2003 Waste Characterization Study preformed at the Brown County Landfill. Although the study is now 17 years old, the fact it is specific to Brown County makes it the most reliable estimate of landfill composition available to us. The study was performed by Engineering Solutions & Design, Inc. and was part of a larger study of Ohio's landfills

funded by the Ohio Department of Natural Resources. The BCSWA partnered with ODNR to conduct the Brown County Portion of the study.

Over the course of 4 days and two seasons (spring & fall), 34 residential/commercial loads were sampled and sorted. In all, 7,929 lbs. of garbage was hand sorted into 42 categories. We combined some categories to match the recycling information and to make the information more meaningful. We applied the percent of a given material category to the total tons landfilled from Brown County in 2018. We added the known quantity of recycling to arrive at the total of any one material in the waste stream.
Waste by volume and conversion factors were not necessary because all material was tracked by weight.

Table IV-10. Estimated Residential/Commercial Waste Stream Composition for the District for the Reference Year

Material	tons recycling	% recycling	tons disposal	% disposal	% total	tons total
Yard Waste	1,736	15.7	1,652	5.78	8.5	3,388
Scrap tires	124	1.1	0	0	0.3	124
Lead-acid batteries	337	3.0	0	0	0.8	337
Cardboard	1,564	14.1	1,401	4.9	7.5	2,965
Other Paper	399	3.6	10,454	36.57	27.4	10,853
Glass	86	0.8	1,089	3.81	3.0	1,175
Plastic	157	1.4	4,608	16.12	12.0	4,765
Non-ferrous metal	762	6.9	732	2.56	3.8	1,494
White Goods	1,440	13.0	0	0	3.6	1,440
Other ferrous metal	4,271	38.6	1,101	3.85	13.5	5,372
HHW	13	0.1	0	0	0.0	13
Used Oil	41	0.4	0	0	0.1	41
Electronics	15	0.1	37	0.13	0.1	52
Textiles	70	0.6	1,349	4.72	3.6	1,419
Diapers	-	0.0	1,629	5.7	4.1	1,629
Food	51	0.5	4,297	15.03	11.0	4,348
Medical Waste	-	0.0	54	0.19	0.1	54
Fines	-	0.0	80	0.28	0.2	80
Batteries	0	0.0	26	0.09	0.1	26
Wood	-	0.0	49	0.17	0.1	49
Other: comingled	2	0.0	29	0.1	0.1	30
Total	11,067	100.0	28,586	100	100.0	39,654

Sample Calculation: 1,736 tons composted per ADR + 1,652 tons landfilled (5.78% yard waste per landfill study x 28,586 total tons landfilled) = 3,388 tons yard waste total.
Assumptions: 2003 waste composition similar to 2018.

2. Waste Composition-Industrial Waste Sector

Because we are using the more restrictive definition of Industrial Waste found in OEPA's MSW Log Instructions, we know the composition of the industrial waste stream with a high degree of accuracy. Almost 99% of this material is recycled as reported by a few large industries. Industrial landfill amounts are weighed and recorded by load as `Profile Waste".

Undoubtedly, there are instances of small industries neglecting to profile certain waste or report some recycling activity. In effect, these would be small amounts and would not greatly impact our industrial waste generation calculation or our Solid Waste Plan.

Appendix F includes the spreadsheet with the detailed calculation necessary in completing Table IV-11.

Table IV-11. Estimated Industrial Waste Composition for the Reference Year in the District

Waste Stream	Total Disposal	Total Recycled	Total Waste
Ferrous Metals	0	7,567.13	7,567.13
Non-Ferrous Metals	0	203.72	203.72
Cardboard	0	1,238.30	1,238.30
Polyester Urethane Powder Paint & Filters	144.79	0	144.79
Total	**144.79**	**9,009.15**	**9,153.94**

Sample Calculation: For Total Recycled column: 7,567.13+203.72+1,238.3=9,009.15
Assumptions: No assumptions necessary.
Source: OEPA 2018 Ohio Solid Waste Facility Data Report and Annual District Review Form for 2018.

V. Planning Period Projections and Strategies [ORC Section 3734.53(A)(5)-(6)]

A. Planning Period

The Brown County Updated Solid Waste Plan is for a 20 year period starting in January of 2021 and continuing through December of 2040. Our reference year is 2018.

B. Population Projections

Population projections for the Brown County Solid Waste District were provided by the Ohio Development Services Agency, Ohio Research Office. Estimates are provided in five year increments. The years between the five year periods were calculated using the straight line method. Since the BCSWD is a single county district with no villages or cities crossing county lines; no additions, subtractions, or other adjustments are necessary.

The Ohio Development Services Agency predicts that Brown County's population will continue to decline throughout the planning period due to migration from rural Brown County to areas with more economic opportunity. An improved economy could slow the out-migration rate or even create an in-migration during the planning period.

Table V-1. District Population Projections

Year	District Population	Year	District Population
2018	43,602	2030	40,070
2019	42,976	2031	39,912
2020	42,350	2032	39,754
2021	42,100	2033	39,596
2022	41,850	2034	39,438
2023	41,600	2035	39,280
2024	41,350	2036	39,164
2025	41,100	2037	39,048
2026	40,894	2038	38,932
2027	40,688	2039	38,816
2028	40,482	2040	38,700
2029	40,276		

Sample Calculation: 42,350 (2020 population) – 41,100 (2025 population) = 1,250/5 (years) = 250 change per year between 2020 and 2025. 42,350 (2020 population) -250 (change per year) = 42,100 (2021 population)
Assumptions: None
Source of information: Ohio Department of Development, Office of Statistical Research

C. Waste Generation Projections

1. Waste Generation Projections-Residential/Commercial Sector

Table V-2 projects the amount of residential and commercial waste that will be created in the district throughout the planning period. A considerable amount of science is applied to population projections by the U.S. Census Bureau to estimate population trends in a particular area. Less information is available concerning per capita waste generation specific to a defined area. Past Plan updates have used OEPA's 2002 Estimating Per Capita Residential/Commercial Waste Generation estimate of .05% increase in overall waste generation per capita per year. When looking at the actual per capita waste generated in Brown County for the years 2012-2018, the .05% projected increase is amazingly accurate. For example, the current Approved Plan predicted that the per capita Residential/Commercial waste generation rate in 2018 would be 4.88 lbs./person/day. The actual amount in 2018 was 4.98. Because this state-wide projection tracks well with our local experience, we will continue to use .05% increase in R/C waste generation per capita per year as the best available estimate for the planning period. Ironically, because Brown County's population is projected to decline slightly for the foreseeable future and the per capita waste generation rate is projected to increase slightly, the net R/C waste generated during the planning period is expected to remain relatively constant.

Table V-2 District Residential/Commercial Generation TPY

Year	District Population	Per Capita Generation Rate[1] (lbs./person/day)	Total Residential/ Commercial Generation (TPY)
2018	43,602	4.98	39,654
2019	42,976	5.01	39,280
2020	42,350	5.03	38,901
2021	42,100	5.06	38,865
2022	41,850	5.08	38,828
2023	41,600	5.11	38,789
2024	41,350	5.13	38,748
2025	41,100	5.16	38,707
2026	40,894	5.19	38,705
2027	40,688	5.21	38,703
2028	40,482	5.24	38,699
2029	40,276	5.26	38,695
2030	40,070	5.29	38,689
2031	39,912	5.32	38,730
2032	39,754	5.34	38,769
2033	39,596	5.37	38,808
2034	39,438	5.40	38,847
2035	39,280	5.42	38,884
2036	39,164	5.45	38,963
2037	39,048	5.48	39,042
2038	38,932	5.51	39,121
2039	38,816	5.53	39,199
2040	38,700	5.56	39,278

[1]Rate was increased 0.5% per year based on Ohio EPA's, 2002 Estimating Per Capita Residential/Commercial Waste Generation.
2018 rate is established Table IV-9.
Population established in Table V-1
Sample Calculation for 2040: 38,700 (population) x 5.56123 (lbs./person/day) x 365 (days/year) / 2000 (lbs./ton) = 39,277.6 tons

2. Waste Generation Projections-Industrial Sector

The BCSWA looked at industrial waste projection from many different angles. Overall, the U.S Bureau of Labor Statistics projects a .5% per annum decrease (2018-2028) in employment across all manufacturing sectors, but at the same time projects a 1.6% increase in industrial output. The difference can be expanded by an increase in productivity per worker due to technology and automation.

The Ohio Development Services Agency-Ohio Industry Series provides estimates in production by category. Fabricated Metal, which makes up the majority of Brown County industries, is projected to drop by .4%. The same report predicts that the manufacture of machinery will drop by a full 5%. This would affect our single largest industry. Our fourth largest industry in terms of waste generation would drop by 14.9%.

The Ohio Labor Market Information report from the Ohio Department of Job and Family Services projects a 5.9% drop in overall manufacturing by 2026. On the other hand, our largest segment, Fabricated Metal Products Manufacturing, is expected to increase by about 3% according to their report.

Ultimately, the sector by sector increases or decreases are only part of the puzzle. Our four largest manufactures, representing 67% of the total industrial employment in Brown County, are all divisions of larger companies with multiple factories in other locations. If a sector goes down, but that company moves more manufacturing to Brown County, our industrial base will go up. Conversely, even when a sector is growing, we are vulnerable to business decisions that move manufacturing out of the county. Our third largest industrial employer is a great example of this. An announcement has been made that this particular subsidiary of a larger company will close this factory and permanently lay off 94 people mid-year 2020. This represents 12% of our total industrial employment alone! At the same time, a branch of the second largest manufacturer intends to move more production to Brown County in the near future. Our fourth largest manufacturer is in a segment that is projected to go down 3%, but it supplies parts to a segment that is one of the fastest growing in the country.

All this is to say that it seems impossible to make any kind of meaningful and accurate projection of industrial activity for the planning period. The overwhelming majority of our industrial waste is ferrous metal. This material will be recycled regardless of how much or how little is produced because it has a high inherent value. The small amount of industrial waste that makes it to the landfill amounts to less than one quarter of one percent of the total waste generated in the district. It can increase or decrease by orders of magnitude and still not have any appreciable effect on our solid waste planning.

With overall manufacturing projected to decrease modestly, our largest sectors projected to increase slightly, one large industry leaving our county and another expanding, population and employment set to decrease but worker productivity increasing, we have elected to assume that manufacturing will stay steady during the planning period. Without a doubt, industrial activity in Brown County will change during the planning period, we just do not know by how much and in which direction.

Table V-3 has been adapted to include a more comprehensive breakdown of Industrial Waste by type and SIC code. Industrial Waste is expected to remain relatively constant during the planning period.

Table V-3 Projected Industrial Waste Generation

SIC	2018-2040				
	Profile Waste	Ferrous Metal	Non-ferrous Metal	Cardboard	Total
20					
22					
23					
24		6.00			6.00
25					
26				1,155.00	1,155.00
27					
28					
29					
30					
31					
32					
33					
34	96.59	2,669.27	59.40	83.30	2,908.56
35	16.57	1,666.68	62.65		1,745.90
36					
37	31.63	3,222.80	79.54		3,333.97
38		2.00	2.00		4.00
39		.38	.13		.51
Totals	144.79	7,567.13	203.72	1,238.3	9,153.94

Sample Calculation: SIC 34: 96.59 tons Profile Waste + 2,669.27 tons Ferrous Metal + 59.4 tons Non-ferrous Metal +83.3 tons Cardboard = 2,908.56 tons total Industrial Waste for all industries in SIC code 34.

Assumptions: Brown County's Industrial Waste will remain relatively constant over the planning period.

3. Total Waste Generation

Reference year Exempt Waste includes all CDD and Exempt waste disposed from Brown County in the Brown County Landfill and the Mason County Kentucky Landfill in 2018. The Reference year total includes 5,229.99 tons of uncontaminated soil that was accepted by the Brown County Landfill from a nearby construction project. This soil was used as Alternative Daily Cover and was considered Fee Exempt. This was a one-time event and is not expected to be repeated during the planning period. In fact, *total* Exempt Waste received at the Brown County since 2010 has only totaled 25 tons. To provide the most accurate projection possible the 5,2229.99 tons of Exempt Waste was removed from the 2019 projection. Exempt Waste was then calculated using the same formula as Residential/Commercial Waste: relative to population with a .5% annual increase over the planning period.

Table V-4. Total Waste Generation for the District During the Planning Period (in TPY)

Year	Residential/ Commercial	Industrial	Exempt	Total Waste Generation	Generation Rate (lbs/ person/day)
Reference 2018	39,654	9,154	10,512	59,320	7.45
2019	39,280	9,154	5,232	53,666	6.84
2020	38,901	9,154	5,156	53,211	6.88
2021	38,865	9,154	5,126	53,145	6.92
2022	38,828	9,154	5,095	53,077	6.95
2023	38,789	9,154	5,065	53,008	6.98
2024	38,748	9,154	5,034	52,936	7.01
2025	38,707	9,154	5,004	52,865	7.05
2026	38,705	9,154	4,979	52,838	7.08
2027	38,703	9,154	4,954	52,811	7.11
2028	38,699	9,154	4,929	52,782	7.14
2029	38,695	9,154	4,904	52,753	7.18
2030	38,689	9,154	4,879	52,722	7.21
2031	38,730	9,154	4,859	52,743	7.24
2032	38,769	9,154	4,840	52,763	7.27
2033	38,808	9,154	4,821	52,783	7.30
2034	38,847	9,154	4,802	52,803	7.34
2035	38,884	9,154	4,782	52,820	7.37
2036	38,963	9,154	4,768	52,885	7.40
2037	39,042	9,154	4,754	52,950	7.43
2038	39,121	9,154	4,740	53,015	7.46
2039	39,199	9,154	4,726	53,079	7.49
2040	39,278	9,154	4,712	53,144	7.52

Sample Calculation: 2040: 39,278 R/C tons (from Table V-2) + 9,154 Industrial tons (from Table V-3) + 4,712 Exempt tons = 53,144 total tons

Sample Calculation: 2040: 53,144 total tons x 2000 lbs. per ton / 38,700 population / 365 days per year = 7.52 lbs./person/day total waste in 2040

Assumptions: R/C waste will increase per person, but population will decrease. Industrial waste will remain constant throughout the planning period, Exempt waste (C&DD) will increase per person and be relative to population after adjustment in 2019 for anomaly.

D. Projections for Waste Stream Composition

Ohio EPA's 2020 State Solid Waste Management Plan identifies three trends that may affect the waste stream composition during the planning period. Plastic production is expected to continue to increase, with plastic packaging replacing glass and other traditional packaging materials. This change, along with other factors, has been contributing to a trend called "lightweighting". According to OEPA "Lightweighting is the process of converting packaging to lighter materials, such as plastic or cardboard, or cutting down on the amount of packaging used". While reducing the amount of wasteful packaging is a positive trend, lightweighting sometimes replaces an easily recycled package with a material that is more difficult to handle.

Online shopping was increasing exponentially before the Covid 19 Pandemic; now online shopping is the new normal for many residents. Although there is much speculation regarding how much of this shift will remain after the pandemic, nearly everyone agrees that online shopping will continue to be a strong factor in waste composition. Not only does this trend increase the overall amount of waste generated, but it tends to shift the point of disposal for packaging materials (primarily cardboard) from the commercial retailer to the residence.

Electronic communication is increasing and printed media is decreasing. This trend reduces the amount of newspaper and magazines in the waste stream. As a side effect, this trend also increases the need for end-of-life electronics disposal.

Overall, the effect of these trends are within the capacity and resiliency of the current waste collection systems. For example, the trend in newspaper is down but the trend in residential cardboard is up. The net effect to the fiber volume is offset. The BCSWA expects the composition of the waste stream to be within the parameters that are managed effectively by the identified strategies over the planning period.

E. Waste Reduction Strategies through the Planning Period

The programs and strategies the BCSWA will use throughout the planning period are organized into four categories: New Strategies, Modified strategies, Current Strategies, and Potential Strategies.

New Strategies are programs that will be implemented during the planning period to increase our recycling rate in the future or improve our services to the public.

Modified Strategies are strategies that have been relied upon in the past planning cycles, but have been modified in some significant way to improve the results.

Current Strategies are fundamentally unchanged from previous plans. They are continued mostly unchanged because they work. They are described here as well as in IV-E for greater continuity, and because section V-E and section IV-E ask for somewhat different information.

A thorough discussion of waste reduction strategies is useful for planning and signaling to the public the direction of the District's efforts. This discussion is not intended to restrict the District from making the best use of opportunities as they come along. It is in this spirit that we take the discussion a step further to "Potential Strategies".

Potential Strategies are strategies that are not well developed or certain enough to be committed to and planned for. Rather, they are areas of opportunity that may develop during the period covered by this updated plan. The BCSWA invites the public to comment on or provide input into how these potential strategies may be developed to the benefit of the residents of Brown County. We have learned through experience that our income can vary greatly based on conditions beyond our control. We believe that a good plan considers the possibility of surplus revenue as well as reduced income. The extent to which we develop these strategies will depend on our ability to afford them. This is discussed in greater detail in

Section VIII, Cost and Financing of Plan Implementation. If any of these Potential Strategies should prove effective and we are financially able to implement them, we would propose that we would employ them during this planning cycle. It is our intention to continually develop and fund quality programs. This discussion of Potential Strategies is designed to outline the general concept of each idea during plan review for public comment and ratification.

Finally, to provide continuity between planning cycles, we have a section labeled **Retired Strategies** to identify strategies that will no longer be used.

New Strategies, Modified Strategies, Current Strategies and Potential Strategies are all designed to meet one of the following state goals:

- Goal #1 – ensure the availability of reduction and recycling opportunities/programs for residential/commercial waste
- Goal #2 – reduce and/or recycle at least 50 percent of the total waste generation by the year 2000
- Goal #3 – provide informational and technical assistance on source reduction
- Goal #4 – provide informational and technical assistance on recycling, reuse, and composting opportunities
- Goal #5 – develop strategies managing scrap tires and household hazardous wastes (HHW)
- Goal #6 – prepare and submit an annual report to Ohio EPA
- Goal #7 – prepare a market development strategy

New Strategies

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
	Recycling Contamination	2020-ongoing	#1 #2	Brown County	Adams Brown Recycling	Reduction in waste from MRF	Recycling Contamin-ation
	Special Cleanup Assistance	2022-ongoing	#1 #2	Low income individuals, communities	Coordinator	# of sites cleaned	Special Cleanup Assistance
	Household Batteries	2020-ongoing	#5	Brown County	Education Staff	Pounds of batteries collected	Household Battery Recycling
	Recycling Audit in a Bag	2021-ongoing	#4	Committed recyclers	Recycling Specialist	# of Audits	Education
	Academic Scholarships	2020-ongoing	#3 #4	High School Seniors	Education Staff	Number of applicants	Academic Scholarship

Recycling Contamination

Perhaps the greatest threat to the viability of our recycling programs is contamination in our drop off boxes. At the core of the problem is a lack of a good feedback loop for our drop off recyclers. This is evidenced by contrasting curbside recycling contamination to drop off recycling. When a curbside customer puts the wrong material in their curbside bin, we leave the item and a note explaining the problem. When the same problem occurs at a drop off site, we have no reliable way to communicate with the offender. Clear signage on the box is important, but it seems that few people have time to read a sign about what they think they already know.

Because we are a rural district, we rely on drop off sites to provide convenient recycling access to the 69% of our residents that live outside one of Brown County's incorporated villages. Since the BCSWA is closely involved in running the MRF that process our recyclables, we feel firsthand the effects of contamination in the recycling stream. We estimate that each ton of contamination in our recycling program increases the cost of our program by $330. At a minimum, contamination in our recycling programs drains away resources that could be better used. At worst, it increases the cost of recycling to an economically unsustainable level.

Contamination in our drop off recycling program can be broken into two general causes. The first is from people that want to recycle to a degree that they put items in the recycling bin in hopes that we can recycle them, even though they are clearly not acceptable. These "aspirational" recyclers may be placing more value on things heard from other programs than information presented from the District. In addition to the typical outreach and education strategies, our education program will institute a new program called "Recycling Audit in a Bag" to change the behavior of these misinformed recyclers. The mechanics of this new strategy can be found under the new Education and Awareness strategies below.

The second cause of contamination in our drop off recycling program are those who are looking for an alternative way of disposing of their garbage. Sometimes this is motivated by the difficulty in disposing of oversized items in the regular waste collection system. Our Township Cleanups described in Unchanged Strategies is one way of solving this problem. We are also exploring franchising waste collection to ensure that everyone has a proper way of disposing of their garbage. This approach is discussed in Potential Strategies.
A new approach to mitigate this problem is providing a large plastic bag to residents to wrap their furniture and mattresses. Local waste haulers will not accept these items unwrapped for the protection of their employees from bed bugs. Often a resident will place these items at the curb with their garbage because they are unaware of this requirement, or they lack the ability to properly wrap the item. The Brown County Solid Waste Authority will encourage hardware stores and other local businesses to stock large bags specifically for this purpose. Our Education and Outreach programs will inform the public of these specific disposal requirements and direct people to retailers for the purchase of the necessary bags. The Authority may also provide coupons or vouchers to lower the cost to the residents.

In addition to programs to encourage proper behavior, the BCSWA will employ programs to discourage improper use of the drop off recycling containers. Our first effort will be to increase the use of security cameras at our drop off sites. Our Environmental Law Enforcement Officer already uses cameras at our most contaminated sites. These have been effective in identifying large items left outside of the box such as furniture and tires. We now need to identify people who are putting smaller improper items inside the box. We are considering a large number of less expensive cameras that would allow us to monitor what is put inside the box. The problem with collecting a large amount of data is that someone needs to review the information for it to be valuable. To winnow down the data, we intend to connect the electronic data to the specific load of material so the data can be compared to the actual load on the tipping floor at the MRF. This is possible because we control the trucking and processing of the material. When a load is dumped, we can identify the specific problems and look for only that material in the photographs. As a companion to this effort, we would also search for evidence found along with the contamination such as names on discarded mail. The information would then be turned over to the Environmental Law Officer for follow up.

Our education program will assist with the goal of reducing contamination. A "don't bag it" program will be implemented to help our cameras be more effective. Shredded paper and "Recycling Audit in a Bag" Bags will be exempted from the "don't bag it" program. Reducing bags will also help our MRF run more efficiently. It will also be important to maintain our Environmental Law Officer through the Brown County Sheriff's Office and the Environmental Crimes Prosecutor through the Brown County Prosecutors office to help combat the contamination issue in the recycling drop off program.

The BCSWA is also considering a financial reward program for information leading to the conviction of

those who are knowingly using our recycling programs for waste disposal. A long-time strategy for our litter collection crew has been to remove improper items from the recycling drop off sites before the next customer saw the items and deduced that it was ok to leave those items. Under this strategy, select highly visible items will be left for a few days with a bright red notice that reads: "NOTICE: This item has been Illegally dumped at this site. $200 reward for information leading to the ARREST and CONVICTION of the person responsible." While we will gladly pay a reward for this type of information, we do not expect to receive a large number of actionable tips due to the covert nature of this crime. Rather, we hope to signal to those who are abusing our recycling drop off sites that illegal dumping is a serious crime, and we are resolved to stop it. We expressly will not use this approach against those aspirational recyclers that attempt to recycle the wrong items in good faith.

The disadvantage of our strategy to reduce contamination in our recycling drop off program is the great amount of effort that is required to catch and change the behavior of the few people that are abusing the privilege of drop off recycling. The advantage of this approach is the potential to lower the cost of this vital service. Unless otherwise described, this strategy will be administered by Adams Brown Recycling.

Special Cleanup Assistance

We believe that our Township Cleanup Days have gone a long way toward removing junk and unwanted debris from our community. In order to keep our drop off recycling programs running efficiently, we must provide options for proper waste disposal. Still, in just a few cases each year, we come across a property that is an eyesore for the community and the owner is unable to get the waste to one of our collection events. This program would give us another tool for addressing such problems. It is different from our Township Cleanup program in three important ways. First, we eliminate the transportation problem that some people experience by delivering a dumpster directly to the blighted site. Second, we can schedule the service as needed without having to wait for the spring collections. And third, there are eligibility requirements to participate.

The initial requirement would be to determine that there really is a problem that is a determent to the community. To verify that, we will require that the local government, village or township, attest to the fact that there is a problem that is in the public interest to solve. Next, we would only provide the service free of charge for those property owners that cannot afford to pay for proper disposal. To prove that, we would require documentation that the property owner's income falls below a standard indexed to the Federal Poverty Guidelines. Finally, we would ask for concurrence from the Environmental Deputy, the Prosecutor's Office, and the Health Department to insure that this effort supports rather than undermines any enforcement action. We would be sure to set an expectation that the property would remain presentable as a condition to receiving free assistance.

We reserve the right to limit the use of the program depending on available funds. Based on our experience, we expect to only need this program a few times per year. Also, some individual cleanups may be deemed to be too big or too small to be cost effective. We would hire a local waste hauler to provide a roll off container in most situations or a "haul away service" for smaller cleanups. If the waste contains a high percentage of recyclables, we could also provide a recycling container.

Household batteries

Another contaminate found in increasing numbers in our drop off recycling program is household single use batteries. In particular, the disposable "primary" lithium batteries have caused two small fires in our Adams Brown Recycling MRF. We have been sending the message through all our available channels not to put household batteries in your recycling bin, but until now, we have not been able to offer any good local alternatives. Moving forward, our strategy to keep household batteries out of the recycling stream will include three alternative disposal options.

First, we will work with local retailers and Call 2-Recycle to place single use battery receptacles in local stores. At one time, a few retail businesses would accept batteries, but when the Call 2-Recycling began charging a fee for its services, all local business opted out of the program. The BCSWA will underwrite

the cost of the Call 2-Recycle program for any local business or community facility that would like to become a household battery collection point. The District will publish a map of the available drop off points and encourage their use.

Second, household batteries will be promoted as a targeted material for Household Hazardous Waste Day. Although we would always accept single use batteries during our collection, they were not specifically promoted. To help make this option more convenient, the BCSWA intends to increase the HHW collection events to two per year. This is where we expect to see the individuals that have amassed a large amount of household batteries throughout the year.

Finally, we will begin accepting household batteries for free at the recycling buyback at Adams Brown Recycling. Extreme care will be taken in the promotion of these three collection opportunities not to cause residents to think that it is okay to just put their batteries in with their recyclables. Proper handling, storage and terminal protection will be emphasized at every opportunity.

Education and Awareness
The majority of our "tried and true" education and awareness strategy can be found under Unchanged Strategies. We have added a few programs to improve our program.

Recycling Audit in a Bag will be carried out by our Recycling Specialist. It is a way to provide individual feedback to committed drop off recycling participants. People that attend a recycling tour or recycling presentation will have the opportunity to be included in this personalized recycling audit. Those that chose to participate will be given a specially marked bag to collect their material in. The participant will fill out an information card, either in person or online that is connected to the special bag by a serial number. When full, the special bag can be put in any one of the District's 17 community drop off site or 15 school recycling boxes. When the drop off container is serviced, recycling staff will separate the specially marked bag for sorting by the Recycling Specialist. This is only possible because Adams Brown Recycling is responsible for both the recycling education program and operation of the MRF. The Recycling Specialist will evaluate the materials in the special bag and create a report identifying the correct materials as well as the incorrect materials. The Recycling Specialist will then contact the individuals in whatever manner preferred and share the results. "Recycling Audit in a Bag" gives us the same opportunity to provide feedback to drop off recycling participants that we have with curbside recycling participants. This program also gives us the opportunity to go beyond the "what" of recycling and discuss the "how" and "why" of recycling with the most committed of recyclers. Because of the time required for each audit, we expect to complete only 10 to 20 Recycling Audits in a Bag each year. Over time, we feel this focused education strategy will create real change for those committed recyclers.

Academic Scholarships is a new strategy to increase awareness of waste management issues. Two $1,000.00 scholarships will be awarded to high school seniors that will be attending a post-secondary institution. To apply, students must write an essay about a waste management topic. The scholarship opportunity will be advertised in the local media, social media, and through high school guidance counselors. The successful applicants will be chosen by a committee of our three environmental educators. The winning essays will be published on our website and elsewhere as the opportunity presents. The winning scholars will appear before the BCSWA Board to receive their scholarships. Because it is our belief that citizens in all professions need to understand solid waste issues, this scholarship opportunity is not limited to specific fields of study. Actual funds distribution will be administered by the Brown County Foundation, a non-profit foundation in Brown County that administers a variety of scholarships to local youth.

Modified Strategies

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
487	Yard Waste Drop-Off	2012, ongoing	#1 #2	Brown County	ABR	# of tons collected	Recycling Contract
3637	Household Hazardous Waste Collection Day	existing, ongoing	#5	Brown County	ABR, EEI	# of cars participating	HHW Manage-ment
3640	Glass reFactory	existing, ongoing	#7	Brown County	ABR	Amount of sales	Recycling Contract
8380	School Box Recycling	2010-ongoing	#1 #2	Brown County	ABR	# of tons recycled	Recycling Contract

Yard Waste Drop-Off

The BCSWA will continue to make a centrally located yard waste drop-off site available to all residents of Brown County. As indicated in the current Approved Plan, in 2014, we constructed a permanent yard waste area adjacent to the Adams Brown Recycling facility and across the street from the landfill. This facility consists of a 4-foot-high concrete wall with places for two 30-yard open top roll-off boxes. Customers place their yard waste directly into the boxes from an upper elevation, and boxes are exchanged from the lower elevation. This has proven to be a very popular service, generating 386 tons of yard waste in 2018. Due to the high volumes experienced at this facility, we will expand the capacity of this site during the planning period. This may include extending the concrete wall to allow additional roll-off boxes or adding a concrete pad for a weekend overflow pile. Expansion will accommodate heavy use periods during the spring and fall and allow for future upgrades. The yard waste is trucked a short distance to a commercial mulch operation. The site is open all daylight hours. The advantage of this strategy is that it provides a convenient method for area residents to recycle their yard waste. The disadvantage of this single site is that residents that live at the ends of our district have a considerable distance to travel to access the service. The BCSWA contemplated replicating the service at a couple of remote sites to alleviate this disadvantage. It was realized that what makes the current site work so well is the proximity to Adams Brown Recycling and the mulch facility. Several times a day, a recycling staff member checks on the site and compacts the loose brush with a loader. If any contaminates are found, they are removed immediately so the next resident accessing the site does not get the mistaken idea that the contamination is acceptable. When the roll-off boxes are full, CDL drivers from Adams Brown Recycling can take the box immediately to the commercial mulch site. Because the trip to the mulch site is short, the load can be worked in around the other duties of the drivers. If the yard waste site was some distance from the districts resources, cost would skyrocket and the site would often be in an unacceptable condition. Additional sites will continue to be considered, but at this time it is unclear how this strategy could work well away from existing infrastructure. It should be noted that the commercial mulch facility will accept yard waste from commercial generators, but not small loads from residential sources. Our yard waste drop-off site is based on the concept of taking small residential loads and bulking them into larger loads acceptable to the commercial mulch site. Without the commercial mulch site nearby, our yard waste drop-off strategy would not be viable in the current form. The success of the Yard waste drop-off strategy is determined by amount of use of the site, measured in the number of tons received.

Household Hazardous Waste Day

Household Hazardous Waste Day is a once per year amnesty collection for the entire district that collects waste oil, household paint and chemicals. These services are provided at no charge to the public. Adams

Brown Recycling provides manpower, a location, and management for the HHW Day. A contractor (most often Environmental Enterprises Inc.) is contracted to receive, pack, transport, and properly dispose or recycle the household hazardous waste. This has been an effective strategy in the past. During the planning period, we intend to promote the household hazardous waste day as an opportunity to recycle single-use household batteries, with the hope of reducing these batteries in our recycling and waste stream. To make this preferred disposal method more convenient, we intend to offer the household hazardous waste day twice per year, starting in 2021, as funding allows, and participation justifies. The advantage of this strategy is that it creates an environmentally responsible outlet for many hazardous materials that otherwise might end up in the landfill. The disadvantage is that household hazardous amnesty days are relatively expensive and at best only collect a fraction of the hazardous materials in our communities. The success of the Household Hazardous Waste Day is determined by the number of cars participating and the type of materials received.

Glass reFactory

The Glass reFactory was started in 1996 with a research and development grant from the Ohio Department of Natural Resources, Division of Recycling & Litter Prevention to Adams Brown Recycling, for the purpose of creating a local value-added use for bottle glass. The BCSWA also participated in the original funding to help develop recycling markets. Throughout the years, the Glass reFactory has been largely self-sustaining, but puts forth great effort to reach the breakeven point many years. The Glass reFactory has invested energy in creating a network of wholesale distributors, in the hope of increasing volume to such a point to lower operating cost. During a thorough financial evaluation in 2019, it was realized that production volume had risen to the point of greatest efficiency for the current shop capacity. Increases in production would not decrease cost further unless automation was employed. Since automation would require multiple times more sales and is not in keeping with the goals of our operation, we are at a point where we know the true cost of production. Unfortunately, our current wholesale price does not support the cost of production. Furthermore, market research suggested that the wholesale price necessary to support our cost of production is more than the gift market would bear. The good news is that the price point for our direct retail sales and custom sales will comfortably cover the cost of production. The decision was made to shift our focus away from wholesale and to retail and custom. Fortunately, the fastest growing segment of our market has been online direct retail sales through Etsy. Although this change in focus will necessarily reduce the amount of glass recycled by the Glass reFactory, the volume consumed historically has been minimal (6 tons per year =about 24,000 suncatchers). Incidentally, any excess glass collected will continue to be recycled through the traditional glass bottle markets. The larger goal has been to raise awareness of the "full-loop" recycling concept. To this end, the Glass reFactory will continue to attract and educate tour groups. The advantage of this strategy is that the BCSWA gets the benefits of awareness and education at little or no cost. The Glass reFactory strategy will be evaluated by the number of tours of the glass shop in a given year.

School Box Recycling

In 2010, we added School Box Recycling to our drop off recycling program. Today, each of the 15 school buildings in Brown County has direct access to a recycling container. The School Box Recycling program recycled over 112 tons in 2018. In 2019, we started a pilot project with the Georgetown Exempted School District to replace the Elementary and High School roll-off recycling containers with a 6-yard rear-load boxes. Instead of being switched when full, the rear-load containers are emptied once a week on a set schedule. During the planning period, we intend to replace the remaining roll off boxes with new rear-load 6-yard boxes, starting with the Western Brown School district in 2021, Eastern Schools in 2022, and Fayetteville Perry and RULH Schools in 2023. This will solve a few problems. First, the existing roll-off boxes are some of the oldest boxes in our inventory and need upgrading. Second, many of the school sites have limited space and will benefit from boxes with a smaller foot print. Most importantly, because the complexion of materials in the school box program is heavy on paper and cardboard while light on plastic, metal and glass containers, the MRF can be optimized to sort this material when it arrives in sufficient quantity and with predictability. Since rear-load boxes are serviced on a schedule rather than when full, the MRF can better prepare to sort this specific stream.

Adding 15 sites to the rear-load collection system will necessitate adding a third rear-load truck to our fleet of recycling vehicles. An additional rear-load truck will have the added benefit of improving the reliability of the rear-load fleet and of providing capacity to expand curbside collection and commercial rear-load service in the future.

Since the rear-load boxes stay at the school site, we have the opportunity to paint each box in the official colors of the host school. By customizing each box, we hope to increase buy-in from the student body and staff. As we are rolling out this upgraded program, we will ask the school administration for some time during teacher in-service days to train the school staff on how to "recycle right".

The School Box Recycling strategy's strength is that it is more effective to teach the concept that recycling is important to students when the School District and the Solid Waste Authority invest in school recycling programs. The disadvantage of school recycling is the great amount of coordination required to collect the proper materials, move them to the recycling container, and service the recycling container in the safest manner possible to protect the student's welfare. To this end, we are very careful to schedule recycling pickups at a time with there is low traffic flow at each school building. While the school boxes are technically publicly available, we do not promote their locations to the general public to minimize non-school traffic on school campuses. Even so, many school staff and parents bring in their home recyclables to drop off while at school. The School Box Recycling strategy will be evaluated by the quality and the quantity of recyclable material collected.

Unchanged Strategies

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
	Single Stream Recycling	existing, ongoing	#1 #2	Brown County	ABR	Increase in Curbside & Drop off Recycling	Recycling Contract
Curbside Recycling							
452	Aberdeen Curbside	existing, ongoing	#1 #2	Aberdeen Village	ABR	Tons collected	Recycling Contract
455	Fayetteville Curbside	existing, ongoing	#1 #2	Fayetteville Village	ABR	Tons collected	Recycling Contract
458	Georgetown Curbside	existing, ongoing	#1 #2	Georgetown Village	ABR	Tons collected	Recycling Contract
461	Hamersville Curbside	existing, ongoing	#1 #2	Hamersville Village	ABR	Tons collected	Recycling Contract
460	Higginsport Curbside	existing, ongoing	#1 #2	Higginsport Village	ABR	Tons collected	Recycling Contract
456	Mt. Orab Curbside	existing, ongoing	#1 #2	Mt. Orab Village	ABR	Tons collected	Recycling Contract
453	Ripley Curbside	existing, ongoing	#1 #2	Ripley Village	ABR	Tons collected	Recycling Contract
457	Russellville Curbside	existing, ongoing	#1 #2	Russellville Village	ABR	Tons collected	Recycling Contract
459	Sardinia Curbside	existing, ongoing	#1 #2	Sardinia Village	ABR	Tons collected	Recycling Contract
454	St. Martin Curbside	existing, ongoing	#1 #2	St. Martin Village	ABR	Tons collected	Recycling Contract
Drop Off Recycling							
7863	Byrd Township, Decatur	existing, ongoing	#1 #2	Byrd Township	ABR	Tons collected	Recycling Contract
3617	Clark Township, Hamersville	existing, ongoing	#1 #2	Clark Township	ABR	Tons collected	Recycling Contract
9185	Franklin Township Lake Waynoka	existing, ongoing	#1 #2	Franklin Township	ABR	Tons collected	Recycling Contract

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
9186	Green Township-Greenbush	existing, ongoing	#1 #2	Green Township-Greenbush	ABR	Tons collected	Recycling Contract
3618	Green Township-Mt. Orab	existing, ongoing	#1 #2	Green Township	ABR	Tons collected	Recycling Contract
3619	Huntington Township, Aberdeen	existing, ongoing	#1 #2	Huntington Township	ABR	Tons collected	Recycling Contract
4299	Jackson Township, Ash Ridge	existing, ongoing	#1 #2	Jackson Township	ABR	Tons collected	Recycling Contract
3620	Jefferson Township, Russellville	existing, ongoing	#1 #2	Jefferson Township	ABR	Tons collected	Recycling Contract
3621	Lewis Township-Higginsport	existing, ongoing	#1 #2	Lewis Township	ABR	Tons collected	Recycling Contract
3622	Perry Township, Fayetteville	existing, ongoing	#1 #2	Perry Township	ABR	Tons collected	Recycling Contract
	Perry Township, Lake Lorelei	existing, ongoing	#1 #2	Perry Township	ABR	Tons collected	Recycling Contract
9188	Union Township Ohio Valley Manor	existing, ongoing	#1 #2	Union Township	ABR	Tons collected	Recycling Contract
3623	Union Township, Ripley	existing, ongoing	#1 #2	Union Township	ABR	Tons collected	Recycling Contract
3624	Washington Township, Sardinia	existing, ongoing	#1 #2	Washington Township	ABR	Tons collected	Recycling Contract
462	Pleasant Township, Georgetown AB Recycling	existing, ongoing	#1 #2	Pleasant Township	ABR	Tons collected	Recycling Contract
3557	Pleasant Township, Georgetown Shopko	existing, ongoing	#1 #2	Pleasant Township	ABR	Tons collected	Recycling Contract
	Sterling Township, Eastwood Rd	2018-ongoing	#1 #2	Sterling Township	ABR	Tons collected	Recycling Contract

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
Education and Awareness							
3635	Education and Awareness Program	existing, ongoing	#3 #4	Brown County	ABR Soil & Water OSU Extension	Sum of all Education and Awareness Programs	Education
3625	District Recycling Specialist	existing, ongoing	#3 #4	Brown County	ABR	Overall number of contacts for Education & Awareness program	Education
3627	Waste Disposal Opportunities Fact Sheet	existing, ongoing	#3 #4	Brown County	ABR	# of Fact Sheets distributed	Education
3628	School & Civic Club Presentation	existing, ongoing	#3 #4	Brown County	ABR Soil & Water OSU Extension	# of presentations, # of people in attendance	Education
3632	Landfill & Recycling Center Tours	existing, ongoing	#3 #4	Brown County	ABR Soil & Water	# of tours, # of people in attendance	Education
3631	Local Radio Talk Shows	existing, ongoing	#3 #4	Brown County	ABR OSU 4-H Agent OSU Ag. Agent	# of programs	Education
3629 3630	Newspaper Articles	existing, ongoing	#3 #4	Brown County	ABR Soil & Water OSU Extension	# of press releases published, # of articles written by reporters	Education
3626	Recycled Posters/Recycled Sculptures	existing, ongoing	#3 #4	Brown County	OSU Extension Ag. Agent	# of participants	Education
9194	Backyard Composting	existing, ongoing	#2 #4	Brown County	Soil & Water	# of participants/ contacts	Education
9190	4-H Litter Officer Training	existing, ongoing	#3 #4	4-H members in Brown County	OSU Extension	# of 4-H Litter Officers trained	Education

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
9191	Green Camp	existing, ongoing	#3 #4	Youth in Brown County	Soil & Water ABR Rumpke	# of campers	Education
9192	Web Site	2010-ongoing	#3 #4	Brown County	ABR	# of views	Education
7276	LA Battery Promotion	existing, ongoing	#2 #5	Brown County	ABR	# of articles, add and flyers concerning LA Batteries	Education
3633	Conduct Waste Audits	existing, ongoing	#3 #4	Businesses in Brown County	ABR	# of Waste Audits	Education
3634	Kick-Off Campaigns for in-house recycling programs	existing, ongoing	#3 #4	Businesses and Institutions in Brown County	ABR	As needed- # of kick-off programs	Education
Other Programs							
9182	Village Yard Waste Collection	2016-ongoing	#1 #2	Villages in Brown County	Coordinator	Tons diverted in participating villages	Yard Waste
9184	Commercial Collection of Cardboard	2014-ongoing	#1 #2	Commercial Businesses in Brown County	Adams Brown Recycling	# of businesses participating, Tons diverted from those businesses	Recycling Contract
9183	Buyback Recycling	existing, ongoing	#1 #2	Brown County	ABR	# of tons recycled	Recycling Contract
494	Adams Brown Recycling MRF	existing, ongoing	#1 #2	Brown County	ABR	# of tons recycled	Recycling Contract
3636	Waste Tire Collection	existing, ongoing	#5	Brown County	ABR, Township Trustees, Rumpke	# of tons collected	Scrap Tires
491	LA Battery collection at ABR	existing, ongoing	#5	Brown County	ABR	# of tons collected	Recycling Contract

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
3638	Township Cleanups	existing, ongoing	#1 #2	Brown County	Coordinator, Township Trustees, ABR, Rumpke	# of townships participating # of tons collected	Clean-Up Days
493	Open Dump/ Waste Tire/ Roadside litter Cleanup	existing, ongoing	#5	Brown County	B.C. Sheriff B.C. Health Department	# of collection details, # of tons collected	Roadside Cleanup
7277	Electronics Collection	existing, ongoing	#1 #2 #5	Brown County	ABR	# of tons collected	Recycling Contract
3639	Litter Law Enforcement	existing, ongoing	#3 #4 #5	Brown County	B.C. Sheriff B.C. Prosecutor B.C. Health Department	# of Investigations, # of Prosecutions	Litter Law Enforce-ment
9189	Landfill Monitoring	existing, ongoing	NA	Brown County	B.C. Health Department	# of landfill inspections, # of air samples	Landfill Monitoring

Single Stream Recycling

In the most recent planning cycle, we upgraded the MRF to process single stream materials. This improvement has had a profound effect on our recycling collections systems. This has allowed us to upgrade our curbside collection from 19 gallon bins to 65 gallon rolling carts. We also gained efficiency by using a collection vehicle with compaction. Our drop-off sites were able to switch to one large roll-off container without internal gates or divisions. This allows the roll-off bin to be fully utilized and only serviced when completely full. The public has responded well and our recycling programs are trending to the positive. Because the single stream strategy supports several other strategies, we are not calculating a volume specific to this strategy to avoid double counting. Now that the capital investment to convert to single stream processing has been made, continuation of this approach is assumed and falls into the category of MRF operation and maintenance.

Curbside

Free curbside recycling is available to all residents of the 9 incorporated villages in Brown County and the unincorporated Village of St. Martin. To participate, residents call Adams Brown Recycling to register for the program. Recycling staff collect very basic contact information and explain what materials are acceptable in the program and review the schedule. Resident's bins in the Village of Georgetown are picked-up each week. All other locations are on an every-other week schedule. Curbside recycling is free to the participants *and* to the municipalities, with the exception of the Village of Georgetown, which voluntarily pays a fee for Georgetown residents to receive weekly service. Residents who register for curbside collection receive the use of a 65 gallon rolling cart. The cart is green and clearly identified as a recycling container. The lid also has a graphic that identifies appropriate material and prohibited materials. A QR code is also included so smart phone users can easily link to the curbside page of our District website for additional information. An educational flyer is mailed or emailed to all registered

participants each year to reinforce good behavior.

The curbside recycling program accepts aluminum cans, steel food cans, #1 & #2 plastic, newspaper, cardboard, office paper, magazines and books for recycling in a single stream. Service is provided by Adams Brown Recycling. Curbside recycling is the most convenient form of residential recycling, but at the highest cost per ton.

Note: The unincorporated Village of St. Martin remains on our curbside program because it was incorporated at the time the curbside program was initiated. For the access calculation, we use only the number of residents registered in St. Martin, not the larger number of people that could receive the service.

Drop Off Recycling

Drop Off recycling has always been the backbone of our residential recycling program. Drop off recycling accounts for 56 percent of the material we process at the MRF. During the reference year, we had 16 community sites. This strategy will continue throughout the planning period. Although we do not have specific plans to add sites, we intend to add sites throughout the planning period as the need arises. The primary advantages of Drop-Off Recycling are relatively low cost per ton, high volumes, and around the clock convenience. The main disadvantage is a relatively high amount of garbage mixed with the recyclables, either through misinterpreting acceptable materials or to avoid the cost of proper disposal.

Education and Awareness

Our Education and Awareness strategy draws on the talents of three organizations: Adams Brown Recycling, Brown County Soil & Water, and the Ohio State University Extension Service. To clarify areas of responsibility, the "Unchanged Strategies" chart lists all the Education and Awareness activities individually. Some programs are the responsibility of just one organization; others are shared by all three. For example, the Adams Brown Recycling's Recycling Specialist is solely responsible for compiling and publishing the Waste Disposal Opportunities Fact Sheet, although the Brown County Soil and Water Education Specialist and the Ohio State University Extension Agent also help distribute 8,300 Fact Sheets in 2018. Alternatively, the responsibility for School and Civic Club speaker's bureau is shared jointly between all three organizations. Each organization tailors the solid waste message to harmonize with their message and promotes the program to their unique audience. The Adams Brown Recycling's Recycling Specialist is responsible to coordinate the efforts of all three programs to make the message cohesive and the delivery efficient.

Highlights of our Education and Awareness Strategy include:

Both the Recycling Specialist and the Soil & Water Educator are very active in presentations to the Brown County Schools and Civic Clubs. In the reference year, 894 students participated in school program and 515 members of civic clubs attended a recycling waste prevention program sponsored by the BCSWA.

When possible, we encourage interested groups to take an in-depth tour of the Recycling Center and the Brown County Landfill. The Recycling Specialist hosted 300 people during 17 tours in 2018.

To reach as many people as possible, the Recycling Specialist makes use of local radio (2 broadcasts in 2018) and newspaper (22 news articles and 53 advertisements in 2018).

The Recycling Poster Contest (3626) has evolved from a single contest to a group of activities that employ the creativity and artistic abilities of young people to create awareness of environmental issues. Activities include coloring pages for the youngest Brown County students, a recycled sculpture and window blind competition for 4-H participants and an Earth Day Art contest for elementary school students. Success will be measured by the number of participants in each activity.

The Soil & Water District takes the lead on backyard composting education. Our strongest tool is an intensive composting workshop in which each participant receives an Earth Machine composter at a reduced cost when training is complete. Unfortunately, interest has slackened for this once popular event, presumably because most interested people have already been through the training. For this reason, workshops are scheduled as needed and the Soil & Water Educator employs alternative tactics to spread the word. A backyard composting display at the landfill open-house attracted 35 residents with questions. Donations of Earth Machine composters in public places have also garnered some interest.

4-H Officer Training has become a useful tool for spreading our message to a broader audience. The OSU Extension Agent conducts this training annually. Each 4-H club in Brown County has the opportunity to have a Litter Officer, an Energy Officer and an Environmental Officer. The 4-H member that holds one of these officer positions is charged with bringing education and awareness to their fellow club members in the areas of litter prevention, energy conservation and environmental issues. To accomplish this, each officer will share a tip or other information related to their area of responsibility at each club meeting. The officer may also invite a guest speaker or organize a field trip for the club. 4-H Officer Training is a train the trainer approach for youth.

Green Camp was started in 2011 to give a smaller group of 4th and 5th grade students an intensive educational experience during the summer break from school. Green Camp was conceived and organized by the Brown County Soil and Waste District with the help of several outside agencies. The day camp is anchored at the landfill, with field trips to the recycling center, the Glass reFactory, and a conservation easement at the edge of the landfill; on White Oak Creek. Students study landfill construction, recycling MRF operation and water quality. Due to popular demand, Green Camp added an even more rigorous second level for veterans of the first camp. In 2018, 14 first year campers and 17 advanced campers participated in the week-long Green Camp.

The BCSWA maintains a web site to share recycling and waste disposal information with residents. The Education Specialist for Adams Brown Recycling is responsible for updating this site. Each curbside recycling cart has a QR code that links a smart phone user to relevant information on this website. The BCSWA also maintains a social media presence, reaching 33,903 people in 2018 through Facebook and Twitter.

Lead-Acid Battery Promotion
Lead-Acid Batteries are among the most recycled material in the United States, due largely to the core charge required at automotive part retailers when purchasing a battery. Our recycling educators encourage residents to return their used batteries to the stores where new batteries are purchased to avoid lead-acid batteries in the landfill.

Waste Audits for Commercial Businesses
The Recycling Specialist is available for Waste Audits for businesses. Similar to Industrial waste audits, the Recycling Specialist stands ready to assist local businesses in any way possible to reduce waste.

Kick-off Campaigns for In-House Recycling Programs
Often Waste Audits lead to In-House recycling programs. If a business is starting a recycling program, the Recycling Specialist can help with a kick-off campaign to train employees and create a level of enthusiasm among the staff. This strategy, much like the waste audits, is customized to fit the unique requirements of the client. Because of the modest number of commercial businesses in Brown County, waste audits and kick-off campaigns are not requested each year.

Village Yard Waste Collection
We added this strategy in the last planning cycle. The intention is to provide an incentive to collect yard waste at the curb in villages that want to offer a premium level of service to their residents. The village is responsible for scheduling collections and contracting with a service provider to collect the yard waste. The BCSWA will pay up to one-half of the cost of the program, not to exceed $800 per month or $5,000

per year per village. Currently, there is only one village (Mt. Orab) that is participating in this program. The BCSWA will continue to make this cost share program available to all villages during the planning period, but current indications are that interest is limited due to the cost to the village.

Commercial Collection of Cardboard

In the last planning cycle, we added a program for businesses that were too big to participate in our residential curbside recycling program, but too small for our commercial roll-off program. Any business in Brown County can receive a 6-yard recycling container and weekly collection for a fee of $45.00 per month. Although not free, the monthly rate is below the cost of providing this service, and considerable more economical than commercial garbage collection. Cardboard is the target material, but any of the material accepted by Adams Brown Recycling would be possible on a case by case basis.

Rumpke does offer a similar service (8 yard front load) to businesses that are on the route between the landfill and a paper mill in Cincinnati (Mt. Orab and parts of Georgetown). Our service is designed not to compete unfairly with Rumpke in Georgetown and Mt. Orab, but offer equal service to businesses located in less populated areas of Brown County.

Buy Back Recycling

Buy Back Recycling is available for those who wish to sell aluminum cans, lead-acid batteries, and other non-ferrous scrap metal for cash. The Buy Back site also accepts donations of electronics, white goods, and ferrous scrap for recycling. The program is operated by Adams Brown Recycling with no direct cost to the district. The Buy Back location is near the center of the county in Pleasant Township, and serves the entire County. The Buy Back program is evaluated on the amount of material recycled.

Adams Brown Recycling MRF

Adams Brown Recycling operates a Material Recovery Facility to process all of the Drop Off and Curbside Recycling materials collected by the District's programs. The unique partnership between Adams Brown Recycling and the Brown County Solid Waste Authority is responsible for the creation of the MRF. This degree of local control has allowed the BCSWA to design and operate recycling programs best suited for our rural community. The Adams Brown Material Recovery Facility is also very important to the Adams-Clermont Solid Waste District, the Pike County Solid Waste District, and to Mason County, Kentucky. The BCSWA is happy to support this facility that benefits the entire region.

Waste Tires

Waste Tires are collected during 3 separate collection days. We use northern, central, and southern Brown County sites for the convenience of the public. We typically run the three days on successive Saturdays in October. This seems to be a slow time for the tire scrap tire transporter, a good time for farmers, and the tires are generally dryer than in the spring. The central location is hosted by Adams Brown Recycling. The northern and southern sites are provided by township trustees. A licensed transporter (usually Rumpke) provides tire removal. This free service is available to all Brown county residents, although a ten tire per household limit may be imposed. The waste tire collection days are evaluated based on the tons of tires received.

Lead Acid Battery Collection at ABR

Lead acid battery recycling opportunities are maintained throughout the year and are available to all residents of Brown County. Adams Brown Recycling also purchases lead-acid batteries at the buyback. Also, all auto part stores in Brown County charge a core charge when selling a battery and refund the core charge when a lead-acid battery is exchanged. Because of the value of these batteries, no funding of this program is necessary by the BCSWA. Our only role is in promotion and awareness of the available resources. The success of the lead acid battery strategy is measured by the tons of batteries purchased by Adams Brown Recycling

Township Cleanups

Township Cleanups are funded and coordinated by the BCSWA. All 16 townships in Brown County

participate, creating access for all Brown County residents. The Township Trustees are responsible for scheduling, selecting a site, and providing manpower for the event. Rumpke provides waste containers, hauling, and disposal. Townships make arrangements with local township residents to haul the steel to a steel recycler for cash. All Freon-bearing appliances are taken to Adams Brown Recycling for recovery. Township cleanups are considered successful when all of the townships participate. The tons of waste collected and landfilled or recycled are also considered.

Open Dump/Waste Tire/Roadside Litter Cleanups
These cleanups are conducted by the Litter Collection Crew on an as needed basis and funded by the BCSWA. The Litter Collection Crew is made up of inmates from the Brown County Jail or court ordered Alternative Sentencing participants, and is supervised by a Deputy Sheriff. A specific site is eligible for this program if it is on public property, a public right-of-way, or on private property if ordered by the court and the responsible party is unable or unwilling to pay. In the latter case, legal action is taken to recoup all funds expended. Often this policy allows a site that is a public health threat to be remediated in a timely manner. The BCSWA makes decisions on a case-by-case basis with input from the Brown County Sheriff's Department, the Brown County Prosecutor, the Brown County Health Department, the Ohio EPA, and Brown County citizens. To the extent that this strategy drives material to the landfill or the recycling center, the waste is counted at that level and therefore is not projected per this strategy.

Electronics Collection
Electronics collection is maintained year-round at Adams Brown Recycling's drive through buyback center. ABR charges a $.40/lb. fee for Cathode Ray Tube (CRT) televisions and monitors, and a $.20/lb. fee for flat-screens. Computers and other electronics are accepted for free. This also gives us an outlet for electronics collected inappropriately and placed in our drop off recycling boxes or collected during the township cleanup days. The Electronics Collection strategy will be evaluated based of tons recycled.

Litter Law Enforcement
The BCSWA contracts with the Brown County Sheriff to provide a dedicated part time Litter Law Enforcement Officer. This has been a particularly effective strategy for Brown County. Our Litter Law Enforcement Deputy will receive tips from Township Trustees or from a dedicated phone number at the Sheriff's Office. He investigates all leads and has an outstanding record of identifying the responsible party and resolving the complaint. In addition to enforcing the open dumping and litter laws, the Litter Officer also monitors trash deposited in our drop off recycling containers. This position is key to our planned strategy to reduce contamination in our recycling drop off boxes. Finally, the Litter Officer organizes our Road Side Cleanup program using work release eligible inmates from the Brown County Jail.

Due to the success of our Litter Law Enforcement program, the BCSWA funds a part-time Environmental Crimes Prosecutor through the Brown County Prosecutor's Office. Not only does this special prosecutor prioritize illegal dumping cases, but this prosecutor has developed a familiarity with the section of Ohio Revised Code enforced by the Litter Law Enforcement Officer.

Landfill Monitoring Program
The BCSWA funds a Landfill Monitoring Program to ensure the health and safety of our community. The Brown County Board of Health is an approved health department and has jurisdiction over Rumpke's Brown County Landfill in Georgetown. While we have historically funded the Health Department for landfill oversight, the importance of this program was highlighted when a substantial increase in waste transferred to this landfill occurred. The landfill expansion and increased amount of out-of-district waste became an issue for public debate and discussion. Due to this concern, the BCSWA increased funding to allow more frequent inspections. The Brown County Board of Health now inspects the landfill weekly and conducts air testing if necessary. In addition, the Health Department responds to citizen complaints for blowing litter and nuisance odors.

Potential Strategies

ID#	Program Name	Implementation Date	Goal	Beneficiary	Organization Responsible for Implementation	Analysis	Budget Line Item
	Expanded Curbside	NA	#1 #2	Brown County in densely populated areas outside village limits	Adams Brown Recycling	# of additional participants	Recycling Contract/ Capital Expenses
	MRF Improvement	NA	#2	Brown County	Adams Brown Recycling	Throughput of MRF in tons per hour	Capital Expenses
	Grant Program	NA	#1-#7	Brown County	Coordinator	Specific to each proposal	dependent on specific request
	Increased Buyback	NA	#2	Brown County Residents willing to bring materials to the buyback center	Adams Brown Recycling	# of additional tons diverted	Recycling Contract
	Per Pound Trash Disposal	NA	#2	Brown County residents without home garbage collection	Adams Brown Recycling	# of tons disposed	Recycling Contract/ Capital Expenses
	Franchised Waste Collection	NA	#2	Rural Brown County residents	BCSWA	Reduction of waste collection cost and reduction of illegal waste	Coordinator Contract/ Clerical Contract

Potential Strategies are strategies that would be implemented only if funds became available. For this reason, Potential Strategies are not included in the access calculation or on table V-5 For more information, see discussion of "Potential Strategies" in section V-E above.

Expanded Curbside

Curbside recycling is one of our most effective strategies because of the convenience of the program to the participants. While we would like to offer curbside recycling to everyone in Brown County, the rural nature of our county makes that impossible. Currently, we offer curbside recycling to everyone living in one of Brown County's 9 villages. This qualification was chosen because it is easy to define and it generally encompasses the most densely populated areas of our county. If additional funds became available, the BCSWA would consider expanding curbside recycling to other densely populated areas of the county. New areas would be added on a case-by-case basis. Examples could include expanding the service area just outside a village's limits to include a neighborhood that has grown outside of town, a small area that has not incorporated, or a private gated community. We would also consider increasing the frequency of collection for existing participants. An advantage of this approach is that it would increase recycling by providing a premium service when possible. The disadvantage is that decisions on who could receive this benefit would require administrative effort to ensure fairness and cost effective

service. Because curbside recycling is a proven strategy and the infrastructure is in place for this expansion, this Potential Strategy is considered a high priority as the opportunities present.

MRF Improvements

Improvements to the Material Recovery Facility at Adams Brown Recycling will be considered as funds become available. Historically, some of our largest gains in recycling have followed an improvement at the MRF. Since the BCSWA subsidizes the processing at ABR, many improvements make long term economic sense for the District. The next major improvement to the MRF will likely be a drum feeder for the single stream system. A drum feeder sits at the beginning of the system. It is a large hopper (~20 or more yards) with a chain driven conveyor on the bottom. The conveyor slowly meters out the unsorted recyclables while a counter-rotating drum mixes materials and provides a uniform burden depth to the in-feed conveyor. By making the materials more homogenous, manual pickers on the lines can work more efficiently. A drum feeder would directly eliminate one manual job and increase the efficiency of everyone downstream. Other potential improvements include a trommel or disc screen to drop out fines, a vacuum system to remove film plastics, an eddy current system to recover aluminum cans and an air filtration system to improve air quality. Because improvements to the MRF affect nearly all the Districts recycling strategies, this Potential Strategy would also be considered a high priority.

Grant Program

Although the BCSWA generally is directly involved in providing waste reduction services, we recognize that many solid waste districts successfully employ a grant program to accomplish their goals. If funding in excess of the amount required to meet our other strategies is available, the BCSWA would consider grant request from units of local government, civic clubs, or non-profit organizations. To be eligible for consideration, the proposed project would need to meet the goals and objectives of the solid waste district. Although it is impossible to anticipate every request, we would expect that a successful project would divert material from the landfill, provide proper disposal for a targeted material, strengthen markets for recycled content materials, or raise awareness of waste disposal issues. Special consideration would be given to a contracting authority that was interested in implementing PAYT waste disposal. Decisions on funding would be made by the BCSWA Board on a case-by-case basis considering the merits of each proposal and the availability of funding. Except in extraordinary cases, proposals would be reviewed toward the end of calendar year for funding the following year. The advantage of a grant strategy is the ability to take advantage of opportunities that were unanticipated during the writing of the solid waste plan. The disadvantage of this strategy is that it may invite many requests that will be turned down because they do not meet the goals of the solid waste district or simply because additional funds are not available after the core programs are funded. Because this strategy is less defined and in addition to the Districts proven core strategies, this Potential Strategy is considered to be a moderate priority.

Increased Buyback

The BCSWA has debated the merits of an expanded recycling buyback as a strategy to increase the recovery of some targeted materials. Due to the success of the current buyback for non-ferrous metals, we question if a similar strategy would work for paper, plastic, or glass. When non-ferrous metals are purchased they are bought at a price below the amount they can be sold for. The difference between the purchase price and the selling price (the margin) covers the overhead to operate the buyback, process, and ship the material. Since many recycling commodities are less valuable than metals, there is traditionally not enough margin to cover expenses. If the BCSWA subsidized the overhead, the underlying value of the material could be distributed to the person bringing the material to the buyback. This would create a financial incentive to recycle more. The advantage of this approach is that we already have a buyback center operating in the center of the county with extensive history in buyback recycling. Additional volume could lower the per unit operating cost of this existing strategy. Materials diverted from the waste stream could also lower the operating cost of our other recycling systems. The disadvantage of this approach is that it could artificially affect the open market. To protect against negative consequences, the subsidy amounts would only be used to help cover the overhead, assuring the amount paid to the public would never exceed the core value of the material once delivered to the mill or end user. Furthermore, this strategy would be implemented cautiously and incrementally to gauge its effectiveness

and consequences. Because of the experimental nature of this Potential Strategy, it is considered a lower priority strategy.

Per Pound Trash Disposal at Adams Brown Recycling
Adams Brown Recycling operates a "transfer station" for solid waste for the Adams Clermont Solid Waste District. Transfer station is in quotes because the facility falls under the regulatory limit to be defined as a solid waste transfer station by OEPA. None the less, the facility accepts small loads of garbage from the public for a fee of $.08/lb, and combines that waste into larger loads that goes to the Brown County Landfill. This strategy is important to Adams County because there is no landfill available locally. Our situation in Brown County is different because we have a landfill located in Georgetown, across the street from Adams Brown Recycling. Still, there would be a couple of advantages to accepting garbage for disposal by the pound at the Adams Brown Recycling facility. First, although the landfill charges a very reasonable rate for disposal, there is a one-ton minimum. Charging by the pound would significantly reduce the cost of disposal for individuals with small amounts of waste. Because the garbage will ultimately end up at the Brown County landfill, and additional cost will be incurred to handle each transaction, loads over one-ton will always be less at the landfill. We would encourage those with larger loads to go directly to the landfill. Second, the landfill is open to public each week day, but only one Saturday per month. Adams Brown Recycling is open each Saturday from 9:00am to 2:00pm.

It is important to note, that this potential strategy is not designed to compete with Rumpke, the landfill operator. Rather, it is designed to work with the landfill in much the same way our yard waste drop-off works with our local commercial mulch operation. Rumpke sets the price structure as they do to encourage collecting larger amounts before going to the landfill. This reduces the number of vehicles at the landfill at any one time. The one Saturday per month is a concession that Rumpke made to local residents who haul their own waste to the landfill. Because of the modest amount of self-haul waste Rumpke receives locally, it is believed that Rumpke makes these accommodations just to be a good neighbor. Additional research will be needed to determine if this service would be a benefit to the community. Because the need for this Potential Strategy is unclear at this time, this strategy is considered moderate priority.

Franchised Waste Collection
The BCSWA intends to explore the possibility of franchising waste collection for all or a part of the Solid Waste District. We believe that the thoughtful use of a waste collection contract could reduce illegal dumping and contamination in our recycling programs. Furthermore, competitive bidding could significantly reduce the waste collection cost for the residents of Brown County, since two-thirds of our residents are not currently covered by a competitively bid contract. We realize that this approach comes with negatives as well as advantages. Therefore, we are just starting the conversation at this stage, to see if this concept could be developed to a point that the benefits would clearly outweigh the status quo, and if we could build a consensus in the community for franchising waste collection. We hope to use the platform of this Solid Waste Plan Update to start the dialogue. Currently, seven villages and two owner associations in Brown County see a benefit in exercising some form of contracting authority. This potential strategy would seek to bring this benefit to the balance of Brown County. It would not be our intention to supersede the authority of those municipalities that already provide this advantage to their residents. Although there are several possible benefits to this Potential Strategy, it is considered a moderate priority due to the amount of time that will be necessary to develop a consensus.

Retired Strategies

Grant to Encourage Volume Based Garbage Billing (9181)
Pay as You Throw (PAYT) is a term that is used to describe a waste collection system where the public pays a greater amount of money to dispose of a greater amount of waste. During the last planning cycle, the BCSWA proposed a bold incentive grant program to encourage villages and townships to switch to a PAYT system. To date, not one contracting authority has shown interest in the program. In fact, the only

resistance to ratifying the current Approved Solid Waste Plan came from a municipality that was concerned that PAYT would become a requirement in the future. Due to the level of disinterest or resistance experienced with the PAYT incentive grant strategy, the BCSWA will not promote this strategy during this planning period. We will however, continue to support the concept of PAYT waste collection as a way to reduce waste going to the landfill and to encourage alternatives such as recycling. We also will continue to support the more general idea of a Grants Program detailed under "Potential Strategies" and will consider a grant to any contracting authority that would like to convert to a PAYT waste collection system on a case by case basis. As an alternative, the BCSWA would like to consider a couple of Potential Strategies that offer the possibility of moving the PAYT goal forward.

Franchising waste county-wide could offer several benefits to the citizens of Brown County as discussed in Potential Strategies. If the BCSWA decided to franchise waste collection, some form of PAYT could be incorporated into the contract.

Per Pound Garbage Disposal at Adams Brown Recycling, as discussed under Potential Strategies, would offer a de facto PAYT waste disposal system for those that chose to participate.

Traveling Road Show (9193)

The BCSWA takes waste reduction education very seriously, as evidenced by our education budget. By supporting a diverse group of educational organizations, we expect to have an accumulative affect when spreading the message of resource stewardship. If a farmer learns of the importance of proper disposal of used chemical containers from the OSU Extension Service, a student studies how to "recycle right" at school from the Adams Brown Recycling Specialist, and a mother attends a back yard composting workshop hosted by the Soil and Waste District; then the conservation mind set may be adopted by the entire family. We had hoped to increase the synergistic effect of our three partners approach to waste reduction education through a strategy we named the Traveling Road Show. The concept as proposed during the last plan was to focus the efforts of all three organizations on one school at a time. We had hoped to create a level of excitement that would help open the doors of the schools. It is common knowledge that accessing schools today has become more difficult due to the many competing requirements placed on those intuitions.

Unfortunately, organizing three busy educators and synchronizing them with the schools proved to be very difficult. Instead of creating a level of excitement to help open the doors of the schools, we created a program that required a larger time commitment on the part of the schools and therefore made scheduling more difficult. We eventually reverted back to each educator accessing the schools as they found opportunity, although with a somewhat more coordinated message. Moving forward, we are abandoning the name Traveling Road Show in favor of our tried and true education strategies.

Drop Off Recycling: Feesburg (9187) and Southwest Regional Medical Center (7864)

The BCSWA is committed to the concept of drop off recycling in rural areas. For many reasons, the specific drops off locations change over time. We readily add drop off sites when we see a need to provide better service in a particular area or we receive a request from local government. On the other hand, we remove recycling drop off containers when the owners of a site ask us to move. During the last planning period, we added two sites and lost two sites. To keep the Implementation Table current, we would like to remove the Lewis Township-Feesburg site (9187). This site was requested by the Township Trustees and approved by the BCSWA Board. Unfortunately, the business owner of the planned site did not agree to the placement. A suitable alternative site has not been located. Also, the Pleasant Township-Southwest Regional Medical Center site (7864) is discontinued. The Hospital closed and the property was sold to new owners. Due to a large construction rehab project, there was no longer room for the recycling box. Residents who use this site have been redirected to two nearby Pleasant Township drop off sites. The BCSWA will reevaluate these two sites or add additional sites as the opportunity presents itself.

Waste Reduction Strategies through the Planning Period: Organized by Goal

The above strategies describe how the BCSWA will meet the required State Goals. Due to the great number of strategies, the strategies are also organized below by goal. The following is a listing of strategies that contribute towards meeting the State Goals for Residential/Commercial waste.

Goal #1-ensure the availability of reduction and recycling opportunities/programs for residential/commercial waste	Recycling Contamination Special Cleanup Assistance Yard Waste Drop Off School Box Recycling Single Stream Recycling Village Curbside Collection (10 villages)[1] Drop Off Recycling (Urban & Rural)[1] Village Yard Waste Collection Commercial Collection of Cardboard Buyback Recycling Adams Brown Recycling MRF Township Cleanups Electronics Collection
Goal #2 – reduce and/or recycle at least 50% of waste	Recycling Contamination Special Cleanup Assistance Yard Waste Drop Off School Box Recycling Single Stream Recycling Village Curbside Collection (10 villages) Drop Off Recycling (Urban & Rural) Backyard Composting LA Battery Promotion Village Yard Waste Collection Commercial Collection of Cardboard Buyback Recycling Township Cleanups Electronics Collection

Goal #3 – provide information and technical assistance on source reduction	Academic Scholarships Education & Awareness Program District Recycling Specialist Waste Disposal Opportunities Fact Sheet School & Civic Club Presentations Landfill & Recycling Center Tours Local Radio Talk Shows Newspaper Articles Recycled Posters/Recycled Sculptures 4-H Litter Officer Training Green Camp Web Site Conduct Waste Audits Kick-Off Campaigns for In-House Recycling Litter Law Enforcement
Goal #4 – provide informational and technical assistance on recycling, reuse, and composting opportunities	Recycling Audit in a Bag Academic Scholarships Education & Awareness Program District Recycling Specialist Waste Disposal Opportunities Fact Sheet School & Civic Club Presentations Landfill & Recycling Center Tours Local Radio Talk Shows Newspaper Articles Recycled Posters/Recycled Sculptures Back Yard Composting 4-H Litter Officer Training Green Camp Web Site Conduct Waste Audits Kick-Off Campaigns for In-House Recycling Litter Law Enforcement
Goal # 5 – develop strategies managing scrap tires and household hazardous wastes (HHW)	Household Batteries Household Hazardous Waste Collection Day LA Battery Promotion Waste Tire Collection LA Battery collection at ABR Open Dump/Waste Tire/Roadside Litter Cleanup Electronics Collection Litter Law Enforcement
Goal #6 – prepare and submit an annual report to Ohio EPA	Required Goal but not supported by specific strategies.
Goal #7 – prepare a market development strategy	Glass reFactory

1. Although several strategies contribute to the goal of ensuring waste reduction opportunities, only Village Curbside Recycling Collection and Drop Off Recycling are used in the Access calculation.

2020 State Solid Waste Management Plan Goals

Although the Format requires that our Solid Waste Plan demonstrate compliance with the 1995 State Plan Goals, our Draft Plan is also well aligned with the goals of the 2020 State Solid Waste Management Plan.

Goal #1: Recycling Infrastructure

The 2020 State Solid Waste Management Plan's first goal reduces the minimum requirement for the "Access Goal" percentage of the population that are used to demonstrate access to recycling from 90% to 80%. The reason for this change is to give Solid Waste Districts more flexibility in locating drop off sites based on need rather than arbitrary lines on a map. While this may seem like a step in the wrong direction, along with this reduction is a new standard for calculating access in version 4.0 of the Format. The new calculation eliminates double counting and therefore potentially reduces the credit each drop off site or curbside route receives. The BCSWA has informally calculated the access percentage under the new standards. Because the BCSWA exceeds the current standard (129%), and because the BCSWA supports recycling drop offs that are not included in the current access calculation (15 school boxes), the BCSWA is able to exceed the new access standard with current programs.

Goal #2: Waste Reduction and Recycling Rates

The intended effect of well-designed and executed recycling programs continues to be an increase in actual recycling rates. Goal 2 in the 2020 State Solid Waste Management Plan is to reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector. In 2018, Brown County's R/C recycling rate was 27.91%, just below the state wide average of 29.7%, but over the goal of 25%.The 2020 State Plan discusses the need to receive reliable information concerning recycling rates if a district's Plan is approved under goal 2. The BCSWA agrees with concern and prefers to seek approval under goal 1. The BCSWA is very conservative when collecting information for the Annual District Report, preferring to only include recycling volumes with a high degree of certainty. Source reduction is not counted due to the difficulties in verifying volumes. We are confident that the actual recycling rate is under stated rather than overstated. We will continue to strive to increase our recycling rates regardless of which goal we are approved under.

Goal #3: Outreach and Education – Minimum Required Programs

The 2020 State Plan sets a minimum standard for an effective outreach program. The BCSWA meets this standard by having a functioning web site, a comprehensive resource guide, a recycling opportunities guide, and an extensive speaker's bureau.

Goal #4: Outreach and Education

This goal is focused on identifying target audiences and utilizing best practices to change behavior. Developing a consistent and frequently repeated message as well as tailoring the message to different audiences are key components of this new goal. The BCSWA has developed partnerships with Adams Brown Recycling, the Brown County Soil and Water District, and OSU Extension for this very reason. In our rural area, the latter two organizations are expert at motivating a very important segment of our public. Receiving a consistent and reinforcing message from all three groups is an effective way to influence behavior in a positive way. The BCSWA has made a significant financial commitment to Outreach and Education during this planning cycle.

Goal #5: Industrial Programs and Services

In truth, Brown County has a very small industrial base. Furthermore, the few industries we do have all manufacture their products from steel and other non-ferrous metals. Therefore, their residuals are easy and financially rewarding to recycle. For these reasons, the industrial recycling rate in Brown County in 2018 was 98.42%. This outstanding rate is achieved with very little input from the BCSWA. Still, we provide education, technical help and encouragement in any way possible. We allow industry to participate in our recycling programs and we perform waste audits upon request. The most important tool we have to assist industry is communication. We make it a point to speak personally with each of our major industries each year during the ADR survey to see if we can be of assistance.

Goal #6: Restricted Solid Wastes
Under goal 6 in the 2020 State Plan, Solid Waste Management Districts are required to provide strategies to manage wastes that are restricted from disposal in solid waste facilities. The BCSWA has developed programs to manage scrap tires, yard waste, lead-acid batteries, household hazardous waste and electronic devices.

Goal #7: Economic Incentives
The BCSWA has struggled to find effective and sustainable economic incentive programs. A PAYT incentive grant was included in the last Plan Update, with no success. Our most effective economic incentives have been reducing the cost to consumers to participate in recycling and proper waste management. To that end, we offer our drop off recycling sites to villages and townships at no cost, our curbside recycling to residents in all villages at no cost to the resident, and our commercial recycling program at a subsidized and reduced rate to Brown County businesses. Furthermore, our special and restricted waste collection events are offered free or at a low nominal rate. Beyond this approach, the BCSWA will continue to look for ways to provide economic incentives to encourage waste reduction.

Goal #8: Measure Greenhouse Gas Reduction
The BCSWA has used U.S. EPA's Waste Reduction Model to evaluate the impact of our programs on reducing greenhouse gas emissions. This gives us another tool for demonstrating the benefits of recycling and ensures that our programs are operated to achieve a net environmental benefit. The results of the evaluation can be found in appendix H.

Goal #9: Market Development
The BCSWA has been a longtime supporter of the Glass reFactory, a part of Adams Brown Recycling that creates a value-added use for locally collected bottle glass.

Goal #10: Reporting
Each Solid Waste District is required to gather local waste reduction information and report on progress toward implementing the Approved Solid Waste Plan on an annual basis to Ohio EPA. The adage that "you cannot manage what you cannot measure" seems to apply here. The BCSWA will continue to play its part in supporting and assessing state wide solid waste management.

Table V-5 depicts the estimated waste reduction from all strategies identified above. Reference year amounts are known volumes. Subsequent years are calculated from the best available data. For a line by line explanation of the procedure used to project future waste diversion, please see the table footnotes.

Strategy	Type of Material	Tons of Source Reduction/Recycling											
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Source Reduction													
Recycling Audit in a Bag[1]	1-7	0	0	0	0	0	0	0	0	0	0	0	0
Academic Scholarships[1]	1-16	0	0	0	0	0	0	0	0	0	0	0	0
Education & Awareness[1]	1-16	0	0	0	0	0	0	0	0	0	0	0	0
Litter Law Enforcement[1]	1-16	0	0	0	0	0	0	0	0	0	0	0	0
Waste Audits[1]	1-16	0	0	0	0	0	0	0	0	0	0	0	0
Subtotals		0	0	0	0	0	0	0	0	0	0	0	0
Recycling													
Curbside Recycling[2]	1-3, 5-7	399.6	399.8	399.9	403.5	407.2	410.8	414.5	418.2	422.4	426.6	430.8	435.1
Drop Off Recycling[2]	1-7	660.5	660.8	661.0	667.0	673.0	679.0	685.1	691.2	698.1	705.1	712.0	719.1
School Box Recycling[3]	1-7	112.3	112.4	112.4	113.4	136.0	137.2	138.4	139.6	141.0	142.4	143.8	145.3
Com. Collection of OCC[4]	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single Stream Recycling[5]	1-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recycling Contamination[5]	1-7	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ABR MRF[5]	1-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buyback Recycling[2]	1, 6-10,12	1188.5	1189.1	1189.4	1200.1	1211.0	1221.9	1232.8	1243.8	1256.2	1268.7	1281.2	1293.9
Electronics Collection[2]	16	11.1	11.1	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0
LA Battery Collection[2]	10	73.9	73.9	74.0	74.6	75.3	76.0	76.7	77.3	78.1	78.9	79.7	80.5
Household Battery Rec.[6]	14	0.1	0.1	0.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2
HHW[7]	14	18.5	18.5	18.6	27.8	28.1	28.3	28.6	28.8	29.1	29.4	29.7	30.0
Waste Tire Collection[2]	13	185.1	185.1	185.2	186.9	188.6	190.3	192.0	193.7	195.6	197.5	199.5	201.5
Village Yard Waste[2]	15	35.0	35.0	35.0	35.3	35.7	36.0	36.3	36.6	37.0	37.4	37.7	38.1
Yard Waste Drop-off[8]	15	386.3	386.5	386.6	390.1	393.6	432.6	436.4	440.3	444.7	449.1	453.6	458.1
Other Yard Waste[9]	15	1314.4	1315.0	1315.4	1327.3	1339.3	1351.3	1363.4	1375.6	1389.2	1403.1	1416.9	1431.0
Other Recycling Activity[9]	1-16	6682.1	6685.3	6687.0	6747.6	6808.6	6869.8	6931.1	6993.0	7062.6	7132.8	7203.4	7274.7
Subtotals		11067.4	11072.6	11075.4	11186.9	11309.5	11446.5	11548.7	11651.9	11767.8	11884.9	12002.5	12121.2
Other Waste Reduction Strategies													
Township Cleanups[10]	8-9,16	0	0	0	0	0	0	0	0	0	0	0	0
Special Cleanup Asst[10].	16	0	0	0	0	0	0	0	0	0	0	0	0
Open dump Cleanup[10]	16	0	0	0	0	0	0	0	0	0	0	0	0
Glass reFactory[10]	4	0	0	0	0	0	0	0	0	0	0	0	0
Landfill Monitoring	16	0	0	0	0	0	0	0	0	0	0	0	0
Subtotals		0	0	0	0	0	0	0	0	0	0	0	0
Grand Totals		11067.4	11072.6	11075.4	11186.9	11309.5	11446.5	11548.7	11651.9	11767.8	11884.9	12002.5	12121.2

Strategy	Type of Material	Tons of Source Reduction/Recycling										
		2030	2031	2031	2033	2034	2035	2036	2037	2038	2039	2040
Source Reduction												
Recycling Audit in a Bag[1]	1-7	0	0	0	0	0	0	0	0	0	0	0
Academic Scholarships[1]	1-16	0	0	0	0	0	0	0	0	0	0	0
Education & Awareness[1]	1-16	0	0	0	0	0	0	0	0	0	0	0
Litter Law Enforcement[1]	1-16	0	0	0	0	0	0	0	0	0	0	0
Waste Audits[1]	1-16	0	0	0	0	0	0	0	0	0	0	0
Subtotals		0	0	0	0	0	0	0	0	0	0	0
Recycling												
Curbside Recycling[2]	1-3, 5-7	439.3	444.2	449.1	454.0	459.0	464.1	469.7	475.3	481.1	486.8	492.7
Drop Off Recycling[2]	1-7	726.2	734.2	742.3	750.5	758.7	767.0	776.3	785.6	795.1	804.7	814.3
School Box Recycling[3]	1-7	146.7	148.3	149.9	151.6	153.3	154.9	156.8	158.7	160.6	162.5	164.5
Com. Collection of OCC[4]	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single Stream Recycling[5]	1-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recycling Contamination[5]	1-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ABR MRF[5]	1-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buyback Recycling[2]	1, 6-10,12	1306.6	1321.1	1335.7	1350.4	1365.2	1380.2	1396.8	1413.7	1430.7	1447.9	1465.3
Electronics Collection[2]	16	12.1	12.3	12.4	12.6	12.7	12.8	13.0	13.1	13.3	13.5	13.6
LA Battery Collection[2]	10	81.2	82.1	83.1	84.0	84.9	85.8	86.9	87.9	89.0	90.0	91.1
Household Battery Rec.[6]	14	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4
HHW[7]	14	30.3	30.6	30.9	31.3	31.6	32.0	32.4	32.8	33.1	33.5	33.9
Waste Tire Collection[2]	13	203.5	205.7	208.0	210.3	212.6	214.9	217.5	220.1	222.8	225.4	228.2
Village Yard Waste[2]	15	38.5	38.9	39.3	39.8	40.2	40.6	41.1	41.6	42.1	42.6	43.2
Yard Waste Drop-off[8]	15	462.6	467.7	472.9	478.1	483.3	488.6	494.5	500.5	506.5	512.6	518.8
Other Yard Waste[9]	15	1445.1	1461.1	1477.1	1493.4	1509.9	1526.4	1544.8	1563.4	1582.3	1601.3	1620.5
Other Recycling Activity[9]	1-16	7346.3	7427.6	7509.5	7592.2	7675.8	7760.0	7853.5	7948.1	8043.8	8140.5	8238.5
Subtotals		12240.6	12376.1	12512.4	12650.3	12789.6	12929.8	13085.6	13243.3	13402.8	13563.8	13727.0
Other Waste Reduction Strategies												
Township Cleanups[10]	8-9,16	0	0	0	0	0	0	0	0	0	0	0
Special Cleanup Asst[10].	16	0	0	0	0	0	0	0	0	0	0	0
Open dump Cleanup[10]	16	0	0	0	0	0	0	0	0	0	0	0
Glass reFactory[10]	4	0	0	0	0	0	0	0	0	0	0	0
Landfill Monitoring	16	0	0	0	0	0	0	0	0	0	0	0
Subtotals		0	0	0	0	0	0	0	0	0	0	0
Grand Totals		12240.6	12376.1	12512.4	12650.3	12789.6	12929.8	13085.6	13243.3	13402.8	13563.8	13727.0

Materials: 1=aluminum cans; 2=mixed plastic containers; 3=old newspaper; 4=glass bottles; 5=steel cans; 6=office paper; 7=old corrugated containers; 8=non-ferrous metal; 9=ferrous metal; 10=lead-acid batteries; 11=waste oil; 12=white goods; 13=scrap tires; 14=HHW; 15=yard waste; 16=non-categorized material

Sample Calculation: Curbside Recycling for 2019 = 399.6 tons (reported for 2018) / 39,654 (2018 total R/C waste) x 39,280 (2019 total R/C waste) = 395.8 tons x1.01 (1% increase) = 399.8 tons projected curbside recycling in 2019.

Assumptions: Recycling will generally increase at a rate 1% above that of total waste generation due to promotional efforts by the district. Program improvements will increase utilization for that particular program as noted below immediately following improvements.

1. Volumes are not projected due to the difficulty tracking and documenting results.

2. Projected to change relative to overall waste generation plus 1% per year.

3. School Box Recycling is projected to increase by 20% in 2022 due to the conversion from roll-off to rear-load and the associated attention to the school recycling program. Other than that one-time increase, school recycling is expected to change relative to overall waste generation plus 1% per year.

4. Commercial Cardboard is collected either on a school route or a curbside route for efficiency. To eliminate double counting, Commercial Collection of Cardboard is entered as 0.

5. The Single Stream Recycling, Recycling Contamination, and Adams Brown Recycling MRF strategies all support the other recycling strategies and therefor are not projected to avoid double counting.

6. Household Battery Recycling shows the amount collected as part of our HHW Amnesty day until our new strategy begins. It is estimated that we will collect 4,000 pounds in 2021. Subsequent years will rise relative to overall waste generation plus 1% per year

7. HHW is projected to increase by 50% in 2021 when we offer two collection days instead of one per year. Other than that one-time increase, HHW is expected to change relative to overall waste generation plus 1% per year.

8. Volume at the Yard Waste Drop-off is projected to increase by 10% in 2023 due to the expansion of the yard waste drop-off site. Experience shows that improvements to facilities usually results in a modest increase in participation due to convenience and awareness. Other than that one-time increase, Yard Waste Recycling at the Drop-off is expected to change relative to overall waste generation plus 1% per year.

9."Other Yard Waste" and "Other Recycling Activity" includes primarily Commercial recycling activity not included in a district strategy. By acknowledging this recycling activity, we are able to rectify the recycling by strategy to the total recycling activity as reported on the ADR.

10. These volumes are already counted in other strategies. To avoid double counting they are listed as zero throughout the planning period. These activities do generate an incidental amount of recycling, but this secondary to their primary purpose.

Industrial Waste Reduction Strategies

Due to the small number of industries in Brown County and the fact that nearly all have only metal as a byproduct, high rates of industrial recycling is not hard to demonstrate. In fact, we quite easily exceed Goal #2 targets for industrial recycling (98.4% in 2018). Nearly all of this high value material goes to out-of-district for-profit recyclers aggressively bidding the highest amount.

That said, the BCSWA desires to increase waste diversion where ever and whenever possible. All of the strategies listed in section IV-E and V-E are in theory available to industries as needed. In practice, the seven strategies restated below apply most directly to industries. They are not restated in their entirety, but rather just highlight how they relate to industries.

Goal #2 – reduce/recycle at least 50% of the industrial waste generation.

Commercial Collection of Cardboard
Commercial Rear-Load Service is available to Brown County industries that produce up to 6 cubic yards of OCC or single stream materials (break room waste) per week. Industry is asked to pay $45 per month for this service. Industries that produce more than 6 yard per week can contract for a dedicated roll-off container.

Curbside
Industries are eligible to participate in curbside recycling in a limited manner. If an industry has residential type materials (break room and front office) and residential quantities (up to three 65 gallon rolling carts every two weeks), and is on an existing curbside route, it can participate in our curbside program at no charge. In 2018, three Brown County Industries participated in curbside recycling.

Drop Off Recycling
Drop-Off Recycling is available at no cost to all industries that generate paper fibers, mixed plastics, aluminum cans, steel food cans, and glass bottles. It is believed that some of our micro-industries take advantage of this strategy to recycle their break-room and office waste.

Buy Back Recycling
Buy Back Recycling includes many items that industries typically generate. Even materials that we typically do not buy such as ferrous metals and cardboard are eligible for payment in large quantities.

Electronics Collection
Year-round electronic collection at ABR offers Brown County Industries a simple and secure way of recycling obsolete office computers and other electronics.

Goal #3 and Goal #4– provide informational and technical assistance on source reduction, recycling, reuse and composting to the industrial sector.

Waste Audits
Waste Audits are performed for local industries as requested at no cost. The Recycling specialist and Staff from Adams Brown Recycling perform the actual audit. Because the staff performing the waste audits is already subsidized by the BCSWA, no specific funds are required. Businesses are made aware of the program through press releases, the local chamber of commerce, and targeted mailings. Waste Audits are informal and customized to the requirements of the specific businesses. Typically, the Waste Audit will start with a phone conversation regarding current recycling activities and waste volumes. Next, a walk-through will be performed to look at the specific waste streams. Following the walk-through, research will be carried out and opportunities developed. Specific suggestions will be made by phone, personal visit, or by written report as the situation warrants. Because of the small number of industries in Brown County, often we will receive no request for an industrial waste audit in a typical year. In fact, no industrial audits were performed in the reference year, although our three largest industries all requested

and received waste audits in 2019.

Education and Awareness Program

The Education and Awareness Program is responsible for making industries aware of the services offered by the BCSWA. Specifically, Buy Back Recycling and Waste Audits are strategies that are highlighted to industries. The Education and Awareness Program has been successful in kick-off campaigns for new in-house recycling programs. Education efforts also emphasized economic, environmental, and community based advantages to waste reduction and recycling.

Table V-6 of the Format is designed to show the amount of Industrial Waste reduced throughout the planning period for each of the District's strategies. The District's strategies for industries fall into two general categories, those strategies that provide information and technical assistance to business to encourage waste reduction, and those strategies that actually accept and process material. Specific waste reduction is not projected for technical assistance programs because of the difficulty in estimating and documenting actual reductions. The programs that the District runs that do actually receive waste from industry are by their very nature hard to track. For example, several of our small industries reported recycling break room and office waste through our curbside program. Any business (Industrial or Commercial) in any Brown County village that generates the same type of material that our curbside program collects, and generates volumes that are similar to our residential customers(~3-65 gallon carts), can participate in our curbside recycling program for free. Those businesses outside of town often use one of our many drop-off sites for the same purpose. This approach to breakroom and office waste gets the job done as efficiently as possible, but cannot be tracked. Buyback recycling and Electronic Waste recycling are examples of services that are also used by industrial and commercial businesses, but are difficult to separate from the residential customers. During the reference year, the only industrial recycling recorded was ferrous metals, non-ferrous metals, and cardboard going to facilities outside the district. Furthermore, as discussed on page V-4, it is impossible to project whether this amount will increase or decrease during the planning period. It is clear that local population or overall manufacturing trends have little to do with the actual amount of industrial recycling in Brown County during any given year. For these reasons, if Table V-6 were completed, it would simply show 9,009.15 tons of industrial recycling throughout each year of the planning period under the category of "other" recycling. Therefore, Table V-6 has been omitted. For a more detailed look at industrial Waste Generation, please refer to Table V-3.

VI. Methods of Management: Facilities and Programs to be Used [ORC Section 3734.53(A)(7)-(12)]

A. District Methods for Management of Solid Waste

1. Calculation of Capacity Needs

Tables VI-1, VI-2 and VI-3 fairly depict the landfill space needed and the source reduction expected throughout the planning period.

Table VI-1. Waste Management Methods Used and Processing Capacity Needed for Each Year of the Planning Period

Year	Tons of SW Generat-ed	Tons Source Re-duced	Net Tons to be Managed by SWMD	Management Method Used and Processing Capacity Required in TPD and TPY						
				Recy-cling	Transfer	Yard Waste Composting	YW Land Appl.	Incinera-tion	MSW Composting	Landfilling
2018	59,320	0	59,320	18,341	0	1,736	0	0	0	39,243
2019	53,666	0	53,666	18,345	0	1,737	0	0	0	33,584
2020	53,211	0	53,211	18,348	0	1,737	0	0	0	33,126
2021	53,145	0	53,145	18,443	0	1,753	0	0	0	32,949
2022	53,077	0	53,077	18,550	0	1,769	0	0	0	32,758
2023	53,008	0	53,008	18,636	0	1,820	0	0	0	32,552
2024	52,936	0	52,936	18,722	0	1,836	0	0	0	32,378
2025	52,865	0	52,865	18,809	0	1,853	0	0	0	32,204
2026	52,838	0	52,838	18,906	0	1,871	0	0	0	32,061
2027	52,811	0	52,811	19,004	0	1,890	0	0	0	31,917
2028	52,782	0	52,782	19,103	0	1,908	0	0	0	31,770
2029	52,753	0	52,753	19,203	0	1,927	0	0	0	31,623
2030	52,722	0	52,722	19,304	0	1,946	0	0	0	31,472
2031	52,743	0	52,743	19,418	0	1,968	0	0	0	31,358
2032	52,763	0	52,763	19,532	0	1,989	0	0	0	31,241
2033	52,783	0	52,783	19,648	0	2,011	0	0	0	31,124
2034	52,803	0	52,803	19,765	0	2,033	0	0	0	31,004
2035	52,820	0	52,820	19,883	0	2,056	0	0	0	30,881
2036	52,885	0	52,885	20,014	0	2,080	0	0	0	30,790
2037	52,950	0	52,950	20,147	0	2,106	0	0	0	30,698
2038	53,015	0	53,015	20,281	0	2,131	0	0	0	30,603
2039	53,079	0	53,079	20,416	0	2,157	0	0	0	30,506
2040	53,144	0	53,144	20,554	0	2,183	0	0	0	30,408

Sample Calculations: Year 2040: 53,144 tons to be managed – 20,554 tons recycled – 2,183 tons yard waste = 30,408 tons to be landfilled in 2040

Assumptions: No additional assumptions made beyond those in supporting Tables V-4, V-5 and V-6.

Table VI-2. Summary for Residential/Commercial Waste Management Methods

Year	Tons Generated	Management Method in TPY				
		Source Reduction & Recycling	Incineration	Composting	Landfilling	Ash Disposal
2018	39,654	9,332	0	1,736	28,586	0
2019	39,280	9,336	0	1,737	28,207	0
2020	38,901	9,338	0	1,737	27,826	0
2021	38,865	9,434	0	1,753	27,678	0
2022	38,828	9,541	0	1,769	27,519	0
2023	38,789	9,627	0	1,820	27,343	0
2024	38,748	9,713	0	1,836	27,199	0
2025	38,707	9,799	0	1,853	27,055	0
2026	38,705	9,897	0	1,871	26,937	0
2027	38,703	9,995	0	1,890	26,818	0
2028	38,699	10,094	0	1,908	26,697	0
2029	38,695	10,194	0	1,927	26,574	0
2030	38,689	10,294	0	1,946	26,448	0
2031	38,730	10,408	0	1,968	26,354	0
2032	38,769	10,523	0	1,989	26,257	0
2033	38,808	10,639	0	2,011	26,158	0
2034	38,847	10,756	0	2,033	26,057	0
2035	38,884	10,874	0	2,056	25,954	0
2036	38,963	11,005	0	2,080	25,877	0
2037	39,042	11,138	0	2,106	25,799	0
2038	39,121	11,272	0	2,131	25,718	0
2039	39,199	11,407	0	2,157	25,635	0
2040	39,278	11,545	0	2,183	25,551	0

Sample Calculation: Year 2040: 39,278 tons generated – 11,545 tons recycled - 2,183 tons Yard Waste = 25,551 tons to be landfilled.

Assumptions: No additional assumptions made beyond those in supporting Tables V-4 and V-5.

Table VI-3. Summary for Industrial Waste Management Methods

Year	Tons Generated	Management Method in TPY				
		Source Reduction & Recycling	Incineration	MSW Composting	Landfilling	Ash Disposal
2018	9,154	9,009	0	0	145	0
2019	9,154	9,009	0	0	145	0
2020	9,154	9,009	0	0	145	0
2021	9,154	9,009	0	0	145	0
2022	9,154	9,009	0	0	145	0
2023	9,154	9,009	0	0	145	0
2024	9,154	9,009	0	0	145	0
2025	9,154	9,009	0	0	145	0
2026	9,154	9,009	0	0	145	0
2027	9,154	9,009	0	0	145	0
2028	9,154	9,009	0	0	145	0
2029	9,154	9,009	0	0	145	0
2030	9,154	9,009	0	0	145	0
2031	9,154	9,009	0	0	145	0
2032	9,154	9,009	0	0	145	0
2033	9,154	9,009	0	0	145	0
2034	9,154	9,009	0	0	145	0
2035	9,154	9,009	0	0	145	0
2036	9,154	9,009	0	0	145	0
2037	9,154	9,009	0	0	145	0
2038	9,154	9,009	0	0	145	0
2039	9,154	9,009	0	0	145	0
2040	9,154	9,009	0	0	145	0

Sample Calculation: Year 2040: 9,154 Tons Generated – 9,009 tons recycled = 145 tons to be landfilled

Assumptions: No additional assumptions made beyond those in supporting Tables V-4 and V-6.

B. Demonstration of Access to Capacity

Reference year inventories show one primary in-district landfill and four additional facilities receiving nominal amounts of waste from Brown County. The primary landfill is owned by Rumpke Waste, Inc., who is also the primary waste hauler in our district. This landfill, also known as the Brown County Landfill, is centrally located in Georgetown. The Brown County Landfill has received most of Brown County's waste for the last 30 years. Table VI-4 identifies all landfills and waste transfer stations that received Brown County waste in the reference year. The Brown County landfill took 97% of the total. For planning purposes, we assume that the Brown County Landfill will receive 100% of that waste during the planning period. In fact, a nominal amount of waste will continue to flow to other facilities for reasons specific to those loads. Since the BCSWA does not currently exercise Flow Control, we have no means to regulate that waste nor do we have a compelling reason to do so.

In the event that the Brown County Landfill would be unable to accept Brown County waste, the BCSWA would still rely on Rumpke to provide disposal services. This is based upon the fact that Rumpke is the only private hauler operating in the district. Rumpke owns several landfills within reasonable hauling distance. For planning purposes, we will use Rumpke's Pike County Landfill (34780) in Pike County. This landfill is 61 miles from Georgetown and currently has 32.8 years of capacity at the current average daily rate. Also in reasonable hauling distance is the RWS Beech Hollow Landfill in Jackson County. The RWS Beech Hollow Landfill is 69 miles from Georgetown and has a current life expectancy of 80 years. See appendix G for commitment letter. Other waste disposal options are discussed in VI-H.

Access to Recycling is provided by Adams Brown Recycling. ABR has the capacity to operate the BCSWA's recycling strategies throughout the planning period. Other facilities used by Brown County residents and businesses are also identified on Table VI-4. Out-of-district facilities used by Brown County businesses are not always known by the District. In ADR surveying, we attempt to discover if material is sent to one of the facilities we survey. If it is not, we can be reasonably certain that we are not double counting. An example would be a grocery store chain that back-hauls its cardboard on its delivery trucks, aggregates the material from several stores, and sends the material to a distant paper processor.

Access to Yard Waste disposal is provided by the District operated drop off site at Adams Brown Recycling. All other yard waste projections are assumed to increase at a rate equal to overall waste.

Table VI-4. Waste Management Method: Landfill Disposal

Facilities Used by District: Name & Location (county,state)	AMD WRL	Remaining Capacity				Tons of SW Managed by Each Facility								
		Years as of 2018	Data Source	Airspace (cubic yards)		2018	2019	2020	2021	2022	2023	2024	2025	2026
				Gross	Net tons									
1. Rumpke Waste, Brown Co., OH #3916	3,000	112.5	OEPA	41,631,746	29,741,565	38,143	33,584	33,126	32,949	32,758	32,552	32,378	32,204	32,061
2. Rumpke Waste, Hamilton Co. OH #33318	12,500	8.2	OEPA	20,950,205	19,274,188	17	0	0	0	0	0	0	0	0
3. Kentucky Landfills	NA	NA	OEPA	NA	NA	1,084	0	0	0	0	0	0	0	0
Totals						39,244	33,584	33,126	32,949	32,758	32,552	32,378	32,204	32,061

Facilities Used by District: Name and Location (county and state)	Tons of SW Managed by Each Facility													
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
1. Rumpke Waste, Brown Co., OH #3916	31,917	31,770	31,623	31,472	31,358	31,241	31,124	31,004	30,881	30,790	30,698	30,603	30,506	30,408
2. Rumpke Waste, Hamilton Co. OH #33318	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Kentucky Landfills	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	31,917	31,770	31,623	31,472	31,358	31,241	31,124	31,004	30,881	30,790	30,698	30,603	30,506	30,408

Table VI-4. Waste Management Method: Recycling

Facilities Used by District: Name & Location (county,state)	AMD WRL	Remaining Capacity				Tons of SW Managed by Each Facility								
		Yrs	Data Source	Airspace (cubic yds)		2018	2019	2020	2021	2022	2023	2024	2025	2026
				Gross	Net									
ABRS Brown Co., OH	NA	NA	NA	NA	NA	2,446	2,447	2,448	2,472	2,516	2,538	2,561	2,584	2,610
Rumpke Waste, Brown Co., OH	NA	NA	NA	NA	NA	204	204	204	205	206	208	209	210	211
Liberty Tire, Ohio	NA	NA	NA	NA	NA	2	2	2	2	2	2	2	2	2
Cohen Brothers, Highland Co. OH	NA	NA	NA	NA	NA	11,027	11,030	11,031	11,093	11,160	11,235	11,291	11,348	11,412
D & S Auto Sales	NA	NA	NA	NA	NA	930	930	930	936	941	948	952	957	962
HHW (EEI)	NA	NA	NA	NA	NA	19	19	19	28	28	28	29	29	29
Other facilities[1]	NA	NA	NA	NA	NA	5,449	5,450	5,450	5,461	5,465	5,496	5,514	5,531	5,551
Totals						20,077	20,082	20,085	20,196	20,319	20,456	20,558	20,661	20,777

1. "Other facilities" represents recycling activities reported by businesses in Brown County utilizing facilities other than those we survey. Often this will be a store that sends its recyclables back to a central warehouse or an industry with a contract with an out-of-region recycler. The material types in these cases are valuable and easily recycled; therefore there is little chance of insufficient capacity to recycle this material. The "Other facilities" row was added Table VI-4 so that the totals from Table VI-4/Recycling and Table VI-4/Yard Waste Composting would sum to equal the total from Table V-5 plus 9,009 tons of Industrial Recycling.

Table VI-4. (continued) Waste Management Method: Recycling

Facilities Used by District: Name, Location (county and state)	Tons of SW Managed by Each Facility													
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
ABRS, Brown Co., OH	2,636	2,662	2,688	2,714	2,744	2,775	2,805	2,836	2,867	2,902	2,937	2,972	3,008	3,044
Rumpke Waste, Brown Co., OH	212	214	215	216	217	219	220	221	223	225	226	228	229	231
Liberty Tire, Ohio	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cohen Brothers, Highland Co. OH	11,476	11,541	11,606	11,671	11,746	11,821	11,896	11,973	12,050	12,136	12,222	12,310	12,398	12,488
D & S Auto Sales	968	973	979	984	991	997	1,003	1,010	1,016	1,023	1,031	1,038	1,046	1,053
HHW (EEI)	29	30	30	30	31	31	31	32	32	32	33	33	34	34
Other facilities[1]	5,571	5,591	5,611	5,631	5,654	5,677	5,701	5,725	5,748	5,775	5,802	5,829	5,856	5,884
Totals	20,894	21,012	21,130	21,250	21,385	21,522	21,659	21,799	21,939	22,095	22,252	22,412	22,573	22,736

1. "Other facilities" represents recycling activities reported by businesses in Brown County utilizing facilities other than those we survey. Often this will be a store that sends its recyclables back to a central warehouse or an industry with a contract with an out-of-region recycler. The material types in these cases are valuable and easily recycled; therefore there is little chance of insufficient capacity to recycle this material. The "Other facilities" row was added Table VI-4 so that the totals from Table VI-4/Recycling and Table VI-4/Yard Waste Composting would sum to equal the total from Table V-5 plus 9,009 tons of Industrial Recycling.

Table VI-4. Waste Management Method: Yard Waste Composting

Facilities Used by District: Name & Location (county,state)	AMD WRL	Remaining Capacity				Tons of SW Managed by Each Facility								
		Years at end of 2005	Data Source	Airspace (cubic yards)		2018	2019	2020	2021	2022	2023	2024	2025	2026
				Gross	Net tons									
ABR Drop-off, Brown, OH	NA	NA	NA	NA	NA	386	387	387	390	394	433	436	440	445
Bzak Mulch, Brown, OH	NA	NA	NA	NA	NA	1,314	1,315	1,315	1,327	1,339	1,351	1,363	1,376	1,389
Mt. Orab Collection	NA	NA	NA	NA	NA	35	35	35	35	36	36	36	37	37
Totals						1,736	1,737	1,737	1,753	1,769	1,820	1,836	1,853	1,871

Facilities Used by District: Name and Location (county and state)	Tons of SW Managed by Each Facility													
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
ABR Drop-off, Brown, OH	449	454	458	463	468	473	478	483	489	495	500	507	513	519
Bzak Mulch, Brown, OH	1,403	1,417	1,431	1,445	1,461	1,477	1,493	1,510	1,526	1,545	1,563	1,582	1,601	1,621
Mt. Orab Collection	37	38	38	38	39	39	40	40	41	41	42	42	43	43
Totals	1,890	1,908	1,927	1,946	1,968	1,989	2,011	2,033	2,056	2,080	2,106	2,131	2,156	2,182

C. Schedule for Facilities and Programs: New, Expansions, Closures, Continuations

Table VI-5 includes all facilities, programs and strategies funded by the District or necessary to demonstrate disposal capacity.

Table VI-5. Implementation Schedule for Facilities, Strategies, Programs, and Activities: Dates and Description

Name of Facility, Strategy, Program or Activity	Location (SW-MD, County, City/Township)	Description of Program/ Facility1	Approx. Date When the Following Will Take Place:	
			Operations Begin	Operations Cease
Facilities				
Rumpke Landfill	Brown County, Pleasant Twp.	Landfill Disposal	In operation	2040+
Adams Brown Recycling	Brown County, Pleasant Twp.	Buyback Recycling & MRF	In operation	2040+
Adams Brown Yard Waste Drop-off	Brown County, Pleasant Twp.	Yard Waste Drop-off	In operation	2040+
Curbside				
Aberdeen Curbside	Aberdeen Village	Curbside Recycling	In operation	2040+
Georgetown Curbside	Georgetown Village	Curbside Recycling	In operation	2040+
Mt. Orab Curbside	Mt. Orab Village	Curbside Recycling	In operation	2040+
Ripley Curbside	Ripley Village	Curbside Recycling	In operation	2040+
Fayetteville Curbside	Fayetteville Village	Curbside Recycling	In operation	2040+
Sardinia Curbside	Sardinia Village	Curbside Recycling	In operation	2040+
St. Martins Curbside	St. Martins area	Curbside Recycling	In operation	2040+
Hamersville Curbside	Hamersville Village	Curbside Recycling	In operation	2040+
Higginsport Curbside	Higginsport Village	Curbside Recycling	In operation	2040+
Russellville Curbside	Russellville Village	Curbside Recycling	In operation	2040+
County Office Collection	Georgetown Village	Office Paper Recycling	In operation	2040+

Table VI-5 (continued)

Name of Facility, Strategy, Program or Activity	Location (SW-MD, County, City/Township)	Description of Program/ Facility1	Approx. Date When the Following Will Take Place:	
			Operations Begin	Operations Cease
Drop-off Recycling				
Clark Township	Clark Township	Drop-off Recycling	In operation	2040+
Byrd Township	Byrd Township	Drop-off Recycling	In operation	2040+
Franklin Township Lake Waynoka	Franklin Township	Drop-off Recycling	In operation	2040+
Green Township-Mt. Orab	Green Township	Drop-off Recycling	In operation	2040+
Green Township-Greenbush	Green Township-Greenbush	Drop-off Recycling	In operation	2040+
Huntington Township	Huntington Township	Drop-off Recycling	In operation	2040+
Jackson Township	Jackson Township	Drop-off Recycling	In operation	2040+
Jefferson Township	Jefferson Township	Drop-off Recycling	In operation	2040+
Lewis Township-Higginsport	Lewis Township	Drop-off Recycling	In operation	2040+
Perry Township	Perry Township	Drop-off Recycling	In operation	2040+
Perry Township-Lake Lorelei	Perry Township	Drop-off Recycling	In operation	2040+
Union Township Ohio Valley Manor	Union Township	Drop-off Recycling	In operation	2040+
Union Township	Union Township	Drop-off Recycling	In operation	2040+
Washington Township	Washington Township	Drop-off Recycling	In operation	2040+
Sterling Township	Sterling Township	Drop-off Recycling	In operation	2040+
Adams Brown Recycling	Pleasant Township	Drop-off Recycling	In operation	2040+
Pleasant Township	Pleasant Township	Drop-off Recycling	In operation	2040+

Table VI-5 (continued)

Name of Facility, Strategy, Program or Activity	Location (SW-MD, County, City/Township)	Description of Program/ Facility1	Approx. Date When the Following Will Take Place:	
			Operations Begin	Operations Cease
New Strategies				
Recycling Contamination	Brown County	Strategy to reduce Drop-off Contamination	2021	2040+
Special Cleanup Assistance	Brown County	Cleanup program to assist low income individuals	2021	2040+
Household Batteries	Brown County	Collect and recycle household batteries	2021	2040+
Recycling Audit in a Bag	Brown County	Voluntary waste audit for committed residential recyclers	2021	2040+
Academic Scholarships	Brown County	Students compete for scholarship by writing solid waste essay	2021	2040+
Modified Strategies				
Yard Waste Drop-Off	Brown County	Yard waste drop-off at ABR	In operation	2040+
Household Hazardous Waste Collection Day	Brown County	HHW amnesty program	In operation	2040+
Glass reFactory	Brown County	Manufacturing of decorative glass from bottles	In operation	2040+
School Box Recycling	Brown County	Drop-off recycling at 15 school sites	In operation	2040+
Unchanged Strategies				
Single Stream Recycling	Brown County	MRF upgrade	In operation	2040+
Education and Awareness				
Education and Awareness Program	Brown County	Over-all Education program	In operation	2040+
District Recycling Specialist	Brown County	Staff to conduct Education & Awareness program	In operation	2040+
Waste Disposal Opportunities Fact Sheet	Brown County	Fact Sheet	In operation	2040+
School & Civic Club Presentations	Brown County	Speaker Programs	In operation	2040+
Landfill & Recycling Center Tours	Brown County	Tours	In operation	2040+

Education and Awareness				
Local Radio Talk Shows	Brown County	Radio shows	In operation	2040+
Newspaper Articles	Brown County	Newspaper articles	In operation	2040+
Recycled Posters/Recycled Sculptures	Brown County	Contest with waste reduction theme	In operation	2040+
Back Yard Composting	Brown County	Composting education	In operation	2040+
4-H Litter Officer Training	Brown County	Intensive education for 4-H youth	In operation	2040+
Green Camp	Brown County	Summer camp	In operation	2040+
Web Site	Brown County	Solid waste information web site	In operation	2040+
LA Battery Promotion	Brown County	Special waste promotion	In operation	2040+
Conduct Waste Audits	Brown County	Waste audits for businesses	In operation	2040+
Kick-Off Campaigns	Brown County	Special promotional program for new recycling programs	In operation	2040+
Other Programs				
Village Yard Waste Collection	All Brown County Villages	Cost-share grant to encourage village yard waste collection	In operation	2040+
Commercial Collection of Cardboard	Brown County	Fee for service weekly collection of cardboard from businesses	In operation	2040+
Buyback Recycling	Brown County	Purchase of non-ferrous metals	In operation	2040+
Adams Brown Recycling MRF	Brown County	Process curbside and drop-off	In operation	2040+
Waste Tire Collection	Brown County	Scrap tire amnesty program	In operation	2040+
LA Battery collection at ABR	Brown County	Buyback of LA batteries	In operation	2040+
Township Cleanups	Brown County	16 clean-up days	In operation	2040+
Open Dump/ Waste Tire pile/ Roadside litter Cleanup	Brown County	Illegal dumping & litter cleanup by alternative sentencing participants	In operation	2040+
Electronics Collection	Brown County	Year-round drop-off of electronic scrap	In operation	2040+
Litter Law Enforcement	Brown County	Deputy Sheriff to enforce litter laws	In operation	2040+
Landfill Monitoring	Brown County	BC Health Dept. to monitor LF	In operation	2040+

D. Identification of Facilities

Table VI-6 identifies solid waste disposal facilities that the District intends to use or may use during the planning period. The BCSWA does not limit additions throughout the planning period.

Table VI-6. Facilities Identified and Current Designations

Facilities Identified		Facilities Currently Designated	
Facility Name	Location	Facility Name	Location (SWMD, State)
Rumpke Brown Landfill	Brown County , OH		
Adams Brown Recycling Station	Brown County, OH		
Adams Brown Recycling Yard Waste Drop-off	Brown County, OH		
RWS Beech Hollow Landfill	Jackson County, OH		
Rumpke Landfill	Hamilton, OH		
Mason County Landfill	Mason County, OH		
Rumpke Saint Bernard MRF	Hamilton County, OH		
Rumpke Pike Landfill	Pike County, OH		

E. Authorization Statement to Designate

The Board of Directors of the BCSWA is herby 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.

F. Waiver Process for Undesignated Facilities

In the event of unforeseen circumstances, or to comply with Ohio's solid waste laws, or for other good reason, the BCSWA may issue a waiver to allow waste to flow to undesignated facilities. A waiver will be issued only if the BCSWA finds that the waiver request is consistent with the SWMP and will not adversely impact plan implementation or financing. As required by ORC 343.01 (I)(2), the BCSWA will act upon a waiver request within 90 days after receipt, based upon the following procedures:

- The waiver request will be presented at the first BCSWA meeting after receipt. The facility making the request will be given the opportunity to present their position to the Authority.
- The Authority may solicit opinions from local public and private sector representatives, as the Authority sees appropriate.
- The Authority will determine the impact of the waiver upon: plan projections, implementation, and funding.
- The Authority will vote by the end of the next meeting, granting or denying the waiver request.

G. Siting Strategy for Facilities

Although there are no new or expanded facilities proposed by the BCSWA, the Authority has adopted the following siting strategy to be prepared should private or public facilities, in the future, be considered. This strategy will help to minimize negative environmental, economic, and social impacts that are inherent in siting a solid waste facility. Class IV Yard Waste sites are specifically exempted from this process. Other facilities may be exempted if conditions warrant.

This siting strategy in no way precludes or exempts an owner of a solid waste facility from the rules and authority of OEPA or Ohio Revised Code. The time frame for each step is estimated but can be altered as specific conditions warrant. All meetings will be open to the public.

The following steps will be initiated if any licensed solid waste facility is proposed within the District:

I. Review of Siting Committee Responsibilities
II Gather and compile data relating to proposed facility and site(s)
III Apply criteria to site(s), rank proposed sites, select sites
IV. Mediation

I . Review of Siting Committee Responsibilities – time frame of 2 months.

The BCSWA Board will serve as the Siting committee. They reserve the right to designate sub-committees and/or technical advisory committees and/or seek advice and counsel from experts as necessary. The Board will review their responsibilities as they relate to siting a facility, and propose a time frame for completion of those activities.

II. Site Survey - Gather and Review Data relating to proposed site(s) - timeframe of 9 months

The Board will review the solid waste management plan, district rules, and current Ohio and US EPA regulations. Information will be gathered specific to the proposed site(s) including land use data; population density and transportation routes; data on rivers, streams, wetlands, watersheds, flood plains, aquifers, soils, public water, and waste systems; wellhead protection areas; endangered and threatened species; geology; topography; archeological/historical sites; public and private utilities; parks; and natural areas. The proposed site will be visually inspected, and then the data will be compiled and recorded on map overlays.

III. Apply criteria to site(s) to determine suitability or rank of site – 4 month timeframe

Before ranking begins, the Board may appoint additional people to the Siting Committee, including public representatives, political jurisdiction representatives, technical representatives, and/or a facilitator. Then a system will be selected to rank the sites, and Ohio EPA and District exclusionary criteria will be applied to the sites. A public meeting will be held to review the ranking system and to accept comment from the local residents and political jurisdiction representatives. The public will be invited to attend Siting Committee meetings.

The ranking system will be a tool to help make a final decision, not to make a specific site determination. In addition, ranking will reduce the number of sites to a manageable level and/or rule out inappropriate sites due to exclusionary criteria or poor environmental, suitability, or socio-political criteria. Although the ranking system will be developed to produce a quantifiable

number, the number is not an absolute measurement of a specific site's suitability.

IV. Mediation – up to 1 year

If mediation is necessary, it may be facilitated by a professional mediator or consultant. The mediator will assure all views and inputs are fairly considered. The Siting Committee will need to identify the different interest groups and consider them when selecting a mediator. All parties should be confident of the neutrality of the mediator and agree on the mediation process.

H. Contingencies for Capacity Assurance and District Program Implementation

As stated in VI-B, Demonstration of Access to Capacity the Brown County Landfill has ample capacity throughout the planning period. Furthermore, it is in compliance will all permits and regulations. There is a high level of certainty that the Brown County Landfill will be fully able to provide sufficient disposal capacity until 2032 and beyond.

In the event that there are unforeseen circumstances that would prevent the Brown County Landfill from accepting all of Brown County's waste, the BCSWA would still rely on Rumpke to provide disposal services. This is based upon the fact that Rumpke is the only private hauler operating in the district. Within reasonable distance, Rumpke owns several landfills. For planning purposes, we have used the Pike Sanitation Landfill in Pike County. This landfill is 61 miles from Georgetown and currently has 32.8 years of capacity at the current average daily rate. The Mason County Kentucky Landfill (22 miles) would also be a viable option due to its proximity, but since it is not owned by Rumpke, it might not be as economically inviting.

We have included a brief study of landfills within hauling distance and listed the remaining capacity in terms of years.

Name of Facility	Expected lifetime*	Distance from Georgetown, Brown County, OH
Maysville Mason County Landfill Maysville, KY	unknown	22 miles
Rumpke/Pike Sanitation Landfill Waverly, OH	32.8 years	61 miles
Rumpke Sanitary Landfill Cincinnati, OH	8.2 years	63 miles
Rumpke/RWS Beech Hollow LF Jackson Co. OH	80 years	69 Miles
Stony Hollow Landfill Dayton, OH	24.4 years	89 miles
Franklin County Sanitary Landfill Grove Port, OH	43.7 years	98 miles
Pine Grove Regional Facility Amanda, OH	64.9 years	107 miles
Crawford County Sanitary Landfill Bucyrus, OH	33 years	168 miles
Defiance County Sanitary Landfill Defiance, OH	51.6 years	211 miles

*Information source: OEPA -2018 Ohio Facility Data Report - Table 13.

VII. Measurement of Progress Toward Waste Reduction Goals [ORC Section 3734.53(A)]

A. District Will Comply with Goal(s) Identified

In 2018, the BCSWA reported a Residential/Commercial rate of 27.9 percent and an Industrial Recycling rate of 98.4 percent. Our combined rate was 41.1 percent for all waste generated in Brown County. Historically, our Industrial Recycling percent has been among the highest in the state due to the fact our small industrial base is almost exclusively engaged in manufacturing products out of ferrous metals which are inherently easy to recycle.

In practice, the BCSWA could demonstrate compliance with Goal #2, which requires a minimum of 25% Residential/Commercial waste reduction and 50% Industrial waste reduction. Meeting this goal relies on voluntary reporting of local business and scrap yards. Rather, the BCSWA prefers to seek plan approval under Goal #1, also known as the Access Standard. In this way, we are in control the recycling opportunities and programs that demonstrate compliance.

The BCSWA will demonstrate compliance with Goal #1 by providing recycling programs accessible to at least 90% of the population. It is affirming however, that by meeting Goal #1, we have increased our recycling rate high enough to meet Goal #2. This was exactly the intention in the State Solid Waste Plan.

B. Demonstration of Compliance with Goal #1

The BCSWA provides access to waste reduction/recycling strategies and programs to all residents of Brown County through the services of Adams Brown Recycling. ABR recycles ten of the eleven materials listed in Table VII-1. Six of those ten materials are accepted by the Curbside program and seven are accepted in the Drop off. For the purposes of this amended SWMP, seven will be designated as indicated on Table VII-1.

Table VII-1. Materials Designated to Demonstrate Compliance with Goal #1

Eleven Materials Highly Amenable to Recycling, etc.	Four Materials Designated for the Residential Sector	Four Materials Designated for the Commercial /Institutional Sector	Number of Times Materials is Designated
Corrugated cardboard		X	1
Office paper		X	1
Newspaper	X		1
Glass containers[1]		X	1
Steel containers[1]	X		1
Aluminum containers[1]	X		1
Plastic containers	X	X	2
Wood packaging & pallets			
Lead-acid batteries			
Major appliances			
Yard wastes			
Totals	4	4	7

[1] Includes food and beverage containers only.

1. Residential

a. Service Area

The BCSWD is a single county District, so there will be just one service area, Brown County. The population of the District in 2018 is 43,602.

b. Access

The District's demonstration of access is depicted in Table VII-2. By use of non-subscription recycling curbside in 10 villages and 15 Drop-Off sites; the BCSWA can demonstrate access to 100% of the district population during the reference year and throughout the planning period.

Curbside service is available without cost to anyone living in an incorporated village in Brown County. Therefore, the entire village population is used in the access calculation. The curbside truck runs each street in each village every other week. Free curbside carts are provided by the district to increase convenience. The curbside program currently accepts aluminum cans, steel food cans, plastic bottles, newspaper, cardboard, office paper, and magazines. Because the Adams Brown Recycling MRF can only accept unbroken glass, and because the curbside truck uses compaction, glass bottles are not accepted on our curbside routes. Curbside participants who have bottle glass to recycle are encouraged to use any one of our recycling drop-off sites or bring the glass directly to Adams Brown Recycling.

The drop-off sites are targeted to those county residents without access to curbside recycling; however, they are available to anyone wishing to properly donate the appropriate recyclables. Often, the drop-off sites are used by residents of neighboring townships, neighboring counties, or residents within the villages who prefer drop-off recycling to curbside service. All drop-off sites are available 24 hours per day and seven day per week. The drop-off program currently accepts aluminum cans, steel food cans, glass bottles, plastic bottles, newspaper, cardboard, office paper, and magazines. To define the population served, the BCSWA simply used the population of the township in which the box is located. Thirteen drop-off sites are in townships with populations below 5,000 and therefore, qualify for a default "Population with Access" value of 2,500 each. Two drop-off sites are in Pleasant Township, our largest township and our only township with a population over 5,000. These sites are credited with an urban area default value of 5,000 in the reference year. Using the formula prescribed in the Format, our population with access is calculated at 129.2% in the reference year. Interestingly, due to projected population decline during the planning period, Pleasant Township is expected to fall below the 5,000-population threshold and therefore will only be credited as a rural site serving 2,500. Still, our access calculation will be well in excess of the minimum (128.6%). The source of the population information for villages and townships for the reference year is the Ohio Department of Development, Office of Strategic Research.

Table VII-2. Calculation of Access for Residential Sector: Brown County Service Area

Program	Reference Year		Year 2040	
	Population	Population w/ Access	Population w/Access	Population w/Access
Non-Subscription Curbside				
Aberdeen	1,608	1,608	1427	1427
Ripley	1,701	1,701	1510	1510
Fayetteville	315	315	280	280
St. Martin	42	42	37	37
Mt. Orab	3,479	3,479	3088	3088
Russellville	514	514	456	456
Georgetown	4,280	4,280	3799	3799
Sardinia	1,144	1,144	1015	1015
Higginsport	243	243	216	216
Hamersville	505	505	448	448
Full Service Drop-off (urban area) Pleasant Twp.				
AB Recycling[1]	5,501	5,000	4,883	2,500
Pleasant[1]	5,501	5,000	4,883	2,500
Full-Service Drop-off (rural areas),				
Byrd	723	2,500	642	2,500
Clark	3,030	2,500	2,689	2,500
Green	3,496	2,500	3,103	2,500
Franklin	1,619	2,500	1,437	2,500
Huntington	2,714	2,500	2,409	2,500
Jackson	1,546	2,500	1,372	2,500
Jefferson	1,381	2,500	1,226	2,500
Lewis	2,640	2,500	2,343	2,500
Perry	4,624	2,500	4,104	2,500
Union-Ripley	2,989	2,500	2,653	2,500
Union-OVM	2,989	2,500	2,653	2,500
Washington	2,287	2,500	2,030	2,500
Sterling	4,357	2,500	3,867	2,500
Totals	NA[2]	56,331	NA[2]	49,776
Reference year population-43,602	Population w/access 100%[3]	2040 projected population-38,700[4]		Population w/access 100%[3]

1. Because of projected population decline, Pleasant Township will fall below 5,000 population during Planning Period, therefore, the access credit will drop to 2,500.
2. Greater than total county population because some areas have overlapping services and are counted twice in this sum total.
3. Actual calculations show 129.2% in reference year and 128.6% in 2040.
4. County wide population projection from Ohio DOD. Population projection for each political sub-division by multiplying 2040 population by projected change in population countywide.

Sample Calculation: Sum Population w/Access Credit for reference year =56,331x 100(percent)/ 43,602(total population) = 129% reduced to 100% (maximum mathematical possibility) population with access.
Assumptions: Each village and township will grow relative to overall county population trend.

c. Participation

Education and Awareness

The BCSWA operates a robust Education and Awareness program as described in section IV and section V. Educators from Adams Brown Recycling, the Brown County Soil & Water District, and the OSU Extension Service are all funded for this purpose. The educators use personal appearances, tours, workshops, news publications, handouts, radio spots, displays, and a web site to reach out to the public and encourage sustainable waste management practices. Target audiences are identified for each program the BCSWA supports. For example, the target audience for the Green Camp is 4th and 5th grade students. The target audience for curbside recycling promotion is residents living in one of the ten villages in Brown County. In general, success is measured by the number of contacts for each program and the resulting increase in participation in a specific program when applicable. For a detailed discussion of these outreach programs, see section IV-E. 1. and V-E.

Financial Incentives

Historically, our best Financial Incentives strategy has been to remove as many disincentives as possible. We provide no-cost curbside recycling to every village (as small as 243 people) in the county. We provide convenient drop-off recycling sites in a quantity that exceeds the amount required to meet Goal #1 of the State Plan. Free disposal of HHW, tires, appliances, and electronics are offered to residents of Brown County.

The most direct financial incentive to recycle is buyback recycling. Adams Brown Recycling maintains a very active buyback operation centrally located in Brown County. In 2018, over $600,000 dollars were returned to buyback participants (individuals and small businesses).

We also offer a cost share program designed for villages that want to offer curbside yard waste collection. Participating villages can receive a grant for up to one-half the cost of operating this service. A detailed explanation of this incentive program can also be found in section V-E. under "Existing Strategies".

2. Commercial/Institutional

a. Service Area

Brown County will be considered one service area.

b. Access

Many of the BCSWA programs are available to commercial, institutional, and industrial users. ABR's

buyback is popular among businesses for materials of value. Non-ferrous metals, cardboard, and office paper (cardboard & office paper designated) are the most common material received at the buyback from these entities. A 30-yard roll-off container, a 6-yard rear-load dumpster, or pick-up of buyback materials can be arranged for a fee. Often the fee is offset by the value of the material collected.

The BSCWA has made special provision for public schools by placing a 30-yard covered roll-off for each of the 15 school buildings in Brown County. This service is provided at no cost to the schools.

The Drop-Off sites are available to commercial and institutional users. Common material received from these users includes aluminum cans, steel food cans, and plastic containers from the breakroom or cafeteria (plastic & glass designated). Businesses with large quantities that would hinder the residential use of the drop-off boxes will be asked to deliver the materials or contract for direct service.

Rumpke provides cardboard recycling to businesses in Georgetown and Mt. Orab through a front-load service. Two other scrap yards purchase metals from Brown County business as well.

Although the HHW and scrap tire collections are only open to individuals, we put commercial request for service in direct contact with a company that can accept their material for a fee.

A more detailed description of programs available can be found in Sections IV and V.

c. Participation

Education and Awareness

ABR's Education and Awareness strategy targets commercial and institutional users through newspaper articles and presentations to civic groups. ABR is a member of the Brown County Chamber of Commerce. The Education Specialist will also host special kick-off activities for employees of businesses starting a recycling program. Success of the Education and Awareness program for commercial users is measured by the number of kick-off campaigns conducted, number of users with a dedicated box, and number of articles published. A Recycling Fact sheet is available to all commercial and institutional entities. A more detailed description of the Education and Awareness strategy can be found in Section IV and V.

3. Targets for Reduction and Recycling

a. Residential/Commercial

The BCSWA has set a goal of 30% Residential/Commercial waste reduction by the year 2025 and 43% overall waste reduction. This is somewhat lower than our goal for the previous plan (33%), but seems reasonable in light of real-world conditions. We will continue to strive to recycle as much material as possible even if we exceed our goal.

b. Industrial

Our goal is to maintain the industrial recycling percentage over 95%. An industrial goal is of less importance due to our already high industrial percentage and the fact that we have little control over this number. Nevertheless, we will do everything in our power to provide services that will assist industries in managing their waste.

Table VII-3. Annual Rate of Waste Reduction: Residential/Commercial Waste

Year	R[1]	C[2]	NC[3]	I[4]	A[5]	RA[6]	DL[7]	TWR[8]	P[9]	WRR[10]	PCWR[11]
2018	9,332	1,736	0	0	0	0	28,587	11,067	43,602	27.91	1.39
2019	9,336	1,737	0	0	0	0	28,207	11,073	42,976	28.19	1.41
2020	9,338	1,737	0	0	0	0	27,826	11,075	42,350	28.47	1.43
2021	9,434	1,753	0	0	0	0	27,678	11,187	42,100	28.78	1.46
2022	9,541	1,769	0	0	0	0	27,519	11,310	41,850	29.13	1.48
2023	9,627	1,820	0	0	0	0	27,343	11,447	41,600	29.51	1.51
2024	9,713	1,836	0	0	0	0	27,199	11,549	41,350	29.80	1.53
2025	9,799	1,853	0	0	0	0	27,055	11,652	41,100	30.10	1.55
2026	9,897	1,871	0	0	0	0	26,937	11,768	40,894	30.40	1.58
2027	9,995	1,890	0	0	0	0	26,818	11,885	40,688	30.71	1.60
2028	10,094	1,908	0	0	0	0	26,697	12,003	40,482	31.02	1.62
2029	10,194	1,927	0	0	0	0	26,574	12,121	40,276	31.32	1.65
2030	10,294	1,946	0	0	0	0	26,448	12,241	40,070	31.64	1.67
2031	10,408	1,968	0	0	0	0	26,354	12,376	39,912	31.95	1.70
2032	10,523	1,989	0	0	0	0	26,257	12,512	39,754	32.27	1.72
2033	10,639	2,011	0	0	0	0	26,158	12,650	39,596	32.60	1.75
2034	10,756	2,033	0	0	0	0	26,057	12,790	39,438	32.92	1.78
2035	10,874	2,056	0	0	0	0	25,954	12,930	39,280	33.25	1.80
2036	11,005	2,080	0	0	0	0	25,877	13,086	39,164	33.58	1.83
2037	11,138	2,106	0	0	0	0	25,799	13,243	39,048	33.92	1.86
2038	11,272	2,131	0	0	0	0	25,718	13,403	38,932	34.26	1.89
2039	11,407	2,157	0	0	0	0	25,635	13,564	38,816	34.60	1.91
2040	11,545	2,183	0	0	0	0	25,551	13,727	38,700	34.95	1.94

1. Tons of residential/commercial waste source reduced and recycled as shown in Table VI-2.
2. Tons of residential/commercial waste composted as shown in Table VI-2.
3. Tons of non-compostable residential/commercial waste.
4. Tons of residential/commercial waste incinerated as shown in Table VI-2.
5. Tons of residential/commercial incinerator ash and bypass waste produced.
6. Tons of residential/commercial incinerator ash recycled.
7. Tons of residential/commercial waste disposed in landfills as shown in Table VI-2.
8. Tons of residential/commercial waste reduction.
9. District population as shown in Table V-1.
10. Residential/commercial waste reduction rate as a percentage.
11. Residential/commercial waste reduction per capita in pounds per person per day.

Sample Calculation: WRR for 2040 = 13,727 (total waste reduction) x 100 (percent) / [25,551 (landfilled) + 13,727 (waste reduction)] = 34.95%

Assumptions: none

Table VII-4. Annual Rate of Waste Reduction: Industrial Waste

Year	R[1]	C[2]	NC[3]	I[4]	A[5]	RA[6]	DL[7]	TWR[8]	P[9]	WRR[10]	PCWR[11]
2018	9,009	0	0	0	0	0	145	9,009	43,602	98.42	1.13
2019	9,009	0	0	0	0	0	145	9,009	42,976	98.42	1.15
2020	9,009	0	0	0	0	0	145	9,009	42,350	98.42	1.17
2021	9,009	0	0	0	0	0	145	9,009	42,100	98.42	1.17
2022	9,009	0	0	0	0	0	145	9,009	41,850	98.42	1.18
2023	9,009	0	0	0	0	0	145	9,009	41,600	98.42	1.19
2024	9,009	0	0	0	0	0	145	9,009	41,350	98.42	1.19
2025	9,009	0	0	0	0	0	145	9,009	41,100	98.42	1.20
2026	9,009	0	0	0	0	0	145	9,009	40,894	98.42	1.21
2027	9,009	0	0	0	0	0	145	9,009	40,688	98.42	1.21
2028	9,009	0	0	0	0	0	145	9,009	40,482	98.42	1.22
2029	9,009	0	0	0	0	0	145	9,009	40,276	98.42	1.23
2030	9,009	0	0	0	0	0	145	9,009	40,070	98.42	1.23
2031	9,009	0	0	0	0	0	145	9,009	39,912	98.42	1.24
2032	9,009	0	0	0	0	0	145	9,009	39,754	98.42	1.24
2033	9,009	0	0	0	0	0	145	9,009	39,596	98.42	1.25
2034	9,009	0	0	0	0	0	145	9,009	39,438	98.42	1.25
2035	9,009	0	0	0	0	0	145	9,009	39,280	98.42	1.26
2036	9,009	0	0	0	0	0	145	9,009	39,164	98.42	1.26
2037	9,009	0	0	0	0	0	145	9,009	39,048	98.42	1.26
2038	9,009	0	0	0	0	0	145	9,009	38,932	98.42	1.27
2039	9,009	0	0	0	0	0	145	9,009	38,816	98.42	1.27
2040	9,009	0	0	0	0	0	145	9,009	38,700	98.42	1.28

1. Tons of industrial waste source reduced and recycled as shown in Table VI-3.
2. Tons of industrial waste composted as shown in Table VI-3.
3. Tons of non-compostable industrial waste.
4. Tons of industrial waste incinerated as shown in Table VI-3.
5. Tons of industrial incinerator ash and bypass waste produced.
6. Tons of industrial incinerator ash recycled.
7. Tons of industrial waste disposed in landfills as shown in Table VI-3.
8. Tons of industrial waste reduction.
9. District population as shown in Table IV-1.
10. Industrial waste reduction rate as a percentage.
11. Industrial waste reduction per capita in pounds per person per day.

Sample Calculation: PCWR for year 2040 = 9,009 (TWR) x 2000 (lbs. per ton) /38,700 (population) /365 (days per year) = 1.275 rounded to 1.28 lbs. industrial waste reduction per capita per day

Assumptions: none

Table VII-5. Annual Rate of Waste Reduction: Total District Solid Waste

Year	R[1]	C[2]	NC[3]	I[4]	A[5]	RA[6]	DL[7]	TWR[8]	P[9]	WRR[10]	PCWR[11]
2018	18,341	1,736	0	0	0	0	39,243	20,077	43,602	41.13	2.52
2019	18,345	1,737	0	0	0	0	33,584	20,082	42,976	41.46	2.56
2020	18,348	1,737	0	0	0	0	33,126	20,085	42,350	41.79	2.60
2021	18,443	1,753	0	0	0	0	32,949	20,196	42,100	42.06	2.63
2022	18,550	1,769	0	0	0	0	32,758	20,319	41,850	42.35	2.66
2023	18,636	1,820	0	0	0	0	32,552	20,456	41,600	42.67	2.69
2024	18,722	1,836	0	0	0	0	32,378	20,558	41,350	42.92	2.72
2025	18,809	1,853	0	0	0	0	32,204	20,661	41,100	43.17	2.75
2026	18,906	1,871	0	0	0	0	32,061	20,777	40,894	43.41	2.78
2027	19,004	1,890	0	0	0	0	31,917	20,894	40,688	43.66	2.81
2028	19,103	1,908	0	0	0	0	31,770	21,012	40,482	43.91	2.84
2029	19,203	1,927	0	0	0	0	31,623	21,130	40,276	44.16	2.87
2030	19,304	1,946	0	0	0	0	31,472	21,250	40,070	44.42	2.91
2031	19,418	1,968	0	0	0	0	31,358	21,385	39,912	44.66	2.94
2032	19,532	1,989	0	0	0	0	31,241	21,522	39,754	44.91	2.97
2033	19,648	2,011	0	0	0	0	31,124	21,659	39,596	45.16	3.00
2034	19,765	2,033	0	0	0	0	31,004	21,799	39,438	45.41	3.03
2035	19,883	2,056	0	0	0	0	30,881	21,939	39,280	45.67	3.06
2036	20,014	2,080	0	0	0	0	30,790	22,095	39,164	45.92	3.09
2037	20,147	2,106	0	0	0	0	30,698	22,252	39,048	46.17	3.12
2038	20,281	2,131	0	0	0	0	30,603	22,412	38,932	46.43	3.15
2039	20,416	2,157	0	0	0	0	30,506	22,573	38,816	46.68	3.19
2040	20,554	2,183	0	0	0	0	30,408	22,736	38,700	46.94	3.22

1 Total tons of waste source reduced and recycled as shown in Table VI-1.
2 Total tons of waste composted as shown in Table VI-1.
3 Total tons of non-compostable waste.
4 Total tons of waste incinerated as shown in Table VI-1.
5 Total tons of incinerator ash and bypass waste produced.
6 Total tons of incinerator ash recycled.
7 Total tons of waste disposed in landfills as shown in Table VI-1.
8 Total tons of waste reduction.
9 District population as shown in Table IV-1.
10 Total waste reduction rate as a percentage.
11 Per capita waste reduction in pounds per person per day.

Note: Waste Reduction as a percentage (WRR[10]) is calculated excluding Exempt and C&DD Waste per

Format 3.0 instructions and to match OEPA's Annual District Review Form. If Exempt Waste was included in total generation, the overall recycling percentage would be lowered to 33.8% in the reference year.

Sample Calculation: TWR 2018 = 18,341 (sourced reduced)+1,736 (composted)=20,077 total tons waste reduction

Assumptions: none

VIII. Cost and Financing of Plan Implementation [ORC Section 3734.53(A)(9),(12) and (B)]

Nearly all of Brown County's waste goes to the Brown County Landfill. Tipping fees are based on county of origin. The following fees for General Waste are effective as of January 1, 2020.

General Waste

County of Origin	Total Cost Per Ton
Brown	$50.00
Adams/Clermont	$59.50
Highland	$59.00
Clinton	$62.50
Pike	$59.50
Warren	$56.50
All other Ohio Counties	$56.00
Out-of-State	$54.50

Construction & Demolition Debris

Brown County	$42.00
Out-of-County	$50.00

The Mason County Landfill (KY) is the only other landfill to receive more than a nominal amount of waste from Brown County. The Mason County landfill charges $23.75/ton for waste from Brown County, with a $8.00 minimum charge. The Mason County Landfill will also accept scrap tires at a charge of $3.50 PTE and appliances at $5.00 each.

A. Funding Mechanisms and Amount of Money Generated

1. District Disposal Fees (ORC Section 3734.57(B))

The BCSWA collects a disposal fee for solid waste disposed at Rumpke's Brown County Landfill. Table VIII-1 depicts the rates and projected revenues. This is the only real source of revenue for the District. This fee is set at $1.50 per ton for in-district waste, $3.00 per tons for out-of-district waste, and $1.50 per ton for out-of-state waste, in accordance with Section 3734.57(B) of the ORC.

In August of 2018, Rumpke signed a long term contract with Montgomery County Solid Waste District to accept transfer waste from the Montgomery County Transfer Station. This one contract effectively doubled the amount of waste received at the Brown County Landfill. This contract is expected to be in force throughout the planning period. Tables VIII-1 and VIII-3 reflect this increase in mid-year 2018. For a through explanation of the Rumpke/Montgomery County contract, see section D of this same chapter (page VIII-12).

The BCSWA believes that a fee increase will not be necessary during the planning period. If for any reason a fee increase would become necessary, the BCSWA would ratify the disposal fee increase in accordance with ORC. It is the desire of the BCSWA to provide a high level of services to the residents of Brown County while not unduly burdening those that must pay the fee.

Table VIII-1. District Disposal Fee Schedule and Revenues Generated

Year	Fee Schedule ($/ton)			Tons Disposed in the District			Total District Fee Revenue[1]
	In-district	Out-of-district	Out-of-State	In-District	Out-of-District	Out-of-State	
2018	1.5	3	1.5	27,120	212,161	672	$ 678,171.00
2019	1.5	3	1.5	26,696	350,165	857	$ 1,091,824.50
2020	1.5	3	1.5	26,438	351,754	861	$ 1,096,210.50
2021	1.5	3	1.5	26,414	353,351	865	$ 1,100,971.50
2022	1.5	3	1.5	26,388	354,954	870	$ 1,105,749.00
2023	1.5	3	1.5	26,362	356,565	874	$ 1,110,549.00
2024	1.5	3	1.5	26,334	358,183	878	$ 1,115,367.00
2025	1.5	3	1.5	26,306	359,808	883	$ 1,120,207.50
2026	1.5	3	1.5	26,305	361,259	887	$ 1,124,565.00
2027	1.5	3	1.5	26,303	362,716	892	$ 1,128,940.50
2028	1.5	3	1.5	26,301	364,178	896	$ 1,133,329.50
2029	1.5	3	1.5	26,298	365,646	901	$ 1,137,736.50
2030	1.5	3	1.5	26,294	367,119	905	$ 1,142,155.50
2031	1.5	3	1.5	26,321	368,754	910	$ 1,147,108.50
2032	1.5	3	1.5	26,348	370,396	914	$ 1,152,081.00
2033	1.5	3	1.5	26,375	372,046	919	$ 1,157,079.00
2034	1.5	3	1.5	26,401	373,702	923	$ 1,162,092.00
2035	1.5	3	1.5	26,427	375,366	928	$ 1,167,130.50
2036	1.5	3	1.5	26,480	377,232	933	$ 1,172,815.50
2037	1.5	3	1.5	26,534	379,108	937	$ 1,178,530.50
2038	1.5	3	1.5	26,587	380,993	942	$ 1,184,272.50
2039	1.5	3	1.5	26,641	382,887	947	$ 1,190,043.00
2040	1.5	3	1.5	26,694	384,790	951	$ 1,195,837.50
Total	----	----	----	608,367	8,283,133	20,545	$ 25,792,767.00

Sample Calculation: Year 2040: ($1.50 per ton x 26.694 tons in-district) + ($3.00 per ton x 384,790 tons out-of-district) + ($1.50 per ton x 951 tons) = $1,195,837.50 total district revenue.

Assumptions:
We have excluded all Fee-Exempt waste from this table because the purpose of this table is to predict the amount of revenue available to fund the District. In-District waste was calculated relative to the predicted Brown County population (decreasing) with the same .5% per capita annual increase used to calculate future landfilling needs. Out-of-District waste was calculated using the entire population of the waste shed. This includes all of Clermont, Adams and Highland Counties; as well as half of Montgomery County. Adams, Highland and Montgomery Counties are all projected to decrease in population by varying amounts during the planning period. Clermont is projected to increase in population during the same time.

Note: The amount of income shown for 2018 is the actual received from Disposal Fees. Total income for 2018 includes $6,509.46 in reimbursements and $1,665.00 in other miscellaneous income. Income from sources other than Disposal Fees is unusual for our District and therefore are not projected.

2. Generation Fee (ORC Section 3734.573)

The BCSWA does not currently collect a generation fee. If for any reason the Brown County Landfill were unable to supply the necessary revenue to implement the Brown County Solid Waste Plan, a generation fee would be enacted. The BCSWA specifically reserves the right to enact and collect a Generation fee in accordance with Section 3734.573 of the ORC. Due to the unlikelihood of this scenario, Table VIII-2 is omitted.

3. Summary of District Revenues

The only expected source of revenue for the Planning Period is the Disposal Fee. Occasionally, other nominal amounts of income arise in the course of doing business. The footnote in Table VIII-1 includes Reimbursement and miscellaneous income. These incomes are not significant and are not projected through the planning period. Therefore, Table VIII-3 only includes the projected revenues from the Disposal Fee.

The BCSWA does not anticipate needing loans. The large capital purchases normally associated with loans are typically made by the organizations from which we purchase services. Therefore, Table VIII-4 has been omitted.

Table VIII-3. Summary of Revenue Generated and Mechanisms Used

Year	Type of Revenue Mechanism and Amount Generated						Total Revenue Generated
	District Disposal Fees	Generation Fee	50 cents/ton	A	B	C	
2018	$ 678,171.00	0	0	0	0	0	$ 678,171.00
2019	$ 1,091,824.50	0	0	0	0	0	$ 1,091,824.50
2020	$ 1,096,210.50	0	0	0	0	0	$ 1,096,210.50
2021	$ 1,100,971.50	0	0	0	0	0	$ 1,100,971.50
2022	$ 1,105,749.00	0	0	0	0	0	$ 1,105,749.00
2023	$ 1,110,549.00	0	0	0	0	0	$ 1,110,549.00
2024	$ 1,115,367.00	0	0	0	0	0	$ 1,115,367.00
2025	$ 1,120,207.50	0	0	0	0	0	$ 1,120,207.50
2026	$ 1,124,565.00	0	0	0	0	0	$ 1,124,565.00
2027	$ 1,128,940.50	0	0	0	0	0	$ 1,128,940.50
2028	$ 1,133,329.50	0	0	0	0	0	$ 1,133,329.50
2029	$ 1,137,736.50	0	0	0	0	0	$ 1,137,736.50
2030	$ 1,142,155.50	0	0	0	0	0	$ 1,142,155.50
2031	$ 1,147,108.50	0	0	0	0	0	$ 1,147,108.50
2032	$ 1,152,081.00	0	0	0	0	0	$ 1,152,081.00
2033	$ 1,157,079.00	0	0	0	0	0	$ 1,157,079.00
2034	$ 1,162,092.00	0	0	0	0	0	$ 1,162,092.00
2035	$ 1,167,130.50	0	0	0	0	0	$ 1,167,130.50
2036	$ 1,172,815.50	0	0	0	0	0	$ 1,172,815.50
2037	$ 1,178,530.50	0	0	0	0	0	$ 1,178,530.50
2038	$ 1,184,272.50	0	0	0	0	0	$ 1,184,272.50
2039	$ 1,190,043.00	0	0	0	0	0	$ 1,190,043.00
2040	$ 1,195,837.50	0	0	0	0	0	$ 1,195,837.50

No calculations or assumptions necessary.

B. Costs of Plan Implementation

The Brown County Solid Waste Authority fulfills its obligations through a series of contracts with organizations and businesses. This approach holds several advantages to the BCSWA. We can clearly communicate our requirements and expectations in a legally binding contract, while being somewhat insulated from day to day liabilities. This approach is also relatively simple to administer. Contracting gives the BCSWA the flexibility to work with the best organization to complete a specific task and to make adjustments annually when necessary. Monthly reports are presented to the Board to ensure that all programs are working effectively. This strategy works in Brown County because of the strength and cooperation of our partners. Because these relationships are critical to the successful implementation of our Plan, some of our key allies are discussed below:

Health Department: The Brown County Health Department (BCHD) performs a wide variety of services for the BCSWA, including landfill inspection, nuisance complaints, and open dump inspections. The BCHD is an Ohio EPA-approved Health Department.

Adams Brown Recycling: ABR provides extensive recycling services to the District. Of the services provided, Drop-Off and Curbside recycling are the most expensive. The BCSWA provides a subsidy to ABR to make these programs possible. ABR also receives funds from the sale of materials, grants, and for services provided to the Adams Clermont Solid Waste District. ABR is a division of Adams Brown Community Action Program or ABCAP. Because ABCAP is a 501 (c) (3) non-profit corporation, ABR is driven by a mission rather than a profit motive. Each year, an annual subsidy amount is agreed upon, as well as a list of services to be performed. The BCSWA is insulated from the volatile recycling markets because ABR routinely absorbs the ups and downs. Although rarely called upon to do so, the BCSWA stands ready to assist ABR in extreme situations, as demonstrated in the 2019 budget. ABR has been instrumental in writing this Management Plan, and is fully committed to its implementation.

Rumpke: Rumpke is the only private hauler operating in our District and also operates the only landfill in Brown County. For this reason, the BCSWA contracts with Rumpke to provide essential services such as waste removal from the Township Cleanup Days and Scrap Tire Recycling for the collection days.

Brown County Sheriff's Department: The Sheriff provides a senior Deputy to fill the role as Litter Law Enforcement Officer.

Brown County Prosecutor: The Prosecutor assigns an Assistant Prosecutor to handle all of the cases generated by the Litter Control Officer. This provides continuity in prosecution and allows the Assistant to become an expert in the area of Environmental Law. The Prosecutor also acts as our legal advisor when necessary.

Brown County Commissioners: The Commissioners' Office provides the office and professional support necessary to properly conduct the business of the District. Because all three Commissioners are on the Solid Waste Authority, the office always has a knowledgeable official of the District on hand when needed.

Townships and Villages: Several of our strategies involve the participation of the villages and townships in Brown County. Not only do both of these groups have a representative on our Board, but both groups directly benefit from District programs. We enjoy a close working relationship with these essential units of government.

Consultant: The BCSWA contracts directly with Dan Wickerham to write the Management Plan and Annual District Report. Dan also fulfills administrative duties such as scheduling HHW Day, Scrap Tire

Collection, and Township Cleanups Days. Originally, these responsibilities were fulfilled by outside consultants. Dan has fulfilled this role since 2001. In addition to this direct contract with the BCSWA, Dan is employed as the Director of Adams Brown Recycling. In this role, Dan oversees the recycling collection, sorting and marketing for the BCSWA and the Adams Clermont Solid Waste District. He also manages the Environmental Education program, the Recycling Buyback program and the Glass reFactory. Although these responsibilities have a degree of overlap, much of the work for the BCSWA occurs after the regular business hours of Adams Brown Recycling. The BCSWA also contracts with ABR directly to provide support to Dan in his role as the Coordinator to the District.

The District is fortunate to have three top notch organizations to carry out its Education and Awareness Plan: **The Brown County Soil & Waste Conservation District, the Ohio State Extension Service, and Adams Brown Recycling.** Working together, these three partners have created an outreach program that is effective in delivering a consistent message to a broad spectrum of our county's population.

Table VIII-5 includes specific information for each line item in the District's budget. To better understand the structure of each contract, a description of the "Type of Expense" is included along with a description of each agreement. We have highlighted our current 2020 budget for most line items. For new programs without a budget in 2020 we have detailed the first year of expenses. The method used to project annual expenses throughout the planning period is explained. Categories identified in the Format are not relevant to our District in most cases because we are not paying those expenses directly. Specific line items are the responsibility of the organization receiving the contract. For example, our contract with ABR for recycling services is our largest single expense. ABR uses the income from this contract, along with income from the Adams Clermont Solid Waste District and revenue from the sale of material to cover expenses such as labor, fuel, maintenance, utilities, etc. It is not practical to separate the fuel cost for the BCSWA from the fuel cost for the Adams Clermont Solid Waste District, from the fuel bought from the sale of materials. Additionally, it would not be proper to report these line items on our Quarterly Fee Report because they are not our expenses. Each contract is evaluated and structured for the particular service. Some contracts are paid per ton or per unit of service provided; others are paid in a lump sum for a defined list of deliverables.

Table VIII-8 is a useful companion to Table VIII-5 because it provides a year-by-year projection for each of these line items. Several line items are projected to remain constant. In many cases this is possible because the agency or organization we are contracting with has additional sources of funding. Other line items are projected to increase at 2% per year. The Federal Open Market Committee forecasted that the Personal Consumption Expenditures price index will stabilize at 2% for the near future. Since our budget is just that, a budget; we reserve and maintain the flexibility to adjust specific expenditures as necessary. In general, the BCSWA likes to maintain about a one-year reserve for emergencies such as disaster debris management or in the event our funding source is diminished for any reason.

Table VIII-5

Line Item	Type of Expense	Budget	Services
Recycling Contract	Lump Sum Contract with Adams Brown Recycling	$500,000 In 2020	Adams Brown Recycling operates the Districts Curbside, Drop-off, School Box, Yard Waste Drop-off, and Commercial Cardboard programs under this contract. In 2019, an additional $190,000 was put into this budget to offset the record low market values of recycling commodities. The 2020 budget was set at $500,000 for the same reason, with the possibility of an increase left open if needed. This demonstrates the strong commitment the BCSWA has to maintaining a strong recycling program. The 2021 budget is projected to drop as the value of recycling commodities rebound. The BCSWA will adjust this line item up or down as necessary to offset recycling markets and to maintain robust recycling programs. This line item is projected to increase at 2% annually after 2021.
Recycling Contamination	Equipment and Supplies purchase	$10,000 In 2021	This new strategy will kick-off in 2021. A $10,000 expense is expected for the purchase and installation of basic cameras at our most contaminated drop-off sites. A lesser amount is projected thereafter for adding sites and maintaining the existing equipment. Other expenses for labor will be part of existing contracts with the Sheriff's Depart and Adams Brown Recycling.
Yard Waste	Grant to Villages	$5,000 In 2020	Mt. Orab receives a cost share grant from the District to collect yard waste from its residents. Funding is straight-lined because grants offered do not necessary track with inflation. If additional Villages become interested in participation in this incentive program, the budget will be increased accordingly.
Scrap Tires	Fee for Service Contract with Rumpke	$20,000 In 2020	We hire Rumpke or another scrap tire hauler to recycle tires collected at our 3 collection days. We are billed per ton and per hour for use of rear-load trucks. This line item is projected to increase at 2% annually.
HHW Management	Fee for Service Contract with EEI	$25,000 In 2020	We contract with Environmental Enterprises Inc. or another hazardous waste company to collect and process household hazardous waste collected during our once per year amnesty day. We are billed for mobilization and per pound of materials collected. This line item will increases to $40,000 in 2021 to reflect our strategy of conducting HHW Amnesty twice per year. Afterwards, it is projected to increase at 2% annually.

Line Item	Type of Expense	Budget	Services
Household Battery Recycling	Fee for Service Contract with Call 2-Recycle and EEI	$6,730 in 2021	We anticipate collecting about 4,000 lbs. of batteries through our new Household Battery Recycling strategy. Actual cost will vary depending on participation. A 2% annual increase has been factored in.
Clean-Up Days	Fee for Service Contract with Rumpke	$75,000 In 2020	We contract with Rumpke to provide roll-off containers and rear-load trucks to collect junk at each of our 16 Township Cleanup days. We are billed per ton and per haul. This line item is projected to increase at 2% annually.
Special Cleanup Assistance	Fee for Service Contract with Rumpke	$5,000 In 2021	This new strategy is similar to our Clean-Up Days, except that it is flexible enough to take the dumpster wherever and whenever needed. There are restrictions as outlined in the program description. We expect that this program will only be used occasionally.
Roadside Cleanup	Per hour contract with the Sheriff's Dept.	$7,000 in 2022	We contract with the Brown County Sheriff to provide a Deputy for a Special Detail to collect litter and clean up illegal dump sites in Brown County. We are billed at Deputy's actual rate of pay. Because of a low number of eligible inmates at the Brown County Jail and some carryover in the Sheriff's budget, we do not expect to need to fund this vital program until 2022.
Education	Lump Sum Contract with ABR, BC Soil & Water, and OSU Extension	$130,000 In 2020	We contract with these three organizations as described in our strategies in the following amounts. $41,500 ABR $41,500 Soil & Water $47,000 OSU This line item is projected to remain steady.
Academic Scholarships	Contract with the Brown County Foundation	$2,000 In 2021	We have provided scholarships through our education programs. This strategy formalizes the arrangement. The Brown County Foundation administers the program at no administrative overhead cost.
Landfill Monitoring	Lump Sum Contract with the BC Board of Health	$120,000 In 2020	We contract with the Board of Health to conduct weekly inspections at the landfill, answer nuisance complaints, test air samples, and conduct other solid waste facility inspections as necessary.
Litter Law Enforcement	Lump Sum Contract with Sheriff's Office	$49,630 In 2020	We contract with the Brown County Sheriff to provide a dedicated Litter Law Enforcement Deputy and to cover expenses. As of 2019, we pay 75% of the Litter Officers salary. This line item is projected to increase at 2% annually.

Line Item	Type of Expense	Budget	Services
Environmental Prosecution	Lump Sum Contract with Prosecutor's Office	$20,000 In 2020	We contract with the Brown County Prosecutor's Office for a part-time Assistant Prosecuting Attorney to investigate and prosecute environmental crime cases generated by our Litter Control Deputy. Because we are only contributing to a Prosecutors salary, we project this contract to remain constant.
Coordinator Contract	Lump Sum Contract with Coordinator and ABR	$26,000 In 2020	We contract directly with Dan Wickerham ($21,000) to write the update to the Solid Waste Plan, complete the ADR, and coordinate other District programs. We also contract with ABR ($5,000) to provide support and supplies to Dan in his role as coordinator. We project this line item to remain constant.
Clerical Contract	Lump Sum Contract with Brown County Commissioners	$20,000 In 2020	We contract with the Brown County Commissioners to track all income and expenses of the District and to complete the quarterly fee reports to OEPA. This contract also provides a meeting space for the Board, legal file retention, and general clerical support for the District and the Coordinator. Services of other county agencies (Treasurer and Auditor) are also included. This line item is projected to remain constant.
Capital Expenses	Direct Expenses as needed	$25,000 In 2020	This line item covers capitol expenses in support of District programs. We like to budget at least $25,000 per year for routine and smaller expenses. In years that we are planning new programs, the budgeted amount has been increased: 2021: Additional Rear-load truck to support the expanded school recycling strategy. 2022: Purchase of new school boxes 2023: Expansion of Yard Waste Drop-Off
Misc.	Direct Expenses as needed	$1,000 In 2020	This line item is used for various small expenses that do not easily fit in other line items.

C. Funds Allocated from ORC 3734.57(B), ORC 3734.572 and ORC 3734.573

Table VIII-6 shows expenses allocated in each category for each year of the planning period in accordance with ORC Section 3734.57(G). There are no expenses under Allowable Use #1: Plan Preparation, because the Plan is written and monitored in house. Although a degree of effort goes into writing the Plan, it is impossible to separate this expense from Allowable Use #2: Implementation. The Brown County Health Department is funded under Allowable Use #3: Assistance to Boards of Health. The Brown County Health Department is considered "approved" by OEPA. The Brown County Sheriff's Department and the Brown County Prosecutor are funded under Allowable Use #7: Enforcement Agencies. All other activities are funded under Allowable Use #2: Implementation of Approved Plans.

The allowable purposes for expenditure of revenue shown in this table are as follows:

"1" - preparation and monitoring of plan implementation;
"2" - implementation of approved plan;
"3" - financial assistance to boards of health for SW enforcement;
"4" - financial assistance to counties within the district to defray the costs of maintaining roads and other public services related to the location or operation of solid waste facilities;
"5" - contracts with boards of health for collecting and analyzing samples from water wells adjacent to solid waste facilities;
"6" - out-of-state waste inspection program;
"7" - financial assistance to local boards of health to enforce ORC 3734.03 or to local law enforcement agencies having jurisdiction within the district for anti-littering;
"8" - financial assistance to boards of health for employees to participate in Ohio EPA's training and certification program for solid waste operators and facility inspectors;
"9" - financial assistance to local municipalities and townships to defray the added cost of roads and services related to the operation of solid waste facilities.

Table VIII-6 Revenues and Allocations in Accordance with ORC 3734.57, ORC 3734.572, and ORC 3734.573

Year	Revenue	Allocations of ORC 3734.57 and ORC 3734.573 Revenue for the following Purposes									Cumulative Balance
		1	2	3	4	5	6	7	8	9	
								Beginning Balance			$1,041,665
2018	$678,171		$671,044	$120,000				$84,000			$852,967
2019	$1,091,825		$950,869	$120,000				$69,130			$804,792
2020	$1,096,211		$827,000	$120,000				$69,630			$884,373
2021	$1,100,972		$967,630	$120,000				$70,623			$827,091
2022	$1,105,749		$846,603	$120,000				$71,635			$894,603
2023	$1,110,549		$894,055	$120,000				$72,668			$918,429
2024	$1,115,367		$856,756	$120,000				$73,721			$983,320
2025	$1,120,208		$870,211	$120,000				$74,796			$1,038,521
2026	$1,124,565		$883,935	$120,000				$75,891			$1,083,259
2027	$1,128,941		$897,934	$120,000				$77,009			$1,117,257
2028	$1,133,330		$912,212	$120,000				$78,149			$1,140,224
2029	$1,137,737		$926,777	$120,000				$79,312			$1,151,872
2030	$1,142,156		$941,632	$120,000				$80,499			$1,151,896
2031	$1,147,109		$956,785	$120,000				$81,709			$1,140,511
2032	$1,152,081		$972,241	$120,000				$82,943			$1,117,409
2033	$1,157,079		$988,005	$120,000				$84,202			$1,082,281
2034	$1,162,092		$1,004,085	$120,000				$85,486			$1,034,801
2035	$1,167,131		$1,020,487	$120,000				$86,795			$974,649
2036	$1,172,816		$1,037,217	$120,000				$88,131			$902,116
2037	$1,178,531		$1,054,281	$120,000				$89,494			$816,872
2038	$1,184,273		$1,071,687	$120,000				$90,884			$718,573
2039	$1,190,043		$1,089,441	$120,000				$92,302			$606,874
2040	$1,195,838		$1,110,149	$120,000				$93,748			$478,815

Sample Calculation: All information summed from Table VIII-8. Assumptions: No new assumptions necessary

Note: $8174.46 added to 2018 balance for non-Disposal Fee revenue so Cumulative Balance matches Quarter Fee Report.

D. Contingent Funding or Financing

Our Disposal fee funding mechanism has a high degree of certainty. The Brown County Landfill has several years of life remaining and is well managed. What is less certain is the amount of waste the Brown County Landfill will receive from year to year. We can predict with reasonable accuracy the amount of waste generated in the future in Brown County, and we can also calculate the amount of waste to be disposed of in the region. We cannot predict how much of that waste will go to the Brown County Landfill. The solid waste industry is driven by competitive contracts. Today, Rumpke is in year two of a ten plus five-year contract with Montgomery County to accept Transfer waste from the Montgomery County Transfer Station. This contract requires that half of the waste goes to the Brown County Landfill. The contract is quite specific and detailed. Since the disposal fees collected by the BCSWA are dependent on volume, it is informative to share a few details of the Montgomery County/Rumpke of Ohio, Inc. contract (Montgomery County Resolution No. 18-0245, February 20, 2018).

- The term of the contract is August 1, 2018 to December 31, 2028.
- There is a 5-year extension option to be enacted at the sole discretion of Montgomery County
- Increases in cost from inflation fluctuating fuel cost, and increased dumping time due to landfill construction are anticipated and accounted for.
- Disposal Fee increases from host Solid Waste Districts are passed through.
- Liquidated Damages for failure to preform are agreed to.
- Multiple contingencies are developed with relative pricing adjustments.

In summary, this contract is well thought out and designed to be equitable to both parties for 15 years. To mitigate problems experienced in the last contract, Montgomery County required the successful bidder to split the waste between two landfills. For this reason, the Brown County Landfill receives just over half of this waste, with the balance going to the Hamilton County Colerain Landfill, also owned by Rumpke. Although the contract does not cover the full term of this Solid Waste Plan Update, it is assumed that at the end of this agreement, the contract will be up for bid, and that Rumpke will have a fair chance of winning it again. Regardless, our Solid Waste Plan will require an update long before the end of the current contract.

To be clear, The Brown County Solid Waste Authority does not take a position on the benefit or detriment of out-of-district waste coming to the Brown County Landfill. Rather, we are focused on reducing the waste generated in Brown County to the smallest amount possible and providing the highest level of services practical to the residents of Brown County. Those services include funding the appropriate agencies to monitor the landfill to insure all environmental laws are followed and the health and safety of our citizens is protected.

Having lived through this sudden increase and sudden decrease in funding, we realize the difficulties encountered in both situations. We have based our budget during the planning period on what we believe to be the most likely funding scenario. This includes about 180,000 tons of Direct Haul (DH) waste that has remained relatively constant in the past, and about 185,000 tons of Transfer Waste (TW) from Montgomery County. The Direct Haul waste remains constant since it is made up of many small service contracts. Because Rumpke must be competitive in the market place, if Rumpke starts losing more contracts than it is winning, Rumpke will conceivably adjust it's pricing to win back market share. The Transfer Waste is all but locked in by the long term contract.

Reduced Funding Scenario:

If all of the Transfer Waste was diverted from the Brown County Landfill, the Direct Haul Waste would generate about $450,000 in disposal fees. Without an adjustment in spending, the Brown County Solid Waste Authority would run out of money in less than 2 years. To prevent this, we would reduce our

annual spending to match the available resources. Although it is impossible to create a detailed budget for every conceivable scenario, the Board of the Brown County Solid Waste Authority discussed this possibility and agreed upon a list of funding priorities. We have ranked all of our budget line items. Items with the lowest priority would receive the first and deepest cuts. The highest priority items would receive only a modest cut if any at all. That is not to say that a lower priority line item would be entirely eliminated before the next higher priority would be reduced. The ability of each program to provide a reasonable level of service with reduced funds would be taken into account. Every line item in our current budget is important or it would not be in the budget. For instance, the Education budget received a relatively low priority ranking. That is not because we do not value education, but rather that because we do value education we have strongly funded this line item. In the event of a severe funding decrease, we would decrease, but certainly not eliminate, the Education line item.

Programs that provide a direct service to the public received a higher priority. Scrap tire amnesty days would be a good example of this category. If cuts were necessary to the #2 priority items, we could reduce the number of tire collection days from three to one. We could also institute a cost-share charge. In this way, we could provide a service to reduce the number of scrap tires in the community while controlling expenses.

Our recycling programs are at the core of our Solid Waste Plan and received the highest priority. If Adams Brown Recycling's budget allowed a decrease in funding without decreasing service, it would be decreased along with other programs. If an extreme budget shortfall necessitated reducing recycling services, only services not used to demonstrate Access for the purpose of this plan would be considered. A budget crisis that required cutting recycling services below the Access demonstration standard would constitute a Material Change in Circumstances and would require a plan revision.

The Capital Expenses line item was not included in this ranking system because it includes expenses for various programs at different times. Most commonly this line item is used to purchase recycling equipment, but is sometimes used to replace equipment for the Litter Officer or others. In the event of a modest or temporary budget shortfall, this line item would take the first reduction by simply delaying the purchase of a capital asset (a new recycling truck for example). If the shortfall became extended or an emergency forced the replacement of a key piece of equipment (a truck wreck for example), then this line item would be funded rather than a lower priority project.

The following table shows the relative priority of each of our line items along with a guideline of how that line item might be reduced. A priority rank of 1 is the highest priority and 3 is the relative lowest.

Line Item	**Priority**	**Comments**
Coordinator Contract	3	Could be reduced but not eliminated
Clerical Contract	3	Could be reduced if other funds available
Education	3	Could be reduced but not eliminated
Litter Law Enforcement	3	Could be reduced if other funds available
Environmental Prosecution	3	Could be reduced if other funds available
Landfill Monitoring	3	Could be reduced if other funds available
Roadside Cleanup	2	Benefit is directly relative to investment
Clean-up Days	2	Could do cost-share with townships and villages
HHW Collection	2	Could eliminate paint or go to an every-other year collection
Scrap Tire Amnesty	2	Reduce to one day/year or add nominal user fee
Yard Waste Incentive	2	Slow implementation or change cost-share ratio
Recycling Services	1	If markets are strong, could reduce without reducing services
Capital Expenses	1-3	Could delay for a time on a case by case basis

Increased Funding Scenario:
Surprisingly, dramatic funding shifts to the positive require planning and consideration just the same as funding cuts. Faced with this problem when Rumpke first received the Montgomery transfer contract, we experienced these challenges first hand and developed a philosophy for managing the situation. Many commendable organizations proposed worthwhile projects for our funds. The work load for many of our programs increased. Services that were less expensive in the past became more expensive due to this increased responsibility. On top of that, some of the public had questions or concerns about the growth of the landfill. We felt a responsibility to address those concerns and fund the various organizations charged with insuring the health and safety of our community or educating the public about solid waste. We developed a series of five questions to guide our decision making process. Should we experience a dramatic increase in funding once again during this planning cycle, we would use this same method to consider strategic line item increases.

1) **Is the expenditure allowable by law?**
   It would seem that this question would almost go without saying. We found however that this was the first question to ask. It is of little benefit to develop proposals that meet the other 4 criteria and fail this test.

2) **Does the proposal meet the goals and objectives of our Solid Waste Plan?**
   Just being allowable does not necessarily mean that it advances our cause. This question forced us to consider the outcome of each proposal.

3) **Is the project sustainable?**
   The Board realized that the increased level of funding would not last indefinitely. Therefore, a prime consideration of each proposal was what would happen when the funding level decreased. We wanted to ensure that we could live up to our contracted and implied commitments.

4) **Is the expenditure an investment in efficiency for the future?**
   Many of funded proposals increased the efficiency, convenience, safety, or aesthetics of our core programs. By their nature, these investments tended to lower our long term cost rather than increase our obligations. Examples include new rear-load school boxes to replace aging roll off boxes or a processing equipment upgrade to the MRF.

5) **Is the proposal a benefit to the community?**
   This question gave us an opportunity to consider the greater importance of each proposal and ensure that our solid waste goals were in line with local community goals.

In addition to incremental program improvements such as increasing the frequency of curbside recycling or special waste collection days, the BCSWA would consider funding some of the Potential Strategies outlined in Section V (pages V-24-26). Although it is impractical to develop specific budgets for flexible scenarios, the following table considers estimated budget ranges for planning purposes.

Budget Range for Potential Strategies

Program Name	Organization Responsible for Implementation	Estimated Budget	Budget Line Item
Expanded Curbside	Adams Brown Recycling	Because the District's two rear-load trucks are working at near capacity, expansion would require the purchase of a third truck. Cost would be in the $175,000 range plus a modest increase in the recycling contract for labor and processing.	Recycling Contract/ Capital Expenses
MRF Improvement	Adams Brown Recycling	This budget would be completely dependent on the specific upgrade. Items discussed in Chapter V (page V-25) would range in cost from $150,000 to $400,000.	Capital Expenses
Grant Program	Coordinator	Dependent on the specific request. A budget of $50,000 to $100,00 would seem reasonable based on past projects.	dependent on specific request
Increased Buyback	Adams Brown Recycling	Relative to the amount of items purchased. $50,000 would be a starting point.	Recycling Contract
Per Pound Trash Disposal	Adams Brown Recycling	This strategy would require a scale upgrade at the buyback at an estimated cost of $35,000 and a concrete bunker for garbage at an estimated cost of $10,000.	Recycling Contract/ Capital Expenses
Franchised Waste Collection	BCSWA	The direct cost to the District for this strategy would only be increased administrative work. This would likely be absorbed in the current contract.	Coordinator Contract/ Clerical Contract

E. Summary of costs and Revenues

Table VIII-8 depicts the current and future budget of the BCSWA in the actual line items used. The 2018 and 2019 budgets are based on actual expenses. The 2020 budget is based on the current appropriations. Years 2021-2040 are extrapolated from revenue projections and strategies identified in this plan. See Table VIII-5 for a more through explanation of each line item.

Table VIII-8 Summary of District Revenues and Expenditures

Strategy, Facility, Activity, or Program	Total Annual District Revenues and Expenditures (by year):										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues	$686,347	$1,091,824	$1,096,211	$1,100,972	$1,105,749	$1,110,549	$1,115,367	$1,120,208	$1,124,565	$1,128,941	$1,133,330
Expenditures:											
Recycling Contract	$350,000	$540,000	$500,000	$450,000	$459,000	$468,180	$477,544	$487,094	$496,836	$506,773	$516,909
Recycling Contamination	$0	$0	$0	$10,000	$5,000	$5,100	$5,202	$5,306	$5,412	$5,520	$5,631
Yard Waste	$4,800	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Scrap Tires	$16,168	$17,621	$20,000	$20,400	$20,808	$21,224	$21,649	$22,082	$22,523	$22,974	$23,433
HHW Management	$16,540	$20,219	$25,000	$40,000	$40,800	$41,616	$42,448	$43,297	$44,163	$45,046	$45,947
Household Battery Recycling	$0	$0	$0	$6,730	$6,865	$7,002	$7,142	$7,285	$7,430	$7,579	$7,731
Clean-Up Days	$70,502	$77,158	$75,000	$76,500	$78,030	$79,591	$81,182	$82,806	$84,462	$86,151	$87,874
Special Cleanup Assistance	$0	$0	$0	$5,000	$5,100	$5,202	$5,306	$5,412	$5,520	$5,631	$5,743
Roadside Cleanup	$0	$0	$0	$0	$7,000	$7,140	$7,283	$7,428	$7,577	$7,729	$7,883
Education	$126,000	$124,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
Academic Scholarships	$0	$0	$0	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Landfill Monitoring	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000
Litter Law Enforcement	$64,000	$49,130	$49,630	$50,623	$51,635	$52,668	$53,721	$54,796	$55,891	$57,009	$58,149
Environmental Prosecution	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Coordinator Contract	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Clerical Contract	$24,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Capital Expenses	$36,020	$119,731	$25,000	$175,000	$40,000	$75,000	$25,000	$25,500	$26,010	$26,530	$27,061
Misc.	$1,014	$1,140	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Total Expenses	$875,044	$1,139,999	$1,016,630	$1,158,253	$1,038,238	$1,086,722	$1,050,477	$1,065,006	$1,079,827	$1,094,943	$1,110,362
Carryover in December	$852,968	$804,793	$884,373	$827,092	$894,603	$918,430	$983,320	$1,038,521	$1,083,260	$1,117,257	$1,140,225

Table VIII-8 (continued) Summary of District Revenues and Expenditures

Strategy, Facility, Activity, or Program	Total Annual District Revenues and Expenditures (by year):											
	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Revenues	$1,137,737	$1,142,156	$1,147,109	$1,152,081	$1,157,079	$1,162,092	$1,167,131	$1,172,816	$1,178,531	$1,184,273	$1,190,043	$1,195,838
Expenditures:												
Recycling Contract	$527,247	$537,792	$548,547	$559,518	$570,709	$582,123	$593,765	$605,641	$617,754	$630,109	$642,711	$655,565
Rec. Contamination	$5,743	$5,858	$5,975	$6,095	$6,217	$6,341	$6,468	$6,597	$6,729	$6,864	$7,001	$7,141
Yard Waste	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Scrap Tires	$23,902	$24,380	$24,867	$25,365	$25,872	$26,390	$26,917	$27,456	$28,005	$28,565	$29,136	$29,719
HHW Management	$46,866	$47,804	$48,760	$49,735	$50,730	$51,744	$52,779	$53,835	$54,911	$56,010	$57,130	$58,272
HH Battery Recycling	$7,885	$8,043	$8,204	$8,368	$8,535	$8,706	$8,880	$9,058	$9,239	$9,424	$9,612	$9,804
Clean-Up Days	$89,632	$91,425	$93,253	$95,118	$97,020	$98,961	$100,940	$102,959	$105,018	$107,118	$109,261	$111,446
Cleanup Assistance	$5,858	$5,975	$6,095	$6,217	$6,341	$6,468	$6,597	$6,729	$6,864	$7,001	$7,141	$7,284
Roadside Cleanup	$8,041	$8,202	$8,366	$8,533	$8,704	$8,878	$9,055	$9,236	$9,421	$9,609	$9,802	$9,998
Education	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$132,600
Academic Scholarships	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Landfill Monitoring	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000
Litter Law Enforcement	$59,312	$60,499	$61,709	$62,943	$64,202	$65,486	$66,795	$68,131	$69,494	$70,884	$72,302	$73,748
Env. Prosecution	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Coordinator Contract	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000	$26,000
Clerical Contract	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Capital Expenses	$27,602	$28,154	$28,717	$29,291	$29,877	$30,475	$31,084	$31,706	$32,340	$32,987	$33,647	$34,320
Misc.	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Total Expenses	$1,126,089	$1,142,131	$1,158,494	$1,175,183	$1,192,207	$1,209,571	$1,227,283	$1,245,348	$1,263,775	$1,282,571	$1,301,742	$1,323,897
Carryover in December	$1,151,872	$1,151,897	$1,140,512	$1,117,409	$1,082,281	$1,034,802	$974,650	$902,117	$816,872	$718,574	$606,875	$478,815

IX. District Rules

A. Existing Rules

Under the current approved District Plan the BCSWA has not adopted any solid waste rules or regulations as allowed in ORC 343.01(G).

However, the District has reserved the right to amend the SWMP by adopting rules providing for any or all of the following:

- Prohibiting or limiting the receipt of waste generated outside the district.
- Governing the maintenance, protection, and use of solid waste management facilities, programs, and activities.
- Governing a program to inspect out-of-state waste.
- Exempting an owner or operator of a solid waste facility from compliance with local zoning requirements.

B. Proposed Rules

The BCSWA has not proposed any solid waste rules for adoption for the current planning period, as allowed by ORC 3734.53(C). However, the District continues to reserve the right to amend the SWMP by adopting rules providing for any of the following:

- Prohibiting or limiting the receipt of waste generated outside the district.
- Governing the maintenance, protection, and use of solid waste management facilities, programs, and activities.
- Governing a program to inspect out-of-state waste.
- Exempting an owner or operator of a solid waste facility from compliance with local zoning requirements.

Appendix A

Resolution for District Formation

IN THE MATTER OF RESOLUTION-
SOLID WASTE MANAGEMENT

Motion was made by Mr. Neal to adopt the following Resolution establishing a County Solid Waste Management District. Second by Mr. Howser.

ROLL CALL VOTE
Mr. Berger, yea
Mr. Neal, yea
Mr. Howser, yea

RESOLUTION NO.

A RESOLUTION AUTHORIZING BROWN COUNTY COMMISSIONERS TO ESTABLISH BY RESOLUTION AND MAINTAIN A COUNTY SOLID WASTE MANAGEMENT DISTRICT UNDER OHIO REVISED CODE 343.01,DIV.(A) THAT CONSISTS OF ALL THE INCORPORATED TERRITORY AND UNINCORPORATED TERRITORY WITHIN THE COUNTY.

WHEREAS, the Brown County Commissioners have determined that there is a need to manage solid waste to protect the environment in Brown County.

WHEREAS, Brown County has a regional solid waste landfill located within the county.

WHEREAS, Amended Subsititute House BIll 592 has required counties to form solid waste management districts.

WHEREAS, the Brown County Commissioners have applied for an exemption from the 120,000 population requirement for districts pursuant to ORC Sec. 3734.52 (c) (2).

WHEREAS, Ohio EPA has approved Brown COunties exemption to the 120, 000 population requirement.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS, COUNTY OF BROWN, STATE OF OHIO:

That in the best interest of the residents of Brown County, do hereby form the Brown County Solid Waste Management District, consisting of all incorporated and unincorporated territory in the county.

ADOPTED ON March 20, 1989

ss Earl B. Berger
Signature
Brown County Commissioner

ss Harmon H. Neal
Signature
Brown County Commissioner

ss Robert J. Howser
Signature
Brown County Commissioner

WITNESSED: ssMary M. Watson
Clerk

Appendix B

Copies of Public Notices for Public Health Hearing(s) and Public Comment

Brown County Solid Waste Authority

800 Mt. Orab Pike, Georgetown Ohio 45121

Phone (937) 378-3431x102, Fax (937) 378-6289 email dwickerham@abcap.net

Notice:

The Brown County Solid Waste Authority has prepared a Draft Solid Waste Management Plan for Brown County, Ohio. The purpose of the Plan is to make adequate provisions for waste disposal, recycling and composting for the next 20 years.

The Plan provides an inventory of existing solid waste facilities and projects the volume of solid waste generated during the time period based on estimated population growth and waste generation trends. Sufficient landfill space is identified at Rumpke's Brown County Landfill with contingencies at other regional landfills if necessary. Specific recycling strategies include existing drop-off recycling at 17 locations within Brown County and curbside recycling within each incorporated village within the county. New recycling strategies include a program to address household battery recycling, cleanup assistance targeted to low income individuals, academic scholarships for high school seniors, recycling audits for current recyclers and a strategy to reduce contamination in our drop-off recycling program. Proven strategies that will be improved during this planning cycle include an expansion of the yard waste drop-off site in Georgetown, increasing the frequency of our Household Hazardous Waste Collection Days, changing the School Box Recycling program from roll-off to rear-load and changing the sales strategy of the Glass reFactory. Other programs with continuing support in the plan include Environmental Education, Litter Law Enforcement, Waste Tire Collection and Township Cleanup Days. The Draft Solid Waste Management Plan also identifies potential new strategies if funds allow and conditions warrant. These potential strategies include expansion of the curbside recycling program, improvements to the Material Recycling Facility, a Grant Program for local organizations, expansion of the Buyback program, a facility to provide garbage disposal on a price per pound basis and the possibility of franchised waste collection.

These programs are funded by an existing tipping fee collected at the landfill of $1.50 per ton for in-county waste and $3.00 per ton for out-of-county waste. Projections indicate that these fees will be sufficient throughout the planning period.

The Plan also reserves the right of the Brown County Solid Waste Authority to adopt solid waste rules and make facility designations as allowed by ORC 3734.53 and ORC 343.01. No specific rules or facility designations are proposed at this time.

Questions can be answered or a copy of the Executive Summary can be obtained by contacting Dan Wickerham at 513-403-2495. A full copy of the Draft Brown County Solid Waste Manage Plan can be viewed at any of the Brown County Libraries during the Public Comment Period, November 1st through November 30th. The Draft Solid Waste Plan can also be viewed at our website, browncountysolidwaste.org. Comments and suggestions can be emailed during the comment period to dwickerham@abcap.net or mailed to:

Brown County Solid Waste Authority
800 Mt. Orab Pike
Suite 101
Georgetown, Ohio 45121-1184

Comments will also be received during a public hearing Thursday, December 3rd, 6:30 pm at the Brown County Commissioner's Office, 800 Mt. Orab Pike in Georgetown, Ohio.

Appendix C

Copies of Resolutions and Certification Statements Documenting Ratification

Certification Statement for the Draft Plan

For the Brown County Solid Waste Authority, comprised of Brown County,

We as representatives of the Brown County Solid Waste Authority, do hereby certify that to the best of our knowledge and belief, 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 needs of the district for the 20 year period covered by the Plan are accurate and in compliance with the requirements in the *District Solid Waste Management Plan Format*, revision 3.0

County Commissioner	2/13/2020 Date Signed
Darrell R Gray County Commissioner	2/13/2020 Date Signed
County Commissioner	Date Signed
Municipal Designee	2/13/2020 Date Signed
Township Representative	Date Signed
Mark Klump Health Commissioner Designee	2/13/20 Date Signed
Solid Waste Generator Representative	2/13/20 Date Signed
Member Representing General Interests of Citizens	2/13/2020 Date Signed
Public Representative	2-13-2020 Date Signed

Resolution Adopting
The Solid Waste Management Plan

Resolution 01142021-1

A resolution declaring that the amended solid waste management Plan for the Brown County Solid Waste Management District has been adopted.

WHEREAS, the district completed the draft amended solid waste management Plan and submitted it to the Ohio Environmental Protection Agency for review and comment on March 3rd, 2020, and the Ohio Environmental Protection Agency provided comments in a non-binding advisory opinion on April 16th. 2020;

WHEREAS, this Solid Waste Authority Board has reviewed the non-binding advisory opinion received from the Ohio Environmental Protection Agency and taken into consideration these comments, incorporating changes into the amended Plan where necessary;

WHEREAS, the solid waste management district has conducted a 30-day public comment period, and a public hearing held on December 3rd, 2020, to provide the public an opportunity to have input in this Plan;

NOW, THEREFORE, BE IT RESOLVED that the Board of the Brown County Solid Waste Management District:

1. adopts the amended Plan for the Brown County Solid Waste Management District; and

2. certifies that, to the best of our knowledge and belief, the statements, demonstrations and all accompanying materials that comprise the district's Plan, and the availability of and access to sufficient solid waste management facility capacity to meet the solid waste management needs of the district for the 20-year period covered by the Plan, are accurate and are in compliance with the requirements of the *District Solid Waste Management Plan Format*, revision 3.0.

This resolution shall be in effect immediately upon its adoption.

	For Adoption:	Against Adoption:
Via Zoom Tony Applegate, Chairman	✓	
Via Zoom Barry Woodruff, County Commissioner	✓	
absent Daryll R. Gray, County Commissioner		
Via Zoom Tyler Thompson, Georgetown Representative	✓	
Via Zoom Gary Pickerill, Township Representative	✓	
Via Zoom ~~Mark Klump~~, Board of Health Representative Tim O'Hara		✓
Via Zoom Ed Tibbe, Public Representative	✓	
Via Zoom Jeff Wiederhold, Public Representative	✓	
Via Zoom Ray Becraft, Waste Generator Representative	✓	

Resolution Certifying Ratification of the Solid Waste Management Plan

Resolution 05/13/2021-1

A resolution declaring that the amended solid waste management Plan for the Brown County Solid Waste Management District has been ratified in accordance with Section 3734.55 of the Ohio Revised Code.

WHEREAS, the district held a public hearing on December 3rd, 2020, and the solid waste management district policy committee adopted the amended Solid Waste Management Plan on January 14th, 2021;

WHEREAS, this Solid Waste Authority Board has received copies of resolutions and ordinances approving the amended 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 population within the district;

NOW, THEREFORE, BE IT RESOLVED that the Solid Waste Authority Board of the Brown County Solid Waste Management District declares the amended Plan for the Brown County Solid Waste Management District to be ratified in accordance with Section 3734.55 of the Ohio Revised Code, and shall cause the amended Plan to be submitted to the Director of the Ohio Environmental Protection Agency for review.

This resolution shall be in effect immediately upon its adoption.

	For Certification:	Against Certification:
Tony Applegate, Chairman	✓	
Barry Woodruff, County Commissioner	✓	
Daryll R. Gray, County Commissioner	✓	
Dale Cahall, Georgetown Representative	absent	
Gary Pickerill, Township Representative	✓	
Tim O'Hara, Board of Health Representative	✓	
Ed Tibbe, Public Representative	✓	
Jeff Wiederhold, Public Representative	via zoom ✓	
Ray Becraft, Waste Generator Representative	✓	

This is to certify that the foregoing is a true and correct copy of the resolution passed by the Brown County Solid Waste Authority Board on the 13th day of May, 2021, and recorded in the Official Minutes of said Board in Georgetown, Ohio, under the date of May 13th, 2021.

5-13-2021
Date

Sarah Beath, District Secretary for the Authority Board

RESOLUTION NO. 6201202-1

The Board of County Commissioners of Brown County Ohio met on the 1st Day of February, 2021.

Mr. Woodruff moved for passage of the Resolution:

RESOLUTION AUTHORIZING APPROVAL OF REVISED DRAFT SOLID WASTE MANAGEMENT PLAN, ADOPTED January 14, 2021, FOR THE BROWN COUNTY SOLID WASTE MANAGEMENT DISTRICT.

WHEREAS, the Board of County Commissioners of Brown County Ohio have established the Brown County Solid Waste Management District pursuant to the terms of Ohio Revised Code Section 3734.52; and

WHEREAS, the Brown County Solid Waste Authority prepared a revision to the 2014 Solid Waste Management Plan for the Solid Waste Management District; and

WHEREAS, the Brown County Solid Waste Authority has approved the draft Revised Solid Waste Management Plan adopted January 14, 2021 for the Brown County Solid Waste Management District, and has requested the Board of Commissioners to approve or disapprove the draft Plan by Resolution; and

WHEREAS, this Board of Commissioners desires to approve the revised draft Solid Waste Management Plan.

NOW, THEREFORE, BE IT RESOLVED, by this Board of Commissioners, that the revised draft Solid Waste Management Plan for the Brown County Solid Waste Management District hereby be approved and the Secretary of this Board is hereby directed to deliver a certified copy of this Resolution Authorizing approval of the draft revised Solid Waste Management Plan to the Solid Waste Authority of the Brown County Solid Waste Management District.

NOW, THEREFORE, BE IT FURTHER RESOLVED, that this Board of Commissioners hereby find and determine that all formal actions relative to the passage of this resolution were taken in an open meeting of this Board, and that all deliberations of this Board and of its Committees, if any, which resulted in formal action, were taken in meetings open to the public, in full compliance with applicable legal requirements, including Section 121.22 of the Ohio Revised Code.

Mr. Gray Seconded the Motion and upon roll call, the vote resulted as follows:

Darrell R Gray

Gary L Woodruff

ATTEST: Janet Booth Date: 2-1-2021
Secretary, Board of Brown County Commissioners

58/15

VILLAGE OF GEORGETOWN, OHIO

RESOLUTION 1241

A RESOLUTION AUTHORIZING APPROVAL OF THE REVISED DRAFT SOLID WASTE MANAGEMENT PLAN, ADOPTED JANUARY 14, 2021, FOR THE BROWN COUNTY SOLID WASTE MANAGEMENT DISTRICT

WHEREAS, the Board of County Commissioners of Brown County, Ohio have established the Brown County Solid Waste Management District pursuant to the terms of Ohio Revised Code Section 3734.52; and

WHEREAS, the Brown County Solid Waste Authority prepared a revision to the 2014 Solid Waste Management Plan for the Solid Waste Management District; and

WHEREAS, the Brown County Solid Waste Authority has approved the draft revised Solid Waste Management Plan, adopted January 14, 2021, for the Brown County Solid Waste Management District, and has requested the Village Council to approve the draft plan by Resolution; and

WHEREAS, this Village Council desires to approve the revised draft Solid Waste Management Plan.

BE IT RESOLVED by the Council of the Village of Georgetown, Brown County, Ohio, a two-thirds majority of all members thereof concurring as follows:

SECTION 1: The revised draft Solid Waste Management Plan for the Brown County Solid Waste Management District is hereby approved.

SECTION 2: The Clerk of Council is hereby directed to deliver a certified copy of this Resolution authorizing approval of the draft revised Solid Waste Management Plan to the Solid Waste Authority of the Brown County Solid Waste Management District.

SECTION 3: That the Council hereby finds and determines that all formal actions relative to the passage of this Resolution were taken in an open meeting of this Council, and that all deliberations of this Council and of its Committees, if any, which resulted in formal action, were taken in meetings open to the public, in full compliance with applicable legal requirements, including section 121.22 of the Ohio Revised Code.

SECTION 4: This Resolution shall be in full force and effect from and after the earliest date allowed by law.

Passed and adopted at a legally convened meeting of Council held on the 11th day of February, 2021.

Dale E. Cahall, Mayor

ATTEST:

Michelle Hopkins, Clerk of Council

Brown County Adopted Solid Waste Plan Ratification Update

2021

Place	Population	Approving	Opposed	Date Delivered	Delivery Method
Aberdeen	1,604	x		1/29/2021	Hand Delivered
Fayetteville	316	x		1/29/2021	Mailed
Georgetown	4,243	x		1/28/2021	Hand Delivered
Hamersville	502			1/28/2021	Mailed
Higginsport	242	x		1/29/2021	Mailed
Mt. Orab	3,444	x		1/29/2021	Hand Delivered
Ripley	1,697	x		1/29/2021	Hand Delivered
Russellville	512	x		1/29/2021	Hand Delivered
Sardinia	1,136	x		1/29/2021	Hand Delivered
Byrd	720	x		1/28/2021	Mailed
Clark	2,522			1/28/2021	Mailed
Eagle	1,318	x		1/28/2021	Hand Delivered
Franklin	1,610	x		1/28/2021	Mailed
Green	1,824	x		1/29/2021	Mailed
Huntington	1,107	x		1/29/2021	Hand Delivered
Jackson	1,539	x		1/28/2021	Mailed
Jefferson	859	x		2/1/2021	Hand Delivered
Lewis	2,375	x		1/28/2021	Hand Delivered
Perry	4,291	x		1/28/2021	Mailed
Pike	2,919	x		1/29/2021	Hand Delivered
Pleasant	1,214	x		1/29/2021	Mailed
Scott	1,271	x		1/28/2021	Hand Delivered
Sterling	3,740	x		1/29/2021	Hand Delivered
Union	1,285	x		1/28/2021	Mailed
Washington	1,142	x		1/28/2021	Mailed
Total	43,432				

Approval % 93.04 Number above Goal 14,349

Brown County Commissioners Approved Solid Waste Plan on 2/1/2021

Appendix D

Identification of Consultants Retained for Plan Preparation

The Draft Solid Waste Plan was prepared by:

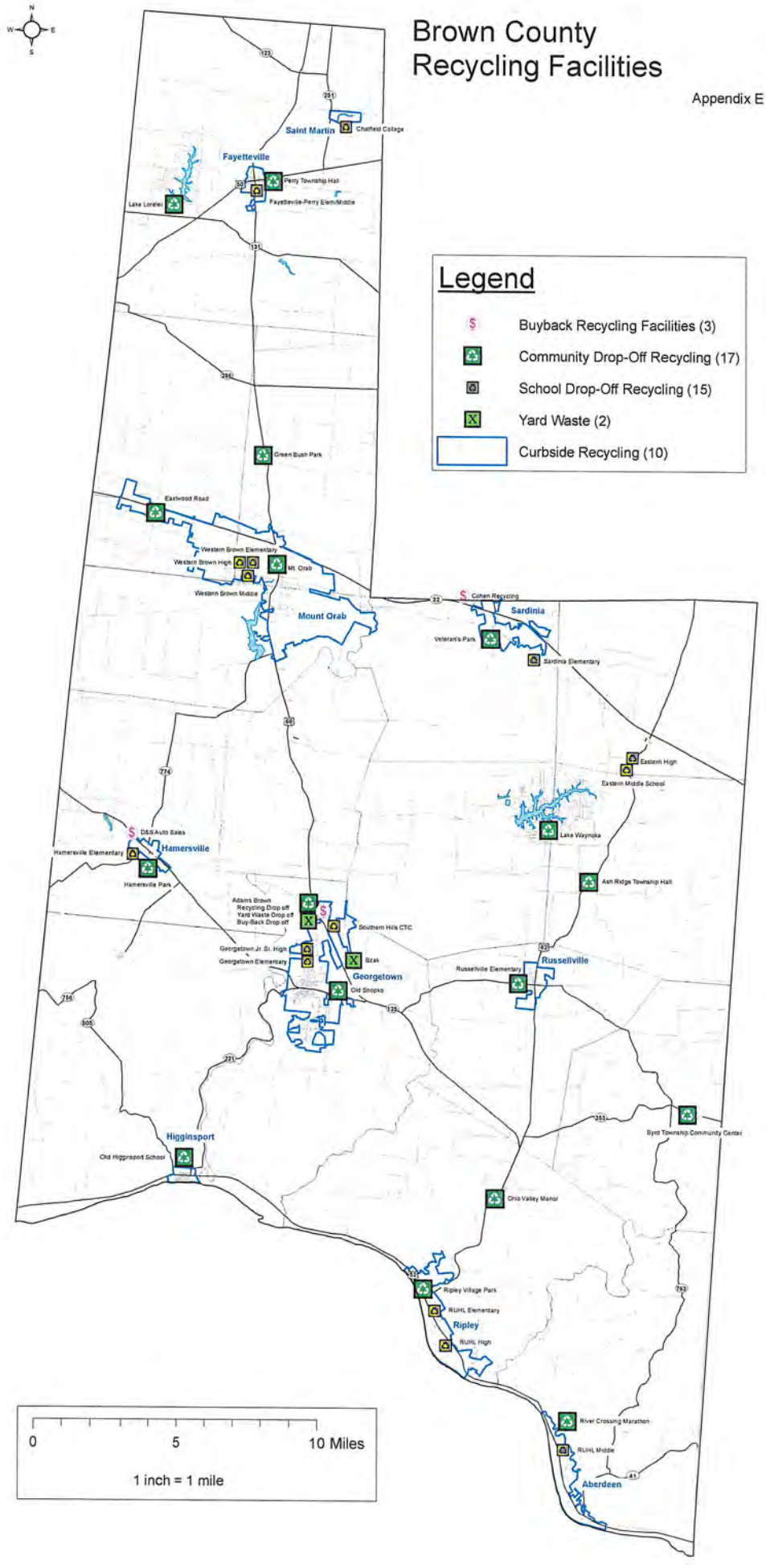
Dan Wickerham, Coordinator,
Brown County Solid Waste Authority
9262 Mt. Orab Pike
Georgetown, OH 45121
937-378-3431
dwickerham@abcap.net

Appendix E

District Maps

Brown County Recycling Facilities

Appendix E



Community Drop-off Recycling Boxes		Location	Address	Latitude	Longitude
Clark Township	Hamersville Park	Hamersville	101 Mill St., Hamersville, OH 45130	38° 54' 58.90" N	83° 58' 59.80" W
Byrd Township	Community Center	Decatur	10126 St. Rt. 125, Russellville, OH 45168	38° 48' 55.60" N	83° 42' 31.00" W
Franklin Township	Lake Waynoka	Lake Waynoka	1 Waynoka Drive, Sardinia, OH 45171	38° 55' 41.20" N	83° 46' 48.60" W
Green Township	Green Bush Park	Greenbush	16003 US 68, Mt. Orab, OH 45154	39° 04' 39.00" N	83° 55' 39.10" W
Green Township	Mt. Orab	Mt. Orab	409 N. High Street., Mt. Orab, OH 45154	39° 02' 02.40" N	83° 55' 12.50" W
Huntington Township	River Crossing Marathon	Aberdeen	2530 US 52, Aberdeen, OH 45101	38° 41' 24.50" N	83° 46' 42.80" W
Jackson Township	Ash Ridge Township Hall	Ash ridge	8592 Ash Ridge-Arnheim Rd., Sardinia, OH 45171	38° 54' 29.40" N	83° 45' 33.90" W
Jefferson Township	Russellville Elementary	Russellville	123 N. Kendle St., Russellville, OH 45168	38° 52' 08.40" N	83° 47' 28.00" W
Lewis Township	Old Higginsport School	Higginsport	308 Gaines St., Higginsport, OH 45131	38° 47' 26.70" N	83° 58' 03.60" W
Perry Township	Perry Township Hall	Fayetteville	3854 St. Rt. 50 East, Fayetteville, OH 45118	39° 11' 11.00" N	83° 55' 22.00" W
Perry Township	Lake Lorelei	Fayetteville	49 Keil Drive, Fayetteville, OH 45118	39° 10' 39.30" N	83° 58' 33.90" W
Union Township	Ohio Valley Manor	Ripley	5280 US 68, Ripley, OH 45167	38° 46' 53.70" N	83° 48' 26.90" W
Union Township	Ripley Village Park	Ripley	Corner of 3rd and Cherry Street, Ripley, OH 45167	38° 44' 43.70" N	83° 50' 38.30" W
Washington Township	Veteran's Park	Sardinia	13309 Purdy Road, Sardinia, OH 45171	39° 00' 17.20" N	83° 48' 36.90" W
Sterling Township	Eastwood Road	Mt. Orab	15136 Eastwood Road, Williamsburg, OH 45176	39° 03' 15.60" N	83° 58' 58.50" W
Pleasant Township	Adams Brown Recycling	Georgetown	9262 Mt. Orab Pike, Georgetown, OH 45121	38° 53' 35.00" N	83° 54' 00.10" W
Pleasant Township	Old Shopko	Georgetown	4869 St. Rt. 125, Georgetown, OH 45121	38° 51' 50.40" N	83° 53' 17.10" W

School Drop-off Recycling Boxes		Location	Address	Latitude	Longitude
Chatfield College		Fayetteville	20918 St. Rt. 251, Fayetteville, OH 45118	39° 12' 41.20" N	83° 53' 11.60" W
Eastern Junior High		Sardinia	11479 US Rt. 62, Sardinia, OH 45171	38° 57' 14.70" N	83° 44' 23.70" W
Eastern High		Sardinia	11575 US Rt. 62, Sardinia, OH 45171	38° 57' 19.90" N	83° 44' 17.80" W
Fayetteville-Perry Elem/Middle		Fayetteville	140 North East Street, Fayetteville, OH 45118	39° 10' 57.60" N	83° 55' 53.10" W
Georgetown Elementary		Georgetown	935 Mt. Orab Pike, Georgetown, OH 45121	38° 52' 49.10" N	83° 54' 15.60" W
Georgetown Jr. Sr. High		Georgetown	987 Mt. Orab Pike, Georgetown, OH 45121	38° 52' 51.30" N	83° 54' 06.30" W
Hamersville Elementary		Hamersville	1950 St. Rt. 125, Hamersville, OH 45130	38° 55' 15.90" N	83° 59' 34.70" W
RUHL Elementary		Ripley	500 S. Second Street, Ripley, OH 45167	38° 44' 12.80" N	83° 50' 17.40" W
RUHL Middle		Aberdeen	2300 Rains-Eitel Road, Aberdeen, OH 45101	38° 40' 53.70" N	83° 46' 20.40" W
RUHL High		Ripley	1317 S. Second Street, Ripley, OH 45167	38° 43' 22.50" N	83° 49' 56.80" W
Sardinia Elementary		Sardinia	7742 Tri County Highway, Sardinia, OH 45171	38° 59' 48.10" N	83° 47' 16.80" W
Southern Hills CTC		Georgetown	9193 Hamer Road, Georgetown, OH 45121	38° 53' 23.70" N	83° 53' 25.70" W
Western Brown Elementary		Mt. Orab	474 W. Main Street, Mt. Orab, OH 45154	39° 02' 06.80" N	83° 55' 59.90" W
Western Brown Middle		Mt. Orab	472 W. Main Street, Mt. Orab, OH 45154	39° 01' 57.10" N	83° 56' 07.40" W
Western Brown High		Mt. Orab	476 W. Main Street, Mt. Orab, OH 45154	39° 02' 04.70" N	83° 56' 15.30" W

Buyback Recycling Facilities		Location	Address	Latitude	Longitude
Adams Brown Recycling		Georgetown	9262 Mt. Orab Pike, Georgetown, OH 45121	38° 53' 35.60" N	83° 53' 57.30" W
D&S Auto Sales		Hamersville	1834 St. Rt. 125, Hamersville, OH 45130	38° 55' 36.10" N	83° 59' 40.60" W
Cohen Recycling		Sardinia	1390 Oak Leaf Road, Sardinia, OH 45171	39° 01' 18.80" N	83° 49' 27.70" W

Yard Waste Facility		Location	Address	Latitude	Longitude
Bzak	Commercial Only	Georgetown	5081 Camp Run Road, Georgetown, OH 45121	38° 52' 34.60" N	83° 52' 49.00" W
Adams Brown Recycling	Residential Yard Waste Drop-off	Georgetown	9262 Mt. Orab Pike, Georgetown, OH 45121	38° 53' 31.60" N	83° 54' 02.20" W

Appendix F

Industrial Survey Results

Appendix F Industrial Survey Respondents per SIC Code

SIC	NAICS	# of Employees	Hauler	Type of service	Profile Waste	General Garbage	Wood Waste	Steel	Non-ferrous	Occ	Total waste	Generation Rate
20	311	13	Rumpke	RL 1x/wk	0	16.64	0	0	0	0	16.64	1.28
Total for SIC 20		13			0	16.64	0	0	0	0	16.64	1.28
23	314	5	Ripley	RL 1x/wk	0	9.98	0	0	0		9.98	2.00
Total for SIC 23		5			0	9.98	0	0	0	0	9.98	1.996
24	321	33	Rumpke	FL 1x/wk	0	13.31	0	0	0	0	13.31	0.40
24	321	30	Rumpke	RL 1x/wk	0	9.98	0	6	0	0	15.98	0.53
Total for SIC 24		63			0	23.29	0	6.00	0	0	29.29	0.46
26	322	28	Rumpke	FL 2x/wk	0	71.50	0	0	0	1,155	1,226.50	43.80
Total for SIC 26		28			0	71.5	0	0	0	1155	1226.5	43.80
32	327	12	Rumpke	RL .5x/wk	0	3.33	0	0	0	0	3.33	0.28
32	327	23	Rumpke	FL 1x/wk	0	13.31	0	0	0	0	13.31	0.58
Total for SIC 32		35			0	16.64	0	0	0	0	16.64	0.48
34	332	46	Rumpke	RO 40 yd	0	76.12	0	611.44	0.00	0	687.56	14.95
34		94	Rumpke	RO 42 yd comp.	96.59	115.91	119.31	2019.62	49.85	83.3	2484.58	26.43
Total for SIC 34		140			96.59	192.03	119.31	2631.06	49.85	83.30	3172.14	22.66
35	332	7	Self haul		0	6.66	0	2	0	0	8.66	1.24
35	332	3	Rumpke	Hand Service	0	9.98	0	0	0.04	0	10.02	3.34
35	333	4	Rumpke	FL .5x/wk	0	6.66	0	8.5	0		15.16	3.79
35	333	215	Rumpke	RO 42 yd comp.	16.57	95.70	0	1,592.43	46.70	0	1751.40	8.15
Total for SIC 35		229			16.57	119.00	0	1602.93	46.74	0	1785.23	7.80
37	336	150	Rumpke	RO 42 yd comp.	31.63	210.71	403.74	3222.80	79.55	0	3948.43	26.32
Total for SIC 37		150			31.63	210.71	403.74	3222.8	79.55	0	3948.43	26.32
38	339	75	Ripley	RL 5x/wk	0	66.56	0	2	2.00	0	70.56	0.94
Total for SIC 38		75			0	66.56	0	2	2	0	70.56	0.94
39	339	4	Rumpke	Hand Service	0	0.78	0	0.375	0.13	0	1.28	0.32
Total for SIC 39		4			0	0.78	0	0.375	0.13	0	1.28	0.32

Key: FL=Front Load, RL=Rear Load, Hand Service=Trash Cans on Residential Route, RO=Roll-off, Comp.=Compactor, yd=cubic yard, x/wk=times serviced per week

2018 Recycling and Waste Disposal Survey

Most people are not fully aware of what is in their garbage can or even how much garbage they generate. As a business in Brown County, we are asking you to take a minute and describe your waste as well as you can. If you have records of the amount of waste you generate, this information would be useful to the County in developing waste reduction programs and in updating our Solid Waste Plan. In most cases, if we can identify the size of your waste container, the frequency of service, the percent full at time of service, and the type of waste; we can estimate to volume of waste your business generates per year. Please answer the questions below to the best of your ability. If you have questions, call Dan Wickerham at (937) 378-3431x102.

General Information:

Company Name: _____
Address: _____
City, State, Zip: _____
Contact: _____
Phone: _____ Number of Employees: _____
Primary SIC Category (4-digit)/ _____ NAICS code _____
Which category best describes your business (circle one):
Commercial/Retail Commercial/Service Manufacturing/Industrial
Briefly describe the nature of your business: _____
_____
_____
_____

Waste Generation:

Name of waste disposal company: _____

Type of waste container: rear load front load roll-off garbage cans uncertain (circle one)

Frequency of service: once per week twice per week as needed other: _____ (circle one)

Approximate percent full at time of service: _____

Description of the majority of waste in the waste container:

_____

Recycling:

For each material category indicate number of units recycled, the type of unit, the time period, and company receiving the materials. For example: "100 tons of cardboard recycled during 2018 at Cincinnati Paper Board" or "24 car batteries recycled per month at Adams Brown Recycling". The recycling company information will be used to eliminate double counting. We will convert all units to tons and time periods to 1 year for reporting purposes. All information will be used in the aggregate for completing Brown County's Solid Waste Plan and the Annual District Solid Waste Report.

Material	Number and Unit	Time Period	Recycling Company
Appliances			
Lead-acid batteries			
Household batteries			
Food			
Glass			
Ferrous metals			
Non-ferrous metals			
Foundry sand			
Cardboard			
All other paper			
PETE plastic			
HDPE plastic			
All other plastic			
Rubber			
Passenger tires			
Truck tires			
Other tires			
Textiles			
Used Oil			
Wood			
Yard Waste			
Other			

Source Reduction:

If your company has found any additional waste to reduce the amount of waste generated, please tell us about it:

_____

_____

_____

Appendix G

Documentation of Provision Of Services and Capacity

RUMPKE

Waste & Recycling Services

3990 Generation Drive, Cincinnati, OH 45251
Phone: 1-800-828-8171 Fax: 513-851-2057

BBB ACCREDITED BUSINESS

February 28, 2020

Mr. Dan Wickerham
Adams Brown Recycling
9262 Mt. Orab Pike
Georgetown, Ohio 45121

RE: Rumpke Brown County Landfill Waste Capacity

Dear Board Members of the Brown County Solid Waste Authority:

This letter is regarding your request concerning the ability of Rumpke Waste, Inc to fulfill the solid waste management needs of Brown County until 2040. The Brown County Landfill has been the primary means for providing these needs for more than the past 35 years. Rumpke Waste, Inc. plans to continue serving Brown County and surrounding areas well beyond the year 2040. The Brown County Landfill has permitted disposal capacity in excess of 60 years, at its current disposal rate of 1,600 tons per day.

As a contingency, if the Brown County Landfill were either to temporarily suspend operations or to undergo closure, the waste streams generated in Brown County and surrounding areas would likely be diverted to our Pike County landfill located in Pike County, Ohio. The Pike County Landfill has permitted capacity in excess of 30 years, at its current disposal rate of 1,100 tons per day. As an additional alternative contingency for waste stream diversion, Rumpke Waste also owns and operates the Beech Hollow Landfill in Jackson County, Ohio. The Beech Hollow Landfill has a permitted capacity in excess of 80 years, at its current disposal rate of 900 tons per day.

Thank you for the opportunity to assist with the District Solid Waste Plan. If you have any questions or need additional information, please contact me at 800.828.8171 ext. 3148.

Sincerely,

RUMPKE WASTE, INC.

J.T. Westerfield
Site Engineer

Cc: Chris Jaquet, Rumpke Engineering and Landfill Operations Director
David Murphy, Rumpke Senior Engineer, East Area
Robert Kras, Rumpke Brown County Landfill Manager
Brown County A.2

Appendix H

U.S.EPA
WARM Model

Brown County Solid Waste Authority

Reference Year 2018

WARM Calculation

We know that recycling saves landfill space, saves natural resources, and saves energy. Now we can demonstrate that recycling reduces Greenhouse Gas emissions as well. Using the USEPA WARM calculator, the BCSWA evaluated the influence of our waste reduction programs on the release of carbon. For the purpose of this study, we looked at only those recycling volumes from our District funded programs. This would include curbside recycling, drop-off recycling, school box recycling, buyback recycling, yard waste drop-off, and scrap tire amnesty days. We did not include HHW recycling or waste oil recycling because those materials do not currently fit in the identified categories of the WARM model. This approach allows us to better evaluate the benefits of our investment in recycling and composting.

The WARM model uses a life cycle assessment methodology to measure the benefits of Greenhouse Gas (GHG) reduction using several different metrics. As a base line, the WARM model uses the net emissions for several specific materials if placed in a landfill. The type of landfill gas collection, the distance to the landfill, and the moisture of the waste are all considered in this calculation. Energy used to transport and process recyclables, as well as carbon released due to these activities, are accounted for also. The units used to measure GHG are Metric Tons of Carbon Dioxide Equivalent ($MTCO_2E$). Energy savings is measured in million British Thermal Units (BTU).

The waste reduction programs of the Brown County Solid Waste Authority alone are calculated to reduce 5,663 Metric Tons of Carbon Dioxide Equivalent and save 66,210 million BTUs of energy. This is equivalent to removing 1,202 cars from the road for an entire year and saving an amount of energy equal to 549,676 gallons of gasoline. While these statistics are significant, the reductions are somewhat less than calculated for 2012, the reference year for our previous plan update. This seems to defy logic, because our total recycling volumes have increased since that time. The primary difference in the WARM calculation can be attributed to a change at the Brown County Landfill. The WARM model compares the effects of waste reduction to that of landfilling. Since the last calculation, our local landfill has added a waste-to-energy plant. While it is abundantly clear that recycling is superior to landfilling in terms of CO_2 emissions and energy usage, capturing and converting landfill methane into electricity reduces the gap. Although we continue to promote source reduction, recycling and composting as the best options, we commend Rumpke's Brown County Landfill for installing waste-to-energy technology.

For more specific information on the WARM model, please visit:
http://epa.gov/epawaste/conserve/tools/warm/index.html

GHG Emissions Analysis -- Summary Report

Version 15
GHG Emissions Waste Management Analysis for BCSWA
Prepared by: Dan Wickerham
Project Period for this Analysis: 01/01/18 to 12/31/18

Total Change in GHG Emissions ($MTCO_2E$): (5,662.60)

This is equivalent to...		
Removing annual emissions from	**1,202**	Passenger Vehicles
Conserving	**637,178**	Gallons of Gasoline
Conserving	**235,942**	Cylinders of Propane Used for Home Barbeques
	0.00032%	Annual CO_2 emissions from the U.S. transportation sector
	0.00031%	Annual CO_2 emissions from the U.S. electricity sector

Total Change in Energy Use (million BTU): (66,209.80)

This is equivalent to...		
Conserving	**723**	Households' Annual Energy Consumption
Conserving	**11,396**	Barrels of Oil
Conserving	**549,676**	Gallons of Gasoline

GHG Emissions Analysis – Summary Report

Version 15

GHG Emissions Waste Management Analysis for BCSWA

Prepared by: Dan Wickerham

Project Period for this Analysis: 01/01/18 to 12/31/18

Note: If you wish to save these results, rename this file (e.g., WARM-MN1) and save it. Then the "Analysis Inputs" sheet of the "WARM" file will be blank when you are ready to make another model run.

GHG Emissions from Baseline Waste Management ($MTCO_2E$): (373.27)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$
Corrugated Containers	-	535.60	-	NA	NA	(75.31)
Office Paper	-	42.90	-	NA	NA	27.90
Mixed Paper (general)	-	317.03	-	NA	NA	(68.38)
Branches	NA	386.30	-	-	-	(274.64)
HDPE	-	34.97	-	NA	NA	0.71
PET	-	69.43	-	NA	NA	1.41
Mixed Electronics	-	11.05	-	NA	NA	0.22
Aluminum Cans	-	109.31	-	NA	NA	2.21
Aluminum Ingot	-	121.95	-	NA	NA	2.47
Steel Cans	-	33.10	-	NA	NA	0.67
Copper Wire	-	57.44	-	NA	NA	1.16
Mixed Metals	-	140.30	-	NA	NA	2.84
Glass	-	85.03	-	NA	NA	1.72
Tires	-	185.06	-	NA	NA	3.75
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GHG Emissions from Alternative Waste Management Scenario ($MTCO_2E$): (6,035.87)

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total $MTCO_2E$	Change (Alt - Base) $MTCO_2E$
Corrugated Containers	-	535.60	-	-	NA	NA	(1,679.29)	(1,603.97)
Office Paper	-	42.90	-	-	NA	NA	(122.85)	(150.75)
Mixed Paper (general)	-	317.03	-	-	NA	NA	(1,124.04)	(1,055.66)
Branches	NA	NA	-	386.30	-	-	(87.54)	187.10
HDPE	-	34.97	-	-	NA	NA	(29.83)	(30.54)
PET	-	69.43	-	-	NA	NA	(79.72)	(81.13)
Mixed Electronics	NA	11.05	-	-	NA	NA	(8.72)	(8.94)
Aluminum Cans	-	109.31	-	-	NA	NA	(997.71)	(999.93)
Aluminum Ingot	-	121.95	-	-	NA	NA	(878.49)	(880.96)
Steel Cans	-	33.10	-	-	NA	NA	(60.64)	(61.31)
Copper Wire	-	57.44	-	-	NA	NA	(257.84)	(259.00)
Mixed Metals	-	140.30	-	-	NA	NA	(616.08)	(618.92)
Glass	-	85.03	-	-	NA	NA	(23.48)	(25.20)
Tires	-	185.06	-	-	NA	NA	(69.64)	(73.39)
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Total Change in GHG Emissions ($MTCO_2E$): (5,662.60)

Note: a negative value (i.e., a value in parentheses) indicates an emission reduction; a positive value indicates an emission increase.

This is equivalent to...		
Removing annual emissions from	1,202	Passenger Vehicles
Conserving	637,178	Gallons of Gasoline
Conserving	235,942	Cylinders of Propane Used for Home Barbeques
	0.00032%	Annual CO_2 emissions from the U.S. transportation sector
	0.00031%	Annual CO_2 emissions from the U.S. electricity sector

a) For explanation of methodology, see the EPA WARM Documentation: Documentation Chapters for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM)
– available on the Internet at https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-and-energy-factors-used-waste-reduction-model

b) Emissions estimates provided by this model are intended to support voluntary GHG measurement and reporting initiatives.

c) The GHG emissions results estimated in WARM indicate the full life-cycle benefits waste management alternatives. Due to the timing of the GHG emissions from the waste management pathways, (e.g., avoided landfilling and increased recycling), the actual GHG implications may accrue over the long-term. Therefore, one should not interpret the GHG emissions implications as occurring all in one year, but rather through time.

Energy Analysis – Summary Report

Version 15
Energy Waste Management Analysis for BCSWA
Prepared by: Dan Wickerham
Project Period for this Analysis: 01/01/18 to 12/31/18

Note: If you wish to save these results, rename this file (e.g., WARM-MN1) and save it. Then the "Analysis Inputs" sheet of the "WARM" file will be blank when you are ready to make another model run

Energy Use from Baseline Waste Management (million BTU): (218.12)

Material	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU
Corrugated Containers	-	535.60	-	NA	NA	(240.48)
Office Paper	-	42.90	-	NA	NA	(36.05)
Mixed Paper (general)	-	317.03	-	NA	NA	(125.30)
Branches	NA	386.30	-	-	-	(43.69)
HDPE	-	34.97	-	NA	NA	9.38
PET	-	69.43	-	NA	NA	18.63
Mixed Electronics	-	11.05	-	NA	NA	2.96
Aluminum Cans	-	109.31	-	NA	NA	29.32
Aluminum Ingot	-	121.95	-	NA	NA	32.72
Steel Cans	-	33.10	-	NA	NA	8.88
Copper Wire	-	57.44	-	NA	NA	15.41
Mixed Metals	-	140.30	-	NA	NA	37.64
Glass	-	85.03	-	NA	NA	22.81
Tires	-	185.06	-	NA	NA	49.65
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Energy Use from Alternative Waste Management Scenario (million BTU): (66,427.91)

Material	Tons Source Reduced	Tons Recycled	Tons Landfilled	Tons Combusted	Tons Composted	Tons Anaerobically Digested	Total Million BTU	Change (Alt - Base) Million BTU
Corrugated Containers	-	535.60	-	-	NA	NA	(8,089.30)	(7,848.82)
Office Paper	-	42.90	-	-	NA	NA	(432.48)	(396.42)
Mixed Paper (general)	-	317.03	-	-	NA	NA	(6,519.44)	(6,394.15)
Branches	NA	NA	-	386.30	-	-	(1,110.92)	(1,067.24)
HDPE	-	34.97	-	-	NA	NA	(1,756.74)	(1,766.12)
PET	-	69.43	-	-	NA	NA	(2,216.27)	(2,234.90)
Mixed Electronics	NA	11.05	-	-	NA	NA	(131.28)	(134.24)
Aluminum Cans	-	109.31	-	-	NA	NA	(16,698.68)	(16,728.00)
Aluminum Ingot	-	121.95	-	-	NA	NA	(13,883.61)	(13,916.32)
Steel Cans	-	33.10	-	-	NA	NA	(660.88)	(669.76)
Copper Wire	-	57.44	-	-	NA	NA	(4,743.95)	(4,759.36)
Mixed Metals	-	140.30	-	-	NA	NA	(9,336.95)	(9,374.59)
Glass	-	85.03	-	-	NA	NA	(180.72)	(203.53)
Tires	-	185.06	-	-	NA	NA	(666.69)	(716.34)
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Total Change in Energy Use (million BTU): (66,209.80)

This is equivalent to...		
Conserving	723	Households' Annual Energy Consumption
Conserving	11,396	Barrels of Oil
Conserving	549,676	Gallons of Gasoline

Note: a negative value (i.e., a value in parentheses) indicates a reduction in energy consumption; a positive value indicates an increase.

a) For explanation of methodology, see the EPA WARM Documentation:

Documentation Chapters for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM) – available on the Internet at https://www.epa.gov/warm/documentation-chapters-greenhouse-gas-emission-and-energy-factors-used-waste-reduction-model

b) Energy estimates provided by this model are intended to support voluntary energy measurement and reporting initiatives.