

APPENDIX H Strategic Evaluation

In order to prepare a Solid Waste Management Plan that will address the needs of the District during the planning period, it is important for the District to look carefully and critically at the facilities, programs and activities that the District is implementing under its existing Plan. The Plan Format v4.0 provides a structure to guide the District through an effective evaluation. The strategic evaluation process that follows is divided into thirteen (13) sections. The recommended sections Waste Composition Analysis and Diversion Analysis are combined. The thirteen sections address topics using five elements of the strategic evaluation process as prescribed in Plan Format v4.0. **Analysis** (What do we know, and what do we need to know?); **Conclusions** (What did we learn?); **Actions** (What could we do?) **Priorities** (What will we do?); **Programs** (How will we do it?) **Actions, Priorities and Programs** are treated in more detail in APPENDIX I.

Section 1a. Residential Recycling Infrastructure Analysis

An inventory and descriptions of the residential recycling opportunities available in the reference year is presented in APPENDIX B. The program descriptions are not repeated except to the extent necessary to explain the findings and conclusions.

Figure H-1

Figure H-1 shows the distribution of publicly available full-service drop-off sites and of school recycling sites.

- Full-service drop-offs provided by District 
- Full-service drop-off provided by Rumpke 
- Multi material drop-offs provided by SWMD District located at schools. 

Note: Purpose of the map is to show the general distribution of sites. Due to map size, the stars mark the general area, not exact locations.

Figure H-2 on the next page shows the areas in the District served by non-subscription and subscription curbside recycling.

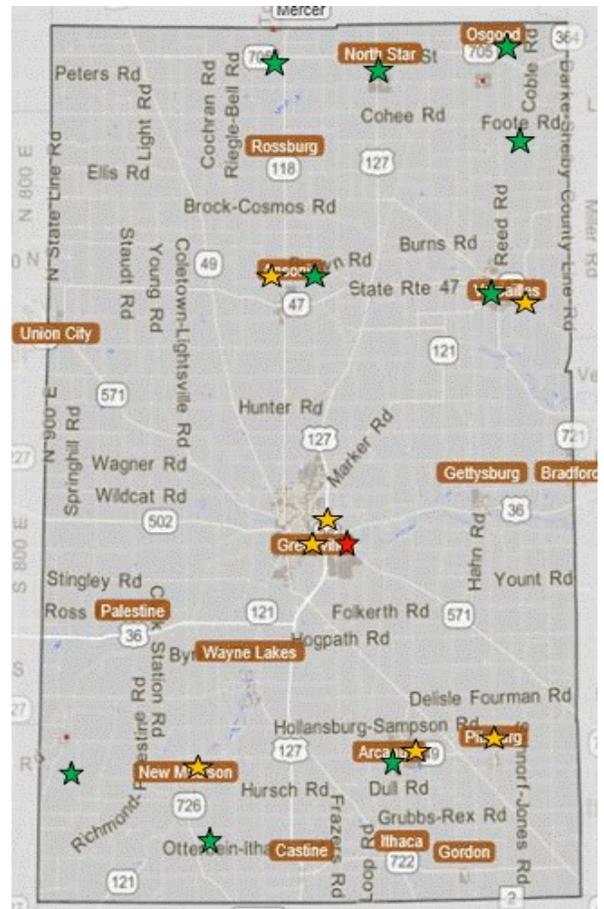
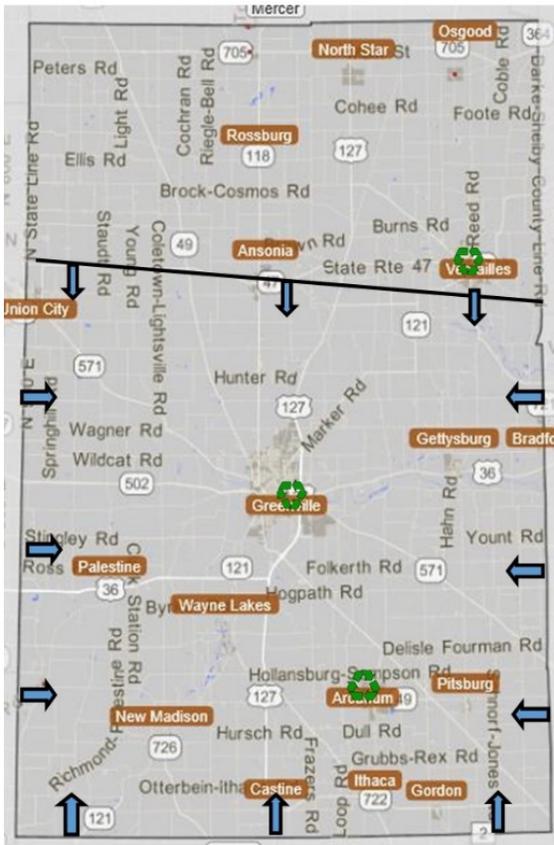


Figure H-2



Inward pointing arrows define the area served by subscription curbside recycling program. All Rumpke customers in this area are offered curbside as part of the regular waste collection service.



Recycling symbol denotes Greenville, Arcanum, and Versailles that have community wide curbside recycling programs.

The combination of residential curbside recycling and full-service drop offs provide most of the residents of the District convenient opportunities to recycle. Three sites were closed between the end of 2018 and June 2020. The drop-offs were closed because they were being misused. The bins contained unacceptable amounts of garbage and littering was a problem. *Figure H-1 shows only the locations that were available as of August 2020.*

As was noted in previous sections of this Plan, the verifiable percent of residential waste that was diverted through recycling in the period from 2014 through 2019 was less than the amount projected for that period in the District’s Plan. Table H-1 shows a comparison of projected recycling and reported recycling in 2018.

Table H-1 Comparison of Projections in 2015 Plan vs Data Reported in this Plan

	Reduction /Recycling	Disposal	Generation	Recycling rate	Recycling ppd	Disposal ppd	Generation ppd	Population used
2016 Plan projections for 2018	18,296	32,622	50,918	35.90%	1.97	3.52	5.49	50,820
Actual Reported Data 2018	10,515	42,784	53,299	19.73%	1.13	4.65	5.79	50,469

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It is obvious from the Table H-1 comparison that although total generation was under projected by only 4.47%, the amount of disposal was underestimated by 23.75%. The verifiable recycling was definitely less in the reference year than the amount projected.

In the reference year, the Village of Versailles provided waste collection and curbside recycling for village residents and some commercial businesses. Best Way Waste and Recycling was the sole provider of residential waste and curbside recycling services for Arcanum. Rumpke Waste and Recycling was the sole provider of residential waste collection and curbside recycling services in Greenville. Rumpke also provided curbside recycling collection to all of their residential waste customers in the area bordered by blue arrows in Figure H-2.

All of the multi-material drop-off sites available in the District are serviced by Rumpke Waste and Recycling. Rumpke provides all of the curbside collection in Greenville and is responsible for most of the curbside material collected in the rural areas of Darke County. As of 2020, Rumpke is the sole service provider for waste collection and curbside recycling in Arcanum.

Rumpke Recycling collects the curbside material and services all of the drop-off sites in the District. The material is taken to Rumpke material recovery facilities for processing. Rumpke reports the weight of material collected in Darke County by material type through the Material Recovery Facility Reports submitted to Ohio EPA. The collection, processing, and reporting system is designed to be efficient. However, it presents a problem for the District because it is impossible to use the weight of material collected to evaluate the performance of individual drop-off sites or curbside programs. There is no way to track the weight of recyclables that are produced by a specific drop-off or, with the exception of Versailles, specific curbside programs.

At the present time, there is no way to remedy the reporting problem without making changes in collection and transportation methods that would seriously damage collection efficiency resulting in increased cost. In a rural area where residences are spread out and villages are small, collection routes are designed for efficiency. A truck route may include residential curbside from several villages and townships, commercial recycling, and material from one or more drop-off locations.

Plans for a comprehensive survey of drop-off locations in the spring of 2020 were cancelled due to restrictions imposed by the Covid-19 pandemic. It was replaced by a much less formal process of observing drop-off and curbside recycling locations prior to collection to estimate the quantity of material set out and the level of contamination. This information was pooled with observations from Rumpke, and the District's observations over time. Without individual site or specific program data, comparing program performance by program type with that in other Districts is not feasible. We are moving forward working with the limited information we have and including a quest for strategies to remedy the data collection problem in the plan moving forward.

Drop-off Recycling

The public drop-off bins and the school bins provided by the District and the Rumpke high capacity bin at the transfer facility all accept the following materials:

(The descriptions are from Rumpke's flyers and the signage on the drop-off containers.)

Paper: office and computer paper, newspaper with inserts, junk mail, phone books, magazines, and catalogs

Metal: aluminum and steel cans, empty aerosol cans (tips removed)

Plastic: Plastic bottles and jugs

Cardboard: Cardboard (boxes broken down, please), clean pizza boxes (free of food and grease), cereal and snack boxes, cartons (juice, milk, and egg substitute containers)

Glass: Jars and bottles, clear and colored.

The following items are specifically excluded:

(Listed in Rumpke flyers and prominently on drop-off bins)

Garbage, food or yard waste, plastic bags, syringes, electronics, buckets, butter tub, light bulbs, drinking glass, batteries, ceramics or dishes, pots and pans, foil juice pouches, toys, and clothing.



The following findings are admittedly based on limited firm data, but they are the result of carefully made observations, feed back over time from drop-off site hosts and discussions with Rumpke, the major collector and processor of residential recycling for the District. These findings list successes, problems, and questions to be answered. APPENDIX I will provide conclusions, priorities, and program descriptions.

Information from Rumpke and observations of drop-offs over time indicate that approximately between 13.5% and 14.5% of the material placed in the bins can not be recycled. The contamination causes several problems. The bins are often too full because of the unwanted items, particularly light but bulky items like plastic toys and chairs. Bulky items cause bins to fill up quickly. Overloaded bins are likely to spill over, and open lids allow water to damage cardboard and paper making in unrecoverable. Plastic bags can foul sorting machinery. Items like syringes can be a danger to workers.

Despite the negatives, the drop-off program is popular. In the few places where the District had to remove bins, they were missed, and complaints were received. There are more bins per person in the northern townships in the area that is not covered by Rumpke subscription curbside collection, and the bins in this area fill up quickly. Most of the bins are filled to capacity or near full capacity by pick-up time. Most bins are emptied weekly.

Successes: The District has been able to place drop-off bins in easily identified locations. The bins are being used to capacity or close to capacity. Although contamination is a problem that needs to be addressed, most of the users are using the bins properly.

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Challenges: Contamination. Even though the signs on the bins are attractive, easy to read and understand, some users are not paying attention. It appears that users are most confused about plastic—what is acceptable and what is not. Some are probably consciously ignoring the signs to get rid garbage and bulky items.

Additional information: A survey of users is needed to get a better picture of who uses the drop-offs, how the users evaluate the convenience of the locations, and what difficulties, if any, they have in using the bins. The District also needs to know what questions users have concerning what to put in the bin, what should not go in the bin, and the reasons. Do users feel they are given adequate information? This is addressed further in APPENDIX I.

Curbside Recycling: All of the curbside programs available in the District collect the same materials as those which are collected at the drop off sites. Where curbside recycling is offered, it is available to residents in single family homes and in most duplexes and multi unit housing if the residents are responsible for their own waste collection. The curbside programs served by Rumpke in Greenville and in the parts of the county shown in Figure H-2, where Rumpke offers waste collection service with curbside recycling automatically included, are considered to be subscription programs because regular, weekly waste collection is not automatically provided. Residents must sign up with Rumpke and are billed directly by Rumpke.

In Greenville residents can choose to purchase special bags at local businesses which are collected by Rumpke instead of subscribing to regular cart waste collection. This program is designed to accommodate small households that generate less waste for disposal. It is a form of pay as you throw. It is helpful to the conscientious citizens who can limit their waste disposal bill by reducing waste and recycling. However, it also allows a few residents to avoid paying for disposal by theft of services (adding trash to residential, commercial, or public waste containers paid for by others), illegal dumping, or dumping waste into containers designated for recycling.

The amount of material diverted by the Arcanum non-subscription curbside program was not reported to the District in 2018 and 2019. As of 2020, Rumpke Waste and Recycling will be providing the waste collection and curbside recycling service in Arcanum so the amount collected by the program will be included in the overall residential/commercial recycling reports from the Rumpke MRFs.

The non-subscription curbside recycling program in Versailles is the only curbside program that reports an annual amount collected as a stand-alone quantity. The amount reported for 2018 was 501 tons. The Village of Versailles provides both curbside waste collection and curbside recycling for households, small commercial businesses and small manufacturers that wish to participate¹. Larger businesses and industries contract with private service providers. The population of Versailles in 2018 was estimated to be 2,578. The pounds per person per

¹ The amount of curbside recycling from the Versailles program reported in the District Annual District Reports and in this Plan is adjusted by deleting any material reported by an industry as being collected by the Versailles program. Industrial amounts collected are not included in the 501 tons.

day for residential/commercial recycling in 2018 calculates to be 1.06 ppd. Considering that this amount does not include yard waste diversion or recycling from larger commercial establishments, it is an impressive amount. The Versailles population is 5.1 % of the District population and in 2018 the curbside program accounted for 4.76% of all reported residential/commercial waste diversion. The district-wide recycling figure includes yard waste composting, including the yard waste composted in Versailles, and recycling from large commercial stores. The Versailles amount includes only collection from residential and a few small commercial sources.

Multi-family residential recycling: Although there have always been residential rental properties in the area, the number of multi-family complexes has grown substantially in the past ten years, particularly in Greenville. The issue of multi-family residential recycling was not addressed in the Plan under which the District is presently operating. It appears that there are no on-site recycling opportunities in apartment complexes where bulk waste collection containers are provided by the owner. This Plan needs to address recycling opportunities for apartment complex residents.

Section 1b. Residential Recycling Findings

- Although the District is not able to define how much of residential recycling is attributable to residential curbside and residential drop-offs, it is obvious that both programs are not producing the quantity and quality of recyclable material that was anticipated in the District plan. It appears that residential enthusiasm for recycling has faded somewhat. It is also evident that participants do not fully understand what goes into and should not go into the curbside bin or the drop-off bin.
- The District needs to develop an improved method for regularly monitoring drop-off sites to adjust container capacity and identify the appropriate interval between collections to maximize effectiveness while minimizing cost to the extent possible. In doing so, it should be noted that success in reducing the amount of contamination will relieve some of the capacity problems.
- The District needs to evaluate education programs, signage, and consider surveillance cameras as methods to reduce drop-off contamination.
- After collecting and analyzing more information about the number of apartment units that do not have access to recycling, prepare and execute a plan to address identified needs. The plan may include working with facility owners and managers to provide on site collection or identifying or supplying drop-off opportunities that can be promoted for use by multi-family residents.

Section 2a. Commercial/Institutional Sector Analysis

Commercial/institutional recycling general information: Due to the commingling of residential and commercial recycling during collection and processing, the District cannot calculate with confidence what percent of the material recovered by recycling is from commercial sources. The same problem applies to municipal solid waste landfilled.

The amount of commercial material recycled that was reported directly to the District and to Ohio EPA from commercial sources is known. It was 1,773 tons or about 17% of total reported residential/commercial waste diversion. Rumpke reported 3,391 tons of commercial recycling from the District processed at Rumpke material recovery facilities. If this amount is all commercial, the total reported commercial recycling would be 5,364 tons or 51% of residential/commercial recovery in the reference year.

The District knows that some commercial material is not reported. Several large chain stores do not report to either the District or to OEPA. The District has had difficulty getting consistent responses from a commercial warehousing and distributing facility that has reported large amount of fiber recycling in the past. Commercial recycling that is not collected by Rumpke or other local haulers is under counted. Large chain stores and businesses that generate a steady stream of fiber usually manage the material they generate through a private distribution system or a recycling broker.

In the past the District provided a drop-off location near the downtown business section for paper and cardboard. It was discontinued several years ago because it was not collecting much useable material. The District encourages businesses that generate enough material to make contracting for a dedicated recycling container economically feasible to contract with private haulers for waste collection and recycling. However, even though there are not designated commercial drop-offs, small businesses that generate small amounts of recyclables are welcome to use the publicly available drop-offs as long as they follow the instructions for acceptable materials and the drop-off etiquette rules like breaking down boxes and not tossing in plastic bags.

School Drop-offs: In addition to the public drop-offs, the District provided multi-material drop off bins at 8 school sites in the reference year. All 8 sites are still active. The bins are serviced by Rumpke and the list of acceptable and unacceptable materials is the same as the other drop off sites. The District provides these bins as part of the outreach to schools. The District provides materials and activity ideas to help schools integrate waste reduction and recycling into the curriculum and supplies the bins to support classroom lessons by facilitating good practices. Some of the bins are available for public use. Whether or not they are available to the public depends upon whether there is adequate capacity to contain additional material, the location of the bin, and the school's willingness and ability to accommodate safe public access. Greenville City schools have recycling bins provided by Rumpke as part of Rumpke's agreement with the City.

Additional information: The District needs to gather additional information from school districts and school buildings where the containers are located to determine whether they are actually fulfilling the two major purposes- integrating recycling into the curriculum and facilitating waste reduction. The information gathering process should start as soon as possible after the school year returns to normal or a new post-Covid normal so that the information gathering processes is not an unwelcome burden.

County government recycling: All county government facilities participate in recycling. The recycling is done through Rumpke commercial collections and as such is not tracked as a unique amount. Although it is assumed that the various offices are participating, there is not a system to hold the various agencies accountable.

Special venues and events: The District partners with the County Fair Board, and 4-H to provide recycling at the Darke County Fair. Fair recycling has two purposes—diverting waste and public awareness. While preparing this Plan, the District has identified several seasonal campgrounds and entertainment venues where substantial amounts of waste are generated and will be targeting these venues for outreach.

Section 2b. Commercial/Institutional Sector Findings

- The reported residential/commercial recycling calculated as a percentage of waste generation using reported, verifiable residential/commercial recycling has been on the decline since 2015. This is definitely not the predicted outcome of the District’s Plan. Although the District cannot separate residential from commercial recycling in the curbside and drop-off programs, the District can compare the reported commercial recycling each year.
- Since 2015, although the “big-box” stores are reporting through Ohio EPA’s survey which is helpful, fewer local business and institutions are participating in the District’s survey process each year. Although the District has not done a survey to find out why survey responses have fallen off, through informal conversations including feed back from non-responders on follow-up calls the following has been suggested:
- With hindsight, the year when the District stopped using its locally developed commercial survey forms, which were tailored to the type of business or institution, and began to use the standardized statewide survey forms for commercial facilities, corresponds to the year the number of responses begin declining. (This is in contrast with the standardized industrial survey form that has been successful.) The District is considering returning to the survey forms that are more appropriate to specific types of local commercial establishments.

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- With the dissolving of the Environmental Council which was actively supported by local businesses and industries in the early 2000s, the District's communication and contacts with local businesses may have weakened. Other ways of strengthening these contacts need to be explored.
- The District needs to identify new strategies to reach out to local businesses and institutions to reenergize interest in waste reduction and reporting. For example, when institutions such as the District's retirement and medical facilities first started looking seriously at waste reduction and recycling, they were keeping careful records to gauge progress and to take credit for their efforts. As the programs became more routine and other concerns took top billing, detailed record keeping and responsibility for sharing data has become less important.
- Additional information is needed about the use of the school recycling drop-offs. If the sites are not being used to capacity, are there opportunities to put the sites to better use?
- In areas where there is a District sited drop-off bin that has capacity available, the District should reach out to small businesses that do not generate enough recycling to justify the expense of a separate commercial container, to let the business know that they can use the drop-off program. Any outreach should make it clear what materials are acceptable and how these materials should be prepared to occupy minimal space.

3.a. Industrial Sector Analysis

In the reference year industrial waste disposal was less than 6% of total residential, commercial, and industrial waste disposal. It appears that industries in the District have well established waste reduction and recycling programs, are aware of established markets for their waste materials or by-products and are conscientious about reporting to the District.

The District occasionally gets inquiries about difficult to manage materials, but these inquiries are usually about materials that are not generated in large amounts by the production process. Often the small amount of material makes it difficult to find an economical recycling solution. If the District can not offer useful information, inquiries are referred to Ohio EPA or to other sources. Admittedly, the problems that are referred are usually ones for which there may be no good solution.

3.b. Industrial Sector Findings

It is difficult to identify any new or expanded services that would be useful to most of the manufacturers in the District. The large ones have good internal resources for research and solving their waste problems. Most of the small shops in the District are involved in some type of metal casting or metal fabrication and repair. There are accessible, local markets for metal scrap. The exception to this may be the manufacturers of food products. This is the one class of industry that rarely turns in surveys and has not contacted the District with inquiries. Those food processors that have turned in surveys, usually report recycling packaging materials like cardboard, wood pallets, and steel drums, but do not report any information about food waste. The District should consider reaching out to these manufacturers to find out what types of food waste they generate and how is it managed.

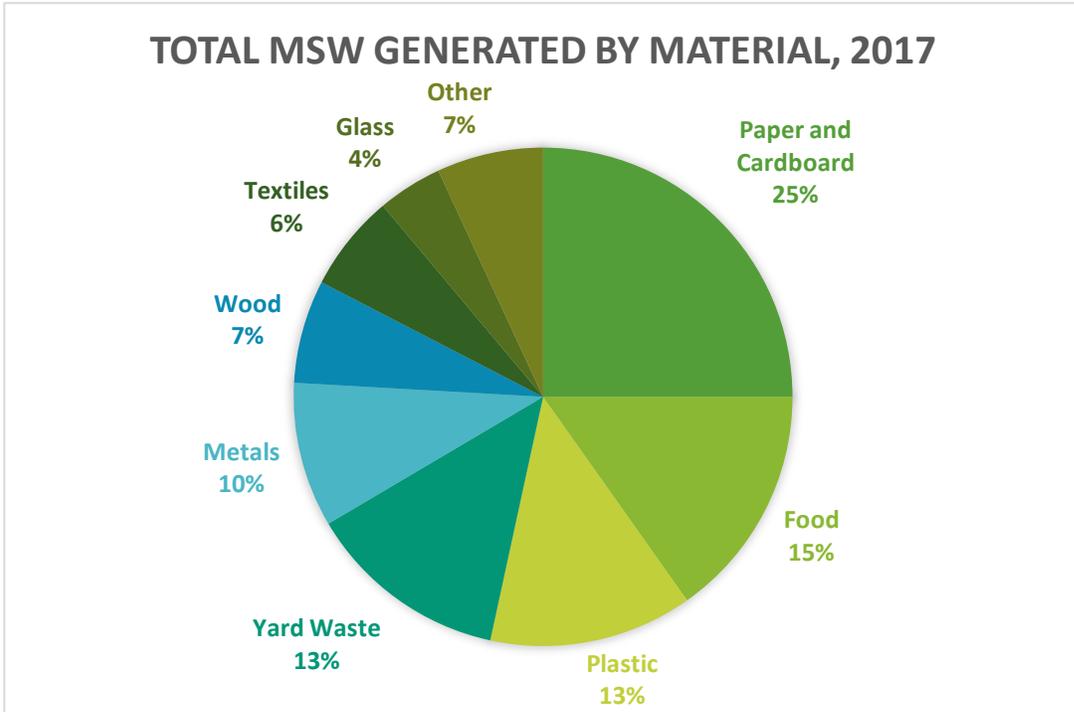
4. Residential/Commercial Waste Composition Analysis and Diversion Analysis

In the District's 2015 Plan update, the District stated, "The District will comply with both Goal # 1 and Goal #2. Although the District is not required to comply with both Goals, the District realizes that continued access to convenient recycling opportunities is the most important factor in maintaining the levels of recycling required to comply with Goal #2. So, the District is planning on complying with both Goals."

In the reference year, 2018, the District complied with the requirements of Goal #1 as the requirements were defined in the 2015 Plan. Through a combination of curbside recycling and drop-off sites, the District provided access to recycling opportunities for 90% of the District's population. The District did not meet the residential/commercial recycling requirement of Goal 2. The 2015 Plan reported a residential/commercial recycling rate of 34.6% in the reference year 2012. Future recycling and disposal estimates were based up the amount of residential/commercial waste generation and recycling in that year. Optimistically, believing that the rate would increase, the estimate for 2018 was that reported waste diversion through waste reduction and recycling would increase to 18,296 tons. Disposal was estimated to be 32,282 tons in 2018. Actual reported disposal was 42,784. It is obvious that the estimates in the 2015 Plan were overly optimistic and/or despite the District's efforts the reference year program participation and performance did not meet expectations.

In the following discussion, the strength and weakness of waste diversion programs and the effectiveness of data collection will be discussed in connection with identifying and quantifying the materials in the residential/commercial waste stream.

Figure H-1 shows the components of municipal solid waste as percentages of the total generated in 2017.² According to the U.S. EPA the total municipal solid waste generation for the United State was 267.8 million tons. The following discussion assumes that for the most part the composition of residential/commercial composition of the Darke SWMD in 2018 was similar. There are some possible exceptions to this similarity that will be pointed out in the discussion.



Paper and cardboard: The largest components are fiber (paper and cardboard), food, plastic, and yard waste. We do not know specifics about the composition of the District’s waste that was landfilled in 2018, but we know the amount of reported recycling. The most reported material recycled in the reference year was paper and paperboard (OCC). 4,251 tons were reported recycled. That was 40.4% of res/com recycling, and the amount of fiber recycled was slightly under 8% of total res/com waste generation.

Yard waste: The second was yard waste. 3,813 tons were reported in 2018. That was 36.3% of reported recycling, and 7% of total res/com waste generation.

² www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/guide-facts-and-figures-report-about-materials

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Tires (Rubber): The third most reported amount diverted was not food or plastic as would be suggested by the pie chart. It was rubber tires. This is out of step with national figures, but it makes sense in the context of Darke County, Ohio. In Ohio tires are excluded from landfill disposal and the storage, transportation and recycling of tires is tracked. In Darke County oversized tires from tractors and other heavy farm machinery are included in the tire collection statistics. These heavy weight tires and accurate reporting may account for the higher reported recovery rate.

Glass: The fourth most reported amount was glass at 511 tons. It was 4.9% of the materials recycled, but only .9% of total waste generation.

Plastic: The fifth most recycled material was plastic. Only 391 tons of plastic was reported as recycled. This was 3.7% of all materials recycled and .7% of total res/com waste generation. Considering that plastics comprise 14% of MSW by weight, this appears to be almost an insignificant amount of diversion. Nationally, in 2017, 8% of all the plastic in MSW was recycled. The only residential plastics that are collected for recycling in the District's curbside and drop-off programs are PET and HDPE bottles and jugs which are light and are a small portion by weight of the total range of plastic products, many of which are heavy, durable and semi-durable items.

Findings for the 5 most recovered materials: This little overview of the top 5 types of material recycled in 2018 may be somewhat interesting, but what does it mean? On the positive side, it means that in the Darke County SWMD, tire recycling is above average, over the top. Unfortunately, other materials are not such success stories. If 25% of the total amount of MSW that is generated in Darke SWMD is paper and paperboard as shown in the pie chart, then only 31.9% of available paper and cardboard was captured for recycling in the reference year. U.S. EPA reports that nationally 66% of paper and paperboard generated was recycled in 2017. Although we believe that some of the gap between 31.9% and 66% may be due to under reporting of commercially generated OCC and office paper, much of this material, particularly from the residential sector, must be going into landfills.

Based on the national average amount in 2018, the District diverted 54.6% of potentially available yard waste by composting and other yard waste diversion programs, the national percent diverted in 2017 was 69%. In this case Darke County may not be lagging behind. Unlike residents in cities, rural residents are more likely to manage yard waste by composting or other back to nature options like spreading leaves and clippings on surrounding farmland and wood lots. These rural management methods are not usually counted as diversion but by their use, yard waste is diverted from landfills even though the amount may not be reported.

28.37% of the glass that should be available for recycling in the Darke County SWMD was reported as recycled in 2018. The national average for the percent of available glass that is recycled is 27%. In this category Darke County SWMD exceeded the national amount by 1%. Nationally, the percentage for glass recycling tends to be lower than other commonly recycled materials because in many areas glass is not included in curbside or drop-off collection. Some recycling programs exclude it because broken glass contaminates other materials, and some

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exclude it because there are no markets for glass in the region. Glass is heavy and expensive to haul. Ohio recyclers are fortunate in having regional markets for bottle and jar glass. Although the District's glass recovery percentage is a bit above the national recovery rate, the actual amount of glass recovered in the District is less than the amount that is available for recovery.

Other materials:

The amount of other materials as reported in the reference year that are normally included in municipal solid waste are listed below in descending order:

Commingled Recyclables (Mixed)	274 tons
Non-Ferrous Metals	189 tons
Ferrous Metals	151 tons
Food	144 tons
Wood	19 tons
Textiles	Less than .5 tons
Rubber (not tires)	Less than .5 tons

The reported amounts of metals, wood, food, textiles, and rubber fall far below the amounts that are available for recycling. In the case of metal, wood, and textiles the following was found: In examining data from past years when the District reported substantially higher residential/commercial recycling amounts, it is apparent that the District reported much higher amounts of ferrous metal, wood, particularly reclaimed or recycled wood pallets from commercial distribution companies. It is likely that the amount of these materials diverted is more than the amount that the District has documented in recent years.

Some diversion of food may be undocumented, but the District does not know enough about food diversion in the District to judge. The comingled material was reported as comingled by commercial sources. Most of the material reported in this way probably is commonly recycled material that was not separated by type for reporting.

Findings Regarding Residential /Commercial Waste Composition and Diversion

- There is little evidence to suggest that the composition of the residential/commercial waste stream in Darke County is much different than that reported by the U.S. EPA for the country as a whole. There are no commercial businesses that the District has been able to identify that generate large amounts of an unexpected or unusual waste. The only exception that we have noted may be an unusually large number of tires due to the prevalence of farm equipment.
- Because there is such a big difference in the amount of reported recycling between 2012 and 2018, the amount of recycling by material type and by source was compared. The following materials were found to have been reported in substantially larger amounts by commercial sources in 2012: ferrous metal, cardboard, wood, rubber, and yard waste.

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	Appliances	LAB	Dry Cell	Glass	Ferrous	Non-Ferrous	OCC	Paper	Plastic	Tires	Rubber	Used Oil	Food	Wood	Yard Waste	Electronics	CoM & Other	Total
2012	4	86	2	371	3,608	175	3,611	1,359	140	572	513	95	234	8,095	5,760	86	420	25,131
2018	6	2	0	511	151	189	2,375	1,875	391	635	0	7	144	19	3,813	24	369	10,513

Abbreviations: LAB – lead acid batteries, OCC-cardboard, CoM-commingled, Other – commercial material not reported by type from commercial survey responses.

- The difference in yard waste was primarily due to reporting: In 2012, more villages reported alternative yard waste management programs and a report was included from a wood and yard waste processor that has reported material from the District sporadically .
- The rubber was from a tire retreader which in previous years reported on a commercial survey. While preparing this Plan, it was decided that the business should be classified as manufacturing, so the reported rubber was moved from commercial to industrial.
- The differences in the amounts of reported ferrous metal, cardboard, and wood reported in 2018 are primarily due to fewer commercial survey responses and the lack of usable responses from scrap yards and wood pallet reclaimers. “Usable” is a key word. The scrap yards and pallet reclaimers service a regional area, and in the case of scrap yards, take in a large amount of material that is not credible, The District has become more careful about verifying that the material is from Darke County and does not include non-credible material. It has become more difficult to obtain useable survey data.
- When the wood reported by pallet reclaimers, metal reported from scrap yards, cardboard reported from one large generator that did not report in 2018, and rubber from the retreader are subtracted from the 2012 data, the amount of residential/commercial recycling reported is 11,119 tons. This comparison indicates that using 2012 data to project residential/commercial recycling resulted in projecting greater diversion from the residential/commercial sector than could be verified using more stringent criteria for credible reporting.
- Although it is not possible to be exact in separating residential and commercial recycling collected and processed by Rumpke, it appears that recycling from residential sources has stayed about the same from 2012 to 2018.

- By not surveying scrap yards, pallet reclaimers, and because of sporadic reporting from commercial sources, the District has not been able to take credit for legitimate diversion. For instance, the only appliance recycling that the District reported in the reference year was that collected at the District's appliance and electronics recycling event. The same scrap yard that is a partner in this event accepts appliances from the District in a regular basis the rest of the year. This material was not reported. Steps to address the issue of collecting more verifiable information about the amount of residential/commercial material that is recycled through scrap yards, pallet reclaimers, and fiber brokers will be addressed in Appendix I.

5. Economic Incentive Analysis

In the City of Greenville pay-as-you throw options are available for residential waste service through Rumpke Waste and Recycling. Customers can subscribe for regular cart waste collection which automatically includes curbside recycling. If the resident chooses not to subscribe to the cart program, they can opt to purchase special bags from local merchants. When filled the bags are set out on waste collection day to be collected. Most customers choose the more convenient, larger container instead of the bag system. The bag system was initiated to help residents that do not generate much waste for disposal and are concerned about the cost of waste collection.

Without ordinances that require households to subscribe to regular waste collection, the per bag program may provide cover for some households that are not paying for any waste collection and are disposing of trash by illegal dumping, burning, or theft of services. Although this activity does not seem to be wide-spread there is evidence that some household waste is being placed in commercial or public waste containers, or in the District sponsored drop-offs designated for recycling. See findings below for more discussion of this problem.

The District has actively sought out businesses in the District that might be able to benefit from the Ohio EPA Market Development Grant program to create or expand the capacity to recover materials that would otherwise be wasted. The latest successful applicant from the District was Shur-Green which has used grant funds to set up a system to repurpose excess or waste pet food and dairy products into farm animal feed.

Findings:

- The District is still interested in pay-as-you-throw as a possible way to encourage additional recycling. Although the District has tried promoting pay-as-you-throw to local governments, the number of programs has not grown. The District is also concerned about assuring that residential and commercial waste generators are subscribing to and using appropriate waste disposal services. The District will work with any community or waste and recycling service provider that wants to explore the possibility of a pay as you throw program as long as it can be implemented while assuring that it is not going to contribute to illegal or improper waste disposal.

- The District feels that it has definitely benefited from its efforts to encourage businesses to utilize the Market Development Grant program and will continue to look for opportunities to connect local municipalities, businesses, and industries with available sources of funds to initiate or expand waste reduction programs or the markets for recyclable material.

6. Restricted and Difficult to Manage Waste Streams Analysis

Through a combination of annual special collection events and on-going opportunities to recycle, the District addresses the following difficult to manage materials: large household appliances, electronics, passenger vehicle tires and farm equipment tires, dry cell batteries, and Household Hazardous Waste (HHW). The District publishes Darke County's Guide to Recycling. Printed versions are available at various events and when the District staff makes a presentation. The Guide is available on the District website and is used to answer telephone inquiries. The Guide lists locally available sites that accept materials that are not welcome in residential waste collection programs like, antifreeze, used motor oil, lead acid batteries, scrap tires, electronics including televisions, fluorescent lights and bulbs, propane tanks, and gasoline and diesel fuel. To the extent possible, residents are encouraged to use private sector options. The District holds an annual household hazardous waste day to accommodate residents who may not be able to take advantage of other local opportunities.

Household Hazardous Waste: The District does not have a permanent facility to manage household hazardous waste. The cost would be prohibitive given the amount of material that would be managed. For many years, the District has held a household hazardous waste collection event. Most of the materials are accepted free of charge. However, the District has instituted moderate charges to off-set some of the cost and to encourage residents to use alternative disposal methods for paint. There is a \$2 charge for each paint can no matter how much paint it contains. There is a \$1.00 charge for every 5 aerosol cans. Over the years, the amount of material that is collected at this event has decreased somewhat. The paint charge has helped to educate the public about safe alternative ways to dispose of latex paint.

Electronics and appliances: For several years the District has worked in cooperation with a local scrap yard, 1 Shot Recycling which is in Darke County, but because it is located in Bradford is technically not in-district, to provide an annual appliance and electronic recycling event. The items accepted include refrigerators, washers, dryers, dishwashers, air conditioners, stoves, dehumidifiers, freezers, and furnaces. All freon removal and recycling is done free of charge for any Darke County resident during the event. The separate electronics event is also held at One Shot Recycling. Items accepted are computers (CPUs, PCs, laptops), keyboards, monitors, printers, typewriters, adding machines, calculators, copiers, small kitchen appliances such as microwaves and toaster ovens, radios, telephonic equipment, manufacturing equipment, cables, cords and other electronic wiring. Hard drives are drilled on site to assure that data is destroyed.

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Dry Cell batteries: Since 2007 the District has managed a collection system for household dry cell batteries, specifically AA, AAA, C, D, 6-volt, and 9-Volt batteries. The purpose of the program is to divert the batteries from disposal and to encourage households to realize that batteries in the wastebasket or just laying around can be dangerous. Collection containers are located at public places like libraries and city and village offices and at private businesses. District staff collects the batteries and sends them to Call 2 Recycle for processing. The District believes the program is not only valuable because it diverts the batteries from disposal, but it is also a visible reminder of the existence of the Solid Waste District and that the District provides accessible services to residents.

Tires: Besides tire dealers that accept used tires from customers that purchase new tires, there are three locations in Darke County where worn tires are accepted for a fee. In addition to directing residents to these three facilities, the District sponsors an annual tire recycling event. Recently the tire event has been held at the Rumpke transfer facility and a modest fee is charged. Automobile, tractor, and semi tires are accepted. The fee varies depending upon tire size. The District has continued to hold the event even though other alternatives are available because it offers a good opportunity to get out the word about the problems associated with outdoor storage or dumping tires and reminds people to properly manage scrap tires. The District pays for the disposal/recycling of tires that have been abandoned on public land and are cleaned up by townships and villages as a service to local governments.

Lead acid batteries: Because most businesses that sell lead acid batteries require a deposit when a battery is sold and return a deposit or buy-back used batteries the recycling rate nationwide is estimated to be close to 99%. The District includes a list of places where lead acid batteries are accepted in the District Recycling Guide. The private sector is managing lead acid batteries successfully.

Other special collections: The District cooperates with other agencies and private business to help promote and stage a **prescription drug safe disposal** event. Ongoing safe disposal opportunities offered by the Greenville Police Department and the Darke County Sheriff are listed on the District website. The District promotes the Christmas Tree shredding event that goes on for several weeks following Christmas. It is held at the Darke County Parks Prairie Preserve just outside of Greenville. The shredded tree mulch will be used on nature trails throughout the park district.

Findings: Although some of the special collection events that the District participates in may not be totally necessary because private sector alternatives have become more available, the District believes that these events are not only helpful to the public, but provide excellent opportunities to call attention to the importance of waste reduction and recycling and to the necessity of using safe disposal methods for materials that can not be diverted. The District has taken steps to reduce the cost of events to the District by working with private sector partners and charging reasonable fees for some services. The fees have not significantly reduced participation.

8. Special Program Needs Analysis

The programs that are listed in Section 7 for Restricted and Difficult to Manage Waste meet all of the special program needs that have been identified by the District. In 2018, the District began participating in the CAPS program. At approximately 10 locations across the District plastic caps and lids numbers 2, 4 or 5 are collected. The District sorts them and sends acceptable caps and lids to Green Tree Recycling where the material is used to create plastic wood benches. The District purchases benches at a reduced rate and places them in public parks and other appropriate public places. The program has been well received. In fact, the response has been almost overwhelming. Most of the sorting of caps is done by court appointed workers, but recently the District had to place a hold on further collection to catch up with sorting and shipping. The District believes the program provides an excellent tool to promote recycling and buying recycled, but it is labor intensive and there may be a limit to the number of plastic benches that are needed. The District will continue to evaluate the value of the program weighed against the amount of cost of continued participation including the amount of staff time that is required to oversee the collection and sorting of the caps.

Findings: The District does not see a need for new or expanded special programs. The District prefers to place an emphasis on expanding participation in residential recycling through the existing drop-off and curbside recycling collection opportunities.

9. Financial Analysis

The funding mechanism for the Darke County Solid Waste Management District is a tonnage fee which is remitted to the Darke County Solid Waste District as a condition of the Designation Agreements between the District and the disposal facilities which are designated to accept solid waste which is generated within the District. The District collected a fee of \$6.00 per ton on each ton of waste accepted for disposal in a designated facility until 2017 when the Fee was raised to \$8.00 per ton. The increase has allowed the District to continue the programs that were planned and to maintain an amount of carry-over from year to year equal to or exceeding 6 months of operating expenses.

Although costs for some services and activities of the District have risen, the District staff has been able to decrease the cost of some events. With the assistance of 1 Shot Recycling, the District can offer large appliance and electronics recycling events at a substantially reduced cost to the District. The District has offset some of the cost of other events including the household hazardous waste and the tire collection event by implementing modest fees. Participation in the events has not been significantly discouraged by the fees. The District staff will continue to seek grant assistance and private sector partnerships when appropriate.

The District anticipates adding additional drop-off sites and increasing collection frequency at some sites during the planning period. Expenditure increases will be primarily due to anticipated cost inflation and the additional cost of expanding drop-off opportunities.

Since the availability of grant funds, sponsorships, and donations depends on many factors that are not under District control, the projected income from these sources is conservative.

Findings: The designation fee is presently \$8.00 per ton. The District does not want to raise the fee unless it is absolutely necessary to maintaining District programs and services. In this Plan, the \$8.00 per ton fee is projected to meet District needs until at least 2027 when it is planned to be increased to \$9.00 per ton. The District will have started the process of preparing a plan update before 2027. If the District finds that an increase is not needed, the increase will not go into effect. The 2015 Plan Update included a fee increase from \$8.00 to \$9.00 in 2021. The District will not need to implement the increase in 2021.

10. Regional Analysis

The Darke County Solid Waste Management District is bordered on three sides by mostly rural, single county solid waste districts: Mercer, Auglaize, Miami, and Preble. Shelby County on the north east corner is rural but is part of a six-county district. Montgomery County on the south east corner is a single county district, but it is an urban area anchored by the city of Dayton. Montgomery County has about 10 times the population of Darke County and is the source of much of the radio and almost all of the broadcast television media available to Darke County residents. The western side of Darke County borders on the state of Indiana. People, goods, and services move easily from one state to the other. Union City is divided by the state line.

There are no landfills or material recovery facilities for commingled recyclables in Darke County. Waste and recyclables are transported in all directions to landfills, scrap yards, and material recovery facilities. Although the Districts communicate informally there have not been any recent joint projects or ventures.

Findings: As of now, the District has not identified a need for joint ventures involving facilities or collection programs.

The District is concerned that it has become more difficult to communicate directly with District residents through local media. As the number of newspaper subscribers decrease, local newspaper coverage and newspaper advertising is not reaching the majority of households, particularly those outside of Greenville. In order to reach residents to increase participation in recycling programs and to reduce the amount of contamination in the recycling system, a regional approach should be considered. Since most of the residential recycling services used in the District are provided by Rumpke, the District is interested in working with Rumpke and other jurisdiction served by Rumpke in a coordinated campaign to improve the quantity and quality of participation in curbside and drop-off recycling. See Education and Outreach Analysis.

11. Population Analysis

The population of the District is projected to decrease by almost 10% from the reference year 2018 to 2040. The decrease is expected to be gradual. As such there should be ample time to adjust priorities, services, and budgets in future plans.

12. Data Collection Analysis

The District requests and receives data from a number of sources both inside the District and outside the District. Some of the data is sent to the District on a routine basis. Some data is collected by Ohio EPA and made available to the District. The district also sends out surveys annually to commercial and industrial waste generators in the District to collect waste reduction and recycling data to be used in compiling the District's Annual District Report for Ohio EPA. The data collection process in 2018 was typical of the process on previous years although the response, particularly from the commercial sector was not as robust as it was in the previous years.

Industrial surveys: In 2018, approximately 100 surveys were mailed to manufacturers in the District. This represents all of the manufacturers with 5 or more employees. Manufacturers with fewer than 5 employees were not sent surveys unless they responded in a previous year. The main part of the mailing list was assembled from the previous year's mailing list. Corrections had been made to update contacts and other information based on information collected from previous year returned surveys. The list was updated using information from the latest available edition of the Ohio Manufacturers Industrial Directory. Published by Harris Publishing Co. The District also checks with the Darke County Chamber of Commerce for an update on new industries or plant closing.

26 surveys with useable data were returned. A few more were returned, but they either reported no waste reduction or recycling or reported that they recycled some materials but did not include amounts. Although this seems like a small return, most of the biggest companies replied. The number of employees represented by these manufacturers was 4,053 of the 5,862 employed in manufacturing-- 69% of manufacturing employment.

In addition to the industrial survey data, the District received data from Rumpke MFR reporting 1,8,38 tons of cardboard recycled. 165 tons was subtracted to avoid double counting. Most of the industrial cardboard that goes to Rumpke is collected from smaller operations that have a Rumpke cardboard container on site. If they are recycling any other materials, it is usually metal scrap. Many of the industries that use Rumpke for recycling cardboard are smaller companies that do not generate enough material to sell the material directly to a fiber broker or a scrap metal or plastic broker or collector.

Commercial: The efforts of the Division of Materials management in working with store chains across Ohio to collect recycling data has been helpful to the District. While preparing this Plan,

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the District took another look at Darke County's commercial sector. There are two chains that are standard features in rural Ohio communities, Rural King and TSC (Tractor Supply). The District would like to work with OEPA and other districts where these stores are located add them to the companies that participate in the annual survey.

The District sent out approximately 50 surveys to local businesses. Only 8 responses that included useable data were received. In addition to these 8, the District received some responses that reported recycling through Rumpke so the material they reported was subtracted from the final total to avoid double counting.

As was mentioned before, the District had, in the past sent out surveys that were tailored to the type of business and the materials that they were likely to recycle. For instance, the District sent a letter with a postage paid postcard to automotive repair shops and automotive parts stores asking about only used motor oil and lead acid batteries. This approach got many more responses. The returned postcards allowed the District to document and report the lead acid battery recycling that they knew was happening. Businesses that reported used oil recycling were contacted to see if they accepted used oil from the public and if they were willing to be listed in the District's recycling guide.

The District stopped sending out surveys to nearby scrap yards and pallet reclaimers because responses were few and it was difficult to verify that the material actually came from Darke County. However, it appears that the District is missing out on some material, that should be counted.

Findings:

- Although the District has been successful in collecting data from the largest industries and the industrial recycling rate has remained high, the District should look for ways to stay in closer contact with industry to keep the communication lines open.
- The number of responses to local commercial and institutional surveys has decreased over time. The District might be better served by returning to the short form recycling surveys that were tailored to specific types of businesses to find out if this will increase the number of useable responses.
- The District has not sent surveys to scrap yards and pallet reclaimers in Darke County and surrounding counties for several years because there were not many responses and it was not always clear if the responses reported material that was actually generated in the District and fit the criteria for industrial, commercial, or residential waste diversion. To the extent possible, the District should have discussions with these entities to establish a better understanding of what can be reported and if it can be reported in a way that meets the District's criteria for credibility without being overly burdensome for the responding business.

- The only hauler that reports recycling to the District is Rumpke. The other haulers have not responded to recycling surveys even though the District knows that they are collecting recyclables in the district. The District need to address this problem. If these haulers are going to provide services within the District, their cooperation should be expected.

13. Education/Outreach Analysis

The District's education and outreach program serves several target audiences: residential waste generators, institutional/commercial, and industrial waste generators, and school age youth.

Residential Waste Generators: In the District's 2015 Plan, the District reported on-going public education efforts and committed to continue the following programs and activities related primarily to reaching this audience:

(1) Presentations by the Darke County District staff and volunteers to area business, civic and service organizations regarding recycling and waste prevention in the home with emphasis on why, where, and how to utilize available curbside and drop-off programs.

(2) Provide and staff a display promoting waste reduction and recycling, HHW management, and/or "buy-recycled" for at least one public event which attracts a broad cross section of the County's population.

(3) The District maintains a resource library that includes information on all aspects of waste management, source reduction, recycling, composting, HHW management, and buying recycled. The library includes books, videos, and brochures. There are resources suitable for use by adults and there are resources that can be used with children and youth.

(4) The District uses both publicity and advertising to educate the public about waste reduction and recycling. The minimum requirement will be 10 print communication occasions (newspaper articles and/or paid advertising) in newspapers of general circulation and at least one radio campaign (a series of radio spots on a selected topic on one or more radio stations) each year.

(5) The District has prepared and distributed flyers and brochures on a variety of topics to educate the public about recycling, waste management, waste reduction, yard waste composting, and HHW management.

(6) The District will hold at least one special promotion or event each year which will focus the attention of the general public or a targeted segment of the public (example: school age youth or small business owners/manager) on a specific area of waste reduction or recycling.

(7) The District maintains a website which will provide information about District services and recycling opportunities. The site is updated frequently so that it provides a comprehensive

calendar of District events and provides up-to-date information on how, where, and when to recycle virtually all of the materials that are generated by residential, commercial, and industrial waste generators.

School age youth: As stated in the 2015 Plan, the District primarily relies on schools and youth organizations to deliver waste management education to children. The District has encouraged and facilitated this activity by providing teacher training through workshops and seminars and by providing education resources including curriculum guides. The District maintains a resource center at the District office which provides a number of resources for use by teachers in classrooms. The District also has placed drop-off bins in school districts to facilitate hands on experience with recycling.

Commercial and industrial: When the 2015 Plan was approved, the Environmental Council was a major resource for making contact with the larger businesses and industries in the District. It has since been disbanded as fewer and fewer businesses were participating. This has reduced the opportunities for District staff to have direct contact with community business leaders.

One successful area of contact has been the District's involvement with several local industries in applying to the Ohio EPA Market Development Grant program.

Findings:

- The District has been conscientious in implementing the planned education and outreach activities. The District has reported specifics including numbers of events held, students reached, flyers distributed in Annual District Reports. It is easy to report statistics, but it is more difficult to measure how the education and outreach programs are changing behavior and contributing to the District's major goal of reducing waste.
- The findings in this section of this Plan are making it clear that the biggest challenges facing the District are to increase the amount of recyclable material generated by the existing residential recycling programs and to reduce the amount of contamination.
- In this Plan the District will reorganize the approach to education and outreach to place the emphasis on developing and implementing programs and activities directly targeted to increasing both the quantity and quality of waste reduction and recycling programs.

14. Processing Capacity Analysis

Virtually all of the waste and recycling collection and processing programs and the yard waste composting facilities that are used by the District in implementing the District programs are provided through private sector service providers. Although the Village of Versailles provides

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its own waste and recycling collection programs, and there are other haulers serving the District, Rumpke Waste Disposal and Recycling provides the majority of the residential waste collection and recycling services used in the District. The Rumpke transfer facility located in Greenville manages the consolidation and shipping of both waste headed for disposal and recyclables to be sorted, processed and marketed.

In 2018, Rumpke Recycling processed 3,607 tons of materials from Darke County at Rumpke owned and operated facilities in Hamilton and Montgomery Counties. This was only a fraction of the total processing capacity of the facilities. Rumpke estimates that the recycling facilities process an average of 730 tons per day. Based on 52 five-day weeks that is about 190,000 tons per year. The theoretical processing capacity is well above this amount.

In addition to the Rumpke facilities there are a number of scrap yards, pallet recyclers, material brokers that serve the region, primarily in Dayton, and Richmond, Indiana. These businesses are available to provide services to the commercial and industrial sectors.

Private composting facilities in Darke County have continued to expand the capability to manage yard waste for both commercial and residential generators.

Findings:

The District will continue to depend on existing private sector processing capacities. The District will monitor any developments that could jeopardize present capacity and will react to any material change in circumstances using the process included in the District's Plan.