

## APPENDIX E – Residential/Commercial Reference Year Recycling Data

**Instructions for completing tables** (remove these instructions for the SWMD's solid waste management plan)

[NOTE: Ohio EPA encourages SWMDs to conduct a survey of residential recycling programs and commercial generators within their jurisdictions to gather at least recycling data for the reference year. Sample survey forms and survey methodologies for both a full survey for waste data (disposal and recycling) and a targeted survey for recycling data are provided in Appendix T.]

**For All Tables** – Ohio EPA has created an *Excel* Workbook that will be used to generate the tables for this appendix. Each table has a dedicated spreadsheet in the workbook. The document preparer will complete each table for this Appendix using the *Excel* Spreadsheet for that table (i.e. the table will be completed outside of this *Word* document). After completing the table in the *Excel* spreadsheet, the preparer will copy the table from the *Excel* spreadsheet and paste it into this *Word* document. Specific instructions for completing each table in the *Excel* spreadsheet will be provided in this appendix. Examples of those instructions are provided below. However, the instructions will change once the overall content of this appendix is finalized.

### Table D.1: Commercial Survey Results

Enter information into Table E.1 as follows:

[Note: Table E.1 is organized by the SIC codes that comprise the commercial sector and material type.]

**SIC Codes** – The codes are provided [we still need to identify the SIC codes that make up the commercial sector]

[Note: Because the survey results are aggregated by SIC code and material type, the SWMD needs to be able to identify the survey(s) that contributed to the quantities entered into a particular cell (e.g. ferrous metals for a particular SIC code). If Ohio EPA has questions about a quantity in Table E.1, then the SWMD can verify the quantity by looking at the specific surveys that reported the quantity.]

**Survey Year** - In the cell reserved by "Enter Survey Year Here" enter the calendar year the data represents.

If data from multiple years were used, provide an explanation in the space indicated with "[replace with text to explain the survey methodology and data analysis]" after Table E.1. Describe the process undertaken to verify the data. Ohio EPA encourages the policy committee to communicate with the planner assigned to the SWMD regarding the use of survey data from multiple years.

[EXAMPLE: If a given commercial business did not respond to a survey for the reference year but did respond to a previous survey, it may be acceptable to use data from the earlier survey. To use data from an earlier survey, verify: that the commercial facility was operating in the

reference year; that the owner did not significantly change the nature of the business, the hours of operation, the number of employees, or its sales/level of service; and that the facility still produces the types of recyclables as were reported in the earlier survey. Then, provide text to briefly explain the verification process.]

Quantities of Materials Diverted - Quantities must be based on actual reported data.

Sum the quantities of a material reported by all respondents in a SIC category and enter that quantity in the cell corresponding to the SIC code and material. [Example: 10 commercial businesses in SIC code XX returned surveys. The surveys from seven of those businesses reported quantities of glass. The entry for glass for SIC code XX would be the sum of the glass reported by the seven businesses.]

Materials not credited to or typically generated by the commercial sector are highlighted in gray. To maintain consistency with tables in other parts of the solid waste management plan, please do not delete the rows corresponding to these materials.

If a specific SIC code did not respond to a survey or did not divert some of the listed materials, leave the appropriate cells blank.

Other Materials – There are blank rows to enter quantities of materials that do not have dedicated listings. Enter the first type of “other” material in row 23 and provide quantities by SIC code as directed. If an explanation of an “other” waste is needed, then provide that explanation in the space indicated with “[replace with text to explain materials/quantities entered as “Other”]”.

Totals – The total weight of material by SIC and the total weight of each material are automatically calculated in the row and column labeled “Totals”. There is no need to perform any calculations in Table E.1.

In the space indicated with “[replace with text to explain the survey methodology and data analysis]” after Table E.1, provide text describing the SWMD’s survey methodology. Also, as instructed earlier, provide text explaining how the SWMD evaluated its data, including the process and criteria the SWMD used to verify reported data and the process used to verify data from previous survey cycles used for the plan.

Include a blank copy of the SWMD’s survey instrument and a description of the survey methodology in Appendix R

**Table E-1: Commercial Survey Results**

Enter Survey Year Here	COMMERCIAL SURVEY RESULTS: MATERIAL TYPE by SIC																	Totals			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		18		
1. Appliances / "White Goods"																					
2. Lead-Acid Batteries																					
3. Dry Cell Batteries																					
4. Food (Composting)																					
5. Food (Other)																					
6. Glass																					
7. Household Hazardous Waste																					
8. Ferrous Metals																					
9. Non-Ferrous Metals																					
10. Corrugated Cardboard																					
11. All Other Paper																					
12. Plastics																					
13. Scrap Tires (tons)																					
14 Textiles																					
15. Used Motor Oil																					
16. Wood																					
17. Yard Waste																					
18. Commingled Recyclables																					
19. Electronics																					
20. Ash (recycled ash only)																					
21. Non-Excluded Foundry Sand																					
22. Rubber																					
23.																					
24																					
<b>Totals</b>																					

[replace with text to explain materials/quantities entered as "Other"]

[replace with text to explain the survey methodology and data analysis]

**Table E.2: Data from Buybacks, Scrap Yards, Processors, Materials Recovery Facilities, and Recycling Centers** (remove these instructions for the SWMD's solid waste management plan)

Table E.2 summarizes reference year survey data from survey respondents for both the residential and commercial sectors. Table E.2 is to be used specifically for buybacks, scrap yards, processors, material recovery facilities and other recycling centers that reported materials for the residential and/or commercial sectors.

**Instructions for completing Table E.2:**

Survey Year – In the cell reserved with Enter Survey Year Here, enter the calendar year that the data represents.

If data from multiple years were used, provide a brief explanation in text after Table E.2 to describe the process undertaken to verify the data. Ohio EPA encourages the policy committee to communicate with the planner assigned to the SWMD regarding the use of survey data from multiple years.

[EXAMPLE: If a buyback did not respond to a survey for the reference year but did respond to a previous survey, it may be acceptable to use data from the earlier survey. To use data from an earlier survey, verify: that the buyback was operating in the reference year; that the owner did not significantly change the nature of the business, that the facility still accepts the same types of materials that were reported in the earlier survey, etc. Then, provide text to briefly explain the verification process.]

Name/ID – [Note: Enter either the respondent's name or, to maintain respondent anonymity, assign an id number to each respondent and enter the id number instead of the respondent's name.] In the space provided, please replace "Name/ID" with either the name of the respondent or the ID assigned to that respondent.

Material Quantities - Quantities must be based on actual reported data.

Provide quantities of each material reported by the entity in the appropriate rows. If a survey respondent did not report a material type, then leave that cell blank. [Note: enter numerical data only...entering text will invalidate embedded formulas and result in incorrect calculations.]

Other Materials – There are blank rows to enter quantities of materials that do not have dedicated listings. Enter the first type of "other waste" in row 23 and provide quantities as directed. If an explanation of an "other" waste is needed, then provide that explanation in the space indicated with "[replace with text to explain materials/quantities entered as "Other"]".

Totals – The total weight of material by entity name, or ID, and the total weight of each material is automatically calculated in the row and column labeled "Totals". There is no need to perform any calculations in Table E.2.

In the space indicated with "[insert text to explain the survey methodology and data analysis]" after Table E.2, provide text describing the survey methodology. Also, as

instructed earlier, provide text explaining how the data was evaluated, including the process and criteria used to verify reported data and the process used to verify data from previous survey cycles used for the plan.

**Table E-2: Data From Buybacks, Scrap Yards, Processors, MRF's and Other Recycling Facilities**

Enter Survey Year Here	DATA FROM BUYBACKS, SCRAP YARDS, PROCESSORS, MATERIALS RECOVERY FACILITIES and RECYCLING CENTERS																			
	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Name/ID	Totals
1. Appliances / "White Goods"																				
2. Lead-Acid Batteries																				
3. Dry Cell Batteries																				
4. Food (Composting)																				
5. Food (Other)																				
6. Glass																				
7. Household Hazardous Waste																				
8. Ferrous Metals																				
9. Non-Ferrous Metals																				
10. Corrugated Cardboard																				
11. All Other Paper																				
12. Plastics																				
13. Scrap Tires (tons)																				
14 Textiles																				
15. Used Motor Oil																				
16. Wood																				
17. Yard Waste																				
18. Commingled Recyclables																				
19. Electronics																				
20. Ash (recycled ash only)																				
21. Non-Excluded Foundry Sand																				
22. Rubber																				
23.																				
24																				
<b>Totals</b>																				

[replace with text to explain materials/quantities entered as "Other"]

[replace with text to explain the survey methodology and data analysis]

**Instructions for Completing Table E.3: Sources of Diversion** (remove these instructions for the SWMD's solid waste management plan)

The purpose of Table E.3 is to associate the quantities of materials being credited to the residential/commercial waste reduction and recycling rate with the programs/sources through which the materials were recovered. The table will list all residential and commercial programs that generated the quantities being credited to total diversion. In this way, the table will account for all of the quantities being credited.

This table will also present any adjustments made to eliminate materials that may have been counted more than once (i.e. "double counted"). Double counting occurs when the same material is reported by more than one survey respondent, typically by both the generator and the processor of the material. Material is "double counted" if the quantities from both respondents are credited to total recovery.

Ensure that all credited material was generated within the SWMD during the data year.

Do not report the following materials for the residential/commercial sector:

- Train boxcars.
- Metals and other materials from construction or demolition activities (i.e. construction and demolition debris). Materials removed from a residence, such as siding, drywall, roofing, gutters, pipes, and metal window frames, are C&DD, not solid waste.
- Metals from vehicle salvage operations.

**Complete Table E.3 as follows:**

Add or delete rows as necessary

Source/Program Name: Enter the name or description of the program or source that a quantity of material is associated with.

Common programs/sources that quantities can be associated with are listed below. Provide entries for all of the programs/sources listed and any other programs/sources not listed to capture all quantities of materials recovered.

If there are multiple programs or opportunities for a particular category (such as curbside recycling programs), the policy committee can either provide individual listings for each program/opportunity (i.e. each community with a curbside recycling program) or provide an entry for the combined quantities for that category (i.e. curbside recycling programs).

For quantities identified through surveys, use an entry similar to "commercial recycling identified through surveys" as the source name.

Examples of programs to list include but are not limited to:

- Curbside recycling services
- Drop-off sites
- HHW collection
- Electronics collection
- Appliance collection

- Buybacks
- Scrap yards
- Processors/material recovery facilities
- Commercial recycling identified through surveys (i.e.. a “catch all” for commercial survey results)
- Yard waste composted
- Land applied yard waste
- Food waste composted
- Government office building collection
- Commercial business “milk runs”
- Scrap tire recyclers (Ohio EPA data)
- Mulching operations
- Material-specific drop-offs/collection programs (such as for paper (ex. Abitibi), glass, etc.)
- Mixed municipal solid waste material recovery facilities
- Any other sources that quantities can be associated with

Quantities Reported: Provide weights in tons. This will be the unadjusted quantity of material recovered through the program/opportunity (i.e quantities have not been adjusted to correct for double counting). For “catch all” listings, provide the total amount of material recovered through all of programs/opportunities included in the listing (e.g. weights of material recovered through all curbside recycling programs, all drop-off recycling sites, all commercial business programs identified through surveys, etc.).

- Quantities for curbside programs, drop-offs sites, compost, land application, and dirty MRFs will come from Appendix B
- Quantities for commercial business programs identified through surveys will come from Table E.1
- Quantities for buybacks, scrap yards, processors, etc. will come from Table E.3
- Quantities for material collection programs and other SWMD programs will come from Appendix X

[Note: The quantity entered into Table E.3 for a program/source should be identical to the quantity for the program/source presented elsewhere in the plan (i.e. the quantities entered for curbside programs should be identical to those presented in Appendix I).]

Adjustments: The quantities entered into Table E.3 need to be adjusted to remove material that was counted more than once (i.e. “double counted”). Provide separate listings for each correction made to adjust for material being counted more than once. Provide a brief explanation of each adjustment in the space indicated with.

[Note: Adjustments are necessary if multiple entities reported the same material or if an entity reported non-creditable material. As an example, a community reported the quantity of material collected through its curbside recycling program and the processor that received the material from the community returned a survey that also accounts for the material. Account for the quantity through one source or the other but not both. Include an entry in Table E.3 to explain the adjustment that was made and show the quantity that was subtracted to make the adjustment.



*Below is an example of Table E.3: Note the total tons factored-in unadjusted and adjusted totals. (remove this example for the SWMD's solid waste management plan)*

**Table: E.3 Quantities of Materials Diverted by Program or Source**

Program or Source	Quantities Reported (tons)
<b>Quantities Reported by Program (Unadjusted)</b>	
Curbside Recycling Programs	510
Drop-off Locations	250
Scrap tire collection event	10
Scrap tire recyclers	350
Appliance collection event	20
Government Office Collection	15
HHW collection	9
Yard Waste Composted	2350
Yard Waste Land Applied	200
Food Waste Composted	125
Mulch Production	400
Commercial recycling identified through surveys	1560
Buybacks/scrap yards	1350
Processors	1050
<b>Unadjusted Total</b>	8199
<b>Adjustments</b>	
Adjustment to material reported by Processor X to remove material from curbside recycling programs reported on community surveys	510
Adjustment to scrap tires collected through scrap tire event to remove scrap tires reported by scrap tire transporters to Ohio EPA	10
Adjustment to material reported by scrap yards to remove non-creditable metals	1030
<b>Total Adjustments</b>	1550
<b>Adjusted Total</b>	6649

**Table E.4: Reference Year Waste Reduction**

Table E.4 will show the quantity of each material that was recovered from the residential and commercial sectors in the reference year. The table matches the table from the annual district report.

The Grand Total from Table E.4 should match the Adjusted Total from Table E.3

All data and calculations will automatically be performed after completing the tables above.

In the space indicated with “[replace with text to explain the data in Table E.4]”, provide any text necessary to qualify the quantities presented in Table E.4.

**Table E-4 Reference Year Waste Reduction**

Recyclable Categories	Res./Comm. Combined (tons)
1. Appliances / "White Goods"	
2. Lead-Acid Batteries	
3. Dry Cell Batteries	
4. Food (Composting)	
5. Food (Other)	
6. Glass	
7. Household Hazardous Waste	
8. Ferrous Metals	
9. Non-Ferrous Metals	
10. Corrugated Cardboard	
11. All Other Paper	
12. Plastics	
13. Scrap Tires (tons)	
14. Textiles	
15. Used Motor Oil	
16. Wood	
17. Yard Waste	
18. Commingled Recyclables	
19. Electronics	
20. Ash (recycled ash only)	
21. Non-Excluded Foundry Sand	
22. Rubber	
23.	
24.	
25.	
26.	
27.	
28.	
<b>29. Recycling Subtotals</b>	
<b>Volume Reduction and Incineration</b>	
31. Incineration	
<b>32. Subtotal of lines 32 and 33</b>	
<b>33. Grand Totals</b>	
PLACE FOOT NOTES HERE	
PLACE FOOT NOTES HERE	

**Table E.5: Residential/Commercial Recovery Projections**

Adam: I think we should include program id in here. Then the instructions would say that if they are lumping all curbsides into one listing, to put in the id column the range of ids the listing is for.

Program/Source Name - Enter the name that was assigned to the program/source in Appendix B (Recycling Infrastructure Inventory) or Appendix I (Overall Conclusions and Descriptions of Programs to Be Provided (New Programs, Changes to Existing Programs and Unchanged Programs)).

Headings of common programs/sources are provided. Add additional headings as needed.

Year – Enter the reference year in the cell labeled “1”. All subsequent years will automatically populate.

Include a listing for each program/source that will result in recovered material being credited to the reduction/recycling rate. For each program listed, provide projections for the amount of material to be recovered through the program for at least the first five years of the planning period. After the fifth year, either keep the quantity to be recovered constant or calculate as a constant percentage of generation.

Recovery Projections:

*Programs*

[Note: The policy committee will make projections after it completes the analyses in Appendix H, draws conclusions from those analyses, and decides what programs the SWMD will provide during the planning period. The policy committee will use its conclusions and decisions to make recovery projections.]

For quantities to be recovered through programs (such as material-specific collection programs,) and primary recycling opportunities (such as curbside recycling programs, drop-off sites, and compost programs), provide projections for quantities to be recovered for at least the first five years of the planning period. Following after the fifth year, either hold quantities consistent or increase as a percentage of generation (percent of generation recovery from the program comprised in the fifth year of the planning period).

- Tie projections to the effects of planned new or changes to existing programs on recovery
  - For example, the plan projects increases in the quantities of material recycled as a result of establishing new drop-offs. This is a result of expanding the types of materials accepted at all sites. Projections for the new drop-offs are based on recovery at drop-offs in other SWMDs that

collect the same mix of materials. Could also develop projections based on results in other SWMDs that made similar changes to the mix of materials accepted or available national data on recovery that can be expected from drop-offs.

As another example, increases in recovery through curbside programs are projected as a result of distributing larger collection containers or a targeted education and outreach to a community.

- Need to consider both initial effects on recovery and effects after a couple of years (i.e expect large increase in recovery in the beginning of the program and then decreasing rate of recovery after a couple of years.).
- Use historical trends based on the SWMD's data from the past five years
- National data
- Ohio-specific data
  - Drop-off database
  - Curbside study
- Other similar programs in the SWMD
- Similar programs in other SWMDs

#### Provide more directions regarding developing projections

##### *Non-program sources*

Project the quantities to be recovered through third party/non-program sources (such as buybacks, scrap yards, processors materials recovery facilities, etc.) as a constant percentage of generation. Determine the percentage that quantities from those sources comprised of total generation in the reference year and then assume quantities from those sources will be recovered at that percentage of generation throughout the planning period.

##### Example:

In the reference year, buybacks recovered 500 tons of material from the residential/commercial sector. The SWMD's residential/commercial sector generated 25,000 tons of waste. Material recovered by buybacks made up 2 percent of generation. In the first year of the planning period the SWMD will generate 25,750 tons of residential/commercial waste. Thus, the buybacks are projected to recover 515 tons of material ( $25,750 \times 0.2$ ).

Use the same methodology to project quantities to be recovered by commercial businesses (as quantified through surveys) unless the SWMD will implement new programs to increase quantities recovered by commercial businesses or identify quantities (such as through improved survey efforts). In that case, the policy committee should base projections on expected results from the new programs.

In the space indicated by “[replace with text to explain residential/commercial recovery projections]” after Table E.5, include text explaining how projections were developed,

including assumptions made, factors considered, sources consulted, sample calculations, as appropriate, and narrative to explain how any planned changes will affect recovery.

