



Indiana Department of Environmental Management

2019 Recycling Activity Summary

Overview of 2019 data reported by municipal solid waste recyclers required to report recycling activities to meet the 50 percent recycling goal mandated by the Indiana legislature.

Office of Program Support
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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2019 Recycling Activity Summary

The 2019 Recycling Activity Summary provides information collected from municipal solid waste (MSW) recyclers. The recyclers are legislatively required to report recycling activities under IC 13-20-25. The Indiana Department of Environmental Management (IDEM) provides the report to fulfill its requirement to give an overview of 2019 state recycling data. In the report, IDEM also evaluates Indiana's progress in achieving a 50 percent recycling goal.

Indiana's 2019 recycling rate remained steady at nearly 19%, just below last year's rate of 20%. Overall, 1.6 million tons of recyclables were reported. This is down by about 112,662 tons, mainly due to smaller amounts of wood waste/mulch and compost materials being reported. The amount of MSW waste disposal was about the same as the previous year at 7.2 million tons. Not including compost and e-waste, shipments of recyclables primarily consisted of paper/cardboard, followed by glass, and wood waste/mulch. The estimated destination of MSW generated was 76 percent to landfills, 5 percent to waste-to-energy, and 19 percent to overall recycling, which includes composting and e-waste.

Terms and reporting requirements

According to **IC 13-20-25-1 State Recycling Goal**, which was passed by legislation (HEA 1183) in 2014, the goal of the state is to recycle at least fifty percent of its municipal waste. Per definition, the MSW originates from the operation of residential, municipal, commercial, or industrial establishments and community activities in the state.

IC 13-11-2-133 states:

"...municipal waste means any garbage, refuse, industrial lunchroom or office waste, and other similar material resulting from the operation of residential, municipal, commercial, or institutional establishments and community activities."

Recycling (IC 13-20-25-6) is the recovery of recyclable materials from the MSW stream (garbage, refuse, industrial lunchroom waste, office waste, or other similar material) for use or reuse, conversion into raw materials, or for use in the production of new products.

A **recycler** is defined as the owner or operator of a facility where recycling may occur, including a landfill, an incinerator, a material recovery facility (MRF), or a solid waste management district. A recycler is also defined as a recyclable materials broker who arranges the collection, transportation, delivery, recycling or reuse of recyclable materials.

Recyclers must report, in tons, the types of recyclable material from Indiana origins that it ships to in-state recycling facilities, in-state manufacturers/end users, or out-of-state destinations. IC 13-20-25 requires reporting the following types of recyclable materials:

- 1) Glass
- 2) Metal, including white goods (ferrous)
- 3) Metal (non-ferrous)
- 4) Paper and cardboard (all grades)
- 5) Plastic and plastic products
- 6) Single stream recyclable materials, and
- 7) Any other distinct type of recyclable material not specified in 1) through 6).

Recycling activities are required to be reported to IDEM during a calendar year (January 1 – December 31), either on an annual basis or on a quarterly basis. Recyclers must submit reports for each of their facilities that conducts recycling activities.

Persons managing wastes not defined as municipal, such as those involved in automotive scrap metal processing, automotive salvage, or industrial wastes, are not required to report recycling of these wastes. However, they may do so voluntarily. IDEM has included in this report the tabulation of all reported materials but does not count recycling of non-MSW materials towards the 50 percent recycling goal.

The next section discusses the collection method of the information and the data reported.

Reporting method/data collection

Recyclers submit a recycling activity report through IDEM's Solid Waste and Recycling Data Reporting Program, a web-based materials management system for aggregating data. The information recyclers are required to report includes:

- 1) Name and location of the recycler's establishment, and facility registration type. This includes landfill, transfer station, waste-to-energy plant, composting facility, processing facility, waste tire facility or recycler facility. The latter type is for facilities not included in the other categories.
- 2) Principal business activity conducted
- 3) Type of operation
- 4) Type of materials including glass, metal, paper, plastic, single stream (mixed), and other
- 5) Quantity, in tons, for each type of recyclable that was transported from the reporter's establishment, or in the case of a broker, the quantity of each type of material for which they arranged transportation or delivery, and where the material was transported, which would include other in-state recycler facilities, persons in Indiana that use the raw materials or reuse the product without further recycling, and out-of-state locations. The destination categories are defined as:
 - a. Recycler Facility - This refers to a recycling facility such as an MRF with intermediate consolidating, sorting, shredding, or baling operations. The reporting included the location of the receiving recycler facility (name/city/state).
 - b. Broker - This refers to shipments transported through a broker to final destinations. The reporting included the principal address of the broker (name/city/state).
 - c. Manufacturer/end user - This refers to a production facility of basic products that used the recyclables as a raw material without further offsite recycling. Examples included glass container mills, foundries, steel mini mills, smelting and refining operations, plastic processors for flake and pellets, and pulp and paper mills. Reporting included the location of the receiving manufacturer/end user (state or foreign country).

In addition, other reports are submitted to IDEM for tracking MSW data, which include:

- 1) Solid Waste Land Disposal Facility Report
- 2) Solid Waste Processing Facility Report
- 3) Registered Composting Facility Report
- 4) Electronics Recycling Annual Report and E-cycle Collector / Recycler Registration (E-waste)
- 5) Annual Tire Report

Reporting results

IDEM received 143 recycling activity reports. This does not include submitted reports without reported shipments of recyclables. The facilities are grouped by registration type and principal business activity, as shown in TABLE 1 and TABLE 2, respectively.

TABLE 1: Number of Facilities Submitting Recycling Activity Reports by Registration Type

Registration Type	Number of Facilities Submitting Reports
Recycler Facility	85
Transfer Station	32
Compost Facility	11
Landfill	7
Waste-to-Energy Plant (Incinerator)	1
Processing Facility	7
Waste Tire Facility	0
Total	143

TABLE 2: Number of Facilities Submitting Recycling Activity Reports by Principal Business Activity

Principal Business Activity	Number of Facilities Submitting Reports
Solid Waste Management Company	49
Solid Waste Management District	65
Government	8
Business	15
Not-for-Profit	4
College / University	1
Brokers	1
Total	143

The shipments of recyclables (tons) by material type and destination are given in TABLE 3. Compost and electronic waste (e-waste) are not listed as a material since their recycling amounts are reported in separate reports (see TABLE 5). The category of “Other” measures any other distinct type of recyclable material from MSW. The largest portion of this category is made up of wood waste, which may be used for mulch or animal bedding. Appendix A provides a detailed breakdown of the amount of MSW recyclables generated for shipment.

Another category of recycling is for Non-MSW materials (per statute). It allows registrants to voluntarily record amounts of other recyclable materials from non-municipal solid waste, such as scrap metal and aggregate from construction and demolition (C&D) debris, auto bodies, and non-hazardous industrial materials. The reported amounts consist mainly of aggregates.

TABLE 3: Shipments of Recyclables by Material Type and Destination (2019)

MATERIAL TYPE	SHIPMENTS OF RECYCLABLES BY DESTINATION			
	In-State Recycler Facilities (Tons)	Broker Arranged Shipments (Tons)	In-State Manufacturers / End Users (Tons)	Out-of-State Destinations* (Tons)
Glass	4,681	9,627	109,976	148,204
Metal, including white goods (ferrous)	54,112	434	11,066	7,124
Metal (non-ferrous)	17,527	246	1,145	1,284
Paper and cardboard (all grades)	33,173	118,700	265,265	230,318
Plastic	2,861	9,422	10,280	18,467
Single Stream/Mixed	87,957	3,552	6,000	88,053
Other	11,822	631	155,857	33,573
Total	212,133	142,612	559,589	527,023
Non-MSW Materials	10,564	17,098	66,638	35,559
Grand Total	222,697	159,710	626,227	562,582

* Shipments to out-of-state recycler facilities and/or manufacturers/end users.

Reviewing recycling numbers and MSW recycling rate

The following section analyzes only the MSW recycling data to determine compliance with Indiana’s 50 percent recycling goal. The report avoids double counting of recyclables by only including recyclables with shipment destinations as shown in TABLE 4. In 2019, the total amount of reported MSW recyclables for end use markets was **1,229,224 tons**.

TABLE 4: Shipments of Recyclables by Material Type and Destination (2019) for Recycling Rate

MATERIAL TYPE	SHIPMENTS OF RECYCLABLES BY DESTINATION			
	Broker Arranged Shipments (Tons)	In-State Manufacturers/ End Users (Tons)	Out-of-State Destinations* (Tons)	Total (Tons)
Glass	9,627	109,976	148,204	267,807
Metal, including white goods (ferrous)	434	11,066	7,124	18,624
Metal (non-ferrous)	246	1,145	1,284	2,675
Paper and cardboard (all grades)	118,700	265,265	230,318	614,283
Plastic and plastic products	9,422	10,280	18,467	38,169
Single Stream/Mixed	3,552	6,000	88,053	97,605
Other	631	155,857	33,573	190,061
Total	142,612	559,589	527,023	1,229,224

* Shipments to out-of-state recycler facilities and/or manufacturers/end users.

Shipments of recyclables to in-state recycler facilities from TABLE 3 are excluded from TABLE 4 since the tonnage amounts are also included in recycling activity reports submitted by the receiving facility. Broker arranged shipments are counted in TABLE 4 because they normally go to downstream markets rather than being reported by another recycler facility. Total shipments of recyclables by material type from the MSW stream are shown by weight and percentage in Figure 1 and Figure 2, respectively.

Figure 1: Shipments of Recyclables by Material Type, 2019

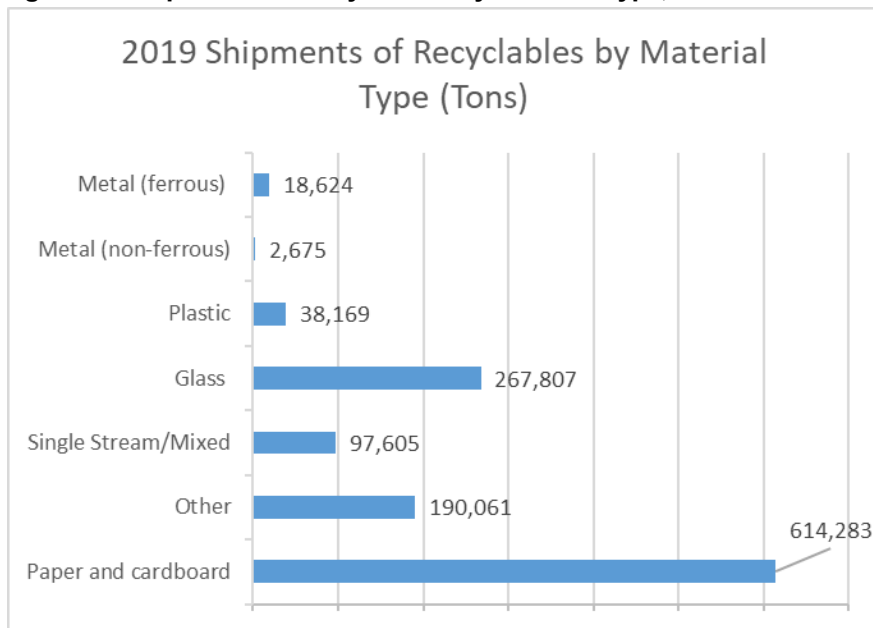
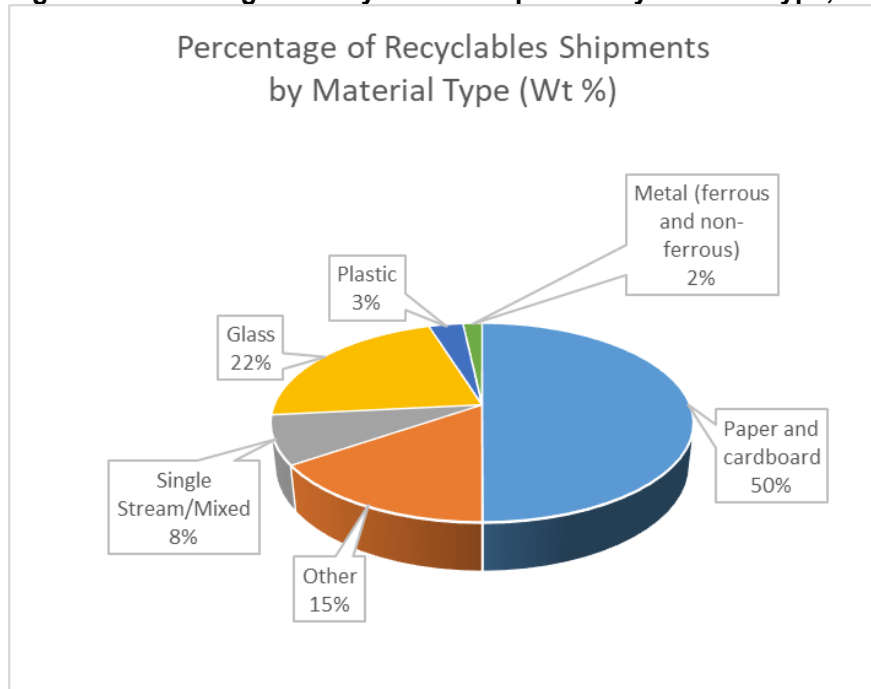


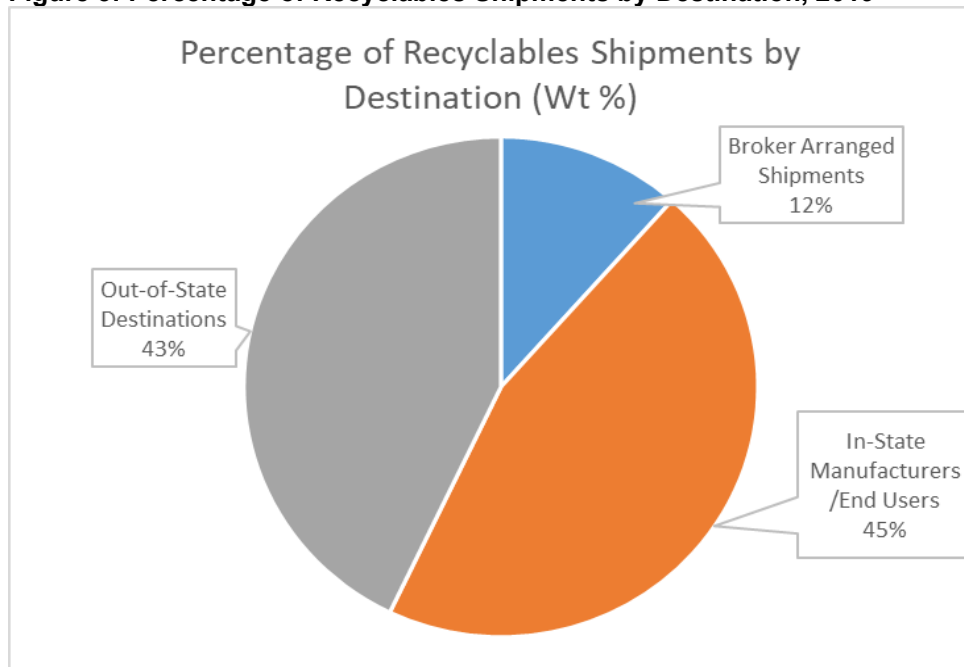
Figure 2: Percentage of Recyclables Shipments by Material Type, 2019



Looking at the percentage of recyclables shipments, 50 percent of the total tonnage consisted of paper/cardboard, 22 percent was glass, 15 percent was other, including wood waste, and eight percent was single stream (mixed) recyclables. The smallest categories by tonnage were metal

(both ferrous and non-ferrous) and plastic, which accounted for about five percent of the recyclable materials shipped together. The destination of recyclables by percent of tonnage is shown in Figure 3.

Figure 3: Percentage of Recyclables Shipments by Destination, 2019



A recycling rate can be calculated to determine how Indiana is meeting its recycling goal by estimating the overall MSW generated against the materials reported as recyclable.¹ The measurement standard established by the U.S. Environmental Protection Agency (U.S. EPA) is:

$$\text{Recycling Rate (\%)} = \text{MSW Recovered for Recycling and Composting (tons)} / \text{MSW Generation (tons)} \times 100$$

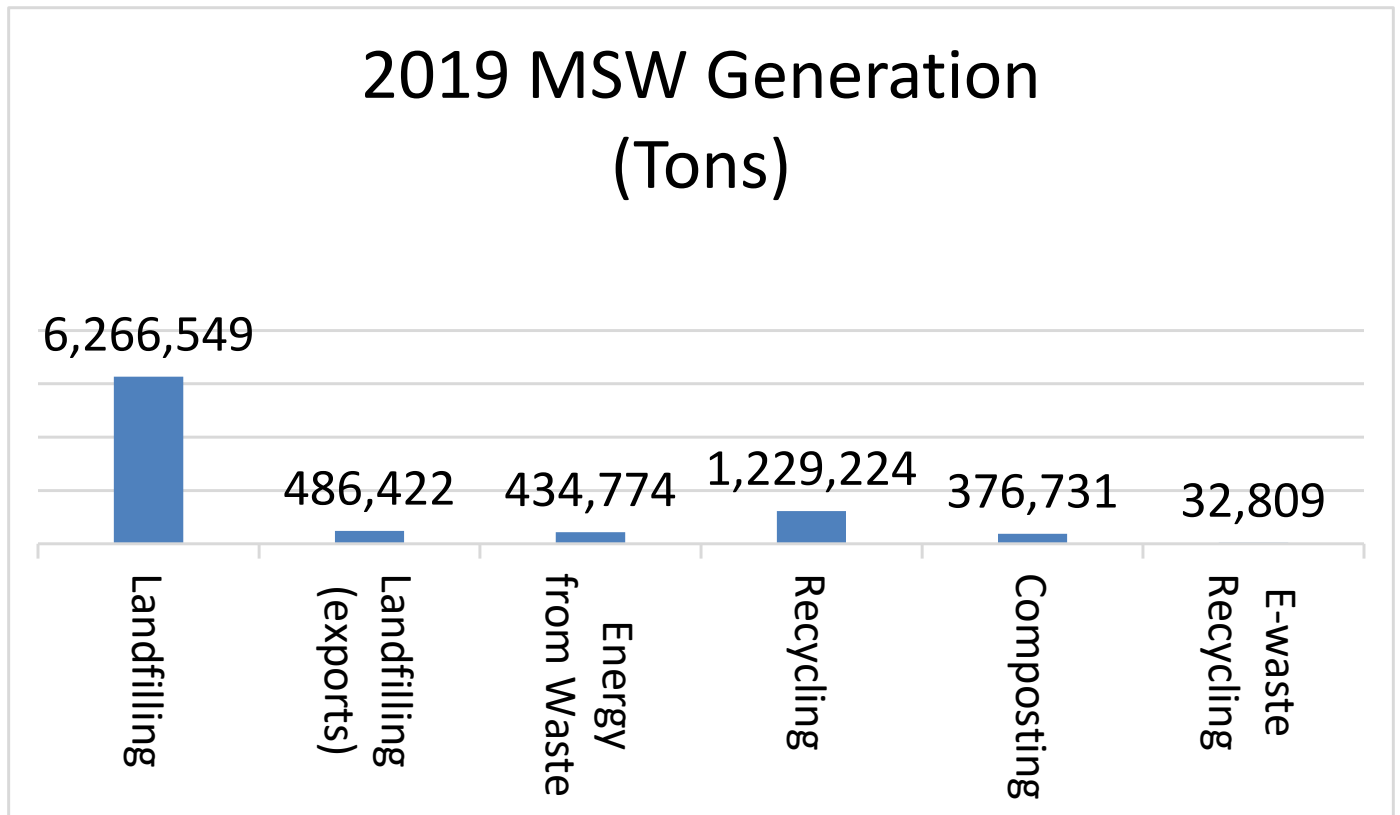
The MSW generation is the sum of tonnage amounts as shown in TABLE 5 and Figure 4 for each of the waste management classifications. Tonnage estimates from Indiana origins are given with supporting data references.

¹ Standardized definitions for determining a recycling rate are described in the U.S. EPA publication, "[Measuring Recycling: A Guide for State and Local Governments](#)". Also, EPA's most recent report, "[Advancing Sustainable Materials Management: 2017 Fact Sheet](#)," gives national statistics for MSW generation, recycling, and disposal.

TABLE 5: Indiana MSW Generation and Classification Data (2019)

Classification	Tons	Data Reference
Disposal through Landfilling (in-state)	6,266,549	The data are aggregated from IDEM Solid Waste Land Disposal Facility reports. This is the total amount of MSW from Indiana origins received at in-state landfills for disposal. It does not include non-hazardous industrial process wastes, and construction and demolition (C&D) debris.
Disposal through Landfilling (out-of-state)	486,422	This amount was estimated from Indiana exports of MSW as reported by neighboring states. Other supporting data included Solid Waste Processing Facility reports of waste sent for disposal at out-of-state landfills from Indiana transfer stations.
Energy from Waste	434,774	The data are aggregated from Solid Waste Processing Facility reports. This is the total amount of MSW from Indiana origins received at the Indianapolis Resource Recovery facility for disposal. It does not include non-hazardous industrial process wastes, and C&D debris.
Recycling	1,229,224	The data are aggregated from Recycling Activity Reports. This is the total amount of recyclables from MSW as reported by shipments to (a) in-state manufacturers and users, (b) out-of-state destinations, and (c) arranged through brokers.
Composting	376,731	The data are aggregated from Registered Composting Facility Reports. This is the total estimated amount of waste received at Indiana compost facilities including yard trimmings, food waste, and other organic materials. It does not include wood waste processed into mulch.
E-waste Recycling	32,809	The data are aggregated from IDEM, Electronics Recycling Annual Report and E-Cycle Collector/Recycler Registration reports. The data is for all types of e-waste including covered electronic devices for Indiana's E-Cycle program. Total shipments are tracked by destination categories.
Total	8,826,509	

Figure 4: Indiana 2019 MSW Generation by Classification



The total recycled is the sum of recycling, composting, and e-waste amounts. The calculation is made accordingly:

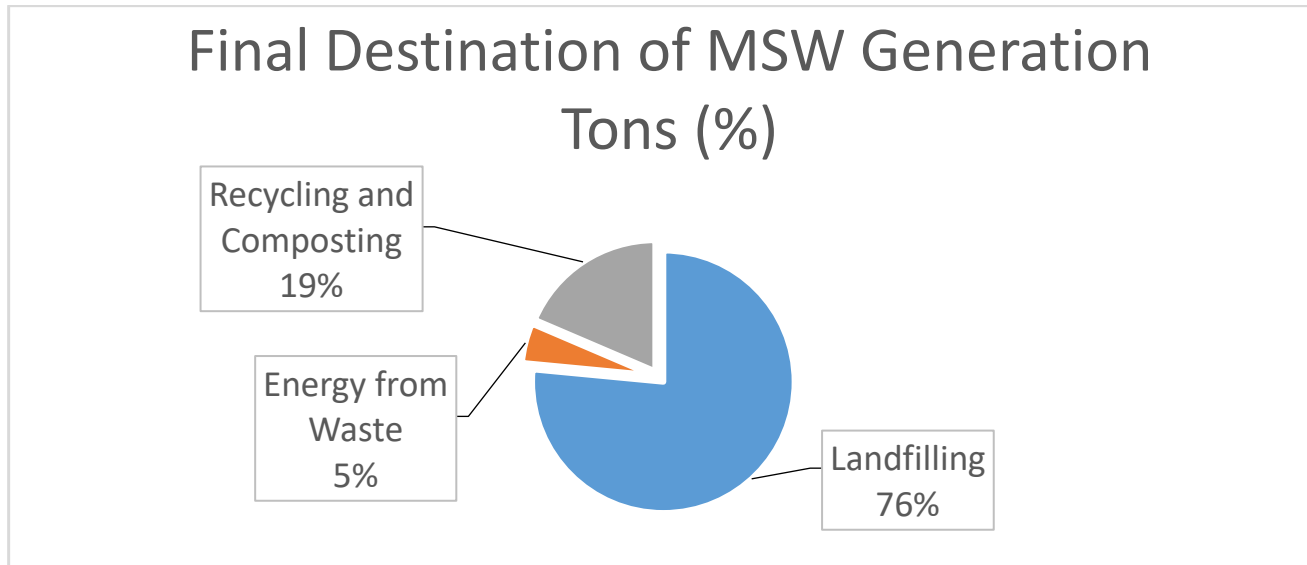
$$\begin{aligned} &\text{MSW Recovered for Recycling and Composting} \\ &= 1,229,224 + 376,731 + 32,809 = 1,638,764 \text{ tons} \end{aligned}$$

The 2019 Indiana Recycling Rate then is calculated as:
 $(1,638,764 \text{ tons} / 8,826,509 \text{ tons}) \times 100 = 18.6\%$

Discussion of results

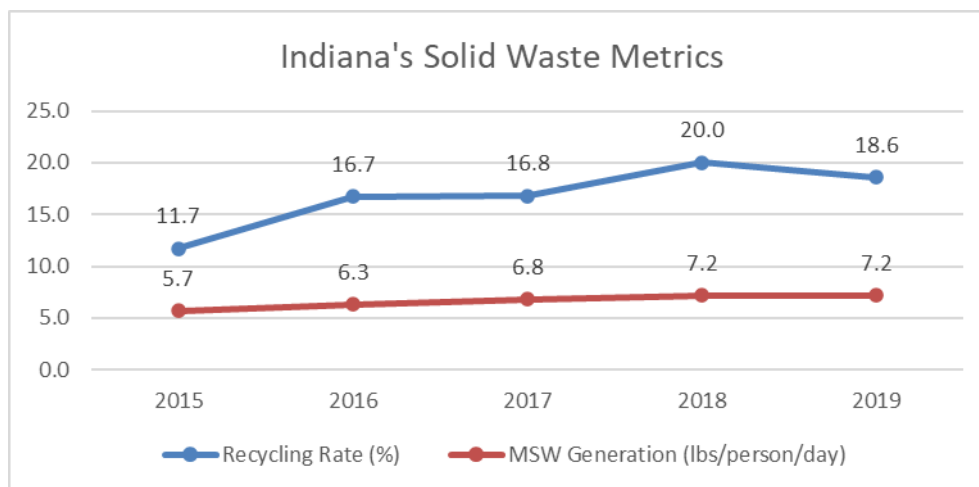
Indiana’s 2019 recycling rate was nearly 19 percent, which is just below the rate for the previous year at 20%. Overall recyclables reported were at 1.6 million tons, down by about 112,662 tons, mainly from lower amounts of wood waste/mulch and compost materials. The reported MSW waste disposal was about the same as 2018 at 7.2 million tons. The largest categories, not including compost and e-waste, were paper/cardboard, followed by glass, and wood waste/mulch. The overall materials management of MSW generation is shown in Figure 5.

Figure 5: Overall Materials Management of MSW Generation, 2019



Solid waste metrics for the state are impacted by activities in the residential sector as well as the commercial, institutional, and industrial sectors. Typically, about 40 to 50 percent of the MSW generation comes from the latter sectors. Also, the recycling rate is a broad measurement that includes standard recyclables (glass, metals, paper, plastics) and wood waste for mulch and compost. The MSW Generation (lbs./person/day) did not change from last year, as shown in Figure 6, remaining at 7.2. Although the recycling rate went down, the recycling amounts increased for paper, glass, and plastics as shown in TABLE 6.

Figure 6: Recycling Rate and per Capita MSW Generation, 2019

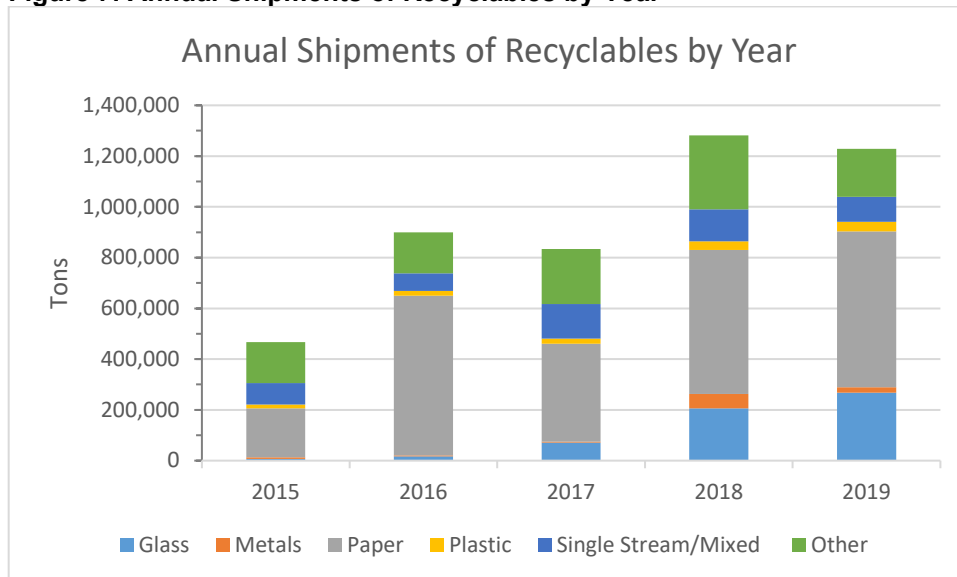


The tonnages listed in Table 6 includes broker arranged shipments, in-state manufacturers/end users and out-of-state destinations. In addition, Figure 7 shows the annual shipments of recyclables by year.

TABLE 6: Shipments of Recyclables from MSW by Material Type and Year, Tons

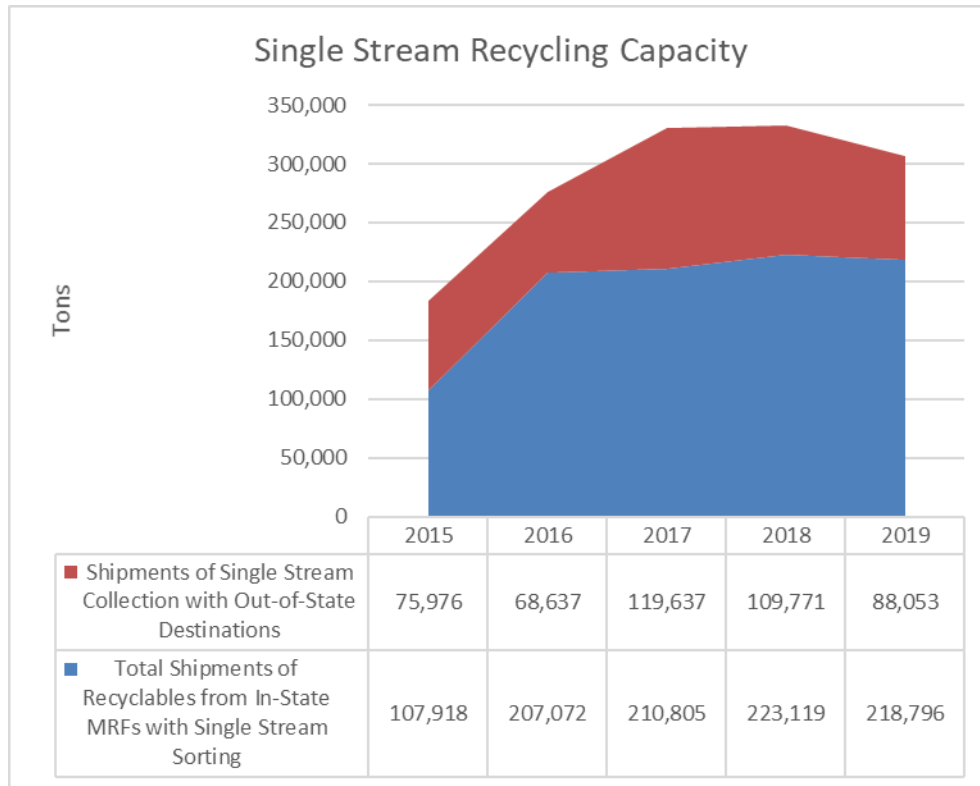
Material Type	2015	2016	2017	2018	2019
Glass	6,432	16,936	70,535	206,420	267,807
Metal, including white goods (ferrous)	3,379	1,518	1,601	34,621	18,624
Metal (non-ferrous)	3,479	2,794	2,757	22,336	2,675
Paper and cardboard (all grades)	192,838	628,494	485,608	567,082	614,283
Plastic and plastic products	15,002	18,552	20,080	33,821	38,169
Single Stream/Mixed	84,968	69,510	136,047	125,518	97,605
Other	161,220	161,924	216,896	291,401	190,061
Total	467,318	899,728	933,524	1,281,199	1,229,224

Figure 7: Annual Shipments of Recyclables by Year



Indiana has seven MRFs that provide nearly all the in-state sorting of single stream recyclables for end-use markets. Total shipments of recyclables sorted by MRFs were 218,796 tons in 2019 consisting of paper (78%), glass (11%), plastic (7%), metals (2%), and other (2%). The statewide collection of single stream recyclables was approximately 306,849 tons in 2019 as shown in Figure 8. This includes approximately 88,053 tons of single stream recyclables sent to out-of-state MRFs from transfer stations or having direct hauls from border locations.

Figure 8: Indiana Recycling Capacity for Single Stream Collection



Recycling challenges

The circular economy has become a driving force especially with today’s focus on sustainability and is a solution to the China ban on recyclables. Recycling is a crucial portion of the circular economy, which provides for local investments, avoids unwanted waste accumulation in the environment, creates jobs, and conserves resources.

Important elements to help guide recycling investments in Indiana and reach a 50% recycling goal include:

1. Implement robust data collection for MSW disposal and recycling amounts to determine progress on waste reduction and recycling efforts. Mandatory reporting of solid waste disposal at landfills began in 1990 and mandatory reporting of recyclables from recycler facilities began in 2014. Reports are now submitted online through Re-TRAC, IDEM Solid Waste and Recycling Data Reporting Program.
2. Determine the infrastructure for collection and processing of recyclables from the residential sector as well as commercial/institutional/industrial sectors. This includes a listing of drop-off locations and curbside programs in the state and who provides these services.
3. Identify Indiana manufacturers that use recyclables for production of basic products. Learn the quantity of recyclables they are using and what percentage of that amount originates from Indiana.

The Indiana Recycling Market Development Board (RMDB) awarded a grant to GT Environmental to complete a recycling infrastructure and economic impact study in the State of Indiana. The purpose of this assessment is to evaluate Indiana’s recycling infrastructure in the

context of Indiana's needs and include an analysis of the state's recycling materials and markets. The study is expected to be completed by June of 2021.

Other recent studies by stakeholders with technical support from IDEM to promote recycling include:

- 1) The Indiana Recycling Coalition (IRC), in partnership with Purdue University, has completed a [Regional Recycling Infrastructure Study: Northwestern Indiana in Focus](#) for the Wabash Heartland Innovation Network (WHIN) to collect and analyze data on recycling collection infrastructure for a ten-county region in Northwestern Indiana.
- 2) The Indiana Food Scrap Initiative (IFSI) completed a white paper on the [State of Food Waste Composting in the State 2020](#). IFSI is a multi-stakeholder driven initiative to eliminate food waste in Indiana directed by the IRC.

Conclusion

IDEM strives to provide accurate data regarding recycling and waste material management. The reporting of actual recycling numbers by recyclers provides credibility in achieving recycling goals and helps to determine long term infrastructure needs for sustainable materials management. The information provided is a conservative account and as the agency continues to better understand the recycling community, the numbers should not only increase, but help recognize recycling efforts throughout the state. Milestone efforts in the waste and recycling industry and by communities have resulted in more than a million tons of annual shipments of recyclables from Indiana.

APPENDIX A.

APPENDIX A: AMOUNT OF RECYCLABLES GENERATED FROM EACH COUNTY FOR SHIPMENT

County Location of Reporting Facilities	Shipments to In-State Recycler Facilities (Tons)	Shipments through Brokers (Tons)	Shipments to In-State Manufacturers / End Users (Tons)	Shipments to Out-of-State Destinations (Tons)
Adams	301	364	67	0
Allen	13,819	5,603	17,902	54,140
Bartholomew	2,211	0	0	329
Benton	0	0	0	224
Blackford	0	0	109,525	133,955
Boone	151	0	20,429	0
Brown	800	0	0	194
Carroll	128	0	0	0
Cass	529	0	0	0
Clark	0	0	0	2,227
Clay	0	0	0	0
Clinton	0	0	0	0
Crawford	42	0	0	240
Daviess	31	0	0	0
DeKalb	0	0	0	0
Dearborn	0	1,044	0	445
Decatur	3,621	1,565	0	0
Delaware	263	106	7,191	1,498
Dubois	471	0	0	48
Elkhart	0	35,882	72,115	39,877
Fayette	0	0	0	0
Floyd	0	0	0	383
Fountain	243	0	0	0
Franklin	0	0	0	0
Fulton	1	280	602	88
Gibson	0	0	0	0
Grant	0	0	0	0
Greene	342	0	0	0
Hamilton	1,585	0	33,652	0
Hancock	0	187	0	0
Harrison	0	0	0	0
Hendricks	14,445	0	14,562	57,839
Henry	0	0	0	0
Howard	1,988	0	370	0

Huntington	1,079	0	0	0
Jackson	2,793	0	5,050	0
Jasper	44	0	35	529
Jay	390	0	0	0
Jefferson	489	793	279	792
Johnson	866	0	0	0
Knox	978	0	0	0
Kosciusko	2,298	0	0	0
Lake	8,509	2,882	71,016	56,584
LaPorte	8,183	0	0	0
Lawrence	309	589	10,000	8,100
Madison	14,303	378	0	0
Marion	27,153	56,693	62,090	106,845
Marshall	351	0	0	1
Martin	0	1,386	38	152
Miami	1,542	0	0	0
Monroe	7,558	2,529	0	0
Montgomery	9,822	0	0	498
Morgan	1,295	0	0	0
Newton	254	0	0	0
Noble	38,216	0	0	0
Ohio	0	0	0	0
Orange	0	0	0	0
Owen	0	0	0	0
Parke	0	0	0	0
Perry	121	506	0	0
Pike	196	0	0	0
Porter	3,386	143	120,821	21,591
Posey	60	622	0	104
Pulaski	202	652	94	0
Putnam	1,424	0	0	0
Randolph	991	0	0	0
Ripley	0	0	0	0
Rush	173	0	0	0
Scott	0	0	0	0
Shelby	744	1,976	0	4,080
Spencer	154	668	12	218
St. Joseph	14,418	5,751	0	96
Starke	0	0	0	0
Steuben	3,815	0	0	0
Sullivan	53	0	0	0
Switzerland	0	0	0	0
Tippecanoe	6,411	0	0	0
Tipton	498	33	0	0

Vanderburgh	194	21,091	5,930	2,980
Vermillion	3	0	0	0
Vigo	2,345	470	0	82
Wabash	4,918	0	0	0
Warren	0	0	0	480
Warrick	721	0	0	674
Washington	409	0	0	0
Wayne	888	270	0	502
Wells	25	0	0	159
White	815	149	160	113
out-of-state	1,766	0	7,649	30,956
Grand Total	212,133	142,612	559,589	527,023

Note: The data are aggregated from Re-TRAC, 2019 recycling activity reports for recyclables from municipal solid waste (MSW). The data is aggregated by county location of each reporting facility. The number of recyclables is blank if the county was part of a multiple solid waste management district, had no reporting facilities, or submitted no data.