



Appendix A: Needs Assessment

STATEWIDE IMPLEMENTATION ANALYSIS FOR BEVERAGE CONTAINER PLAN

PREPARED BY RRS FOR RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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01. Background

As authorized within Rhode Island General Law Title 23, Chapter 19.19¹, the Rhode Island Department of Environmental Management (RIDEM) in collaboration with the Rhode Island Resource Recovery Corporation (RIRRC) has commissioned a statewide needs assessment. This needs assessment is the introductory step in the Statewide Implementation Analysis (SIA) for a Beverage Container, Redemption, Packaging and Recycling Plan. The goal of the SIA is to build on the progress made by various efforts and provide case analysis to support decision making to best position Rhode Island as the state considers Extended Producer Responsibility Program for Packaging and Paper (EPR) and a Deposit Return System (DRS).

In recent decades, the State of Rhode Island has made noteworthy progress with environmental protection and sustainable materials management, including taxes on beverage containers, implementation of landfill gas capture systems, and recycling requirements for communities that dispose of solid waste within the state program. At the same time, the State's Central Landfill is expected to reach capacity in twenty years, the sole materials recovery facility's (MRF) infrastructure is outdated and requires redesign and reconstruction, State regulations for commercial recycling are not sufficiently resourced for implementation, and the State is currently updating its solid waste management plan to address the next twenty years of materials management.

This needs assessment documents Rhode Island's existing waste and recycling systems and identifies gaps within them. The case analysis—including program plans and a cost-benefit analysis of five future scenarios—will build on this assessment and help to position the State of Rhode Island to make informed, evidence-based decisions about advancing its sustainable materials management policies.

02. Overview of Material Flows

Rhode Island is comprised of five counties, with thirty-nine total communities. This report refers to Rhode Island's 39 cities and towns as “communities.” The term ‘municipality’ is used interchangeably when referencing a specific legal or regulatory requirement. In 2020, the State had a population of 1,097,379 and 441,280 households.² There are no forms of county government that regulate or manage solid waste or recycling in the State. Solid waste collection services are typically the responsibility of the thirty-nine communities. Each community has a unique collection system including curbside collection, drop-off at a transfer station or recycling center, or a combination.

RIDEM oversees the permitting, regulatory oversight, and environmental enforcement of solid waste facilities and the associated waste handling and recycling laws and regulations. RIRRC is a “quasi-public agency” that has a mission to provide safe, environmentally compliant, clean, and affordable solid waste and recycling services for

1 An Act Relating to Health and Safety: The Statewide Implementation Analysis for a Beverage Container Redemption, Packaging, and Recycling Plan, H. 6207 Substitute A as amended, 2025 Gen. Assembly., Jan. Sess. (R.I. 2025). <https://webserver.rilegislature.gov/BillText/BillText25/HouseText25/H6207Aaa.pdf>

2 US Census Bureau. (n.d.). Quick Facts: Rhode Island. <https://www.census.gov/quickfacts/fact/table/RI/POP010220>

the state.³ RIRRC is governed by a Board of Commissioners. RIRRC's 1,200-acre facility campus in Johnstown includes the Central Landfill, the State's only MRF, a Residential Recycling Area (for material drop-off), and composting operations.

There are two main solid waste material streams in Rhode Island. The municipal waste stream contains material generated by the municipal service sector. The municipal service sector includes single family households and multi-unit residential buildings with a total number of residential units falling under the municipal service cutoff, which is determined by the individual communities. According to State law, Rhode Island municipalities are required to bring their solid waste and recyclables to RIRRC or to facilities designated by RIRRC. State law also requires municipalities to reach a recycling rate of 35% and a diversion rate of 50%.⁴

Material that is not considered municipal material is classified as industrial, commercial, and institutional (ICI) material. Commercial haulers collect this material through contracts with residents, businesses, industries, and institutions in the state. Material that is collected curbside by private commercial haulers in communities without municipal service, along with material collected from multi-family households above the community-determined service cutoff, are considered ICI material. Although some of this material is delivered to RIRRC facilities for processing, it is not required. The majority of ICI material is processed at out-of-state facilities. ICI waste collection and diversion is overseen through state laws, policies, and regulations.

The material flow diagram (Figure 1) illustrates the movement of solid waste in the State's management system in 2024, as told by RIDEM facility report data. The description here provides context for interpreting the flow diagram.

According to 2024 facility tonnage data compiled by RIDEM, 322,752 tons of municipal trash were disposed of at RIRRC Central Landfill, along with 97,507 tons of industrial, commercial, and institutional (ICI) trash, about 30% of the ICI trash stream. The remaining 70%, 223,885 tons, are disposed of at out-of-state facilities.

A total of 102,922 municipal recycling tons were collected in 2024. Of this tonnage, 17,893 tons of material was "route rejected" and was disposed of as trash at the Central Landfill instead of being delivered to the MRF for recycling. Material is route rejected due to not meeting quality standards or contamination concerns, with this decision being made by recycling truck drivers in communication with community staff. An additional 11,833 tons of recycling were rejected after being tipped at the RIRRC MRF due to quality standards or contamination concerns; and this total 29,726 reject tons were instead disposed of as trash at the Central Landfill. In 2024, a total of 73,196 tons of municipal recycling, 71% of the municipal recycling material collected, was tipped at the RIRRC MRF for processing.

An additional 5,282 tons of ICI recycling was also delivered to the RIRRC MRF, for a total of 78,478 tons accepted for processing. Notably, the majority of ICI recycling volumes or flows are not shown on this diagram, as they are not tracked through the same data sources.

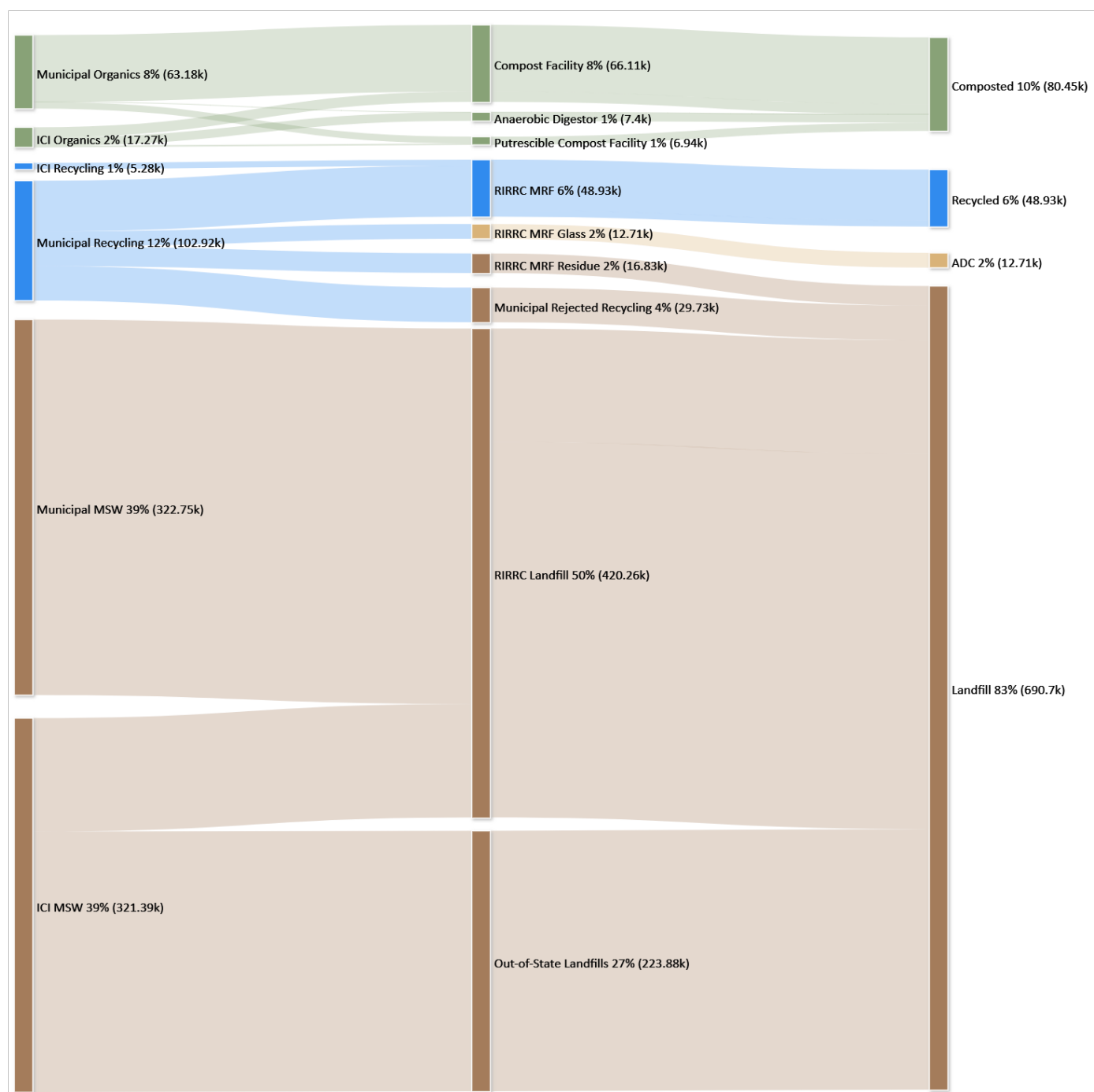
3 Rhode Island Resource Recovery Corporation. (2024, April). A Guide to Resource Recovery. <https://rirrc.org/sites/default/files/Guide%20to%20Resource%20Recovery.pdf>

4 Responsibility for refuse disposal, R.I. Gen. Laws § 23-18.9-1 (1956). <https://webserver.rilegislature.gov/Statutes/TITLE23/23-18.9/23-18.9-1.htm>

Of the total 78,478 tons of recycling, 16,832 tons were removed as residue during the sorting process at the MRF. Another 12,714 tons of glass was sorted and sent to alternative daily cover (ADC) instead of being recovered. This leaves 48,932 tons of material that was actually processed at the MRF for recycling end markets; however the MRF only reported sending 42,264 tons of commodities outbound to end market, leaving 6,668 tons unaccounted for potentially due to keeping the material in storage for sale at a later date.

In 2024, 80,449 tons of compostable or anaerobically digestible material were generated in Rhode Island. Of this volume, 66,114 tons were processed at compost facilities, 6,938 tons were processed at putrescible compost facilities, and 7,398 tons were processed at an anaerobic digestion facility. Tonnages processed by the compost and anaerobic digestion facility are likely greater than the values shown in the diagram, due to the facilities processing additional ICI material or material from other states.

DRAFT

Figure 1. 2024 Rhode Island Solid Waste Material Flows⁵

⁵ While 48,932 tons was sorted for commodity sale. The MRF reported only 42,264 tons as outbound shipped. The gap is likely due to some storage of commodities at the MRF rather than an actual discrepancy.

03.

Waste Stream Characterization, Material Breakdown, Uncaptured Recyclables

WASTE CHARACTERIZATION

This section characterizes Rhode Island's disposed solid waste by sector and material type, summarizes current recycling and composting recovery, identifies recoverable materials and their lost commodity value, and projects generation through 2040. Rhode Island's last waste characterization with physical sampling was the 2015 RIRRC study. A new sort is outside this engagement's scope. Therefore, this analysis applies composition data from recent studies in comparable Northeast and Mid-Atlantic states to Rhode Island's 2024 disposal tonnages.

METHODOLOGY & SOURCES USED

The desktop waste characterization was developed with data from five recent studies from the Northeast and Mid-Atlantic. It reflects residential and industrial, commercial, and institutional (ICI) sectors. The source studies include:

- 2023 Vermont Statewide Waste Composition Study,⁶
- 2024 New Hampshire Waste Composition Study,⁷
- 2024 Maryland Statewide Waste Composition Study,⁸
- 2024 New York State Waste Composition Study,⁹
- 2022 Prince George's County, Maryland Waste Composition Study.¹⁰

The desktop waste characterization process is detailed below and results in a comparable set of weighted-average compositions by sector.

Category Alignment

Material categories varied among source studies. To compare across studies, every material reported in the source studies was mapped to a single consolidated category list developed for this analysis. The consolidated list contains approximately forty material categories, grouped into paper, plastic, metal, glass, organics, textiles, construction & demolition (C&D), bulky waste, household hazardous waste, electronics, and residual streams. These categories are aligned with the needs of the program plan and cost benefit analysis that will support the SIA for a Beverage Container, Redemption, Packaging and Recycling Plan. If a source study reported more granular material categories than the consolidated list, the proportions of those material categories were summed into the

6 Vermont Department of Environmental Conservation. (2024, May 23). 2023 Vermont Waste Composition Study. <https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/2023-VT-Waste-Composition-Study.pdf>

7 New Hampshire Department of Environmental Services. (2025, April). New Hampshire Waste Characterization Study. <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/r-wmd-25-02.pdf>

8 Maryland Department of the Environment. (n.d.). Appendix A - Waste Characterization Study. https://mde.maryland.gov/programs/land/RMP/Documents/Appendix%20A%20-%20Waste%20Characterization%20Study_PDFUA.pdf

9 Wang, Y., Firmansyah, F., Thyberg, K., & Hewitt, E. (2025, March). 2024 New York State Solid Waste Characterization: Task 1 Annual Report. <https://drive.google.com/file/d/1TlEXL4ET7x7tmmitGVEJIRIMoz7uiC5H/view>

10 Prince George's County, Maryland. (2022, December 7). Four-Season Waste Composition Study: Brown Station Road Sanitary Landfill. https://www.princegeorgescountymd.gov/sites/default/files/media-document/RRD%20PGCo%20BSRSL%202021-2022%20Waste%20Sort_%20Final%20Report.pdf

matching consolidated category. For example, one study reported proportions of green, clear, and brown glass bottles and jars separately; for the purposes of this report, these categories have been consolidated into “glass bottles and jars.”

Normalization

Because most studies report rounded composition values, totals within each source study do not always sum to 100%. To prevent rounding artifacts from skewing the weighted average, each source study’s raw composition values were normalized by dividing the value of every category by the sum of the source study’s total composition. Normalized values within each source study sum to exactly 100%. Weighting adjustments described below were applied to the normalized source study values.

Weighting and Final Compositions

Vermont and New York are container deposit, or bottle bill, states. Maryland, including Prince George’s County, and New Hampshire are not. In deposit states, beverage containers are diverted from the disposal stream through redemption, so they appear in lower proportions of the disposal stream than they would where there is no deposit. With deposit containers diverted out, the remaining materials make up a correspondingly larger share of the disposal stream in deposit states. A composition from a container deposit state therefore understates containers and overstates other materials relative to what Rhode Island would generate. To reflect this, the two deposit state studies were given reduced weighting factors, so they still inform the characterization without carrying the same impact of studies that more closely resemble Rhode Island.

Additionally, source studies with larger sample volumes produce more statistically reliable composition estimates, and as such, each source study’s contribution to the weighted average was scaled by its total sample weight. This placed greater influence on studies with more extensive sampling.

For each material category and sector, the harmonized characterization value was calculated as a weighted average across all contributing studies using the following formula:

$$\text{Composition}_{i,\text{sector}} = \sum (n_j \times b_j \times w_j) \div \sum (b_j \times w_j)$$

In this formula, n_j is the normalized characterization value for material i in study j ; b_j is the bottle bill adjustment factor (0.75 or 1.00), and w_j is the estimated total sample weight for study j .

Applying this formula across all material categories produced a set of harmonized, weighted average compositions for the residential and ICI sectors. These characterizations represent the estimated percentage of each material in the disposed mixed solid waste stream. To translate these characterizations into estimated tonnages for Rhode Island, the characterizations were applied to the state’s reported mixed solid waste disposal data by sector. The following sections present these results.

MUNICIPAL TRASH COMPOSITION

Table 1 breaks down estimates of 2024 solid waste tonnages by material type in Rhode Island for municipally served households. The total tonnage was taken directly from the RIRRC 2024 Municipal Summary, which reports households served and solid waste tons disposed for each of the State’s 39 communities; and then the tonnages

were aggregated to the county level for this analysis. The municipal service sector includes single family households, and multi-unit residential buildings with a total of residential units included under the municipal service cutoff, which is determined by the individual communities. Because the large majority of municipally served units are in single family and small multi-unit residential structures, the residential single family waste composition profile was applied to all municipally served household tonnage.

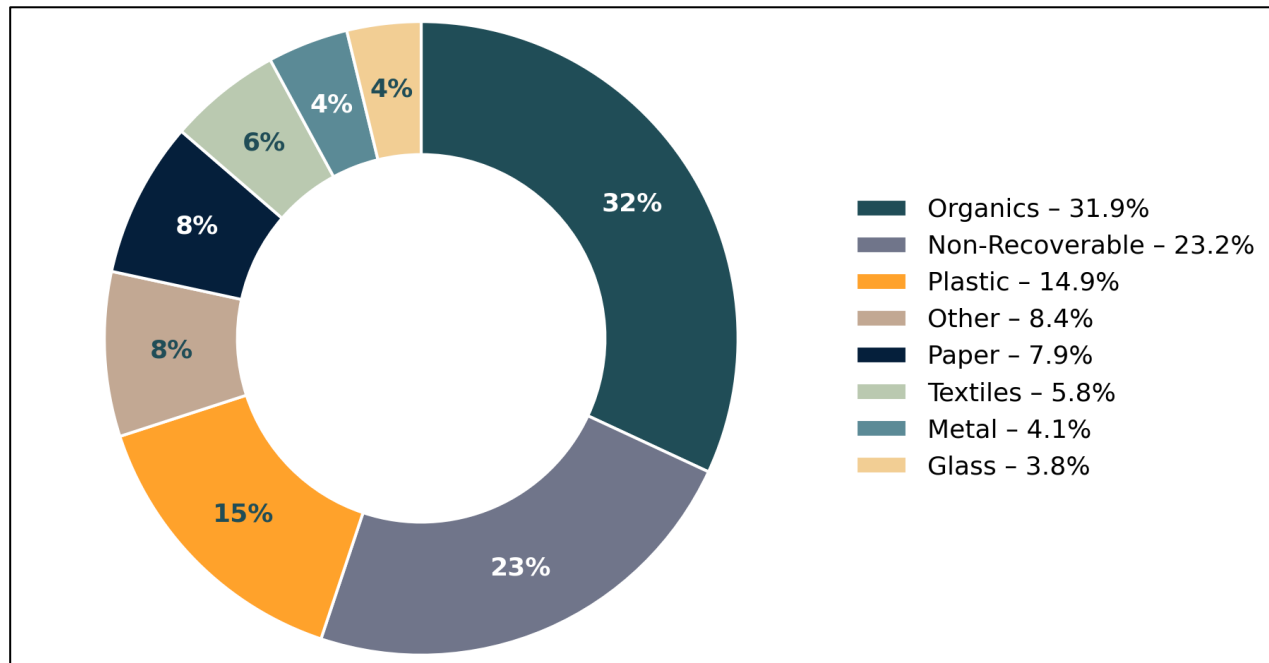
Table 1. 2024 Municipal Service Sector Tonnage by Material

Material Category	Material Type	Municipal Service Sector MSW Composition	Municipal Service Sector Tons
Paper	Paper, Mixed Paper	1.1%	4,035
Paper	Paper, Paperboard Boxboard	1.2%	4,251
Non-Recoverable	Paper, Non-Recoverable	14.6%	51,469
Paper	Paper, Magazines	0.5%	1,664
Paper	Paper, Newspaper (ONP)	0.6%	2,108
Paper	Paper, Corrugated Cardboard (OCC)	4.3%	15,269
Paper	Paper, Gable-top and Aseptic Cartons Combined	0.2%	677
Plastic	Plastic, PET #1 Bottles	1.4%	4,893
Plastic	Plastic, PET #1 Non-Bottle	0.4%	1,510
Plastic	Plastic, HDPE #2 Non-Bottle Colored and Natural Combined	0.0%	43
Plastic	Plastic, HDPE #2 Bottles Natural	0.3%	1,164
Plastic	Plastic, HDPE #2 Bottles Colored	0.4%	1,530
Plastic	Plastic, PP#5	0.5%	1,703
Plastic	Plastic, PS #6 Expanded Polystyrene	0.5%	1,704
Plastic	Plastic, Mixed Plastics Rigid #3-#7	2.6%	9,031
Plastic	Plastic, Film	5.3%	18,721
Plastic	Plastic, Other Plastic	3.4%	12,121
Metal	Metal, Aluminum Cans	0.5%	1,869
Metal	Metal, Aluminum Foil	0.4%	1,323
Metal	Metal, Steel Cans	0.5%	1,665
Metal	Metal, Ferrous Scrap	1.9%	6,532
Metal	Metal, Non-ferrous Scrap	0.9%	3,149
Glass	Glass, Bottles and Jars	2.5%	8,682
Glass	Glass, Non-Container	1.3%	4,635
Organics	Organics, Branches and Stumps	0.7%	2,357
Organics	Organics, Food and Wasted Food	21.8%	76,960
Organics	Organics, Leaves and Grass	3.5%	12,512
Organics	Organics, Other	3.3%	11,633

Material Category	Material Type	Municipal Service Sector MSW Composition	Municipal Service Sector Tons
Organics	Organics, Wood	1.9%	6,700
Organics	Organics, Manure	0.7%	2,356
Textiles	Textiles, Clothing, Fabric, and Leather	5.8%	20,300
Other	Bulky Waste Carpet	0.7%	2,559
Other	Bulky Waste Mattresses	0.7%	2,639
Other	Bulky Waste Other	2.6%	9,086
Other	Construction and Demolition	2.0%	7,199
Other	Electronics	1.1%	3,790
Other	HHW	1.0%	3,586
Non-Recoverable	Inerts: Rock, Soil, and Fines	1.5%	5,263
Non-Recoverable	Residue	7.1%	25,041
Other	Rubber	0.1%	463
Other	Tires	0.1%	286
Total	Not Applicable	100.0%	352,478

It is estimated that the largest portion of material in municipally served household disposal (by broad material category) is organic waste (32%), followed by plastic (15%) and recoverable paper (8%). Non-Recoverable material, which includes materials such as non-recoverable paper, inert material like rocks, soil, and fines, and other residue, makes up 23% of the municipally served stream. Materials classified as Other (8%) include bulky waste such as carpets and mattresses, electronics, household hazardous waste (HHW), rubber, tires, and construction and demolition (C&D) material within the MSW stream (Figure 2).

Figure 2. Estimated Municipally Served Household Trash Composition by Category



ICI TRASH COMPOSITION

Table 2 breaks down estimated 2024 trash tonnages for non-municipally sourced households and institutional, commercial, and industrial (ICI) generators in Rhode Island by material. Commercial haulers collect this material through contracts with residents, businesses, industries, and institutions in the state. Material that is collected curbside by private commercial haulers in communities without municipal service, and material collected from multi-family households above the community-determined service cutoff are considered ICI material. As mentioned above, this material is all classified as commercial disposal if brought to the RIRRC facility, even in the case where the material was generated by households. Because non-municipally sourced household and commercial waste cannot be distinguished in disposal records, the commercial (ICI) waste composition profile was applied to the entire category.

The estimated tons of ICI disposal totaled 321,392 in 2024, consisting of a known 97,507 tons disposed in-state at the RIRRC Central Landfill and an estimated 223,885 tons exported to out-of-state facilities. The 97,507 tons of material disposed of in-state at RIRRC facilities is included in annual reporting to RIDEM. However, RIDEM does not currently track solid waste that is hauled by private haulers to out-of-state disposal facilities, and no state reporting system captures this tonnage directly. In the absence of state data, the quantity of ICI trash exported out of state was estimated using the most recent interstate waste flow data reported in the Northeast Waste Management Officials' Association (NEWMOA) Solid Waste Interstate Flow Report (2022).¹¹

¹¹ Northeast Waste Management Officials' Association. (2025, August 1). Presentation on Municipal Solid Waste (MSW) Interstate Flow in the Northeast in 2022. <https://www.newmoa.org/wp-content/uploads/2025/08/MSW2022DataReportFinal.pdf>

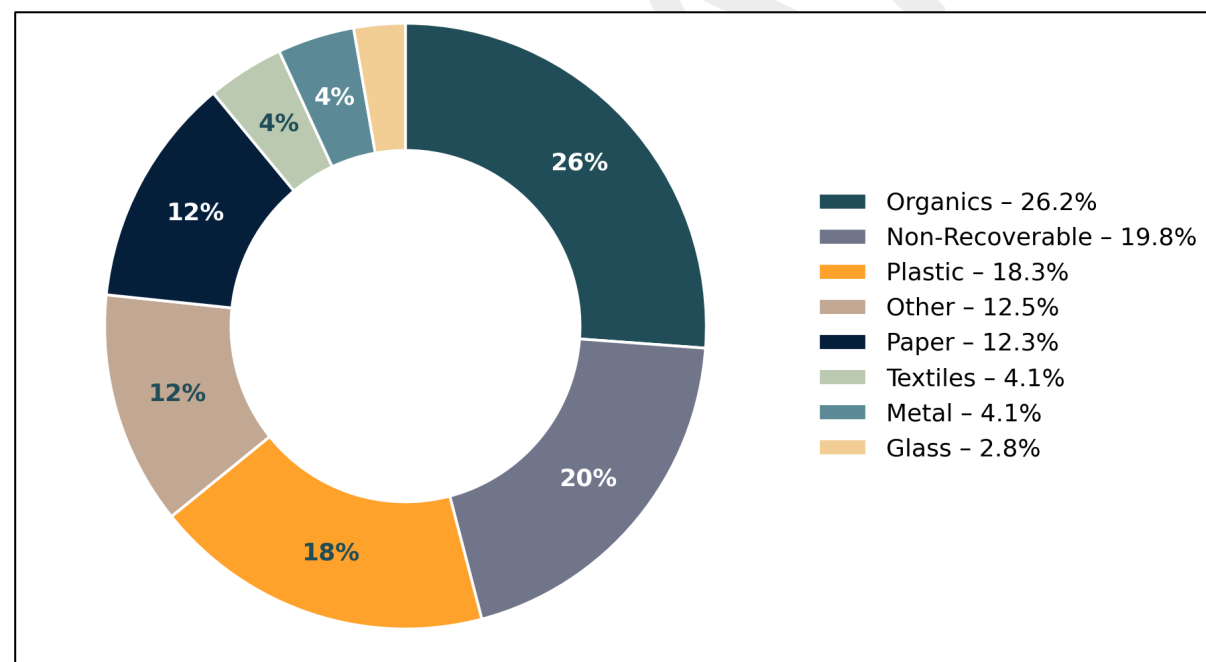
Table 2. 2024 ICI Serviced Sector Trash Composition and Tonnages by Material

Material Category	Material Type	ICI Serviced Sector MSW Composition	ICI Serviced Sector Tons
Paper	Paper, Mixed Paper	1.1%	3,595
Paper	Paper, Paperboard Boxboard	1.4%	4,626
Non-Recoverable	Paper, Non-Recoverable	12.9%	41,471
Paper	Paper, Magazines	0.5%	1,514
Paper	Paper, Newspaper (ONP)	0.3%	1,064
Paper	Paper, Corrugated Cardboard (OCC)	8.7%	27,914
Paper	Paper, Gable-top and Aseptic Cartons Combined	0.3%	881
Plastic	Plastic, PET #1 Bottles	1.3%	4,023
Plastic	Plastic, PET #1 Non-Bottle	0.4%	1,321
Plastic	Plastic, HDPE #2 Non-Bottle Colored and Natural Combined	0.1%	182
Plastic	Plastic, HDPE #2 Bottles Natural	0.5%	1,629
Plastic	Plastic, HDPE #2 Bottles Colored	0.4%	1,427
Plastic	Plastic, PP#5	0.8%	2,569
Plastic	Plastic, PS #6 Expanded Polystyrene	0.8%	2,690
Plastic	Plastic, Mixed Plastics Rigid #3-#7	3.0%	9,559
Plastic	Plastic, Film	8.2%	26,337
Plastic	Plastic, Other Plastic	2.8%	8,978
Metal	Metal, Aluminum Cans	0.5%	1,625
Metal	Metal, Aluminum Foil	0.3%	837
Metal	Metal, Steel Cans	0.3%	1,024
Metal	Metal, Ferrous Scrap	2.1%	6,599
Metal	Metal, Non-ferrous Scrap	1.0%	3,189
Glass	Glass, Bottles and Jars	2.2%	7,224
Glass	Glass, Non-Container	0.5%	1,663
Organics	Organics, Branches and Stumps	0.2%	734
Organics	Organics, Food and Wasted Food	18.0%	57,965
Organics	Organics, Leaves and Grass	0.9%	3,042
Organics	Organics, Other	2.3%	7,348
Organics	Organics, Wood	4.3%	13,815
Organics	Organics, Manure	0.4%	1,165
Textiles	Textiles, Clothing, Fabric, and Leather	4.1%	13,283
Other	Bulky Waste Carpet	1.7%	5,528
Other	Bulky Waste Mattresses	0.1%	468
Other	Bulky Waste Other	2.8%	8,969

Material Category	Material Type	ICI Serviced Sector MSW Composition	ICI Serviced Sector Tons
Other	Construction and Demolition	5.1%	16,387
Other	Electronics	1.0%	3,203
Other	HHW	1.2%	3,856
Non-Recoverable	Inerts: Rock, Soil, and Fines	1.9%	6,227
Non-Recoverable	Residue	4.9%	15,806
Other	Rubber	0.5%	1,465
Other	Tires	0.1%	191
Total	Not Applicable	100.0%	321,392

The largest portion of ICI service sector tonnage (by broad material category) is organic waste (26%), followed by plastic (18%) and recoverable paper (12%). Non-Recoverable material, which includes materials such as non-recoverable paper, inert material like rocks, soil, and fines, and other residue, makes up 20% of this stream. Materials classified as Other (12%) include bulky waste such as carpets and mattresses, electronics, household hazardous waste, rubber, tires, and construction and demolition material within the MSW stream (Figure 3).

Figure 3. Estimated Non-Municipally Sourced Household and Commercial Trash Composition by Category



OVERALL TRASH COMPOSITION

Table 3 combines estimated trash tonnage by material for the combination of the municipally serviced sector and the ICI serviced sector, for a total of 673,869 tons of material disposed. This total excludes approximately 16,832 tons of MRF material that was landfilled in 2024; that material is not attributed to a service stream or broken out by material in this analysis. Including MRF residuals, the total Rhode Island-generated mixed solid waste

disposed of in 2024 was 690,701 tons.

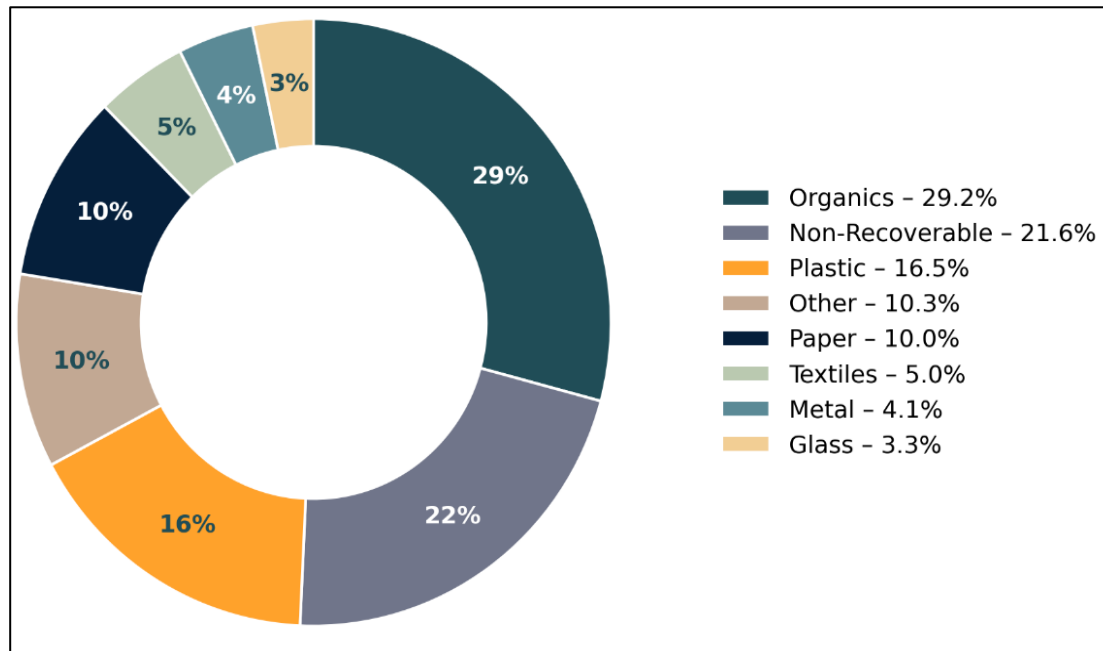
Table 3. Combined Municipally Serviced Sector and ICI Serviced Sector Solid Waste Tons Disposed by Material

Material Category	Material Type	Overall Composition	Municipally Serviced Tons	ICI Serviced Tons	Overall Tons
Paper	Paper, Mixed Paper	1.1%	4,035	3,595	7,630
Paper	Paper, Paperboard Boxboard	1.3%	4,251	4,626	8,877
Non-Recoverable	Paper, Non-Recoverable	13.8%	51,469	41,471	92,940
Paper	Paper, Magazines	0.5%	1,664	1,514	3,178
Paper	Paper, Newspaper (ONP)	0.5%	2,108	1,064	3,172
Paper	Paper, Corrugated Cardboard (OCC)	6.4%	15,269	27,914	43,183
Paper	Paper, Gable-top and Aseptic Cartons Combined	0.2%	677	881	1,558
Plastic	Plastic, PET #1 Bottles	1.3%	4,893	4,023	8,917
Plastic	Plastic, PET #1 Non-Bottle	0.4%	1,510	1,321	2,831
Plastic	Plastic, HDPE #2 Non-Bottle Colored and Natural Combined	0.0%	43	182	225
Plastic	Plastic, HDPE #2 Bottles Natural	0.4%	1,164	1,629	2,793
Plastic	Plastic, HDPE #2 Bottles Colored	0.4%	1,530	1,427	2,957
Plastic	Plastic, PP#5	0.6%	1,703	2,569	4,272
Plastic	Plastic, PS #6 Expanded Polystyrene	0.7%	1,704	2,690	4,394
Plastic	Plastic, Mixed Plastics Rigid #3-#7	2.8%	9,031	9,559	18,589
Plastic	Plastic, Film	6.7%	18,721	26,337	45,058
Plastic	Plastic, Other Plastic	3.1%	12,121	8,978	21,099
Metal	Metal, Aluminum Cans	0.5%	1,869	1,625	3,494
Metal	Metal, Aluminum Foil	0.3%	1,323	837	2,160
Metal	Metal, Steel Cans	0.4%	1,665	1,024	2,689
Metal	Metal, Ferrous Scrap	1.9%	6,532	6,599	13,131
Metal	Metal, Non-ferrous Scrap	0.9%	3,149	3,189	6,337
Glass	Glass, Bottles and Jars	2.4%	8,682	7,224	15,906
Glass	Glass, Non-Container	0.9%	4,635	1,663	6,298
Organics	Organics, Branches and Stumps	0.5%	2,357	734	3,091
Organics	Organics, Food and Wasted	20.0%	76,960	57,965	134,925

Material Category	Material Type	Overall Composition	Municipally Serviced Tons	ICI Serviced Tons	Overall Tons
	Food				
Organics	Organics, Leaves and Grass	2.3%	12,512	3,042	15,554
Organics	Organics, Other	2.8%	11,633	7,348	18,981
Organics	Organics, Wood	3.0%	6,700	13,815	20,515
Organics	Organics, Manure	0.5%	2,356	1,165	3,520
Textiles	Textiles, Clothing, Fabric, and Leather	5.0%	20,300	13,283	33,584
Other	Bulky Waste Carpet	1.2%	2,559	5,528	8,087
Other	Bulky Waste Mattresses	0.5%	2,639	468	3,107
Other	Bulky Waste Other	2.7%	9,086	8,969	18,055
Other	Construction and Demolition	3.5%	7,199	16,387	23,586
Other	Electronics	1.0%	3,790	3,203	6,993
Other	HHW	1.1%	3,586	3,856	7,441
Non-Recoverable	Inerts: Rock, Soil, and Fines	1.7%	5,263	6,227	11,490
Non-Recoverable	Residue	6.1%	25,041	15,806	40,847
Other	Rubber	0.3%	463	1,465	1,929
Other	Tires	0.1%	286	191	477
	Total	100.0%	352,478	321,392	673,869

Organics is the largest single category in the MSW stream, at 29%, followed by plastic (16%) and recoverable paper (10%). Non-Recoverable material, which includes materials such as non-recoverable paper, inert material like rocks, soil, and fines, and other residue, makes up 22% of the total MSW stream. Materials classified as Other (10%) include bulky waste such as carpets and mattresses, electronics, household hazardous waste, rubber, tires, and construction and demolition material within the MSW stream (Figure 4).

Figure 4. Overall Municipal Solid Waste Disposal in Rhode Island by Material



RECYCLED MSW

In Rhode Island, all municipal serviced sector recycling material is sent to the RIRRC MRF. ICI recycling is handled by private haulers, and an unknown amount of ICI recycling tonnage is processed out of state.

According to 2024 RIDEM solid waste reports, of all material generated in Rhode Island, 78,478 tons were accepted by RIRRC MRF. This includes 78,437 tons of commingled (mixed) recyclables, 39 tons of mixed plastics, and two tons of paper-fiber and paperboard. Of that total received, approximately 16,832 tons (21.4%) were disposed of as residue, while the remaining 61,646 tons (78.6%) were recovered and processed as recycling. The 21.4% represents the MRF's residue rate, which is the proportion of incoming material disposed of, rather than recovered. Tonnages processed by the RIRRC MRF are broken down below in Table 4.

In Rhode Island, all municipal serviced sector recycling material is sent to the RIRRC MRF.

ICI recycling is handled by private haulers, and an unknown amount of ICI recycling tonnage is processed out of state.

Table 4. Tonnages Accepted and Processed at RIRRC MRF

Material Processed At RIRRC MRF	Tons
Incoming Recyclables	78,478
MRF Residue	16,832
Net Recyclables Processed at MRF	61,646

The 61,646 tons of recyclables processed at the RIRRC MRF consisted of approximately 91% municipal recycling and 9% ICI recycling. Recycling tonnages processed at RIRRC are broken down by sector in Table 5.

Table 5. Recycling Tonnages Processed in Rhode Island at the RIRRC Material Recovery Facility by Service Sector

Recycling Generator	Tons
Municipal	56,364
ICI¹²	5,283
Total	61,646

COMPOSTED OR ANAEROBICALLY DIGESTED MSW

According to 2024 RIDEM solid waste reports, it is estimated that 80,449 tons of organic material were sent to Rhode Island facilities for composting or anaerobic digestion. This material is predominantly yard waste (71,087 tons), but also includes food waste (6,654 tons), fats, oil, and grease (349 tons), wood (1,922 tons), and other organic materials (436 tons).

Table 6. Reported Incoming Organic Materials by Facility Type

Reported Incoming Organic Material By Facility Type	Tons
Compost Facility	66,114
Putrescible Compost Facility	6,938
Anaerobic Digester	7,398
Total Incoming Material	80,449

Of the composted material, approximately 79% comes from municipal sources, and the remaining 21% comes from ICI operations. Private haulers transport additional ICI compost tonnages out-of-state. The breakdown of known composting activity in Rhode Island is demonstrated in Table 7.

Table 7. Compost Material Tonnages in Rhode Island by Sector

Sector Generator	Tons
Municipal	63,181
ICI¹³	17,268
Total	80,449

¹² Total ICI recycling generation is underrepresented due to an unknown proportion of these materials being transported out of state by private haulers.

¹³ Total ICI compost generation tonnage is underrepresented due to an unknown proportion of these materials being transported out of state by private haulers.

MATERIALS THAT ARE NOT CAPTURED BUT ARE RECYCLABLE

More than 673,000 tons of MSW are disposed from Rhode Island annually, including in-state and out-of-state disposal. Approximately 90% of this material could be diverted. Potential diversion strategies generally fall into four groups:

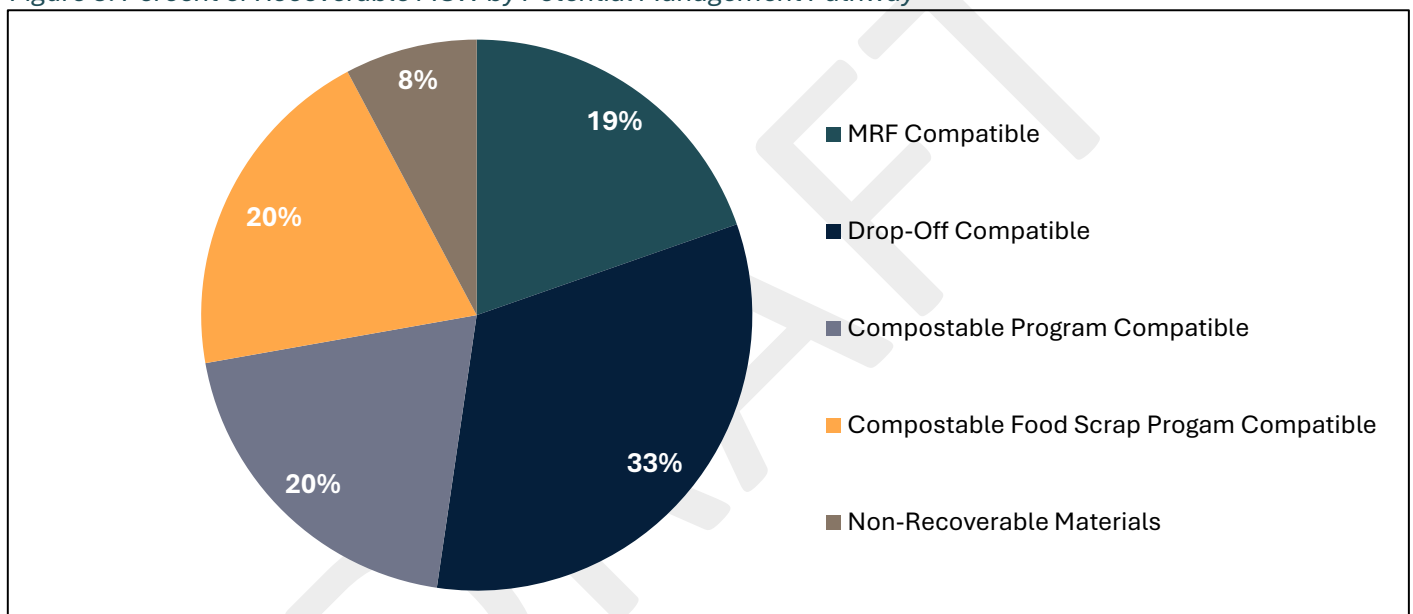
1. **MRF Compatible Recyclables:** MRF compatible material refers to items that could be collected as single stream materials or commingled through curbside or drop-off collection programs. The defining characteristic of these items is that they can be economically and efficiently sorted at MRF processing facilities into saleable commodities. MRF compatible materials include corrugated cardboard, mixed paper, office paper, aluminum and steel cans, glass bottles and jars, and plastic jugs, tubs, and bottles.
2. **Drop-off Compatible Recyclables:** Drop-off compatible recyclables are items that are recyclable but cannot be effectively sorted from other commodities at MRFs and thus need to be collected source-separated, typically through drop-off programs. This includes material such as plastic film, scrap metal, non-container glass, expanded polystyrene, wood, bulky items such as mattresses and carpet, electronics, HHW, and C&D materials.
3. **Compostable Program Compatible:** Compostable program compatible materials are organic materials such as yard debris, brush, and compostable paper. These materials can be collected through curbside or drop-off programs but cannot be commingled with recyclable materials.
4. **Compostable Food Scrap Program Compatible:** Compostable Food Scrap Program Compatible refers to food scraps and wasted food that could be collected through curbside or drop-off programs but cannot be commingled with recyclable materials.

Table 8 provides the breakdown of total tons in the MSW stream by potential management strategy, and Figure 5 shows the percent breakdown. The largest category of disposed MSW that is not being captured for diversion is organics. Over 134,000 tons of compostable program compatible material and 134,000 tons of compostable food scrap compatible material, totaling more than 269,000 tons (40% of total divertible material) of organic material, could be diverted from disposal. The second largest category of disposed MSW that is not being captured for recycling is drop-off compatible recyclables (220,000 tons or 33% of total divertible material). As noted above, this category encompasses a wide array of materials, some of which can be captured through drop-offs for plastic film and scrap metal, and some of which require specialized handling or recycling management such as electronics and HHW. Finally, MRF compatible recyclables, which often could be readily recovered through existing curbside programs, make up 19% of the disposed MSW, totaling more than 132,000 tons. The remaining 8% of the stream (about 52,000 tons) is non-recoverable material such as inerts, rocks, fines, and other residue. Of an estimated total of 673,869 tons of material that are disposed annually in the State, a maximum of 92% of material could be diverted from landfill, based on this study's waste characterization.

Table 8. Recoverable Tons of MSW by Potential Management Pathway

Management Of Material	Municipally Served Sector Tons	ICI Served Sector Tons	Total Tons
MRF Compatible Recyclables	61,418	71,014	132,432
Drop-Off Compatible Recyclables	103,469	116,620	220,089
Compostable Program Compatible	80,327	53,759	134,086
Compostable Food Scrap Program Compatible	76,960	57,965	134,925
Non-Recoverable Materials	30,304	22,033	52,337
Total	352,478	321,392	673,869

Figure 5. Percent of Recoverable MSW by Potential Management Pathway



COMMODITY VALUES OF POTENTIALLY RECOVERABLE MATERIALS

Table 9 presents the estimated commodity value of materials that could potentially be recovered from Rhode Island's disposed mixed solid waste stream. Commodity values for commonly recycled, MRF-compatible materials (paper grades, PET and HDPE plastics, aluminum and steel containers, and glass) were derived from the Secondary Pricing Index, using the Northeast regional average price series. To smooth short-term market volatility and reflect a representative long-run price rather than a point-in-time spot quote, each material's regional price was averaged across the full available historical series (January 2022 through July 2026). Where prices were reported in cents per pound, values were converted to dollars per ton.

For materials without an active, regularly reported secondary commodity market – including organics, textiles, electronics, construction and demolition debris, bulky items, tires, rubber, and non-ferrous scrap – RRS drew on a range of industry-specific sources appropriate to each material: compost and mulch market reports, agricultural extension data on nutrient value (for manure), secondary metals market benchmarks (including the Zorba index

for mixed non-ferrous scrap), electronics recycler price sheets, and industry knowledge where no direct market data exists. Across all priced materials, the disposal stream represents approximately \$35.5 million in lost commodity value. These are gross values that reflect the market value of the materials and do not account for the cost of collecting, sorting, and processing them. The value that could realistically be recovered would therefore be lower. At the same time, because materials without credible pricing were excluded, the figures understate the full value present in the stream.

Table 9. Estimated Commodity Value (\$) of Disposed Tonnages for Potentially Recoverable Materials

General Category	Material	Tons Of Disposed Materials	Lost Commodity Value (\$)
Paper	Mixed Paper	7,630	\$277,115
Paper	Paperboard Boxboard	8,877	\$322,415
Paper	Magazines	3,178	\$115,438
Paper	News (ONP)	3,172	\$115,207
Paper	Corrugated Cardboard (OCC)	43,183	\$3,511,677
Paper	Gable-top and Aseptic Cartons Combined	1,558	\$56,597
Plastic	PET #1 Bottles	8,917	\$2,666,402
Plastic	PET #1 Non-Bottle	2,831	\$846,551
Plastic	HDPE #2 Non-Bottle Colored and Natural Combined	225	\$61,535
Plastic	HDPE #2 Bottles Natural	2,793	\$3,115,978
Plastic	HDPE #2 Bottles Colored	2,957	\$807,494
Plastic	PP#5	4,272	\$1,109,792
Plastic	PS #6 Expanded Polystyrene	4,394	\$159,270
Plastic	Mixed Plastics Rigid #3-#7	18,589	\$673,868
Plastic	Film	45,058	\$591,157
Plastic	Other Plastic	21,099	\$764,834
Metal	Aluminum Cans	3,494	\$5,695,238
Metal	Metal Aluminum Foil	2,160	\$0
Metal	Steel Cans	2,689	\$539,995
Metal	Ferrous Scrap	13,131	\$558,053
Metal	Non-ferrous Scrap	6,337	\$5,069,842
Glass	Glass Bottles and Jars	15,906	(\$290,760)
Glass	Glass Non-Container	6,298	\$0
Organics	Branches and Stumps	3,091	\$37,095
Organics	Combined Organics Paper	92,940	\$1,115,275
Organics	Food and Wasted Food	134,925	\$2,023,881
Organics	Leaves and Grass	15,554	\$186,646
Organics	Organics Other	18,981	\$227,776
Organics	Wood	20,515	\$512,871

General Category	Material	Tons Of Disposed Materials	Lost Commodity Value (\$)
Organics	Manure	3,520	\$77,448
Textiles	Textiles Clothing, Fabric, and Leather	33,584	\$3,358,363
Other	Bulky Waste Carpet	8,087	\$0
Other	Bulky Waste Mattresses	3,107	\$0
Other	Bulky Waste Other	18,055	\$0
Other	Construction and Demolition	23,586	\$188,691
Other	Electronics	6,993	\$1,048,916
Other	HHW	7,441	\$0
Non-Recoverable	Inerts, Rock, Soil, and Fines	11,490	\$0
Non-Recoverable	Residue	40,847	\$0
Other	Rubber	1,929	\$0
Other	Tires	477	\$9,547
	Total	673,869	\$35,554,208

FUTURE WASTE AND RECYCLING GENERATION IN THE STATE

Rhode Island's population is expected to grow through 2040. Rhode Island's most recent official population projections were produced in 2013; in the absence of more recent state-generated projections, populations for 2030 and 2040 were projected by applying the compound annual growth rate (CAGR) derived from the U.S. Census Bureau's 2010 and 2020 decennial counts. This method assumes the state's recent historical growth rate continues through the projection period and does not capture migration shifts, aging, birth or death rates that may affect actual population.

Table 10. Rhode Island 2010, 2020 Census Population & Projections through 2040

2010	2020	2030	2040
1,052,567	1,097,379	1,144,099	1,192,808

ESTIMATED GENERATION IN AS-IS TIME FRAME

Between 2024 and 2040, disposal, recycling, and compost generation are expected to increase as population grows. A breakdown of estimated generation is provided in Table 11. The disposal tonnages below include MRF residue tonnage.

Table 11. Current and Projected Generation in Rhode Island from 2024-2040

2024			2030			2040		
Disposal Tons	Recycling Tons	Compost Tons	Disposal Tons	Recycling Tons	Compost Tons	Disposal Tons	Recycling Tons	Compost Tons
690,701	78,478	80,449	720,684	81,504	83,508	752,107	84,662	86,698

BEVERAGE CASE TAX

General Law 44-44-3, passed in 1984, allows for tax on beverage containers, with the original intent to provide funding for the State's litter reduction and recycling program. A tax of eight cents (\$0.08) is levied on each case of beverage containers sold by a beverage wholesaler to a beverage retailer or consumer within the state, collected by the wholesaler, and does not apply to reusable and refillable containers. The tax applies to any sealable bottle, can, jar, or carton containing non-alcoholic drinks for human consumption, except milk, as well as beer and other malt beverages. Small liquor bottles, typically 50 mL, termed as "nips" are included in this beverage case tax under the containers 7 fluid ounces or less. The law includes a termination clause in the case that "federal or state legislation is enacted which requires a deposit on beverage containers."¹⁴ Because wholesalers report taxable sales by case-size category on their returns, the associated filing data provides generation of single-use beverage containers entering the Rhode Island market each year.

A "case" is defined in statute on a sliding equivalency based on container size (48 containers per case at 7 fluid ounces or less; 24 containers at more than 7 up to 16.9 ounces; 12 containers at more than 16.9 up to 33.9 ounces; and 6 containers at more than 33.9 ounces), allowing reported case counts to be converted directly to container units. Table 12 summarizes reported case and container volumes for 2021 through 2024.

Table 12. Rhode Island Beverage Container Tax Filings, 2021–2024

Year	≤7 OZ (Cases)	>7–16.9 OZ (Cases)	>16.9–33.9 OZ (Cases)	>33.9 OZ (Cases)	Total Cases	Total Containers
2021	563,977	17,054,581	5,013,376	7,266,530	29,898,464	540,140,532
2022	454,842	14,826,091	5,157,165	6,513,152	26,951,250	478,623,492
2023	460,459	15,438,626	4,904,929	3,879,004	24,683,018	474,762,228
2024	421,429	14,848,646	4,821,922	3,834,132	23,926,129	457,463,952

From 2021 through 2024 between 457 million and 540 million beverage containers were sold into the Rhode Island market annually, with a total of \$2,031,548 in tax revenue collected in 2024. While these data establish the total number of containers generated, they present a significant limitation for the purposes of this analysis: the tax return does not distinguish container material. The same reporting category (segmented by volumetric size) may include aluminum cans, glass bottles, PET bottles, and other formats, each with substantially different unit weights. Because all generation, disposal, and diversion estimates in this Needs Assessment are expressed in tons, the container counts cannot be incorporated into the model without an assumed distribution of container materials and corresponding unit weights.

One approach to bridge this gap is to apply the material mix observed in redemption data from deposit-return states, such as Oregon, where containers are counted and reported by material type. Applying that material distribution to Rhode Island's container counts, together with standard per-unit container weights, would yield an order-of-magnitude estimate of beverage container tonnage. However, this approach carries meaningful

¹⁴ R.I. Gen. Laws § 44-44-13 (2025). Rhode Island General Assembly. <https://webserver.rilegislature.gov/Statutes/TITLE44/44-44/44-44-13.htm>

uncertainty. Beverage consumption patterns – and therefore the mix of aluminum, glass, and plastic containers – vary regionally, and the mix of containers redeemed through a deposit program may not reflect the mix of containers sold. Program scope also differs; deposit programs cover different beverage types than Rhode Island's container tax, which excludes milk and refillable containers. For these reasons, any tonnage estimate derived from the container tax data should be treated as indicative rather than definitive and is presented here for context rather than incorporated directly into the generation and disposition model.

04. Collection Methods, Materials Accepted, Operational Costs

INTRODUCTION

Data reviewed for this section of the analysis is sourced from the 2024 RIRRC Municipal Matrix, in which all Rhode Island communities self-reported access and program details for curbside and drop-off services across waste streams including trash, recycling, yard waste/green waste, and food waste. As responses are self-reported, data should be interpreted with the understanding that individual communities may have understood questions differently, may have left data fields incomplete, or reported information that reflected future plans, rather than current programs. All responses were reviewed and standardized prior to the analysis in order to reflect the responses that were true as of 2024.

MUNICIPAL TRASH AND RECYCLING COLLECTION

The municipal waste stream consists of material generated by the municipal service sector. The municipal service sector includes single family households, and multi-unit residential buildings with a total of residential units included under the municipal service cutoff (determined by the individual communities). Municipal service sector material may also include waste generated in municipal buildings, schools, and offices, but this is a small volume of material compared to household tonnage.

According to State law, Rhode Island municipalities are required to bring their solid waste and recyclables to RIRRC or to facilities designated by RIRRC. Municipal recycling is tipped free of charge at the RIRRC MRF, and municipal trash is disposed at the Central Landfill at a subsidized rate (\$58.50 per ton in FY 2024 and \$63 per ton in FY 2025). Each city and town is given an annual municipal solid waste cap, a set amount of trash they can deliver at that subsidized rate, calculated based on the community's population, the previous year's total statewide municipal solid waste generated, and a solid waste diversion goal. If a city or town goes over their solid waste cap (disposes more than the cap tonnage), they pay an over-the-cap municipal disposal fee (\$115 per ton in FY 2024 and 2025). State law also requires municipalities to reach a recycling rate of 35% and a diversion rate of 50%.

Households by community that receive municipal service through curbside, or drop-off programs are summed in Table 13 below. In 2024, there were a total of 372,774 households that received municipal service.

Table 13. Rhode Island Communities by Municipal Service

Municipal Service Group	Community	Households Municipally Served Curbside	Households Municipally Served Drop-Off	Total Number Of Households Municipally Served
> 10,000 Households Served Curbside	Coventry	Yes	Yes	12,817
	Cranston	Yes	No	29,275
	Cumberland	Yes	No	13,510
	East Providence	Yes	No	16,924
	Newport	Yes	Yes	10,100
	North Providence	Yes	No	12,545
	Pawtucket	Yes	Yes	30,000
	Providence	Yes	No	55,771
	Warwick	Yes	No	31,418
	Woonsocket	Yes	No	10,540
<10,000 Households Served Curbside	Barrington	Yes	No	6,024
	Bristol	Yes	Yes	8,700
	Burrillville	Yes	No	6,206
	Central Falls	Yes	No	5,293
	East Greenwich	Yes	Yes	4,325
	Foster	Yes	No	1,575
	Johnston	Yes	No	9,904
	Lincoln	Yes	No	6,099
	Middletown	Yes	No	4,714
	North Smithfield	Yes	No	4,537
	Scituate	Yes	No	4,184
	Smithfield	Yes	No	7,577
	Tiverton	Yes	No	6,782
	Warren	Yes	Yes	5,020
	West Warwick	Yes	Yes	9,300
Served by Independent Curbside Collection (ICI Service) or Transfer Station Drop Off	Charlestown	No	Yes	2,211
	Exeter	No	Yes	3,005
	Glocester	No	Yes	4,172
	Jamestown	Yes	Yes	2,700
	Little Compton	No	Yes	2,526
	Narragansett	Yes	Yes	8,003
	New Shoreham	No	Yes	730
	North Kingstown	Yes	Yes	9,314
	Portsmouth	No	Yes	2,243
	Richmond/Hopkinton	No	Yes	3,000

Municipal Service Group	Community	Households Municipally Served Curbside	Households Municipally Served Drop-Off	Total Number Of Households Municipally Served
	South Kingstown	Yes	Yes	9,856
	West Greenwich	No	Yes	1,000
	Westerly	No	Yes	10,874
TOTAL MUNICIPAL SERVICE HOUSEHOLDS				372,774

MUNICIPAL TRASH COLLECTION

Municipal Curbside Collection Service Type

There are three ways that municipal curbside trash is collected. With contracted service, trash is picked up by a private company that has a contract with the local government. With municipal collection service, local governments use municipal staff to provide their own trash collection with publicly owned trucks and equipment. In a subscription-based collection service residents directly hire their choice of private service provider (from a municipally licensed haulers list) to collect their curbside trash.

Table 14 breaks down the municipal curbside trash collection service type. A total of 254,106 households (68% of the municipally serviced households) receive curbside trash collection through contracted/franchise haulers. 59,034 households in four communities (Bristol, Lincoln, Coventry, Warwick) receive service directly from their municipality. 29,873 households in four communities (Jamestown, Narragansett, North Kingston, South Kingstown) receive curbside collection service from a hauler they select themselves from a list of municipally licensed haulers.

Table 14. Municipal Curbside Trash Collection Service Type

Service Type	Number Of Communities	Municipal Served Households	Percent Of Municipal Served Households
Contracted/Franchise	21	254,106	68%
Municipal	4	59,034	16%
Subscription	4	29,873	8%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Frequency

Collection frequency is the number of times per period that curbside materials are picked up from a given location. A total of 321,143 municipally serviced households in the state, or 86% of the municipally serviced households have weekly trash collection (Table 15).

Table 15. Municipal Curbside Trash Collection Frequency

Collection Frequency	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Weekly	26	321,143	86%
Unknown	3	21,870	6%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Container Sizes

Table 16 lists the collection container sizes across municipally serviced households. Collection container cart sizes are not consistently reported across communities. 95-gallon carts are the most common, followed by 65-gallon carts. In the RIRRC Municipal Matrix, several communities within the state indicated they are transitioning to a larger or smaller size container or are allowing residents to select between container sizes.

Table 16. Municipal Curbside Trash Collection Container Size

Container Size	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
64-gallon	4	32,608	9%
64- gallon and 35-gallon	1	29,275	8%
65- gallon	5	62,583	17%
95- gallon	8	149,781	40%
Unknown	11	68,766	18%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Type

Vehicles that are used to collect trash can have automated, manual or semi-automated collection systems. Automated collection is a waste collection method that uses a mechanical arm on a collection vehicle. The mechanical arm lifts and empties containers without the driver leaving the truck. Manual collection is done by hand rather than machine, where workers grasp, lift and empty containers or toss bags into hoppers or buckets on a collection vehicle. Semi-automated collection vehicles require manual labor to position containers on automated mechanical tippers but also have the flexibility to hand load bulkier items.

A total of 69% of the municipal serviced households utilize automated curbside collection methods for their trash. Manual collection is the second most common method with 13% of municipal serviced households using manual collection (Table 17).

Table 17. Municipal Curbside Trash Collection Method

Collection Method	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Automatic	16	258,854	69%
Manual	8	46,896	13%
Semi-Automatic	3	25,249	7%
Unknown	2	12,014	3%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Vehicle Type

There are many vehicle types that can be used to provide curbside collection. Side loaders are collection vehicles that are loaded from the side manually or with fully or semiautomated mechanical arms that grip containers, lift them overhead, and empty them into the collection vehicle. Rear loaders are collection vehicles with a large rear opening where garbage is manually loaded by workers and then compressed. Split body rear loaders are used to collect trash and recyclables in the same route, with divided sections for each material stream. A front loader vehicle is designed to empty large dumpsters by lifting them from the front using hydraulic arms.

Automated side loaders are the most common vehicle type, used by 13 communities serving about 59% of the municipal service households. Rear loaders are the next most common with seven communities utilizing these vehicles, making up 13% of the municipally serviced households (47,741 households). Table 18 includes details about municipal curbside trash collection vehicle type.

Table 18. Municipal Curbside Trash Collection Vehicle Type

Collection Vehicle	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Automated front loader	1	4,714	1%
Automated side loader	13	219,845	59%
Manual side loader	2	5,759	2%
Rear loader	7	47,741	13%
Split body rear loader	2	15,120	4%
Other	3	47,134	13%
Unknown	1	2,700	1%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Drop-Off Facility Access

Drop-off access is essential for residents who may opt out of curbside collection services or have additional materials to dispose of. All residents in the State have access to the Residential Recycling Area (RRA) on the RIRRC campus, where they can drop off solid waste, mixed recyclables and other materials. Some communities also have local drop-off facilities, as further described in this section and outlined in more detail later in the report (Table 27).

Material disposed of at municipal drop-off facilities counts towards municipal caps for the corresponding community. If tonnage disposed between municipal drop-off and curbside programs for an individual community exceeds the municipal cap, an additional fee is charged for each ton beyond the cap.

Ten communities only receive municipal trash services through drop-off programs. These communities are Charlestown, Exeter, Gloucester, Hopkinton, Little Compton, New Shoreham, Portsmouth, Richmond, West Greenwich, and Westerly. In some of these communities, curbside service is available through third party haulers on a subscription basis. Material collected curbside in these communities does not count towards municipal cap and is billed as ICI material.

Table 19. Municipal Trash Drop-off Access

Municipal Drop-Off Access	Number Of Communities	Municipal Served Households	Percent Of Municipal Served Households
Access to Municipal Drop-off	21	139,896	38%
No Access to Municipal Drop-off	18	232,878	62%
Total	39	372,774	100%

MUNICIPAL RECYCLING COLLECTION

Municipal Curbside Collection Service Type

Similarly to trash, there are three ways residents in Rhode Island receive municipal recycling curbside collection service. With contracted service, municipal recycling is picked up by a private company that has a contract with the local government. With municipal collection service, local governments use municipal staff to provide their recycling collection with publicly owned trucks and equipment. In a subscription-based collection service residents directly hire their choice of private service provider to collect their municipal curbside recycling.

A total of 73% of the municipally serviced households, or 272,219 households receive curbside recycling service through contracted service (Table 20). The 52,935 municipally serviced households in Bristol, Coventry, and Warwick receive collection service from the community's municipal employees and trucks. It should also be noted that some communities have different service types for trash versus recycling.

Table 20. Municipal Curbside Recycling Collection Service Type

Service Type	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Contracted/Franchise	24	272,219	73%
Municipal	3	52,935	14%
Subscription	2	17,859	5%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Frequency

Collection frequency is the number of times per period that municipal curbside material is picked up from a given location. A total of 229,334 (62%) municipally serviced households receive recycling collection weekly, along with trash collection. There are 103,823 (28%) municipally serviced households that receive recycling collection bi-weekly (Table 21).

Table 21. Municipal Curbside Recycling Collection Frequency

Collection Frequency	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Bi-weekly	11	103,823	28%
Weekly	17	229,334	62%
Unknown	1	9,856	3%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Container Sizes

As shown in Table 22, municipal serviced households use a variety of containers for collecting recyclables. In addition to larger containers, all communities have access to 22-gallon recycling bins from RIRRC to provide to their municipally serviced residents.

Table 22. Municipal Curbside Recycling Collection Container Sizes

Collection Container Size	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
64- gallon	5	42,804	11%
64- gallon and 35- gallon	1	29,275	8%
65- gallon	6	119,772	32%
95- gallon	7	83,407	22%
96- gallon	4	32,767	9%
Unknown	6	34,988	9%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Curbside Collection Vehicle Type

There are many vehicle types that can be used to provide municipal curbside recycling collection. Side loaders are collection vehicles that are loaded from the side manually or with fully or semiautomated mechanical arms that grip containers, lift them overhead, and empty them into the collection vehicle. Rear loaders are collection vehicles with a large rear opening where garbage is manually loaded by workers and then compressed. Split body rear loaders are used to collect trash and recycling in the same route, with divided section for each material stream. A total of 239,583 (64%) municipal serviced households within the state use automated side loader vehicles to collect curbside recyclables (Table 23).

Table 23. Municipal Curbside Recycling Collection Vehicle Type

Collection Vehicle Type	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Automated side loader	16	239,583	64%
Manual side loader	4	20,377	5%
Split body rear loader	2	15,120	4%
Rear loader	5	28,802	8%
Other	1	29,275	8%
Unknown	1	9,856	3%
No Municipal Curbside Service	10	29,761	8%
Total	39	372,774	100%

*29,761 households only receive municipal service through drop-off programs, so they are not included in curbside service totals.

Municipal Drop-Off Facility Access

Drop-off access is essential for residents who may opt out of municipal curbside collection services or have additional materials to manage. All residents in the State have access to the Residential Recycling Area (RRA) on the RIRRC campus, to drop off solid waste, mixed recyclables and other materials. Some communities also have local drop-off facilities, as further described in this section and outlined in Table 27.

Material disposed of at municipal drop-off facilities counts towards municipal caps for the community that the drop-off serves. If tonnage disposed between municipal drop-off and curbside programs for an individual community exceeds the municipal cap, an additional fee is charged for each ton beyond the cap.

Ten communities only receive municipal recycling services through drop-off programs. These communities are Charlestown, Exeter, Gloucester, Hopkinton, Little Compton, New Shoreham, Portsmouth, Richmond, West Greenwich, and Westerly. In some of these communities, curbside service is available through third party haulers on a subscription basis. Material collected curbside in these communities does not count towards municipal caps and is billed as ICI material.

Table 24. Municipal Recycling Drop-off Access

Municipal Drop-Off Access	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Yes	29	282,975	76%
No	10	89,799	24%
Total	39	372,774	100%

MUNICIPAL ORGANICS COLLECTION

Municipal Yard Waste Collection Access

A total of 97% of municipally serviced households have access to yard waste collection services, either through drop-off at transfer stations or through curbside collection services. (Table 25).

Table 25. Municipal Yard Waste Collection Access

Access To Yardwaste Collection	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Yes	35	361,417	97%
No	4	11,357	3%
Total	39	372,774	100%

Municipal Yard Waste Curbside Collection Service Type

With contracted service, yard waste is picked up by a private company that has a contract with the local government. With municipal collection service, local governments use municipal staff to provide their yard waste collection with publicly owned trucks and equipment. A total of 362,253 municipally serviced households receive curbside collection service for yard waste with most of these households receiving service through contracted service (Table 26).

Table 26. *Municipal Yard Waste Curbside Collection Service Type*

Service Type	Number Of Communities	Municipal Serviced Households	Percent Of Municipal Serviced Households
Contractor	20	252,213	68%
Municipality	10	91,108	24%
Municipality & Contractor	3	18,932	5%
Unknown	5	8,946	2%
No Municipal Curbside Service	1	1,575	0%
Total	39	372,774	100%

Municipal Food Waste Collection Access Type

There are haulers throughout the State that provide opt-in subscription service for food waste collection to residents. However, organics haulers that collect food waste are not required to be licensed through RIDEM or provide annual metrics about their collection tonnages. There is also municipal drop-off access for residents to manage their food waste in at least four communities.

ICI TRASH AND RECYCLING COLLECTION

Material that is not considered municipal material is classified as industrial, commercial, and institutional (ICI) material. Commercial haulers collect this material through contracts with residents, businesses, industries, and institutions in the state. Although some of this material is delivered to RIRRC facilities for processing, it is not required. The majority of ICI material is processed at out-of-state facilities. ICI waste collection and diversion is overseen through state laws, policies, and regulations.

Material that is collected curbside by private commercial haulers in communities without municipal service, and material collected from multi-unit residential buildings above the community-determined service cutoff are considered ICI material. In 2024, there were a total of 448,318 occupied households in the State. In the same year, 372,774 households in the State were in the municipal service sector, resulting in 75,544 households being included in the ICI service sector.

Because ICI collection is completed by private haulers, and material is not required to go to RIRRC facilities, there is not detailed information available about service details like collection frequency.

MATERIALS ACCEPTED AND EXCLUDED IN RECYCLING PROGRAM

CURBSIDE RECYCLING PROGRAM MATERIALS

Materials accepted and excluded in curbside recycling in Rhode Island recycling programs are standardized across all communities in the state. The material acceptance guidelines are set by the RIRRC based on what materials can be accepted at the agency's MRF, where all curbside recyclables are sent for processing. The full list of [RIRRC's recycling guidelines](#) is publicly available online.

Paper

Acceptable materials include:

- Paper
- Cardboard (up to 3' by 5', flattened)
- Pizza boxes (some grease is acceptable)
- Aseptic and gable-top cartons
- Books
- Egg cartons
- Envelopes
- Paper bags
- Magazines
- Catalogs
- Newspaper
- Notebooks
- Office paper
- Paperboard boxes
- Paper towel tubes
- Wrapping paper

Unacceptable paper products include dirty or wet paper/cardboard, items made of paper combined with other material (such as photos, cigarette boxes, padded envelopes, spiral cans (i.e., paper chip cans or nut canisters), or binders), sanitary paper (i.e., napkins or tissues), shredded paper, wet-strength cardboard, frozen food boxes, or wax coated cardboard.

Plastic

Plastics recycled at the RIRRC MRF must be empty and must have not previously held any flammable liquid.

Containers must be 5 gallons or smaller. Acceptable materials include:

- Jars
- Jugs
- Tubs
- Bottles
- Cups
- Clamshells
- Cartons
- Blister packaging

Unacceptable plastic products include non-container plastic, plastic containers that held hazardous liquid, plastic containers larger than 5 gallons in size, plastic containers smaller than 2 inches in diameter or height, unemptied containers, items made of plastic combined with other materials (such as juice pouches, snack bags, candy wrappers), Styrofoam containers, compostable containers, polystyrene containers, and plastic film.

Metal

Accepted materials include:

- Aluminum beverage cans/bottles
- Aluminum cat food cans
- Steel/tin food cans
- Empty aerosol cans
- Aluminum foil
- Aluminum pie plates and serving dishes

Unacceptable metal includes items that are not cans/lids or foil (i.e., hangers, pots, and pans), unemptied cans, dirty foil, and items made of metal and other materials (i.e., juice pouches, snack wrappers, yogurt tops).

Glass

Accepted materials include:

- Drink bottles
- Food jars

Unacceptable materials include glass items that are not bottles or jars, unemptied containers, and items made of glass and another material (i.e., a mixed plastic and glass salt/pepper grinder). Broken glass bottles and jars are accepted from customers with automatic collection.

DROP-OFF

Unlike curbside recycling, the materials that can be recycled at drop-off locations in Rhode Island vary. Besides the traditional recyclables, materials accepted for recycling at Transfer Station do not flow through the state's mixed recycling program or through RIRRC MRF. The acceptance of materials at drop-off facilities in Rhode Island is broken down by community in Table 27. Where communities have more than one drop-off recycling option, guidelines were provided for all known available facilities.

Table 27. Drop-Off Materials Accepted by Community

City/Town	Facility Name	Traditional Recyclables	Books	Shredded Paper	Bulky Rigid Plastic	Plastic Film	Appliances/White Goods	Batteries	Propane Tanks	Scrap Metal	Yard Waste	Wood
Barrington	Barrington Recycling Center	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	No
Barrington	Barrington DPW Yard	No	No	No	No	No	No	Yes	No	No	No	No
Bristol	Bristol Transfer Station	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No
Burrillville	Whipple Ave. Recycling & Compost Facility	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes	No
Central Falls	Central Falls DPW Yard	No	No	No	No	No	No	No	No	No	No	No
Charlestown	Charlestown Transfer Station	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Coventry	Coventry Transfer Station	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No
Cranston	Cranston DPW Yard	No	Yes	No	No	No	No	No	No	Yes	No	No
Cumberland	Pascale Highway Facility	No	No	No	Yes	No	No	No	No	Yes	Yes	No
Cumberland	Cumberland DPW Yard	No	No	No	No	No	No	No	No	No	No	No
East Greenwich	East Greenwich Transfer Station	Yes	No	No	No	No	Yes	No	No	Yes	Yes	Yes

City/Town	Facility Name	Traditional Recyclables	Books	Shredded Paper	Bulky Rigid Plastic	Plastic Film	Appliances/White Goods	Batteries	Propane Tanks	Scrap Metal	Yard Waste	Wood
East Providence	East Providence DPW Yard	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No
Exeter	Exeter Transfer Station	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	No
Foster	Foster DPW Yard	No	Yes	No	No	No	Yes	No	No	Yes	No	No
Glocester	Glocester Transfer Station	No	Yes	No	Yes	No	Yes	Yes	No	No	Yes	No
Jamestown	Jamestown Transfer Station	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Little Compton	Little Compton Transfer Station	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No
Middletown	Middletown	No	No	No	No	No	No	No	No	No	No	No
Narragansett	Rose Hill Regional Transfer Station	Yes	Yes	No	Yes	No	Yes	Yes	No	No	Yes	No
New Shoreham	New Shoreham Transfer Station / Block Island	Yes	No	No	No	No	Yes	Yes	No	Yes	Yes	No
Newport	Newport Transfer Station	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No
Newport	City Yard - Self Service Recycling Area	No	Yes	No	No	No	No	No	No	Yes	No	No
North Kingstown	North Kingstown Transfer Station & Compost Facility	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
North Providence	North Providence DPW Yard	No	No	No	No	No	No	No	Yes	Yes	No	No
North Smithfield	North Smithfield Recycling Center	No	No	No	Yes	No	Yes	No	No	Yes	No	No
Pawtucket	Blackstone Valley Regional Transfer Station	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	No
Pawtucket	Pawtucket DPW Yard	No	No	No	No	No	No	No	No	No	No	No
Portsmouth	Portsmouth Transfer Station	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	No
Portsmouth	Prudence Island Transfer Station	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	No
Providence	Providence DPW Yard	Yes	No	No	No	No	No	No	No	No	No	No
Richmond	Richmond Transfer Station	Yes	No	No	No	No	Yes	No	No	Yes	No	No
Scituate	Scituate DPW Yard	No	No	No	No	No	No	No	Yes	Yes	Yes	No

City/Town	Facility Name	Traditional Recyclables	Books	Shredded Paper	Bulky Rigid Plastic	Plastic Film	Appliances/White Goods	Batteries	Propane Tanks	Scrap Metal	Yard Waste	Wood
Smithfield	Smithfield DPW Yard	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes	No
South Kingstown	Rose Hill Regional Transfer Station	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Tiverton	Tiverton Recycling Center	Yes	Yes	No	Yes	No	Yes	No	No	Yes	No	No
Tiverton	Tiverton DPW Yard	No	No	No	No	No	No	No	No	No	No	No
Warren	Warren Transfer Station	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	No
Warwick	Warwick Compost Facility	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes	No
West Greenwich	West Greenwich Transfer Station	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No
West Warwick	West Warwick DPW Yard	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes	No
Westerly	Westerly Transfer Station and Recycling Facility	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	No
Woonsocket	Woonsocket Recycling Center	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No

OPERATIONAL COSTS

MUNICIPAL COLLECTIONS

Municipal collection services in Rhode Island can include trash, recycling, and yard waste, often bundled under a single contract negotiated by the community. Alternatively, residents may contract directly with haulers through subscription services. In a small number of communities, the municipality performs collection directly.

Collection frequency also varies. Collection data was provided by 17 communities in Rhode Island and included total collection costs paid by communities for collection services. The costs in this section do not include tipping fees paid at solid waste management facilities.

Of the 17 communities that provided collection cost data, all offer weekly trash collection; recycling collection frequency ranged from weekly to every-other-week. Many communities also provide yard waste collection, though the structure varies. Some offer weekly collection throughout spring, summer, and fall, while others provide weekly pickup only in spring, shifting to every-other-week collection in summer and fall.

Given this variability in service structure, costs differ widely across communities and are difficult to compare directly. Table 28 shows these collection costs for each community along with the average, high, and low

collection costs at both the dollar-per-ton and dollar-per-household level. For the 17 communities that provided cost data, across all services (trash, recycling, and yard waste) and methods of service provision (municipal, contracted, and subscription), the average collection cost per collected ton is \$166. The collection cost ranges from a high of \$401 per ton to a low of \$59 per ton. These costs can also be expressed on a per-household basis, with an average annual cost of \$192 per household and a range of \$97 to \$355 per household.¹⁵

The highest per-ton cost represents a subscription program community. That figure covers trash and recycling collection but may not include yard waste. By contrast, the average cost for trash, recycling, and yard waste collection drops to \$144 per ton when only municipal and contracted services are considered and subscription service costs are excluded from the analysis. Subscription services typically cost more per ton, due to potential constraints in efficient routing and economies of scale resulting from competitive service. Contracted and municipally provided services, by contrast, generally benefit from guaranteed service areas, higher and more predictable participation, and the ability to negotiate volume-based rates.

The lowest cost, at \$59 per ton, represents a community that maintains three separate solid waste contracts and has negotiated a rate covering collection and delivery to the landfill or materials recovery facility.

Table 28. Average, High, and Low Collection Costs for Combined Trash, Recycling, and Yard Waste Collection

Community	Total Collection Cost In \$ Per Ton	Total Collection Cost In \$ Per Household
Barrington	\$126	\$236
Coventry	\$85	\$101
Cranston	\$75	\$97
Cumberland	\$124	\$156
Foster	\$141	\$190
Lincoln	\$123	\$211
Narragansett	\$401	\$355
New Shoreham	\$59	N/A ¹⁶
Newport	\$278	\$254
Pawtucket	\$107	\$111
Portsmouth	\$322	\$280
Providence	\$129	\$198
Scituate town	\$126	\$163
Smithfield town	\$157	\$181
South Kingstown	\$276	\$274
Tiverton	\$213	\$167
Warren	\$90	\$103

¹⁵ Collection costs and tonnage are drawn from municipal survey responses and the 2025 Recycling and MSW Tonnage data. Per-ton and per-household figures are calculated using each community's households served. The average, high, and low figures reflect an unweighted average across communities with reported data.

¹⁶ New Shoreham's collection cost was reported as a single per-ton figure, and it is unclear whether this includes recycling collection. Because of this uncertainty, the annual cost per household was not calculated for this community.

Community	Total Collection Cost In \$ Per Ton	Total Collection Cost In \$ Per Household
Average	\$166	\$192
High	\$401	\$355
Low	\$59	\$97

Collection costs are taken from municipal survey responses; per-ton and per-household figures are calculated using the 2025 Recycling and MSW Tonnage data and each community's reported households served.

In most communities, collection costs are reported as a bundled rate covering trash, recycling, and yard waste. However, a small number of communities can break out costs by material type. Four communities provided this level of detail, offering additional insight into how collection costs vary by service.

Table 29 presents reported collection costs disaggregated by service type – municipal solid waste, recycling, and yard waste. Recycling shows the highest cost per ton across all four communities, reflecting the lower density and lighter weight of recyclables relative to disposed municipal solid waste or yard waste. Because collection routes are similar across service types, the primary driver of per-ton cost differences is total tonnage collected. This also means costs are not independent: if residents recycle more, the per-ton cost of recycling decreases while the per-ton cost of trash collection may increase. As such it is important for communities to consider the combined system cost, rather than any single service in isolation, when drawing conclusions on the cost value of services.

Weekly trash collection is standard across all four communities, with costs ranging from \$68 to \$266 per ton. Three of the four, Newport, Portsmouth, and Providence, also collect recycling weekly; the fourth, the town of Lincoln, collects recycling every other week. The cost range for recycling collection was extremely variable ranging from a low of \$239 per ton for every-other-week collection in Lincoln to \$2,022 per ton for weekly collection in Providence. Providence's recycling cost per ton stands out as particularly high and is likely a consequence of the high recycling collection costs and the high volume of material rejected from their loads. Yard waste collection is more difficult to compare because collection frequency could not be determined for all communities; however, all four communities offer seasonal yard waste collection during spring through fall, at either weekly or every-other-week frequency.

Table 29. Collection Costs Broken Out by Trash, Recycling, Yard Waste, and Total for Four Rhode Island Communities

Community	Trash (\$/Ton)	Recycling (\$/Ton)	Yard Waste (\$/Ton)	Total (\$/Ton)
Lincoln	\$91	\$239	\$130	\$123
Newport	\$266	\$338	\$214	\$278
Portsmouth	\$248	\$564	\$210	\$322
Providence	\$68	\$2,022	\$341	\$129

INDUSTRIAL, COMMERCIAL & INSTITUTIONAL COLLECTIONS

Industrial, commercial, and institutional (ICI) waste refers to municipal solid waste and recyclables generated by non-residential sources, including industrial and manufacturing operations, retail and other commercial businesses, and institutions such as schools, hospitals, and government facilities. ICI collection costs are difficult to determine with precision. Unlike municipal residential collection, commercial collection is contracted directly between businesses and haulers with no public reporting requirements. Costs vary significantly depending on container type and size, collection frequency, and contract terms, making direct comparisons across businesses or communities difficult.

No direct data on ICI collection costs in Rhode Island was available for this analysis. However, a 2024 survey conducted in New York¹⁷ provides useful context for understanding the range of commercial costs and institutional customers may face for recycling collection. The survey found that multi-family properties using a six-yard recycling container with once-weekly collection paid between \$55 and \$725 per month, with an average of \$200 per month. Commercial customers using a 20-yard container with once-weekly collection paid between \$150 and \$1,050 per month, with an average of \$500 per month. Institutional customers using a recycling compactor with once-weekly collection paid between \$150 and \$1,833 per month, with an average of \$832 per month. The survey also noted significant regional variation in costs within New York, with some regions reporting substantially higher costs than others.

While these figures are not directly transferable to Rhode Island, they illustrate the wide range of costs that commercial and institutional customers may encounter and underscore the difficulty of establishing a representative cost estimate for commercial recycling collection without direct local data.

DISPOSAL COSTS

Disposal costs generally represent the tipping fees paid for municipal solid waste accepted as the landfill for processing. Tipping fee data was provided by 16 Rhode Island communities, reported as total disposal costs for all municipal solid waste disposed. Using 2025 tonnage data, the average tipping fee was \$85 per ton, though reported fees varied widely from a low of \$60 per ton to a high of \$278 per ton. Some of this variation may reflect differences in what communities included in their reported figures. The community reporting the highest tipping fee noted that residents pay \$2.50 per bag tag and that this cost was included in the disposal figure provided, suggesting the high end of the range may reflect costs beyond the landfill tipping fee itself. Given this, the median may be a more representative figure for what a typical Rhode Island community pays. At \$70 per ton, the median is substantially lower than the average, indicating that most communities pay closer to the lower end of the range and that a small number of communities reporting higher costs are pulling the average up.

Understanding the reported disposal costs requires some context on RIRRC's fee structure. Rhode Island communities pay a subsidized, below-market disposal fee that is recalculated on a biennial basis using an agreed-upon formula; the current municipal rate is \$63 per ton. By contrast, the standard gate rate charged to non-municipal commercial customers is \$115 per ton. Each municipality is also assigned a solid waste cap which

¹⁷ Center for Sustainable Materials Management (CSMM). (2026, April). New York Needs Assessment Phase 2. <https://static1.squarespace.com/static/61dc6efed523942093c032af/t/69013cc0a50371560f93e781/1761688768868/NY+Needs+Phase+2+Executive+Summary.pdf>.

is the maximum tonnage eligible for the subsidized rate and is calculated based on population, the prior year's total statewide municipal solid waste generated, and a diversion goal. Communities that exceed their cap pay the commercial rate of \$115 per ton. Revenue from commercial customers effectively subsidizes the municipal rate and supports programs offered at no direct cost to communities, including yard waste composting, household hazardous waste collection through the Eco-Depot program, and recycling education.

Because self-reported disposal totals may include costs beyond the landfill tipping fee itself, disposal cost can also be calculated directly from RIRRC's published caps and rate structure, using each municipality's actual solid waste tonnage delivered. This calculation applies the \$63 per ton under-cap rate to tonnage at or below a municipality's cap, and the \$115 per ton over-cap rate to any tonnage above it. Table 30 presents this calculation alongside each community's self-reported figure. Note that only communities that reported disposal costs will be represented in the Table 30 below.

Table 30. Self-Reported vs. Calculated Disposal Cost per Ton, by Community

Community	Tons Delivered	2025 Solid Waste Cap ¹⁴	Calculated Disposal Cost (\$/Ton)	Self-Reported Disposal Cost (\$/Ton)
Barrington	5,761	4,991	\$69.95	\$65.96
Bristol	6,333	6,591	\$63.00	\$61.45
Coventry	10,494	10,379	\$63.57	\$73.38
Cranston	27,021	24,023	\$68.77	\$63.00
Foster	1,673	1,298	\$74.66	\$83.63
Lincoln	7,515	6,525	\$69.85	\$59.75
New Shoreham	1,006	683	\$79.70	\$101.00
Newport	5,572	7,687	\$63.00	\$63.84
North Kingstown	5,667	8,112	\$63.00	\$77.83
Pawtucket	25,266	21,884	\$69.96	\$73.78
Portsmouth	2,705	5,409	\$63.00	\$97.97
Providence	73,924	55,297	\$76.10	\$74.82
Smithfield	5,678	6,422	\$63.00	\$62.33
South Kingstown	6,301	9,783	\$63.00	\$277.88
Tiverton	3,627	4,808	\$63.00	\$63.77
Warren	3,721	3,256	\$69.50	\$63.16
Average	N/A	N/A	\$67.69	\$85.22
Median	N/A	N/A	\$66.17	\$69.67
High	N/A	N/A	\$79.70	\$277.88
Low	N/A	N/A	\$63.00	\$59.75

Tons delivered are taken from 2025 Recycling and MSW Tonnage data. The calculated disposal cost is a calculation based on FY2025 cap tonnage from FY2025 Municipal Solid Waste Cap Allotments published by RIRRC and disposal rates from RIRRC's FY25 Fee Schedule. Self-reported disposal cost reflects municipal survey data.

In some instances, the calculated figures tell a different story than the self-reported ones. South Kingstown's self-reported figure of \$277.88 per ton, the highest in the self-reported dataset, falls to \$63.00 per ton when calculated directly from its tonnage and cap, since its delivered tonnage falls entirely within its cap. This shows that the self-reported figures may include disposal costs outside the landfill tipping fee for solid waste.

RECYCLING PROCESSING COSTS¹⁸

The RIRRC MRF processed 76,617 tons of recyclables in FY 2025. Total operating costs were \$12.8 million in FY 2025, or \$167.38 per ton received. The MRF does not currently charge a tipping fee for municipal material, meaning it relies primarily on tip fees paid by commercial recyclers, commodity revenues and tip fees received at Central Landfill to offset recycling operating costs.

The MRF generated an average of \$105.35 per ton received in FY 2025, leaving a net loss of \$62.02 per ton received. This gap results in an overall MRF operating loss of approximately \$4.75 million.

Revenue generated from commodity sales varied significantly by material type. Metals returned \$640.62 per ton shipped and plastics \$401.98 per ton shipped, while fiber returned only \$88.45 per ton shipped. Glass, which is included in the per-ton-received revenue figure, further dilutes the average given its characteristically negative market value.

Another challenge for the MRF is processing residue which cannot be recycled and is transferred to the landfill. Residue represents 22.18% of total tons received in FY 2025, up slightly from 21.67% in FY 2024. This residue rate reflects the level of contamination in the incoming material stream, and associated processing costs underscore the ongoing challenge of material quality and its effect on both processing efficiency and net revenue.

YARD WASTE PROCESSING COSTS

The 2025 RIRRC fee schedule sets yard waste processing at \$0 per ton for tonnage delivered within a municipality's leaf and yard debris cap, and \$25 per ton for tonnage delivered above that cap, with a separate rate of \$75 per ton for loads containing segregated stumps over three inches in diameter, regardless of cap status.¹⁹ Eight communities reported the total amount paid for yard waste costs, with an average of \$32 per ton and a median of \$25 per ton. The median aligning with the over-cap rate suggests that most reporting communities exceeded their cap and paid the standard over-cap fee; the higher average may reflect a small number of communities with loads that include oversized stumps or other additional costs beyond standard yard waste processing.

OVERALL SYSTEM COST

Table 31 provides the total estimated system cost for municipal-sector collection, disposal, and diversion processing based on data reported by Rhode Island communities. It does not include commercial waste collection, disposal, or processing costs. Not every community provided complete collection, disposal, and

¹⁸ Values in this section are representative of operations for Fiscal Year 2025, due to reporting completed by RIRRC. Tonnage and contamination values in the remainder of the report may not match these values because they are reported for the Calendar Year.

¹⁹ FY2025 Leaf and Yard Debris Cap, published by RIRRC. The tonnage data covers Calendar Year 2025, which spans FY2025 and FY2026; cap threshold and the yard waste processing rates did not change between the two FY years. Unlike disposal costs, yard waste processing costs could not be reliably recalculated from cap and tonnage data alone since share of stump tonnage within each community's reported yard waste is not known.

processing cost data; where data were unavailable, the total system cost was estimated using the methodology described below.

Collection cost was estimated by multiplying the average collection cost of \$166 per ton by the total tons of municipal trash, recycling, and organics collected in 2025, for an estimated total collection cost of \$80.7M.

Disposal cost was estimated by applying RIRRC's FY2025 tiered tip fee to each community's 2025 disposed tons: tons at or under a community's disposal cap were charged at \$63 per ton, and tons exceeding the cap were charged at \$115 per ton. This produces an estimated total municipal disposal cost of \$24.6M.

Recycling processing cost of \$12.8M is taken directly from RIRRC's MRF operating cost financial statement for FY2025. This figure represents the actual processing cost incurred at the facility, not the amount paid, since communities are not charged a tip fee for recycling.

Organics processing cost was estimated using the same tiered structure as disposal: 2025 diverted organics tons at or under a community's organics cap were charged at \$0 per ton, and tons exceeding the cap were charged at \$25 per ton. This produces an estimated municipal organics processing cost of \$934K.

Combined, the estimated cost of the municipal collection, disposal, and diversion processing system in Rhode Island is \$119M annually. These costs are borne by individual communities across Rhode Island to ensure collection and processing of material generated by their residents.

Table 31. Estimated Total MSW Collection, Disposal, and Diversion Processing Costs in Rhode Island

System Component	Cost	Cost Inclusion
Collection	\$80.7M	Includes disposal, recycling, and organics
Disposal	\$24.6M	Cost for municipal disposal
Recycling Processing	\$12.8M	RIRRC MRF Total Expenses
Organics Processing	\$934K	Cost for municipal processing
Total	\$119M	Not Applicable

05. Infrastructure Analysis, Contamination, End Markets

THE RIRRC WASTE MANAGEMENT SYSTEM

The Rhode Island Resource Recovery Corporation (RIRRC) is a “quasi-public agency” whose mission is to provide safe, environmentally compliant, clean and affordable solid waste and recycling services for the state. RIRRC’s 1,200-acre facility campus in Johnstown includes the Central Landfill, Residential Recycling Area, MRF, and composting operations. According to state law, Rhode Island municipalities are required to bring their solid waste and recyclables to RIRRC or to facilities designated by RIRRC.

TRANSFER STATIONS IN RHODE ISLAND

Transfer stations in Rhode Island serve as consolidation and staging points, receiving materials from collection vehicles, and transferring them to larger vehicles. All transfer stations are required to deliver municipal waste to RIRRC Central Landfill or MRF. Some ICI waste brought to transfer stations is also delivered to RIRRC, while large quantities of this waste are sent to out-of-state landfills and incinerators for disposal. Rhode Island has multiple licensed solid waste transfer stations located throughout the state. Ownership of these facilities is a mixture of public and private, with some municipally owned transfer stations operated by private sector contractors. Most of the transfer capacity is concentrated at a few large, privately-operated facilities that receive materials from both municipal and commercial generators. The remaining facilities are smaller, municipally owned transfer stations intended to serve residential customers and offer the facility as an additional service to residents.

Many of the transfer stations also accept recyclable materials from residents, who may choose to utilize the Transfer Station instead of opting into subscription curbside collection. In 2024, Rose Hill Regional Transfer Station managed the most incoming commingled recyclables of any transfer facility at 5,324 tons, followed by Waste Management’s Newport Transfer Station at 4,035 tons and the Westerly Transfer Station at 3,619 tons.

Table 32 below reflects facilities holding an active Solid Waste Transfer Station License and noted as active per RIDEM records as of 2024.²⁰ Permitted capacity, throughput, and materials accepted are sourced from RIDEM facility records and reporting data for calendar year 2024. Facilities licensed under other permit types or noted as inactive are not included.

Table 32. Transfer Stations in Rhode Island

Facility Name	ID	Address	Town	Operator / Owner	Permitted Capacity (MSW Tons/ Day)	Throughput (MSW Tons/ Year)	Materials Accepted
Blackstone Valley Regional Transfer Station	WF-420	240 Grotto Avenue	Pawtucket	City of Pawtucket	50	No data available	MSW, Recyclables, HHW drop-off
Bristol Transfer Station	WF-401	Minturn Road	Bristol	Town of Bristol	75	9,722	Residential: E-waste, MSW, Recyclables
Charlestown Residential Collection	WF-402	Sand Hill Road	Charlestown	Town of Charlestown	15	1,030	Residential: C&D, MSW, Recyclables

²⁰ R.I. Dep't of Env't Mgmt., *Transfer Stations and Collection Stations*, 250-RICR-140-05-3 (2022). <https://rules.sos.ri.gov/Regulations/Part/250-140-05-3>

Facility Name	ID	Address	Town	Operator / Owner	Permitted Capacity (MSW Tons/ Day)	Throughput (MSW Tons/ Year)	Materials Accepted
Center							
Coventry Transfer Station	WF-407	1670 Flat River Road	Coventry	Town of Coventry	100	3,856	Commercial and Residential: E-waste, MSW
East Greenwich Transfer Station	WF-408	Crompton Avenue	East Greenwich	Town of East Greenwich	8	6,236	Residential: C&D, MSW, Recyclables
Exeter Transfer Station	WF-409	Route 102	Exeter	Town of Exeter	40	2,258	Residential: E-waste, MSW, Recyclables
Glocester Transfer Station	WF-410	Chestnut Hill Road	Glocester	Town of Glocester	35	3,922	Residential: E-waste, MSW
Jamestown Transfer Station	WF-412	North Road	Jamestown	Town of Jamestown	36	1,630	Residential: MSW
Johnston Transfer Station	WF-430A	116 Shun Pike	Johnston	Waste Connections of RI	500	36,425	Commercial: MSW
Little Compton Transfer Station	WF-413	122 Amy Hart Path (Off Cold Brook Rd.)	Little Compton	Town of Little Compton	13	2,835	Commercial & Residential: C&D, E-waste, MSW, Recyclables
New England Waste Systems Transfer Station	WF-488	West Davisville Road	North Kingstown	New England Waste Systems	2,000 ¹	273,052	Commercial & Residential: C&D, MSW
New Shoreham Transfer Station / Block Island	WF-417	West Beach Road	New Shoreham	Town of New Shoreham	33	4,984	Commercial & Residential: C&D, E-waste, MSW, Recyclables
Newport Transfer Station	WF-418	65 Halsey Road	Newport	Waste Management, Inc.	545	36,870	Commercial & Residential: C&D, E-waste, MSW, Recyclables
Newton Washburn Transfer Station	WF-478	145 Shun Pike	Johnston	Newton Washburn LLC	30 yard roll off	51	Commercial & Residential: MSW
North Kingstown Transfer Station & Compost Facility	WF-419	345 Devil's Foot Road/Compass Circle	North Kingstown	Town of North Kingstown	25	3,237	Commercial & Residential: C&D, E-waste, MSW, Non-Haz Materials, Recyclables
North Smithfield Transfer Station	WF-406	14 Canal Street	North Smithfield	Waste Connections / BFI	650	79,160	Commercial and Residential: C&D, MSW, Non-Haz Materials
Portsmouth Transfer Station	WF-421	Hedley Street	Portsmouth	Town of Portsmouth	70	2,746	Residential: C&D, MSW, Non-Haz Materials, Recyclables
Providence Transfer Station	WF-449	700 Allens Avenue	Providence	City of Providence	150	2,610	Commercial & Residential: E-waste, MSW, Recyclables

Facility Name	ID	Address	Town	Operator / Owner	Permitted Capacity (MSW Tons/ Day)	Throughput (MSW Tons/ Year)	Materials Accepted
Prudence Island Transfer Station	WF-422	Narragansett Avenue	Portsmouth	Town of Portsmouth	4	154	Residential: MSW, Recyclables
Richmond Transfer Station	WF-423	51 Buttonwood Road	Richmond	Town of Richmond	50	2,607	Commercial & Residential: C&D, E-waste, MSW, Non-Haz Materials, Recyclables
Rose Hill Regional Transfer Station	WF-443	Rose Hill Road	South Kingstown	Town of South Kingstown	390	46,601	Commercial & Residential: C&D, E-waste, MSW, Non-Haz Materials, Recyclables
Warren Transfer Station	WF-425	21 Birch Swamp Road	Warren	Town of Warren	75	5,061	Commercial & Residential: E-waste, MSW
Warwick Transfer Station	WF-424	65 O'Keefe Lane	Warwick	Waste Management, Inc.	1,540	80,998	Commercial & Residential: C&D, MSW, Recyclables
West Greenwich Transfer Station	WF-426	68 Bates Trail	West Greenwich	Town of West Greenwich	55	1,756	Residential: E-waste, MSW, Recyclables
Westerly Transfer Station and Recycling Facility	WF-427	Westerly-Bradford Road (Route 91)	Westerly	Town of Westerly	200	27,280	Commercial & Residential: C&D, E-waste, MSW, Non-Haz Materials, Recyclables
Whipple Ave. Recycling & Compost Facility	WF-437	Whipple Avenue	Burrillville	Town of Burrillville	60	252	Residential: E-waste, MSW, Recyclables

¹Permitted capacity for New England Waste Systems Transfer Station is reported in C&D tons/day

Rhode Island also has additional specialized transfer facilities, including those licensed for medical waste, C&D²¹, and hazardous waste transfer, which are not included in this table.

RHODE ISLAND'S MATERIALS RECOVERY FACILITY

Municipal recycling in Rhode Island is supported by a single MRF, owned and operated by the RIRRC. At approximately 76,550 square feet, the facility is among the largest MRFs in New England and serves as the central processing hub for the state's municipal recycling system. State law requires all mixed recyclables collected by Rhode Island municipalities to be delivered to the RIRRC MRF for processing. In addition to municipal recyclables, the facility also accepts ICI single-stream recyclables from businesses and institutions across the state. Unlike municipal recycling, ICI recycling carries no such requirement. National waste and recycling companies operation in Rhode Island, such as Waste Management, Republic Services, Waste Connections, and WIN Waste Innovations, operate their own MRFs in other states, and may route ICI recyclables they collect in Rhode Island to

²¹ R.I. Dep't of Env't Mgmt., *Facilities That Process Construction and Demolition Debris*, 250-RICR-140-05-7 (2022). <https://rules.sos.ri.gov/regulations/Part/250-140-05-7>

those out-of-state facilities. Materials received at the RIRRC MRF are sorted, baled, and shipped to domestic and international end markets.

PROCESSING CAPABILITIES, CAPACITY & THROUGHPUT

The MRF processes single-stream commingled recyclables, including paper, cardboard, plastic containers smaller than two gallons, glass containers, metal cans and foil, and cartons. Incoming materials are delivered to the tipping floor, where loads are visually inspected for contamination prior to processing. To ensure proper sortation and material quality, loads must arrive loose, reasonably dry, and within an acceptable compaction ratio. Loads containing excessive contamination, moisture, or compaction, or that include unacceptable materials, are rejected and directed for disposal.

According to the 2038 Solid Waste Plan, the MRF reported a maximum processing capacity of 800 tons per day. Approximately 90 trucks deliver material daily. On average, 385 tons of mixed recyclables are sorted at the MRF each day.²² In 2024, approximately 78,478 tons of commingled recyclables were processed at the facility, all originating from Rhode Island sources. Commingled recyclables from municipal sources accounted for most of the inbound tonnage, approximately 91% of the overall incoming material.

Based on reported throughput and listed capacity,²³ the facility is operating below its stated maximum daily processing capacity, providing some operational flexibility to manage fluctuations in inbound tonnage or future increases in recycling volumes.

LEVEL OF AUTOMATION

Sorting at the MRF is performed through a combination of manual, mechanical, and optical methods. Manual sorting occurs at the start of the process to remove oversized or hazardous items, and manual sorters are stationed throughout the MRF to remove contamination and ensure quality control. The MRF utilizes mechanical equipment including magnets, eddy currents (to sort aluminum), glass crushers, and conveyors to separate materials and remove contamination. There are also six optical sorters throughout the facility that use light reflectivity sensors and compressed air to sort materials by type. Sorted materials are then baled for shipment, with bale weights ranging from 900 to 1,200 pounds for plastics and aluminum, 1,600 to 1,800 pounds for steel, and 2,200 to 2,400 pounds for paper and cardboard.

RECYCLING CONTAMINATION

Rejected Municipal Recycling Loads

RIRRC sets minimum quality standards for incoming material loads related to contamination, moisture content and prohibited items. Incoming loads that contain more than 10% (unless otherwise specified under a specific material) by weight or volume of contamination (as defined under a specific material's acceptance criteria) are subject to a disposal fee and any equipment and/or rejection charges. Loads are rejected if they have excessive moisture (snow, ice, frozen material) or have excessive compaction making material difficult to process. Material

22 Rhode Island Resource Recovery Corporation. (2024, April). A Guide to Resource Recovery. <https://rirrc.org/sites/default/files/Guide%20to%20Resource%20Recovery.pdf>

23 The 2038 Solid Waste Plan states the maximum processing rate of the MRF is 800 tons per day.

contained in bags (regardless of bag content's recyclability) are also treated as solid waste and disposed of as residue. RIRRC also maintains a public list of materials prohibited in recycling loads that subject a load to immediate rejection, included but not limited to medical waste, lithium batteries, tanglers (ex. cord, rope, holiday lights) and bulky waste.

Loads being transported to the RIRRC MRF can be "route rejected" or rejected once tipped on the floor at the MRF, due to not meeting the minimum quality standards. Material is route rejected prior to being delivered to the MRF and is instead delivered to the Central Landfill, with this decision being made by recycling truck drivers in communication with community staff.

RIRRC reports the annual tons of material rejected under each municipality's customer account including solid waste, recycling and other accounts if applicable (schools, other municipal departments, etc.), as well as figures for materials delivered to other facilities as reported by communities to RIRRC in its annual data survey. These tonnages do not include materials classified as litter cleanup, seaweed, street sweepings, unrecoverable mattresses, disaster debris or commercial waste.

Table 33 below includes totals tons of rejected recycling material (combined route rejected and tipping floor rejected totals) from 2021 to 2025, by municipality. The average amount of inbound material rejected statewide per year is 24,172 tons. Table 34 includes the percentage of material that is rejected annually from 2021 to 2025.

Table 33. Tons of Municipal Recycling Material Rejected

Municipality	2021 Rejected Tons	2022 Rejected Tons	2023 Rejected Tons	2024 Rejected Tons	2025 Rejected Tons	Average Rejected Tons
Barrington	103	112	126	64	71	95
Bristol	72	9	26	12	15	27
Burrillville	18	15	19	97	39	38
Central Falls	20	101	146	96	174	107
Charlestown	0	0	0	0	0	0
Coventry	36	28	71	63	60	52
Cranston	957	1,536	1912	3,761	2,937	2,221
Cumberland	16	205	178	388	97	177
East Greenwich	42	60	18	39	40	40
East Providence	265	556	549	974	595	588
Exeter	3	0	0	0	0	1
Foster	7	5	4	20	11	9
Glocester	0	1	0	2	2	1
Hopkinton	0	0	0	0	0	0
Jamestown	0	5	7	3	0	3
Johnston	114	138	237	351	406	249
Lincoln	87	135	99	52	26	80

Municipality	2021 Rejected Tons	2022 Rejected Tons	2023 Rejected Tons	2024 Rejected Tons	2025 Rejected Tons	Average Rejected Tons
Little Compton	0	0	0	0	0	0
Middletown	59	22	43	55	76	51
Narragansett	0	16	6	13	0	7
New Shoreham	10	12	0	0	0	4
Newport	0	0	0	0	0	0
North Kingstown	0	30	0	41	1	14
North Providence	221	476	488	854	363	480
North Smithfield	52	31	93	73	46	59
Pawtucket	1,126	2,910	2075	3,237	2,676	2,405
Portsmouth	0	0	0	0	0	0
Providence	15,049	15,653	17,173	18,078	16,849	16,560
Richmond/Hopkinton	0	0	0	0	12	2
Scituate	17	9	6	28	48	22
Smithfield	20	30	42	85	28	41
South Kingstown	0	17	0	17	0	7
Tiverton	61	61	89	60	128	80
Warren	0	0	0	0	0	0
Warwick	139	256	34	214	74	143
West Greenwich	10	8	0	4	0	4
West Warwick	238	418	617	945	533	550
Westerly	0	16	14	0	0	6
Woonsocket	0	62	49	101	29	48
TOTAL	18,742	22,933	24,121	29,726	25,336	24,172

Table 34. Percent of Municipal Material Rejected

Material Type	2021 Tons	2022 Tons	2023 Tons	2024 Tons	2025 Tons	Average Tons
Tons of Material Rejected via Route Rejection and MRF Tipping Floor	18,742	22,933	24,121	29,726	25,336	24,172
Tons of Material Processed at RIRRC MRF ¹	97,535	84,874	77,756	73,196	75,291	81,730
Tons of Material Brought to RIRRC MRF	116,277	107,807	101,877	102,922	100,627	105,902
Percent of Material Rejected	16%	21%	24%	29%	25%	23%

¹Including material that is identified as residue during processing.

MRF Residue

MRF Residue accounts for the fraction of accepted material that is not sorted into commodities and disposed of as solid waste. This may be non-recyclable material or recyclable material that is not captured due to contamination or other factors. Table 35 below shows the total tons of material that is considered residue at the MRF annually.

Table 35. Contamination Rate at RIRRC MRF

Tonnage Type	2023 Tons	2024 Tons	Average Tons
Total Tons Tipped at MRF	83,855	78,478	81,167
Total Tons of Residue	18,282	16,832	17,557
Contamination Rate	22%	21%	21.5%

ORGANICS FACILITIES

ANEROBIC DIGESTER FACILITY

There is one anerobic digester in Rhode Island, the Rhode Island Bioenergy Facility, in Johnston. The facility is owned and operated by Anaergia, Inc. and can process more than 100,000 tons of organic waste per year.²⁴

COMPOST FACILITIES

There are two types of composting facilities located in the state: leaf and yard waste composting facilities, permitted to accept yard trimmings, leaves, and related organic materials, and putrescible waste composting facilities, permitted to accept a broader range of organic materials including food scraps and other biodegradable waste.²⁵ Many composting facilities are municipally owned and operated, with several co-located alongside transfer stations or residential drop-off facilities. Haulers that collect organics material in the state also utilize processing facilities in Massachusetts.

Table 36 below shows facilities holding an active composting facility registration and noted as active per RIDEM records as of 2024. Throughput and materials accepted reflect the most recent data available, as reported to RIDEM for calendar year 2024.

²⁴ Redling, A. (2021, August 4). Anaergia Inc. acquires owner of largest anaerobic digester in New England. <https://www.wastetodaymagazine.com/news/anaergia-acquires-rhode-island-bioenergy-facility/>

²⁵ R.I. Dep't of Env't Mgmt., *Rhode Island Organic Waste Recycling Facilities (Composting Regulations)*, 250-RICR-140-05-8 (2021). <https://rules.sos.ri.gov/regulations/Part/250-140-05-8>

Table 36. Compost Facilities in Rhode Island

Facility Name	ID	Address	Town	Operator / Owner	Permitted Capacity (Cubic Yds/Yr)	Throughput (Tons)	Materials Accepted & Processing Capabilities
Barrington Compost Center	WF-462	Wampanoag Trail	Barrington	Town Of Barrington	25,000	3,615	Leaf and Yard Waste
Block Island Compost Site	WF-831	16 Old Town Road	New Shoreham	Town of New Shoreham	75	No data available	Putrescible Waste
Burrillville Compost Facility	WF-463	Whipple Avenue	Burrillville	Town Of Burrillville	3,500	No data available	Leaf and Yard Waste
Charlestown Compost Center	WF-402	Sand Hill Road	Charlestown	Town Of Charlestown	4,000	2	Leaf and Yard Waste
East Providence Compost Facility	WF-464	Forbes Street	East Providence	City Of East Providence	25,000	3,750	Leaf and Yard Waste
M. Pontarelli Landscaping Services	WF-833	31 Glen Road	Cranston	Anthony Dicola and Michael Pontarelli	600	160	Leaf and Yard Waste
Michael Bradlee Composting Facility	WF-482	50 Radcliffe Ave	Providence	Unknown	25	No data available	Putrescible Waste
New Shoreham Transfer Station	WF-417	West Beach Road	New Shoreham	Town Of New Shoreham	25	No data available	Putrescible Waste
North Kingstown Compost Facility	WF-419	345 Devil's Foot Road	North Kingstown	Town Of North Kingstown	7,500	3,347	Leaf and Yard Waste
RIRRC Compost	WF-404	65 Shun Pike	Johnston	Rhode Island Resource Recovery Corporation	600,000	37,439	Leaf and Yard Waste
Richmond Sand and Stone LLC	WF-457	Stilson Road	Richmond	Richmond Sand And Stone	37,500	24,464	Putrescible Waste
Site Ready Materials and Recycling	WF-446	322 Eagleville Road	Tiverton	Pleasant Realty Sales & Construction	10,000	9,262	Leaf and Yard Waste
Smithfield Municipal Compost Facility	WF-487	5 Spragueville Road	Smithfield	Town Of Smithfield	25,000	230	Leaf and Yard Waste
Swan Point Cemetery	WF-826	535 Blackstone Blvd	Providence	Swan Point Cemetery	3,000	100	Leaf and Yard Waste
Warren Compost Facility	WF-425	21 Birch Swamp Road	Warren	Town Of Warren	3,700	985	Leaf and Yard Waste
Warwick Compost Facility	WF-466	Range Road	Warwick	City Of Warwick	25,000	19,327	Leaf and Yard Waste

COMPOSTABLE PRODUCT ACCEPTANCE AT ORGANICS FACILITIES

In the proposed legislation 2025-S0996 Extended Producer Responsibility for Packaging and Paper Act, "compostable material" is defined as a covered material that:²⁶

- Meets, and is labeled to reflect that it meets, the American Society for Testing and Materials Standard Specification for Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities (D6400) or its successor;
- Meets, and is labeled to reflect that it meets, the American Society for Testing and Materials Standard Specification for Labeling of End Items that Incorporate Plastics and Polymers as Coatings or Additives with Paper and Other Substrates Designed to be Aerobically Composted in Municipal or Industrial Facilities (D6868) or its successor;
- Is comprised of only wood without any coatings or additives; or
- Is comprised of only paper without any coatings or additives.

The United States Composting Council defines a compostable product as “any product specifically manufactured to break down in a compost system at the end of its useful life. May be made from plastic, paper, or plant fibers, along with other ingredients that provide necessary form and functionality.”²⁷

Compostable products include items such as bags, take-out containers, coffee pods, food packaging, cups, plates and serveware. RIDEM is not currently aware of any organics facilities in Rhode Island that accept compostable products, and further review of facility capacity and operations would need to be considered prior to expanding material acceptance.

CURRENT END MARKETS AND RECYCLING COMMODITIES

PRODUCT PACKAGING TO RECYCLED COMMODITY

When a consumer puts a product into their recycling container, it is collected by a hauler and delivered to a MRF. At the MRF, equipment and manual sorting are used to separate collected recyclables into marketable commodity streams, referred to as bales (apart from glass which is commonly marketed loose or as cullet material). Reprocessors, such as mills and reclaimers, commonly referred to as End Markets, purchase bales from MRFs, and further process recovered materials into feedstocks that manufacturers can use in new products and packaging. These manufacturers purchase recycled feedstocks as inputs to manufacture new packaging and products. In the past decade, RIRRC has worked to secure end markets that are resilient to the impacts of China's National Sword Policy. In 2024, much of the material processed at the RIRRC MRF was sold to end markets in the eastern United States and Canada.

²⁶ S. 996, 2025 Gen. Assembly., Jan. Sess. § 23-19.19-1(a)(53) (R.I. 2025) (defining "compostable material"), <https://webserver.rilegislature.gov/BillText/BillText25/SenateText25/S0996.pdf>.

²⁷ USCC Stance on Acceptance of Compostable Products Packaging by Compost Producers. U.S. Composting Council. (n.d.). <https://www.compostingcouncil.org/page/CompostableProducts>

MUNICIPAL PROFIT-SHARE SYSTEM

According to the current contract between RIRRC and communities, a 50-50 share in profit generated from the sale of recyclables is offered to eligible communities based on a per ton share of municipal recyclables delivered to the MRF. Communities receive the share of profits only when the profits exceed overall costs. Since 2016, there has only been one year (2022) that resulted in distribution of profit shares (\$42,645 total profit share in 2022). Communities are required to use recycling profit shares to further enhance and expand their municipal recycling and diversion programs.

RECYCLED COMMODITY PRICING AND END MARKETS

Average commodity prices within the United States are reported regionally on the Secondary Materials Pricing (SMP) Index. Rhode Island is included in the Northeast USA/ Maritime market region. The figures in this section show the trends in commodity pricing for recyclable materials from 2020 to the first quarter of 2026. The corresponding tables define what materials from the recycling stream would be included in the commodity bales.

Plastics

The MRF sorts recycled commodities into four bale types, polyethylene terephthalate (PET #1), natural high-density polyethylene (Natural HDPE #2), colored high-density polyethylene (Colored HDPE #2) and polypropylene (PP #5). Currently, these are the main plastic commodities that are processed at the MRF to be sold to available end markets. Table 37 lists the materials typically found in each commodity bale. Flexible plastic or plastic films are also currently not processed at the MRF, but they are accepted at certain community transfer stations and at the RRA (in addition to in-store drop off programs operated by certain retailers). Polyvinyl chloride (PVC #3), low-density polyethylene (LDPE #4), polystyrene (PS #6) and other plastics (7), are not processed at the MRF as recyclable and need to be dropped off at a special recycling program for management. In 2024, plastic bales from the RIRRC MRF were sent to regional and North American end markets.

Figure 6 shows the trends in plastic commodity pricing for recyclable materials from 2020 to the first quarter of 2026 and Table 38 outlines current recovered plastic market trends and conditions.

Table 37. Plastics Commodity Types and Materials Found in Commodity Bale

Commodity Type	Materials Found In Commodity Bale
PET #1	Predominantly PET bottles, (water bottles, drink bottles) ,10-20% PET thermoform (clamshell containers, deli containers)
Natural HDPE #2	Non-colored HDPE bottles, predominantly milk jugs
Colored HDPE #2	Colored HDPE bottles and some containers, mostly household products like shampoo/conditioner/soap, laundry detergent or cleaning bottles
PP #5	Containers such as takeout containers, yogurt / dairy tubs and lids
Grade C Film	Seasonal film plastics, agricultural film plastics, and post-commercial

Figure 6. Recovered Plastic Material Commodity Pricing

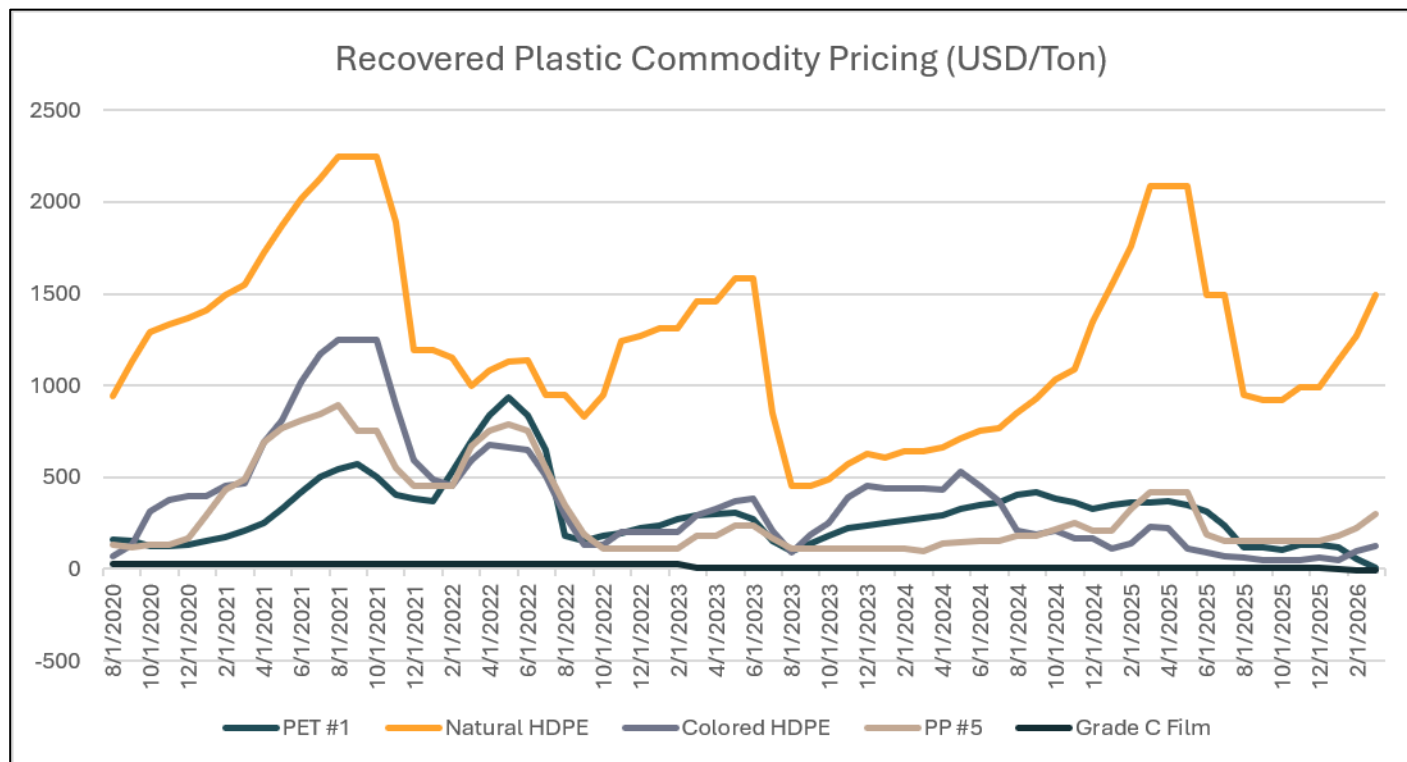


Table 38. Current Recovered Plastic Market Trends and Conditions

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
PET #1	Regional, and North America	The U.S. has historically had relatively strong PET end markets, with reclaiming and manufacturing capacity at both the regional and national levels. However, end-market demand is currently weak due to historically low virgin PET prices and competition from low-cost imported recycled PET. These market conditions contributed to recent closure of about 30% of the PET reclamation capacity in the US and Canada. Low demand has translated to low bale prices for PET generated by MRFs. As a result, while PET remains one of the most established recycled plastic markets, current market conditions have weakened pricing, increased uncertainty for processors, and heightened the importance of stable domestic demand and long-term offtake commitments.	Bottles, thermoforms, sheet, polyester fiber/fill applications

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Natural HDPE #2	Regional, North America	Like PET, natural HDPE prices declined in late 2025. However, unlike PET, natural HDPE prices have since recovered to roughly mid-2025 levels, indicating comparatively stronger demand. One likely reason is that natural HDPE remains a relatively valuable and supply-constrained recycled resin, especially for bottle and packaging applications required to meet state minimum recycled content laws, whereas PET has faced more severe pressure from reduced demand due to competition from low-cost virgin and imported recycled PET.	New bottles/containers, durable goods, envelopes/protective wear
Colored HDPE #2	Regional, North America	Colored HDPE prices also declined in late 2025 and then rebounded in early 2026, indicating stronger demand than for many other recycled plastic grades in the same period. Colored HDPE generally has a narrower range of end uses and lower value than natural HDPE because pigmentation limits its suitability for higher-value applications. As a result, colored HDPE remains a viable recycled commodity with North American demand, but its market is more dependent on durable applications such as pipe, plastic lumber, and other durable goods than on the highest-value packaging uses.	Pipe, outdoor products, marine pilings, non-food containers, injection-molded durable goods
PP #5	North America	PP has growing strategic interest because it's a widely used resin in packaging, brands are interested in using more recycled content, and domestic end markets have developed to recover growing volumes. In the Northeast, PP prices have increased significantly in 2026 but still remain below pricing at a similar time period in 2025.	Nonfood containers, automotive parts, pallets, storage bins, battery cases, compounded resin for durable goods; limited but growing food-contact applications

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Grade C Film	North America	Grade C film has historically had weak and volatile market demand because it is a lower-quality, more contaminated film stream with narrower end-market options than cleaner A- and B-grade (post-industrial and post commercial) film. End markets are primarily in North America and are concentrated in lower-value applications such as composite lumber, construction products, stormwater materials, and some secondary film products. Recent market conditions have remained challenging: national pricing for C-grade film was near or below zero in late 2025 and early 2026, indicating that moving this material can be difficult even when end markets exist. More broadly, film recycling outcomes continue to depend heavily on bale quality, contamination levels, and the development of durable domestic end markets for lower-grade film.	Composite lumber/decking, construction materials, stormwater products, and some new flexible film

Paper and Fiber

Three types of paper and fiber bales are marketed at the MRF, mixed paper, sorted residential paper, and old corrugated cardboard (OCC). Table 39 lists the materials typically found in each commodity bale.

Figure 7 shows the trends in paper commodity pricing for recyclable materials from 2020 to the first quarter of 2026 and Table 40 outlines current recovered paper market trends and conditions. In 2024, paper bales from the RIRRC MRF were sent to Northeastern end markets.

Table 39. Paper and Fiber Commodity Types and Materials Found in Commodity Bale

Commodity Type	Materials Found In Commodity Bale
Mixed Paper²⁸ (PS 54)	Paper and Paperboard
Sorted Residential Papers (PS 37)	Newspapers, mail, magazines, printing and writing papers
Old Corrugated Cardboard (OCC) (PS 11)	Corrugated containers (cardboard boxes) with liners or kraft paper

²⁸ The ReMA ISRI specification for Mixed Paper Bales consists of all paper and paperboard of various qualities not limited to the type of fiber content, sorted and processed at a recycling facility.

Figure 7. Recovered Paper and Fiber Material Commodity Pricing

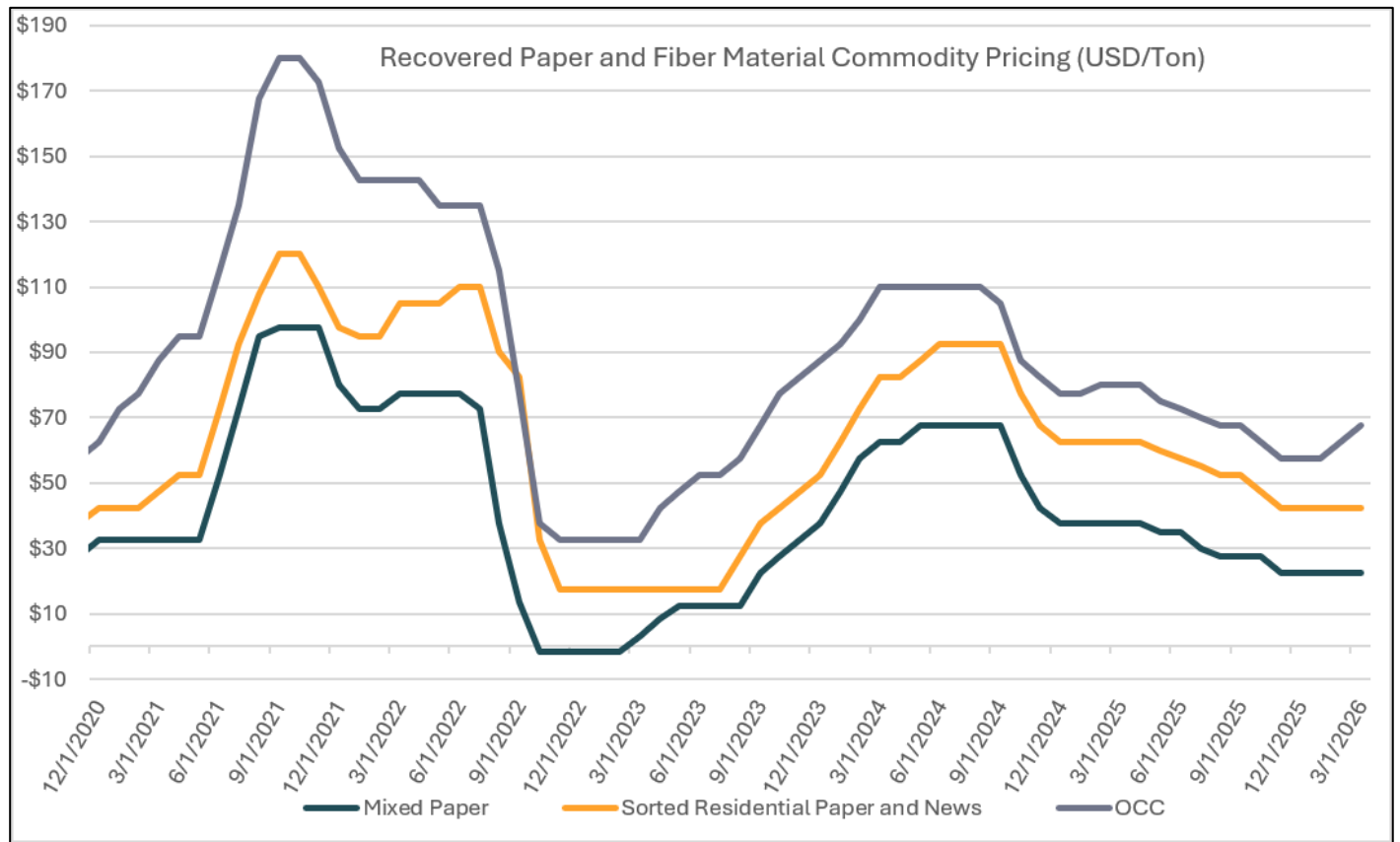


Table 40. Current Recovered Paper Market Trends and Conditions

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Mixed Paper (PS 54)	Regional	Mixed paper has an established domestic end market, especially in packaging applications. However, mixed paper prices weakened significantly towards the end of 2024 and into 2025 and remain well below 2024 levels, indicating softer demand than in prior years. At the same time, mills continue to use mixed paper, and packaging-grade demand provides a durable long-term outlet even during weaker pricing cycles. Demand for mixed paper bales is also closely tied to OCC pricing. When OCC prices are low, mills capable of using either feedstock often shift toward OCC because it generally provides higher fiber yield, which in turn reduces demand for mixed paper bales. Increasingly, mixed paper markets are accepting a broader array of paper materials, such as polycoated cups and cartons.	Containerboard, corrugated boxes, paper packaging, boxboard, some tissue and paper products

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Sorted Residential Paper and News (Newsprint) (PS 37)	Regional	Sorted residential paper and news has historically had strong end-market demand and significantly higher value than mixed paper, though its value has also softened in recent years. Recent pricing for sorted residential paper has remained well below 2024 levels, reflecting weaker market conditions for lower-grade residential fiber. At the same time, this commodity is gradually disappearing as newsprint and office paper decline in use, shifting material generation away from sorted residential paper and news and into the lower-value mixed paper stream.	Containerboard, paper packaging, newsprint substitutes, boxboard, tissue and other recycled paper products
OCC (PS 11)	Regional	OCC remains one of the strongest and most established recovered fiber commodities because it is the primary feedstock for containerboard and corrugated packaging. While OCC pricing fell sharply in 2025 amid softer market conditions and economic uncertainty, demand has remained relatively stable because mills continue to depend on corrugated feedstock. OCC is also the only fiber commodity that has a large commercial stream from retailers and grocers, which produces high-quality, low-contamination bales that are highly desirable to mills.	New corrugated boxes, containerboard, paper packaging, shipping boxes and other box products

Metals

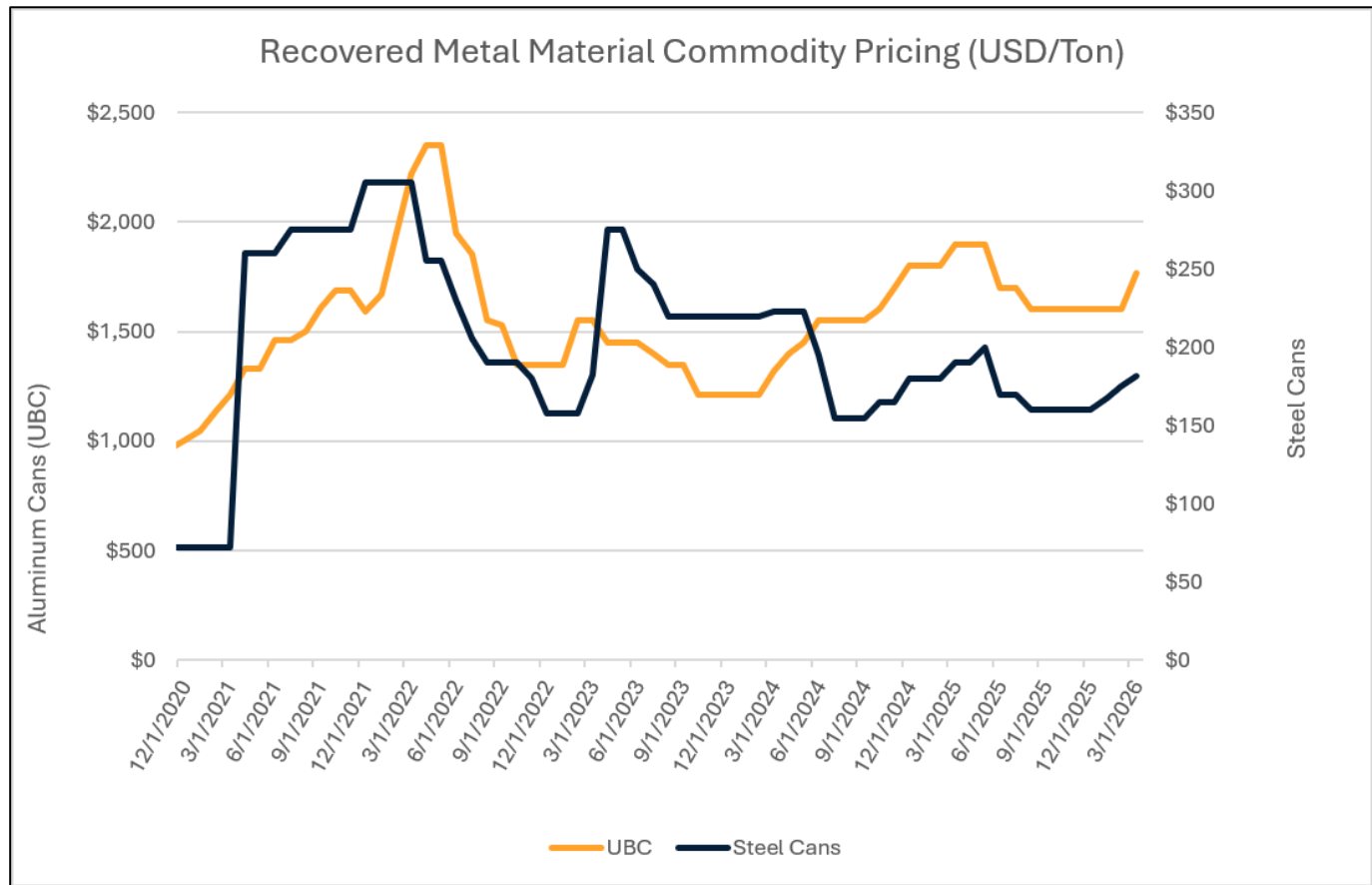
Aluminum, including cans (often referred to as Used Beverage Containers or UBCs), foil and trays and food containers, steel/tin food cans and aerosol cans are processed at the MRF, and baled into commodities for sale to end markets. At the RIRRC MRF, Aluminum is baled into three bale types, including a high-grade specification bale, made up of mostly used beverage cans. Table 41 lists the materials typically found in common metal commodity bales.

Figure 8 shows the trends in metal commodity pricing for recyclable materials from 2020 to the first quarter of 2026 and Table 42 outlines current recovered metal market trends and conditions. In 2024, baled metal commodities from RIRRC MRF were sent to end markets in Rhode Island and Northeastern end markets.

Table 41. Metal Commodity Types and Materials Found in Commodity Bale

Commodity Type	Materials Found In Commodity Bale
UBC	Post-Consumer aluminum can scrap, aluminum food and/or beverage cans
Mixed Aluminum	Lower grade aluminum including food cans, foil, pie plates
Tin/Steel	Steel/tinplate steel food and non-food cans that don't contain hazardous substances (i.e., paint).
Scrap Metal	Other ferrous and non-ferrous metal, aerosol cans

Figure 8. Recovered Metal Material Commodity Pricing



¹ Historic pricing of mixed aluminum and scrap metal is not tracked under Secondary Materials Pricing. These commodity values are often reported as spot prices and vary on an MRF-by-MRF basis, depending on contents and what local scrapyards are accepting.

Table 42. Current Recovered Metal Market Trends and Conditions

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
UBC	Regional, North America	Aluminum cans remain one of the strongest and most established recycling commodities. This is one of the main revenue generating commodities for MRFs. Recent Northeast pricing softened in 2025 but continue to benefit from strong domestic demand and well-developed can-sheet and rolling infrastructure.	New beverage cans, can sheet, rolled aluminum products, and other packaging and sheet applications
Mixed Aluminum	Regional, North America	Mixed aluminum is generally less desirable to end markets than aluminum cans. Given the higher value of aluminum cans, MRFs may sort aluminum foil and trays into a mixed metal bale rather than allow them to downgrade used beverage can bales. In general, MRFs can sort, bale, and market this material as part of a mixed metal stream, but because it is a relatively low-volume and lower-value commodity, it is typically not a top-priority material.	Rolled aluminum products, foil-related products, cast or secondary aluminum applications, and other remelted aluminum goods depending on spec and alloy mix

Baled Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Tin/Steel	Regional, North America	Steel cans also have strong domestic end markets and are among the more stable MRF commodities, though prices weakened in 2025 before stabilizing. It should be noted, however, that due to the nature of steel can manufacturing, recycled steel cans generally are not remade into new steel packaging but are instead recycled into other steel products.	Steel bar, sheet and other steel goods
Scrap Metal	Rhode Island, Regional, North America	Scrap Metal has established end markets because both ferrous and nonferrous metals are widely consumed by scrap processors, smelters, and mills, but value depends heavily on separation quality and composition. Ferrous markets are supported by large domestic steel capacity, while nonferrous markets remain active but were described as more challenging in 2025 due to tariffs, shifting consumption, and market volatility	New steel and aluminum products, cast metal goods, sheet, bar, structural products, and other secondary metal manufacturing applications

Glass

Reports show that glass sorted from the mixed recycling stream at the MRF remained on site and was used as alternate daily cover at Central Landfill, rather than recycled to make more glass products. Table 43 lists the materials typically found in glass commodities.

Figure 9 shows the trends in glass commodity pricing for recyclable materials from 2020 to the first quarter of 2026 and Table 44 outlines current recovered glass market trends and conditions.

Table 43. Glass Commodity Types and Materials Found in Commodity Bale

Commodity Type	Materials Found In Commodity
Mixed Glass	Glass bottles and jars

Figure 9. Recovered Glass Material Commodity Pricing

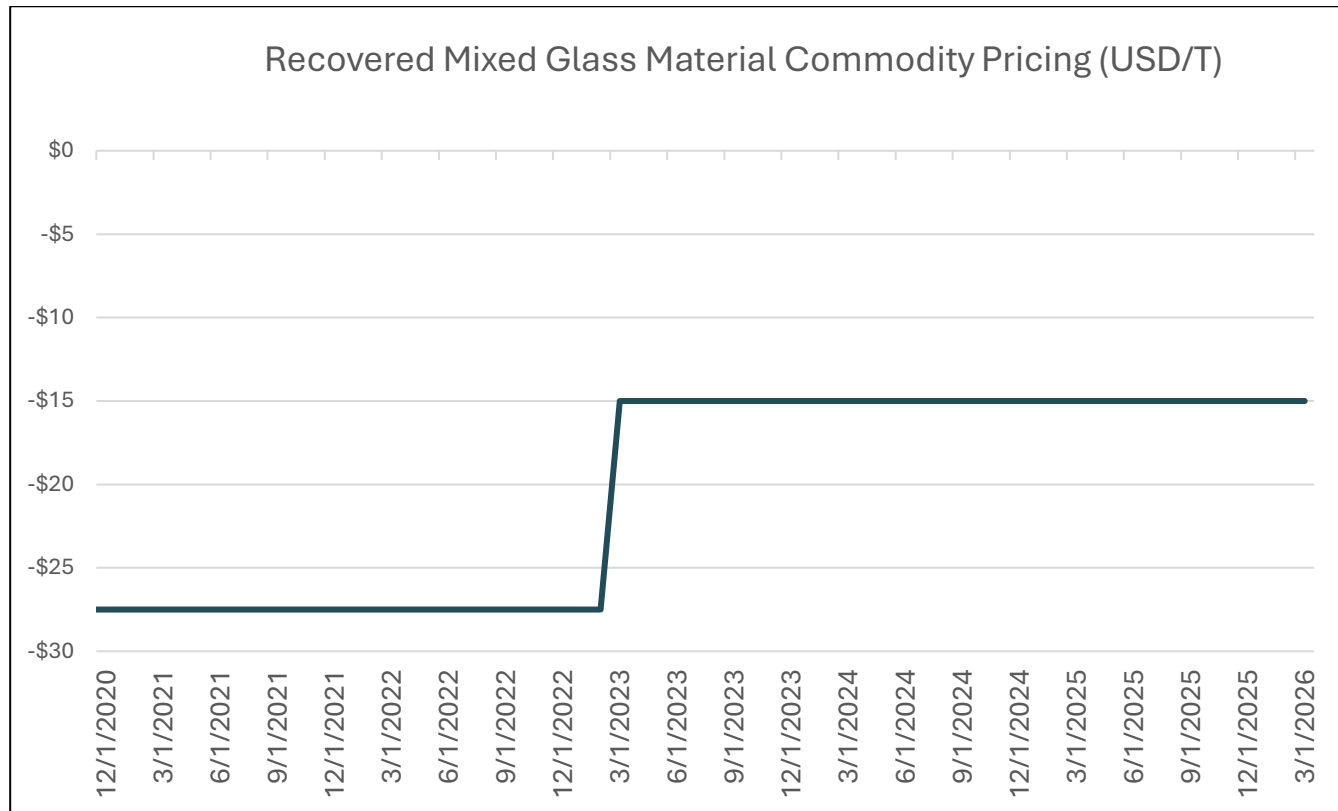


Table 44. Current Recovered Glass Market Trends and Conditions

Commodity	End Market Type	Recent End Market Dynamics	Recycled Material Product
Mixed Glass Note: MRF glass is not currently recycled in RI.	Rhode Island, Regional, North America	Mixed glass has long been a negative-value commodity for MRFs. Its marketability depends heavily on contamination levels and color mix. MRFs can improve glass value through investments in sorting technology that reduce contamination from small-format plastic, paper, and organic materials; glass processors typically remove residual contaminants and separate material by color. Unlike metal, plastic, and paper, glass is also more geographically constrained because its high weight makes transportation costly. As a result, MRFs, secondary glass processors, and glass manufacturers must be located relatively close to one another for recycled glass to be economically turned back into new bottles. A 2023 NERC report²⁹ found that the Northeast region lacked secondary glass processing, and as a result most glass is going to alternative daily cover (ADC) and is not being recycled back into glass bottles or other recycled glass commodities.	New glass containers where specification allows, fiberglass, glass sand, aggregate, abrasives, and other beneficial-use products.

29 Northeast Recycling Council (NERC). (2023, July). Recycled Glass Used as Alternative Daily Cover in the Northeast US & Quebec Report. https://irp.cdn-website.com/bd31aa5e/files/uploaded/Recycled_Glass_Used_as_Alternative_Daily_Cover_in_the_Northeast_US_-_Quebec_Report.pdf

POTENTIAL END MARKETS AND RECYCLING COMMODITIES

Although current markets may exist, many MRFs struggle to add commodities to their marketed materials, due to stockpiling constraints, consumer demand and global supply. Materials that are not currently being recovered at the RIRRC MRF but have current potential end markets include polyethylene film, cartons (aseptic and gable top), paper cups and other polycoated paper. The discussion below focuses on these four potential end markets, but other end markets for other materials such as multilayer flexible packages (e.g., pouches), HDPE tubes, and expanded polystyrene (foam), may also exist and emerge in the near future.

POLYETHYLENE FILM

Polyethylene film is commonly unacceptable at MRFs for good reasons: it's thin and flexible, causing it to get tangled in expensive automated sorting machinery, leading to delays, shutdowns and breakages. Film material does have potential end markets in the United States, if managed in drop-off recycling programs. A total of 70% of the US population lives within three miles of a retail store drop-off location for plastic film and 98% are within 20 miles of a retail store drop off location³⁰, making this the most viable option for recycling at this time.

The Association of Plastic Recyclers (APR) has produced a [Buyers & Sellers Directory](#) for baled film including,

- GDB in New Jersey (3 locations)
- EFS Plastics in Ontario, Canada
- NextUsePro (division of Prime Plastic Products) in Michigan

CARTONS

Cartons, including shelf-stable aseptic containers, and refrigerated gable top containers, contain some of the highest-quality paper available in the recycling stream. Recycled cartons are used to make paper products, such as tissues, paper towels and writing paper, or sustainable building materials, including roofing cover board or wallboard. In 2011, the Paper Stock Industry (PSI) granted a new commodity for aseptic and gable top cartons, Grade 52. This status is only granted when industry demand and commodity value justify it, reinforcing cartons' value.³¹

Potential domestic outlets for Grade 52 bales that could be sorted and marketed from the RIRRC MRF include:

- Sustana – Savage, Maryland as well as their 6 other domestic locations
- Kelly Green Board- Waterbury, Connecticut (*pending fire remediation*)
- Essity - Cherokee, Alabama
- Omnisphere Corporation- A broker for Kimberly Clark Mexico, via their Miami, Florida location
- ReCB - Des Moines, Iowa

There are also potential international export markets are in South Korea, India, and Malaysia.

If conditions do not exist to sort for Grade 52 bales, MRFs can sort cartons into Mixed Paper (Grade 54) bales. This grade of recovered paper encompasses a broad category of post-use waste paper, such as mail, paperboard

³⁰ Sustainable Packaging Coalition. (May 2025). National Study Shows Widespread Access to Store Drop-off Collection for PE Film. <https://sustainablepackaging.org/2025/05/13/sdo-access-study/>

³¹ Carton Council. (n.d.). Information for Recycling Industry. <https://recyclecartons.com/industry/>

boxes, magazines, brown paper bags, etc. Grade 54 bales are commonly blended with other recovered fiber grades to make recycled paperboard and cores. If cartons were sorted into mixed paper bales at the RIRRC MRF, potential end markets are Kruger Paper in Montreal, Pratt Industries, with 19 plant locations across the United States, including the northeast, Georgia Pacific with 30 plants across the US including Massachusetts and Midland Davis in Moline, Illinois.

PAPER CUPS

Paper cups contain long bleached fiber which is a desirable material for paper recycling mills. However, they also contain plastic coating on that is used to prevent liquid from leaking out or soaking through the paper. Single-sided paper cups, or cups with a plastic coating on the inside are commonly used for hot drinks, while double-sided paper cups, or cups with a plastic coating on both sides are used for cold drinks. Not all paper recycling mills are able to separate this plastic coating, but some have invested in testing and technology that can separate the plastic coating and recoverable paper fiber. A growing number of mills can accept and process paper cups when the cups are included in existing bales such as Sorted Office Paper (SOP), Residential Mixed Paper (RMP) and Cartons (Grade 52). Recently, a group of eight prominent mill companies signed a joint declaration of acceptance and a commitment to increasing recycling of paper cups.³² There are about 40 paper mills across North America that recycle paper cups.³³ When recycled, these fiber products are made into everyday items such as paperboard, paper towels, tissues, corrugated boxes, and new paper cups.

POLY COATED PAPER

Poly coated paper packaging and products contain the same fibers that used in making paper and paper board. In polycoated paper manufacturing, a thin coating is added to one or both sides of the paper to provide a barrier against water, oil, and grease, allowing the packaging to serve, package, and protect a wide range of products, including multi-material, foils, laminations, and steel bottoms/tops. When polycoated paper is processed at MRFs it is usually sorted into a grade 54 paper bales.

The Poly Coated Paper Alliance (PCPA) launched in 2023 to take on challenges that have hampered widespread recycling of poly coated paper packaging in North America, and consists of consumer-packaged goods brands, food service operators, packaging converters, and paper mills. Currently, the group is working closing the data gap on flow and recovery of this material, engaging with MRFs and end markets to develop a design guide and common messaging for its members. The closest current end markets for poly coated paper are in Pennsylvania, Newman Paperboard in Philadelphia and Smurfit WestRock in Stroudsburg.

32 Foodservice Packaging Institute (FPI). (2022, June). We Want Your Paper Cups! <https://static1.squarespace.com/static/5e8221dbc8b11929c3f7eef7/t/62b4cd972a9bc266e6bbdfae/1753371396134/Paper-Mill-Statement.pdf>

33 American Forest & Paper Association (AF&PA). (2024, June 13). Can paper cups be recycled? <https://www.afandpa.org/news/2024/can-paper-cups-be-recycled>

06. Review of Existing Reuse and Refill Systems

REUSE AND REFILL

Reuse and refill are the practices of using material repeatedly in its current form, as an alternative to recycling or disposal. Common reuse and refill practices may include bringing a canvas bag to the store to pack groceries or using a refillable metal bottle for beverages.

Reusable and refill packaging systems can also be operated by businesses, like campus dining services offering reusable and returnable food containers to diners. These systems provide users with access to participate in the reuse and refill landscape, with containers provided by the system operators.

BENEFITS OF PACKAGING REUSE SYSTEMS

There are several benefits of packaging reuse systems, including:

- Reduces waste by replacing single-use containers
- Prevents pollution associated with manufacturing new single-use containers
- Creates potential job opportunities and keeps valuable materials within the local economy
- Allows for a positive user experience and build brand loyalty
- Optimizes business operations and save costs on packaging

DEFINITIONS OF REUSE AND REFILL

The scope of the needs assessment defines “reuse” as the return of a package or packaging material to the marketplace and the continued use of the material by a producer or service provider when the material is:

- Intentionally designed and marketed to be used multiple times for its original intended purpose without a change in form;
- Designed for durability and maintenance to extend its useful life and reduce demand for new production of the covered material;
- Supported by adequate logistics and infrastructure at a retail location, by a service provider, or on behalf of or by a producer, who provides convenient access for consumers; and
- Compliant with all applicable statutes, rules, ordinances, and other laws governing health and safety from any government entity

The scope of the needs assessment defines “refill” as the continued use of a covered material by a consumer through a system that is:

- Intentionally designed and marketed for repeated filling of a covered material to reduce demand for new production of the covered material;
- Supported by adequate logistics and infrastructure to provide convenient access for consumers; and
- Compliant with all applicable statutes, rules, ordinances, and other laws governing health and safety from any government entity.

REUSE SERVICE PROVIDERS

There are several reuse service providers that supply the materials needed to successfully implement reuse programs across the country. This report highlights a few examples of service providers who support reuse programs in Rhode Island.

RETURNITY

Returnity specializes in reusable shipping packaging systems, partnering with businesses to replace single-use corrugate with durable, cost-stable packaging designed for reuse at scale. They operate nationally, servicing national retailers and logistics firms like FedEx. The company started operations in Rhode Island in 2019, currently shipping materials throughout the entire state and working with about nine large retail chain customers. Within the state, they are looking to expand their operations targeting business to business operations and new markets, as well as new customers within existing markets. The company has another initiative called In Rotation, which provides consumers with a way to mail unwanted reusable shopping bags for redistribution. Users can drop off unwanted reusable shopping bags at retail-based collection bins, send them to the company with mailers, or request a reusable shipping box for 50+ bags. There is currently no Rhode Island based drop off location, but they are hoping to garner interest in this new service.

OZZI

The North Kingstown-based company OZZI was founded in 2013 and provides reusable systems and food containers. They are currently utilized by over 300 college and university campus dining centers, healthcare facilities, hotels, restaurants, food courts, supermarkets, quick service venues, and sports and entertainment arenas. They provide a full system to implement a reuse program in a facility, including reusable containers, cups and cutlery, an automated collection machine for 24/7 container return service, and equipment to support washing, sanitizing, drying, and storing returned reusables behind the scenes.

OZZI's reusable food containers are NSF Certified to NSF/ANSI Standard 2, which validates the highest standards for food safety, hygiene, and performance. The containers are rated for up to 1,000 uses and high-heat washes. OZZI reports show that one reusable container needs to be used 17 times to break even with the costs spent on a single-use container, and by the end of its usable life, the reusable container's cost per use is less than a penny.

Overall, OZZI's systems show that reuse systems are an affordable alternative to single-use packaging that delivers immediate environmental impact and measurable cost savings.

REUSE AND REFILL IN RHODE ISLAND

REUSABLE FOOD CONTAINER PROGRAMS AT UNIVERSITIES AND INSTITUTIONS

Providence College

Beginning in 2026, Providence College's dining hall services provides an OZZI reusable food container program to each of their 5,000 enrolled students that are on a meal plan. Student participation in the reusable food container program is easy, with program integration linked to the student ID systems.

- **Closed Loop System:** Every student on a meal plan automatically receives one OZZI credit. When students are paying for their meal at the dining hall, they request a reusable container, applying their OZZI credit to the sale. Once the container is returned to an on-site OZZI return system, the reusable credit is automatically added back to their card by the machine. With this machine-based return system in place, there's no need for human involvement on the administrative side to reconcile student accounts.
- **Built-in Accountability:** A one container limit combined with required lost container replacement fees ensures the program's fairness, reduces container loss, or leakage, and aligns with sustainability goals.
- **Right-Sized Containers:** In an effort to reduce food waste and encourage students to only take the food they will eat, the college provides 6"x 9" sized containers.

The impact over the first four months showed that over 5,000 containers were returned. There are 2,000 containers in circulation.

Salve Regina University

The Salve Regina University has been using the OZZI Green to Go containers since 2023 in their dining hall as a sustainable to-go option for students. The containers are available for purchase in two sizes at the dining hall, and used containers are returned there for washing. When a used container is turned in, the student can choose to take either a clean container or a token to use in the future for another container.

Rhode Island School of Design and Brown University

Since 2024, the Rhode Island School of Design has offered students the ReusePass reusable to-go container program in its dining hall. Brown University has similarly implemented ReusePass across its two dining halls as a to-go option since 2024 as well.

- **Closed Loop System:** The ReusePass program functions similarly to checking out a library book, allowing users to borrow reusable to-go containers, replacing single-use plastic containers. Students that sign up to participate receive a ReusePass user unique QR code. When they sign out their containers, the containers' unique QR code is scanned, connecting that container to the ReusePass user. Users link their phone number to their Reuse Pass account to keep track of their containers, find return bin locations across campus and see their impact on overall campus waste reduction.
- **Built-in Accountability:** At RISD, students are required to return used containers to a designated location on campus within three days of checking out the container or receive a \$5 missed return fee.

Bryant University

Bryant University uses the app Reuzzi to track student-provided reusable to-go containers returned at designated dropoff locations on campus. This program requires no specialized reusable containers to be purchased, no transaction fees and no new hardware, making it an affordable option.

Water Refill Programs

The Rhode Island Department of Environmental Management has water filling stations across many of its parks, campgrounds and beaches.

Rhode Island College has 65 water bottle filling stations around campus, and any new renovations require installation of water bottle filling stations.

REUSE AT STATE EVENTS

Rhode Races and Hiccup Earth

Rhode Races is a female-owned Rhode Island-based running event management company founded in 2015. In 2025, they implemented 8oz reusable silicone cups for racers to use for hydration during the races from the company Hiccup Earth to two of their marathons in Newport and Providence. This year, they are expanding to three marathons and estimate 138,500 single-use cups will be avoided by using these cups. Hiccup Earth provides the service of dropping off cups to each aid station and picking them up for wash and reuse at the next race. The Hiccups are 50% more expensive than a waxed paper cup, but they have a sustainability partner who sponsors some of the initiatives making it affordable for three of their bigger races. Feedback has been overwhelmingly positive, and runners don't have to change their process, receiving a new cup at every water stop.

The Newport Folk and Jazz Festivals

The Newport Folk and Jazz Festivals prohibit single-use plastics as part of their Zero Waste initiative. Attendees can bring their own reusable water bottles for refill at refill stations. Their sustainability sponsor 11th Hour Racing worked with Vytal to provide reusable cups at both events, eliminating 137,000 disposable cups in 2025. The company Vytal provides a closed-loop, reusable cup system for large-scale outdoor events.

International Tennis Hall of Fame

The venue switched to using reusable cups at the Hall of Fame Open in 2024, saving close to 35,000 cups and preventing 530 pounds of plastic from going to the landfill.

REFILL STORES ACROSS THE STATE

Businesses with Refillable Household Product Services

Newport-based retail location The Refill provides people with the options to reuse and refill their own containers with household and personal care products such as shampoo, conditioner, body wash, hand wash, dish soap, laundry soap/powder, household cleaners, deodorant, face wash, and more. Customers bring their containers to the store to be weighed, filled, re-weighed, and then brought home for use. The store uses a closed-loop system, and the containers they receive from their suppliers full of product get sent back to those suppliers to refill and reuse. Providence and East Providence-based shops Epic Renewal, Evolve Apothecary and Spa and The Heal Room are additional retail locations offering customers the opportunity to refill containers with bulk household and personal care products.

Businesses with Refillable Food Product Services

Bulk foods for refill such as grains, nuts, seeds and beans can be found at various locations throughout the state. In Providence there is the Urban Greens Co-op Market, in Wakefield there is the South Coast Organics and Bulk Foods, in Portsmouth there is The Green Grocer, and all Whole Foods locations.

REUSE PROGRAM BEST PRACTICE EXAMPLES

RED'S DONUTS IN SEASIDE, CALIFORNIA³⁴

Prior to implementing their reuse program, Red's Donuts relied entirely on single-use disposable foodware for all dine-in service. This packaging generated significant ongoing waste and recurring purchasing costs with no return on investment.

Reuse Program Details

- Enrolled in the ReThink Disposable technical assistance program, which assessed packaging practices and provided tailored recommendations
- Replaced paper hot cups with ceramic mugs (12 oz and 16 oz) and eliminated disposable lids for dine-in service
- Replaced plastic utensils with stainless steel utensils
- Replaced plastic ramekins with durable 1 oz reusable ramekins
- Replaced bio-plastic water cups with glass tumblers and eliminated disposable water cup lids
- Total upfront investment: \$229 for reusable foodware items

Impact of Implementation

- 201,851 disposable items eliminated per year across 9 product categories
- 1.9 tons (3,726 lbs.) of annual waste reduction
- \$12,239 in annual net cost savings after accounting for all upfront and ongoing costs
- 1.9-month average payback period on the initial investment
- Program success led Red's to replicate the changes at their second location

COPOMAIS REUSABLE CUP SYSTEM IN LISBON, PORTUGAL³⁵

How it Works

- Consumers pay a €0.50 deposit when buying a beverage at one of the participating bars and can redeem that deposit by returning the cup to any CopoMais reverse vending machine. Users can receive their deposits directly via card or mobile wallet.
- The cups are then washed and returned into circularity.
- The pooled cup infrastructure allows bars and restaurants to share a collection and washing system and streamlines the return process for consumers, increasing redemption rates.

Rollout and Policy Context

- The CopoMais system was rolled out in 2025 with 5 redemption machines in the Bairro Alto district, an additional 17 machines were planned for 2026.
- The CopoMais rollout was prompted by Lisbon's ban on single-use cups in bars and restaurants, which came into effect in May 2024.

³⁴ Clean Water Action and Clean Water Fund. *Red's Donuts. ReThink Disposable Case Study*. Seaside, CA, 2022. https://greenbusinessca.org/wp-content/uploads/2024/03/CS_Reds_Donuts_07.02.22c.pdf.

³⁵ *Citywide Reusable Cup System 'CopoMais' Launches in Lisbon*. TOMRA. November 20, 2025. <https://www.tomra.com/news-and-media/news/2025/citywide-reusable-cup-system-copomais-launches-in-lisbon>.

07. Evaluation of Current Litter Rates

LITTER COLLECTION EFFORTS

There are many organizations and clean-up efforts across the state that work to address litter. The section below includes public data available related to litter collection efforts. Many materials that are collected as litter would be covered materials under an EPR or DRS program, including beverage containers.

SAVE THE BAY PROGRAM

Save The Bay is an independent, member-supported, nonprofit organization dedicated to protecting and improving Narragansett Bay and all the waters connected to it. Their work is focused on advocacy, education and habitat restoration and adaptation, including annual facilitation of cleanups as part of The Ocean Conservancy's International Coastal Cleanup (ICC). In 2025, 2,971 volunteers participated in Save the Bay's cleanup events. The Independent Sector estimates the national value of each volunteer hour annually, with the 2025 estimate value being \$36.14/hour.³⁶ If each volunteer who participated in the 2025 cleanup event worked for two hours, the volunteer effort would be valued at about \$107,372. Table 45 shows the results from the past six cleanup seasons.

Table 45. Save the Bay ICC Results

Year	Number Of Volunteers	Pounds Of Trash	Tons Of Trash	Pieces Of Trash
2020 ¹	587	4,038	2.02	36,332
2021 ¹	1,940	11,778	5.89	120,651
2022	2,465	22,655	11.33	114,919
2023	2,830	22,480	11.24	132,912
2024	2,733	21,662	10.83	114,914
2025	2,971	15,561	7.78	117,396

¹Results are likely lower than average due to active COVID-19 pandemic.

During Save the Bay ICC events participants record what types of litter they are collecting, with this data being published in annual event reports by Save the Bay as well as annual reports prepared by The Ocean Conservancy on global marine debris. Table 46 breaks down the major categories of litter collected during the Save the Bay ICC events by year, by percent of total pieces of litter collected.

Table 46. Percent of Total Pieces of Litter Collected by Major Category Type

Year	Tiny Trash	Eating	Smoking	Drinking	Fishing	Other
Litter Included	Plastic and foam pieces less than 2.5 cm	Food wrappers, plates, plastic utensils, take-out containers	Cigarette butts, wrappers, cigar tips	Plastic bottles, glass bottles, cans, caps, straws, stirrers	Line, nets, ropes, cages, buoys	Other materials
2020	15%	9%	33%	31%	1%	10%
2021	24%	12%	24%	26%	2%	13%
2022	15%	10%	27%	29%	2%	18%

³⁶ Independent Sector. Value of Volunteer Time. Accessed July 2026. <https://independentsector.org/research/value-of-volunteer-time/>

Year	Tiny Trash	Eating	Smoking	Drinking	Fishing	Other
2023	18%	10%	18%	33%	2%	20%
2024	11%	10%	23%	29%	3%	25%
2025	12%	10%	19%	30%	2%	27%
Average ¹	16%	10%	24%	30%	2%	19%

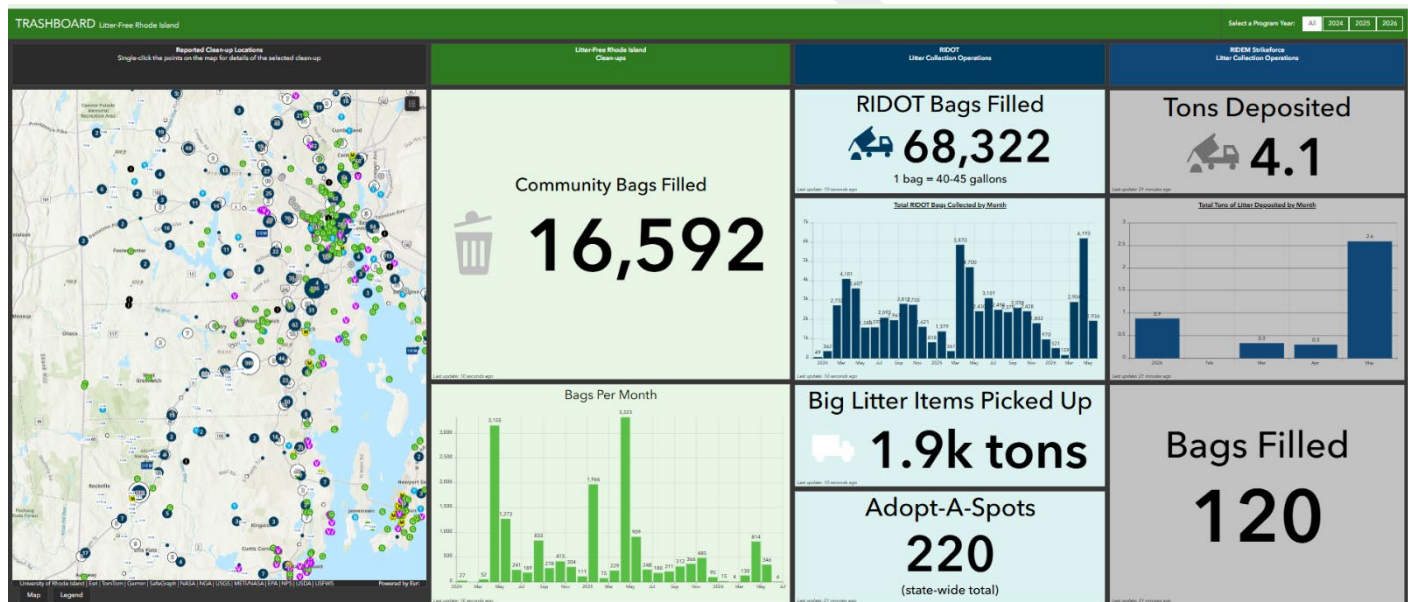
¹ Total percentage may not equal 100% due to rounding.

LITTER-FREE RHODE ISLAND PROGRAM

Litter-Free Rhode Island is a program developed by Governor Dan McKee and First Lady Susan McKee, supported by state agencies, community groups and the Rhode Island population, to address litter in the state's 39 cities and towns. Any group or community member is welcome to participate in a litter clean-up, and since 2024, the community has filled over 16,500 bags of litter through cleanup efforts.

Litter-Free Rhode Island's website includes an interactive "Trashboard" (Figure 10) provided by the Rhode Island Department of Transportation. This dashboard provides data on a wide range of Litter-Free Rhode Island's initiatives including the total weight of trash that has been picked up, how many bags have been filled, and locations of reported cleanups.

Figure 10. Litter-Free Rhode Island Trashboard



RIDEM has overseen and distributed microgrant funds (up to \$500) for qualified applicants to use for volunteer cleanups and beautification projects across the state as part of this initiative. Since 2024, RIDEM has awarded over 250 microgrants, distributing almost \$151,000 to program participants. Table 47 shows the number of bags of litter collected by microgrant awardees, by county.

Table 47. Bags of Litter Collected by Litter-Free Rhode Island Microgrant Participates, By County

County	Number Of Bags
Providence	2,558
Kent	304
Washington	550
Bristol	114
Newport	455
Total Bags of Litter	3,981

¹Save the Bay was a microgrant awardee in 2025 and collected 752 bags of litter. This information may also be represented in the organization's litter totals.

RIDEM STRIKEFORCE

RIDEM created the Strikeforce program in 2022 in response to the large amounts of trash left on the state's DEM properties. Every summer, a dedicated team of seasonal state interns responds to incidents of dumping, conducting clean-ups of high-volume sites. In 2025, the team conducted over 1,600 cleanups at 175 different locations, ranging from fishing access sites and boat ramps to state parks and management areas.

ESTIMATED LITTER VOLUMES AND RELATING LITTER TYPES TO COVERED CATEGORIES

One method of estimating litter tonnages in the State was carried out using per-capita litter generation estimates. The total volume of litter in Table 48 is based on the pounds per capita formula from a 2009 Keep America Beautiful litter study.³⁷ This is the most recent data available for per-capita litter generation, although the authors recognize it is dated.

Table 48. Estimated Tons of Litter in Rhode Island

County Population	Lbs. Per Capita	# Of Counties	Sum Of Population	Tons Of Litter
<30,000	7.49	0	0	0
30,000 or more, up to 100,000	15.47	2	136,436	1,055
>100,000	8.3	3	960,943	3,988
Estimated Total in State	NA	5	1,097,379	5,043

Litter item counts provided from Save the Bay ICC events were also used to estimate the tonnage of litter by material category. As these material tonnages represent only items that were collected by volunteers during Save the Bay cleanup events, calculated litter tonnage estimates only represent a portion of the total volume of littered materials in Rhode Island.

Item weights were estimated using a variety of sources, including average container weights from industry reports, the US EPA Standard Volume-to-Weight Conversions for Solid Waste, and the Packaging Partnership Programme's Packaging Benchmarking Database. As seen in Table 49, the most-commonly littered items by

³⁷ 2009 National Visible Litter Survey and Litter Cost Study. Keep America Beautiful, Inc. (2009, September). <https://site.extension.uga.edu/kbb/files/2022/10/Keep-American-Beautiful-2009-litter-study.pdf>

count make up a much smaller percentage of total litter when measured by weight as compared to less-littered, very heavy items such as tires and large appliances. Among the top 5 most-littered item categories, beverage-related litter makes up the largest percentage of litter by weight at 17%.

Table 49. Percent of Total Weight of Litter Collected by Major Category Type in 2025 Save the Bay ICC

Year	Tiny Trash	Eating	Smoking	Drinking	Fishing	Other
Litter Included	Plastic and foam pieces less than 2.5 cm	Food wrappers, plates, plastic utensils, take-out containers	Cigarette butts, wrappers, cigar tips	Plastic bottles, glass bottles, cans, caps, straws, stirrers	Line, nets, ropes, cages, buoys	Other materials
2025 Save the Bay ICC % of Total Weight	1%	2%	4%	17%	11%	65%

The estimated weight and percentage of total collected litter by items that would fall under covered product categories is displayed in Table 50. The usefulness of the estimated tonnages of litter is limited because they only reflect the quantity of material collected during the one-day event by Save the Bay in 2025. However, translating the composition to percent by weight for various categories is likely more useful for understanding and predicting litter composition, including under future scenarios with EPR and/or DRS. EPR covered products include paper and packaging litter, while DRS covered products include beverage container litter such as bottles, bottle caps, and cans. Beverage container litter constitutes a relatively high percentage of total litter, particularly glass bottles, which are relatively heavier than other littered packaging products composed of paper, plastic, or foam.

Table 50. Percent of Total Weight of Litter Collected by Likely Covered Products in EPR and DRS Programs

Likely Covered Products	Weight (Tons) Of Collected Litter During Save The Bay 2025 Event	% Of Total Litter Collected By Weight
Littered EPR Covered Products	1.64	21%
Littered DRS Covered Products	1.38	17%
Other Littered Items	6.14	79%
Total Litter	7.78	100%

Table 51 shows all categories used for litter in Save the Bay ICC events and indicates which categories of littered items are likely to fall under covered product material categories in EPR or DRS systems. The selected material categories likely to be classified as covered products under EPR or DRS were used to calculate estimated total weight of littered covered products in Table 50.

Table 51. Save the Bay ICC Litter Categories Covered Under EPR and DRS Programs

Save The Bay Littered Items Category	Covered Material In EPR Programs	Covered Material In DRS Programs
Cigarette butts	No	No
Plastic/foam pieces	No	No
Other plastic waste	No	No
Food wrappers (candy, chips, etc.)	Yes	No
Other waste (metal, paper, etc.)	No	No
Bottle caps (plastic)	Yes	Yes
Beverage bottles (plastic)	Yes	Yes
Beverage cans	Yes	Yes
Beverage bottles (glass)	Yes	Yes
Straws/stirrers (plastic)	No	No
Other bags (plastic)	Yes	No
Bottle caps (metal)	Yes	Yes
Lids (plastic)	Yes	No
Foam packaging	Yes	No
Cups, Plates (plastic)	Yes	No
Lines, nets, traps, ropes, etc.	No	No
Tobacco products (lighters, cigar tips, wrap)	No	No
Grocery bags (plastic)	Yes	No
Food containers (plastic)	Yes	No
Cups, Plates (paper)	Yes	No
Utensils (plastic)	No	No
Construction materials	No	No
Cups, Plates (foam)	Yes	No
Clothing	No	No
Food containers (foam)	Yes	No
Paper bags	Yes	No
Other plastic bottles (oil, bleach, etc.)	Yes	No
Beverage sachets/pouches	Yes	No
Toys	No	No
Strapping bands	No	No
Foam dock pieces	No	No
Gloves & masks (PPE)	No	No

Save The Bay Littered Items Category	Covered Material In EPR Programs	Covered Material In DRS Programs
Tampons & applicators	No	No
Syringes	No	No
Balloons	No	No
Condoms	No	No
Footwear (shoes/slippers)	No	No
E-cigarettes	No	No
Diapers	No	No
6-Pack holders	Yes	No
Electronic waste (phones, batteries)	No	No
Cotton bud sticks (swabs)	No	No
Tires	No	No
Appliances (refrigerators, washers, etc.)	No	No

08. Gaps Across the Recycling and Waste System

Although there are many strengths to Rhode Island's current waste and recycling system, this needs assessment illustrates that there are several gaps, or areas of improvement, that remain. This section provides an overview of gaps in collection, services, processing, and facilities. This overview of gaps is not exhaustive; rather, it is an initial list of gaps based on the current understanding of the system as described in this Needs Assessment. More gaps may be identified throughout the course of RRS' Statewide Implementation Analysis. At the time of this Needs Assessment report, the State is also preparing a Solid Waste Management Plan and reviewing the status of the RIRRC MRF through an evaluation study. These efforts may identify additional gaps, or strategies and programs that can address these gaps.

The gaps below are sectioned into lower-impact gaps, moderate-impact gaps, and high-impact gaps. Lower-impact gaps are relatively easily correctable discrepancies between the State's current system and its desired goals, or small changes that would result in higher-performing system. Moderate-impact gaps are more significant shortfalls impacting the quality, quantity or functionality of the recycling and waste system. High-impact gaps are those critical needs that should be addressed to realize major improvement and are likely some of the areas requiring systemic changes to policy or programs.

Many of the gaps described below are related to the reality that municipal recycling and diversion rate targets in the State are frequently not met. Many communities are not achieving the State requirement to reach a recycling

rate of 35% and a diversion rate of 50%, as shown in the 2024³⁸ and 2025³⁹ RIRRC municipal data summaries. The low capture rate of recyclable materials is a consequence of a few key factors: people are putting a lot of non-recyclable material (trash) in the recycling bins or carts (high contamination), and some people are not recycling at all (low participation). There is currently a lack of incentive to optimize recycling, reduce waste, and prevent contamination because of the very low solid waste tipping fee and the free processing of municipal material at the MRF (which means the MRF operates at a loss each year).

The minimum thresholds for recycling and diversion were established with intentionality. The fact that they are not being achieved on a regular basis suggests that the current programmatic and policy structure is not driving the desired performance. To achieve these targets, communities will need more robust programs and more extensive communications and education and outreach supported by state-level policy or support. Increased education and outreach will continue to be important for driving residents to put recyclable material in the recycling bin.

LOWER-IMPACT GAPS

Curbside recycling services are available state-wide, but they are not provided automatically to all households.

The best practice is that there be parallel service with recycling collection provided wherever trash collection is provided, for both to be provided automatically, as opposed to requiring residents to opt-in. In 2024, about 27% of the occupied households in the state do not receive recycling service automatically provided by the municipality or a company on contract to the municipality and instead have access to recycling collection through subscription with private service providers. There are two communities (Narragansett and South Kingstown), which are 4% of total occupied households in Rhode Island, which receive subscription curbside recycling service under Rhode Island's municipal service sector. It is unclear if all these households subscribe to or participate in curbside recycling services. In addition to these households, 7% of total occupied households have access to municipal service at drop-off facilities but do not receive municipal service for curbside recycling. These households may have subscription curbside service, collected through the ICI service sector. There are also 17% of total occupied households that are included in the ICI waste stream, which may use subscription services for curbside recycling collection. The Recycling Partnership (TRP) reports that automatically provided curbside collection results in more annual pounds of recycling per household than services provided by opt-in subscription haulers.⁴⁰

It is best practice to provide recycling service that is as convenient as trash. There are 11 communities⁴¹ in Rhode Island (28% of the municipal service sector households) that receive curbside recycling collection every other week, while they receive curbside trash collection weekly. Increasing the collection frequency for these 11

38 Rhode Island Resource Recovery Corporation (RIRRC). (2025, May 19). *How is My City or Town Doing? Municipal Recycling, Composting and Waste Diversion in Rhode Island* <https://rirc.org/sites/default/files/2024%20How%20Is%20My%20City%20or%20Town%20Doing%2020250519.pdf>

39 Rhode Island Resource Recovery Corporation (RIRRC). (2026, March 24). *How is My City or Town Doing? Municipal Recycling, Composting and Waste Diversion in Rhode Island* <https://rirc.org/sites/default/files/2025%20How%20Is%20My%20City%20or%20Town%20Doing%2020260401.pdf>

40 The Recycling Partnership. (2020, February 13). *2020 State of Curbside Recycling Report*. https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2020/02/2020-State-of-Curbside-Recycling.pdf

41 East Greenwich, Foster, Lincoln, North Smithfield, Scituate, Warren, West Warwick, East Providence, North Providence, Pawtucket, North Kingstown

communities to match trash collection will likely result in additional recyclables being collected.

A variety of carts and bins are used for curbside recycling collection service.

Communities in Rhode Island use a variety of containers for collecting recyclables, ranging in size and form. To help communities save money, improve safety, divert more material from the landfill, and increase program participation rates, the State should seek to harmonize all collection to a cart-based system. Recycling carts should also be the same size as trash carts, to ensure access to recycling is in line with access to trash. The Recycling Partnership reports that cart-based collection can increase the volume collected within an average bin-based program by 125 pounds per household per year.⁴² To make a transition from bin to cart collection, the program changes should be completed in tandem with additional education, to ensure recyclers are using the containers correctly, while also putting the correct materials in their container. To adjust for the “hands-on” quality check of curbside recycling material in the bin system, additional outreach efforts like cart-tagging and use of video software on collection vehicles can be utilized.

Some curbside collection programs rely on manual vehicles.

There are four communities (Foster, Johnston, Middletown⁴³ and Scituate) in Rhode Island that collect recycling using manual vehicles, making up 5% of the municipal service sector households. Collection best practices include using automated collection vehicles where possible, to encourage employee safety and increase the number of households served daily, which improves operational costs and efficiencies. Automatic collection vehicles also rely on the use of recycling carts, as opposed to smaller bin containers (see prior recommendation).

MODERATE-IMPACT GAPS

MRF capabilities and processing technologies are limiting the quantity and types of materials that can be recycled.

There are several material categories, including those outlined in the potential end markets section that could be recovered for recycling. Relatedly, processing upgrades are needed at the MRF to adapt to changing material landscapes. Upgraded processing technologies and systems can lead to a greater breadth of materials being accepted and can also reduce the percentage of material going to residue on the MRF line. These upgrades are currently being considered by RIRRC in conjunction with the consulting firm RRT through their assessment of Materials Recycling Facility Design and Construction.

Gaps likely exist in ICI recycling services.

There is a lack of data available on Rhode Island ICI recycling. However, the minimal amount of ICI material processed at the RIRRC MRF suggests that opportunities exist for increased capture. More robust recycling and reporting requirements to supplement the current commercial recycling requirements, paired with sufficient staffing at RIDEM to enforce the requirements could increase the amount of ICI recycling. ICI recyclables may be transported out of state for processing or processed by larger commercial businesses through their reverse distribution network (e.g., a large grocery store chain baling their OCC and selling that bale directly to brokers or

⁴² Redling, A. (2018, August 28). *The benefits of cart-based recycling*. Waste Today. <https://www.wastetodaymagazine.com/news/recycling-partnership-cart-system-adoption/>

⁴³ Per Middletown's entry on the Municipal Matrix, the town has automated vehicles but uses a manual side loader.

end markets). It is likely that this represents a meaningful portion of the generation and recycling of paper and packaging material in the State.

HIGH-IMPACT GAPS

A significant amount of Rhode Island's food waste is likely going to the landfill.

Although it is not the focus of this study, it's notable that little food waste is collected for and diverted to compost or anaerobic digestion. The recovery of compostable packaging requires infrastructure for collection and processing of food waste. RIDEM is not currently aware of any organics facilities in Rhode Island that accept compostable products, and further review of facility capacity and operations would need to be considered prior to expanding material acceptance. RI residents are able to drop-off leaf and yard waste at local municipally operated transfer stations and drop-off locations. Food waste collection programs and processing infrastructure would have a significant impact on landfill diversion, reduce the State's waste management-related greenhouse gas emissions, and extend the lifetime of the landfill.

Glass is among the collected materials that are not currently being recycled.

Currently, the glass collected and processed by RIRRC is being used as alternate daily cover for the landfill, which does not put glass to its highest and best use in the hierarchy of sustainable materials management. There are multiple options for glass management to achieve better environmental outcomes than the current system. For instance, recovering glass beverage containers through a deposit / return system, upgrading the MRF glass processing equipment, or evaluating alternative collection methods for glass (on-the-side curbside or drop-off) all may have significantly better environmental outcomes than the current system.

There is currently no common or widespread infrastructure to support reuse and refill.

Outside of some university systems and events that have adopted reusable food service ware, Rhode Island has limited reuse and refill programs to replace disposable packaging, paper products, and beverage containers. To encourage avoidance of waste through reuse of materials, reuse-focused policies could be established, and a network of convenient drop off sites and wash facilities could be created to collect and recirculate reusable packages. The existing drop-off network for hard to recycle materials or a possible future network for DRS redemption locations (both of which involve collection of source separated materials) could be logically paired with drop off collection of reusable or refillable containers.

Overall contamination of the recycling stream is very high.

When combining rejected loads (Table 34) and MRF residue (Table 35) and the glass going to alternative daily cover, on average 45% of what is picked up for recycling is sorted into a recyclable commodity (for the year 2024). Rhode Island's residue rate is 21%; high performing recycling streams often target less than 10% as an acceptable residue rate. There should be a significant effort to reduce contamination through investment in education and outreach, targeted messaging, cart tagging and use of technology such as AI-based contamination cameras.