



Auburn Solid Waste Task Force Final Report

August 19, 2024

Taskforce Members

Sharon Benoit - Sustainability Working Group

Jane Costlow – Sustainability Natural Resources Board

Brian Cullen - Sustainability Working Group

Dave Griswold - Sustainability Natural Resources Board

Ralph Harder - Sustainability Working Group/Sustainability Natural Resources Board

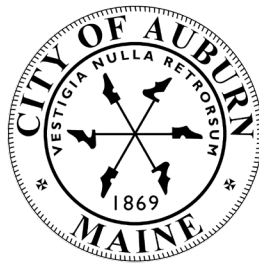
Ben Lounsbury - Sustainability Working Group

Camille Parrish - Sustainability Working Group

Minutes of Task Force meetings may be found at

<https://www.auburnmaine.gov/pages/government/sustainabilityworkinggroup>

The Sustainability and Natural Resources Board endorsed the Taskforce Report unanimously at its July 18, 2024, meeting.



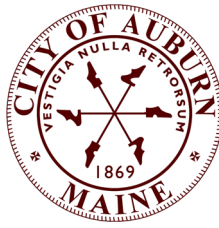
Auburn Solid Waste Taskforce Final Report – Contents

Executive Summary – pp. 3 - 4

Detailed Report – pp. 5 - 15

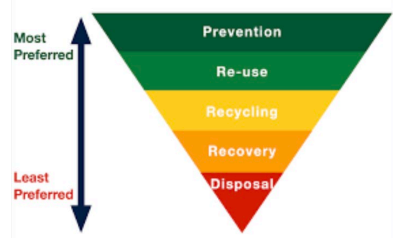
Figures – pp. 16 - 18

List of Interviews – p. 19



2024 SOLID WASTE TASK FORCE | EXECUTIVE SUMMARY

Current household solid waste management contracts for the City of Auburn are expiring at the end of this year. The City Council has instructed the Sustainability and Natural Resources Board to evaluate Auburn's solid waste management system, including how household solid waste is



collected, processed and disposed of. The findings in this report are intended to support the city in its writing of new solid waste agreements. An important context for these recommendations is the state's soon-to-be-launched EPR (Extended Producer Responsibility) program. In a volatile and rapidly changing market for recyclables, the Maine EPR will provide new revenue to support recycling programs and other solid waste initiatives in

participating municipalities. This is an optimal moment for Auburn to re-evaluate its approach to the “recycle-recovery-disposal” sections of the waste hierarchy, pictured above.

1. GENERAL RECOMMENDATIONS

- A. **Prepare Auburn households for Maine Extended Producer Responsibility (EPR) Program** [<https://www.maine.gov/dep/waste/recycle/epr.html>]: By recycling all items on Maine's EPR list of recyclable commodities, Auburn can access new funding to offset collection and processing costs for household solid waste. Reimbursement for these costs through the EPR program will increase with increasing recycling participation rates and tons of material recycled.
- B. **Data management:** Provide support for accurate, verifiable data collection on all aspects of Auburn's solid waste management including fixed and variable costs. Report data to key stakeholders in a timely manner.
- C. **Staffing:** Assign a qualified individual primary responsibility for setting goals and managing performance improvement of Auburn's solid waste programs using data referenced above (1.B). This individual could also manage other city sustainability programs.
- D. Create a robust **public engagement program**. Inform and involve Auburn households in all aspects of the city's solid waste program using data, regular data reports, restructured staffing, revisions to the Auburn solid waste ordinance and Comprehensive Plan.
- E. Limit the duration of new **solid waste contract(s)** to allow for improved data collection and analysis (1.B) and evaluation of how EPR (1.A), the public engagement program (1.D) and new trash-collecting technologies will impact future city budgets and sustainability efforts.

2. DOMESTIC TRASH RECOMMENDATIONS

- A. Continue current service level for curbside collection of household trash.

- B. Use bid (RFP/Request for Proposal) process to analyze feasibility and costs of various solid waste collection and divergence strategies including:
 - Contracted vs city operated curbside collection
 - Incentives for increased food-scrapping (IV. B-F) and recycling such as limiting the size of the trash collection container
 - Controlled access cards for Auburn resident payment, accurate recording and classification of waste stream weights at Auburn and MWE transfer stations
 - City-developed markets for collection and sale of some readily recyclable commodities
- C. Increase participation in Product Stewardship programs to divert more waste from household trash. [<https://www.maine.gov/dep/waste/productstewardship/index.html>]
- D. Incentivize and support existing reuse programs for household items.

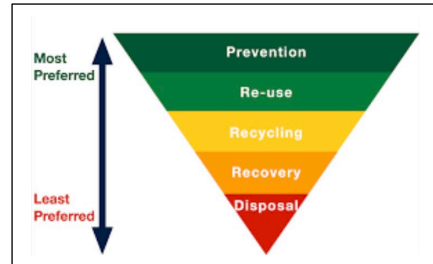
3. RECYCLING RECOMMENDATIONS

- A. Institute weekly curbside collection of recyclables.
- B. Auburn's recycling program should include recycling of all commodities on the state EPR list.
- C. Curbside recycling should include city-provided wheeled, lidded containers.
- D. Keep Gracelawn open as a supplemental site, consider adding additional such sites.
- E. Create targets for increased household participation, based on analysis of data collected (1.B).
- F. Create unified messaging as part of the Public Engagement Program (1.D), with easy-to-understand instructions and advice available via social and other media.

4. FOOD WASTE PROGRAM RECOMMENDATIONS

- A. Continue with Gracelawn Road and South Main Street drop off locations.
- B. Add additional drop-off location(s) in more highly traveled and accessible sites to increase convenience and participation.
- C. Enhance drop off locations with larger signs (kiosks) that include information (pictures and writing) about what can and cannot be placed in the bins.
- D. Use multiple modes of communication to promote the program, as part of the public engagement program (1.D)
- E. Include schools in the food waste collection program, including mini lessons in the classrooms and picking up food waste from the cafeterias by the contractor.
- F. Incentivize food waste collection by subsidizing the cost/or purchasing of backyard compost bins and/or kitchen compost containers.

Auburn Solid Waste Task Force: Detailed Recommendations



Authority of Solid Waste Task Force to Issue Report

Ordered, that the Sustainability and Natural Resources Board will work with all relevant subcommittees with support from city staff to create a Solid Waste and Recycling plan for the City of Auburn. (partial text, City Council order January 16, 2024).¹

Introduction

This report focuses on solid waste generated by households in Auburn. What the task force refers to in the report as the household solid waste stream is composed of domestic trash, recycling, food scraps and organic waste.

Domestic trash – waste not recycled - is collected curbside and trucked to a waste to energy incinerator in Auburn. Trash incineration generates electricity used to run the plant, with excess sold to the power grid. Incineration reduces trash volume by 80%; the ash from incineration is then trucked to the Lewiston landfill for disposal.

Recycling in this report is solid waste separated from domestic trash for special processing. Auburn’s recycling is separated by homeowners for curbside or drop-off site collection and trucked to a recycling facility in Lewiston, where it is further processed and sold to brokers of recycled commodities.

Food scraps and organic waste can also be separated from trash by homeowners, taken to a drop-off site and trucked to a facility for anaerobic digestion - a process that captures gas from decomposing food and generates electricity.

Like many Maine municipalities, Auburn’s current management of solid waste has evolved over time. It is a complex of component entities, geographically dispersed, with varied ownership and business models. *Do these component parts currently operate to optimally balance municipal budget impacts (taxpayer dollars) with responsible environmental*

¹ City Council Order 14-01162024. Retrieved from auburnmaine.gov:
https://www.auburnmaine.gov/CMSContent/City_Council/Actions/0%20ORDERS%201-94%20current%20as%20of%207-15-24.pdf

stewardship? This question is timely, since Auburn is about to enter into new agreements for household trash and recycling hauling and processing.

Our investigation of these issues suggests that Auburn needs to dedicate ongoing resources for study, data collection, reorganized staffing and public involvement before writing a long-term Solid Waste Plan. Revenue to support this work is on the way, thanks to a pioneering state law [Extended Producer Responsibility, or EPR] designed to reduce the amount of packaging waste introduced to Maine and help Maine towns fund their solid waste costs. The task force recommends that Auburn negotiate shorter term commitments with its solid waste contractor(s) as it prepares for the implementation of EPR and responds to the changing environment of solid waste management.

1. General Recommendations for The Council

A. Prepare Auburn households for **Maine Extended Producer Responsibility (EPR) Program <https://www.maine.gov/dep/waste/recycle/epr.html>.**

Starting in 2026, EPR will charge producers of non-recyclable packaging a per ton fee based on the tonnage of such packaging sold in Maine.² Beginning in 2027, municipalities with established recycling programs who choose to participate will be reimbursed a per ton amount for specified packaging types (plastic, metal etc.) that are recycled. In addition, they will be reimbursed on a per capita basis for the amount of nonrecyclable packaging processed in domestic household trash. Final rules are still being written, but it is anticipated that per-ton reimbursement for recycled packaging will be higher than for nonrecyclable packaging. Reimbursement for nonrecyclable packaging sent to waste to energy incinerators, like Auburn's, will be higher than that sent to landfills.

By recycling all items on Maine's EPR list of recyclable commodities, Auburn can access new funding to offset collection and processing costs for household solid waste. Reimbursement for these costs through the EPR program will increase with increasing recycling participation rates and tons of material recycled.

On average Auburn sends 8,000-9,000 tons of domestic trash to its incinerator and 400-700 tons of recycling to the recycling plant per year. Accordingly, Auburn's recycling tonnage is only 7.5% of its trash disposal tonnage. Maine law sets an annual goal of recycling or composting 50% of a municipality's solid waste.

Under EPR, the city and its waste and recycling contractors must agree to audits of the municipal waste streams by the agency governing the program. These audits will verify municipal collection and processing costs for both trash and recycling and revenue generated for each recycled commodity. This should result in increased transparency for municipal solid waste managers tracking solid waste expenses. Once implemented the

² Natural Resources Council Maine. Retrieved from nrcm.org: <https://www.nrcm.org/sustainability/how-extended-producer-responsibility-for-packaging-will-benefit-maine/>

EPR program will provide incentives for producers to make more recyclable packaging and for municipalities to separate as much recyclable packaging from the household trash as possible in order to maximize reimbursement under the program and to further invest in their solid waste programs.

B. Data management: Provide support for accurate, verifiable data collection on all aspects of Auburn's solid waste management including fixed and variable costs. Report data to key stakeholders in a timely manner.

During the study period for this report, it was difficult to get data on basic aspects of Auburn's solid waste programs. This challenge was also noted in 2014 and 2020 reports to the Council on solid waste. Data is critical for setting goals and tracking continuous improvement and will be key to successful public engagement. This in turn will be key to maximizing reimbursement in the EPR program. Use of a data "dashboard" or scorecard visible to staff, elected officials and the public should help promote the program.³

C. Staffing: Assign a qualified individual primary responsibility for setting goals and managing performance improvement of Auburn's solid waste programs, using data referenced in 1.B above. This individual could also manage other city sustainability programs.

Future EPR reimbursement will depend on coordinated efforts and compliance with EPR rules from all of the system's current parts. Staffing a coordinator position will be essential to this effort. Other Maine communities have tasked sustainability managers with this type of coordination across multiple business entities and municipal departments and achieved cost-saving efficiencies.

D. Create a robust public engagement program. Inform and involve Auburn households in all aspects of the city's solid waste program using regular data reports, targeted goals, restructured staffing, neighborhood networks, enforcement or revision of Auburn's solid waste ordinance and updates to the solid waste sections of the city's Comprehensive Plan.

"Public Engagement" involves **communication with the public** using social media, direct mailing, public forums, and feedback on household compliance with trash collection regulations. It also involves **communication from the public** regarding the quality and performance of the city's solid waste programs. Through encouragement of volunteers with an interest in the topic, to leadership from elected officials and city staff, a robust Public Engagement program would include targeted goals for increased participation in the city's recycling program and in the organic and food scrap program. Progress toward these goals could be publicly reported on the city website or in a special solid waste data dashboard.

³ See for example: Town of Brunswick Maine Recycling Data: <https://www.brunswickme.gov/270/Recycling-Data>

The City should consider forming a solid waste advisory committee composed of Auburn residents, city councilors and public works or other appropriate staff to advise the council on solid waste policy. Such a committee could work with the public by conducting household surveys and listening sessions to explore alternative and less costly collection strategies for both trash and recycling.

Finally, the current Auburn solid waste ordinance requires that households separate recyclable material from city trash.⁴ It also specifies limits to the weight of trash and the size of the trash container put out for weekly collection. While these regulations may represent aspirational goals to improve recycling participation rates, none of them corresponds to current practice. As the Council considers new solid waste policies the task force recommends that the solid waste ordinance be updated to align with those policies.

There are numerous **benefits** from increasing participation and adherence to the current ordinance:

- Increased sanitation and improved aesthetics on city streets
- Increased efficiency at Maine Waste to Energy (MWE): Organic and food waste diversion will reduce the weight of collected trash and therefore the tipping fees at the incinerator (food waste is both wet and heavy and diminishes the efficiency of the waste to energy process). The EPA estimates organic waste comprises 34% of the weight of domestic trash. MWE will burn better without organic and food waste.⁵
- Financial benefits to the city for improved recycling rates once EPR is in place. Increasing the number of households recycling and recycling correctly (only the right commodities in the recycling bin) will be key to increased EPR program dollars coming to Auburn.

E. Limit the duration of new **solid waste contracts to allow for improved data collection and analysis (1.B) an evaluation of EPR (I.A), implementation of the public engagement program (1.D) and an assessment of new trash-collecting technologies, all of which will impact future city budgets and sustainability efforts.**

What data is needed and who would manage it for success in the EPR program is not known and likely will not be known before the current solid waste contracts expire. Likewise alternative trash and recycling collection strategies will need further study. Should the city get back into the trash collection business? If so, should they lease trucks or buy them? These questions with large budget impacts require return on investment analysis. Long-term agreements with current solid waste contractors do not seem advisable at this time.

⁴ Auburn, Maine - Code of Ordinances Chapter 44 - SOLID WASTE. (n.d.). Retrieved from auburnmaine.gov: https://library.municode.com/me/auburn/codes/code_of_ordinances?nodeId=PTIICOOR_CH44SOW

⁵ *National Overview: Facts and Figures on Materials, Waste and Recycling*. US Environmental Protection Agency. Retrieved from <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures->

2. Domestic Trash recommendations

The challenges Auburn faces in managing solid waste in general and domestic trash in particular are not unique. These are well summarized in a January 2024 comprehensive solid waste status report from the Maine Department of Environmental Protection to the state legislature. Rising collection and processing costs for both trash and recycling coupled with shrinking disposal options are stressing municipal budgets. Statewide, generation of solid waste is increasing year over year while total diversion of trash (includes repair, reuse, recycling, composting and anerobic digestion) from landfill and incineration remains flat. The net result is more Maine trash requiring final disposal. [See Figure 1]

Maine has set a goal to limit solid waste disposal, the bottom of the inverted pyramid of the Solid Waste Hierarchy, to 0.55 tons of solid waste per person per year. [See Figure 2]

Currently the per capita rate is 0.69 tons and rising. A rough estimate for Auburn is 0.71 tons per year. [See Figure 3.]

A. Continue current service level for curbside collection of household trash.

Curbside trash collection currently is weekly, recycling is every other week. There are drop-off options for both trash (MWE), recycling (Gracelawn) and food scraps (Gracelawn and South Main Street). Having trash and recycling both collected weekly would aid in compliance and increase homeowner satisfaction given experience in other communities. Having more drop-off locations for all three waste streams for those preferring these methods would minimize driving distances and increase customer satisfaction.

B. Use bid (Request for Proposal) process to analyze feasibility and costs of various solid waste collection and diversion strategies including:

- contracted vs. city operated curbside collection.
- incentives for increased food-scraping (4. B-F) and recycling such as limiting the size of the trash collection container.
- controlled access cards for Auburn resident payment, accurate recording and classification of waste stream weights at Auburn and MWE transfer stations.
- city-developed markets for collection and sale of some readily recyclable commodities

On average, Auburn collects and disposes of between 600 and 800 tons of **domestic trash** per month at a cost of roughly \$46 per ton for disposal and \$77 per ton for curbside collection. [See Figure 4]

Statewide median trash disposal costs are \$82 per ton (collection costs not reported). [See Figure 5]

For the first four months of 2024, Auburn reported 24 tons of **recycling** per month collected at the curbside at a cost of roughly \$800 per ton for collection and \$106 per ton for processing (these figures are exclusive of recycling drop-off tons at Gracelawn). This is the most up-to-date information from the Auburn Public Works Department.

Trucking costs are a large portion of Auburn's solid waste budget, not surprising given the geographic size of the municipality. Collecting both trash and recycling on the same weekday in a split body truck, as Biddeford and other communities do, would limit route miles and reduce hauling cost.

Other municipalities in Maine have had success using a variety of **positive and negative incentives** to limit trash generation and increase participation rates in recycling and other diversion programs. [See Figure 6]

These incentive programs include the following:

- Trash containers that are smaller than recycling containers encourage households to separate recycling from the trash to make more room for non-recyclable trash for curbside pick-up.
- Periodic monitoring of recycling containers for contamination
- Charging for trash amounts that exceed the size of the trash bins (so-called "Pay-to-Throw")

Biddeford operates and staffs its own transfer station, open on certain days for resident-sorted recycling and food scrap drop-off and oversized bulky waste (OBW) drop-off. Access with a card swipe system limits use to Biddeford residents. The staff person ensures recycling is sorted in the proper bin limiting contamination. The card swipe identifies users by residential address and ensures that each household is abiding by limits for free OBW and special waste disposal (4 tires per year, for example).

Biddeford also collects and markets some recyclable commodities that are dropped off at the transfer station independent of what is collected by their recycling contractor.

C. Increase participation in Product Stewardship programs to divert more waste from household trash. <https://www.maine.gov/dep/waste/productstewardship/index.htmls>.

D. Incentivize and support existing reuse programs (thrift shops, social service agencies) for household items.

It is important not to lose sight of the other portions of the Waste Hierarchy that divert materials from the waste stream. Like the soon to be implemented EPR program there are a number of so-called product stewardship programs in existence. The most obvious and successful diversion program is the Maine bottle bill which diverts glass, plastic and metal deposit containers from disposal. There are also ongoing programs that collect electronic waste, tires, paint and lithium batteries to name a few.

The Auburn area also hosts a plethora of nonprofit donation centers and agencies that collect clothing, household goods, furniture, food and other reuseable items for gifting or reselling. These programs should be supported and promoted for their impact on waste diversion.

3. Recycling recommendations

Recycling is the process of diverting post-consumer materials that would otherwise be included in the solid waste stream and converting them into new materials and new objects. Recycling directly reduces the amount of waste that is sent to landfills and incinerators, which in turn reduces the amount of harmful chemicals that are released into the soil and air. Another environmentally significant benefit of recycling is that it conserves natural resources such as trees, minerals, and fossil fuels by *reusing* materials, including cardboard, paper, metals, and plastic. Those materials constitute a significant portion of the weight of the waste stream and increase the tipping fees charged by landfills and incinerators. Reusing these materials instead diminishes the need to harvest, mine, or extract *new* raw materials, thus conserving natural resources and reducing energy use and environmental degradation.

In addition to these well-established environmental benefits, Maine's new EPR Law will give money back to municipalities that operate robust recycling programs. Participating municipalities will in effect be subsidized by the packaging industry for operating recycling programs.

Currently, Auburn contracts with Casella to send its recyclables to Casella's Material Recovery Facility (MRF) in Lewiston. In the summer of 2023, the Council cancelled Auburn's curbside recycling program. The Council revisited the decision in late 2023 and restored the curbside recycling program.

Since restoration, the curbside recycling program has not yet returned to its precancellation tonnage but is steadily increasing. Auburn residents also have the option of dropping off their recyclables at Gracelawn and the combined tonnage of curbside and drop off recycling nearly equal precancellation levels.

To further increase recycling levels, which is vital for achieving long term solid waste reduction goals and to obtain significant future reimbursements from the State via EPR, Auburn needs to expand its public engagement efforts. The program must be well thought out and easy to comply with.

Here is a short elaboration of some of the points in our Executive Summary.

A. Auburn should initiate weekly curbside collection of recyclables.

Although curbside trash collection occurs weekly, recycling occurs only biweekly, weather permitting (see C. below). Collecting trash and recycling on the same day would eliminate residents' confusion over their biweekly recycling date. Indeed, public attendees at the Solid Waste Task Force's June 27, 2024, meeting for public comment were adamant that recycling pick-up should occur every week, on the same day that trash is picked up. Weekly curbside collection will almost certainly increase recycling participation.

Assuming the city participates in EPR as the Solid Waste Task Force recommends, the city will receive higher reimbursements for its increased recycling participation rates and tons of material recycled.

Additionally, the expense of weekly curbside collection may be significantly mitigated if the city adopts the use of automated collection trucks; Casella and other vendors now offer automated split trucks that can collect both trash and recycling at the same time. This would eliminate the separate (and redundant) recycling route currently required for biweekly curbside collection.

Lastly, weekly collection will promote compliance with Auburn's recycling ordinance which prohibits the disposal of recyclables in household trash.

B. Auburn's recycling program should include recycling of all commodities on the state EPR list.

Auburn will be eligible for funding through EPR only if its recycling program includes all commodities on the state EPR list (Elena Bertocci, Maine DEP, presentation to the task force on 6/18/2024). If the city does not recycle everything on the state list, all recycling expenses will be borne by the city. The DEP has not yet finalized the list of commodities.

C. Curbside recycling should include city-provided wheeled, lidded containers to keep recyclables dry.

According to Casella, all recyclables need to be clean and dry. Wet materials are considered contaminated and are likely brought to the landfill for disposal instead of recycled. Providing lidded recycling containers will alleviate this problem during inclement weather. Wheeled containers are easier and safer for Auburn residents to bring recycling material to the curb.

D. Keep Gracelawn open as a supplemental site, consider adding additional such sites.

The Gracelawn drop-off site has already proven to be popular with many Auburn residents, particularly given the flexibility of anytime drop off vs. adhering to the biweekly curbside collection schedule. Gracelawn also offers food waste containers which makes it an efficient stop for residents and promotes cross-utilization of the available options.

Some cities operate recycling centers with designated containers for recycling specific items such as various plastics, metals, cardboard, paper, glass, batteries, etc. Recyclables are less likely to be contaminated where individual containers are available for depositing specific materials. In addition, presorted recyclables may command a higher price in the commodities market. Biddeford operates such a facility and directly sells its sorted recyclables to commodities dealers.

E. Create targets for increased household participation, based on analysis of data collected.

Presently Auburn has no mechanism for directly measuring the number of households that participate in biweekly curbside collection. For the period December 11, 2023, through May 24, 2024, Casella personnel performed visual inspections and prepared an estimate of the household participation rate. According to that data, the participation rate almost always exceeded 10% and frequently exceeded 13%. Significantly, these participation rates do not include the households that perform their own drop-off recycling at Gracelawn. Although neither Auburn nor Casella have computed a participation rate for the Gracelawn drop-off recycling location, the monthly tonnage of dropped off recycling is nearly as high as that generated by the curbside collection system. Based on this information, the task force conservatively estimates that the household recycling participation rate for Auburn is approximately 15% of households (including both curbside and drop-off participants and those who do both). In other words, of the roughly 9,900 households in Auburn, approximately 1,500 participate in municipally sponsored recycling.

Auburn should set a goal of increasing its recycling participation rate by at least 10% per year (or approximately 150 households) per year for at least 5 years. There are a variety of resources easily available to help City Staff and/or a Sustainability Manager establish goals, create programs to achieve them and measure progress.⁶ Indeed, the State's EPR program will require municipalities to collect cost and tonnage data on their recycling operations. See discussion at Section I.B. Auburn should also consider re-establishing its citizen Recycling Committee to further help with outreach to particular neighborhoods and civic organizations.

F. Create unified messaging as part of the Public Engagement Program (I.D), with easy-to-understand instructions and advice available via social and other media.

Recycling rules can be confusing. Municipal recycling programs differ from community to community and variables include the frequency of pick up, the type of materials that will be picked up, whether the materials are to be separated or commingled, and the type of container the materials can be placed in. Most programs do not collect plastic bags, Styrofoam, soiled or wet paper, certain metals or plastics that can get entangled in the

⁶ https://www.c40knowledgehub.org/s/article/How-cities-can-boost-recycling-rates?language=en_US
<https://recyclingpartnership.org/small-town-america-part-in-boosting-us-recycling-rates/>

recycling machinery and so-called contaminated recyclables. Even the definition of contaminated recyclables may differ between communities. Commonly it denotes wet, greasy, and unaccepted type of material.

In order to simplify the recycling process for its residents, Auburn's recycling rules should be publicized in clear and precise language, prominently communicated and readily accessible. Auburn should also develop a comprehensive Public Engagement Program as discussed in Section I.

4. Food Waste Program recommendations

In order to reduce the amount of solid waste collected and disposed of per capita Auburn needs to expand its current collection program for food scraps and other organic materials (paper towels and napkins, etc.) and work to increase citizen participation in the program. Twenty percent of the city's solid waste is food waste and 15 to 18% of the recycling is contaminated with food scraps, non-recyclable materials, or moisture.⁷ An increase in the collection of Auburn's food waste and other organics would reduce the overall tonnage of our household solid waste collected. A reduction in tonnage leads to savings in disposal costs. In addition, removing food waste will improve recycling contamination rates, eliminate the source of methane generation, a very potent greenhouse gas, when Auburn's solid waste is diverted from Maine Waste to Energy to a landfill, and contribute to more efficient energy use during incineration, reducing overall costs.

Currently, Auburn's food waste collection program is contracted to Agricycle which processes the organics in an anaerobic digester to create natural gas that is captured and used for the production of electricity. Auburn should also consider implementing an additional composting program, city or contractor provided, which would allow citizens to contribute their food scraps and other organic waste and, in exchange, receive compost for their personal use.

Recommendations to accomplish these goals are as follows.

- A. Continue to offer food scraps/organic materials disposal drop off locations at Gracelawn Avenue and South Main Street. These locations are adjacent to the recycling drop off location and/or serve separate areas of the city making them convenient for some residents.

⁷ Auburn Ad Hoc Recycling and Sustainability Committee. (2020).

https://www.auburnmaine.gov/CMSContent/Boards_and_Committees/Recycling%20Ad%20Hoc/Recycling%20Committee%20FINAL%20REPORT.pdf.

Previous recycling report to Auburn City Council in 2020. Table 3, page 14 of this report compares greenhouse gas emissions for processing strategies for household solid waste depicted in the solid waste hierarchy: recycling, composting, waste to energy incineration and landfilling.

- B. Add drop off bins in more accessible locations, ones that are heavily trafficked, in order to increase convenience and participation. Adding drop-off locations in areas that are adjacent to streets with major vehicular use, such as community centers (schools, Pettingill Park, etc.), or in areas that serve citizens who rely on other types of transportation, e.g. walking, will increase the visibility of the program and accessibility.
- C. Include large signage, kiosks with written and pictorial information about what and what cannot be placed in the bins.

Large eye-catching signs with easily understood information will draw attention to the drop off bins and provide citizens with the type of information they need to fully utilize the program. Directional signs pointing to the locations of the drop off bins at street corners, etc. will also lead to ease of participation.
- D. Provide multiple modes of communication to increase public awareness and knowledge in newspapers, on a new food waste and organics website, via fliers in schools and on community bulletin boards.
- E. Include schools in the food waste collection program. Increase awareness of the program by providing mini-lessons in the classroom and enable easier participation by having Auburn's contractor pick up food waste and organics from the cafeterias. Educating the youth in our community is an important way to create habits for a lifetime and to include their families in the food waste and organics program. In addition, school cafeterias are a large source of food waste and organics. Collecting their food waste and organics will facilitate more efficient solid waste disposal and create an energy source through anaerobic digestion.
- F. Incentivize food waste collection by subsidizing the cost/or purchasing backyard compost bins and/or kitchen containers for home collection of food scraps. Other cities either provide food scrap collection bins at no cost or a reduced cost to their citizens. Providing this service would be an avenue for educating the public and highlight the city's commitment to the program at a reasonable cost.

FIGURES

FIGURE 1.

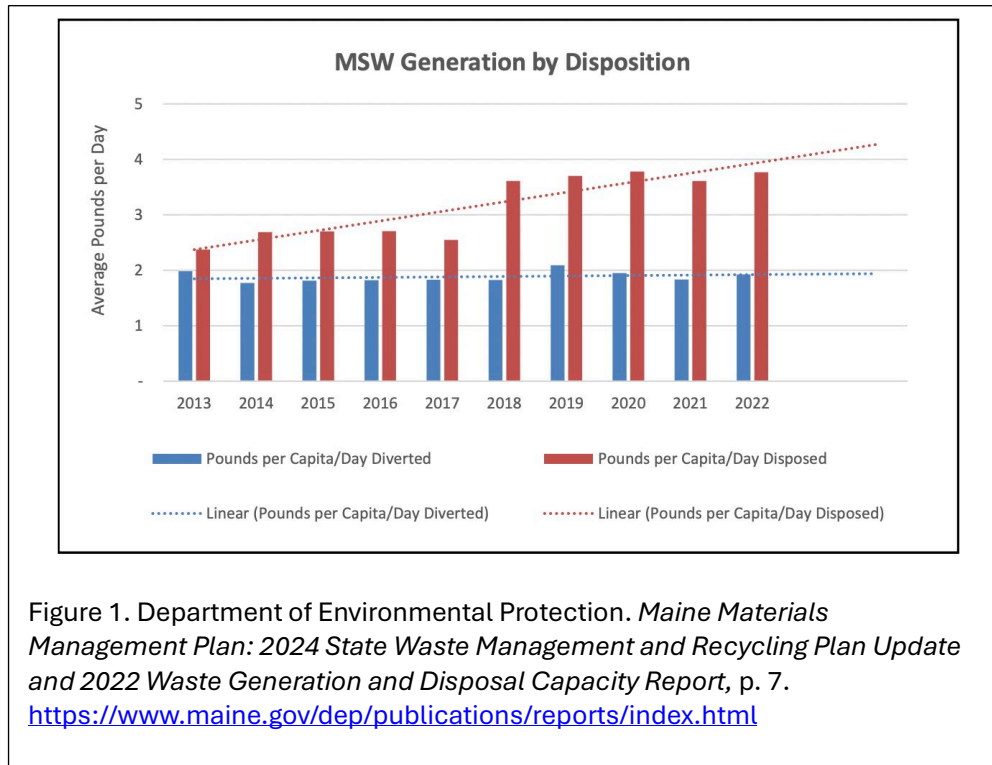


Figure 2.



Priorities. It is the policy of the State to plan for and implement an integrated approach to solid waste management for solid waste generated in this State and solid waste imported into this State, which must be based on the following order of priority: **A.** Reduction of waste generated at the source, including both amount and toxicity of the waste; **B.** Reuse of waste; **C.** Recycling of waste; **D.** Composting of biodegradable waste; **E.** Waste processing that reduces the volume of waste needing land disposal, including incineration; and **F.** Land disposal of waste. It is the policy of the State to use the order of priority in this subsection as a guiding principle in making decisions related to solid waste management. Waste reduction and diversion. It is the policy of the State to actively promote and encourage waste reduction measures from all sources and maximize waste diversion efforts by encouraging new and expanded uses of solid waste generated in this State as a resource.

Maine Department of Environmental Protection. (n.d.). *2020 & 2021 Municipal Solid Waste Generation & Disposal Capacity Report*. Appendix

A, p. 52. Retrieved from <https://www.maine.gov/dep/publications/reports/index.html>

Figure 3.

Maine Department of Environmental Protection

2024 Maine Materials Management Plan

Table 5. Assessment of Progress Towards Per Capita Waste Reduction Goal

Maine MSW Disposal vs. Goal	2022
Tons MSW Generated and Disposed	952,520
Pounds MSW Generated and Disposed	1,905,039,782
Population	1,385,340
Tons per Capita	0.69
Pounds per capita	1,375
Tons per Capita Disposal Reduction Goal	0.55
Tons per Capita Short of Goal	(0.138)
Pounds per Capita Short of Goal	(275)
Per Capita Pounds Disposed per Week	26
Per Capita Pounds Disposed per Day	3.8

FIGURE 3. Maine Department of Environmental Protection (2024).
Maine MaterialsManagementPlan: 2024 State Waste Management
and Recycling Plan Update and 2022 Waste Generation and Disposal
Capacity Report, p.21.

Figure 4.

	Jan-24	Feb-24	Mar-24	Apr-24
Household Waste - by ton				
Disposal - Tons	663.24	550.45	637.11	770.13
Collection Cost	\$53,745.60	\$53,745.60	\$53,745.60	\$56,997.21
Disposal Cost	\$30,515.36	\$25,396.26	\$29,311.01	\$35,425.98
Recycling - Curbside	26.31	23.77	23.52	23.36
Disposal	\$2,827.80	\$2,554.80	\$2,376.46	\$2,390.20
Collection	\$19,189.14	\$19,189.14	\$19,189.14	\$20,350.08
Fuel Fees - Collection	\$387.37	\$412.36	\$508.72	\$557.48
Recycling @ APW per ton	16.30	11.3	11.21	13.65
Price per ton	120.97	107.48	107.48	109.93
Cost to dispose	\$8,529.51	\$6,714.52	\$6,704.84	\$7,824.21
"Demo" - tonnage	1.63	2.85	0.27	2.4
Bulky Waste/Spring Clean Up - Tonnage	51.65	40.27	65.00	93.75
Cost	\$8,142.00	\$6,342.75	\$10,110.75	\$14,048.25
Composting - # dumps per month				
Gracelawn Rd		7	8	10
S Main St Fire Station		6	3	4
135-150 lbs per tote				

Figure 4. Internal data, Auburn Public Works, Denis D'Auteuil, Director via e-mail

Figure 5.

Table 8. Municipal Costs Reported for Recycling and Disposal

Cost Comparison Per Ton - Recycling vs. Disposal ²⁹				
	Recycling (Hauling)	Recycling (Processing)	Disposal (MSW)	Disposal (CDD)
Min	\$55.00	\$ -	\$0.50	\$17.00
Max	\$900.00	\$384.00	\$225.00	\$225.00
Median	\$391.43	\$85.00	\$82.70	\$95.86
Average	\$440.80	\$99.25	\$86.90	\$96.64

Figure 5. Maine Department of Environmental Protection. (2024). *Maine Materials Management Plan: 2024 State Waste Management and Recycling Plan Update and 2022 Waste Generation and Disposal Capacity Report*, p. 24.

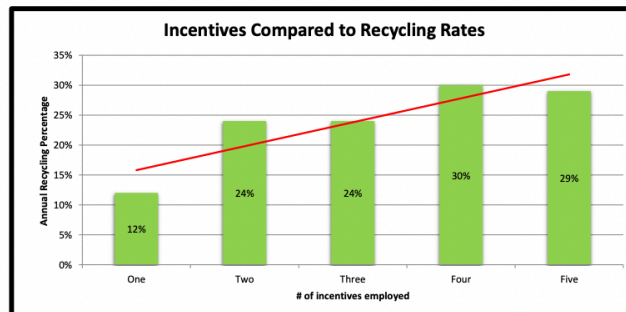
Figure 6.

MUNICIPAL DIVERSION INCENTIVES

	Bridgton	Cape Eliz	Casco	Cumberland	Falmouth	Freeport	Gorham	Gray	Harrison	Hollis	Limington	Lyman	No. Yar	Portland	Pownal	Scarbor	So. Port	Waterboro	Windham	Yarmouth
Pay per Bag				Yes	Yes	Yes (a)	Yes	Yes (c)					Yes	Yes	Yes				Yes	
Curbside Recycling				Yes	Yes		Yes			Yes			Yes	Yes	Yes	Yes	Yes		Yes	
Mandatory Recycling						Yes (b)		Yes (d)					Yes	Yes	Yes	Yes	Yes	Yes		
Food Waste Diversion	Yes	Yes			Yes	Yes							Yes			Yes	Yes			Yes
Yard Waste Diversion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes			Yes			Yes	Yes		Yes
Swap Shop	Yes	Yes	Yes			Yes		Yes				Yes					Yes			Yes
Recycling %	17%	24%	17%	31%	37%	33%	25%	13.5% (d)	15%	18%	7%	12%	35%	35%	32%	27%	24%	13%	34%	22%

Results for towns by # of Incentives:

		%	Avg:
ONE	Hollis	18%	12%
	Limington	7%	
	Lyman	12%	
TWO	Casco	17%	24%
	Pownal	32%	
	Waterboro	13%	
	Windham	34%	
THREE	Bridgton	17%	24%
	Cape Elizabeth	24%	
	Gorham	25%	
	Scarborough	27%	
	Yarmouth	22%	
	Cumberland	31%	
FOUR	Gray	14%	30%
	North Yarmouth	35%	
	Portland	35%	
	Falmouth	37%	
FIVE	Freeport	33%	29%
	South Portland	24%	



(a) 90 cents per bag tipping fee at transfer station

(b) just businesses for cardboard

(c) \$10 per car/truck w/o recycling

(d), N/A does not recycle with ecomaine

ecomaine

7/1/19 - 6/30/20
Compiled by ecomaine 11/19/2020
www.ecomaine.org
Printed on 100% post-consumer recycled paper.

Percentages are based on total tonnage of waste and recyclables as received by ecomaine.

Figure 6. ecomaine. *Community Recycling Comparison Tool*. Retrieved from FY 20 Community Comparisons: https://www.ecomaine.org/wp-content/uploads/2020/11/Municipal-Diversion-Incentives-FY20_.pdf

LIST OF INTERVIEWS CONDUCTED BY AUBURN SOLID WASTE TASK FORCE

Julie Rosenbach, Sustainability Director, South Portland, February 6, 2024

Susan Parmelee, Sustainability Program Manager, South Portland, February 6, 2024

John Kuchinski, Lewiston DPW Environmental Services Superintendent, February 21, 2024

Megan Bates, Lewiston DPW Deputy for Maintenance and Operations, February 21, 2024

Phil Crowell, Auburn City Manager, March 12, 2024

Dennis D'Auteuil, Auburn Executive Director of Public Services, March 12, 2024

Jeffrey Harmon, Auburn Mayor, April 2, 2024

Talya Bent, Casella Municipal Account Manager, April 16, 2024

Chris McHale, Casella Market Area Manager, April 16, 2024

Jeff Demers, Biddeford Public Works Director, April 23, 2024

John King, Executive Director, Maine Waste to Energy, May 2, 2024

Gunnar Heckler, Agri-Cycle Program Support Associate, May 7, 2024

Elena Bertocci, Environmental Specialist, Maine DEP, June 18, 2024