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Waste ReSources Management Plan

Toward Zero Waste

2023-2030

City of Olympia | Capital of Washington State

#22-01-021

Tables and Figures

Chapter 1 – Introduction

Doing its part to help move Olympia towards its vision of "Sustainable Community," the Waste ReSources Utility (Utility) provides municipally operated solid waste collection and disposal and diversion services, including education and outreach to residents, businesses, and visitors.

Mission

"To lead and inspire our community toward a waste-free future."

Strategic Role

"To create opportunities to eliminate waste."

In June 2006, the Olympia City Council adopted a Zero Waste Resolution. The resolution set a new direction for the Utility and guided the development of the *Toward Zero Waste: Olympia's Waste ReSources Plan (Plan), 2008-2013* — a six-year strategic and operational plan. The *2008-2013 Plan* created the framework for a more focused approach toward zero waste, with two primary goals: reduce waste generation and increase recovery.

The *2015-2020 Plan* continued in this direction while aligning with key goals of the *Olympia's 2014 Comprehensive Plan* to manage solid waste as a resource that provides environmental, economic, and social benefits (GU12) in a responsible and cost-effective manner (GU13) and minimize the environmental impacts caused by solid waste management (GU14).

Program Highlights Since 2015

Since 2015, the Waste ReSources Utility has continued to lead waste reduction and recycling programs as well as operational efficiency efforts. Program highlights since 2015 include:

- **Reducing contamination** in recycling and compost by conducting award-winning customer feedback campaigns.
- **Increasing collection efficiency** and supporting contamination reduction efforts by using GIS routing, onboard tablets, and additional customer information.
- **Increasing organics recovery** through expanding the commercial organics collection program to more customers.
- **Improving the quality of commingled recycling** by removing glass and setting up separate glass collection infrastructure.
- **Increasing the stability of recycling costs** by signing new five-year contracts with Lemay/Waste Connections to transload/haul recyclable materials and with Pioneer Recycling Services, LLC, to sort them. Both contracts have been extended to 2025.
- **Reducing litter and centralizing waste collection in downtown Olympia** by adding two shared compactors that replace individual commercial dumpsters and carts.

However, Olympia did not meet its 2015 waste prevention or recovery targets, with garbage and total waste increasing as recycling decreased.

- From 2014 to 2021, citywide garbage tons increased by 14%. On a per-capita basis, citywide garbage increased by 3%.
- From 2014 to 2021, residential waste per capita increased by 5.5%, primarily due to an increase in garbage. Much of this increase occurred during the COVID-19 pandemic, but even in 2019 residential waste per capita, particularly garbage, had increased.
- From 2014 to 2021, the single-family weight-based recycling and composting rate dropped from 57% to 51%, largely due to Olympia ending curbside glass recycling in 2020. Multifamily weight-based recycling fluctuated between 14% and 16%.
- Citywide organics tons increased by 6% from 2014 to 2021, mainly due to single-family residential composting. Commercial organics tons had increased by nearly 60% between 2014 and 2019 before falling back to 2013 levels as restaurants closed due to the COVID-19 pandemic in 2020.

The Waste ReSources Utility developed this seven-year Plan for the period 2023-2030 to honor prior commitments, build upon accomplishments since 2015, and address current challenges and opportunities. This plan expands with strategies and actions around three main themes: climate and environmental goals; diversity, equity, and inclusion; and operational safety and financial sustainability. With this Plan, the Waste ReSources Utility focuses on lowering the climate and environmental footprint of the Utility and the City and creating a more inclusive and equitable service for utility customers while ensuring that the Utility remains financially sustainable.

Climate change represents a serious threat to Olympia and its residents and businesses. Waste exacerbates environmental and climate change-related impacts, so the Utility plans to continue and refine efforts that promote waste prevention and recovery through education, outreach, and collection services. The Utility also has a role in reducing climate emissions by working toward electrifying its fleet, which uses nearly 74,000 gallons of fuel each year.

To support Olympia's diversity, equity, and inclusivity initiatives, the 2023-2030 Plan includes strategies to provide information and outreach materials in languages most commonly spoken by the Utility's customers; increase engagement to reach customers, including multifamily residents, more effectively; begin embedding racial equity principles in Utility operations; and explore opportunities around rate equity and the utility rate discount program to reach more customers in need.

For operational safety and financial sustainability, the 2023-2030 Plan includes strategies to minimize rear-load collection, improve data management for operational and financial planning, and develop an updated customer rate schedule that will balance current costs with program goals and simplify tracking.

The 2023-2030 Plan is built around four goals that have been updated since the 2015 Plan to incorporate the previous themes:

- Reduce the quantity and environmental impact of waste (garbage, recyclables, and organic materials) generated in Olympia
- Increase the quantity and quality of recyclable and compostable materials diverted from the landfill
- Operate safely, equitably, and efficiently
- Manage the Utility's finances responsibly and equitably

The goals, strategies, and actions presented in Table 1 offer a roadmap for Waste ReSources over the next seven years. Further information and discussion regarding the goals, strategies, and actions are in Chapter 6.

Table 1 Summary of Goals, Strategies, and Actions

Goal 1	Reduce the quantity and environmental impact of waste (garbage, recyclables, and organic material) generated and disposed in Olympia
Strategy 1A	**Reduce the overall waste generated**
1.1	Expand waste prevention messaging to reduce waste generation
1.2	Work toward a waste prevention strategy to comprehensively reduce waste generation
Strategy 1B	**Reduce the amount of waste landfilled**
1.3	Support city, county, regional, and state policy efforts to prevent waste and improve recycling and composting
Strategy 1C	**Reduce the climate and other environmental impacts of waste and our operations**
1.4	Prevent leaking dumpsters to support Olympia's stormwater permit requirements
1.5	Monitor and plan for future fleet electrification to support City climate goals

Goal 2	**Increase the quantity and quality of recyclable and compostable materials diverted from the landfill**
Strategy 2A	**Increase capture rates and reduce contamination rates for recycling and organics**
2.1	Update development standards and commercial building codes to increase recycling, composting, and diversion in multifamily, mixed-use, and commercial buildings and projects
2.2	Expand multifamily recycling outreach to increase recycling and reduce contamination
2.3	Change school education to create resources for expanding multifamily outreach
2.4	Refine commercial assistance outreach program for efficiency and expanded service
2.5	Refine single-family contamination reduction efforts for efficiency and improved communication
2.6	Explore offering commercial recycling service to serve customers without private collection, after conducting a need and feasibility assessment of recycle transloading at the Carpenter Road site
2.7	Implement programs and policies in support of HB 1799 and its new and amended laws in the Revised Code of Washington
Goal 3	**Operate safely, equitably, and efficiently**
Strategy 3A	**Minimize incidents/accidents and meet or exceed safety standards, certifications, or permit requirements**
3.1	Ensure safety through training, standards, continuous improvement, and minimizing rear-load collection
3.2	Update development standards for safety, efficiency, and increased diversion
Strategy 3B	**Implement racial equity principles and practices**
3.3	Translate and transcreate outreach materials to reach more customers
3.4	Expand community engagement to reach more customers more effectively
3.5	Implement established city policies regarding diversity, equity, and inclusion and contribute to citywide equity opportunities
Strategy 3C	**Operate efficiently**
3.6	Improve data collection, management, and reporting to support planning and evaluation to meet goals
3.7	Continue working to build a new operations and maintenance facility (Carpenter Road or elsewhere) to improve capacity, efficiency, and safety
3.8	Continue improving efficiency by minimizing rear-load collection and balancing routes
3.9	Expand usage of downtown shared compactors to improve collection safety, collection efficiency, and downtown cleanliness

Goal 4	Manage the Utility's finances responsibly and equitably
Strategy 4A	**Plan, evaluate, and adaptively manage performance against goals and priorities**
4.1	Develop annual work plan and review progress annually to align efforts with goals and adaptively manage performance
4.2	Conduct a waste characterization study to assess progress and identify opportunities for improvement
4.3	Develop and implement regular asset inventories to plan for growth and replacements
4.4	Update Olympia's municipal solid waste code to reflect current services and policies
4.5	Explore licensing and reporting for private recycling, organics, and C&D recycling collectors to track progress on recycling and composting rates for commercial and C&D waste
4.6	Continue offering a Utility Rate Discount Program and work with other City utilities to ensure economic support meets the need
4.7	Update customer rate schedule and adopt multi-year rate path to reflect current services and costs, simplify tracking, support goals, and reduce customer rate impacts
4.8	Maintain adequate reserves to smooth economic impacts and maintain a predictable rate path

This plan is organized as follows:

- Chapter 1 summarizes the Plan goals and strategies.
- Chapter 2 explains Plan development and alignment with zero waste concepts, organizational structures, and legal and policy relationships.
- Chapter 3 outlines trends in Olympia's population, employment, and waste generation.
- Chapter 4 describes Waste ReSources' collection services and related operations.
- Chapter 5 summarizes education and outreach programs.
- Chapter 6 describes the goals, strategies, and actions that the Utility will implement over the next seven years.
- Chapter 7 summarizes Utility funding for providing waste-related services.
- Appendices contain research memos that informed the Plan's strategies and actions.

Chapter 2 – Planning for Zero Waste

The state of Washington requires each County to develop a comprehensive solid waste plan aligned with the state's vision and priorities.[1] The Thurston County Solid Waste Program is responsible for developing that state-required solid waste plan. Voluntarily, Olympia has created this separate Plan to guide city-level solid waste management. Olympia's plan aligns with the vision and priorities of the state's plan (Figure 1), which was developed by the Department of Ecology (Ecology), including an emphasis on moving toward zero waste and sustainable materials management.

Figure 1 Washington 2021 Statewide Solid Waste Plan Vision and Priorities

Source: Ecology, "2021 State Solid and Hazardous Waste Management Plan"

This chapter summarizes how this 2023-2030 Plan was developed. It provides the rationale for aiming towards zero waste and describes the organizational relationships and the legal and policy framework within which the Waste ReSources Utility operates.

[1] Thurston County Solid Waste Plan, http://www.co.thurston.wa.us/solidwaste/regulations/docs/PLAN.pdf .

Zero Waste

Zero waste has been defined as "a philosophy and a design principle for the 21st Century." It includes going beyond recycling by taking a whole-system approach to prevent waste and minimize impacts across the entire lifecycle of materials, from extraction through manufacturing and distribution to usage and end-of-life management (Figure 2). The Zero Waste Alliance defines zero waste as:

> *The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.*

Figure 2 Materials Lifecycle Perspective

Source: United States Environmental Protection Agency (EPA)

The ever-increasing quantity of waste is a global problem, resulting from a growing population and the spread of consumer values and consumption. Society generally supports exploitation rather than conservation of raw materials and non-renewable natural resources.

Increased consumption and insufficient conservation result in air and water pollution, environmental exposure to toxic materials, and rising greenhouse gas (GHG) emissions. Because manufacturers are not accountable for the costs of managing products at end of life, they have no incentive to make end-of-life management cheaper or more environmentally sustainable.

The movement towards zero waste is a response to the environmental, economic, and operational issues created by increasing waste. The zero-waste approach seeks to:

- **Consider the whole lifecycle of a product** and ways to reduce waste in "upstream" production and distribution processes, as well as in "downstream" consumer choices and waste management practices.
- **Support operational efficiency** by reducing the overall amount of waste to be handled, and by facilitating shared public and private responsibility for end-of-life waste management.
- **Reduce the total quantity of discarded material**. The total "pile" of waste generated — everything "thrown away" or discarded — gradually shrinks over time.
- **Recycle and compost the remaining discarded material.** Of the shrinking pile of waste, the amount of material disposed in a landfill also shrinks as more and more material is recycled or composted.

Reducing overall waste generation and diverting the remaining discards from disposal to recycling or composting has environmental, public health, and economic benefits (Figure 3). Conventional production processes extract raw materials and use them to manufacture products. Recycling and reuse replace the raw material extraction stage by providing a recycled feedstock for manufacturing. The process is made easier with an upstream approach, which focuses on designing products and packaging with recycling and reuse in mind. The environmental and economic benefits of waste prevention are similar to the benefits of recycling, but even greater.

A zero-waste approach provides both environmental and economic benefits. Waste prevention, recycling, and composting can reduce GHG emissions, energy and water consumption, air and water pollution, and resource depletion. Recycling and composting also create more jobs than landfill disposal while also creating valuable inputs for new products.

Zero waste strategies applied widely could result in significant economic benefits both locally and globally. These include the economic value of reducing the environmental impacts described above, creating jobs, and saving waste management costs for individuals and businesses.

In the short term, Olympia's residents and businesses can save on their garbage bills by implementing zero waste practices. Every ton of waste not generated in the first place saves the Utility $119 in disposal costs. Per ton, the processing costs for recycling and composting have been either cost-neutral or resulted in a cost savings of up to $75 per ton for the Utility. These savings, minus any increased labor and equipment costs, help control costs to ratepayers.

Figure 3 Sustainable Management Approach

Source: Ecology, "2015 State Solid and Hazardous Waste Management Plan"

Planning Process

This Plan was prepared by Waste ReSources staff and Cascadia Consulting Group (Cascadia). To better understand the ability of the Utility to adapt to a changing world, Cascadia researched multiple topics for the creation of this Plan and summarized findings through a series of memos. The Utility reviewed and analyzed each of the following memos:

- Goals and Metrics memo (Appendix 5)
- Education and Outreach memo (Appendix 3)
- Fleet Electrification memo (Appendix 4)
- Multifamily and Multiuse Building Code and Collection Policies memo (Appendix 1).

Bell and Associates (Bell), working as a subconsultant to Cascadia, also conducted a baseline study of the cost of waste collection services to help determine the feasibility of various options for Waste ReSources, including a multi-year cost analysis (See Appendix 2). The research focused on feasibility of adopting shared compactor rates, providing commercial recycling service, and expanding single-family organics service.

The Plan was reviewed by the City's Utility Advisory Committee (UAC) and the City Council's Land Use and Environment Committee. The UAC serves as the principal public advisor on utility policy matters for the City's four public utilities: Waste ReSources, Drinking Water, Wastewater, and Storm and Surface Water. Committee members played a key role in reviewing this Plan and provided recommendations for clarification and improvement. The Plan underwent an internal review by Waste ReSources staff; the City's diversity, equity, and inclusion team; and visual design team.

Public Information and Involvement

Historically, the Utility has used varied levels of public involvement, starting with the first Toward Zero Waste Plan in 2008 and the 2015 update. For the 2023-2030 Plan, Waste ReSources sought public input through the coalition of neighborhood associations (CNA), a Utility bill insert, and posting the Draft Plan online. The City's Utility Advisory Committee (UAC) gave input on the draft goals and strategies of the Plan in 2021 and 2022, and served as a primary policy advisor, followed by the City's Land-Use and Environment Committee (LUEC). The Draft Plan was reviewed by the UAC and LUEC in 2022, prior to a public hearing and final adoption in 2023.

Ongoing Plan Review

Waste ReSources will manage the programs described in this Plan following the principles of adaptive management, which require routine review of effectiveness and course correction, as needed. The Utility will provide annual evaluations of program performance to the community and elected officials. This process will provide an opportunity to consider whether to revise strategies or programs.

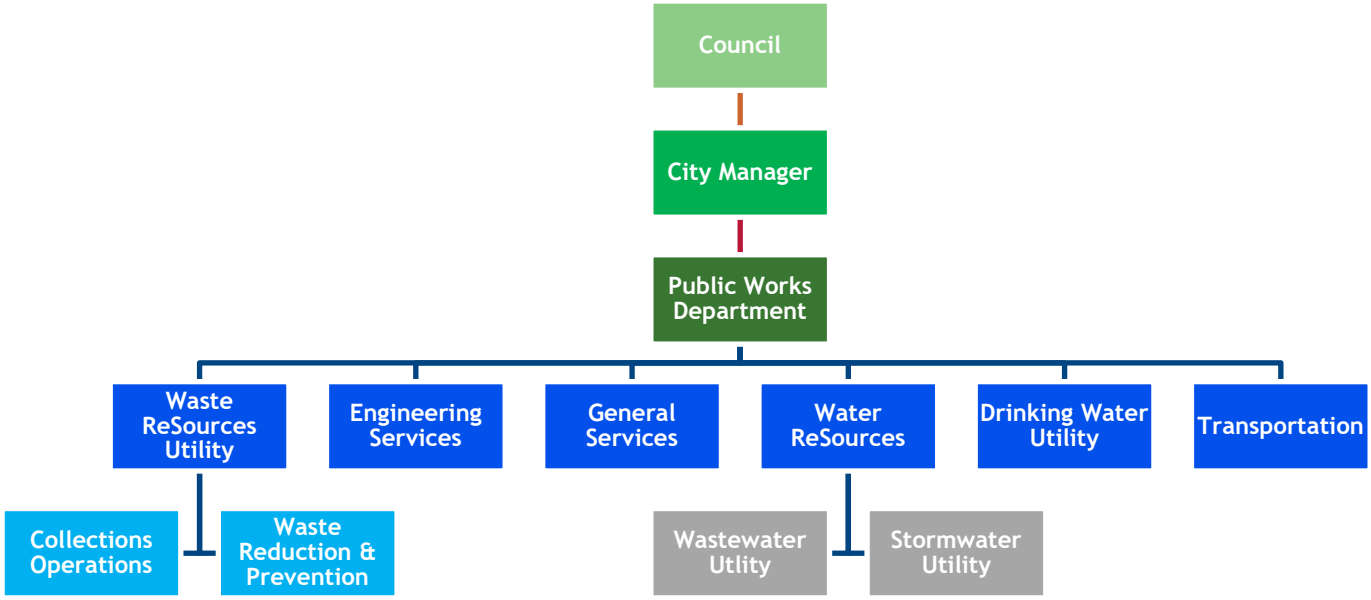
Organizational Relationships

This section describes how the Waste ReSources Utility fits within the local and regional waste management system and the Public Works Department. The City of Olympia has a Council/Manager form of government, with an elected City Council that makes policy decisions and an appointed City Manager who oversees several departments, including Public Works.

Public Works Department

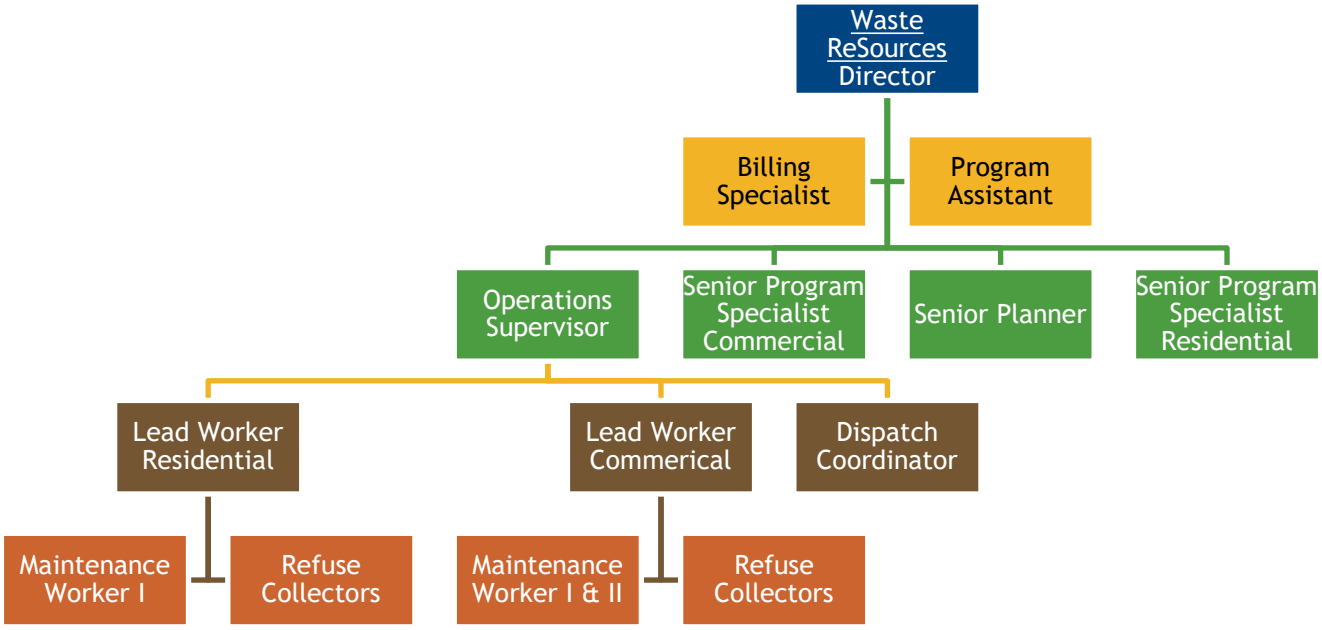
The Public Works Department is organized into six Lines of Business, illustrated in Figure 4. This structure streamlines accountability and decision-making. Each line of business includes program and planning, as well as operations and maintenance, to create a cohesive unit for each area of work. Figure 5 presents the organizational structure within the Waste Resources Utility.

Figure 4. Olympia Public Works Organizational Structure



Source: Waste ReSources Staff

Figure 5 Waste ReSources Utility Organizational Structure



Source: Waste ReSources Staff

The Waste ReSources Utility is managed and funded as an enterprise fund, and therefore its financing is entirely self-supporting (see Chapter 7). Like other City utilities, Waste ReSources is responsible for its share of City overhead expenses. These include a portion of City and Public Works administration, legal and administrative services, computer and telephone networks, fleet services, buildings, insurance, and billing and janitorial services.

The Waste ReSources Line of Business is composed of two functional program areas:

1. Collection — operational staff responsible for day-to-day collection of solid waste and customer service (see Chapter 4).

2. Waste Prevention and Reduction — planning and program development staff responsible for strategic planning, policy formulation, and developing and maintaining education and outreach programs (see Chapter 5).

Legal and Policy Framework

This section highlights the legal and policy framework within which Waste ReSources functions: federal, state, and local laws and policies governing solid waste planning, handling and disposal, and collection and transportation.

Olympia Municipal Code Title 13, Chapter 12 (OMC 13.12) gives the City's Public Works Department exclusive authority over collection of all residential and commercial garbage and

residential recyclables. Commercial recyclable and organic materials are collected in an open competitive environment.

The key laws governing solid waste planning and management are:

- Federal Resource Conservation and Recovery Act (RCRA, 1976 and 1984)
- Washington State Solid Waste Management Act (Chapter 70.95 RCW)
- Thurston County Board of Health Rules
- Washington State Utilities and Transportation Commission (RCW 35.21.120)
- Special solid waste laws governing product stewardship, recycling, and recovery

The plan remains consistent with the hierarchy of waste management practices established by the RCRA, the U.S. Environmental Protection Agency (EPA) (reduce, reuse, recycle, and responsible disposal), the state's Beyond Waste Plan, Thurston County's Comprehensive Solid Waste Management Plan, and Olympia's Comprehensive Plan.

Solid Waste Planning

Washington's primary solid waste management law is the Solid Waste Management Act (Chapter 70A.205 RCW). It establishes the roles of local governments and the state in solid waste planning and management (70A.205.010 RCW). Olympia works with Thurston County to prepare revisions to the county-wide comprehensive solid waste management plan that meet the requirements of RCW 70A.205.040 Olympia is represented on the County's Solid Waste Advisory Committee (SWAC), which includes an elected official from each jurisdiction, citizens, and waste and recycling industry representatives. Through the SWAC, Olympia is working to ensure that the Thurston County Plan offers services and infrastructure that help optimize the City's zero waste goals.

The Solid Waste Management Act also establishes waste management priorities and requires that comprehensive plans provide programs to address those priorities (RCW 70A.205.005 (8)). These priorities complement a zero-waste framework by focusing first on reducing waste generation and second on recycling, followed by other forms of waste management.

The City develops its own zero waste plan to provide a clear direction for its waste reduction, recycling, and waste management policy and services.

The following laws and regulations govern how Thurston County and the City of Olympia handle waste:

- Federal Resource Conservation and Recovery Act (RCRA)
- Washington State Solid Waste Management Act
- Solid Waste Management—Reduction and Recycling (Chapter 70A.205 Revised Code of Washington [RCW])
- Minimum Functional Standards for Solid Waste Handling (Chapter 173-304 Washington Administrative Code [WAC]), including delegation of enforcement responsibility to local health departments

- Recyclable materials—Transporter and Facility Requirements (Chapter 173-345 WAC)
- Solid Waste Handling Standards (Chapter 173-350 WAC)
- Criteria for Municipal Solid Waste Landfills (Chapter 173-351 WAC)
- Thurston County Board of Health Rules

Solid Waste Collection and Transportation

State law gives cities and towns the sole authority to provide solid waste collection service (RCW 35.21.120). The City of Olympia has chosen to offer services for garbage, recycling, and organic materials. However, it excludes authority over source-separated recyclables from commercial establishments. Olympia cannot restrict commercial recycling and composting practices.

Other State Special Solid Waste Laws

Washington State has special solid waste laws for certain goods, this includes extended producer responsibility (EPR) programs for products like medicine, paint, mercury lights, and solar panels. In 2022 the State passed a law for organics collection, mandating that local governments increase the quantity and quality of organics collected. Washington's solid waste laws for specific materials include:

- Ban of Bundled Single Use Cutlery (SB-5022)
- Mercury lights stewardship: LightCare (RCW 70.275)
- Plastic Packaging – Evaluation and Assessment Act (RCW 70A.520)
- Product stewardship for solar panels (RCW 70A.510)
- Paint Stewardship: PaintCare (RCW 70A.515)
- Secure Medicine Return (RCW 69.48)
- Statewide Bag Ban (RCW 70A.530)
- The Washington State Electronics Recycling Act (RCW 70.95N)
- 2022 Organics Management Law (HB-1799)

Olympia Laws and Policies

The City of Olympia's solid waste laws and policies are set forth in the Olympia Municipal Code and in Comprehensive Plan policies.

Municipal Code

Garbage collection and disposal is mandatory within the City of Olympia. Olympia Municipal Code Title 13, Chapter 12 (OMC 13.12) provides that the collection, removal, and disposal of garbage and refuse within the city is universal and compulsory and may be performed by the Public Works Department or other agencies designated by the City. Regulations in OMC 13.12 include disposal requirements, collection frequency, container specifications, rates, and recycling incentives.

Figure 6 Multi-Family Collection Site

Source: Waste ReSources Staff

Ordinance 5141 (November 1990) instructed the City Manager to implement programs to maximize the reduction and recycling of city-generated waste and to procure and promote the use of recycled and recyclable products.

The City's Engineering Development and Design Standards (EDDS) guide how commercial, multifamily, and multiuse buildings provide space for solid waste storage and collection.

Resolutions

Over the years, City Council has passed several ordinances and resolutions to make its intentions clear:

- Resolution M-1550 (March 2004) adopted a strategy to manage and reduce City government energy and fuel consumption and GHG emissions.
- Resolution M-1621 (December 2005) defined strategies and guidelines to reduce and/or eliminate the purchase and use of pesticides and persistent toxic chemicals by the City.

- Resolution M-1641 (June 2006) directed the City to focus planning efforts on strategies towards achieving the vision of zero waste, and to work with all City departments to identify and implement internal zero waste strategies.

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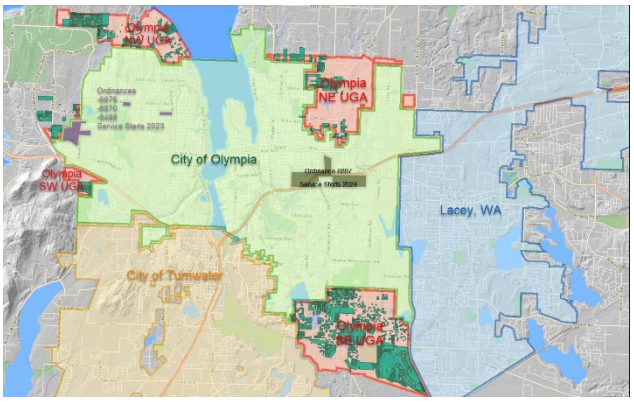
Chapter 3 – Olympia's People and Their Waste

This chapter describes trends in population and land use that affect the City's ability to reduce waste, increase recycling and composting, and manage collection services efficiently. It also presents basic facts and trends about waste generated by Olympia residents and businesses, and opportunities for diverting more recyclable and compostable materials from the landfill.

Population and Customers

Waste ReSources provides municipal garbage and recycling collection services to nearly all areas within city limits. When the City annexes new areas, it provides the current private collection companies a transition period of up to 10 years before beginning municipal collection. Figure 7 shows the city limits with annexed areas and the respective dates the Utility will assume solid waste collection. The City annexed 270 housing units in 2013 and 2014, which will start receiving city-provided collection in 2023 and 2024, respectively. The City has conducted a feasibility study of annexing a large urban growth area in southeast Olympia that contains about 3,200 households. If this area is annexed in the future, Waste ReSources will need to begin planning to add staff and trucks to accommodate expansion.

Figure 7 City's Collection Boundaries



Between 2010 and 2020, population within the city grew by almost 17%, from 46,500 to 54,200 — an annual growth rate of about 1.5%. The Thurston Regional Planning Council (TRPC) projects the same growth rate for 2020 to 2030 with an estimated population of 63,000 by 2030. While TRPC projects slower natural growth in the following decade, annexing the SE UGA would increase growth substantially.

Growing Customer Base

Providing high-quality service to customers is a priority for Waste ReSources. The Utility provides garbage, recycling, and yard waste collection services, generally within the incorporated city limits. Through programs independent from the City, private companies also

collect recyclables from businesses. The four major customer classes, each with a separate rate structure, are listed below:

1. Large-volume waste generators for whom it is cost-effective to use a large container such as a drop box or compactor, either occasionally and short-term or frequently and long-term.
2. Single-family and smaller multifamily residents who need frequent collection of relatively small volumes.
3. Businesses and larger multifamily properties that need frequent collection of small, moderate, and large volumes.
4. Organics customers who generate regular, small, and moderate volumes.

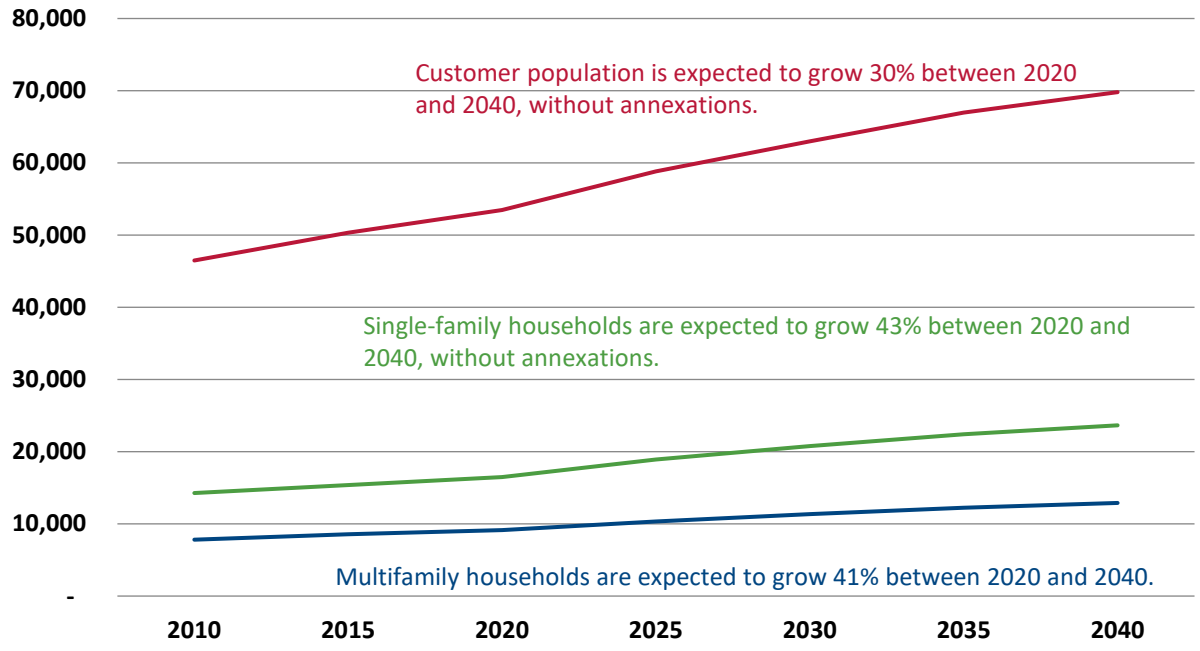
As population increases, a corresponding increase in Utility customers and waste generation can be expected. Overall, the number of single-family and smaller multifamily housing units served by residential side-load trucks is projected to increase by about 26% in 2020–2030. The number of units served will increase by nearly 14% in the following decade due to natural growth and by potential annexation of 3,200 housing units in the next few years. The number of larger multifamily housing units served by commercial trucks is projected to increase 24% in 2020–2030 and by 14% in the following decade from natural growth. Projected growth in population and number of households is shown in Figure 8.

Future annexations are expected to add a substantial number of new single-family customers in decades to come. The Utility will need to set aside funds for additional trucks, containers, and staff to serve these new customers.

Growth in the commercial sector is more difficult to predict due to lack of historical data and the fact that businesses turnover. Commercial growth is assumed to follow somewhat closely with employment trends projected by TRPC on a percentage basis, or about 1% per year for total growth rate of about 23% between 2020 and 2040.

Based on these projections, this Plan assumes approximately 4,300 new single-family residential customers will request garbage and recycling service from Waste ReSources by 2030 compared to 2020 and another 2,900 customers by 2040. These projections do not include anticipated annexations. In addition, Olympia anticipates gaining 2,200 multifamily housing units between 2020 and 2030, plus another 1,500 units between 2030 and 2040 (Appendix 1). With ongoing route balancing and efficiencies, such as one-side road collection and the every-other-week collection for single-family residential customers, Waste ReSources has been able to absorb increases over the past six years. This Plan assumes the Utility can continue to absorb customer increase with the same number of collection personnel and vehicles for the next two years at the most. If organics were bundled with garbage service, one to two additional trucks and drivers would be needed (Appendix 4).

Figure 8 Population and Number of Households, 2015 to 2040



Demographics

According to TRPC's most recent data (2021), over 84% of Thurston County's population growth can be attributed to migration from other areas. Employment stability, lower housing costs, and lower density are considered the main attractions.[2]

People aged 65 and older make up 18% of the current population and a growing segment of the county's population. People in this age group are more likely than others to live on fixed incomes and are considered relatively sensitive to cost increases.

Language is an important consideration when developing programs and outreach materials. About 14% of Olympia households speak a language other than English at home. A small portion (2.4%) are linguistically isolated, meaning no one in the household older than 14 speaks English at all or very well. Spoken languages include Asian and Pacific Island (7%), Spanish (4%), other Indo-European (1%) and other (0.05%).

Most residents of Olympia identify as Non-Hispanic White (74%). Nearly 10% of the city population identifies as Hispanic, while 7.6% identify as Asian and 2.8% identify as Black. Furthermore, 1% of Olympians identify as American Indian or Alaskan Native and 6.4% identify as two or more races.

[2] TRPC, 2021.

Employment

Employment can be a convenient indicator for the need for waste management services in the business sector. TRPC estimated that in 2017 around 60,600 people worked in Olympia. The most common industries were state government (21%), health care and social assistance (16%), retail trade (11%), professional services (11%), and accommodation and food services (7%). TRPC expects total employment to grow to nearly 81,000 by 2045. Extrapolating linearly, this would make employment about 70,000 in 2030 and 77,000 in 2040.

Waste Generation and Diversion

This section describes the total "pile" of waste that Olympia residents and businesses now generate, and the portion of that "pile" that is potentially diverted through recycling and composting programs. As discussed in Chapter 1 and Chapter 2, the City's zero waste vision aims to eventually reduce the size of the overall "pile" of waste and increase the portion that is recycled or composted.

What is Waste?

To pursue the City's zero waste vision, this Plan addresses all Municipal Solid Waste (MSW), recyclables, and compostable debris generated by Olympia residents and businesses, regardless of whether the material is collected by the Utility or private companies, or whether it is self-hauled to disposal or recycling collection centers. The Plan does not address dangerous wastes, biomedical wastes, or other wastes with special regulatory requirements, although the City can exert influence on these other wastes through regulation, education, advocacy, and direct service.

Municipal solid waste is a mixture of discarded items and materials that have not been separated for recycling or composting. Because people are not 100% efficient at separating recyclables, their MSW usually contains recyclable materials and yard debris that have been discarded with other garbage.

Recyclable materials include traditional "curbside" items such as paper, cardboard, bottles, and cans. However, anything that can be "transformed or remanufactured" into "usable or marketable materials" is considered recyclable. Other materials often recycled include ferrous and non-ferrous metals, gypsum, textiles, and food debris. Products such as computers and rechargeable batteries are also considered recyclable where a take-back program is available.

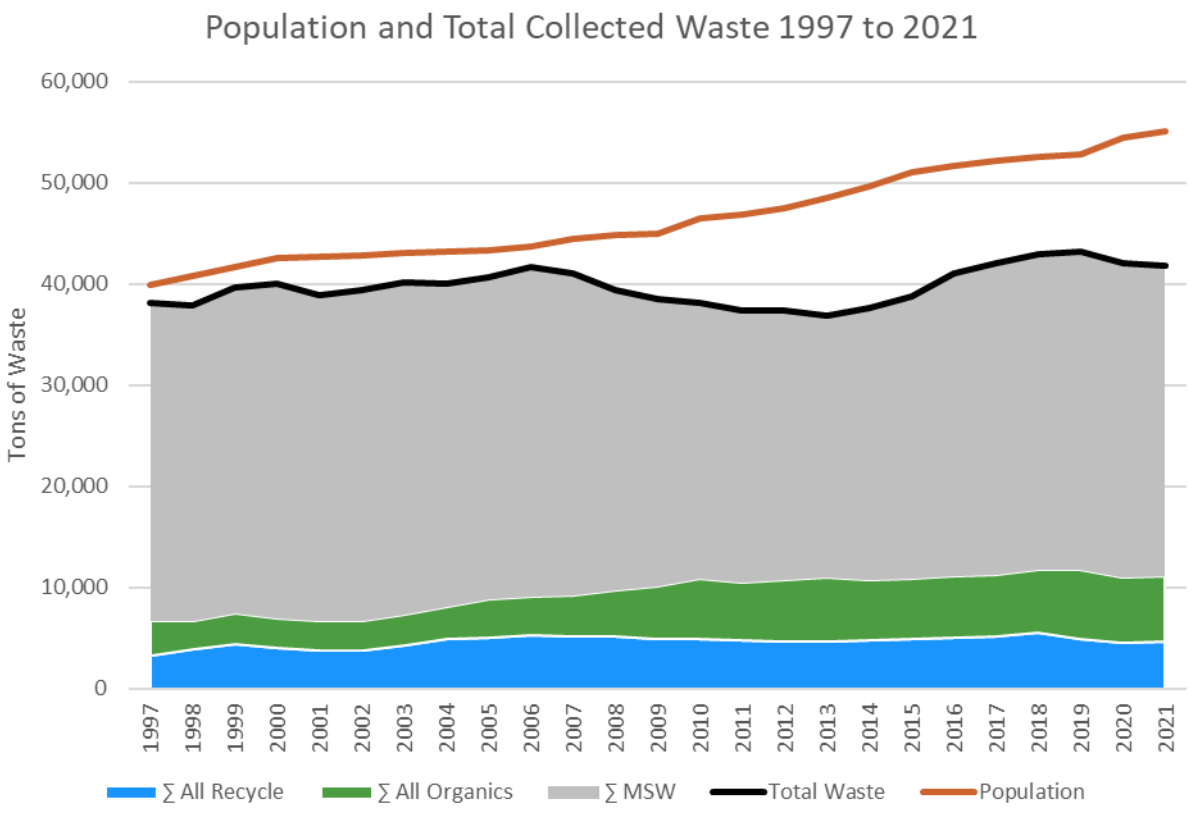
Construction and demolition (C&D) debris is often identified as a separate waste category because of the way it is generated. However, it is considered a component of MSW. Some C&D materials are discarded into ordinary residential and commercial garbage containers, such as waste from small remodels and repairs. Large quantities of C&D debris generated at construction sites are usually placed into rented dumpsters and sent to the landfill. If C&D

materials such as wood, concrete or metal are separated for recycling, they are counted as recyclables, not MSW.

How Much Waste Does Olympia Generate?

Historical data suggests that through 2005, waste generation closely followed fluctuations in the population and economy with ever-increasing amounts. Between 2005 and 2013, total waste collected and managed by the Waste ReSources Utility decreased by nearly 20%. This decrease was likely due to the Great Recession of 2008, use of more light-weight materials, shifts in packaging materials, and an increase in recyclable and compostable materials hauled by private companies. Due to population growth and the economic rebound since the last plan, total waste collected and managed by the Waste ReSources Utility increased by 11% between 2014 and 2021. In 2021, Olympia's residents composted or recycled 40% of their waste. These data do not include commercial recyclables hauled by private companies or other self-hauled waste because these tonnages are not reported to the City.

Figure 9 Population and Total Collected Waste 1997 to 2021



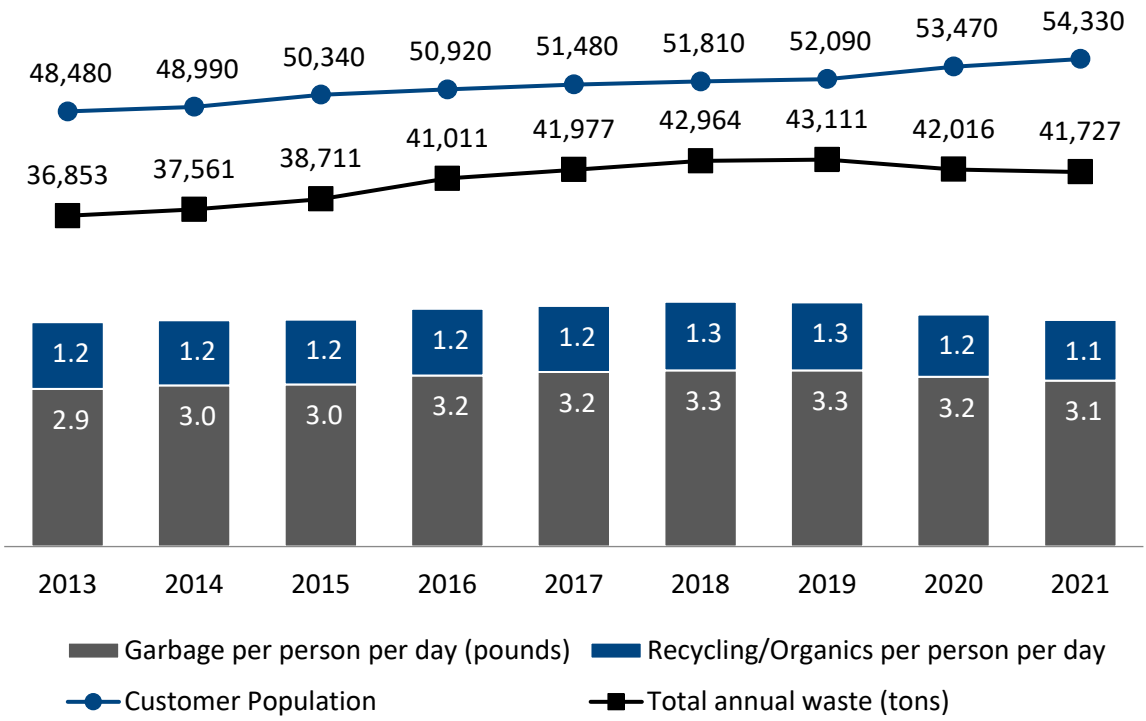
In 2021, Olympia's residents and businesses generated approximately 41,727 tons of waste. This does not include garbage, recyclable and organic materials collected by private companies, self-hauled to Thurston County's Waste and Recovery Center (WARC), or collected from the state's Capitol Campus.

Figure 10 shows the changes in waste generation and population between 2013 and 2021, based on what Olympia hauls and can accurately measure (excludes commercial recycling hauled by private companies). While population increased by 12.1%, total waste hauled by Olympia increased by 13%. Within that overall trend, garbage decreased by 30%, organics increased by 60% and recycling decreased by 8%

By comparison, between 2013 and 2021, residential waste increased overall by 9%, while population increased by 12.1%.

Total waste generated (including garbage, recycling, and organics) per capita per day was 4.2 pounds per day in 2013, peaked at 4.5 pounds in 2018 and decreased to 4.2 pounds in 2021. The Utility and City Council have adopted pounds of garbage to landfill as a key performance measure. Garbage per capita per day followed the same trends, from 2.9 pounds in 2013 to 3.2 pounds in 2018 to 3.1 pounds in 2021.

Figure 10 Waste Generated and Landfill Per Capita



Who's Generating the Waste?

As shown in Figure 11, the commercial sector accounts for nearly half (42%) of the waste sent to the landfill from Olympia, while single-family homes account for a similar amount (42%) of the generation. Table 2 breaks down in detail the types of waste generated by customer class, number and type of receptacles, total tonnage, number of customers, and hauler (City and/or private).

Figure 11 Waste Generation by Customer Type, 2021

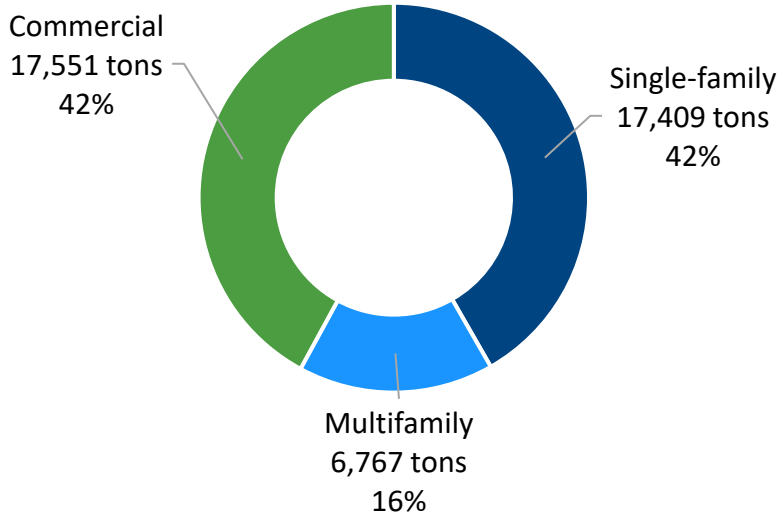


Table 2 Olympia Waste and Customer Data, 2021

Waste Type and Generator	Receptacle Type* and 2021 Counts	Total Tons and Customers or Deliveries 2021	Hauler
Residential garbage			
Single-family dwellings and duplexes	15,720 Carts	8,599 tons 14,324 customers	City
Multifamily dwellings	Sometimes carts (included in single-family), mostly dumpsters, drop boxes and compactors (included in commercial)	5,831 tons 150 properties	City
Residential recyclables**			
Single-family dwellings and duplexes	16,800 Carts	2,956 tons 14,342 customers	City
Multifamily dwellings	1,494 Carts	936 tons 142 properties	City
	101 cardboard-only dumpsters (4 cubic yards)	Tons in multifamily cart tons 63 properties	City
Glass drop-off site	Drop-off site	383 tons	City
Residential organics			
Mostly single-family dwellings	9,226 Carts	5,348 tons 9,055 customers	City
Yard-Waste drop-off site	Drop-off site	123 tons	City

Waste Type and Generator	Receptacle Type* and 2021 Counts	Total Tons and Customers or Deliveries 2021	Hauler
Commercial garbage* **			
Commercial garbage* Businesses, institutions, government agencies, etc.**	Carts/Cans (Included below in dumpster total)	Tons in dumpster total below 121 customers	City
	1,341 Dumpsters	8,520 tons 1,222 customers	—
	Drop boxes and compactors	7,621 tons 263 deliveries 3,884 hauls	City
Commercial recyclables			
Businesses, institutions, government agencies, etc.	Data for private recyclers unknown City picks up 51 containers of various types at City Buildings	Tons and customers served by private recyclers unknown City collected 364 tons from 10 buildings	Private and City
Commercial Organics			
Businesses	172 Dumpsters and carts	Private tons and customers unknown. City collected 594 tons from 160 customers	City and Private
Mostly businesses	Hauls vary by need 6 permanent drop boxes 118 hauls which includes many temporary containers 2 compactor customers resulting in 27 hauls	Private tons and customers unknown. City collected 328 tons (customer counts included above)	City and Private
C&D Debris			
Construction & Demolition Companies	2 permanent drop boxes with 9 hauls in 2021	**Private unknown City collected 124 tons**	City and private recyclers
	Total Generation	41,727	
	Total Recycling and Organics	11,032	

* For operational reasons, the City of Olympia tracks garbage collection on the basis of container type – cart, dumpster or compacter, as well as customer type.

** Includes all "traditional" curbside materials: mixed paper, newspaper, cardboard, glass bottles and jars, aluminum cans, tin cans, PET and HDPE plastic bottles, and milk cartons.

*** Excludes garbage from the Capitol Campus and materials self-hauled to the WARC.

How Much Waste Does Olympia Recycle and Compost?

Two goals of this Plan are to continue reducing the total quantity of material discarded (waste) and increasing the portion of waste that is recycled or composted. Generally, waste is reported by weight, which streamlines the process and makes charging customers easy.

Recycling rates are calculated by dividing the sum (by weight) of materials collected for recycling and composting by the sum of garbage, recyclable and compostable materials. Weight based metrics are easy to calculate, and relatively simple to communicate to the public. Weight based rates, however, do not necessarily account for contamination or external factors that reduce total waste generated primarily by reducing recycling tonnages.

Recycling rates can be affected by several factors, many of them beyond the control of Waste ReSources. The types and weights of packaging continue to evolve and change. Beverage containers get lighter, newspapers have fewer pages, and non-recyclable lightweight flexible packaging replaces heavier recyclable rigid containers. Consumer purchasing habits and the economy also play a role. The amount and weight of organic compostable material also factors into the rate. A drier year with a shorter grass growth season results in fewer tons of organics collected. The decline in the recycling rate from 2010 to 2011 was likely influenced by a combination of these factors. The recycling rate increased to 60% in 2013 as the economy recovered, but slowly declined each year thereafter. The COVID-19 pandemic changed consumption and disposal behaviors in 2020 and 2021. In 2020, Waste ReSources removed glass and polycoated materials from the commingled system. During this period, the recycling rate decreased from 55% in 2019 to less than 48% in 2021.

Table 3 shows the quantities and percentages of recyclable and organic materials and garbage hauled by City crews from single-family, multifamily, and commercial customers. This table provides a complete picture of the amount of garbage generated in Olympia. However, it does not give a complete depiction of recycling efforts because the Utility does not have access to reliable data on tons recycled and composted by businesses that use private collection companies.

Table 3 Olympia Waste Hauled in Tons, 2013-2021

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Single-family Recycling[1]	3,944	3,917	3,993	3,976	4,048	4,319	3,940	3,560	3,339
Single-family Organics[1]	5,365	5,060	4,856	5,007	4,896	4,963	5,288	5,555	5,471
Single-family Garbage	6,227	6,640	6,714	6,941	7,129	7,516	7,483	8,906	8,599
Total Single Family Residential	**15,536**	**15,617**	**15,563**	**15,924**	**16,073**	**16,798**	**16,711**	**18,021**	**17,409**
Single-family Recovery Rate	**60%**	**57%**	**57%**	**56%**	**56%**	**55%**	**55%**	**51%**	**51%**
Multifamily Recycling	734	820	796	901	828	970	796	812	936
Multifamily Organics[2]	*	*	*	*	*	*	*	*	*
Multifamily Garbage[4]	4,324	4,250	4,515	4,785	4,999	4,999	4,874	5,284	5,831
Total Multifamily	**5,058**	**5,070**	**5,311**	**5,686**	**5,827**	**5,969**	**5,670**	**6,096**	**6,767**
Multifamily Recovery Rate	**15%**	**16%**	**15%**	**16%**	**14%**	**16%**	**14%**	**13%**	**14%**
Commercial Recycling[3]	0	0	89	190	209	211	198	159	364
Commercial Organics	917	965	1,058	1,080	1,279	1,258	1,533	933	922
Commercial Garbage	15,342	15,843	16,417	17,775	18,297	18,397	18,733	16,565	16,141
Commercial C & D	0	66	273	356	292	331	266	242	124
Total Commercial	**16,259**	**16,874**	**17,837**	**19,401**	**20,077**	**20,197**	**20,731**	**17,899**	**17,551**
Commercial Recovery Rate	**6%**	**6%**	**6%**	**7%**	**7%**	**7%**	**8%**	**6%**	**7%**
Total Recycling	4,678	4,737	4,878	5,067	5,085	5,500	4,934	4,531	4,639
Total Organics	6,282	6,025	5,914	6,087	6,175	6,221	6,821	6,488	6,393
Total Garbage	25,893	26,733	27,646	29,501	30,425	30,912	31,091	30,755	30,571
Total C & D	0	66	273	356	292	331	266	242	124
Total Olympia	**36,853**	**37,561**	**38,711**	**41,011**	**41,977**	**42,964**	**43,111**	**42,016**	**41,727**
Total Recovery Rate	**30%**	**29%**	**28%**	**27%**	**27%**	**27%**	**27%**	**26%**	**27%**

* Single-family recycling and organics include the City drop-off site.

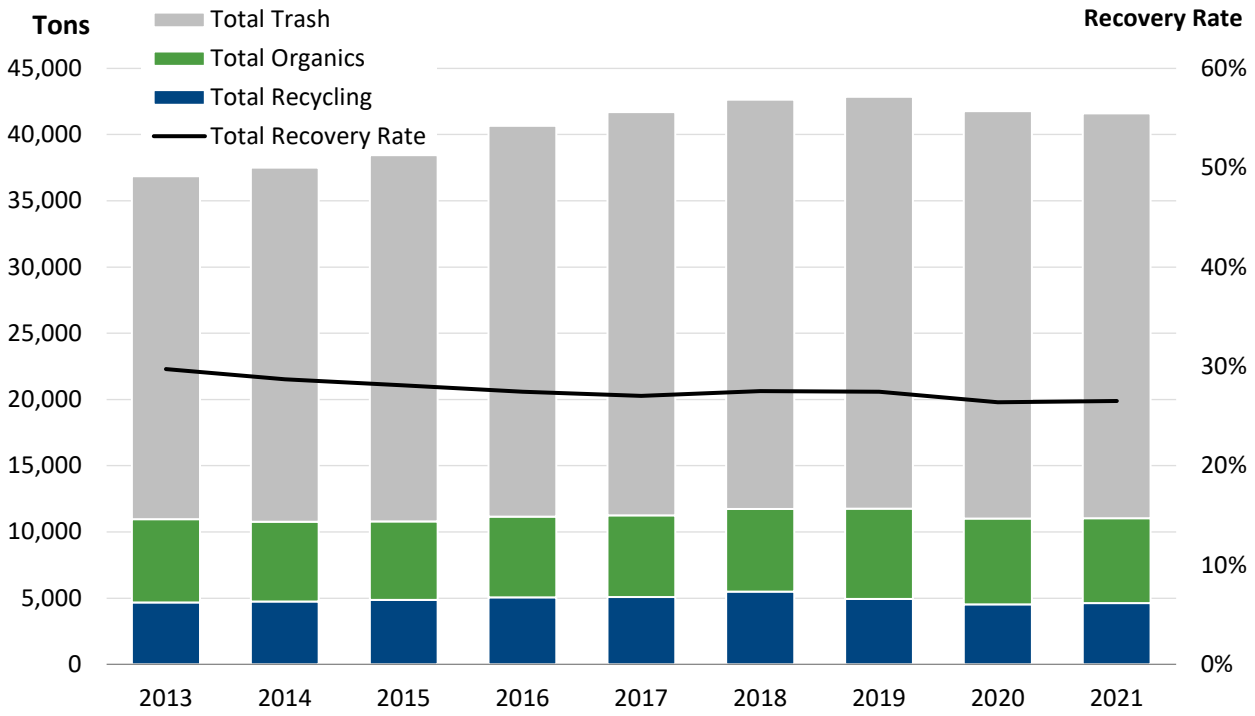
** A small amount of organic material is collected in multifamily waste, but those tons are not yet separated out and are counted as part of residential single-family waste.

*** Commercial recycle tons shown are from materials collected in dumpsters.

**** Total recovery rate excludes commercial recycling and C&D recycling collected by private haulers.

Trends in waste hauled by the Utility are illustrated in Figure 12.

Figure 12 Trends in Resource Recovery, 2013 to 2021



Commercial Recycling and Composting

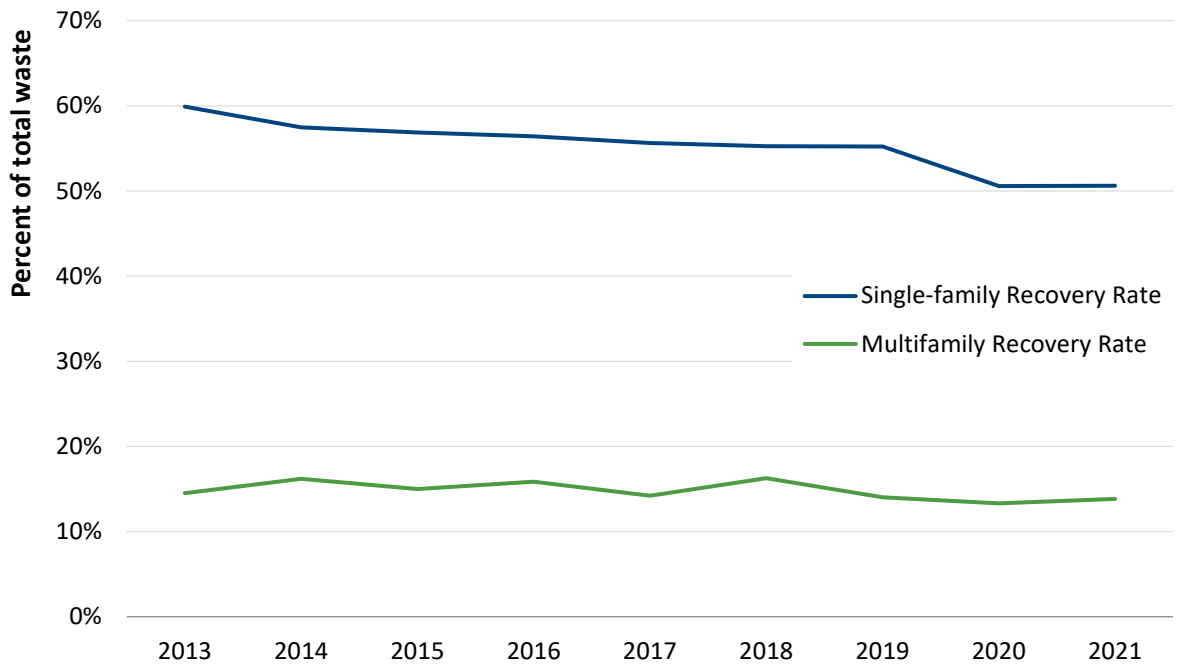
The majority of commercial recycling is collected by private companies and not reported to the City and data collected by the State is not broken down by jurisdiction. Because of this, it is not possible to know how much recyclable material is generated and collected from Olympia businesses. Of the waste collected by the Utility from commercial customers, the recovery rate for commercial recyclables, compostable material, and construction and demolition material has ranged between 6% and 8% since 2013. Thurston County, at the request of its composting facility, reduced what is acceptable for composting to food and yard waste only. This resulted in a drop in customers and tons but did not have a measurable effect on the diversion rate. The *Residential and Commercial Collection Service Studies* (conducted for the *2013-2020 Plan*) estimated that the total commercial recycling rate is between 11 and 51%; more recent estimates are not available.

Residential Recycling and Composting

Olympia has reliable data on residential recycling, as detailed in Table 2. Trends for single-family and multifamily customers are shown in Figure 13. From 2013 to 2021, the recovery

rate for single-family households decreased from 60% to 51%. The recovery rate for multifamily households stayed constant around 15%, after nearly doubling from 8% in 2008.

Figure 13 Residential Recycling Rates, 2013 to 2021



Potential for Waste Prevention and Diversion

Thurston County periodically measures what materials are going to the landfill as garbage, and Olympia participates in these waste sort studies. These percentages are useful because they help estimate the quantities of recyclable materials that could be removed from Olympia's garbage by being recycled or composted instead.

The most recent waste characterization study was conducted in 2014. Table 4 summarizes what share of material taken to the landfill in 2014 from single-family, multifamily, and commercial customers was recyclable or compostable. At that time, 40% to 45% of the waste being landfilled was recyclable or compostable. This figure does not include materials considered potentially recyclable but for which collection programs did not exist in 2014. Based on the previous study, materials with the greatest potential are:

- **Curbside and commercial recyclables** that include cardboard, other recyclable paper, metal cans, and plastic bottles and tubs. Since the 2014 study, Olympia stopped curbside collection for glass and accepts it only at drop-off sites. Since the 2015 plan, Olympia has offered commercial recycling through drop box services, which approximately 15 customers use.

- **Food debris and compostable paper** present a major opportunity for both organics collection and waste prevention. Olympia began collecting commercial organics in 2009, while residential collection began in 2008. From 2009 to 2018, Olympia collected commercial organics in the form of food and yard waste, and then expanded the list to include some compostable products. After 2018, the list was reduced to yard and food waste along with paper napkins, hand towels, wood pallets, and other clean wood.
- **Metals, wood, and C&D debris** that come particularly from commercial customers. Metals, concrete, and brick can be recycled locally, but lack of local processors for other materials limits additional C&D recycling.
- Other potentially recyclable materials include textiles, which also present an opportunity for waste prevention.

Thurston County is currently conducting a new waste characterizations study for 2023 that will provide county-wide insights into waste composition, although this study may not provide adequate details regarding Olympia's waste.

Table 4 Waste Composition by Customer Type, 2014

		Single-family Garbage *Percent*	Multifamily Garbage *Percent*	Commercial Garbage *Percent*
Currently recyclable	Newspaper, cardboard, and other recyclable paper	6.3%	11.3%	10.5%
	Plastic bottles & Tubs	1.1%	2.8%	2%
	Aluminum and tin cans	1.1%	2.2%	1%
	Glass bottles	2.6%	3.6%	2%
Currently compostable	Yard debris	2.9%	1.0%	2%
	Food waste	25.8%	20.7%	17%
	Food-soiled paper	4.4%	3.3%	6%
	Subtotal	***44.1%***	***44.9%***	***41.4%***
Potentially recyclable	Other metals,	3.7%	3.1%	4.9%
	Wood and C&D debris	3.2%	7.1%	13.1%
	Plastic film and bags	7.0%	4.9%	6.6%
	E-waste	0.1%	2.4%	0.3%
	Textiles and carpet	5.7%	8.3%	2.8%
	Subtotal	***19.70%***	***25.8%***	***27.7%***
Non-recyclable	Certain types of paper	2.2%	1.9%	3.0%
	Many plastics	5.5%	4.9%	7.60%
	Certain types of glass	0.4%	0.5%	2.30%
	Other (special waste, diapers, misc.)	28.1%	22.1%	18.00%
	Subtotal	***36.20%***	***29.4%***	***30.9%***

Chapter 4 – City-Run Collections Program

The Waste ReSources Collections staff collects garbage from all residents and businesses within the City's service area, recyclable materials from single and multifamily residences, and compostable materials from residences and some businesses. Public collection ensures that Olympia's waste is disposed of reliably and in a cost-effective manner, with minimal impact on the environment and public health and worker safety (Goals 3 and 4). The Waste Prevention and Reduction staff develops and maintains education and outreach programs to encourage waste reduction, reuse, and recycling (Goals 1 and 2) (Chapter 6).

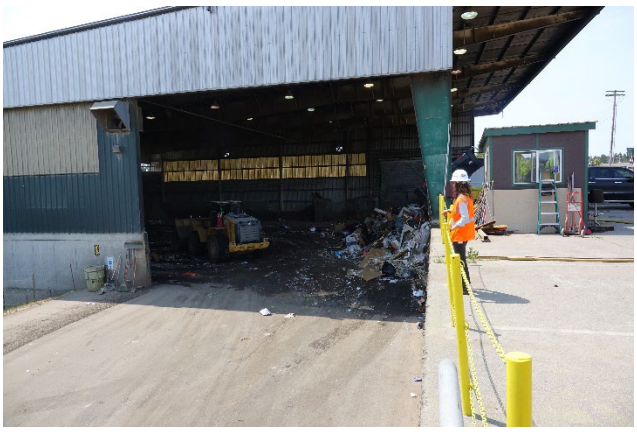
In addition to regular residential and commercial collection, Waste ReSources staff empty downtown public garbage containers, remove waste from community events, and clean up illegal dumping while providing solid waste services to both sanctioned and unsanctioned homeless encampments. They design collection routes, provide onsite technical assistance and customer service, deliver, and remove City-owned waste receptacles, and handle billing for drop boxes and commercial dumpsters. The Utility has an opportunity to reduce its carbon emissions by efficient fleet management, electrifying its fleet, and encouraging recycling and composting.

Materials Collected by Waste ReSources

Any waste not separated for recovery is legally considered "garbage," and thus can be regulated by the City. By law, the City can also regulate collection of residential source-separated recycled materials. However, commercial source-separated materials can be collected and hauled by any suitable private company. Waste ReSources relies on Thurston County and private facilities to take the material it collects. The City and County signed an interlocal agreement as part of signing onto the Thurston County Plan, which includes use of county disposal facilities.

Olympia's collection trucks deliver garbage, organic materials (yard debris and food waste) and some construction debris to the county-owned Waste and Recovery Center (WARC) at Hawks Prairie in Lacey (Figure 14). In 2022, Thurston County awarded Republic Services a 10-year contract to operate the transfer station, with another 10-year option to extend. Republic Services will take over operations in May 2023. Recyclable materials and some C&D debris are delivered elsewhere.

Figure 14 Thurston County Waste and Recovery Center (WARC)



Source: Thurston County

Nearly all waste (garbage, recyclable, and organic materials) must be shipped to facilities and processors outside Thurston County. For most material, the Utility relies on a single location for dumping collection vehicles and some of these transfer sites have only a single-source outlet. These dependencies create a potential risk for the Utility. In addition, maintaining operational efficiency will become more challenging due to increased customers and lack of leverage over recycling processing fees and markets. To guide continued service during extreme weather and disaster events, the City of Olympia has a disaster preparedness page with specific emergency plans, including a page on debris clearing and management.

This section details how the garbage, recyclable and organic materials, and C&D debris are collected in Olympia.

Garbage

Waste ReSources provides garbage collection service to all residents and businesses within the service area. The Olympia Municipal Code (OMC 13.12) provides that "the collection, removal and disposal of garbage and refuse within the city are universal and compulsory." In other words, all residents and businesses must pay for at least minimum garbage collection service.

Single-family garbage is collected every other week, and residents may choose a 20-, 35-, 65- or 95-gallon cart. Waste ReSources offers various sizes of containers to multifamily and commercial customers, depending on the disposal volume of clients.

Commercial garbage is collected on a variable schedule to meet customer needs in carts and containers. The two shared compactors in downtown areas allow multiple businesses to collect their garbage together, allowing collection crews to make fewer stops, less frequently.

The County passed an ordinance establishing flow control for all solid waste intended for disposal that is generated in the county to flow through the county transfer station. Waste ReSources pays a tip fee of about $119 per ton for garbage. Tip fees for garbage at the WARC

have not increased since 2011, but the County will be conducting a rate study to determine whether or not to raise rates, which could impact the Utility rates in the near future.

Recyclables

Waste ReSources collects recyclable materials from single and multifamily customers at City drop-off sites and at special events. The Utility offers single-stream commingled recycling collection every other week to all single-family residences and collects garbage on alternate weeks. Most multifamily recyclables are picked up weekly, based on customer need. The Utility also offers glass bottle drop-off collection sites in three locations, after having removed glass from commingled recycling in 2020.

Figure 15 Single-Family Residential Recycling Carts Ready for Collection

Source: Waste ReSources Staff

Materials collected for recycling include newspaper, cardboard, mixed paper (including junk mail, magazines, and phone books), aluminum cans, tin cans, plastic bottles, dairy tubs, flowerpots, and buckets.

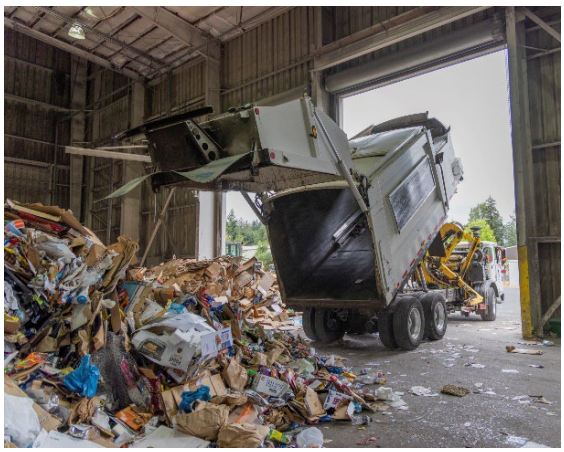
Although voluntary, participation rates are high. Over 99% of the City's single-family residences have recycling carts. More than 142 multifamily properties with about 8500 households subscribe to recycling. Single-family residential customers can choose 35-, 65- or 95-gallon carts for recycling service. Multifamily buildings use 95-gallon carts.

For commercial customers, private haulers offer collection for traditional recyclables, including clean paper, cardboard, cans, plastics, and glass. The Utility and private companies collect other specific materials such as construction debris, scrap metal, and rubble. Downtown shared compactor enclosures used by some businesses and operated by Waste ReSources also include organics, and on-site recycling.

Olympia residents may drop off a variety of other recyclable items at the WARC for free or for a reduced fee. These include refrigerators and other appliances, TVs, computer monitors and other electronic equipment, tires, scrap metal, furniture, and reusable items.

Waste ReSources delivers recyclable materials from its residential customers and a small number of commercial customers to Waste Connections/LeMay at a site near to the WARC (Figure 16). Materials are baled and shipped by long-haul truck to a regional materials recovery facility near Tacoma for sorting (Figure 17). Commercially generated recyclables are delivered to Waste Connections/LeMay and shipped to the same sorting facility. A few exceptions include state offices and others who self-haul their recyclables.

Figure 16 Unloading Recycling at LeMay



Source: LeMay Pacific Disposal

Figure 17 Pioneer Recycling Services

Source: Pioneer Recycling Services

Organic Material — Food and Yard Debris

Organic materials, including yard debris, food waste and food-soiled paper, are collected regularly from residents and businesses. Yard waste is also accepted on Saturdays at the City drop-off site.

Olympia collects organic materials from both residential and commercial customers. Single-family service is provided in 95-gallon carts for a separate fee. The service is voluntary, and approximately 64% of the City's single-family residences subscribe. Businesses can subscribe to the commercial organics service for a separate fee and can choose 95-gallon carts and 1-, 1.5- and 2-cubic yard dumpsters.

About 172 businesses subscribe to Olympia's commercial organics program. Businesses can also choose to have organic materials collected by a private hauler. The numbers of customers and tons collected by private companies are not known. Organic materials collection service is available to multifamily customers but is not heavily promoted or widely used. Downtown shared compactor enclosures operated by Waste ReSources also include organics collection.

Businesses and residents can also obtain temporary container service for large quantities of yard debris. Olympia provides free Christmas tree pick up in January for all residents, including apartments and condominiums.

Waste ReSources pays a tip fee of about $37 per ton for organics (over 10 cubic yards) delivered to the WARC. Most materials are currently sent to Silver Springs Organics, a large-scale composting facility near Rainer in Thurston County. The organics processing facility will most likely change with the execution of the new Republic contract for the WARC in 2023.

Construction and Demolition Debris

Waste ReSources collects mixed C&D debris for disposal, and some separated C&D debris for recycling. Recycling of C&D materials depends on the current markets. Currently, local markets only exist for metal, concrete, brick, and rubble. C&D debris is accumulated in temporary containers placed at the job site and picked up on request. Waste ReSources can deliver some C&D that meets specification to DTG Recycle in Tacoma (formerly owned by Recovery 1). Rubble material is delivered to Concrete Recyclers in Tumwater.

C&D materials make up significant portion of the waste stream, but diversion is difficult for many reasons. The county transfer station accepts construction materials for recovery, but the disposal fee is the same as for garbage. Local options for processing and marketing C&D material are limited to metals, concrete, brick, and clean wood waste. Other materials must be hauled to the Tacoma area or further. City of Olympia and private companies haul some mixed C&D material to out-of-county processors such as DTG in Tacoma, but recent tip fee increases have reduced demand for the service. The amount hauled by the private sector is not known and it is difficult to track. Because Thurston County lacks a mixed C&D waste processor, the economic and logistical hurdles for recycling this material remain high. The fee to empty a truckload of C&D material needs to offset the higher transportation cost. Thurston County Solid Waste has no immediate plans to establish a separate C&D recovery center at the transfer station.

Household Hazardous Waste

The County operates a household hazardous waste collection facility, “HazoHouse,” at the WARC, which accepts household hazardous waste from county residents for free. The WARC also accepts asbestos-containing waste, with advance notice and special preparation, for a fee higher than the normal garbage rate.

Collection Operations

The Collections Program is currently budgeted for 24 full-time employees: a supervisor, two lead workers, one dispatch coordinator, three maintenance workers, and 17 refuse collectors.

Customers and Equipment

The Collections Program serves over 13,500 single-family residential billing customers, accounting for nearly 16,000 households, 142 multifamily properties, and over 1,300 commercial customers. Single-family residential waste is collected in carts. Most garbage from multifamily customers is collected in dumpsters; a few customers have compactors or carts. Multifamily recyclables are collected in carts, with the exception of large quantities of cardboard collected in front-load dumpsters, and two properties use a drop box. Waste from commercial customers is collected in carts, cans, dumpsters, drop boxes, private compactors, or shared Utility-provided compactors.

Waste ReSources operates a fleet of 16 heavy-duty vehicles. Figure 18 shows the four truck types.

- Six fully automated side-load refuse trucks for residential carts, including multi-family recycling service. The number of trucks used each day varies by the service area and material being collected, with between four and six trucks in service each day. During a five-day week, all six trucks are used on two of the days, just five on two other days, and only four on one day. On days when all six trucks are used, there is no spare truck to account for equipment breakdowns. In summer 2022, City Council approved the purchase of six new side-load trucks to replace aging vehicles.
- Four front-load refuse trucks for commercial containers on two dedicated garbage routes; one is used for cardboard, and one is a dedicated spare.
- Three rear-load refuse trucks for commercial containers and commercial organics (dumpsters and carts), one of which is a spare. The oldest truck will be replaced in 2023.
- Three roll-off drop-box trucks, one of which is a spare. The spare truck is often scheduled as a third truck to meet growing demand.

Figure 18 Waste ReSources Collection Trucks

Source: Waste ReSources Staff

Commercial Collection

Waste ReSources customizes collection for commercial, multifamily, and mixed-use buildings. These customers vary widely in terms of size, amount and type of waste generated, and space for containers.

The Utility seeks to minimize rear-load collection because using a two-person crew is much more costly than front-load collection. However, front-load collection does not work for all business locations, particularly in the downtown area where collection is often in narrow alleys. Elsewhere, some buildings lack space for safe collection that is efficient.

To address these challenges, the Utility has been using two strategies. First, Waste ReSources works closely with its customers and the City's Community Planning and Development Department to ensure adequate garbage and recycling infrastructure for each customer and for newly constructed or remodeled buildings. Second, the Utility has begun operating two shared compactors in downtown areas (Figure 19) to serve businesses that would otherwise require rear-load collection.

Figure 19 Downtown Shared Compactor

Source: Waste ReSources Staff

Because Olympia does not collect commercial recycling, most businesses have two haulers, Waste ReSources for garbage and a private company for recyclables. Organic material is collected by both Waste ReSources and private companies. Some businesses have expressed desire for all services to be available through Waste ReSources and on one bill.

Residential Collection Areas and Drop-Off Sites

Commercial and multifamily customers are served on a variable schedule to meet their needs. Single-family residential customers are served on a fixed schedule in four residential collection areas. Tuesdays through Fridays, four to five automated trucks collect garbage or recycling on alternating weeks. These same trucks collect organic materials from one-half of the City on Mondays. This balance has proven effective for over a decade.

Waste ReSources collects residential organic materials on Mondays and commercial organic material on Mondays and Thursdays (Figure 20 and Figure 21). This system is nearing operational capacity for the current complement of trucks and drivers. Adding resources and collection days may be necessary to accommodate customer growth and a growing demand for service.

Figure 20 Residential Collection Calendar

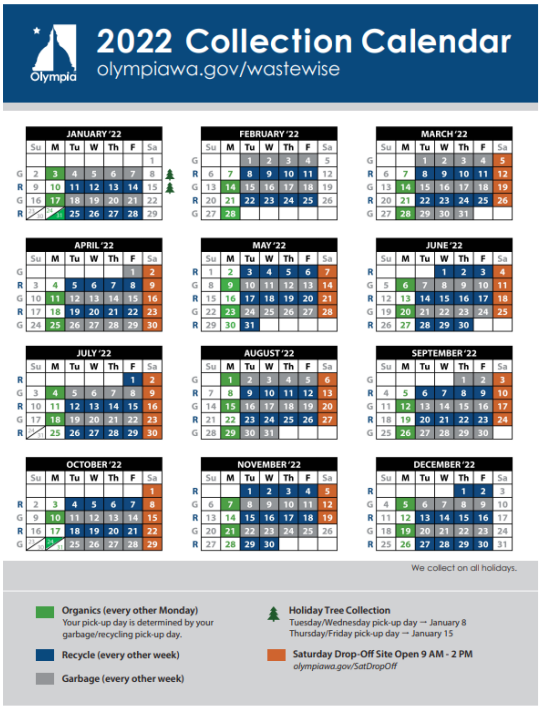
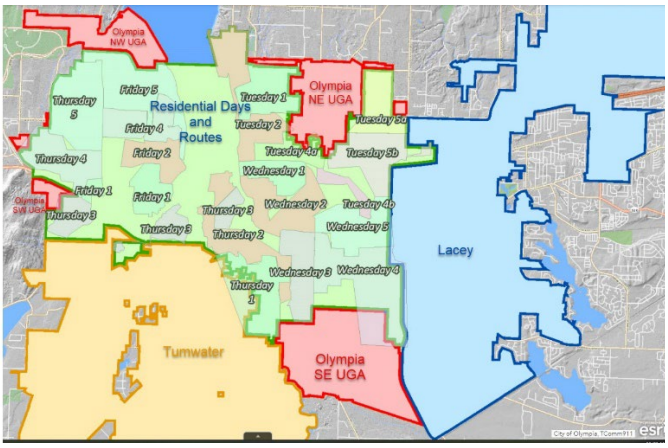


Figure 21 Residential Collection Areas

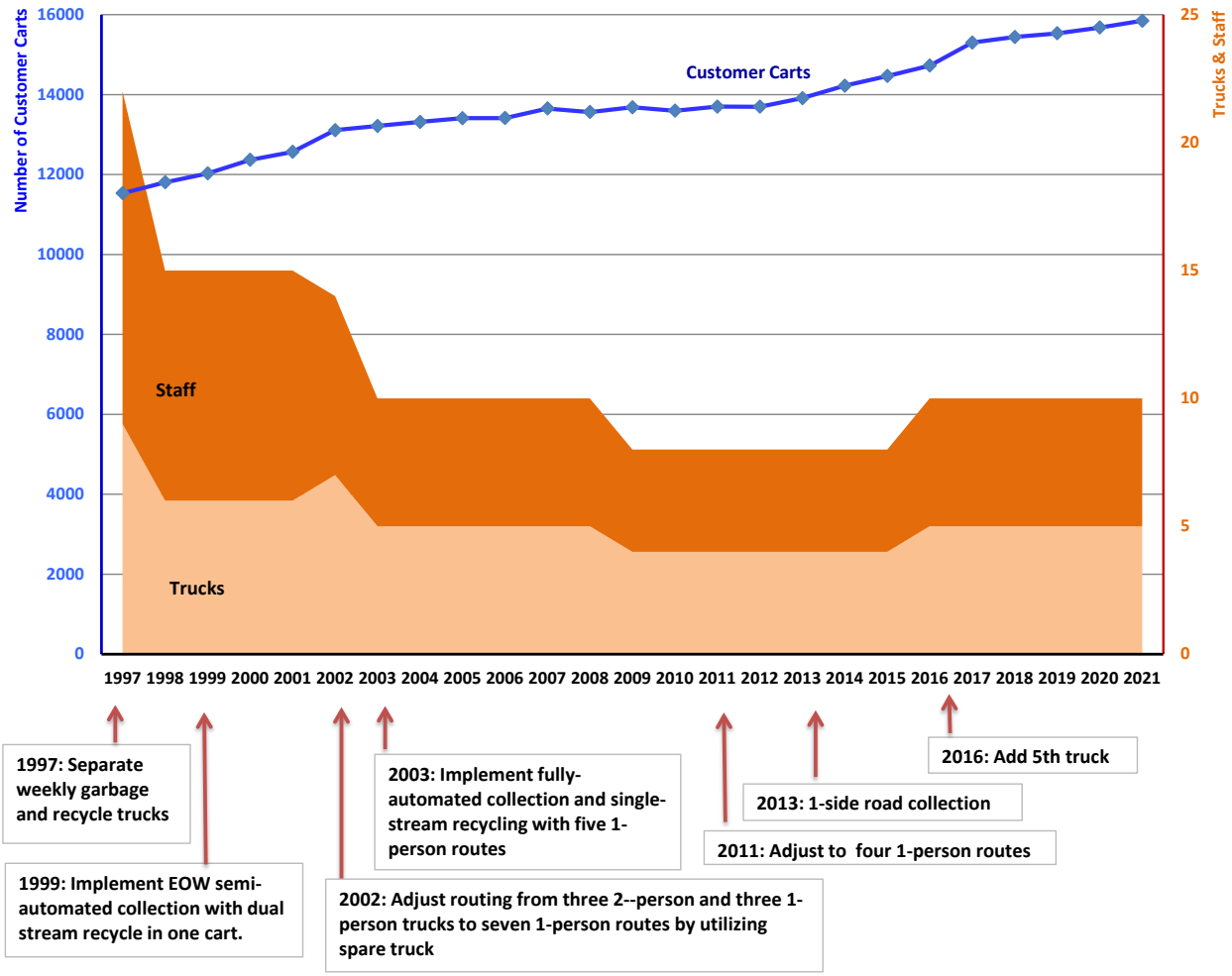


Community members can also drop off recyclable materials and yard waste at several sites. Waste ReSources operates the Saturday Drop-Off Site east of downtown Olympia. From March to mid-November, the Utility staffs the Saturday Drop-off Site from 9:00 a.m. to 2:00 p.m. for yard waste for a fee and commingled recyclables, scrap metal, cardboard, and glass for free. The Utility also allows residents to drop off glass and cardboard 24 hours a day and 7 days a week all year at the Saturday Drop-Off Site. Glass drop-off is also available from dawn to dusk at the Yauger Park on Olympia's west side. Elsewhere in the county, residents can drop off glass at Concrete Recyclers in Tumwater and many more recyclable materials at the WARC during their operating hours.

Operational Efficiency Improvements

Waste ReSources started collecting residential recyclables at the curb in 1988, multifamily recyclables in 1994, and yard debris in 1996. The Utility focuses on improvements designed to collect all types of waste more efficiently and with maximum safety for workers. These changes allow the Utility to be more cost effective by absorbing customer growth without additional trucks and staff (Figure 22).

Figure 22 Increase in Residential Collection Efficiency, 1997 to 2021



The City's switch to every-other-week residential service in 1998 is still considered a model for efficiency. The most significant gains occurred between 1998 and 2003 due to switching from manual to semi-automated to fully automated collection and from weekly to every-other-week collections. The switch to one-side road collection reduced miles driven and time spent collecting residential waste, while adding GIS-routing and tablets further reduced miles driven and improved tracking of improper customer setouts (Figure 23). Since 1998, improved efficiency in residential collection has resulted in a 60% decrease in the number of trucks and staff required, despite a 20% increase in the number of customers.

Figure 23 Collection Driver Using GIS Routing with Tablet

Source: Waste ReSources Staff

On the commercial side, the Utility has also increased efficiency in commercial collection by switching as many customers as possible from rear-load collection, which requires two collection staff, to front-load collection, which requires only one driver and increases safety. Table 5 describes these improvements in collection efficiency.

In 2009, the City began offering commercial organics collection to its customers. Because of efficiencies gained by switching to mostly front-load commercial garbage collection in 2004, Waste ReSources was able to provide this service with existing trucks and equipment. Commercial organics collection is performed by the rear loading truck crew, who also pick up garbage in the downtown core, and other select areas where front-load does not work.

In 2011, to further increase safety and reduce driver incidents, Waste ReSources worked with the International Academy for Professional Drivers (IAPD) to adapt its training program for drivers of solid waste collection trucks. Two staff members became certified driver trainers who can administer annual certification to collectors. Staff turnover has resulted in a pause in IAPD training; however, a high emphasis on driver awareness and safety remains. Since implementing driver training, accident claims have dropped from a high of 30 in 2011 to 3 in 2021. Injuries are down from 14 in 2011 to 1 in 2020 and zero in 2021. Drivers are encouraged to report even the smallest incident for review so Waste ReSources can better understand how to eliminate them in the future.

Table 5 Key Collection Improvements

Year	Change	Benefit
1998	Alternating every-other-week garbage and recyclables pick up and cart-based collection Changed from three recycling bins to a two-compartment cart (paper versus containers)	• Reduced trucks and staff • Increased recycling • Added all plastic bottles to curbside collection
2003	Fully automated collection and single-stream recycling	• Reduced trucks and staff • Increased customer convenience • Reduced worker hazards and injuries
2004	Front-load commercial	• Reduced staff • Reduced worker hazards and injuries • Increased collection efficiency
2008	Added food scraps to yard waste	• Increased diversion • Increased customer convenience
2009	Implemented commercial organics	• Increased diversion • Customer convenience • New service without additional trucks and staff
2011 – 2015	One-side-road collection for single-family	• Reduced miles driven • Reduced fuel consumption • Absorbed growth without adding trucks and staff
2020	GIS routing and tablets	• More efficient routing • Improved tracking of improper or missing setouts

Chapter 5 – Waste Prevention and Program Planning

The Utility's Waste Prevention and Program Planning staff focus on reducing overall waste and increasing reuse, recycling, and composting using two key approaches: planning and data management and outreach and education. Staff members are responsible for developing and evaluating education and outreach programs, assisting the Collection Operations program and overall Utility planning.

The Waste Prevention Program includes three full-time equivalent (FTE) staff: two Senior Program Specialists and one Senior Planner. Responsibilities are divided so that each staff member focuses on specific program development and outreach activities for:

- Residential single and multifamily households and school education.
- Businesses, permitted events, and City government.
- Plans, policies, site plan review, and program development.

In addition to the three FTEs in the Waste Prevention Program, the Utility has a Program Assistant to provide administrative help utility wide and a Billing Specialist to perform all the commercial and drop box billing and some customer service, which is separate from the billing and customer service support performed by the City's Utility Billing section of the City's General Government Department.

This chapter describes Olympia's waste prevention and program planning efforts and identifies education and outreach efforts by Thurston County staff that benefit Olympia customers.

Planning and Data Management

Waste ReSources tracks data on customers, tonnages, and operations to inform budgets, staffing decisions, annual work plans, and long-range plans. Chapter 3 and Appendix 2 (*Cost of Waste Collection Services*) highlight available data. While the Utility has extensive data on its own activities, it faces two key challenges that make it difficult to manage data and impossible to assess progress in total waste generated and total waste recycled.

First, while Olympia has a data management system, data are difficult to enter, manage, and extract. Some data is not easily gathered or in some cases impossible to gather because the Utility lacks a standalone work order and data management system specific to solid waste needs. With improved data systems, further operations-related data could be tracked.

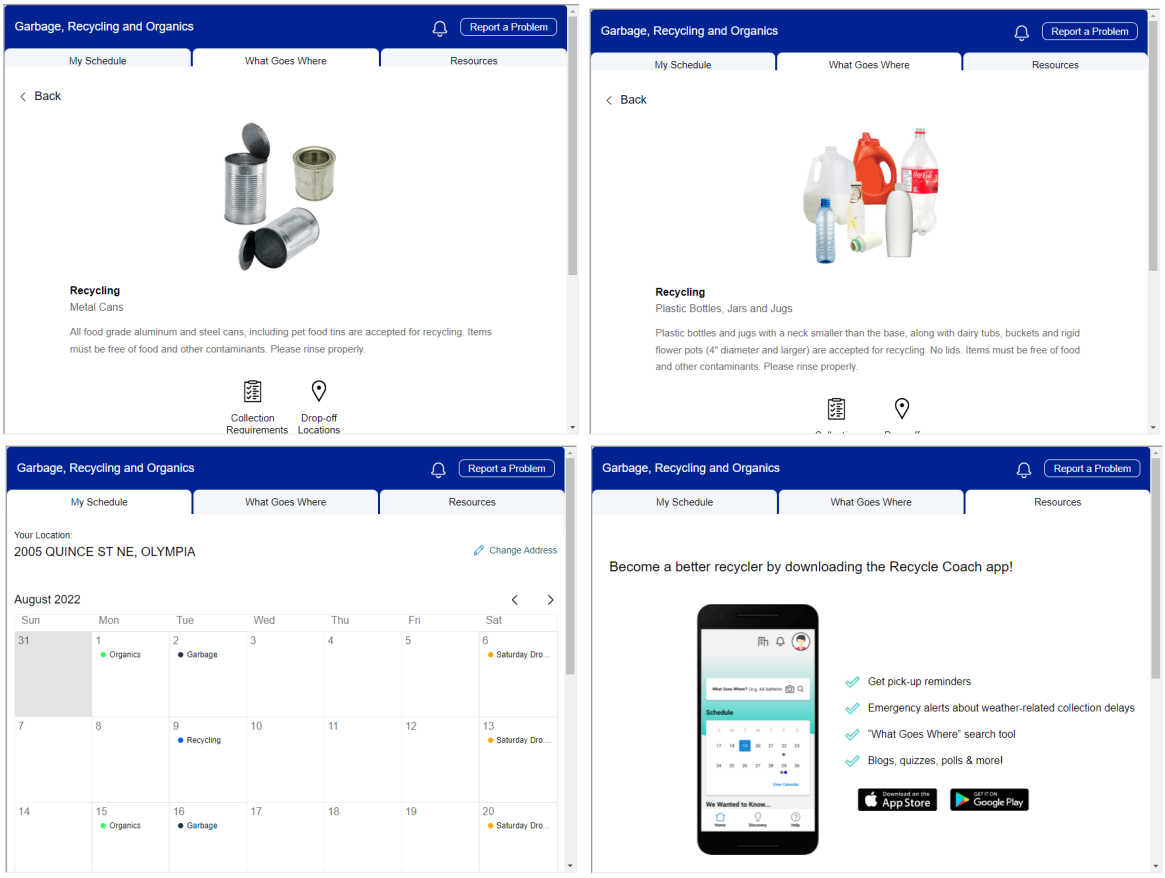
Second, the Utility lacks data on self-hauled and privately collected materials including commercial recycling, composting, and construction and demolition debris. Staff can only estimate how many businesses, state agencies and other non-residential customers are recycling because their recyclables are collected by private haulers and data is not reported to the City. Data on quantities of waste self-hauled to the WARC by Olympia residents and businesses is not available, nor is waste collected by private haulers. Better reporting of this

information would help with planning, public education and technical assistance programs, and evaluation of results.

Residential Engagement Efforts

Increasing diversion of recyclable and compostable materials is a major focus of the Prevention and Program Planning staff. In addition to conducting outreach campaigns, the Utility uses Recycle Coach, both for mobile and web, to make it easy for customers to find their collection schedule and recycling lists (Figure 24).

Figure 24 Recycle Coach for Web



Single-Family Residential

The single-family residential program is well established and covers all three waste streams: garbage, recyclables, and organic materials. Education and outreach focus mostly on dissemination of information through an annual collection calendar, Utility bill inserts like the *Five Things* brochure, the Utility website, cart tags, and responses to customer inquiries. Information sessions are offered to neighborhood groups but are not well promoted or well attended.

Changes in recycling markets over the past several years have increased the importance of clean recycling with minimal contamination, especially in single-family settings. Cart tagging has become a mainstay of the anti-contamination campaign for recycling. Olympia's cart tagging program uses municipal crews to routinely watch for and identify repeat contaminators through an iPad monitoring and reporting program. This process allows the Utility to receive cart tagging data while avoiding the need to allocate resources for dedicated cart inspectors. When needed, the Utility also uses dedicated cart tagging campaigns; for example, after removing glass from commingled recycling in 2021 (Figure 25).

Figure 25 Lid Lifts, Inspection, and Cart Tagging of Recycling Carts

Source: Waste ReSources Staff

In 2021, *Resource Recycling* awarded the City of Olympia 2021 Program of the Year for its anticontamination efforts (Figure 26). The City also received the WSRA Recycler of the Year, Public Sector Education award for these same efforts.

Figure 26 City of Olympia Receives Recycling Awards from WSRA and *Resource Recycling*

Source: Waste ReSources Staff

Multifamily Residential

The complexes served by the Utility vary widely in terms of number and type of dwellings, configuration and space for garbage and recycle containers, socio-demographics of residents, and on-site or absentee management. Buildings with both residential and commercial tenants are called mixed-use buildings. Waste ReSources collects recyclable materials from residential units in mixed-use buildings, as part of the multifamily program. There has been an increase in mixed-use and larger multifamily waste collection.

Waste ReSources works with each customer to maximize recycling and diversion. Staff participates in the site plan review process to ensure adequate space for garbage, recycling, and organics containers. Figure 27 shows what happens when a site lacks adequate capacity. The City's Engineering Development and Design Standards (EDDS) were revised most recently in 2021 to update standards for enclosures that allow new building construction to accommodate on-site recycling and diversion; however, opportunities remain to further improve the EDDS to support both collection safety and efficiency and waste recovery (see Appendix 1).

Figure 27 A Mixed-Use Building without Enough Capacity for Waste

Source: Waste ReSources Staff

While the recycling rate for multifamily residential increased from 8% in 2005 to 15% in 2013, it decreased slightly to 14% in 2021. Challenges to multifamily recycling include limited space for containers, resident and manager turnover, insufficient capacity for recycling, and difficulty connecting with residents. The City maintains a list of multifamily addresses for direct mailings. Regular site visits by staff, resident information sessions, newsletters, web presence, and signage (Figure 28) have produced mixed results, indicating a need to evaluate and enhance efforts for these customers.

Figure 28 Recycling Signage in Multifamily Buildings

Source: Waste ReSources Staff

Businesses, Schools, and City Government Efforts

Waste ReSources staff works with individual businesses, schools, and City departments to encourage waste reduction and increase collection of recyclable and compostable materials.

Businesses

The City began offering business technical assistance and free waste assessments in 2008, and since then has completed over 459 assessments. For a waste assessment, a staff member walks through the business with owners and managers to review their waste disposal practices, suggesting ways to save money on disposal by reducing waste and increasing recycling and composting. Recommendations can include subscribing to organics or recycling services, downsizing garbage service, and changing a purchasing or disposal practice. Waste assessments are promoted through cold calls, brochures, the Utility website, Utility bill inserts, direct mail, and a street banner. Waste assessments have resulted in more than 165 commercial organics customers.

Schools

The Waste Prevention Program launched a third-grade education program in 2007/2008. The OLYWAste Program offered hands-on education, both in the classroom and through field trips to the Dirt Works Demonstration Garden. At the start of the COVID-19 pandemic, Waste ReSources adapted school education to online learning by providing teachers with electronic educational materials and exercises to use in their lesson plans. Both in-classroom education and field trips are labor intensive for Utility staff, teachers, and parent volunteers. At present, there is not sufficient interest in or teacher and parent support to conduct in-

classroom or field trips education, to resume these educational offerings. Waste ReSources continues to provide educational materials and lesson plans to interested teachers.

Before the pandemic, Waste ReSources also helped schools reduce waste by setting up curbside organics collection and encouraging the use of milk dispensers to eliminate disposable milk containers. The school organics collection program included 14 public schools, two private schools, and one community college. Waste ReSources continues to offer support on milk dispensers and organics collection to schools that are interested and have the internal sustainability and operations staff needed to support these programs.

City Government: Walking Its Talk

The City's Waste ReSources Utility promotes and helps administer the City's internal recycling program at 10 different City building locations where City staff work. The Utility has a unified approach to collection and education, both inside and outside of City buildings. All City employees are given a blue desk-side recycle bin with a mini-bin for garbage. Common areas such as lunchrooms, meeting rooms, copy centers, and conference rooms have centralized collection points for bottles, cans, and paper. Organics collection is offered at City buildings for employee use while drop box at the City's Maintenance Center gives Waste ReSources crews a place to deposit scrap metal for recycling. Styrofoam block is collected and taken to Dart Container. Plastic film is collected for recycling, picked up by the Olympia Lions Club, and sent to Trex to be recycled into benches placed locally. Battery recycling is available in a few City buildings and processed locally.

Public Permitted Events

Throughout the year, Olympia offers additional opportunities for recycling and waste reduction. Some of the opportunities are annual, and others are short-term grant-funded projects and programs. Waste ReSources provides garbage, recycling, and organics collection at permitted and large non-permitted public events. Prior to the COVID-19 pandemic, there were over 50 recycling events annually, including three major events—Wooden Boat Festival, Lakefair, and Harbor Days—and many smaller events. Only 16 events were held in 2020 and even fewer (12) in 2021. The number of events in 2022 is expected to be about 25.

Figure 29 Zero Waste Trailer (exterior and interior)

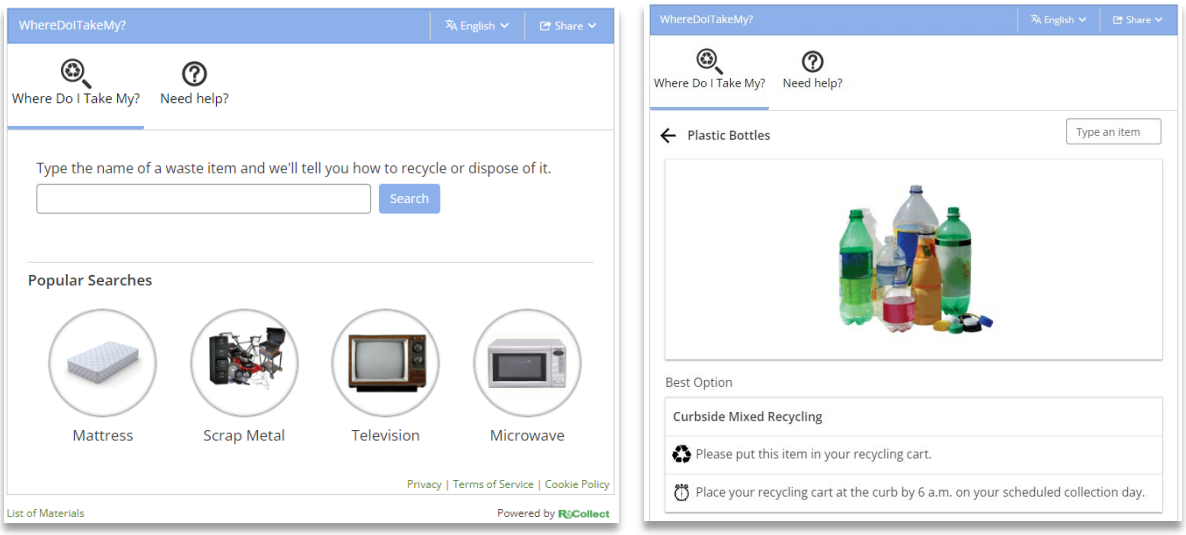
Source: Waste ReSources Staff

Olympia requires festival and event organizers on City property to obtain a permit and present a waste plan. Public event organizers are strongly encouraged to borrow recycling and compost containers from Waste ReSources to collect plastic bottles, aluminum cans, cardboard, and food waste. If organizers recycle, the Utility charges only garbage tip fees and not recycling, organics, or hauling fees. Event organizers are encouraged to participate in organics collection for food service vendors and the public. For large events, Waste ReSources enters into an agreement with organizers and delivers a zero waste trailer (Figure 29) with materials to support recycling, including recycling signs, bags, and frames that hold the bags. The organizer must also arrange with the Utility for a dumpster or other container to consolidate recycling for later collection.

Efforts by Thurston County

Thurston County conducts outreach through residential, business, community, and public information outlets. This is accomplished residentially by outreach in both single and multifamily areas. Businesses are offered technical assistance while communities receive outreach and presentations for different groups and organizations about waste reduction. The County also maintains a “where do I take my…?” database to help residents and businesses know what and where to recycle (Figure 30).

Figure 30 Thurston County ReCollect App and "where do I take my…?" Database



Chapter 6 – Goals, Strategies, and Actions

This chapter of the 2023-2030 Waste ReSources Plan presents the goals, strategies, and actions that will guide Waste ReSources on a continued path toward zero waste over the next seven years. It sets forth what the Utility plans to accomplish and how progress will be measured. Strategies and actions are designed to move the four goals of the Plan forward:

1. Reduce the quantity and environmental impact of waste (garbage, recyclables, and organic materials) generated in Olympia
2. Increase the quantity and quality of recyclable and compostable materials diverted from the landfill
3. Operate safely, equitably, and efficiently
4. Manage the Utility's finances responsibly and equitably

The 2023-2030 Plan builds upon the work accomplished under the previous plans with an increased emphasis on addressing climate impacts through fleet electrification, adopting equity-focused strategies (e.g., providing information in the languages spoken by customers and expanding outreach to multifamily residents), increasing efficiency and safety in on-the-ground operations, and enhancing financial sustainability (e.g., updating the rate structure).

Plan Research and Development

Waste ReSources developed 2022 Plan strategies in response to the challenges and opportunities described in previous chapters. Waste ReSources engaged Cascadia in partnership with Bell to develop strategies based on research and analysis, including an in-depth cost-of-service study. Cascadia and Bell also produced a series of reports describing Olympia's current programs, examples of programs from other jurisdictions, and recommended strategies:

- **Building Codes (Appendix 1)**: Olympia could update the EDDS Chapter 8 in order to strengthen and clarify and align to regional best practices for collection efficiency and safety and ensuring adequate space for recycling and organics collection.
- **Cost of Waste Collection Services (Appendix 2)**: Olympia's rate structure could be streamlined for simplicity and adjusted to better align revenues with costs.
- **Education (Appendix 3)**: Olympia has opportunities to offer multilingual and inclusive outreach, expand outreach to more multifamily households, update its website, and incorporate waste prevention into outreach messaging.
- **Fleet Electrification (Appendix 4)**: Electric vehicles (EV) would substantially reduce on-road GHG emissions and annual operating costs for Waste ReSources, but the current capital costs and state of truck technology present substantial barriers.
- **Metrics (Appendix 5)**: Given available data, key metrics to track include waste generated and landfilled per capita, multifamily recycling rate, contamination rejection rates by recycling and organics processors, incidents and accidents per lift, and costs per residential customer and commercial ton compared to inflation. Capture

rates and contamination rates would provide more informative metrics but require substantially more data collection.

- **Shared Compactors (Appendix 6)**: Increasing the number of customers and usage of shared compactors in downtown areas could make them revenue neutral to cover the fixed cost of installing them while also reducing the use of costly rear-load collection.

Waste ReSources staff assessed and presented Cascadia's recommendations to the Utilities Advisory Committee and Land Use Committee for feedback. With input from both committees, Waste Resources staff selected strategies for implementation based on a combination of impact, feasibility, and ability to implement. Many of the strategies improve upon existing work, while others are new.

Goal 1 Reduce the quantity and environmental impact of waste (garbage, recyclables, and organic material) generated and disposed in Olympia

The best strategy for creating a zero waste future is to not waste. Removing garbage, recycling, and organics from the waste stream means increasing awareness of reducing waste among other strategies.

Waste ReSources has several opportunities to reduce the impacts of waste and waste collection operations. Waste reduction itself can reduce the carbon footprint. According to the Environmental Protection Agency's (EPA) systems-based view, materials (goods and food) comprise more than 40% of GHG emissions. Less waste hauled results in reducing emissions from Waste ReSources operations. Consumers want to do the right thing but are often unsure or confused. Working to improve waste related messaging and increasing recycling can help lower the amount landfilled.

Efficient collection operations keep costs down and rates low, while also reducing emissions. New technologies are available to "green" the Utility's fleet. Electric trucks are a first step towards creating a greener utility.

Strategy 1A. Reduce the overall waste generated

1.1 Expand waste prevention messaging to reduce waste generation

Incorporate messaging around food waste prevention into outreach. Localize and implement waste prevention campaigns using pre-made materials developed by other jurisdictions, particularly regarding food and textiles.

1.2 Work toward a waste prevention strategy to comprehensively reduce waste generation

Monitor Seattle's efforts to develop a waste prevention strategy. Monitor and support community-driven efforts to prevent waste, potentially as part of inclusive outreach to build

relationships with communities of color. Incorporate waste prevention messaging into other outreach, such as food waste prevention into commercial organics collection outreach (and, if continuing, into school programming).

Strategy 1B. Reduce the amount of waste landfilled

1.3 Support city, county, regional, and state policy efforts to prevent waste and improve recycling and composting

Efforts could address extended producer responsibility (EPR), material and packaging bans, mandatory recycling and composting, responsible recycling and end-markets, market development for recycled-content and organics products, right to repair legislation, systems that support reuse and waste prevention, and more.

Strategy 1C. Reduce the climate and other environmental impacts of waste and our operations

1.4 Prevent leaking dumpsters to support Olympia's stormwater permit requirements

Maintain dumpsters in a manner that prevents them from leaking pollutants that may be carried by stormwater run-off. This includes ensuring drain holes are plugged, and that leaking containers are repaired or replaced. Continue working with the City's Stormwater Utility on their "close the lid" campaign and other outreach, as applicable, to support the NPDES permit requirements. Embed regular checks for closed lids, missing plugs, and evidence of container leakage into collection and outreach activities. Create a plan to repair or replace leaking containers.

1.5 Monitor and plan for future fleet electrification to support City climate goals

Conduct a fleet electrification follow-up study by 2026 or when purchasing new vehicles. Explore hydrogen fuel cells in the follow-up study. Increase annual savings for fleet replacement to accommodate higher up-front costs of electric trucks. Monitor planned and actual usage in Western Washington to learn more and explore combining purchases with Tacoma to seek price discounts.

Goal 2 Increase the quantity and quality of recyclable and compostable materials diverted from the landfill

Waste ReSources must encourage higher quantity and quality of recyclables and compostable materials. The Utility can accomplish this by including more multifamily outreach, while ensuring that multifamily buildings include adequate areas for recycling and compost. Working with commercial customers to help assist in recycling and composting collection and education will also work towards expanding the amount of recyclables and compost that is diverted as well as improve quality of those collection streams.

Strategy 2A. Increase capture rates and reduce contamination rates for recycling and organics

2.1 Update development standards and commercial building codes to increase recycling, composting and diversion in multifamily, mixed-use, and commercial buildings and projects

Conduct the recommended service level analysis on storage and collection capacity and condition. Update commercial, multi-family, mixed-use building codes to increase resident access to recycling. Adopt the recommended changes to the City's Engineering Design and Development Standards (EDDS).

2.2 Expand multifamily recycling outreach to increase recycling and reduce contamination

Dedicate more staff time to multifamily by changing how school education and support for non-permitted events is delivered. Continue promoting “recycle champions” in multi-family settings. Implement a focused approach to improve recycling quantity and quality at multifamily properties. Use best practices for recycling outreach and collection (site assessments, technical assistance, resident engagement). Conduct site visits with assessments and technical assistance or customer engagement to reach approximately one-quarter of properties each year. If resources allow, conduct assessments on all properties every one to two years to identify which properties require technical assistance or customer engagement. Test using recycling containers with holes that match corresponding items. Explore using a cloud-based tool to support tracking multifamily and business engagement, collect data in the field, and automate reporting. Offer food waste prevention messaging to residents. Incorporate "closed dumpster lid" messaging, checks for missing drain plugs, and checks for failing containers to support NPDES permit compliance.

2.3 Change school education to create resources for expanding multifamily outreach

Continue the current school education services that provide educational materials for teachers to use in their classrooms and provide support. Re-evaluate school education options once schools re-open to classroom or fieldtrip educational assistance from Waste ReSources and rebuild the internal sustainability staff, teachers, and parent volunteers needed to support these programs. Work with Thurston County staff as the County expands its school education program in the future to include more Olympia schools so Waste ReSources can dedicate more staff time to multifamily and commercial outreach.

2.4 Refine commercial assistance outreach program for efficiency and expanded service

Continue providing commercial waste assessments to address all waste streams. Dedicate more staff time to commercial outreach assistance by changing school education and support for non-permitted events. Incorporate food waste prevention into outreach on commercial

organics collection. Explore using a cloud-based tool to support tracking multifamily and business engagement, collect data in the field, and automate reporting. Incorporate "closed dumpster lid" messaging, checks for missing drain plugs, and checks for failing containers to support NPDES permit compliance.

2.5 Refine single-family contamination reduction efforts for efficiency and improved communication

Focus lid-lift campaigns on problem routes that drivers identify through ongoing monitoring during collection. Explore technology and tools (such as tablets with GIS, Recycle Coach, customized "Oops" tags, and automated customer emails) to enhance communication and behavior change.

2.6 Explore offering commercial recycling service to serve customers without private collection after conducting a need and feasibility assessment of recycle transloading at the Carpenter Road site

Assess whether a recycle baling and transload operation will fit on the Carpenter Road site. If not, continue to explore other transload options because an independent transload option is required before offering commercial recycling service. If either transload option becomes viable, conduct further research and customer engagement to explore interest, costs, and impacts of offering recycling to commercial customers. Examine whether to offer commingled or cardboard-only service, cart-based or container-based service, and service to all customers or a subset of customers below a certain waste or recycling generation level. If Waste ReSources were to offer commercial recycling service, the cost for the Utility to service a four-yard container is currently estimated to be approximately half that of a four-yard garbage container, potentially reducing overall Utility costs if customers reduce garbage service levels as they gain recycling. To expand collection service, the Utility would need to increase truck and driver capacity.

2.7 Implement programs and policies in support of HB 1799 and its new and amended laws in the Revised Code of Washington

Prepare for and support organics collection for businesses required to manage organics under HB1799 (2024 to 2026, depending on Washington Department of Ecology's feasibility study due by mid-2023 and practical and economic feasibility). Work toward expanding cart-based organics collection to all single-family customers through bundling collection service with garbage and recycling by 2027. Expand organics collection to all multifamily customers by 2027. Adopt a compost procurement ordinance by January 1, 2023. Comply with, monitor, and support other facets of this new law as necessary, and economically and practically feasible.

Goal 3 Operate safely, equitably, and efficiently

Working safely, equitably, and efficiently offers customers the best support possible while creating the most accommodating work environment for workers. Collection safety and efficiency rely on both driver actions and the design of customer collection areas. In tandem with more efficient collection, better developed data resources will help the Utility better utilize resources, especially if the Utility builds its own transfer station for recycling, allowing more autonomy in market orientation. Finally, the Utility must center racial equity in its operations, offering new Diversity, Equity, and Inclusion (DEI) initiatives and transcreating new materials to reach a larger audience.

Strategy 3A. Minimize incidents/accidents and meet or exceed safety standards, certifications, or permit requirements

3.1 Ensure safety through training, standards, continuous improvement, and minimizing rear-load collection

Select and implement a driver safety training program that fulfills requirements from the Washington Department of Labor and Industries. Training options include reinstating the IAPD program, adopting a different external program, or developing a formal internal program. Continue to implement and evaluate safety procedures, modifying where needed to prevent incidents and accidents. Continue to meet or exceed safety and environmental standards, certification, or permit requirements; work with customers to eliminate safety concerns; and encourage drivers to report near misses for identifying opportunities to improve safety through standard operating procedures and collection infrastructure. Seek opportunities to transition customers from rear-load collection to safer options.

3.2 Update development standards for safety, efficiency, and increased diversion

Update the EDDS multifamily, mixed-use, and commercial buildings codes to improve collection safety, reduce incidents, and increase collection efficiency. Ensure new construction and remodeled buildings can be easily and safely served without rear-load or alley collection.

Strategy 3B. Implement racial equity principles and practices

3.3 Translate and transcreate outreach materials to reach more customers

Update educational materials, such as the Olympia website, with relevant information in the multiple languages most commonly spoken in Olympia. Adapt transcreated materials from City of Tacoma. For materials created in English, including website content, use plain language principles (simple wording and sentence structure) to make automated translation (such as Google Translate) more effective.

3.4 Expand community engagement to reach more customers more effectively

As resources allow, work with Olympia's Office of DEI to begin building relationships with communities of color in Olympia that will support inclusive outreach for waste prevention, recycling, organics, and contamination reduction. Follow best practices for inclusive outreach, including compensating community members for their time supporting Utility outreach efforts.

3.5 Implement established city policies regarding diversity, equity, and inclusion and contribute to citywide equity opportunities

In coordination with Olympia's Diversity, Equity, and Inclusion Team, implement established City policies around diversity, equity, and inclusion. Participate in and contribute to Citywide equity opportunities such as Olympia's 2022-2023 equity assessment, future interdepartmental workgroups to advance or track progress on equity in City operations, future trainings, or related activities.

Strategy 3C. Operate efficiently

3.6 Improve data collection, management, and reporting to support planning and evaluation to meet goals

Research and procure an integrated data tracking, management, reporting system to support workorders, route management and optimization, customer and tonnage tracking, asset management and planning, and more. An integrated data management system could streamline asset management, operational efficiency assessments, incident and safety assessments, key metric tracking, annual work planning, and cost-of-service analyses.

3.7Continue working to build a new operations and maintenance facility (Carpenter Road or elsewhere) to improve capacity, efficiency, and safety

Design new and remodeled facilities with electrical capacity to easily add charging stations in the future. If offering commercial recycling, include a re-load area to consolidate recycling for transport; especially important if considering adding commercial recycle collection. Explore incorporating an expanded drop-off recycling site into the facility.

3.8 Continue improving efficiency by minimizing rear-load collection and balancing routes

Minimizing rear-load collection wherever possible improves efficiency by eliminating the need for a second waste collector on the vehicle, in addition to increasing safety. Updating the current collection routes to balance route length could increase productivity and increase customer service.

3.9 Expand usage of downtown shared compactors to improve collection safety, collection efficiency, and downtown cleanliness

Expand usage of shared compactors through voluntary efforts, followed by a district-based requirement if necessary. Conduct stakeholder engagement, coordinate with downtown business associations/districts to explore requiring businesses in certain downtown areas to use shared compactors. As part of engagement, explore alternative fee structures. Evaluate how to provide adequate access to recycling and organics collection. With district-based requirements to use shared compactors, explore siting a third compactor.

Goal 4 Manage the Utility's finances responsibly and equitably

The number of customers affects how many trucks and drivers are necessary to collect waste. More customers mean more waste and more time spent in collection. Together, these add to the operating cost, which can impact the fees customers pay for solid waste services. The Utility needs an updated rate structure to streamline financial plannings and ensure continued financial sustainability while implementing this Plan within the context of equity, affordability, changes in service levels and cost drivers, and other challenges to come.

Strategy 4A. Plan, evaluate, and adaptively manage performance against goals and priorities

4.1 Develop annual work plan and review progress annually to align efforts with goals and adaptively manage performance

Develop an annual work plan and budget that aligns staff time and associated expenditures with the Utility's goals and priorities. To inform actions and recommendations for each year's work plan, review and identify key metrics, completed work plan actions, successes, and lessons learned from the previous year. As feasible within the financial and data management system, compare the actual labor and expenditures to amounts budgeted for each goal and priority. For individual campaigns, develop and implement evaluation plans to measure outcomes and identify lessons learned.

4.2 Conduct a waste characterization study to assess progress and identify opportunities for improvement

Every five to ten years, ideally in partnership with Thurston County, conduct a study to characterize the composition of garbage (and of recycling and organics, if reliable data is not available from processors) to evaluate capture rates, progress toward goals, and opportunities to improve.

4.3 Develop and implement regular asset inventories to plan for growth and replacements

For fleets and containers, assess and document quantity, age, condition, and location/customer. Plan for purchases to replace aging and damaged assets (including leaking dumpsters) and to prepare for population growth, annexation, and expanded services. Consider attaching cart IDs to customers (for contamination monitoring). Consider using geotags on roll-off containers and compactors. Consider tagging each container with a barcode or RFID (radio-frequency identification) tag and connecting to customer accounts to facilitate contamination monitoring. Include asset tracking in new data management system (see separate action).

4.4 Update Olympia's municipal solid waste code to reflect current services and policies

Examples include every-other-week collection, one-side-of-the-road collection, shared compactors, and enforcement capabilities.

4.5 Explore licensing and reporting for private recycling, organics, and C&D recycling collectors to track progress on recycling and composting rates for commercial and C&D waste

Similar to Seattle and Tacoma, Olympia should require private collectors to obtain a license and report annual quantities received by material, destination facility (to remove double-counting), and destination use (e.g., recycling, composting, energy recovery).

4.6 Continue offering a Utility Rate Discount Program and work with other City utilities to ensure economic support meets the need

Coordinate with other City utilities and departments to further assess low-income discount qualifications to adequately address the needs of these customers. Work to ensure eligible customers are adequately informed about the rate discount program.

4.7 Update customer rate schedule and adopt multi-year rate path to reflect current services and costs, simplify tracking, support goals, and smooth customer rate impacts

Based on cost-of-service study results and anticipated new finance system, reduce number of budget accounts and rate codes, update rates and fees, and set a multi-year rate path for three to five years. Adopt rates that balance alignment to costs with incentives for reducing waste and support for low-income customers. Update cost-of-service study and rate path every three to five years. Conduct an additional study with a robust public engagement process to revise the rate codes and budget categories (e.g., organics), then develop the multi-year rate path accordingly.

4.8 Maintain adequate reserves to smooth economic impacts and maintain a predictable rate path

Adequate reserve amounts vary by predictability of cash flow and expenditures. The Utility should maintain a 10% reserve to allow for the natural lag time between revenues received versus billed and consider consistently carrying an additional 5% to 10% above the minimum 10% (15% to 20% of annual expenses is common). Monitor and adjust reserve level every year.

Evaluating Progress

In addition to tracking the implementation status of the actions listed for each strategy, Olympia will track key metrics that indicate progress on each of the goals.

Key Metrics

Key metrics indicate the big picture direction of progress. Table 6 lists key metrics that Waste ReSources will track, aligned with its goals.

Table 6 Key Metrics

Key Metric	Goal(s)	2007	2014	2021
Residential waste (garbage, recycling, organics) generated per person per day	Goal 1	2.56 lbs.	2.29 lbs.	2.41 lbs.
Residential and commercial garbage landfilled per person per day	Goals 1 and 2	3.93 lbs.	2.29 lbs.	3.04 lbs.
Residential garbage landfilled in total and per person per day	Goals 1 and 2	1.46 lbs.	1.19 lbs.	1.44 lbs.
Nonresidential waste landfilled in total and per employee per day	Goals 1 and 2	2.47 lbs.	1.75 lbs.	1.61 lbs.
GHG emissions from collection fleet fuel or electricity use (metric tons of carbon dioxide equivalent, or MTCO2e)	Goal 1	NA	NA	605 MTCO2e
Contamination rate of trash and glass in commingled recycling, reported by the processor	Goal 2	NA	NA	17.5% total (10.7% garbage and 6.8% glass)
Number of incidents/accidents per 10,000 collections based on internal and OSHA reporting (total incidents/accidents divided by total number of lifts or collection opportunities per year, times 10,000)	Goal 3	NA	NA	0.18 (equivalent to one incident or accident for every 56,000 lifts)

Key Metric	Goal(s)	2007	2014	2021
Share of informational and educational materials offered in languages other than English	Goal 3	0%	0%	0%
Monthly operational cost for the most common service levels for residential cart collection (65-gallon garbage, 65-gallon recycling, 95-gallon organics), excluding city and state taxes and comparing over time to inflation (Consumer Price Index for All Urban Consumer for Seattle-Tacoma-Bellevue: CUURS49DSA0)	Goals 3 and 4	NA	$30.86 in 2021$	$37.18
Monthly operational cost for collecting a 4-yard commercial garbage container weekly), excluding city and state taxes and comparing over time to inflation	Goals 3 and 4		Methods not comparable	$218.77

Supplemental Metrics as Budget Allows

While key metrics indicate the big picture direction of progress, additional metrics can help Waste ReSources understand the factors and trends underlying the key metrics and influencing changes—or lack of changes—in them.

Regularly, Waste ReSources can track its compliance status with permits, required certifications and standards, and voluntary safety and environmental standards, such as internal training goals and targets that may change annually.

If the opportunity arises and budget allows, conducting a waste characterization study for all three waste streams (garbage, recycling, and organics) would give Waste ReSources more precise information on the effectiveness of its waste prevention and recovery programs while providing insights to direct future efforts. A waste characterization study would allow Olympia to understand:

- **Capture rates**, which are the percentage of materials accepted in recycling and organics that are correctly placed in recycling or organics containers, as opposed to the recycling rate that also includes unaccepted materials that should be landfilled. Capture rates remove the impact that non-recoverable items have on the traditional recycling rates. Understanding capture rates can help Waste ReSources identify which materials to focus on in education to increase recycling and composting. They can also help the Utility assess whether customers have maximized recovery of the current waste stream, so further progress relies on changing the waste stream or consumption patterns.

- **Contamination rates**, which is the amount and type of unaccepted materials in collected recycling and organics. Understanding contamination rates can help Waste ReSources understand which materials to focus contamination reduction efforts on and track the quality of collected materials more precisely than rejection rates by its recycling and organics processors.
- **Environmental impacts of discarded materials**, such as GHG due to waste management using the U.S. Environmental Protection Agency's WaRM – Waste Reduction Model. Some materials have higher impacts per ton, so understanding the tons of those materials generated and landfilled would help Waste ReSources decide whether to focus efforts to reduce and recover them.

Chapter 7 – Utility Funding

This chapter describes Waste ReSources' current financial position including the Utility's revenue and expenditures and resources needed for Plan implementation.

Like other City utilities, Waste ReSources operates as an Enterprise Fund, meaning it is a self-supporting government fund that sells goods and services to the public for a fee. Like a business, the Utility raises revenues from fees for services and receives no funding from taxes or levies. Some Utility services — such as the drop box program for C&D and recycling as well as commercial recycling and organics services — are offered in a competitive environment with private services providers. Unlike a business, the Utility does not have a profit motive. The Utility strives to recover only its expenses while maintaining sufficient cash flow for sustainable operations and charging customers fairly.

Customer Rates and Rate Structure

Most Waste ReSources customers are billed bi-monthly along with their other utility services. Some Waste ReSources customers receive monthly billing. These include some high-volume water customers who get monthly billing for budgeting purposes, customers who share a water meter with another business but need separate solid waste services, and most drop box and compactor customers. Current monthly fees can be found in the Olympia Municipal Code, Section 04.24.010 C. As described in Chapter 4, Waste ReSources provides service to four major customer classes.

1. **Collection of commercial garbage**. Businesses and larger multifamily properties that need frequent collection of small, moderate, and large volumes using carts and dumpsters.

2. **Curbside collection of single-family residential waste (garbage and recyclables)**. Single-family and smaller multifamily residential households that need frequent collection of relatively small volumes using carts.

3. **Drop box (or compactor) collection and hauling**. Large-volume waste generators for whom it is cost-effective to use a large container such as a drop box or compactor, either occasionally and short-term or frequently and long-term.

4. **Collection of residential and commercial organic materials**. Organics customers who generate regular small and moderate volumes using carts and dumpsters.

Garbage collection rates are based on container type, size, and pick-up frequency. Charging by volume (size and type of container) provides an incentive to recycle more and generate less garbage. The "pay-as-you-throw" system means customers who throw out less can downsize their garbage containers and pay less. All residential and commercial customer rates for carts and dumpsters are set so those who need larger containers pay a higher rate. Current technology is not yet reliable enough to allow the Utility to charge cart and dumpster customers by actual collection weights. Drop-box and compactor customers, whose containers

are transported to disposal and recycling sites for weighing and emptying, pay both a hauling fee and a direct disposal and recycling fee based on the actual weight of discarded material.

Almost 99% of Olympia's single-family residential customers subscribe to collection services that include recycling for no additional fee. Garbage collection fees are lower for these customers who recycle than for customers who do not subscribe to recycling. This discount both incentivizes recycling and recognizes that the revenue from the sale of recyclable materials partially offsets processing fees, making recycling less expensive than landfill disposal. Landfill disposal costs at the Waste and Recovery Center (WARC) are approximately $119 per ton (Fall 2021) and are expected to increase. For each additional ton of material recycled or composted, historically, Waste ReSources saved between $75 and $100 of disposal costs. Multifamily customers also receive commingled recycling service at no additional cost.

The *Cost-of-Service Study* (Appendix 2) found that the Waste ReSources Utility presented a balanced budget at the fund-wide level but also recommended addressing rate disparities between each of the four cart sizes for single-family residential customers. To cover rising expenses over the past several years, Waste Resources has used across-the-board percentage-based rate increases, which have resulted in greater fee disparities between each of the four garbage cart sizes (20, 35, 65, and 95 gallons). The planned follow-up rates and costs study to revise the rate schedule and develop a multi-year rate model will include an examination and changes to address these disparities.

The Utility offers organics collection for separate fees. Single-family residential customers can subscribe to yard and food waste collection using 95-gallons carts, and it is available to multifamily customers and some commercial customers upon request. Based on a preliminary analysis in the *Cost-of-Service Study,* including organics collection in the bundled residential service (similar to recycling) would slightly reduce the cost of service to the 63% of single-family customers who currently subscribe to organics service. For single-family customers without organics collection, the cost of service would increase by about $7.40 per household per month. Bundling organics simplifies billing and spreads the cost of service across a larger customer base. Based on Olympia's experience with bundling recycling, bundling organics is very likely to increase diversion of compostable yard and food waste. The Utility would need to increase trucks and driver capacity accordingly to accommodate the increased number of customers using organics service.

Commercial food waste collection is available using 95-gallon carts up to 2-yard dumpsters. Like garbage fees, commercial food waste collection fees are based on container size and collection frequency. With a few exceptions, Waste ReSources does not collect recycled materials from commercial customers. Instead, businesses may choose to subscribe to recycling services from a private hauler, most of which prefer to collect only materials with the highest value from customers who generate large quantities.

Revenues and Expenditures

Nearly all (99%) of the Utility's revenue is generated through customer fees and charges, with minor amounts from the sale of scrap metal, grants, and investment earnings. The largest expenditure categories are for transport and tip fees associated with collection as well as staff salaries and benefits, primarily for collection. Table 7 summarizes Waste ReSources' revenues and expenses over the past few years.

Table 7 Revenue and Expenditures by Budget Classification

	2022 Budget	2021 Budget	2020 Actual	2019 Actual
REVENUE				
Charges for Services	13,502,333	13,396,636	12,882,328	12,528,806
Intergovernmental	-	-	57,242	67,828
Other Revenue	197,004	58,818	277,941	245,137
Total Revenues	**13,699,337**	**13,455,454**	**13,217,511**	**12,841,772**
EXPENDITURES				
Transport and Tip Fees	4,540,934	4,783,802	4,832,538	4,379,144
Salaries and Benefits	3,346,206	3,253,771	3,006,716	3,149,989
Fleet, Equipment, and Fuel Costs	1,727,957	1,723,318	1,546,355	1,548,632
Taxes and Interfund Payments	1,792,047	1,749,387	1,480,950	1,618,360
Services from Other Departments	978,605	935,536	969,126	826,847
Operational supplies and services	681,634	594,210	524,127	476,537
Capital Improvement Fund Contributions	613,000	368,000	398,667	736,000
Total Expenditures	**13,680,383**	**13,408,024**	**12,758,478**	**12,735,509**
Net Gain or (Use) of Fund Equity from Operations	106,262	459,033	47,430	18,954

The Utility maintains a reserve fund matching at least 10% of its annual budget. At times, the Utility's operational efficiencies and conservative budget management result in amounts exceeding 10% that can be used to buy down customer rates or used for capital expenses, such as trucks or equipment needs. The Utility has used these excess reserve funds to smooth customer rate increases. As of 2022, the Utility's reserve requirement was approximately $1.3 million and total resources available was approximately $3.0 million.

Resources Needed for Plan Implementation

Most strategies in the 2023-2030 Plan continue or build upon existing programs, while a few are new. This Plan does not change staffing for the Waste Prevention and Reduction Program. Most of the planned strategies will be implemented using existing resources. Customer growth, inflation, and service expansion, if implemented, could increase required expenditures and collection operations staff. At the same time, customer growth will generate additional revenue from customer rates to cover some of these expenditures. As necessary, the Utility will use rate increases to adjust for inflationary costs. Waste ReSources will also apply for grants that align with the Plan strategies, as they become available.

Table 8 show potential additional annual expenses for a new capital facility and the consultant studies identified in strategies.

Table 8 Potential Added Annual Expenditures for Plan Implementation by Service

Description	2022	2023	2024	2025	2026
Capital Improvement Fund*	613,000	618,000	627,270	636,679	646,229
Facility Improvements	10,000	25,000			
Updated Rates & Costs Study (Consultant)		75,000	75,000		
Updated Fleet Electrification Study (Consultant)					40,000

* Capital Improvement Fund contributions are also shown in Table 7 as they have also occurred in the past.

Appendices

1. Building Codes Memo
2. Cost of Waste Collection Services
3. Education and Outreach Memo
4. Fleet Electrification Memo
5. Goals and Metrics Memo
6. Shared Compactors Memo

Glossary of Terms

C&D - Construction and demolition waste.

Organics - The combination of yard waste, food waste and food-soiled papers collected from households, businesses, and institutions for composting.

Composting - The controlled microbial decomposition of organic matter (such as food scraps and yard trimmings) in the presence of oxygen into a humus- or soil-like material.

Curbside collection – The collection of solid waste materials at individual homes or places of business by municipal or private parties for transfer to landfill, transfer station, recycle, or compost facility.

Drop-off - A method of collecting recyclable materials where individuals transport the materials to a designated collection site.

Ecology - The Washington State Department of Ecology.

EDDS – City of Olympia Engineering Design and Development Standards.

EPA – Environmental Protection Agency.

EPR - Extended producer responsibility - a mandatory type of product stewardship that includes, at a minimum, the requirement that the manufacturer's responsibility for its product extends to post-consumer management of that product and its packaging.

Garbage – Solid waste material destined for or sent to a landfill.

HHW - Household hazardous waste. Products containing hazardous substances that are used and disposed of by individual rather than industrial consumers. These products include some paints, solvents, and pesticides.

IAPD – International Academy for Professional Drivers program. A program with specific criteria to train and evaluate safe driving for professional truck drivers.

Landfill – A large, outdoor site for burial of solid waste.

Landfilling - The disposal of solid waste at engineered and permitted facilities in a series of compacted layers on land and the frequent daily covering of the waste with soil. Fill areas are carefully prepared to prevent nuisances or public health hazards, and clay and/or synthetic liners are used to prevent releases to ground water.

MSW - Municipal solid waste. Solid waste excluding unacceptable wastes, recyclable materials, and compostable wastes.

OMC – Olympia Municipal Code.

Per capita waste – The amount of waste disposed by each person in a geographic area, typically calculated by dividing the total amount of annual waste collected by the total population of a city or area.

Post-consumer materials - Recovered materials from a consumer-oriented recycling collection system or drop-off center.

Recyclable - Products or materials that can be collected, separated, and processed to be used as raw materials in the manufacture of new products. Not all recyclable materials are collected universally for remanufacture.

Recycled content - The portion of a product's or package's weight that is composed of materials that have been recovered from waste; this may include pre-consumer or post-consumer materials.

Recycling - Separating, collecting, processing, marketing, and ultimately using a material that would have been thrown away.

RCRA - Resource Recovery and Conservation Act.

RCW - Revised Code of Washington.

Reuse - The use of a product more than once in its same form for the same purpose or for different purposes.

Source separation - Separating materials (such as paper, metal, and glass) by type at the point of discard so that they can be recycled.

SWAC - Solid Waste Advisory Committee of Thurston County.

Toxic - Ability (or property) of a substance to produce harmful or lethal effects on humans and/or the environment.

TRPC - Thurston Regional Planning Council

UAC – Utility Advisory Committee

WARC - Waste and Recovery Center. Transfer station operated by Thurston County Solid Waste.

WaRM - Waste Reduction Model. A tool developed by the EPA that is used to calculate the relative greenhouse gas emissions or energy consumption effects of landfilling, recycling, and composting. Typically expressed in a savings if recycled or composted instead of landfilled.

Waste – All materials disposed as garbage, recycle, and organics.

Waste composition or characterization – The process and results from sorting waste by type (garbage, recycle or organics), in order to determine the relative amounts of various materials it may contain, such as the percentage of aluminum cans disposed as garbage.

Waste reduction – Reducing the amount of waste produced from consumption or collection. It is sometimes also called source reduction, which means the design, manufacture, purchase, or use of materials to reduce the amount or toxicity of waste. Waste and source reduction techniques include reusing items, minimizing the use of products that contain hazardous compounds, using only what is needed, extending the useful life of a product, and reducing unneeded packaging.

Yard waste - The component of solid waste composed of grass clippings, leaves, twigs, branches, and garden refuse.

Zero waste – In this Plan, zero waste refers to a philosophy and systems approach where people use and consume fewer materials, and manufactured products are designed to be reused, repaired, recycled, composted, and are less toxic. Recycling and composting are maximized and very little to no waste is sent to a landfill.

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