



Executive Summary

Sustainable Materials Management Plan 2015



City of Tacoma
WASHINGTON



Executive Summary

Background and Purpose

In May 2014, the Tacoma City Council passed Resolution No. 38907 reaffirming the City's commitment to divert 70 percent of Tacoma's solid waste from landfills by 2028. This goal was first articulated in the Tacoma-Pierce County Solid Waste Management Plan of 2008. The resolution called for the development of a sustainable materials management plan to "ensure that the diversion goal of 70 percent or more by 2028 is met and it defined sustainable materials management as "an approach that includes waste prevention and discard management, while seeking to reduce environmental impacts by managing materials through all stages of their life."

This executive summary provides an overview of this plan. The full plan is available as Volume 1 of the City of Tacoma Sustainable Materials Management Plan.

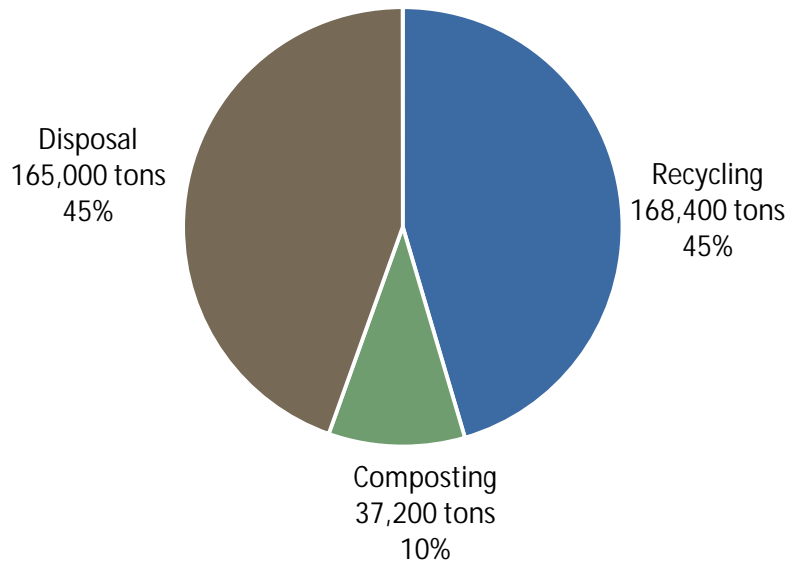
To develop the plan, the Office of Environmental Policy and Sustainability (OEPS) and Solid Waste Management, both within Environmental Services, commissioned a study of Tacoma's current waste stream and recycling levels, projections of future diversion levels under business-as-usual conditions, and an analysis of alternative options and strategies to achieve the 70 percent diversion goal. Development of the plan included significant stakeholder engagement through interviews, forums, and workshops.

Current Conditions

The planning effort began with an assessment of the composition of Tacoma's existing waste stream and the recovery potential in that stream. This information served as the foundation for building a targeted, effective plan to enable the City of Tacoma to achieve 70 percent diversion by 2028.

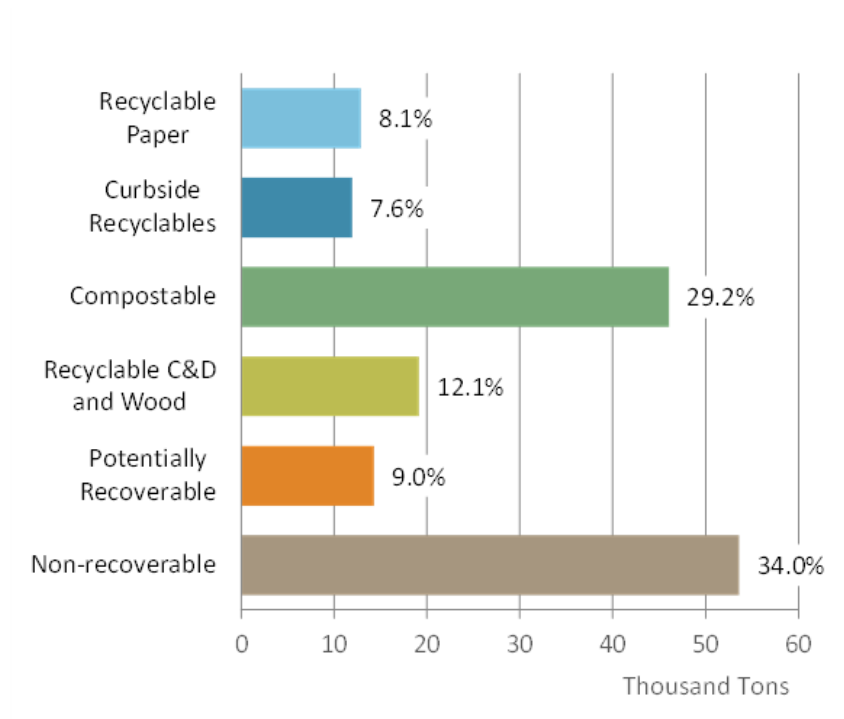
Figure 1 below depicts overall generation for the City of Tacoma in 2014. For the purposes of this study, generation was defined as the sum of materials from Tacoma that are disposed in the landfill, processed for recycling, or sent to composting facilities. Of the 370,500 tons of material generated in 2014, 55 percent of the material was recovered for recycling or composting.

Figure 1. City of Tacoma's 2014 Overall Generation and Recovery Profile



Of the disposed waste stream, approximately two-thirds (66%) or 108,900 tons are recoverable or potentially recoverable, as shown in Figure 2 below.

Figure 2. Recoverability of Overall Disposed Waste (165,000 Tons)



Achieving 55 percent diversion as shown in Figure 1 above is significant, making the city a national leader in recycling. This high level of performance reflects the City's sustained efforts over time to implement state-of-the-art curbside and self-haul recycling programs and educate citizens and businesses to participate in those programs.

However, much more recovery is needed to achieve 70 percent diversion by 2028, especially considering the expected growth in waste over time due to population and economic growth. To achieve the 70 percent recycling rate by 2028, the City will need to recover an additional 62,000 tons, or about 50 percent of the recoverable tons in Tacoma's disposed waste stream. These tons will need to come from new and expanded programs, investments, incentives, regulations, and other initiatives.

Plan to Achieve 70 Percent Diversion

The Sustainable Materials Management Plan recommends that Tacoma implement these changes in four phases through 2028. The overriding purpose of this phased approach is to plan well for and cost-effectively attain the 70 percent diversion goal. In this process, stakeholders and the public will be regularly informed of progress, and the City Council can make informed decisions about when to implement needed policies, programs, and investments that take into account the potential impact on rates.

The proposed plan incorporates a "voluntary first" approach and suggests using existing infrastructure and systems, where possible, to increase diversion. In Phase I, the emphasis is on expanding education, outreach, and technical assistance with only limited mandates and investment in new or upgraded facilities. Decisions on whether to implement major new capital investments and considerations about additional mandates are deferred to the end of Phase I and the start of Phase II.

In this way, Environmental Services (ES) can move incrementally, with full Council and stakeholder support to adopt policies and make investment decisions as needed. With this approach, ES can also effectively manage the associated risks, including changes in technology, escalating costs, and the possibility of lagging participation and/or growth in waste generation that would require more extensive use of mandates and increased investments in new technology.

Phase I (2017–2020): Aggressive Education & Outreach; Limited Regulations

The purpose of Phase I is to increase recycling and waste prevention voluntarily with minimal new investment and regulations. These efforts build on Tacoma's existing successful outreach and education initiatives, such as the Knock & Talk campaigns, and take advantage of the excellent collection programs and infrastructure already in place in the city. These efforts also build the groundwork for designing and implementing Phase II and Phase III diversion programs.

The recommended plan calls for implementing 19 types of new programs and initiatives affecting all categories of waste generators (Table 1). These programs and initiatives are projected to divert an additional 22,800 tons of recoverable materials by 2028 and increase in the recycling rate by 7 percentage points, from 55 to 62 percent. The full plan provides more details on these proposals.

Phase I costs include approximately \$950,000 (in 2015 dollars) of capital investment.¹ The estimated operating cost of these new programs will be approximately \$950,000 per year beginning in 2017 and will increase to \$1.3 million annually by 2020.

Table 1. Phase I (2017–2020) Programs

Category	Elements
Waste Reduction/ Extended Producer Responsibility	Provide education and outreach on waste reduction and waste prevention
	Promote reuse and supply chain management
	Promote extended producer responsibility (EPR)
	Implement campaign to reduce food waste
Education & Outreach	Provide technical assistance (including Master Recycler/Composter program)
	Deliver targeted education and outreach
	Promote reuse and recycling opportunities
	Promote construction and demolition (C&D) debris salvage and green building practices
	Promote organics diversion strategies
Operations & Programs	Ensure adequate infrastructure for commercial recycling
	Increase reuse and green purchasing
	Expand public space recycling
	Promote plastic bag take-back program
	Promote waste diversion strategies
	Expand food waste collection
Incentives & Rates	Provide incentives to increase diversion at Tacoma Recovery & Transfer Center (TRTC)
	Promote and provide incentives for food grinders
Regulations	Require adequate infrastructure for recycling
	Require use of certified C&D processing facilities and enforce “two-bin rule”

Phase II (2021–2022): Continue Aggressive Education; Additional Regulations; Limited Investment

Phase II consists of 10 types of initiatives, with the emphasis on new regulations as well as selected changes to operational practices and a significant investment in processing capacity to increase mixed organics recovery (Table 2). The investment in additional organics processing will provide the capacity to process 30,000 tons of organic materials (yard waste and limited amounts of food waste) collected through existing programs, plus an estimated additional 30,000 tons of yard waste, food waste, and compostable paper, which will be diverted through new Phase I and II programs.

¹ All costs in this section are expressed in 2015 dollars.

The new Phase II regulations, investments, operational changes, incentives, and programs are estimated to divert an additional 31,800 tons by 2028. This expanded diversion will increase the overall recycling rate by 6 percentage points, from 62 to 68 percent.

Phase II costs include \$14.2 million (2015 \$) in capital costs for mixed organics processing capable of handling yard and food waste as well as compostable paper. The estimated operating cost of all Phase II programs is approximately \$1.1 million (2015 \$) per year beginning in 2021 and increasing to \$1.7 million by 2022. The annual operations and maintenance (O&M) costs include approximately \$900,000 for the organics processing facility, which will increase over time. These costs would be offset by annual revenues from marketable commodities starting at about \$60,000 and rising to \$100,000 per year by 2022, depending on market conditions. In addition, since this planned investment in expanded organics processing is sized to replace existing processing of yard waste; substantial savings (approximately \$2.1 million per year) will be realized.

Table 2. Phase II (2021–2022) Programs

Category	Elements
Waste Reduction/ EPR	Establish recurring reuse/drop-off events
Operations & Programs	Expand materials accepted curbside Enhance floor sorts at TRTC
Incentives & Rates	Increase Pay-As-You-Throw rate differentials
Capital Investment	Expand mixed organics processing capacity, and expand collection to accommodate compostable paper and food serviceware
Regulations	Require recycling of recoverable C&D materials
	Require job site recycling and enforce existing two-bin rule
	Require multifamily property owners to provide recycling collection service
	Ensure adequate collection infrastructure for multifamily recycling and organics
	Require separation of recyclables at TRTC

Phase III (2023–2028): Maximum Regulations & Programs or Acquire MRF Capacity

Though highly speculative at this point, Phase III without a new materials recovery facility (MRF) would consist primarily of new regulations mandating recycling services and practices. The list of potential options includes:

- Authorizing mandatory recycling laws for targeted materials.
- Requiring businesses with outdoor garbage bins for public use to provide adjacent recycling containers.
- Requiring commercial property owners and businesses to provide recycling collection service (subscription or self-haul).

- Mandating that food service establishments use recyclable and/or compostable food serviceware.
- Requiring large events on public property to recycle and compost.

Taken together, these regulations are projected to divert 12,000 tons annually when fully implemented over 3 to 5 years. Other elements of Phase III include creating an award/recognition program for businesses and holding neighborhood swap and repair events; together, these programs would divert an estimated 200 tons. If all other programs are performing as expected, these options would enable Tacoma to achieve a 71 percent recycling rate by 2028.

The heavy regulatory approach that comprises Phase III is a departure from the City's preference for voluntary behaviors and practices. Accordingly, the City will need to decide whether a regulatory or MRF-based approach is preferred in achieving the 70 percent goal as well as whether to continue to increase focus and investment in voluntary programs, if those appear to be performing better than expected.

Investing in an integrated MRF that processes commingled recycled materials plus dry commercial waste, along with dry waste routing and banning wood at the Tacoma Recovery & Transfer Center, would divert an additional 30,000 tons and achieve a 75 percent recycling rate by 2028.

Additional costs associated with the MRF would include \$33 million in capital investments and annual operating costs starting at approximately \$5.4 million (2015 \$) and increasing with growing volumes of materials handled. These costs would be offset by revenues starting at an estimated \$4.9 million per year based on 10-year average commodity prices, and with the potential to rise with increased volumes processed, depending on market conditions.

Phase IV (2028 and Beyond): Optional Strategies to Exceed 70 Percent

The strategy presented above—implementing education and outreach programs, new regulations and incentives, operational changes, and investments in Phase I, II, and III—is designed to achieve Tacoma's 70 percent diversion goal by 2028.

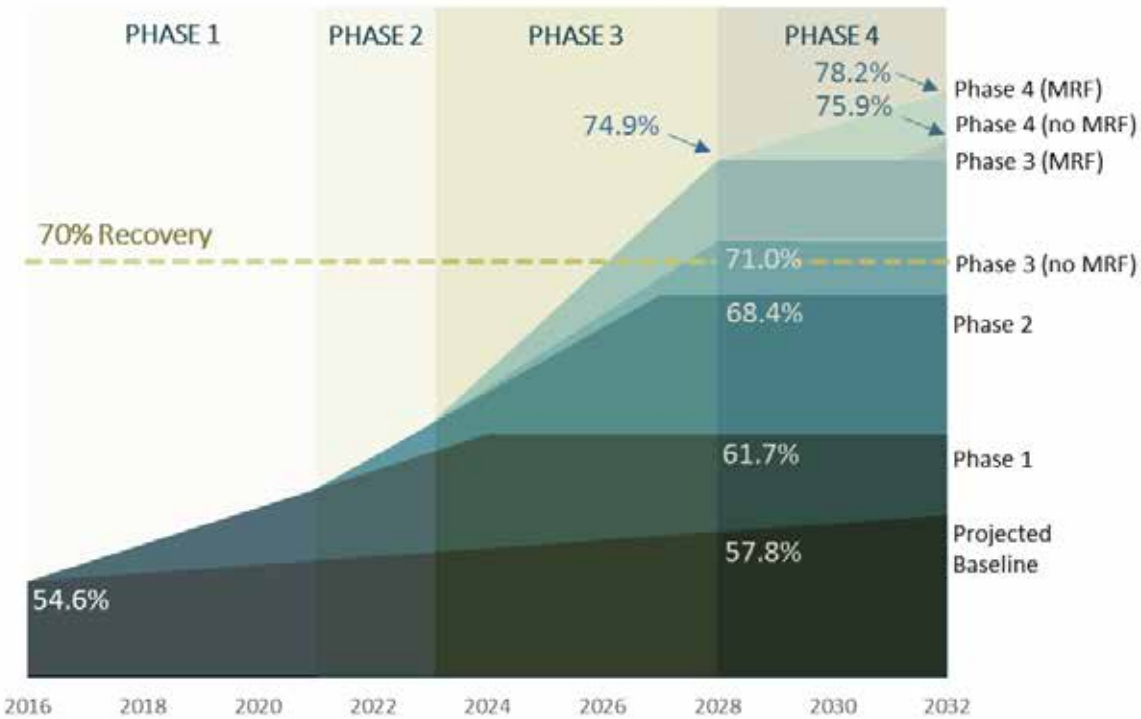
The City of Tacoma, however, considers the 70 percent goal to be a "waypoint" toward a truly sustainable materials management system that virtually eliminates waste, creates value for discards, and minimizes the negative environmental impact of materials throughout their entire life cycle. To go beyond 70 percent diversion with today's technologies and material economics, the City could consider additional regulations and programs. Regulations that would have the greatest potential impact include the following:

- Requiring composting for organic materials (including food waste, yard waste, compostable paper, clean wood, and other compostable products) for all generators, potentially diverting an additional 11,300 tons when fully implemented in 2032. Note that this option would require investment in robust new organics processing capacity.
- Mandating recycling of traditional materials for all generators, possibly diverting 10,800 additional tons when fully implemented in 2032.
- Providing retail building material and thrift/reuse stores at the TRTC.

These and other policies and programs could increase the recovery rate to over 76 percent without a MRF and to 78 percent with a new MRF. Either of these achievements would put Tacoma in a true leadership position in sustainable materials management and represent an upper bound in terms of cost-effective, feasible diversion.

Figure 3 depicts the increase in diversion related to each of the four phases summarized above and described in the full plan.

Figure 3. Recovery Estimates Resulting from SMM Plan Implementation, 2016–2032



The full implementation of Phase I, II, and III will result in a reduction in tonnage disposed at the landfill. Based on the current disposal costs of \$47 per ton, the estimated average annual value between 2017 and 2032 of this avoided disposal is \$2.1 million per year.

Costs of new diversion efforts would be met in part through reallocation of existing labor, cost savings from operational efficiencies, and reduced disposal costs. Any increases in funding needed would be addressed through the normal rate-setting process, which involves calculating impacts to rates through the City's rate model, review and recommendation from a citizens' Environmental Services Commission, and subsequent review, input, and approval by the City Council.

Conclusion and Recommendations

With a combination of new collection programs, processing infrastructure investments, incentives, regulations, and education—at an affordable net cost—a 70 percent diversion by 2028 is well within the City of Tacoma’s reach. Achieving this diversion level will require timely decision-making, upfront investment, a sustained focus on implementing new and innovative strategies, and leadership to ensure the support of the public and key stakeholders.

The consultant team recommends the following process for achieving Tacoma’s 70 percent goal by 2028 and then moving beyond that goal toward a zero waste future:

- Fully implement Phase I and II, including expanded organics processing capability.
- Assess progress in 2022 and decide whether to pursue a regulatory-based approach for achieving the 70 percent goal by 2028 or a technology-based approach that relies heavily on a new MRF. Based on cost, the consultant team recommends a regulatory approach that is designed to meet the 70 percent goal at a substantially lower cost than investing in a new MRF.
- Assess progress in 2028 and decide whether to implement the expanded Phase IV regulations or consider new investments in technology such as an integrated MRF or other alternative technologies that may become available over the next decade. The consultant team recommends implementing the Phase IV regulations first before making extensive infrastructure investments.

Regardless of the pathway selected above, attaining the 70 percent goal will demonstrate the City’s commitment to sustainability and will provide long-term environmental, economic, and community benefits to residents, businesses, and institutions alike.