CLIMATE SMART SAN JOSÉ

Zero Waste Element

Updated Draft

January 2024

All of us together can make ZERO

Message from Kerrie Romanow, Chief Sustainability Officer

Let's not throw away this opportunity

How does San José become a zero waste city?

It takes effort from every resident, business, and public servant. As you know, the world has limited resources and sending items to landfill wastes valuable resources.

Like its parent document, Climate Smart San José, this Zero Waste Element highlights what we, as a City, along with the community, can do to lower carbon emissions that contribute to climate change. Specifically, this Element focuses on reducing waste and finding alternatives to disposal.

The key to meeting our goals is to move away from efforts that make a person's day difficult and link waste reduction to the good life that includes more experiences, emphasizes a better community, and makes life easier for everyone.

Through design, our current waste collection programs do a great job of preventing most waste from going to landfill, but there is still much work to do and opportunities to leverage that can make a difference.

This Element includes actions that are innovative, cost-effective, and inclusive.

Implementing the actions in this Element is only part of an ongoing effort to work with our residents, businesses, and City to meet our sustainability goals.

We look forward to having you participate in this effort and appreciate your ideas and contributions.

Kerrie Romanow
Chief Sustainability Officer
City of San José

Contributing Authors

Kerrie Romanow
Chief Sustainability Officer
Director,
Environmental Services Department

Environmental Services Staff
Julie Benabente
Nora Cibrian
Michael Gonzales
Shikha Gupta
Yael Kisel
Jorge Luna
Sharon Newton
Valerie Osmond
Lauren Romanazzi
Ria Varghese
Mathew Dorfman

Consultant Team

Ruth Abbe, Abbe & Associates LLC

Environmental Science Associates
Jeffrey Caton
Chris Easter
Jyothi Iyer
Larry Kass
Baily Setzler
Breanna Sewell

Randall Russell, WSP

HDR Engineering, Inc.
Cindy Liles
Tim Raibley
Andrea Ramirez

Edited by Cascadia Consulting Group

Acronyms and Definitions

CALGreen: California green building code.

California Department of Resources Recycling and Recovery (CalRecycle): The state department that oversees California's waste reduction and waste management programs.

Carbon Neutrality: Releasing net zero GHG emissions in a given year, using strategies to reduce GHG emissions as close to zero as possible and balancing remaining emissions using local carbon sequestration or offsets.[1]

Construction & demolition (C&D) waste: Waste from construction processes, which is not typically sent to landfill.

City of San José (City): The San José city government.

City facilities: Buildings and other locations owned and managed by the City, including offices, parks, and public buildings.

Climate Smart San José (Climate Smart): The City's communitywide initiative to address climate change.[2] This Zero Waste Element is a component of Climate Smart.

Commercial waste commodities: Solid waste collected from commercial facilities, including source-separated recycling ("customized"), source-separated organics ("wet"), and non-organic garbage ("dry").

Compostable materials: Materials typically accepted for use in industrial compost or digestion systems.

Consumption: The process of obtaining and using goods and services.

Diversion: The process of diverting materials from landfill or incineration by recycling, composting, or other organics processing.

United States Environmental Protection Agency (EPA): The national agency tasked with overseeing environmental protection programs and regulations.

Greenhouse gas (GHG): A type of heat-trapping gas that warms the atmosphere and causes climate change, such as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Greenhouse gases are caused by combustion of fossil fuels and by some organic processes, such as the decay of organic material in an environment containing little to no oxygen.

Environmental Services Integrated Waste Management Division (IWM): The City department that oversees trash collection, recycling, and innovative programs to enhance quality of life in San José.

1 City of San Jose to Pledge Carbon Neutrality by 2030 | News List | City of San José (sanjoseca.gov)
2 Climate Smart San José. Available at: https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/climate-smart-san-jos

Legacy materials: Materials generated in prior decades that must be landfilled at the end of their useful life (such as treated wood and asbestos from existing buildings).

Materials Recovery Facility (MRF): A solid waste management plant that receives, separates, and prepares recyclable materials for marketing to end-user manufacturers.

Metric tons of carbon dioxide equivalent (MTCO2e): An amount of a GHG standardized to one unit of CO2 to represent its climate change-causing potential.

Paris Climate Agreement: An international agreement on climate change adopted by 196 countries and cities at Conference of the Parties (COP) 21 in Paris, on December 12, 2015.

Problem materials: Materials that do not have a viable market for recycling or composting. Examples include painted or treated wood and composite materials (items made up of two or more material types, such as sporting equipment, solar panels, and plastic-lined envelopes)

Recyclable materials: Materials for which recycling technologies, programs, and markets are well developed, readily available, and currently utilized.

Renewable: Any material or energy source that can or will be replenished naturally in the course of time.

Solid waste: Discarded materials disposed in landfills and incinerators.

Sustainable harvesting: A method of harvesting that provides a constant supply of resources throughout the landscape, with future resource yields unaffected or improved by current harvesting methods.

Zero waste: 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.[3]

Zero Waste International Alliance (ZWIA): An international group that sets forth internationally recognized zero waste standards, policies, and best practices for communities and businesses.

3 ZWIA "Zero Waste Definition." 2018. Available at: https://zwia.org/zero-waste-definition/

Table of Contents

Tables

Figures


GARBAGE
GARBAGE
COMMINGLED RECYCLABLES
COMMINGLED RECYCLABLES
SAN JOSE

00 Executive Summary

Zero Waste is Part of the Climate Solution

The City of San José (City) has long been a leader in zero waste, providing cutting-edge programs to its residents and businesses and investing in innovative technology solutions. This Zero Waste Element (Element) looks at zero waste through the lens of Climate Smart San José (Climate Smart), the City's climate action plan aligned with the Paris Climate Agreement (Paris Agreement).

The Zero Waste Element is designed to supplement the strategies in Climate Smart by mitigating the climate impacts of solid waste (discarded materials disposed in landfills and incinerators) and consumption (the use of goods and services by residents, businesses, City operations, and others).

San José is prioritizing programs to reduce waste, which is at the top of the zero waste hierarchy (see Zero Waste Focus Areas and Figure 1). Therefore, the City has set goals both to reduce the amount of waste that is sent to landfills and to reduce the overall amount of waste generated in San José.[4] Strategies are based on the hierarchy and also contain foundational category that supports all levels of the hierarchy.

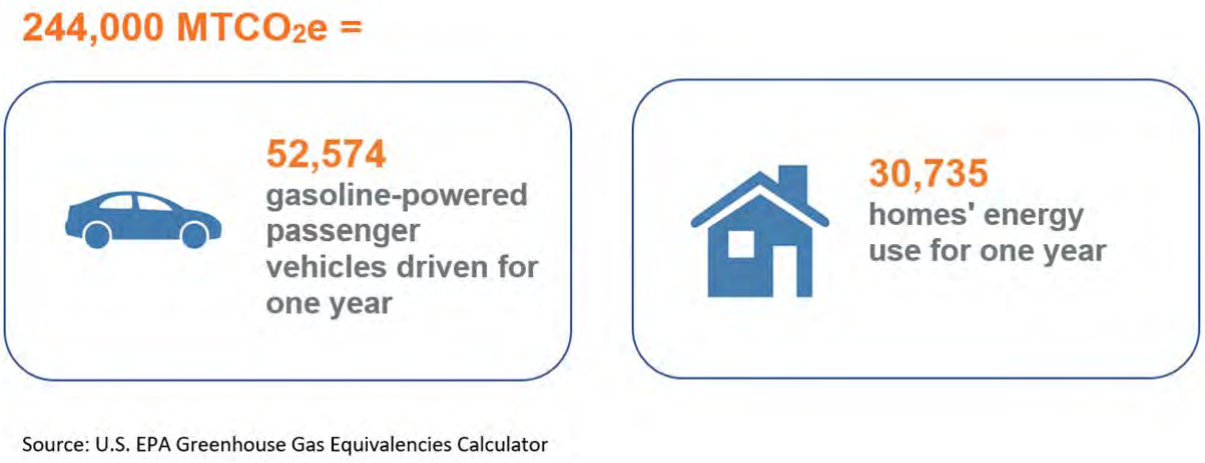
Implementing new zero waste strategies will help the City reduce waste and increase diversion from landfill disposal while contributing to the City's goal of carbon neutrality by 2030. By implementing the new zero waste strategies in the Zero Waste Element, the City aims to reduce greenhouse gas (GHG) emissions released in San José by approximately 244,000 metric tons of carbon dioxide equivalent (MTCO2e) per year (see Figure 2). The strategies will also reduce GHG emissions associated with the production, processing, and transportation of goods that are used and disposed in San José.

Figure 1. Zero Waste Hierarchy

In 2019, the City-managed solid waste and recycling programs diverted 70 percent of waste from landfills. By implementing zero waste strategies, San José aims to reduce generation to 0.7 tons per person per year and reach 90 percent diversion from landfills by 2050.

4 Zero Waste International Alliance. "Zero Waste Hierarchy." Available at: https://zwia.org/zwh/

Figure 2. Approximate Yearly MTCO2e Reductions[5]



Source: U.S. EPA Greenhouse Gas Equivalencies Calculator

The scope of this Element is City-managed solid waste programs and services for the following sectors: residential, commercial, construction & demolition, and City facilities. Waste that is not managed through City programs, including waste from school and college campuses, jails, self-hauled materials, illegal dumping, and litter, is not included. Schools, colleges and jails typically have waste services provided through their own contractors, and the City has limited influence on these services.

Over the Zero Waste Element planning timeframe, San José will pursue these focus areas based on the zero waste hierarchy:

- Foundational Strategies
- Rethink/Redesign
- Reduce
- Reuse
- Recycle/Compost
- Materials Recovery

5 U.S. EPA. 2023. "Greenhouse Gas Equivalencies Calculator." Available at: epa.gov/energy/greenhouse-gas-equivalencies-calculator.

Plan Structure

The *Climate Smart San José Zero Waste Element* consists of four chapters outlining San José's solid waste system and strategies to address climate change and reduce the amount of landfilled waste in San José.

1. **Plan Development** provides a background to the planning process, including an introduction to Climate Smart San José, the City's climate and zero waste goals, current state legislation, and key factors considered in the development of zero waste strategies.

2. **Programs and Leadership to Date** describes San José's waste management programs and leadership in the zero waste field.

3. **Zero Waste Strategies** showcases the City's planned strategies to make strides towards zero waste across six focus areas, as well as the GHG emissions-reduction and waste diversion potential of each strategy and an overview of innovative solutions that are beyond the planning horizon of this Zero Waste Element.

4. **Community Playbooks** offer ideas to help residents and businesses better understand and implement zero waste initiatives.

Roadmap of Strategies

The Element outlines 13 strategies and detailed actions across six focus areas that the City will implement to reduce GHGs and make strides toward zero waste. The City expects that all strategies will positively impact the climate and the City's waste generation and diversion goals. Some strategies provide a foundation for the City's other strategies, while others create direct, quantifiable benefits beyond the City's current existing diversion tons and GHG emissions reductions. Figure 3 presents the six focus areas and their associated strategies. Numbers are rounded to the nearest hundred. While the total may not appear to equal the sum of all parts, each figure is rounded independently to be the most accurate amount. Some strategies do not have quantified emissions reductions or diversion tons because they are supportive to other strategies or because they were added after calculations were finished.

Figure 3. Roadmap of Strategies

		Annual Diversion Tons	Annual $MTCO_2e$ Reduced
FOUNDATIONAL	Community Engagement	57,300	45,900
	Materials Characterization	NA	NA
	Research & Development	NA	NA
RETHINK/REDESIGN	Sustainable Products & Packaging	39,900	13,000
	Sustainable Purchasing Citywide	14,300	200
REDUCE	Lead by Example	6,200	4,900
	Food Waste Prevention	NA	NA
REUSE	Surplus Food Recovery	2,100	500
	Repair & Reuse	6,000	9,000
RECYCLE/ COMPOST	Construction & Demolition Recycling	55,000	34,500
	Reduce Disposal of Compostable Materials in Landfills	54,700	75,500
	Recycling Market Development	1,900	2,900
MATERIALS RECOVERY	Backend Processing Technology	69,800	57,700
	Annual Total	**307,300**	**244,300**


AUTOCAR
CA 346260
8K53755

01 Plan Development

Overview

This chapter provides background on the development of this Zero Waste Element, including context for the City's emphasis on waste prevention. The strategies presented in this Element build on the zero waste commitment that has guided the City since 2008. They also reflect the City's multiple commitments to take ambitious action to address climate change.

Specifically, this chapter discusses:

- Climate Smart San José, the overarching planning effort that this Element will support.
- Other plans and policies that shaped the development of this Element, including the City's Zero Waste Goal, the City's commitment to the C40 Cities Advancing Zero Waste Declaration, and state policies related to climate and waste management.
- The Zero Waste Hierarchy, which is the main material sustainability framework the City uses to emphasize waste prevention.
- Key factors considered in developing zero waste strategies for this Element.
- A summary of community feedback received throughout the planning process and how input shaped the final contents of the Element.

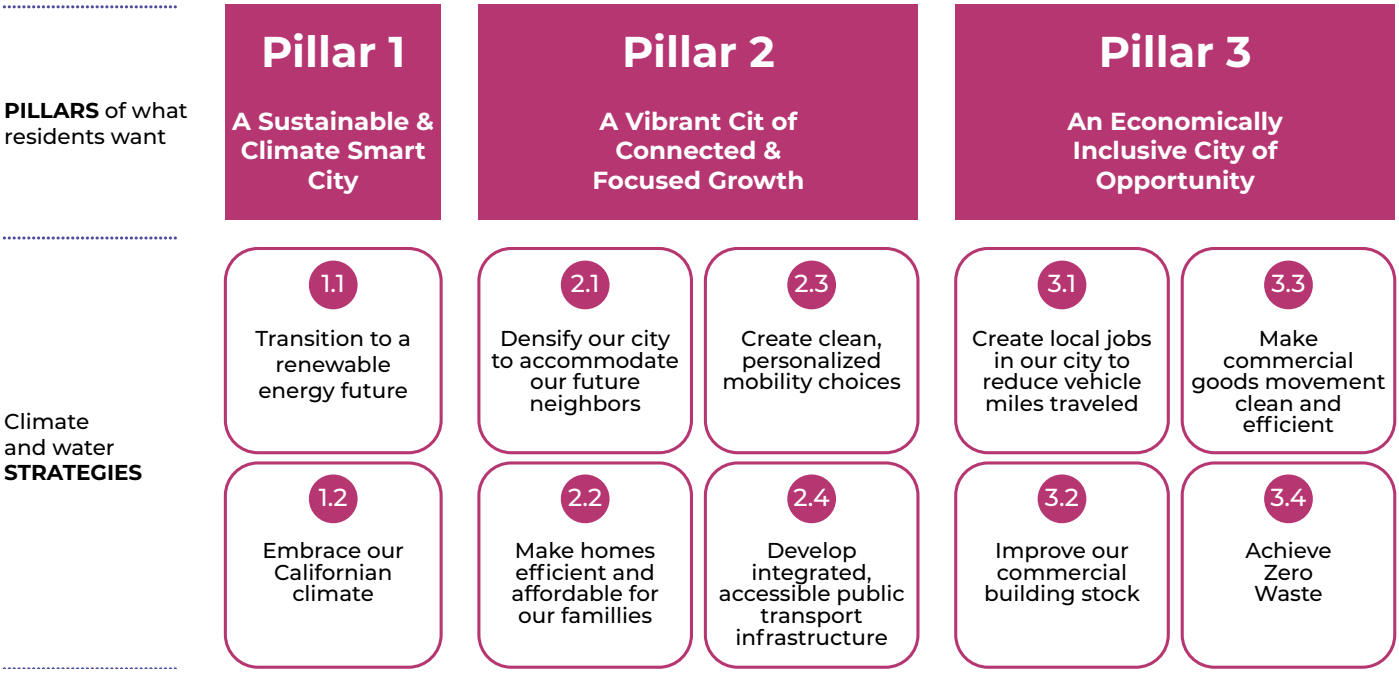
Climate Smart San José

With the adoption of Climate Smart in 2018, San José joined 392 other cities across the U.S. that promised to honor and uphold the Paris Agreement. Climate Smart set ambitious goals for energy, water, transportation, and local jobs.

In 2019, San José joined nearly 1,000 local governments across 18 countries to declare a Climate Emergency. As part of the declaration, San José committed to prioritizing efforts to become a zero-waste city. Then, in November 2021, the San José City Council passed a resolution to achieve carbon neutrality by 2030. As a result, the Zero Waste Element was created as an update to the Climate Smart plan. The Zero Waste Element supports these goals by presenting strategies to mitigate the climate impacts of solid waste.

The Zero Waste Element will be integrated into Climate Smart as a new strategy in Pillar 1 (see Figure 4).

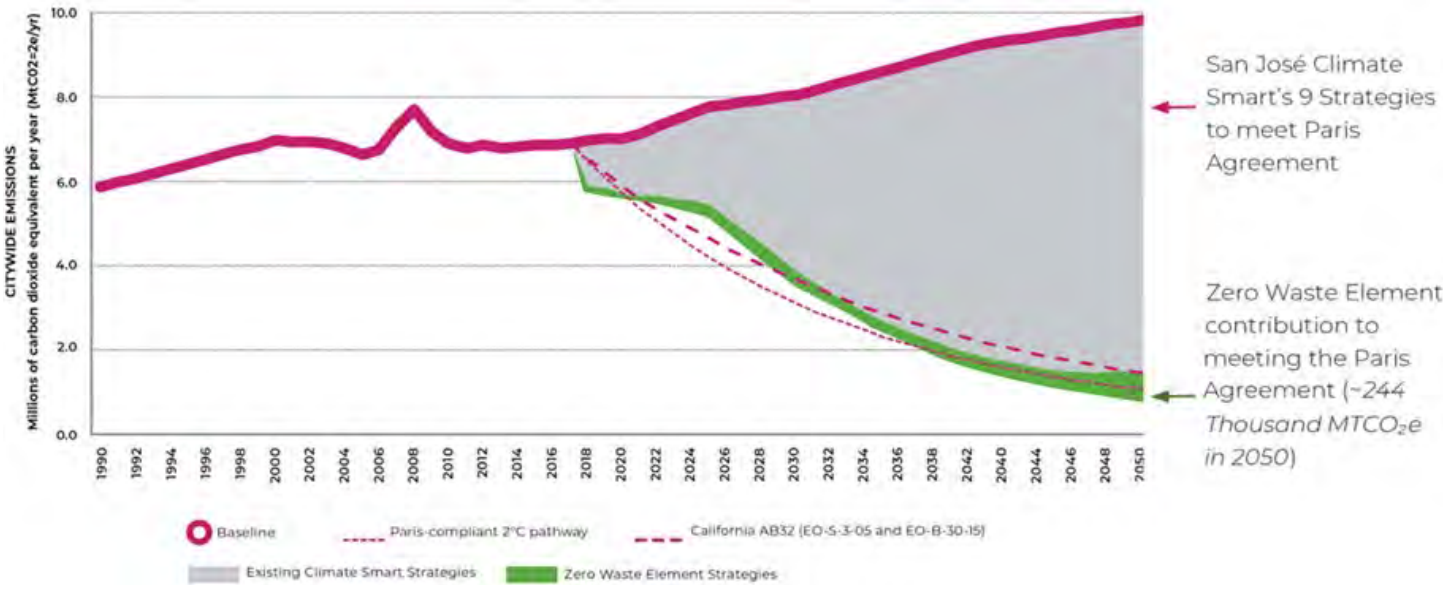
Figure 4. Climate Smart Pillars and Strategies



Meeting Paris Agreement Requirements

By implementing the waste prevention and diversion strategies identified in the Zero Waste Element, San José aims to reduce GHG emissions within the City by approximately 155,000 MTCO2e by 2030 and 244,000 MTCO2e per year by 2050 (see Figure 5). The predicted emission reductions resulting from San José Climate Smart's 9 Strategies are shaded in gray and the predicted emission reductions resulting from the Zero Waste Element are highlighted in green. Together, these measures will lead the City along a Paris Agreement-aligned 2°F pathway.

Figure 5. Estimated MTCO2e Emission Reductions



Other Plans and Policies

San José's Zero Waste Goal

In 2008, San José adopted its Zero Waste Strategic Plan and established a goal of zero waste. It became one of the first cities in the nation to embrace the aspirational goal of zero waste and to recognize the internationally peer-reviewed definition of zero waste, developed by the Planning Group of the Zero Waste International Alliance (ZWIA) in 2004.[6]

Zero waste starts with waste prevention to fully reduce the climate, health, and other impacts associated with solid waste. What cannot be prevented should be accounted for through reuse, diversion, and recovery, with landfill disposal as a last resort.

Recognizing that there will continue to be some "legacy materials" generated in prior decades that must be landfilled at the end of their useful life (such as treated wood and asbestos), San José's performance measure for zero waste is 90 percent diversion from landfills.

San José defines zero waste as: Promoting the highest and best use of materials to eliminate waste and pollution, with the ultimate goal of reducing waste generation by more than 90 percent. Zero waste entails shifting consumption patterns, more carefully managing purchases, and maximizing the reuse of materials at the end of their useful life. Ultimately, it calls for the City, residents, and businesses to reevaluate what is waste.

6 ZWIA. 2018. "Zero Waste Definition." Available at: https://zwia.org/zero-waste-definition/.

CASE STUDY:

Ashley Merz opened The Source Zero, a zero waste lifestyle store in downtown San José, in 2018.

Her shop provides household, clothing, and body care products with many refillable and reusable options (instead of single-use disposables). It offers workshops, speakers, and do-it-yourself classes.

The store represents an independent way of sourcing materials, products, and goods. Ashley also supports other women-owned small businesses by offering their products for sale.

> “It can be difficult to go completely zero waste,” Ashley says, “but it’s not about going completely zero waste or being perfect. It’s about each small action that a person can take. One small action leads to another and then another.”

C40 Cities Advancing Toward Zero Waste Declaration

In 2018, San José joined other international leaders in zero waste to define specific milestones and commitments by joining as a signatory to the C40 Cities Advancing Toward Zero Waste Declaration. San José was one of the 23 pioneering cities and regions that committed to significantly cutting the amount of waste they generate, accelerating them on the path toward zero waste.

The City committed to:

1. Reducing waste generation per capita by at least 15 percent by 2030 compared to 2015; and

2. Reducing the amount of materials disposed in landfills by at least 50 percent by 2030 compared to 2015, and increasing the diversion rate away from landfill to at least 70 percent by 2030.

The Zero Waste Element builds on these commitments and identifies the policies, programs, and infrastructure needed to achieve these goals. By implementing the policies and programs highlighted, San José is expected to exceed C40 targets in 2030 and establish new leadership levels for 2040 and 2050 (see Table 1).

Table 1. Projected C40 Targets

	2019	2030 (Projected)	2040 (Projected)	2050 (Projected)
Generation Tons Per Capita	1.1	1.0	0.8	0.7
Landfill Disposal Tons	341,000	171,000	85,000	34,000
Diversion Rate	70%	85%	93%	97%
Carbon Emissions from Waste Sector ($MTCO_2e$)	290,000	135,000	79,000	45,000

California State Laws

Recognizing the urgency of the climate crisis and the need to act boldly to protect California's future, the California State Legislature has passed several pieces of legislation to reduce GHG emissions by reducing waste and increasing recycling and composting statewide. Most of these bills have requirements that are implemented at the local level. The strategies outlined in this Element account for and leverage state regulations, and the City will assist its residents and businesses in complying with state requirements. For example, the zero waste strategies of community engagement, surplus food recovery, and food waste prevention will support the City and its residents in meeting the requirements of Senate Bill 1383.

Table 2 presents existing statewide policies related to waste reduction and diversion.

Table 2. California Waste Reduction and Diversion Policies

2011	**Assembly Bill 341 (Mandatory Commercial Recycling)** Establishes a statewide goal of 75 percent source reduction, recycling, and composting. Requires large commercial generators and multifamily complexes to recycle.
2014	**Assembly Bill 1826 (Mandatory Commercial Organics Recycling)** Requires large commercial generators and multifamily complexes to divert organics from landfill by subscribing to collection service, managing organics on-site, or self-hauling organics to a processing facility.
2016	**Senate Bill 1383 (California's Short-Lived Climate Pollutant Reduction law)** Establishes targets to achieve a 50 percent reduction in the statewide disposal of compostable materials waste from the 2014 level by 2020. It also aims to accomplish a 75 percent reduction by 2025, and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025.
2019	**Assembly Bill 827 (Customer Access to Recycling)** Requires businesses, public entities, and schools to provide recycling and compostable materials containers adjacent to trash containers.

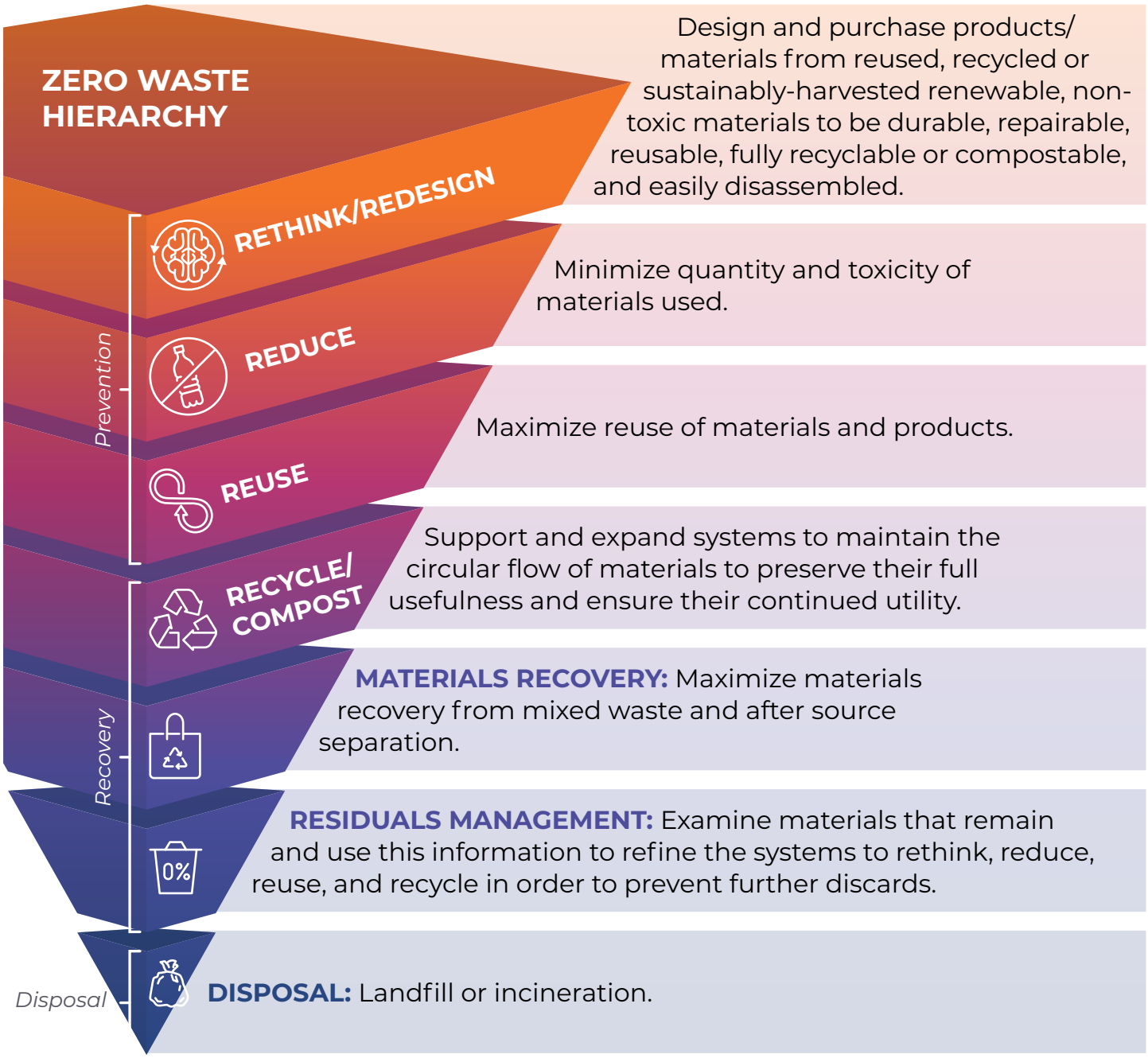
Appendix 1 includes an expanded description of the Mandatory Commercial Organics Recycling law, the Short-Lived Climate Pollutant Reduction Law, and the requirements for program implementation.

Appendix 2 describes the requirements of a key regional strategy, the Bay Area Basin-Wide Methane Strategy, which was developed to reduce the region's methane emissions in support of the California Air Resource Board's methane reduction goals (40-45 percent below current levels by 2030). The Strategy focuses on limiting emissions from significant methane releases, including from regional landfills, through a proposed set of rules.

Zero Waste Hierarchy

The zero waste hierarchy, curated by the Zero Waste International Alliance (Figure 1), describes a progression of policies, programs, and infrastructure to support the development of a zero waste system, from highest and best to lowest use of materials. The components of the hierarchy are presented in Figure 6.

Figure 6. Zero Waste Hierarchy Components



The Zero Waste Element of Climate Smart includes the first five focus areas of the zero waste hierarchy, as well as a "Foundational" focus area with strategies that support all of the levels of the zero waste hierarchy, except disposal. This Element does not consider disposal, which is the least favorable waste management solution and does not support the zero waste goal.

Key Factors Considered in Strategy Development

In developing these strategies, the City evaluated its ten-year waste management options and considered additional sustainable solid waste management systems. These are described in Appendix 3 and Appendix 4. The strategies comprise the best available approaches for reducing waste and maximizing recovery in order to achieve GHG emissions reductions..

Within this framework and in concert with existing waste management plans and policies, the City considered four key factors to guide zero waste strategy development.

The factors are described below:

1. **Prevent waste to address lifecycle impacts:** Emphasize strategies that reduce waste generation to avoid the climate and waste impacts associated with production and transportation of goods before they are managed as waste. While the manner in which the inventory is calculated aligns with industry scoping standards, it is important for San Jose to support efforts to reduce solid waste associated GHG emissions that occur beyond the inventory's scope given their connection to our community.
2. **Center racial equity:** Provide racially equitable, inclusive, and culturally competent services.
3. **Support state efforts to reduce methane emissions from compostable materials in landfills:** Align with state efforts to prevent and rescue food waste and improve composting rates.
4. **Minimize disposal to preserve landfill capacity:** Reduce waste generation and improve diversion rates to preserve nearby landfill capacity for hard-to-recycle materials and legacy materials in the next decades.

Prevent waste to address lifecycle impacts

The City's 2019 inventory of community-wide GHG emissions estimated that the City's solid waste sector accounts for approximately 5 percent of citywide emissions. The inventory's estimate of solid waste emissions is based on tons of materials diverted and disposed through the City's zero waste programs for the residential, commercial, construction and demolition (C&D), and self-haul sectors.

However, this inventory does not account for the full lifecycle impacts of goods and services – the impact of materials and products over the course of their

lifetimes, from creation to disposal and eventual decay.[7] A significant portion of GHG emissions and waste impacts occurs during the production and transport of goods and services, before most items reach the city's borders.[8]

While the inventory scope aligns with industry standards, it is important for San Jose to support efforts to reduce solid waste associated GHG emissions that occur beyond the inventory's scope given their connection to our community.

San José is aligning its goals with programs aimed at waste prevention, which is the top of the zero waste hierarchy by both the United States Environmental Protection Agency (EPA) and by the California Department of Resources Recycling and Recovery (CalRecycle). The Solid Waste Management Hierarchy is a pyramid showing which solid waste strategies are the most preferred (waste prevention) and which should be used only after trying all other options (disposal). For example, while waste prevention through repairing and buying less clothing creates the most environmental benefits, reuse, such as donating clothes to a thrift store, is a solid second-best option.[9]

Some items have larger lifecycle waste and climate impacts than others, so these items are a higher priority for waste prevention. The Oregon Department of Environmental Quality has identified food waste, textiles, e-waste, and paper fiber as items with relatively large lifecycle costs.[10] Strategies in this Element will prioritize these items for prevention and recovery.

Build on the Inclusivity of Climate Smart San José

The City strives to center equity within the zero waste strategies in this Element. Racial equity is achieved when race can no longer be used to predict life outcomes, and everyone can prosper and thrive. As a process, it explicitly prioritizes communities that have been economically deprived and underserved. It establishes a practice for creating psychologically safe spaces for racial groups that have been most negatively impacted by policies and practices.

The zero waste strategies within this Element are designed with equity in mind and several describe specific considerations for the City to prioritize for equitable implementation. To deliver equitable service, the City strives to achieve its ambitious recycling and zero waste goals across the city, while 1) adapting engagement and programmatic strategies across different communities in order to meet their needs, 2) considering ways to develop trust and maintain respectful communication, and 3) working to

---

7 Rochester Institute of Technology. 2020. "What is life cycle assessment (LCA)?" Available at: https://www.rit.edu/sustainabilityinstitute/blog/what-life-cycle-assessment-lca.

8 Oregon DEQ. 2021. "Waste Impact Calculator Web App." Available at: https://rstudioconnect.deq.state.or.us/content/706a4deb-f353-4d08-826d-85bf7856c154/.

9 Oregon DEQ. 2023. "Waste Prevention and Reuse." Available at: oregon.gov/deq/mm/pages/waste-prevention-and-reuse.aspx; U.S. EPA. 2023. "Reducing and Reusing Basics." Available at: https://www.epa.gov/recycle/reducing-and-reusing-basics.

10 Oregon DEQ. 2021. "Waste Impact Calculator Web App." Available at: https://rstudioconnect.deq.state.or.us/content/706a4deb-f353-4d08-826d-85bf7856c154/.

minimize any unintended consequences of programs by communicating with communities and conducting pilots before implementing programs city-wide.

One way the City centers equity is to leverage socio-economic data when developing messages to ensure that residents have equitable access to waste reduction and recycling information. The City will continue to provide materials in English, Spanish, Vietnamese, and other languages as need to reach San José's diverse community.

Support state efforts to reduce methane emissions from compostable materials in landfills

Compostable materials disposed in landfills contribute the largest share of GHG emissions associated with waste generated within the city. When they decompose in landfills, compostable materials release methane, a powerful GHG.

According to CalRecycle, compostable materials waste in landfills accounts for approximately 20 percent of the methane emissions in California.[11] One ton of methane in the atmosphere has approximately 80 times the warming impact of one ton of carbon dioxide for 20 years after it's released, making it a particularly destructive GHG.

State legislation (SB 1383) recognizes the outsized climate impacts of disposing compostable materials and sets targets to recover edible food and divert compostable materials from landfill. Several of the zero waste strategies in this Element support this legislation by minimizing the disposal of compostable materials in landfill.

Minimize disposal to preserve landfill capacity

San José aims to increase diversion from landfill and reduce waste generation in part to conserve landfill capacity throughout the next decades.

Landfills within Santa Clara County are slated to close within the next 20 to 40 years, including Newby Island Sanitary Landfill (estimated closure date 2041), Guadalupe Sanitary Landfill (estimated closure date 2048), and Kirby Canyon Recycling and Disposal Facility (estimated closure date 2059).

When these landfills close, waste disposal costs and GHG emissions will likely increase significantly, particularly due to the need to transport waste at least 80 miles further to the nearest landfill in Monterey County, or beyond. Preventing, recycling, composting, and recovering as much waste as possible will preserve local landfill capacity for materials that are impossible or impractical to reuse, compost, or recycle.

11 CalRecycle. 2023. "California's Short-Lived Climate Pollutant Reduction Strategy." Available at: https://calrecycle.ca.gov/organics/slcp/.

How Community Feedback Shaped this Element

[This is a placeholder that the team will update after community engagement occurs in winter 2023. It will describe community engagement touchpoints and a summary of how feedback is incorporated into the Element].


Luxury Box Seats
ROWS 1-7
Box Seats
ROWS 1-7
Upper Reserved
Section D, ROWS 9-15
General Admission
ROWS 9-18
FLEX PLAN
$90
Buy Tickets
online at:
sjgiants.com
SAN JOSE
GIANTS
BASEBALL CLUB
I pledge
to keep
my city
clean.
THE
SAN JOSE GIANTS
ACCESSIBLE
SEATING AREA
IS LOCATED AT FIELD
LEVEL NEXT TO THE
MARTINELLI'S
VIP DECK 'LF'
Madison Bumgarner
Bobblehead 7/10
FRIDAY
CITY OF
SAN JOSE
Environmental Services
California League Playoffs
California League Playoffs
HOME
AWAY
FIREWORKS

02 Programs and Leadership to Date

Overview

The City of San José uses its innovative waste management system and extensive data collection to understand the types and sources of waste across the city and the potential impact of zero waste strategies. The zero waste strategies in this Element build on the City's successful and award-winning programs and prioritize materials that are generated and disposed in the largest quantities by key waste generators.

This chapter discusses:

An overview of City waste programs, including residential, commercial, C&D, and City facilities programs.

Data describing recycling, composting, and disposal rates and the composition of landfilled waste.

San José Integrated Waste Management Programs

The Environmental Services Integrated Waste Management (IWM) Division oversees trash collection, recycling, and innovative programs to enhance quality of life. City staff administers waste removal in San José, managing contracts with four residential haulers and one commercial hauler that serve more than 10,000 businesses, 216,000 single-family dwellings, 115,000 multi-family dwelling units, and about 150 City facilities. The agreements were renegotiated in 2020 and extended to 2032 for the commercial hauler and 2036 for the residential haulers.

Through its service providers, the City has invested in recycling, composting and anaerobic digestion facilities that are models for communities across the state and around the world. As the "Capitol of Silicon Valley," San José is uniquely positioned to take advantage of technology innovations and entrepreneurship. Several state-of-the art processing facilities are located in San José and Santa Clara County, including material recovery, mixed waste processing, composting, and anaerobic digestion facilities, which helps keep transportation emissions down.

This section describes the City's four waste management programs: residential, commercial, C&D, and City facilities. For each one, it describes waste collection, waste management and processing, and engagement tactics.

Residential

Collection of Residential Waste

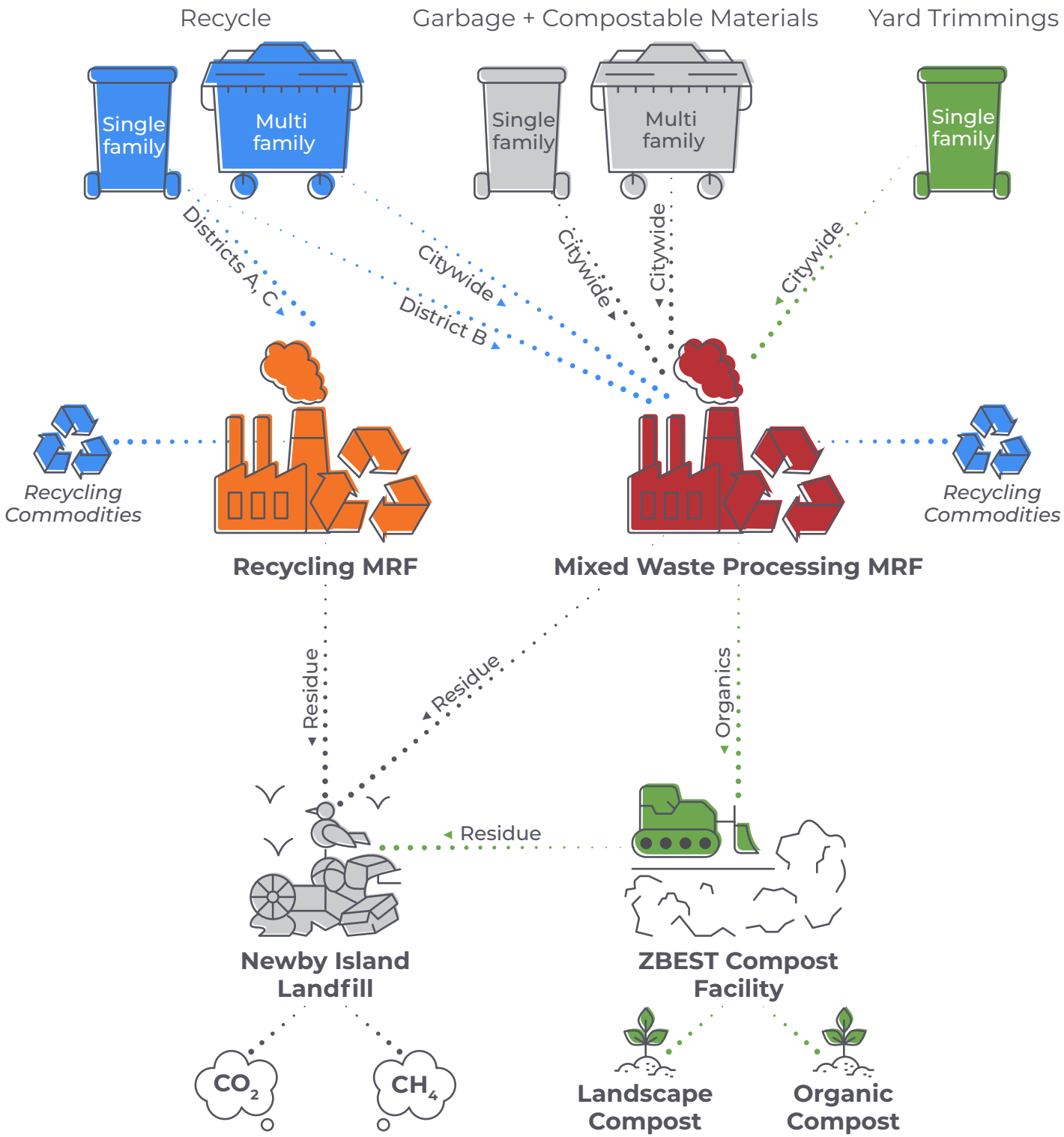
All residences are mandated by municipal code to have garbage, recycling, and yard trimmings collection service. Residential services for single-family households and multifamily complexes include multiple programs to incentivize and encourage recycling and composting over unnecessary disposal:

- The City of San José utilizes a **Pay-as-you-throw (PAYT)** system, first introduced in 1993. Residents are charged based on the amount of garbage they throw away, rather than a fixed collection fee. This provides a financial incentive to recycle more and generate less waste. If single-family dwelling residents occasionally need more capacity, they can purchase a garbage sticker for $6.25 and leave an extra bag of garbage next to their cart.
- Residents are offered **unlimited recycling and yard trimmings** collection. San José is one of the only cities nationwide that provides weekly collection of yard trimmings loose on the street as part of their garbage fee. This method allows for large quantities of clean material to be collected and composted.
- Single-family dwelling residents can order free containers and place **used motor oil and filters** on the curb next to carts for free pickup and recycling.

Processing and Disposal of Residential Waste

The City sends all recycling, yard trimmings, and trash collected from residents to Materials Recovery Facilities (MRFs) that further sort the material and maximize diversion before the material goes to landfill (see Figure 7).

Figure 7. Residential Program Material Flow



Residential recycling is processed at MRFs in San José where commodities, including glass, metal, paper, and plastic, are collected to be sold for remanufacturing.

Yard trimmings are processed at the GreenWaste MRF, then taken to the Z-Best composting facility in Gilroy where the compost is sold as a soil amendment to landscapers and farmers.

Residential trash is sorted at the GreenWaste MRF.

San José Residential Setout

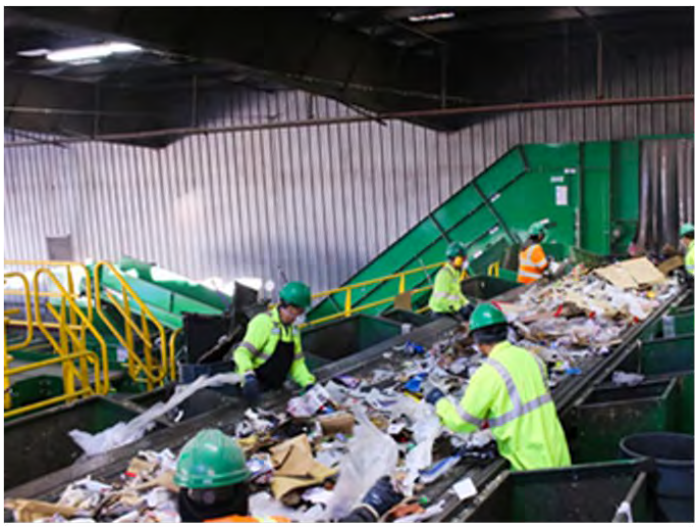
The MRF uses technology and manual labor to remove compostable materials (food scraps and compostable paper) for composting at Z-Best. This process ensures all residential garbage is sorted and no waste materials go directly to landfills for disposal without first being processed and recovered when possible.

Outreach and Engagement for Residents

Residential program staff have implemented widespread public outreach to educate residents about effective recycling, safe waste disposal, waste reduction, local regulations, and other topics. Residents receive information from:

- **The SanJoseRecycles.org website,** which includes information about what can be recycled, videos and detailed instructions about how to recycle right, frequently asked questions, and a place to sign up for the City's monthly e-newsletter.
- **The City's general services and information line (3-1-1).** Residents can use the phone line, online portal, or mobile phone app to get up-to-the-minute information on the City's programs and services.
- **Collection service providers' websites and customer service lines.** Collection and service providers also provide technical assistance to multifamily complexes through their websites and customer service lines.

In spring 2022, the City partnered with four community-based organizations to implement a major public engagement campaign. Its goals were to direct residents to SanJoseRecycles.org to recycle right and understand suggestions for community engagement moving forward. The campaign used communications tactics including digital ads, postcards, letters, flyers at community centers and libraries, bus ads, bus shelter ads, radio commercials, television commercials, television segments, videos, and social media.



GreenWaste Recovery Materials Processing

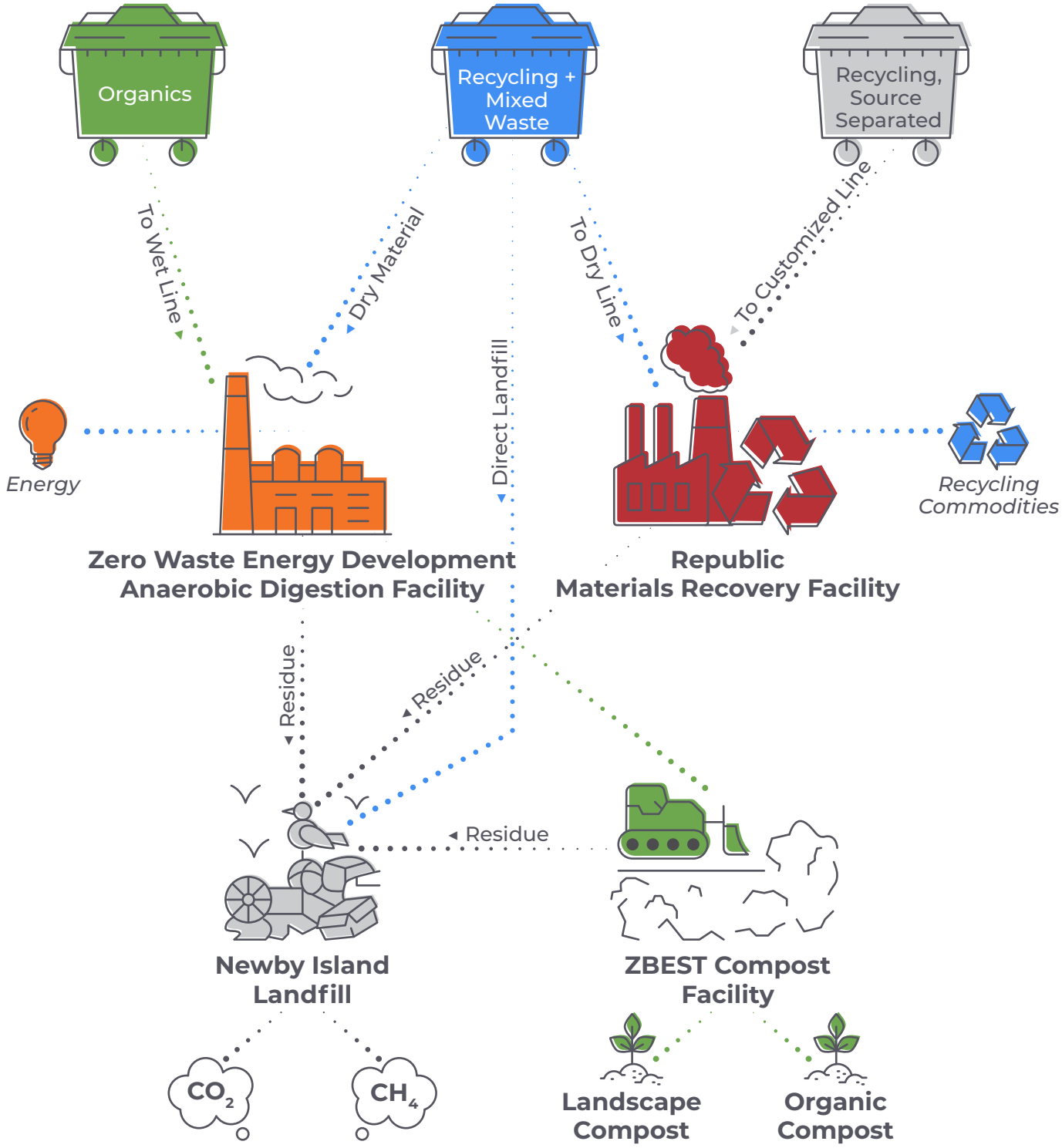
Z-Best Composting Facility

Commercial

Collection of Commercial Waste

Republic Services, an exclusive franchise service provider, operates the commercial waste collection system in San José. This specialized collection system consists of three distinct waste commodities: source-separated recycling ("customized"), source-separated compostable materials ("wet"), and non-compostable garbage ("dry"). Businesses are required to provide accompanying indoor/outdoor recycling and compostable materials containers alongside all garbage containers, and ensure proper separation of recycling and compostable materials through bin inspection and education to employees.

Figure 8. Commercial Program Material Flow



The "wet" collection service for compostable materials includes food waste, coffee grounds, landscape waste, food-drink soiled paper/fiber products, and food soiled napkins.

The "dry" collection service includes recyclables and everything not included in the "wet" service.

The "customized" option provides collection service for source separated recyclables.

Newby Island Resource Recovery
Materials Processing

Zero Waste Energy Development Company
Organics Processing Facility

Processing and Disposal of Commercial Waste

"Wet" material is processed at the Zero Waste Energy Development facility in San José, the first large-scale commercial dry-fermentation anaerobic digestion facility in the United States. This facility produces clean, green renewable energy while simultaneously producing a feedstock for composting.

Some "dry" material and all "customized" material are processed at the Newby Island Resource Recovery Park in Milpitas.

Outreach and Engagement for Commercial Customers

The City and Republic Services coordinate to provide information regarding waste prevention to businesses using in-person and digital tactics. Tactics include waste audits and proactive outreach visits to provide education about waste reduction and proper separation of materials at the curbside. Educational materials distributed during these visits include brochures, posters, and quarterly postcards. The City's Business Engagement Leads and Republic's Sustainability Advisors work together to perform direct outreach to businesses, encouraging them to increase diversion and add "wet" (compostable materials) and "customized" (recycling) services. Information about waste reduction strategies is also available digitally on Republic's San José-specific website.

Construction and Demolition (C&D)

The City manages multiple non-exclusive haulers for C&D collection for new construction, remodeling, and demolition projects and residential clean-outs. Businesses and residents may choose their own hauler from a list of non-exclusive haulers or can haul the material themselves to City-certified C&D recycling facilities. These facilities can process and recycle C&D debris.

In 2001, the City of San José introduced the Construction and Demolition Diversion Deposit (CDDD) Program to incentivize building permit holders to utilize City-certified C&D recycling facilities. The program then evolved to respond to the California Green Building Code (CalGreen) Title 11 mandate: alongside the C&D diversion deposit, which mandates 50% diversion for demolitions and alterations, it incorporated a requirement to divert 75% of C&D waste from new construction and tenant improvements, aligning with CalGreen. The CDDD program acts as a bridge connecting permit holders, authorized C&D haulers, and City-Certified C&D facilities.

Zanker Recycling
Construction Debris Processing

Premier Recycle Company

City Facilities

Separate recyclables collection is provided in all City facilities. Yard trimmings are also collected and composted. Trash from City facilities and public litter containers, on public rights-of-way, and in business districts is sorted at a mixed waste processing facility where recyclable and compostable materials are recovered. With the exception of the City's corporation yards, all mixed waste from City-owned facilities is sorted to ensure no recoverable material goes directly to landfill for disposal.

To support zero waste goals, the Environmental Services Department provides support to other City departments in waste reduction and recycling.

Program Awards

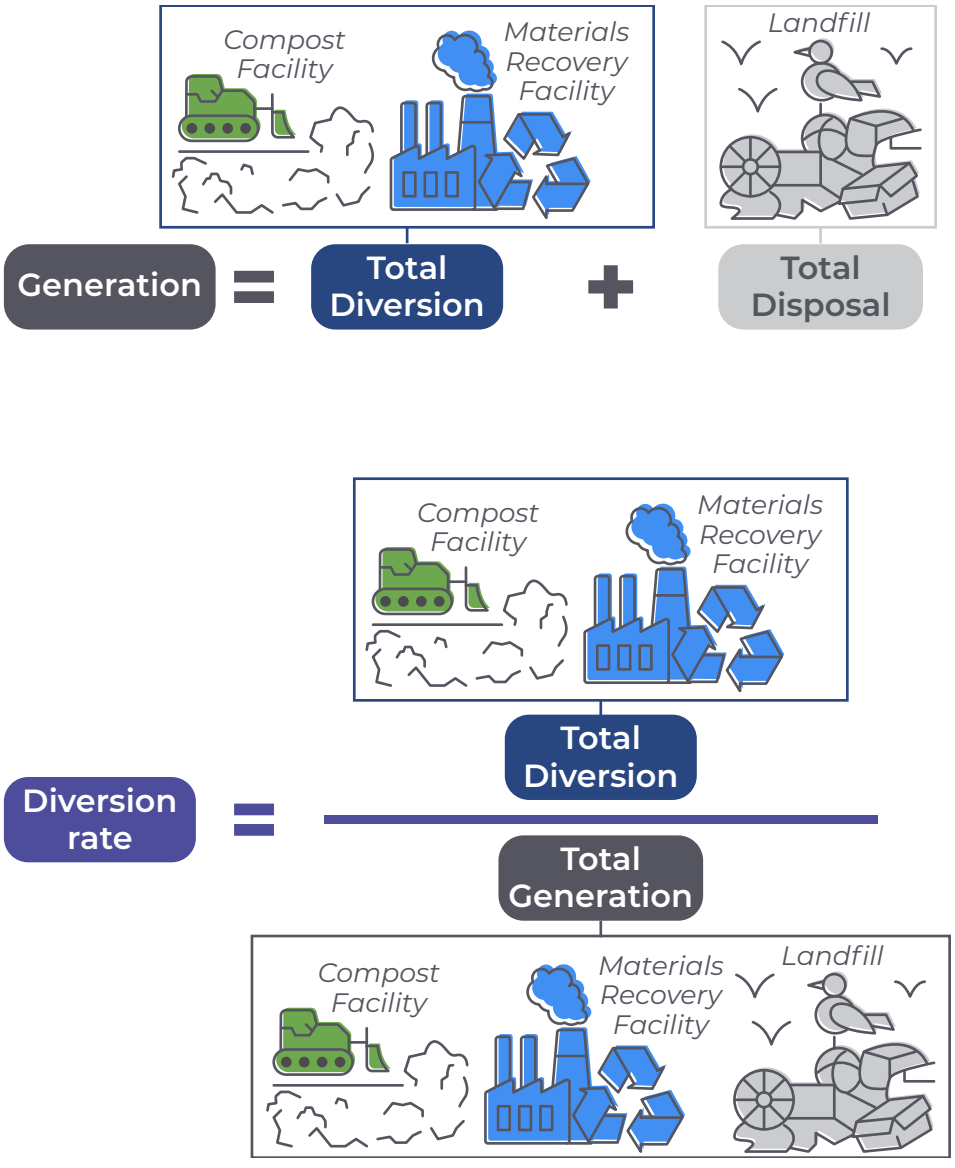
San José has long been a leader in sustainability and zero waste and is at the forefront of California jurisdictions in program innovation. The City has been recognized for its zero waste leadership at the state and national level and has won awards for this leadership, as listed below.

2022 City of San Jose City Council Commendation	IWM Residential Program team and haulers recognized for uninterrupted collection service throughout the COVID pandemic
2017 California Resource Recovery Association	Outstanding Practices in Venue/Event Resource Recovery Award
2016 Keep America Beautiful	National Community Improvement for Litter Improvement
2016 California's Department of Resources Recycling and Recovery	Best Outreach Focused on Non-English Speakers
2015 Solid Waste Association of North America	Environmental Innovation Center Household Hazardous Waste Facility
2013 Governor's Environmental & Economic Leadership	Commercial Waste Management System
2013 Solid Waste Association of North America	Commercial Waste Management System
2012 Green City Waste & Recycling News	Residential Recycling Program
2009 California Resource Recovery Association	San José Urban Compost Marketing Program

Metrics

Diversion Rates

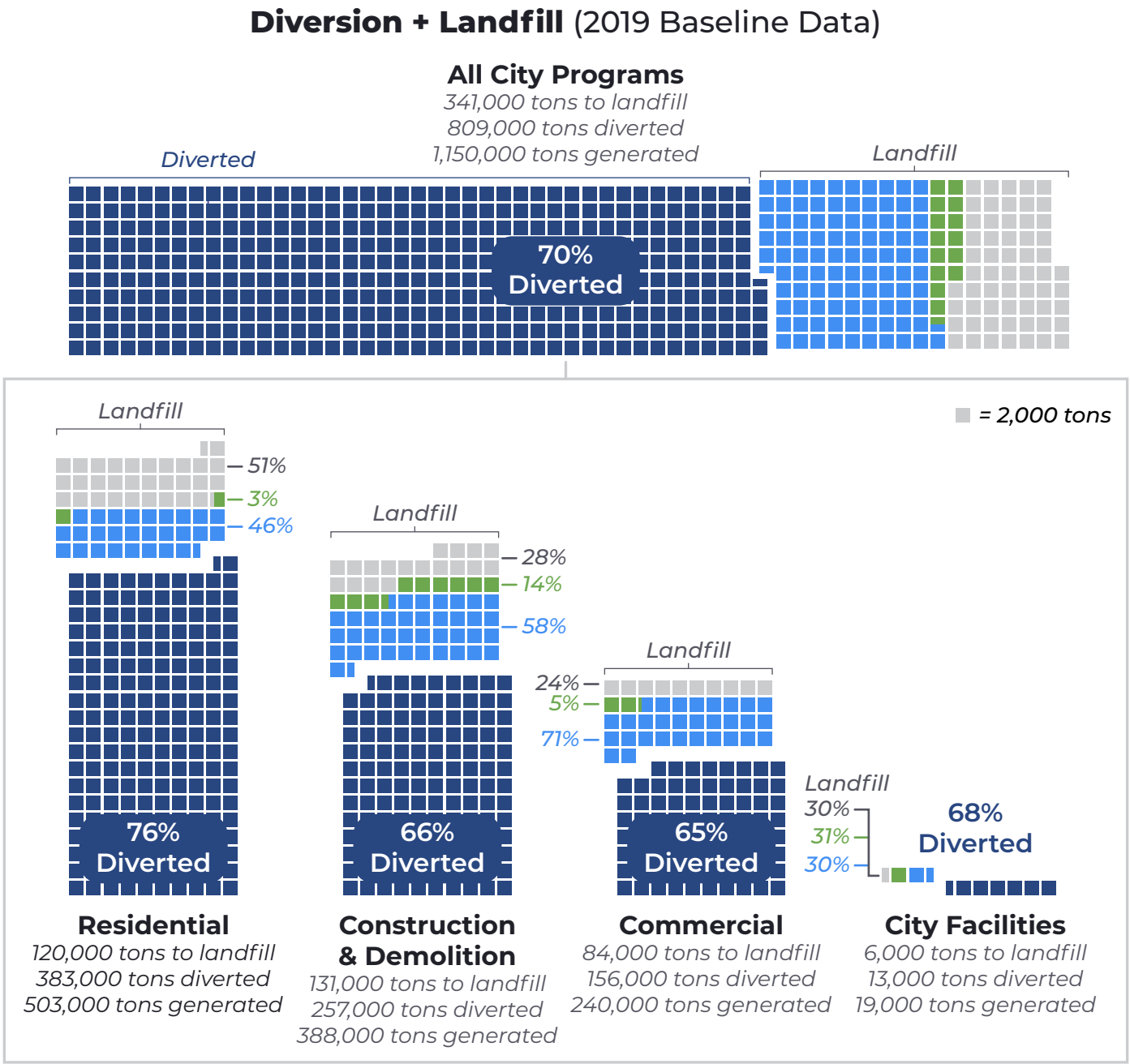
Figure 9. Generation and Diversion Rates



San José's policies, programs, and infrastructure have contributed to the City's high diversion rates. In 2019, 809,000 tons were diverted from landfill disposal through programs managed by the City, resulting in 70 percent diversion. This number does not include materials delivered directly to landfills from sources in San José that are not directly managed through City programs. These sources include schools, universities, hospitals, and jails, which have separate waste hauling agreements and contractors.

Diversion rates are typically expressed in the percentage of diversion from landfills using the following formula (see Figure 9).

Figure 10. San José Calendar Year 2019 Baseline Diversion and Disposal Tons and Diversion Rate by Sector

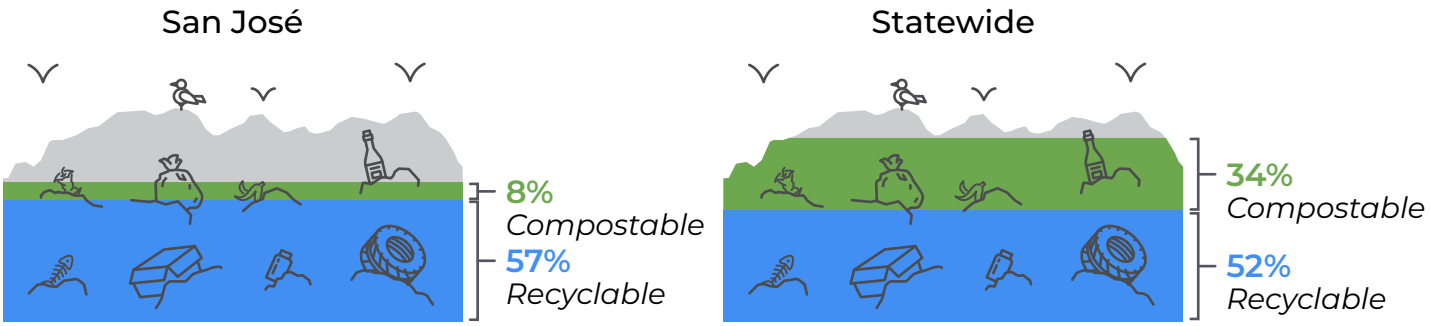


Composition of Landfilled Waste

The City conducted composition studies in 2019 to estimate the amount and types of materials disposed in landfills from the residential and commercial sectors. Statewide characterization studies were used to estimate the composition of landfilled materials for City facilities and C&D.

These studies indicated that 65 percent of material disposed in landfills could have been diverted for recycling or composting; of all the material landfilled, 57 percent was recyclable and 8 percent was compostable. Compared to statewide landfill composition studies, San José landfills contained a slightly larger proportion of recyclable material and a significantly smaller proportion of compostable material (see Figure 11).

Figure 11. Disposal of Compostable and Recyclable Materials in San José and Statewide



Hard-to-recycle materials

"Hard-to-recycle" refers to materials or items that pose challenges in the recycling process due to their composition or shape.

Plastic bags and polystyrene (Styrofoam) are also considered hard to recycle materials. Polystyrene is made of more than 90 percent air, making it bulky and lightweight. These characteristics make the recycling of polystyrene inefficient due to the energy and resource costs of collection and transport.[12]

At MRFs, where recycling is sorted, plastic bags can become entangled in machinery, adding time, labor costs, and safety risks to employees who must shut down the entire operation to climb into the dangerous machinery to remove the bags.[13]

This Element aims to reduce the production and purchasing of hard-to-recycle items city-wide, both to reduce waste and make recycling easier and more efficient.

12 The Recycling Partnership. 2019. "Is Styrofoam Recyclable?" Available at: https://recyclingpartnership.org/communitiesforrecycling/is-styrofoam-recyclable/.

13 City of San José. 2020. "ESD Extra: Top Troublemakers: Plastic Bags." Available at: https://www.sanjoseca.gov/Home/Components/News/News/1750/4699?fsiteid=1.

03 Zero Waste Strategies

Overview

San José identified 13 strategies for the Zero Waste Element that focus on preventing waste to address lifecycle impacts, centering racial equity, preventing methane emissions from landfilled compostable materials, and minimizing disposal (see "Key Factors Considered in Strategy Development"). The strategies are organized into six themes:

- **Foundational** strategies support all other strategies through engagement, data collection, and research.
- **Rethink/Redesign** strategies reduce lifecycle impacts by making purchasing more sustainable.
- **Reduce** strategies focus on waste prevention to decrease the amount and toxicity of waste generated.
- **Reuse** strategies extend the life of reusable materials and save edible food to feed hungry people.
- **Recycle/Compost** strategies support and expand systems to keep materials in their original production loop and protect the full usefulness of the materials.
- **Materials Recovery** strategies maximize recovery of materials from mixed waste after source separation. Source separation is defined as the process of sorting and separating various types of waste materials at their point of origin.

Full implementation of each strategy will substantially decrease waste across all City programs and set the City on the path towards its goal of carbon neutrality by 2030 (see Figure 12). The diversion and GHG emissions reduction potential of some strategies were not quantified either because the strategies are supportive to others or because they were added after calculations were complete.

Figure 12. San José Zero Waste Element Strategies

		Annual Diversion Tons	Annual $MTCO_2e$ Reduced
FOUNDATIONAL	Community Engagement	57,300	45,900
	Materials Characterization	NA	NA
	Research & Development	NA	NA
RETHINK/REDESIGN	Sustainable Products & Packaging	39,900	13,000
	Sustainable Purchasing Citywide	14,300	200
REDUCE	Lead by Example	6,200	4,900
	Food Waste Prevention	NA	NA
REUSE	Surplus Food Recovery	2,100	500
	Repair & Reuse	6,000	9,000
RECYCLE/ COMPOST	Construction & Demolition Recycling	55,000	34,500
	Reduce Disposal of Compostable Materials in Landfills	54,700	75,500
	Recycling Market Development	1,900	2,900
MATERIALS RECOVERY	Backend Processing Technology	69,800	57,700
	Annual Total	**307,300**	**244,300**

Zero Waste Strategies

FOUNDATIONAL: Community Engagement

All sectors of the community have a role in reducing waste. To pursue zero waste culture change, additional investment will be needed in behavior change.

The City will implement new programs to support a transition to zero waste behaviors among the community, such as reusing items, recycling right, and reducing recycling contamination. Behavior change programs involve identifying the barriers to a behavior, developing and piloting programs to overcome these barriers, implementing programs across the community, evaluating the effectiveness of the programs, and sharing ideas and success stories.

For each zero waste strategy, a pilot City outreach effort will identify eligible customers, collect information, and share resources on the policies, programs, timeline, and goals. Additional behavior change outreach materials and strategies will be phased in as more zero waste strategies are finalized.

As part of this work, the City will build and maintain ongoing relationships with San Jose's diverse community-based organizations to reach residents, ensure messaging is appropriate, and collect feedback to improve future campaigns.

Through the implementation of the Zero Waste Element, the City will continue to ensure that:

- All residents and businesses have access to programs and services.
- Services are provided uniformly and equitably across the City.
- Outreach materials are produced in multiple languages and are designed to be easy to follow.
- Fees are based on the cost-of-service and do not fall disproportionately on any one group or sector within the City.
- Community feedback shapes ongoing implementation of the zero waste strategies.

57,300 Annual Diversion Tons

45,900 Annual MTCO2e Reduced

FOUNDATIONAL: Materials Characterization

As the City moves forward to consider future changes to its zero waste policies and programs, the City will undertake periodic characterization, diversion, and disposal studies to track progress and better understand components of the materials stream that are less understood, including C&D debris and self-haul sectors.

The City will use waste characterization data to inform future zero waste strategies and community engagement initiatives, ensuring that programs are designed to meet the greatest needs to achieve the City's goals, as well as the needs of specific communities (see "Community Engagement" strategy).

This strategy focuses on research for future strategies. Diversion tons and GHG reduction were not quantified.

FOUNDATIONAL: Research and Development

As the Capital of Silicon Valley, San José has been a leader in innovation and has participated in pilot studies aimed at fostering and measuring the potential of novel recycling solutions.

To encourage future technology development, the City will fund and implement programs, including pilots, to find solutions to reduce generation and disposal of problem materials and items that are hard to reuse, recycle, or compost. To do this, the City will: work collaboratively with industry, government, and educational institutions; connect with the latest developments, innovation, and innovative funding (including venture capital); pursue state and federal grants geared towards waste reduction; and work with local universities and entrepreneurs on research, development, and policies to support innovations.

San José partnered with Novoloop (formerly BioCellection) to test new technology for chemical recycling of waste plastics. Novoloop converts polyethylene from plastic bags, bubble wrap, pallet wrap, agricultural film, and take-out containers into feedstock for consumer brands.

This strategy focuses on research for future strategies. Diversion tons and GHG reduction were not quantified.

RETHINK / REDESIGN: Sustainable Product & Packaging

Packaging makes up over a quarter (27 percent) of the contents of landfills in California.[14] Because packaging originates from large companies and national or international supply chains, the national or state level is best suited to address packaging waste. San José is committed to supporting and building on state-level efforts related to SB 54, a law to address the impacts of single-use packaging and plastic food service ware. To do this, the City will build awareness of state actions and potential impacts for residents, promoting behavior change in the process.

San José's Foam Food Container Ordinance, fully effective as of January 1, 2015, requires all restaurants to use non-foam food service ware for both dine-in and takeout. San José's "Bring Your Own Bag" Ordinance, adopted in 2012, encourages waste reduction and reuse by banning plastic bags and placing a minimum 10-cent fee on bags provided by retail stores.

39,900
Annual Diversion Tons

13,000
Annual MTCO2e Reduced

RETHINK / REDESIGN: Sustainable Purchasing Citywide

The City will be a leader in sustainable purchasing by practicing reuse and sustained use of goods, purchasing used products, and purchasing products made from recovered or recycled materials, such as compost and mulch.

The City will pilot initiatives related to sustainable purchasing within City operations with the intention of adapting and expanding them citywide. For example, the City's Environmental Services Department has piloted reusable dishes for meetings and will strategize ways to encourage and enable reuse of dishware and other items across all City departments and for community events.

14,300
Annual Diversion Tons

200
Annual MTCO2e Reduced

14 CalRecycle. 2023. "SB 54: Plastic Pollution Prevention and Packaging Producer Responsibility Act." Available at: https://calrecycle.ca.gov/packaging/packaging-epr/.

REDUCE: Lead by Example

San José is a leader in implementing innovative zero waste programs for its residents and businesses.

The City will implement waste prevention and diversion best practices throughout City operations (e.g., offices, parks, and public facilities, such as libraries and community centers). In doing so, the City will generate more support from both residents and businesses for new zero waste policies and programs.

For example, the City will:

- Further advance the interdepartmental GoGreen teams or champion program to help implement sustainability initiatives in San José City facilities and operations and integrate zero waste strategies into the Climate Smart Challenge.
- Implement reduce, reuse, and recycling events, such as repair cafes.
- Facilitate the adoption of zero waste plans by all events that require City permits and venues (including City facilities and large venue facilities).
- Promote reusable dishes at City-run programs and research other pilot projects and partnership opportunities around reusables.
- Implement a surplus equipment program that all departments can access.
- Explore updates to waste bins' signage in City facilities to increase diversion.
- Explore additional special recycling programs to implement in City facilities.

6,200 Annual Diversion Tons

4,900 Annual MTCO2e Reduced

REDUCE: Food Waste Prevention

The City will conduct citywide education and outreach campaigns to reduce household food waste. The City will leverage existing regional outreach campaigns to understand community barriers and leverage opportunities to reduce food waste at home.

The City will also participate in research or programs led by Joint Venture Silicon Valley to implement innovative food waste prevention initiatives among food-generating businesses and organizations in San José.

This strategy focuses on research for future strategies. Diversion tons and GHG reduction were not quantified.

REUSE: Surplus Food Recovery

According to the Second Harvest Food Bank of Silicon Valley, one in four people in Santa Clara County are at risk of hunger. The City will continue to participate in the Santa Clara County Food Recovery Program in order to reduce hunger in San José and prevent the disposal of edible food in landfills.

The City will ensure that some types of large food generators, such as large hotels, restaurants, venues, and grocery stores, enter written agreements with food recovery organizations and services and donate their available surplus edible food, as required by SB 1383.

At the same time, the City will work to identify and address capacity limitations in the regional food recovery system while fostering equitable access to food and supporting food recovery initiatives. As food donations increase, it will be important to ensure that they remain high quality and match the needs and desires of the people and organizations receiving donations.

2,100
Annual Diversion Tons

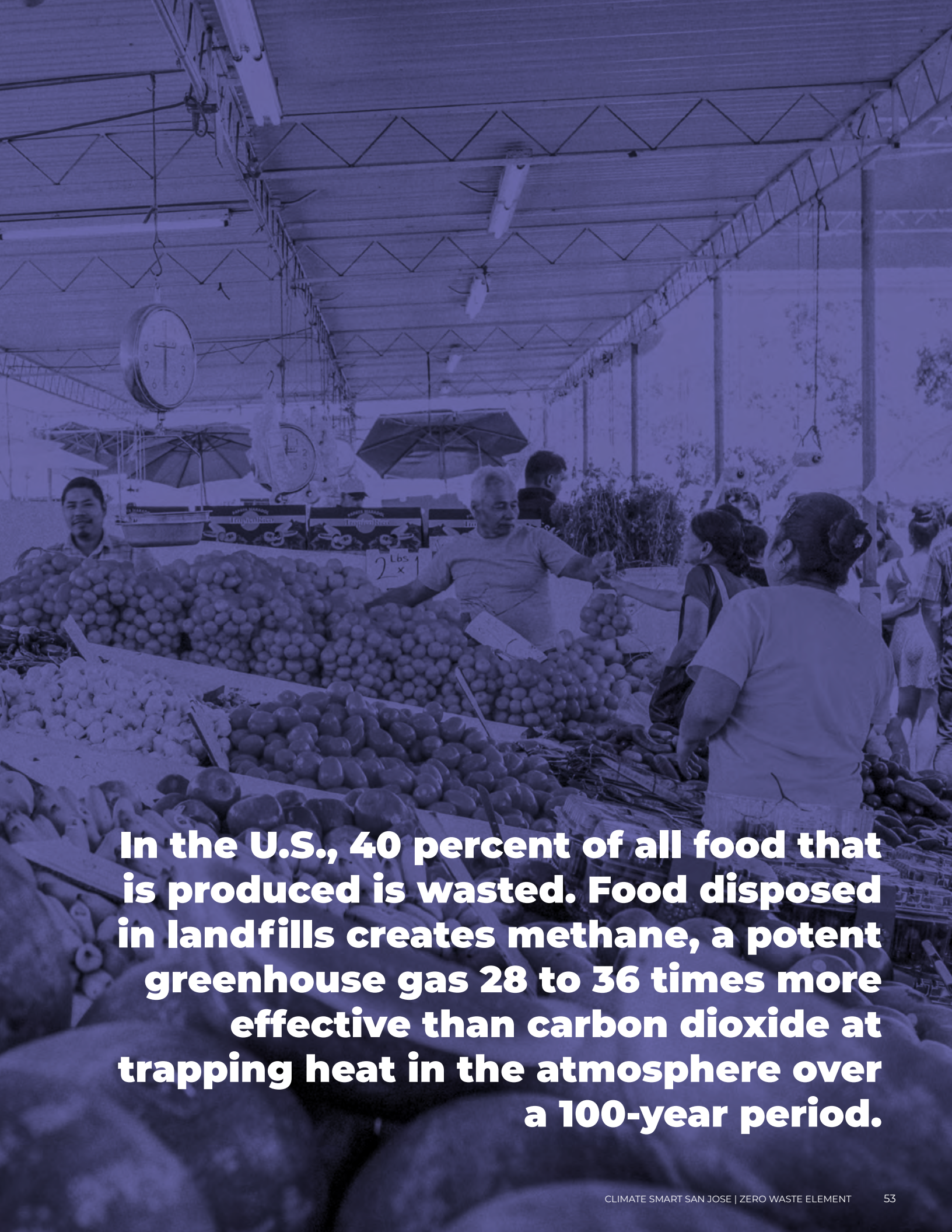
500
Annual MTCO2e Reduced

Joint Venture Silicon Valley[15]

Silicon Valley is known for its innovation, and this extends to food recovery with the efforts of the non-profit organization, Joint Venture Silicon Valley (Joint Venture). By convening stakeholders across sectors to collaborate in a non-traditional setting, stimulating investment, supporting government programs, and developing creative strategies to prevent food waste and rescue food, Joint Venture has made a major impact on the food recovery network in and around San José since launching the Santa Clara County Food Recovery Steering Committee in 2016.

Joint Venture's ongoing Food Recovery Initiative coordinates the efforts of jurisdictions and businesses to prevent food waste through a variety of projects. The Santa Clara County Food Recovery Program and its Steering Committee, another part of the Initiative, oversee the implementation of SB 1383 in the county. Most recently, the Food Recovery Initiative authored their 2022 report "Making the Most of Surplus Food" which provides recommendations on expanding food recovery and waste prevention.

15 Joint Venture Silicon Valley. Available at: https://jointventure.org/.



In the U.S., 40 percent of all food that is produced is wasted. Food disposed in landfills creates methane, a potent greenhouse gas 28 to 36 times more effective than carbon dioxide at trapping heat in the atmosphere over a 100-year period.

REUSE: Repair & Reuse

Repairable items make up just 2-5 percent of the waste stream, but their value is estimated to be as high as $550 per ton (2007 dollars). Repaired products hold significantly greater value than recovered materials.[16] By reframing repair as an act of care, the promotion of repair can adopt a broader value orientation that is likely to resonate with individuals. The development of a thriving repair economy relies on a willingness to adopt new consumption and ownership practices.[17]

Zero waste programs focus on reuse programs as a key way to reinvest the value of discarded materials and products back into the local economy and to create jobs. According to research conducted by the Institute for Local Self-Reliance, reuse programs create almost 200 times as many jobs as landfilling and incinerating materials.[18]

The City will provide online directories, material exchanges, and direct assistance to promote reuse, rental, and repair businesses, including zero waste vendors and caterers; reuse organizations that recover materials for reuse (such as the Habitat for Humanity ReStore at the San José Environmental Innovation Center); and repair fairs and fix-it clinics in neighborhood centers and libraries.

6,000
Annual Diversion Tons

9,000
Annual MTCO2e Reduced

Repair cafés and fix-it clinics are free events where people get together to fix their broken possessions. Visitors bring things they want fixed and work collaboratively with volunteers to repair them. When the volunteer repair work is coupled with teaching, visitors become more self-reliant and learn how to fix items instead of throwing them away and buying new ones.

Habitat ReStores are operated by local Habitat for Humanity organizations. ReStores accept donations and sell items to the public, thereby diverting reusable household items and building materials from area landfills.[19] These stores create multiple community benefits by creating and sustaining jobs, as well as giving new life to used items.

16 Institute for Local Self-Reliance. 2022. "Repair, Reuse, and Economic Growth in America." Available at: https://ilsr.org/repair-reuse-and-economic-growth-in-america/.

17 Heather A. Rogers, Pauline Deutz, Tomás B. Ramos. 2021. "Repairing the circular economy: Public perception and participant profile of the repair economy in Hull, UK." Available at: https://doi.org/10.1016/j.resconrec.2021.105447.

18 Institute for Local Self-Reliance. 2021. "New Report from Global Anti-Incineration Alliance: Zero Waste Creates 200 Times More Jobs Than Landfills and Incinerators." Available at: https://ilsr.org/new-report-from-global-anti-incineration-alliance-zero-waste-creates-200-times-more-jobs-than-landfills-and-incinerators/.

19 Habitat for Humanity ReStore. 2023. Available at: https://www.habitat.org/restores.

RECYCLE / COMPOST: Construction & Demolition Recycling

The City's Construction & Demolition ordinance requires builders and permit holders to recycle 75 percent of materials from new construction and tenant improvements and 50 percent from alterations and demolitions. To support compliance, they must deliver C&D waste to City-certified facilities or use a City-authorized C&D hauler.

The C&D sector is a key focus for the City, as much of the materials that currently go to landfills are generated at construction sites, including self-haul loads.

The City will examine the success of the current programs and identify improvements to align with current markets and zero waste strategies. The City will explore new incentives and/or mandates to promote resource recovery at C&D facilities through building deconstruction, and use of refurbished and salvaged materials.

55,000 Annual Diversion Tons

34,500 Annual MTCO2e Reduced

RECYCLE / COMPOST: Reduce Disposal of Compostable Materials in Landfills

The City will continue to implement programs to enter into SB 1383 compliance (see "California State Laws"), including monitoring and minimizing contamination of compostable materials at covered residences and businesses, conducting outreach to compostable materials generators about the requirements, applying for and administering grant funds to support data management and monitoring, coordinating a food recovery program, and purchasing materials such as compost.

This strategy aligns with other strategies to support SB 1383 implementation (see "Surplus Food Recovery"and "Sustainable Purchasing Citywide").

54,700 Annual Diversion Tons

75,500 Annual MTCO2e Reduced

RECYCLE / COMPOST: Recycling Market Development

Placing materials in a recycling bin is just the first step in recycling. Those materials aren't truly recycled unless they have a market and become a source material for new products.

San José has one of the most comprehensive recycling programs in the nation. The City is designated as a Recycling Market Development Zone, a CalRecycle program that provides loans, technical assistance, and free product marketing to fuel new businesses that divert waste from landfills.[20] The City will continue to leverage this program to access funding and offer loans and incentives to manufacturers that use recycled feedstock.

In addition, San José has been targeting the Monterey Corridor as a green industry district. The City will focus local, proactive outreach in this district to strengthen existing businesses and attract new businesses that use materials from the waste stream as feedstock, ultimately reducing waste going to the landfill.

Appendix 6 addresses the market and end of life challenges associated with recycling market development.

1,900
Annual Diversion Tons

2,900
Annual MTCO2e Reduced

MATERIALS RECOVERY: Backend Processing Technology

The City recognizes that even though residents and businesses strive to recycle and compost, some recoverable materials end up discarded in the trash. The City's waste processing facilities are designed to sort and compost or recycle these materials. The City and its contractors will continue to pursue enhanced technology upgrades for processing discarded materials and recovering recyclable and compostable materials at local facilities, which will increase diversion across all City programs.

San José is unique in the amount of solid waste facility infrastructure located within city and county limits. Local waste processing aligns with the goals of Climate Smart San José by keeping the carbon emissions associated with transport of solid waste low, since waste does not have to be hauled over long distances for processing or disposal.

69,800
Annual Diversion Tons

57,700
Annual MTCO2e Reduced

20 CalRecycle. 2023. "Recycling Market Development Zone San Jose. Available at: https://www2.calrecycle.ca.gov/BizAssistance/RMDZ/Zones/Details/33

“Beyond its compelling economic impact, manufacturing is an especially critical sector for its “equity impact”: more than any other sector available to those without experience or significant educational attainment, manufacturing offers the potential for diverse residents to build livelihoods through living wage employment and entrepreneurship.” San José’s Manufacturing Real Estate Landscape: Sustaining Jobs, Economic Impact, and Shared Prosperity for Diverse Residents - January 2020

Metrics and Targets

The Zero Waste Element builds on the City's commitments to reduce waste generation, increase diversion, and reduce disposal. The City estimates that fully implementing the 13 strategies in this Element will significantly reduce waste generated per capita, waste landfilled, GHG emissions, and the diversion rate. Table 3 presents these projections from 2030 to 2050. The Zero Waste Element will be monitored using these metrics.

Table 3. Projected Metrics and Progress Milestones

INDICATORS	PER CAPITA WASTE GENERATION	CITY PROGRAM DIVERSION PERCENTAGE	WASTE TO LANDFILL	CARBON REDUCTIONS
METRICS	Tons of waste generated per person per year	Percentage of waste diverted from landfill across all City programs	Landfill disposal across all City programs	Emissions reduction from this strategy

PROGRESS MILESTONES	Tons of waste per person per year	Percentage of waste diverted from landfill	Tons of waste sent to landfill per year	Metric tons of CO2e reduced per year
2019	1.1	70%	341,000	290,000
2030	1.0	85%	171,000	135,000
2040	0.8	93%	85,000	79,000
2050	0.7	97%	34,000	45,000

The City maintains a dashboard to monitor progress on the implementation of Climate Smart. The Climate Smart Data Dashboard is publicly available on the City's website.[21]

21 City of San José. "Climate Smart Data Dashboard." Available at: https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/climate-smart-san-jos/climate-smart-data-dashboard.

Future Zero Waste Solutions

The Zero Waste Element focuses on the strategies that San José will pursue to reduce waste, increase recycling and composting, and reduce GHG emissions. This corresponds with the City's carbon neutrality goal and the milestones of the C40 Advancing Toward Zero Waste Declaration.

The 13 strategies in this Element were chosen based on what is feasible to implement in the next ten years. Future zero waste programs could include:

- Widespread systems change for waste prevention through new technologies, behavior change campaigns, and increased research and development.
- Innovative aerobic biological processes like windrow composting, aerated static pile composting, and black soldier fly processing.
- Improved anaerobic biological processes through emerging pre-digestion technologies.
- New and emerging technologies to benefit recycling rates of hard to recycle materials like solar panels, electric car batteries, and refrigerants.
- Conversion technologies like gasification.

Appendices to this Element provide further detail about several of these solutions and others:

- Appendices 7, 8 and 9 provide an exploration of new programs; potential future technology solutions; and a framework for evaluating future landfill alternatives that may be viable for the City beyond the 10-year planning horizon.
- Appendix 10 provides an assessment of the potential for collection vehicle fleet conversion to electric. Electric collection vehicles have only recently come to market and make up a tiny fraction of current fleets. However, collection fleet electrification is predicted to be the top industry trend over the next 10 years. The City will consider requiring fleet conversion as part of its future collection service provider negotiations when the vehicles are market ready.

04 Resident and Business Zero Waste Playbooks

Overview

Achieving zero waste will require action across San José's communities, including from residents and businesses. The Resident Playbook on Zero Waste and Business Playbook on Zero Waste that follow list key steps that residents and businesses can take to conserve resources and prevent waste from reaching landfill.

Resident Playbook on Zero Waste

Become a zero-waste advocate! Check all the boxes!

For San José to achieve zero waste, everyone needs to do their part. Here's how residents can participate.

❑ **Notice and prevent food waste**

Keep an eye on the food scraps your household creates. Take an inventory of food at home before shopping. Refrigerate or freeze leftovers in clear containers with labels. Preserve extra fruits and vegetables by freezing, pickling, canning, dehydrating, or making jam.

❑ **Buy less, buy used or borrow, rent instead of buy**

Use what you already have before purchasing new and share with your neighbors.

Shop reused and donate unwanted items; join a Facebook Buy Nothing group; host a clothing swap, baby equipment swap, or free little library.

Impact: Save money; allow others to reuse items still in good condition; reduce waste.

❑ Repair broken items

Find ways to repair broken items; take items to repair shops; attend a fix-it clinic; support tool lending libraries. Fix-it clinics are public events in which experts in repair and reuse guide residents to learn new skills (like sewing on a button, changing a cell phone battery, or repairing bikes and electronics).

Impact: Source reduction; save money by repairing and reusing.

❑ Bring your own

Use reusable bags when shopping; pack a zero waste lunch (with a reusable lunch box, water bottle, utensils, and napkin).

Bring your own container for leftovers at a restaurant or potluck; keep reusable utensils and straws in your purse, backpack, or glove compartment.

Impact: Reduce single use plastics to keep our waterways clean, protect wildlife, and reduce blight.

❑ Compost at home

Compost food scraps to generate healthy soil for your garden and reduce the amount of material you throw in your garbage container. Home compost workshops are available for residents.

Impact: Higher and better use of compostable materials, compost has more nutrients and is beneficial for home gardens; can ultimately help reduce residential garbage costs.

❑ Sign up for a Climate Smart GoGreen Team

Climate Smart GoGreen Teams are a fun, easy way to connect with friends or neighbors, learn about sustainability and resilience, and take actions that make a difference. No experience or preparation required!

Together, you will learn how to reduce your carbon footprint, live healthier, save money, get prepared for disasters, and have a lot of fun along the way.

Impact: Improve community resilience; reduce waste and GHG emissions.

❑ Recycle Right and reduce contamination (no food, no wish-cycling)

WISH-CYCLING (verb)

Putting non-recyclable materials in the recycling bin with the hope that they will be recycled, which leads to higher contamination rates in the recycling stream.

Impact: Better for environment, cleaner materials stream; ensure other recyclables aren't contaminated; encourage proper disposal of difficult items; reduce pollution; reduce landfill use; creates jobs; can ultimately help reduce residential recycling costs.

❑ Find out how to recycle "hard-to-recycle" items

Some things can't go in the curbside bin but can still be recycled.

Take back paint and motor oil to retailers; make an appointment for junk pickup or hazardous waste disposal.

Get help at sanjoserecycles.org.

Impact: Reduce costs and contamination; save money and the environment too!

Business Playbook on Zero Waste

Businesses lead the way to zero waste! Most strategies save money and the environment too.

For San José to achieve zero waste, everyone needs to do their part. Here's how businesses can participate.

❑ Donate food and track food waste

Recover edible food and work with food recovery organizations to collect and redistribute food to insecure community members.

Impact: Potentially reduce food purchasing and disposal costs, divert food waste from landfill, and provide unsold items to those in need.

❑ Purchase environmentally preferred products and packaging

Use products with recycled content, non-toxic products, recyclable or compostable products, and use reusable foodware in restaurants.

Impact: Increase recyclability of used products and decrease waste generated.

❑ Avoid single-use food service ware and packaging

Invest in reusable silverware that will last years.

Impact: Reduce costs, prevent tons of waste from going into landfills.

❑ Implement business recycling programs

Address hard-to-recycle items, including batteries.

Encourage good recycling practices, make it fun, and offer contests and challenges for employees.

Use technology to reduce waste: Applications (e.g., LeanPath) for food waste reduction, sensors on dumpsters to monitor waste generated/collected.

Impact: Companywide "culture change," team building, employee satisfaction.

❑ Prepare your loads to maximize recovery at construction sites

It is not necessary to have multiple containers on site. Instead, containers can be matched to each phase of the job and swapped in or out.

- When the framers are working, it's time for a wood box.
- When the wiring, plumbing, and appliances are being installed, it's time for a metal box.
- When gypsum drywall is being installed, it's time for a drywall box.
- If you've planned the job well from the construction side, you've already done most of the work required to recycle.

Impact: Source separation enhances value, reduces costs, of processing, and makes compliance easier to document.