FINAL REPORT

City of
Santa Monica®

ZERO WASTE PLAN UPDATE

A 2020-2024 ROADMAP TO REDUCE, REINVENT, RECAPTURE, AND RECYCLE SANTA MONICA'S WASTE MATERIAL STREAMS

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R3 CONSULTING GROUP, INC.

Report Contributors

The following organizations and individuals contributed to the research, preparation, review, and evaluation of the City of Santa Monica Zero Waste Plan Update.

CITY OF SANTA MONICA

Task Force on the Environment
Mark Gold
Erik Neandross
Garen Baghdasarian
Robert Lempert
Susan Mearns
David Pettit
Dean Kubani

Reource Recovery and Recycling Division
Chris Celsi
Yvonne Yeung
Daniel Pankau
Erin Carr

Office of Sustainability and the Environment
Shannon Parry
James Velez-Conway

Planning and Community Development Department
Peter James

Public Works Department
Susan Cline
Salvador Valles

R3 CONSULTING GROUP, INC.

Garth Schultz, Principal
Natalie Lessa, Project Manager
Emily Ginsburg, Senior Project Analyst
Claire Wilson, Project Analyst

ABBE and ASSOCIATES, LLC

Ruth Abbe, Principal

HDR ENGINEERING, INC.

John Carlton, Planning Lead

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SECTION 1 Executive Summary

BACKGROUND

The City of Santa Monica (City) has a history of leadership in the field of environmental sustainability. The City has made multiple commitments to reduce waste sent to landfills (and associated greenhouse gas emissions) including its goals in the 2019 Climate Action and Adaptation Plan (CAAP) and investment to review and update to its 2014 Zero Waste Strategic Operations Plan (2014 ZWP, included as Appendix A). This 2019 Zero Waste Plan Update (2019 ZWP Update) reviews the implementation status and outcomes of the waste reduction and diversion strategies included in the 2014 ZWP, is consistent with the City's CAAP, and recommends priorities for implementation in the next five years.

HISTORY OF THE PROCESS

On June 23, 2009, the City Council directed staff to develop a Zero Waste Strategic Plan to enhance Santa Monica's waste diversion operations and reduce landfill disposal. The Zero Waste Planning Committee, comprised of the Resource Recovery & Recycling Division (RRR), the Office of Sustainability and the Environment (OSE) and the City's private partners, Southern California Disposal and Allan Company, was established to effectively design and implement the City's Zero Waste program. Numerous meetings were held to discuss potential resource recovery policies, programs, and infrastructure, resulting in a collaborative effort to implement of several programs including a pilot residential yard trimmings and food scraps program, expansion of the commercial food scraps program, and audits of landfills to determine diversion rates. The 2014 ZWP was developed to serve as a broad environmental and policy framework to guide Santa Monica on its path to Zero Waste: 95% diversion of waste from landfill by 2030, or a per capital disposal rate of 1.1 pounds per person per day (PPD).

Many community members, City staff, commissions, and other stakeholders contributed to the 2014 ZWP's development, including its three top guiding principles: healthy community, waste reduction, and education and outreach. This spirit of teamwork continues in creating the 2019 ZWP Update to build on past successes and identify new actions Santa Monica can take to achieve its Zero Waste goals.

WHAT IS ZERO WASTE?

Zero Waste is the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and discharges to land, water, or air that threaten the environment or human health.

Working towards Zero Waste is critically important for protecting people and planet, and as a shared goal is ethical, economical, efficient and visionary. Zero Waste guides people in changing their lifestyles and practices to emulate natural cycles, where discarded materials become resources for others to use. Everyone can participate in Zero Waste regardless of age, income level or background, and benefit from

the improved environmental health and economic opportunity resource recovery brings. Zero Waste is also an invitation and opportunity to join in a global sustainability movement.

WHAT DOES ZERO WASTE MEAN TO SANTA MONICA?

When Santa Monica developed its Zero Waste plan in 2014, the City defined its Zero Waste goal as a 95% reduction from the State's measurement of the City's 2004-2006 waste generation estimate of 21.8 pounds per capital disposal (PPD) by Year 2030. A 95% reduction of 21.8 PPD equals to approximately 1.1 PPD by 2030. The measure of diversion reflects how well the City is diverting materials away from landfills and putting materials in recycling and organic containers. Per capita disposal (PPD) measures how well the City is reducing the overall amount of materials that are sent to the landfill. To achieve Zero Waste, the City must both increase its current diversion rate of around 40% by increasing recycling and organics collection **and** reduce its 5.0 PPD by discarding less materials as garbage. The City can make significant strides towards its Zero Waste goals over the next five years. However, additional effort and continuous improvement will be needed to achieve a 1.1 PPD by 2030.

ZERO WASTE IN SANTA MONICA'S CLIMATE ACTION AND ADAPTATION PLAN

Solid waste disposed in the landfill generates methane gas and contributes to the City's carbon footprint. Increasing recycling and composting rates will be critical to meeting the City's goal to achieve Zero Waste to landfill by 2030 and to reduce greenhouse gas (GHG) emissions. The City adopted its CAAP in June 2019 that includes 11 strategies related to solid waste, with the goal of reducing total carbon emissions by 3% and meeting the City's 95% diversion of waste from landfill by 2030.

1. Implement citywide organics recycling
2. Zero waste outreach and education
3. Institute wet-dry sorting system for businesses
4. Implement pricing signals to increase diversion
5. Increase construction and demolition debris diversion requirements
6. Implement material and landfill bans
7. Expand the reuse and repair economy
8. Foster a food waste prevention network
9. Incentivize reusable containers and packaging
10. Support and pilot extended producer responsibility programs
11. Explore waste-to-energy conversion technologies

REVIEW OF ZERO WASTE PERFORMANCE TO DATE

The City has not yet implemented many of its Zero Waste strategies, and as a result, is not meeting most of its Zero Waste goals. A review of the specific 2014 ZWP strategies are discussed in Appendix B of this Update. Reasons that implementation of the 2014 ZWP has largely not yet occurred include a focus on achieving optimal day-to-day waste collection customer service as opposed to long-term zero waste strategic planning, unclear responsibilities, staff attrition, organizational inertia, and the fact that the strategies recommended in the 2014 ZWP were not better prioritized for the City. This ultimately resulted in de-prioritization of Zero Waste strategies and minimization of staff and organizational buy-in to the 2014 ZWP.

Additionally, there were no apparent accountability and reporting mechanisms in place with respect to ZWP implementation, which, given staff attrition, resulted in more obscurity about responsibilities. Another reason for delayed implementation could be lack of adequate financial and staffing resources. This 2019 ZWP Update, therefore, focuses on providing a concise set of actions along with clear staffing responsibilities and resources to implement the recommended actions.

PROJECTED OUTCOMES

Initial estimates of anticipated diversion, GHG emissions reductions, and implementation costs for the five priority Actions (Actions) are described in Section 4 of this 2019 ZWP Update. In terms of diversion, full implementation of recommended priorities could result in an approximately 24% reduction to the City's disposal by 2024, as measured in pounds per person per day of waste sent to landfill. Specifically, 5.0 PPD could be reduced to 3.8 PPD by 2024, which would be an additional 20,800 tons of waste diverted from landfill and an estimated 28,600 metric tons of carbon dioxide equivalent reduction. This is the equivalent to the annual emissions from 5,641 passenger vehicles, conserving 1,394 households' annual energy consumption, or conserving 27,586 barrels of oil.

In terms of cost, the average annual cost of implementation for the recommended priorities is projected at an annual average cost of approximately $1,087,000. If the City were to fund all priority Actions through the rate base, over time the City's solid waste rates would need to increase by approximately 3.3% to cover the average annual cost of implementation. For single family customers with a 95-gallon garbage cart, this would be an additional approximate $1.80 per month based on 2019 rates. For commercial customers, the additional dollar amount added per month would be $2.62 for a two cubic yard garbage container collected once per week based on 2019 rates.

DEVELOP A ZERO WASTE PROGRAM TEAM

A necessary precursor to implementing the recommended suite of Actions is for the City to establish a new Zero Waste Program Team housed within the Resource Recovery & Recycling Division of the Public Works Department. The Zero Waste Program Team would be charged with the responsibility for implementation. This 2019 ZWP Update recommends creation and funding of a new seven-person Zero Waste Program Team (comprised of two existing positions and five new ones, as further discussed in Implementation in Action: Develop a Zero Waste Program Team on pages 16 and 17) and to implement the recommended Actions and provide annual reports on plan implementation and progress. The Zero Waste Program Team would report to the RRR Manager.

PRIORITY ACTIONS FOR 2020-2024

Based on review of Zero Waste progress to date, an evaluation of the City's Zero Waste Goals, and with consideration of the current needs and objectives of the City, this 2019 ZWP Update recommends a prioritized suite of Actions designed to further the City's progress towards its Zero Waste goals. These Actions are dependent on the City's ability to first develop a Zero Waste Program Team to implement the Actions below.

1. **Develop a Zero Waste Program Team**
2. **Create, Implement, and Enforce a Comprehensive Zero Waste Ordinance**
3. **Create, Implement, and Enforce an Edible Food Recovery Program**
4. **Provide Proactive Technical Assistance and Community Engagement**
5. **Develop and Implement a Zero Waste Communications Plan**

These Actions encapsulate strategies already identified in the City's 2014 ZWP and 2019 CAAP. To be clear, the 2014 ZWP's strategies were not – in and of themselves – the reason that ZWP implementation is behind schedule. The strategies included in the 2014 ZWP were, and remain, generally representative of the types of Actions the City does, in fact, need to take in order to meet its Zero Waste goals. That said, the ZWP implementation status is at least partially attributable to the fact that the strategies recommended in the 2014 ZWP were not better prioritized for the City. This 2019 ZWP Update, therefore, does not seek to replace or supersede the 2014 ZWP but, rather, to strategically identify and prioritize a more refined set of Actions for implementation in coming years. It is important to note that the strategies identified in the 2014 ZWP remain, for the most part, potentially viable and can remain in the City's quiver for future reconsideration, adaptation, and potential implementation.

PLAN UPDATE GOAL

The 2014 ZWP establishes the City's zero waste goal as 95% reduction, or diversion of waste from landfill, from the State's measurement of the City's 2004-2006 waste generation estimate of 21.8 pounds per capital disposal (PPD) by 2030. In other words, the goal is to achieve a per capita disposal rate of 1.1 pounds per person per day by 2030. While the City has reduced its overall disposal since the adoption of its 2014 ZWP, it appears that the City is not on track to meet the milestone of 3.6 PPD in 2020 and will

need to dramatically decrease disposal in order to meet the 1.1 PPD target set for 2030. It is recommended that the City monitor and report annually on progress towards its 1.1 PPD target set for 2030 and prepare a Zero Waste Plan Update in 2024 to identify new and expanded policies and programs to help achieve the City's 2030 goal.

PROJECTED TIMELINE

It is recommended the City embark on a focused five-year implementation period for the five priority Actions identified in this 2019 ZWP Update in keeping with the figure shown on the following page.

TABLE 1 – Summary of Priority Actions for Zero Waste Achievement

Startup Year	Action*	Objective	Average Annual Cost	Tons Diverted	Change in GHG Emissions (MTCO2)
2020	**1.** Develop Zero Waste Program Team	Create five new Zero Waste Program Team positions	Included below		
2020	**2.** Create, Implement and Enforce Comprehensive Zero Waste Ordinance	Require all generators to participate in recycling and organics programs, enhance construction and demolition debris recycling requirements, and reusable food ware for dine-in restaurants.	$269,000	6,600	7,300
2020	**3.** Create, Implement and Enforce an Edible Food Recovery Program	Require grocery stores, restaurants and other food generating businesses to recover edible food currently disposed and collaborate with food recovery organizations to help feed people in need.	$109,000	700	2,900
2020	**4.** Provide Proactive Technical Assistance and Community Engagement	Provide technical assistance to help commercial and multi-family generators with the greatest potential for higher diversion. Engage residents through in-person Zero Waste education.	$600,000	12,000	16,400
2020	**5.** Develop a Zero Waste Communications Plan	Develop and execute a robust communications plan to educate the community and tourists on Zero Waste.	$109,000	1,500	2,000
Total Average Annual Cost			**$1,087,000**	**20,800**	**28,600**

*Action 2 through Action 5 are dependent on the establishment of the Zero Waste Program Team (Action 1), as further described on p.16 & p.17.

FIGURE 1 – Projected Implementation Timeline

Set the Foundation
2020-2021

2020

1. Hire Zero Waste Program Team.
2. Develop comprehensive Zero Waste policy covering mandatory recycling and organics program, enhanced construction and demolition debris recycling requirements, and expand the City's ban on single-use plastics.
3. Stakeholder and community engagement on the zero-waste policy; complete ordinance revisions.
4. City Council considers and adopts Zero Waste policy. Begin phased implementation.

2021

1. Proactive development of SB 1383 policy and systems to recover edible food for those in need.
2. Ensure SB 1383 preparedness.
3. Development of outreach and educational materials to support implementation efforts.

Engagement and Enforcement
2022-2023

2022

1. Community engagement and technical assistance for multi-family and commercial generators.
2. Begin enforcement of Zero Waste policy.

2023

1. Implement formalized social media plan.
2. Create online content and enhance educational materials to engage the community and visitors in Zero Waste programs.
3. Begin assessing penalties for non-compliance with edible food participation ordinance.

Maintenance and Monitoring
2024-2029

2024

1. Maintain and monitor prior Actions taken to support Zero Waste achievement.
2. Fully evaluate progress and attainment towards the community's Zero Waste goal.
3. Identify new and expanded Zero Waste Actions for implementation over the next five years in a 2024 ZWP Update.

2025 – 2029

1. Implement the 2024 ZWP Update priority Actions.
2. Maintain Zero Waste policies and programs.
3. Continue to monitor and report out on progress.

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SECTION 2 State Requirements and Diversion Assessment and Opportunities Analysis

This section presents background information on applicable State laws and data on waste diversion for the community, overall and by sector. It also identifies the recoverable resources that are most often not captured and removed from the disposal stream. This analysis guides the recommendations for how to approach improvements in capturing these resources for each sector which tie to the strategies proposed in this 2019 ZWP Update.

STATE LAWS

In addition to the Zero Waste goals that were set in the City's 2014 ZWP, the City must also comply with new and existing State Laws including AB 341, AB 1826, and SB 1383. Each of these laws have requirements for the jurisdiction to provide resources, outreach, education, and monitor progress and compliance for its recycling and organics programs. Progress and efforts towards these goals are currently reported to the State annually in the Electronic Annual Report (EAR).

AB 341 – Mandatory Commercial Recycling

AB 341 increased the statewide diversion goal to 75% and instituted mandatory recycling service for all businesses, multi-family properties (5 units or more) and public entities that generate more than four cubic yards of solid waste per week. Additionally, the bill requires education and outreach programs be implemented to inform generators cover by the bill of their obligation to meet the terms of the regulation. To measure efforts made to comply with this policy, CalRecycle requires an annual report which details the commercial recycling program, including education, outreach, and monitoring.

AB 1826 – Mandatory Commercial Organics Recycling

AB 1826 expanded mandatory commercial and multi-family residential recycling requirements to add organics recycling. Covered generators are generally in alignment with those covered under AB 341. AB 1826 requires jurisdictions to identify covered generators that will be subject to compliance, ensure that organics recycling services are available to them, and perform outreach, education, and compliance monitoring to make them aware of the requirement to participate. As with AB 341, CalRecycle requires reporting on program offerings and compliance efforts.

SB 1383 – Short-Lived Climate Pollutants

SB 1383 sets a goal to reduce organic waste by 50% from the 2014 level by 2020 and 75% by 2025. Additionally, the bill establishes a target of recovering 20% of currently disposed edible food for human

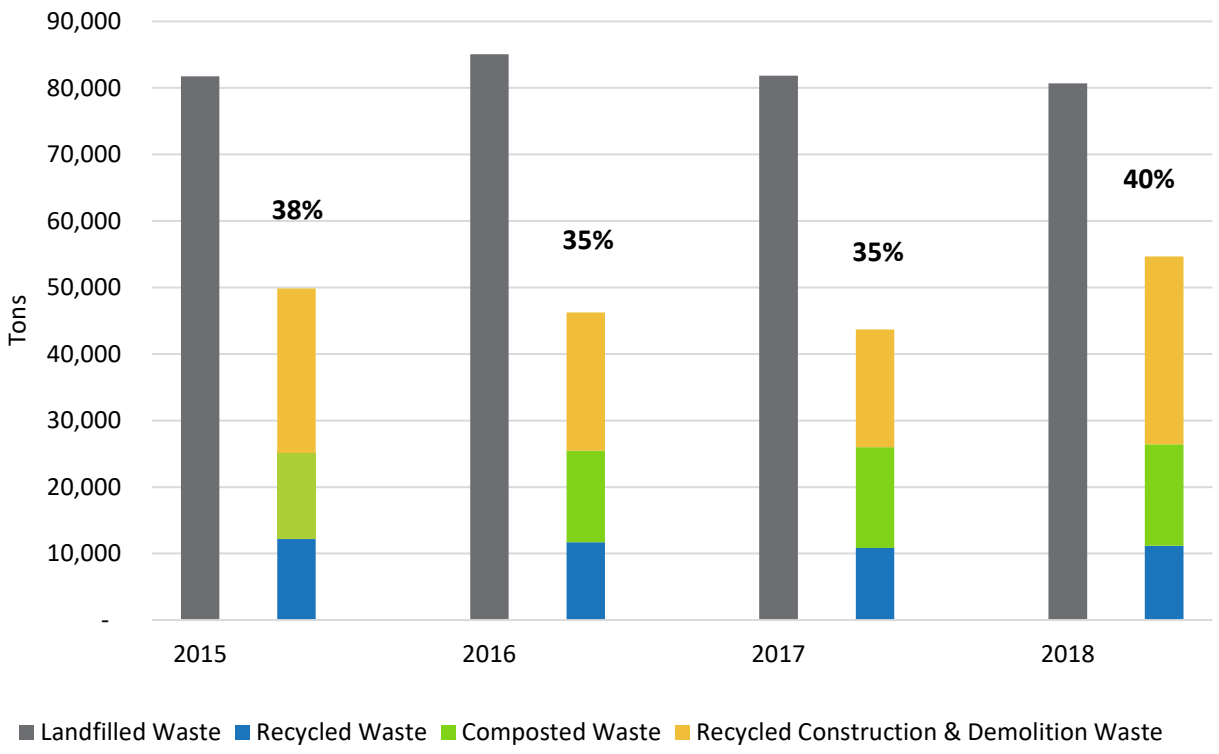
consumption by 2025. The law's requirements are still under development and, though the latest draft with specific regulatory language was released by CalRecycle in December 2018, adjustments may be made until requirements become effective on January 1, 2022. Although the exact language and details of this bill are not yet finalized, current draft regulations present the following potential impacts and requirements for local jurisdiction:

- The City will need to provide an implementation report demonstrating compliance by April 1, 2022;
- The City will need to provide organics collection service to all generators;
- The City's garbage containers are currently black for garbage, blue for recyclables and green for organics; some retrofits to the bins (where black bins are used for organics) may be needed, as well as adding signage to bins that are currently unlabeled;
- The City will need to expand its pilot food rescue program (with Global Green) and incorporate additional features such as: conducting outreach to edible food generators and providing a list of food recovery organizations to generators;
- The City may be required to impose penalties on generators that fail to comply;
- The City may be required to purchase products made from organics (such as compost and mulch) for internal City use; and
- The City may be required to adopt ordinances mandating local use of finished products made from organics.

CURRENT DIVERSION

The City's progress towards Zero Waste can be measured by the amount of recyclable and organic material that residents and businesses divert from landfill disposal. Figure 2, on the following page, shows Santa Monica's diversion rate from 2015-2018. Contamination (i.e., materials wrongly placed in recycling and/or organics collection containers and ultimately disposed) is included in total landfilled materials. While diversion from landfill disposal has improved slightly, discarded materials generated by the Santa Monica community are mostly landfilled, indicating an opportunity for Santa Monica residents and businesses to recycle and compost more materials.

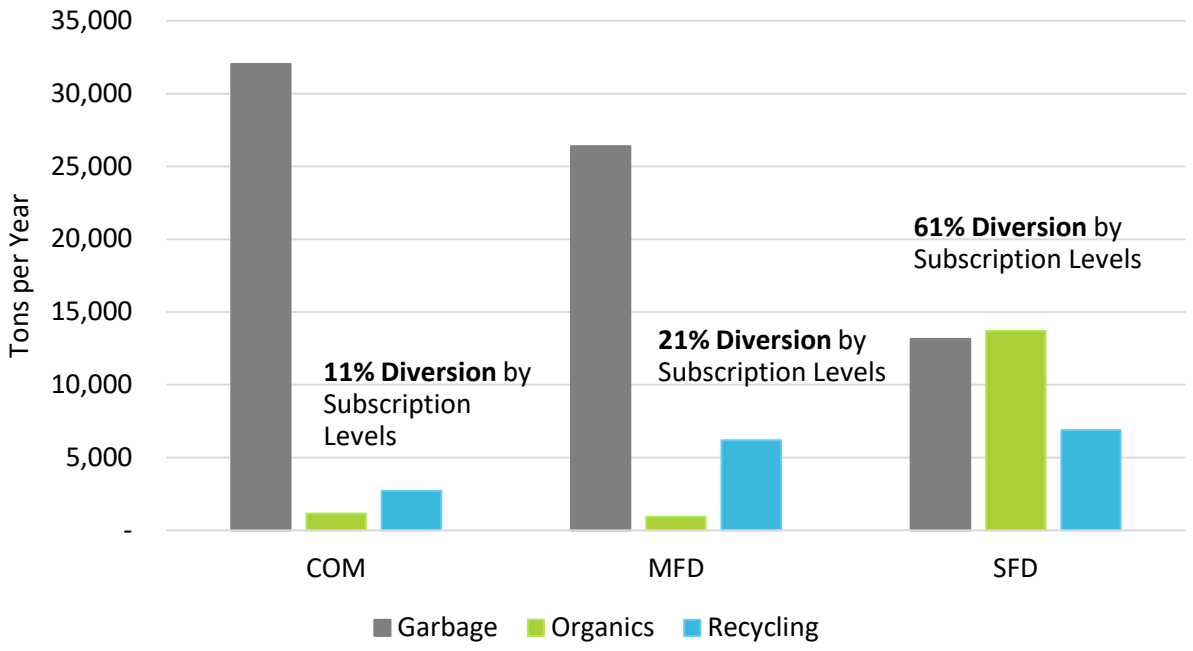
FIGURE 2 – Santa Monica Diversion Rate in Tons by Year



However, not all of the City's generators throw away the same amount or type of discarded materials. Figure 3, on the next page, depicts current amount of material collected as garbage, recycling, and organic materials for different generator sectors in Santa Monica: single family curbside carts (SFD), commercial containers (COM), and multi-family containers (MFD). Collected tons have been allocated according to subscription levels by sector to estimate their diversion rates.

While single family residents have excellent levels of participation in waste diversion programs (likely exceeding the 90% target set for 2020), multi-family residents and commercial businesses have lower levels of participation: the commercial and multi-family sectors have the most need for improvement with 11% and 21% diversion respectively. Both of these sectors also generate the majority of the material, making them the most important sectors to target for high impact change. Single family customers have a much higher level of diversion with 61%, but still has room for improvement.

FIGURE 3 – Diversion Levels by Sector Based on Participation Level



Of the roughly 1,600 commercial customers in the City, only about 185 or 12% subscribe to both recycling and organics collection services. Likewise, of the roughly 3,000 multi-family customers in the City, only about 115 or 4%, subscribe to both recycling and organics collection services. While these figures may be understated due to the fact that some, if not many, commercial and multi-family customers may share recycling and organics collection containers, data regarding which customers share what recycling service is not available.

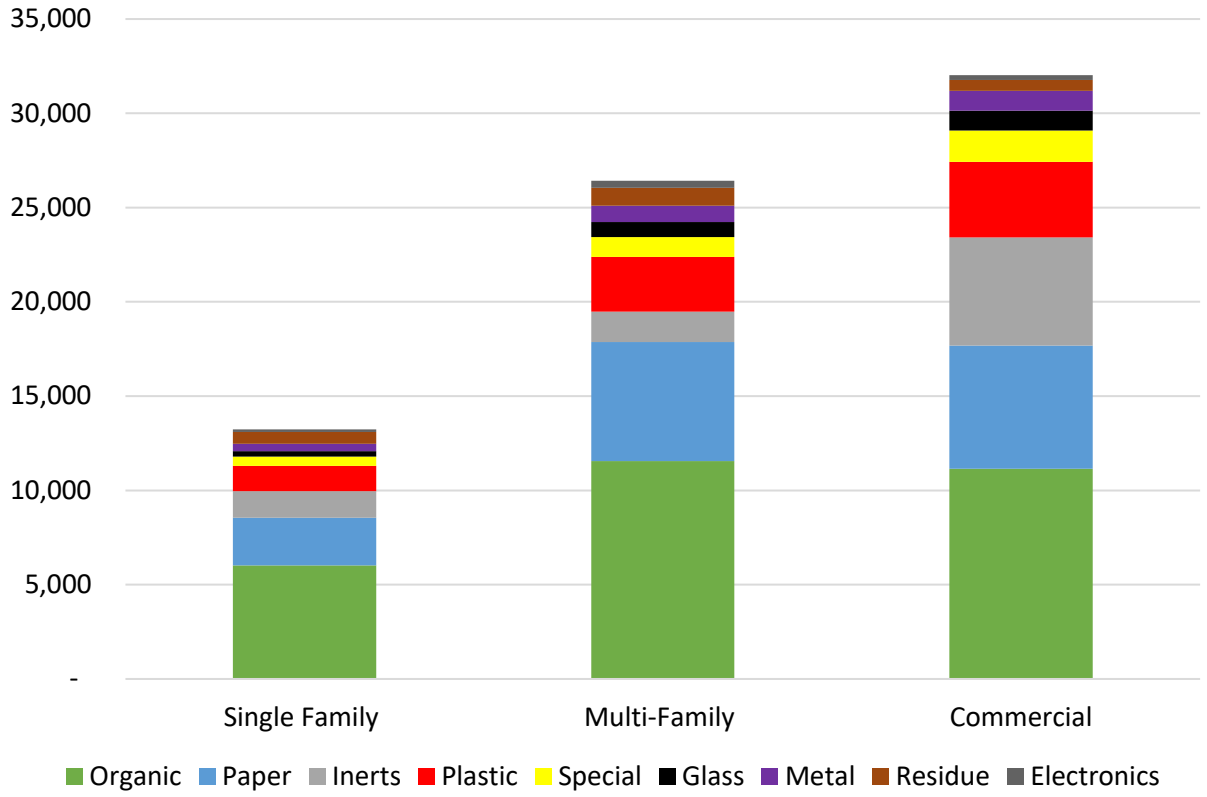
Based on overall garbage, organics, and recyclables service levels tracked by the City, it is clear that commercial and multi-family customers are not achieving high levels of participation in waste diversion programs. As shown in Figure 3 above, landfilled tons attributable to commercial and multi-family customers (shown in grey) are far higher than organics (shown in green) and recycling (shown in blue) for those customer types. This is in contrast to the levels of participation observed for single family customers. Single family customers are achieving an approximate 61% diversion rate based on subscription levels, whereas commercial customers are achieving approximately 11% and multi-family customers are achieving approximately 22%.

UNCAPTURED MATERIALS

The recyclable and compostable materials found in Santa Monica's garbage represent the potential to divert more resources from landfill disposal. Breaking down the landfilled materials bar in Figure 3 using the 2014 State Waste Characterization Study, Figure 4 shows what recoverable materials are being thrown away. Across sectors, organic materials and paper comprise the bulk of landfilled materials. Improved source separation and source reduction of these materials would significantly reduce Santa Monica's

landfilled materials. Most disposed materials could also be captured for recovery, with the exception of residue and some special wastes.

FIGURE 4 – Estimated Contents of Santa Monica's Landfilled Materials by Sector



CONTAMINATION

Contamination rates for Santa Monica are well above maximum targets set by the 2014 ZWP (contamination reduced to 2% by 2015, 1% by 2020). The reported contamination rate for collected recyclables varies over time, but is generally above 20% while the contamination rate for collected organics is generally above 5%. While these contamination rates are above the targets set in the 2014 ZWP, they are comparable to other communities. Overall, contamination rates are important as they are a measure of how well residents and business are sorting their recyclable and organic materials because higher contamination can increase the cost of processing for recovery. The City will continue to track contamination of its recyclable and organic materials and reduce contamination through implementation of this 2019 ZWP Update.

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SECTION 3 Recommended Zero Waste Actions

This section summarizes a concise set of five strategic Actions for the City to implement in the next five years. To be clear, the following priority Actions are already largely described and identified in the 2014 ZWP and in the City's 2019 CAAP, including applicable GHG emissions and cost estimates. This 2019 ZWP Update is not intended to broadly override or supersede the prior plan. Instead, this 2019 ZWP Update focuses the City's resources and attention on a suite of high priority Actions which would immediately improve Santa Monica's Zero Waste achievement while also facilitating the City's required compliance with State mandates. Additionally, priority Actions would fulfill 10 of the solid waste actions identified in the CAAP[1] and include a targeted approach to reduce disposed organic materials which generate significant greenhouse gases.

The City will conduct another ZWP Update in 2024 to evaluate its progress towards Zero Waste using the goals, indicators and targets identified in the original 2014 ZWP[2], and evaluating the implementation status of the priority Actions described below. To the degree that descriptions vary from the descriptions in other planning documents, it is because there are a variety of ways to fulfill these priorities. The City will adapt recommendations as needed to ensure that action is not deferred due to lack of agreement on the details.

[1] The outlier being CAAP action #11 (Explore waste-to-energy conversion technologies) which is not addressed in this 2019 ZWP Update. Actions the City takes in the next five years should focus on improving participation in the City's current recycling and organics programs. The City may conduct a separate study of waste-to-energy conversion technologies to fulfill this action.

[2] With the clarification that the percentage diversion targets are calculated via the CalRecycle diversion equivalent calculation methodology described elsewhere herein.

ACTION #1: Develop a Zero Waste Program Team

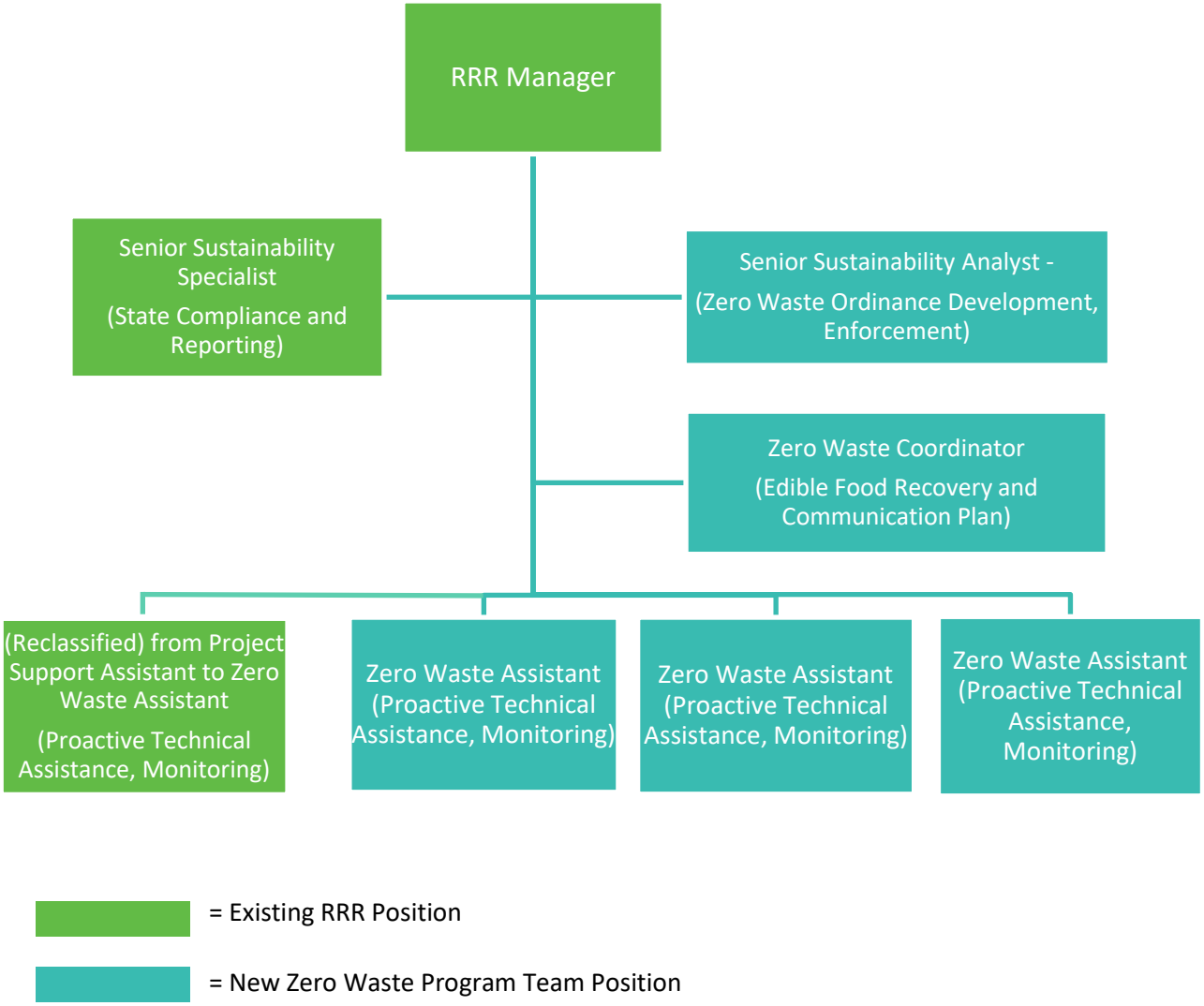
The 2014 ZWP and 2019 ZWP Update represent a significant undertaking for the City. Dedicated staff resources will be needed to implement specific policies and programs. The City has multiple departments/divisions engaged in the development and implementation of the plan. It is essential that the plan identify appropriate roles and responsibilities for each department/division in carrying out the strategies identified in the plan. Overall, based on estimates of staffing needs for program implementation, it should be anticipated that the City's Zero Waste Program Team would require the following five 5.0 FTE new positions and the reclassification of one 1.0 FTE existing position:

- One 1.0 full-time equivalent (FTE) new Senior Sustainability Analyst to manage the Zero Waste Program and Team, conduct research, undertake implementation of programs, and be the primary responsible party for Action #1, including associated administrative code enforcement authority.
- One 1.0 FTE new Zero Waste Coordinator to assist the Senior Sustainability Analyst and be the primary responsible party for Actions #3 and #5, including associated administrative code enforcement authority.
- Three 3.0 FTE new Zero Waste Assistants and the reclassification of one 1.0 FTE existing Project Support Assistant to Zero Waste Assistant for a total of four Zero Waste Assistants, with primary responsibility for Action #4 including contamination monitoring.
- Approximately $250,000 to $350,000 per year in outreach, education, production and special services to support program activities.

The five 5.0 FTE new Zero Waste positions could join with the existing 1.0 FTE Senior Sustainability Analyst (whose duties are primarily focused on matters of State reporting and compliance) and the existing 1.0 FTE Project Support Assistant (to be reclassified to Zero Waste Assistant) for a total of a seven-person 7.0 FTE Zero Waste Program Team with the organizational structure as shown in Figure 5. Costs for these positions are identified in Appendix E.

FIGURE 5 – Zero Waste Program Team Organization Chart

Five 5.0 FTE Net New Positions Recommended for Hire in 2020



ACTION #2 Create, Implement, and Enforce a Comprehensive Zero Waste Ordinance

POLICY SUMMARY			
ADDITIONAL POTENTIAL DIVERSION	6,600 tons	**IMPLEMENTATION START**	2020
GREENHOUSE GAS REDUCTION	7,300 $MTCO_2$	**AVERAGE ANNUAL COST ESTIMATE**	$269,000
2014 ZWP STRATEGIES	1, 2, 3, 4, 5, 6, 7, 8	**CAAP ACTIONS**	1, 6, 9, 10

Objective

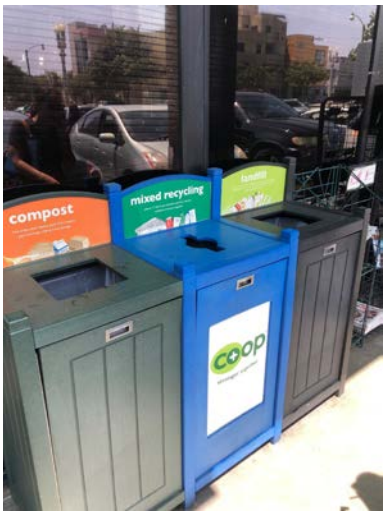
Achieve a higher level of diversion from landfill disposal by requiring all generators to participate in recycling and organics programs, enhancing construction and demolition debris recycling requirements, and encourage and/or require the use of reusable food ware.

Description

A comprehensive policy approach to zero waste is needed to create a strong framework to support high diversion program implementation and advance community action. Developing inter-related sections of municipal code that together holistically address the discarded materials generated by residents and businesses within the City will serve to complement other actions and streamline implementation efforts.

Require Mandatory Recycling and Organics Program Participation

To maximize the potential of Santa Monica's three-stream system, all generators should be required to participate in recycling and organics programs. Creating mandatory recycling and organics requirements is an alignment with State legislation and clearly sets the expectation that everyone take action to reduce their waste. This message should be positively affirmed through conducting education to all members of the community.



Updating the municipal code for mandatory recycling and organics collection program participation would simplify and streamline implementation of State legislation, as well as emphasize that Zero Waste is a community effort. The City can partner with community groups to spread the message across targeted waste generator sectors, and ensure technical assistance services are available to help customers comply (Action #4). A multi-media and multi-lingual approach is recommended to ensure the message is widespread (Action #5). A positive messaging approach is important to explain this Action is in support of the community's Zero Waste goal, reflects increasing State legislative requirements, and encourages everyone to participate in helping Santa Monica be a sustainable community.

Mandatory subscription to recycling and organics collection services also lifts the responsibility for generators to voluntarily subscribe. Instead, each customer would be provided with recycling and organics containers from RRR, with service level sized appropriately to manage the materials generated. With individualized technical assistance (Action #4) and waste diversion infrastructure in place, all generators will have the tools and support needed to be successful.

Adequate enforcement of mandatory requirements is also crucial for achieving and maintaining high participation. This includes monitoring the proper use of containers so as to minimize contamination of recyclables and organics because contamination impairs waste diversion efforts by increasing the cost to process collected materials and reducing their recoverability. It is not enough to subscribe – how well customers participate in recycling and organics programs is what ultimately determines their success.

Enhance Construction & Demolition (C&D) Debris Recycling Requirements

Building projects produce large amounts of C&D debris that often end up in a landfill despite their potential to be reused or recycled. The City's current C&D Ordinance sets a 70% diversion requirement of total material generated by each covered project. To enhance C&D debris recovery efforts, covered projects could be required to recycle C&D materials by using the services of the permitted C&D haulers or by self-hauling C&D materials, or by employing a City-approved deconstruction contractor. Loads should be directed to third-party certified facilities proven to have good processes in place to maximize recovery.

Changing the focus from hitting a percentage diversion target to achieving high diversion of all recoverable materials generated would increase the overall amount of C&D diverted from landfill disposal. Oversight of C&D diversion by project could be streamlined by requiring that all covered projects track diversion and disposal through the use of simplified C&D forms and/or through an online platform such as Green Halo. For greater resource recovery, technical assistance and outreach should be actively provided to permit applicants through the building counter and online.

City staff will work with the Building and Safety Division to implement a program in which all C&D materials must go to high diverting facilities and/or development of additional policies to promote recycling (i.e., deconstruction ordinance, requiring source separation of materials on-site, prohibiting the disposal of readily recyclable C&D materials). The shift away from focusing on diversion and the

generator's ability to recycle to the requirement of materials going to facilities that achieve high C&D diversion rates will not only increase the City's C&D diversion rate but be less time for staff to review weight tickets and diversion calculations for each covered project.

Update Disposable Food Service Ware Ordinance

The City adopted a Non-Marine Degradable Disposable Food Service Ware ordinance on January 1, 2019 prohibiting the use and distribution of plastics and other non-marine degradable food service ware (cups, plates, straws, accessories) from food or beverage providers. The ordinance targets a range of single-use plastic products, which will reduce the amount of non-recyclable plastics destined for disposal and demonstrate Santa Monica's strong commitment to reducing materials sent to landfill.

While the City is currently in the early phases of implementation and enforcement (which began July 1, 2019), a growing number of cities and counties in California are addressing the problem of single-use plastics through food ware ordinances. Municipalities including Alameda, San Francisco, Manhattan Beach, Malibu, and Santa Cruz County have similar bans on single-use plastics. Other cities like Berkeley, San Anselmo, and Watsonville have passed additional requirements including disposable cup charges ($0.10-$0.25), prohibition of products containing fluorinated compounds, requiring three-stream waste collection for customer use in the front-of-house, and requiring all dine-in food to be served on or in reusable food ware.

The City should continue to educate and engage its businesses on the requirements of the existing ordinance, and consider expanding the ordinance to include additional provisions and more robust enforcement of its ordinance through a phased approach.

The first phase will focus on full implementation and enforcement of Santa Monica's current ordinance. RRR staff should collaborate with the Office of Sustainability and the Environment to assist in enforcement and public education.

The second phase will be to expand the ordinance to include additional requirements that promote source reduction. Businesses will grow accustomed to the current ordinance and this phased approach to include reusable dine-in food service ware, a disposable cup charge requirement, and requiring garbage, recycling, and organics containers in the front-of-house, will support a wider culture shift around source reduction. Over time, residents and businesses will become more comfortable with, and aware of, practicing source reduction and/or utilizing reusable alternatives.

In addition to adding more innovative ordinance features, enforcement should be shifted away from a compliant-based system to more proactive enforcement. The Zero Waste Program Team can enforce the ordinance via administrative code violation process, and penalties should have monetary value to help fund enforcement and additional outreach activities.

This policy also promotes Extended Producer Responsibility (EPR) by stimulating market demand for products that are reusable, recyclable, or compostable at end of life, which the City adopted a resolution to support in 2009 and is also a key Zero Waste strategy in the CAAP. EPR redirects responsibility for managing waste back to the product manufacturers, particularly for hard-to-recycle materials or disposable products to help reduce their upstream generation.

Resources Needed

The City's solid waste ordinance would need to be enhanced to comprehensively support Zero Waste, with on-going resources provided to conduct annual outreach and monitoring. Development of a mandatory recycling and organics program participation ordinance, updating the City's current C&D ordinance, and updating of its single-use plastics ordinance is estimated to require 2,080 hours in start-up labor (estimated 1.0 full-time equivalent or FTE) for the first year. Implementation and enforcement of the new ordinance requirements is anticipated to take 2,080 hours thereafter (1.0 full-time equivalent) to sustain via outreach, monitoring, and enforcement.

The City would hire an additional Senior Sustainability Analyst to be responsible for development, implementation and enforcement of ordinance requirements. Fines and penalties for not meeting the requirements of the ordinance could help fund additional outreach and education efforts and could be accomplished by providing the Senior Sustainability Analyst with administrative code enforcement authority.

Implementation Steps

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
PHASE I: Draft Ordinance and Seek Stakeholder Input – Steps 1-4 are concurrent			
1	Draft comprehensive Zero Waste ordinance to: 1) require mandatory recycling and organics program participation, 2) enhance C&D debris recycling, 3) update and explore additional requirements in include: prohibit disposable dine-in food service ware, add disposable cup charge, and requiring 3 stream in front-of-house	3-6 months	RRR Senior Sustainability Analyst
2	Engage the community via public workshop, stakeholder meetings, online and social media	2 months	RRR Senior Sustainability Analyst
3	Conduct inter-departmental coordination to seek input on draft ordinance from the Planning & Community Development and Public Works	2 months	RRR Senior Sustainability Analyst

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
4	Revise draft ordinance to incorporate feedback	1 month	RRR Senior Sustainability Analyst
PHASE II: Engage City Council and Support Ordinance Adoption			
1	Conduct City Council workshop on the draft ordinance and invite feedback	Per Council Schedule	RRR Senior Sustainability Analyst
2	Revise draft ordinance	1-2 months	RRR Senior Sustainability Analyst
3	Present revised ordinance to the City Council for consideration and adoption	Per Council Schedule	RRR Senior Sustainability Analyst
PHASE III: Conduct Outreach, Begin Implementation, and Enforcement			
1	Conduct outreach campaign to educate residents and businesses	6 months	RRR Senior Sustainability Analyst
2	Send non-compliance notifications and engage in positive outreach to help impacted generators achieve compliance	6 months	RRR Senior Sustainability Analyst
3	Begin enforcement of ordinance requirements	Ongoing	Code Enforcement and RRR Senior Sustainability Analyst
4	Conduct annual outreach and invite feedback	Ongoing	RRR Senior Sustainability Analyst
5	Re-evaluate ordinance, implementation and enforcement annually for improvement. Report to City Council and put forward revisions as appropriate.	Ongoing	RRR Senior Sustainability Analyst

ACTION #3 Create, Implement, and Enforce an Edible Food Recovery Program

POLICY SUMMARY			
ADDITIONAL POTENTIAL DIVERSION	700 tons	**IMPLEMENTATION START**	2020
GREENHOUSE GAS REDUCTION	2,900 $MTCO_2$	**AVERAGE ANNUAL COST ESTIMATE**	$109,000
2014 ZWP STRATEGIES	26	**CAAP ACTIONS**	8

Objective

Divert edible food from disposal and redistribute the food to those in need. Recovery of edible food is a requirement of State law SB 1383 as well as a strategy to reduce GHG emissions by reducing the amount of organic material sent to landfill and recovering them to feed hungry people in the City and surrounding areas.

Description

Edible Food[3] has been identified by California through the passage of SB 1383 as an important sector of the organics stream that can be reduced and recovered. Not only does this material provide an opportunity to reduce the tons sent to landfill where it will emit GHG emissions, recovering edible food feeds hungry people in the community. SB 1383 requires jurisdictions to recover 20% of the edible food currently landfilled and direct it for human consumption. SB 1383 identifies food generating businesses and categorizes them into tiers described below:

- Tier One: Supermarkets; grocery stores with a total facility size equal to or greater than 7,500 square feet; food service distributors; wholesale food markets (compliance required by January 1, 2022).
- Tier Two: Restaurants with 250 or more seats, or a total facility size equal to or greater than 5,000 square feet; hotels with an on-site food facility and 200 or more rooms; health facility with an on-site food facility and 100 or more beds; large venues; large events; state agencies with a cafeteria with 250 or more seats or total cafeteria facility size equal to or greater than 5,000 square feet;

[3] Edible food per SB 1383 Draft regulatory language means unsold or unserved food that is fit for human consumption, even though the food may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions.

local education agency facilities with an on-site food facility (compliance required by January 1, 2024).

Collaborate with Food Recovery Organizations

The City must work collaboratively with its local and regional food recovery organizations (including the Westside Food Bank and their member agencies, faith-based organizations, prepared food rescue organizations like RePlate and Copia, etc.) to determine how the City can help support their efforts to collect and distribute recovered edible food. Hosting regional food recovery organization meetings on a quarterly basis may be useful in identifying roles of organizations and discussing potential opportunities for building or strengthening partnerships.

In addition, the City must identify the current capacity of these organizations and what the capacity will be needed to recover the 20% edible food. As such, the City will meet with these organizations as well as regional jurisdictions to gain an understanding of how much each group is recovering currently, how much capacity currently exists, and how recovery is measured and tracked (weighing food, databases), and how the City can best partner and support these organizations. Support may include funding for on-going recovery efforts or capital improvements to expand existing capacity, and/or monitoring commercial edible food generators for compliance with this Action.

Ordinance Development and Enforcement

As a part of this effort, the City will develop an ordinance that requires all food generating businesses (categorized as Tier 1 and Tier 2) to establish a relationship with food recovery organization(s) for the purposes of recovering edible food and prohibiting the disposal of edible food. The City will need to identify and maintain a list of edible food generators (Tier 1 and Tier 2 generators) in the City. This is not only important to understand the impact of an ordinance of this nature, but it is a requirement of SB 1383. Identification will be helpful for implementation and enforcement of this ordinance as well.

This ordinance, if implemented, will greatly increase the amount of edible food that can be recovered and help meet the 20% goal. Therefore, collaboration with the food recovery organizations is important to ensure that capacity exists for the additional food that will be collected as a result of the ordinance.

Apart from supporting food recovery organizations and generators, the City can maximize food recovery in the City's limits by supporting and promoting gleaning, school food waste reduction policies, and distributing information of how to reduce wasted food.

Resources Needed

The City will need a Zero Waste Coordinator working 1,040 annually (0.5 FTE) for on-going annual monitoring and maintenance. The City will need to coordinate its efforts with other local jurisdictions, food recovery organizations, environmental health agencies, and the City's code enforcement staff. This Action requires input and support from a wide variety of public stakeholders and City staff to be successful.

Implementation Steps

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
PHASE I: Draft and Adopt Ordinance and Stakeholder Input			
1	Develop a list of regional food recovery organizations (Westside Food Bank, Copia, RePlate, faith-based groups, etc.)	2 months	RRR Zero Waste Coordinator
2	Identify and maintain Tier 1 and Tier 2 generators based on the SB 1383 requirements using NAICS codes	Ongoing	RRR Zero Waste Coordinator
3	Develop a model agreement for food generating businesses to use for securing recovery services	2 months	RRR Zero Waste Coordinator
4	Draft and adopt comprehensive edible food recovery ordinance that: 1) requires food generators to have an agreement with a food recovery organization 2) prohibits the disposal of edible food	6 months (Per Council Schedule)	RRR Zero Waste Coordinator and RRR Senior Sustainability Analyst
PHASE II: Support and Collaboration with Food Recovery Organizations			
1	Meet with the Westside Food Bank and other local food recovery organizations to: ▪ Measure existing capacity and need (collection vs. distribution) ▪ Quantify needs to expand efforts to meet 20% food recovery goal ▪ Determine method of tracking, weighing, and counting collected and distributed food via the food bank and/or member agencies.	2-4 months	RRR Zero Waste Coordinator

2	Meet with regional jurisdictions to coordinate efforts related to food recovery (i.e., fee to cover costs, etc.)	2 months	RRR Zero Waste Coordinator
3	Create a regional Strategic Plan to meet SB 1383 goal of recovering 20% edible food	4-6 months	RRR Zero Waste Coordinator
4	Establish/support a method of sustainable funding for food banks and other organizations to increase capacity and collect and distribute more food	4-6 months	RRR Zero Waste Coordinator
PHASE III: Conduct Outreach, Begin Implementation, and Enforcement			
1	Educate food generating businesses of requirement to secure recovery services	6 months	RRR Zero Waste Coordinator
2	Send non-compliance notifications and engage in positive outreach to help impacted generators achieve compliance	6 months	RRR Zero Waste Coordinator
3	Create an enforcement mechanism that includes on-the-ground assessment (i.e. inspection) of participation in food recovery programs through Environmental Health	Ongoing	Environmental Health and RRR Zero Waste Coordinator
4	Conduct annual outreach and invite feedback	Ongoing	RRR Zero Waste Coordinator
5	Re-evaluate ordinance, implementation, and enforcement annually for improvement. Report to City Council and put forward revisions as appropriate.	Ongoing	RRR Zero Waste Coordinator

Action #4 Provide Proactive Technical Assistance and Community Engagement

POLICY SUMMARY			
ADDITIONAL POTENTIAL DIVERSION	12,000 tons	**IMPLEMENTATION START**	2020
GREENHOUSE GAS REDUCTION	16,400 MTCO2	**AVERAGE ANNUAL COST ESTIMATE**	$600,000
2014 ZWP STRATEGIES	18, 20	**CAAP ACTIONS**	2

Objective

Proactively provide targeted technical assistance to help commercial and multi-family generators with the greatest potential for higher waste diversion through personalized training and support. Engage residents through positive, in-person interaction to provide Zero Waste education.

Description

Proactive Technical Assistance

A robust technical assistance program is needed to provide commercial and multi-family generators with the help they need to initiate or expand recycling, organics recycling, composting, and waste reduction practices. Skilled staff would aid businesses and multi-family properties in minimizing and overcoming obstacles to waste diversion, such as limited space, labor and sorting requirements, and lack of information or training. Technical assistance activities would include conducting on-site waste assessments to identify target materials for improved diversion, opportunities for edible food recovery, right-sizing collection service levels, providing information for securing recycling equipment, labeling containers and posting signage both front and back of house, addressing contamination, and training custodial and operations staff. Technical assistance staff will also develop and distribute outreach materials describing best practices appropriate for multi-family and different types of businesses. The approach to technical assistance also determines its level of impact: rather than wait on businesses or

property managers to request assistance, technical assistance staff will initiate contact, directly engage with generators identified as having the most potential to improve, and follow up to maintain a high level of participation.

The City will also promote the technical assistance program and encourage businesses and multi-family properties to use it to achieve compliance with City ordinance (Actions #2 and #3). Technical assistance is more effective when undertaken within the framework of City ordinance requirements to recycle and reduce waste. This program is a collaborative effort, with technical assistance staff empowered to implement City ordinance through their efforts to help targeted generators comply and achieve greater participation rates by working with City staff to support active enforcement. For the first three years of the program, the City will target the top 20% of commercial generators and top 20% of multi-family generators for technical assistance. Often the top 20% of generators are responsible for more than half of the materials generated by these sectors. A targeted approach is important for focusing resources to make a meaningful impact on the City's disposal rates. Specifically, discarded materials from the commercial and multi-family sectors are a significant portion of Santa Monica's overall generation. Improvements in commercial and multi-family diversion will result in improvement to the community's overall diversion and further achievement of its waste reduction goal. Over time, generators will need continued engagement to maintain successful participation in waste diversion programs and the targets may be expanded to reach higher hanging fruits.

Community Engagement

Residents could benefit from active and direct engagement as well. In-person presence, collaboration, and involvement within the community is important for developing strong working relationships with local organizations and understanding real barriers to proper use of diversion programs. On-the-ground experience also creates personal insight into Santa Monican disposal behaviors, which can guide development of specific strategies and messages for community based social marketing (Action #5).

Technical assistance staff should regularly attend Santa Monica community events and festivals, neighborhood organization and HOA meetings, and other organized community meetings to act as an accessible resource to engage attendees about waste-related topics, collaborate and share information, and integrate Zero Waste conversations into various groups. For example, beach clean-ups could be a good avenue for engaging community members and creating social awareness that may lead to further individual action. In addition, technical assistance staff can begin to identify Zero Waste ambassadors within the community and conduct in-person workshops such as a Master Recycler Course to build a network of interested and knowledgeable community members to spread the message of Zero Waste.

Resources Needed

The City currently has one full-time staff person (with the title of Project Support Assistant) dedicated to conducting education and outreach in the community. Via this Action, the City would ramp up those efforts with three (3) additional Zero Waste Assistant positions (6,240 new annual hours, 3.0 new FTE). This would result in a proactive team of four full-time people dedicated to providing Santa Monica's businesses and multi-family properties with technical assistance, and residents with direct outreach when needed to maximize the additional diversion potential of this Action. Employing boots on the ground to appropriately engage target generators through a robust technical assistance program will require significant investment. However, this program is critical for meaningfully moving the needle on Santa Monica's waste diversion and its ability to achieve the Council approval goal of zero waste by 2030.

Implementation Steps

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
PHASE I: Build Technical Assistance Team and Set Targets – Steps 2-5 are concurrent			
1	Hire three RRR Zero Waste Assistants and fe-class existing Project Support Assistant as Zero Waste Assistant	3 months	RRR Senior Sustainability Analyst
2	Identify top 20% commercial and multi-family generators	1 month	4 RRR Zero Waste Assistants
3	Identify community groups, potential Zero Waste ambassadors, local events and other avenues for resident engagement	2 months	4 RRR Zero Waste Assistants
4	Develop educational materials for distribution during on-site assistance and at community events	3 months	4 RRR Zero Waste Assistants
5	Create Master Recyclers Course materials, work on logistics and promotion	3 months	4 RRR Zero Waste Assistants
PHASE II: Proactively Engage Generators On-site and in the Community			
1	Reach out to target generators regarding Zero Waste and City ordinance requirements.	Ongoing	4 RRR Zero Waste Assistants
2	Conduct site-visits to assess conditions and help start or expand waste diversion practices through individualized support	Ongoing	4 RRR Zero Waste Assistants

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
3	Attend community events and engage local organizations; conduct Master Recyclers Course and support Zero Waste ambassadors	Ongoing	4 RRR Zero Waste Assistants
PHASE III: Monitor Program Success and Integrate Lessons Learned			
1	Check-in with Zero Waste Assistants at minimum once per quarter to assess progress (e.g., number of calls, emails and site visits conducted by team and the results, number of community events attended, and other agreed upon metrics)	Ongoing	RRR Senior Sustainability Analyst
2	Annually conduct analysis to identify top 20% generators and other low hanging fruit to target for technical assistance	Ongoing	4 RRR Zero Waste Assistants
3	Annually identify local events, organizations, and other avenues to engage residents in Zero Waste	Ongoing	4 RRR Zero Waste Assistants
4	Integrate lessons learned from implementation to-date to continually improve the program	Ongoing	4 RRR Zero Waste Assistants

Action #5 Develop and Implement a Zero Waste Communications Plan

POLICY SUMMARY			
ADDITIONAL POTENTIAL DIVERSION	1,500 tons	**IMPLEMENTATION START**	2020
GREENHOUSE GAS REDUCTION	2,000 $MTCO_2$	**AVERAGE ANNUAL COST ESTIMATE**	$109,000
2014 ZWP STRATEGIES	14, 16	**CAAP ACTIONS**	N/A

Objective

Develop and execute a robust communications plan to educate Santa Monica residents and visitors about proper separation of discarded materials, reduction, Zero Waste goals, important updates, and more.

Description

Behavior change is an increasingly important factor in the successful implementation of diversion programs and reducing materials sent to landfill. It not only supports policy development but directly links these policies to disposal habits. State laws AB 341, AB 1826, and SB 1383 also require print and/or online media be created for distribution to a jurisdiction's community. Communications are necessary for supporting and supplementing the Action #4 education and outreach plan and for assisting City staff in conducting in-person community engagement.

There are many ways to provide education and outreach to a community. The messaging can be informational, educational, statistical, motivational, promotional, and/or disciplinary. For this Action, community-based social marketing (CBSM) will be emphasized. CBSM draws on the idea that behavior change is most effective when people are directly contacted on a community level. CMBS is more effective than other techniques because it focuses on a single activity, and targets one desired behavior (i.e., focusing a campaign on food waste reduction) rather than providing people with a "laundry list" of things to do (i.e., a campaign around both food waste reduction and water usage). Additionally, CMBS uncovers the barriers to the target behavior, which is critical to future long-term change.

This education and communication plan will provide marketing collateral (as opposed to in-person involvement in Action #4) and serve as a resource for information and awareness around certain disposal habits. Based on research, the City can create actionable, quantifiable responsibilities (e.g. number of site visits conducted per week; customer follow-up protocol; community organization meeting and event schedule; and expectation for involvement). Developing such content as print and online collateral, social media, and video would also be advantageous to the City considering its unique customer base of large media production companies, TV stations, and social media "influencers" available for collaboration, content sharing, and overall cultural norming.

Developing a variety of content across mediums not only helps the residents of Santa Monica become educated on Zero Waste related issues, it also helps educate tourists as well. Santa Monica received over 8.4 million visitors in 2018[4]. To target such a large number of non-residents, education and communications must be clear, effective, and able to be understood by tourists to ensure that visitors are aware of the Zero Waste systems in Santa Monica and are informed. Messaging for visitors must be in strategically placed in the City's most-visited areas including its beaches and pier, downtown area, and at its hotels and short term rental properties.

Resources Needed

The City will need 1,040 hours of Zero Waste Coordinator annual labor (0.5 FTE) to implement this program. Largely, the collaboration needed in this Action will be between City staff, including the Office of Communications, Public Works Communications and Marketing Coordinator, Information Services Department and members of the Zero Waste Program Team. The City may seek to work with outside agencies for advertisements, promotions, and content creation as a way to increase the level of awareness to residents and visitors of the City's Zero Waste goals and increase engagement.

Implementation Steps

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
PHASE I: Develop Education, Outreach, and Communications Plan			
1	Create a formalized Education and Communications, which includes: ▪ Development of engaging content ▪ Social media presence including Facebook, Instagram, Next Door ▪ Paid online advertisement with an emphasis on travel/tourist webpages	6 months	Office of Communications, RRR Zero Waste Coordinator
2	Robust website development inclusive of an informational guide that describes where and how to properly dispose of particular items; consider collaboration with third party education and outreach platforms	3 months	ISD, Office of Communications, RRR Zero Waste Coordinator
3	Conduct research on the disposal behaviors and perceptions of the community and develop strategies for addressing such information as part of the Education and Outreach Plan using:	6 months	RRR Zero Waste Coordinator

[4] https://www.santamonica.com/about-smtt/economic-value-of-tourism/

STEP	TASK DESCRIPTION	TIMELINE	RESPONSIBLE PARTY
	▪ Focus Groups ▪ Conversations from tabling as a part of Action #4		
PHASE II: Implement Plan and Engage Community			
1	Develop infographics, posters, and other visual 2D media collateral for sharing online and printed for distribution within the community (bus stops, truck sides, billboards, etc.)	4-6 months	Office of Communications, RRR Zero Waste Coordinator
2	Develop print advertisement, specific to tourism as part of booking tourist-related activities / accommodation that addresses ways to minimize waste and recycle/compost correctly in tourist areas	4-6 months	Office of Communications, RRR Zero Waste Coordinator
3	Develop short and aesthetically pleasing videos with the specific goal of educating the community how to properly source separate items, reduce contamination, and also create behavior change through normalizing sustainable behavior and lifestyle	4-6 months	IT, Office of Communications, RRR Zero Waste Coordinator
4	Promote the City's collection programs through radio, TV, and other audio and video collateral	Ongoing	Office of Communications, RRR Zero Waste Coordinator
5	Coordinate with community influencers to share media content	Ongoing	Office of Communications, RRR Zero Waste Coordinator

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SECTION 4 Projected Outcomes and Timeline

INITIAL DIVERSION ESTIMATES

Initial planning level estimates of the diversion potential for the priority Actions are presented in this 2019 ZWP Update. These planning level estimates are based on analysis of the City's current landfilled materials tons and assessment of the potential amounts of recovery that could reasonably be projected given adequate implementation. More precise estimates are not possible given that many variables influence materials generation and disposal patterns (for example, the China National Sword Policy) and the fact that the level of City implementation cannot be anticipated in advance. As such, these estimates are solely intended for the purposes of demonstrating relative potential outcomes by priority Action and estimating GHG emissions.

To estimate the diversion potential of each priority Action, the City developed a diversion model (Appendix D) which uses disposed waste composition data for each generator sector (i.e., single family, multi-family, commercial, and self-haul) to estimate tons of potentially recoverable materials by type and by sector that are currently landfilled. The model then applies an estimated capture rate (the percentage of a target material estimated to be diverted) to the tons disposed to derive the potential diversion tons associated with each priority Action. Capture rates were developed under guidance from the U.S Environmental Protection Agency's "Managing and Transforming Waste Streams" tool, in addition to research of comparable programs and educated estimates. Waste composition data from CalRecycle's 2014 Disposal-Facility-Based Characterization of Solid Waste in California report was used in estimating the recoverability of materials in that are currently disposed Santa Monica.

TABLE 2 – Additional Diversion Potential by Zero Waste Action

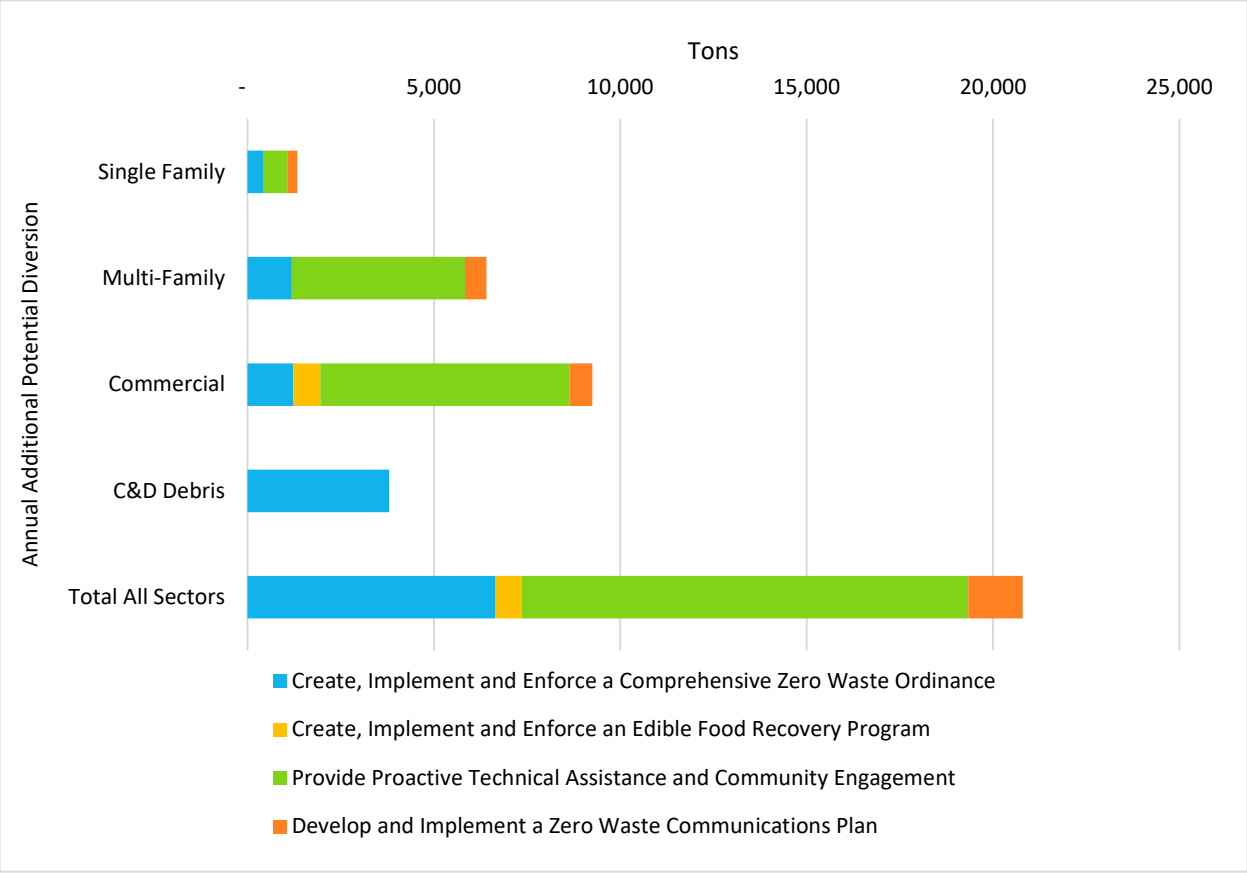
#	Recommended Zero Waste Action	Annual Additional Potential Diversion				
		Single Family	Multi-Family	Commercial	C&D Debris	Total All Sectors
2	Create, Implement, and Enforce a Comprehensive Zero Waste Ordinance	420	1,190	1,230	3,800	6,640
3	Create, Implement and Enforce an Edible Food Recovery Program	N/A	N/A	720	N/A	720
4	Provide Proactive Technical Assistance and Community Engagement	650	4,640	6,690	N/A	11,980

#	Recommended Zero Waste Action	Annual Additional Potential Diversion				
		Single Family	Multi-Family	Commercial	C&D Debris	Total All Sectors
5	Develop and Implement a Zero Waste Communications Plan	270	580	610	N/A	1,460
	TOTAL	**1,340**	**6,410**	**9,250**	**3,800**	**20,800**

**Action #1, Develop a Zero Waste Program Team, is a prerequisite of Actions #2 through #5. Therefore, its diversion potential has been included in the other Actions.*

The model projections that implementation of the priority Actions could result in an approximately 24% reduction to the City's PPD. As seen in Table 2 and Figure 6, robust technical assistance efforts, particularly in the multi-family and commercial sectors, are projected to be the primary contributors to waste diversion.

FIGURE 6 – Additional Diversion Potential by Sector and Action



INITIAL GHG REDUCTION ESTIMATES

The U.S. Environmental Protection Agency's (EPA) Waste Reduction Model (WARM) was used to calculate the 2019 ZWP Update's estimated GHG emission reduction. WARM was created by the EPA to help planners and organizations estimate greenhouse gas emission reductions from several different waste management practices. The model calculates emissions in metric tons of carbon dioxide equivalent ($MTCO_2E$) and metric tons of carbon equivalent (MTCE) across a wide range of material types commonly found in municipal solid waste.

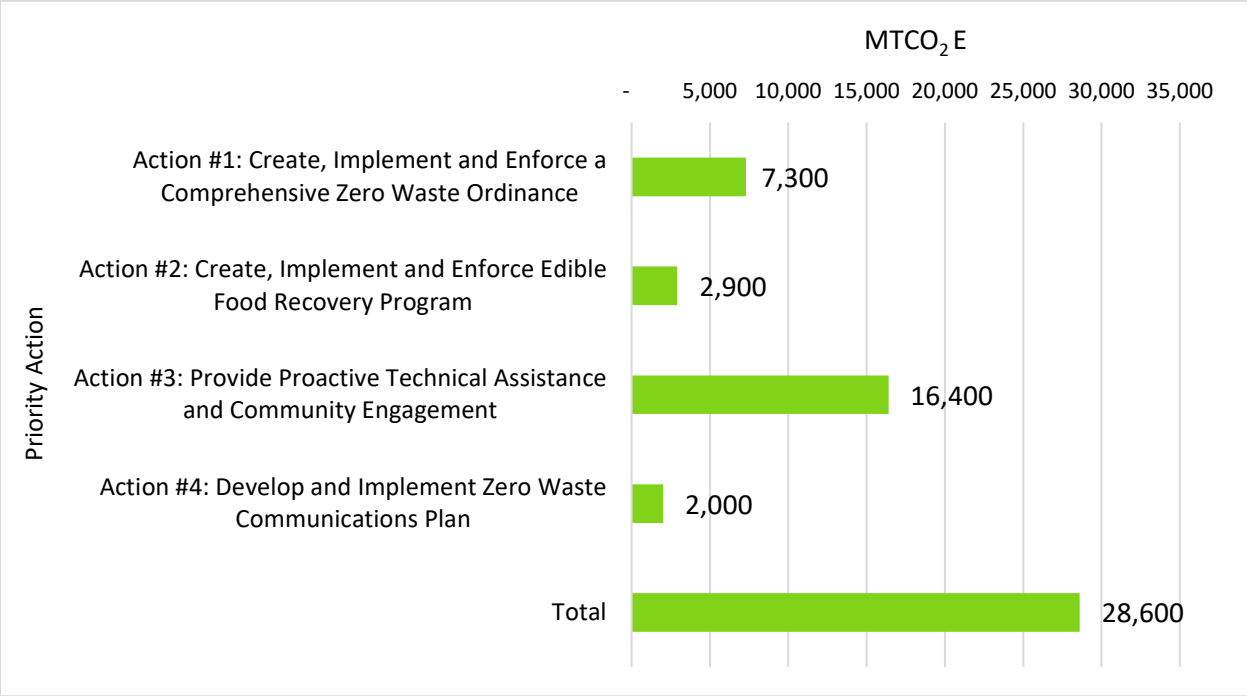
If recommended Zero Waste Actions were to be fully implemented, approximately 28,600 metric tons of carbon dioxide equivalent could be avoided each year through the source reduction, reuse, recycling and composting of currently landfilled materials. This is the equivalent to the annual emissions from 5,641 passenger vehicles, conserving 1,394 households' annual energy consumption, or conserving 27,586 barrels of oil.

TABLE 3 – Estimated Annual Greenhouse Gas Emission Reduction

Total Change in MTCO2E	28,600
Total Change in Energy Use	160,276 million BTU
Total Change in MTCO	7,307

Figure 7, on the following page, compares the estimated reduction in $MTCO_2E$ by priority Action. Actions that emphasize behavior change are expected to yield the greatest reductions in landfilled tons and greenhouse gas emissions. Strategies that take a policy-based approach support behavior change and could yield still greater reductions depending on the level of effort undertaken to educate the community and enforce requirements. In addition, targeting the diversion of materials which generate the most GHG's in landfills – namely food and other organic materials – will help the Santa Monica community continue to move the needle in addressing climate change.

FIGURE 7 – Estimated Reduction in $MTCO_2E$ by Zero Waste Action



**Action #1, Develop a Zero Waste Program Team, is a prerequisite of Actions #2 through #5. Therefore, its $MTCO_2E$ reduction potential has been included in the other Actions.*

Collectively, full implementation of these priority Actions could meaningfully contribute to reaching the City's CAAP goal to achieve an 80% reduction (below 1990 levels) in community carbon emissions by 2030. Recommended Zero Waste Actions support CAAP implementation action items for reducing waste-related emissions. This complementarity further streamlines community sustainability efforts by making good use of staff time and limited resources for greater impact to achieve both climate action and waste reduction goals.

INITIAL ESTIMATED IMPLEMENTATION COSTS

Sustainable funding is critical for supporting implementation of priority Zero Waste Actions and ongoing progress in waste reduction. Once the City seeks to implement the priority Actions described in this 2019 ZWP Update, it will also need to consider potential funding sources and secure resources needed for implementation. Implementation of priority Actions is anticipated to begin in 2020 and outlines steps to be taken over a five-year planning period through 2024. Estimated costs for each priority Action and projected implementation over the planning period are further detailed in Appendix E, and summarized in Table 4, on the following page.

TABLE 4 – Estimated Average Annual Implementation Costs by Zero Waste Action

#	RECOMMENDED ZERO WASTE ACTION	AVERAGE ANNUAL COST	ANNUAL TONS DIVERTED	DOLLARS PER TON DIVERTED
2	Create, Implement and Enforce a Comprehensive Zero Waste Ordinance	$269,000	6,600	$40
3	Create, Implement and Enforce an Edible Food Recovery Program	$109,000	700	$151
4	Provide Proactive Technical Assistance and Community Engagement	$600,000	12,000	$50
5	Develop and Implement a Zero Waste Communications Plan	$109,000	1,500	$75
	TOTAL	**$1,087,000**	**20,800**	**$52**

**Action #1, Develop a Zero Waste Program Team, is a prerequisite of Actions #2 through #5. Therefore, its cost estimate has been included in the other Actions.*

The City will note that actual costs may vary depending on the City's specific implementation approaches, timing of implementation, utilization of existing City resources, and other factors. The average annual cost for the five priority Actions is estimated at approximately $1,087,000. The City could implement variants on any priority Action that may lessen the actual cost of implementation, though the City should be aware that such changes could affect the outcomes of those strategies. Costs for implementation of recommended Zero Waste Actions were developed by:

- Estimating the number of hours projected to be needed to develop and maintain each policy or program;
- Estimated salary and benefits for one new Senior Sustainability Analyst, one new Zero Waste Coordinator, three new Zero Waste Assistants, and the reclassification of one Project Support Assistant to one Zero Waste Assistant (each at Step 2 to be consistent with the City's budgeting practice);
- The annual outreach and education materials expense for each program, including training materials, newspaper advertising, promotional flyers, promotional kits, and outreach campaigns. This also includes supporting equipment such as materials sorting stations and signage; and
- An annual inflation escalator of 5% to adjust estimated costs over time.

ESTIMATED RATE IMPACTS

The potential rate impact of funding Zero Waste strategies is presented below in Table 5. If the City were to fund all recommended Zero Waste strategies through the rate base, over time Santa Monica's collection rates would need to increase by approximately 3.3% to cover the average annual cost of implementation. For single family customers with a 95-gallon garbage cart, this would be an additional approximate $1.80 per month.

As an alternative to funding these positions via solid waste rates, the City could potentially use revenue from its General Fund, collect enforcement fees, or apply for grant funds to help reduce a rate increase to fund recommended Zero Waste policies and programs.

TABLE 5 – Initial Estimated Rate Impacts by Zero Waste Action

#	ACTION	RATE IMPACT
2	Create, Implement and Enforce a Comprehensive Zero Waste Ordinance	0.9%
3	Create, Implement and Enforce an Edible Food Recovery Program	0.4%
4	Provide Proactive Technical Assistance and Community Engagement	2.0%
5	Develop and Implement a Zero Waste Communications Plan	0.4%

**Action #1, Develop a Zero Waste Program Team, is a prerequisite of Actions #2 through #5. Therefore, its rate Impact estimate has been included in the other Actions.*

While Action #4 is projected to require the most funding, it is also anticipated to have the highest impact on waste reduction.

The City could consider adding an enforcement and fee component to strategies that call for ordinance revisions in order to generate revenue for implementation of this 2019 ZWP Update. Fees and enforcement may also drive greater participation in Zero Waste programs. However, it is recommended that the City initially focus on making a positive effort to engage and educate the community before considering enforcement. As a result, enforcement fees would not be a significant funding source in the near-term but would remain an option should diversion rates fail to improve.

CalRecycle offers grants that the City could consider applying for to further Santa Monica's waste reduction goals. For example, CalRecycle's Greenhouse Gas Reduction Grant and Loan Programs include a Food Waste Prevention and Rescue Grant Program and new Pilot Reuse Grant Program that could help fund food recovery initiatives in Santa Monica (Action #3). Non-profit groups also offer grants to fund waste reduction, including the California Student Sustainability Coalition Zero Waste Mini Grant program.

Grant funds are not guaranteed. However, if awarded they could significantly supplement the funding of certain elements of this ZWP Update.

PROJECTED GOAL AND INDICATOR OUTCOMES

Implementation of the five recommended Zero Waste Priority Actions could potentially achieve the following Zero Waste goal/indicator outcomes (aligning with the 2014 ZWP Update) by 2024. These are based on the estimated diversion outcomes discussed above.

- Reduction in landfilled waste from 5.0 to 3.8 PPD (an approximate 24% reduction);
- Reduction in greenhouse gas emissions in alignment with CAAP goals;
- Community awareness of Zero Waste increase by 50% (to be measured through conducting periodic community surveys);
- Majority of customers (95%+) subscribing to recycling and organics collection services (or the wet/dry program); majority of edible food generators (95%+) partnering with a non-profit; and
- Majority of customers actively participating in recycling and organics programs (less than 30% recoverable materials in garbage, to be measured through garbage container "lid flip" audits to visually assess contents during technical assistance site visits).

IMPLEMENTATION STEPS AND TIMELINE

This 2019 ZWP Update recommends implementation of the five recommended Zero Waste priority Actions by 2024. Specific overall implementation steps and timeline are as follows:

- **2020**: Hire Zero Waste Program Team (Action #1).
- **2020:** Comprehensive zero waste policy development and adoption (Action #2).
- **2021:** Building momentum through proactive development of SB 1383 policy and systems to recover edible food for those in need (Action #3).
- **2022:** Directly engaging, and assisting, residents and businesses in Zero Waste practices via a robust public education and outreach effort (Action #4). Providing individualized technical assistance for the community's largest generators will meaningfully progress waste reduction; these efforts will be strengthened by Santa Monica's ordinance requirements and enforcement, in addition to coinciding with SB 1383's effective date.
- **2023:** Positively spreading the message of Zero Waste far and wide to all members of the Santa Monica community through social media, online, print, and other channels of communication (Action #5). A formalized social media plan should be developed in 2023; outreach and education materials in support of Actions #2-4 should be created and distributed in timing with their implementation.
- **2024:** Further support the grounding and fruition of all priority Actions to maximize waste diversion efforts. Evaluate progress towards the community's Zero Waste goal.

CONDUCT A ZWP UPDATE IN 2024

It is strongly recommended that the City conduct a re-assessment of its Zero Waste achievement on a regular basis – by 2024 at the latest – to measure progress, adjust for changing conditions, reassess strategies and/or identify additional strategies to implement. Nearing the halfway point to goal year 2030, 2024 offers an important opportunity to see how far Santa Monica has come and course correct as necessary in forging the path to Zero Waste. Implementation of this 2019 ZWP Update will help the City significantly reduce its PPD but further action will be needed after 2024 for the City to reach its 2030 goal of 1.1 PPD.

The future of Santa Monica's Zero Waste program will be shaped by many factors: the community's commitment in advancing Zero Waste, the City's ability to support continued progress and innovation, new State mandates and legislative requirements, and the influence of larger socioeconomic shifts. In 2024, Santa Monica should conduct an evaluation of its landfill diversion and 2019 ZWP Update implementation to measure success and keep all stakeholders accountable for the outcome. Efforts taken to fulfill each priority Action, and the results, should be well-documented along with any innovations, supporting Actions, or other changes in conditions. Findings should be communicated to further improve waste reduction and open a dialogue with residents and businesses on next steps for achieving Zero Waste.

FUTURE PROGRESS AND ACTION

Santa Monica is a leader in Zero Waste by investing in a plan in 2014 and updating this ZWP in 2019. It is imperative that the City and community work together to not only achieve an increase in the amount of recycling and organics collected for diversion within Santa Monica, but overall waste reduction as well. While Zero Waste may always require continuous improvement, the City should take pride in its successes, learn from its failures, and seek above all else, reduce and responsibly manage its discarded materials for future generations.

If Santa Monica reaches its Zero Waste goal by 2030, everyone's collective achievement should be recognized and celebrated with the encouragement to maintain Zero Waste practices for continued community and environmental benefit. Conversely, if the goal is not achieved in that time, the City will iteratively evaluate Zero Waste progress to identify the largest areas of opportunity for increased resource recovery and take lessons learned to inform next steps. A new goal date and revised set of priorities plan would need to be developed, with sufficient time for selected Zero Waste strategies to be implemented. In either case, a greater focus on Zero Waste initiatives that reduce greenhouse gas emissions will likely continue to rise in importance as a way to address climate change. Santa Monica is a leader and innovator on the path to Zero Waste. Through this 2019 ZWP Update and beyond, the City will continue to make strides in its sustainability efforts.