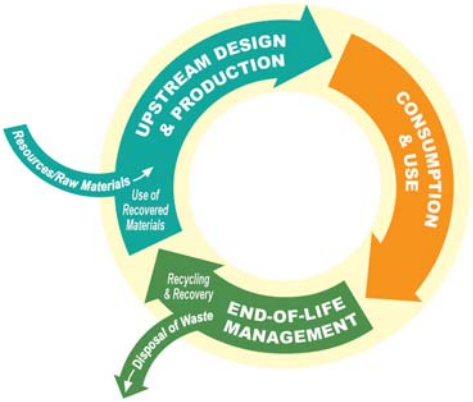
ATTACHMENT A

City of Carlsbad California



SUSTAINABLE MATERIALS MANAGEMENT PLAN

July 27, 2019

R3 CONSULTING GROUP, INC.
RESOURCES · RESPECT · RESPONSIBILITY

CASCADIA CONSULTING GROUP

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Definitions

Alternative Daily Cover (ADC) - Material, other than soil, that is used to cover waste at a landfill, including green waste.

Anaerobic Digestion - A series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen. One of the end products is biogas, which is combusted to generate electricity and heat, or can be processed into renewable natural gas and transportation fuel.

Bulky Waste - Solid waste that cannot or would not typically be accommodated within a solid waste cart. Bulky waste includes furniture, appliances, mattresses, wood and lumber.

CALGreen - California's green building regulations.

California Product Stewardship Council - The California Product Stewardship Council (CPSC) is a network of local governments, non-government organizations, businesses, and individuals supporting policies and projects where producers share in the responsibility for managing problem products at their end of life.

CalRecycle - The California Department of Resources Recycling and Recovery is a branch of the California Environmental Protection Agency that oversees the state's waste management, recycling, and waste reduction.

Capture Rate - The percentage of generated secondary materials actually recovered from a household or business.

Coast Waste Management - The city's contract hauler.

Construction and Demolition (C&D) Debris - Solid waste that is directly related to construction, remodeling, repair or demolition activities. Common C&D materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development.

Covered Generators - Commercial accounts that must comply with AB 341, AB 1826, and SB 1383 based on weekly solid waste or organic material service volumes (weekly cubic yards).

Disposal Bans - Bans that prohibit the disposal of specific materials (e.g., green waste and construction and demolition debris.

Diversion Rate - The percentage of generated materials that are recovered rather than disposed and includes green waste that is used as alternative daily cover.

Diversion - A term often used interchangeable to describe recycling.

E-Waste - Anything with a plug or battery (e.g., computers, televisions, radios).

Extended Producer Responsibility (EPR) - A mandatory type of product stewardship.

Green Waste - Also commonly referred to as "yard waste" is any vegetative matter resulting from normal yard and landscaping maintenance. Green waste includes plant debris, such as grass clippings, pruning, weeds, branches, brush, and other organic waste normally produced from gardens or landscape areas.

Definitions and Acronyms

Household Hazardous Waste - Hazardous waste generated at a residential property.

Life Cycle - A series of stages through which something (such as an individual, culture, or manufactured product) passes during its lifetime.

Material Bans - Also known as Product Bans, are bans on the use of certain materials in a jurisdiction (e.g., plastic bags).

Organic Waste (Organic Materials) - As defined in SB 1383 "Organic waste" means solid wastes containing material originated from living organisms and their metabolic waste products, including but not limited to food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges.

Personal Care Products - Pharmaceutical and Personal Care Products (PPCPs) comprise a broad and diverse collection of thousands of chemical substances including unused or expired prescription medications, over-the-counter medications, therapeutic drugs, fragrances, cosmetics, sun-screen, diagnostic agents, natural health products, veterinary drugs and growth enhancing chemicals used in livestock operations.

Product Stewardship - A strategy whereby manufactures and other along the product supply chain share in the financial and physical responsibility for collecting and recycling products at the end of their useful lives.

Product Stewardship Institute (PSI) - A national, membership-based nonprofit committed to reducing the health, safety, and environmental impacts of consumer products across their lifecycle with a strong focus on sustainable end-of-life management.

Recovered Organic Waste Products - Products made from California, landfill-diverted recycled organic waste processed in a permitted or otherwise authorized facility.

Recovery - A term often used interchangeable to describe recycling.

Recycling - The action or process of converting waste into reusable material.

Recycling Rate - The percentage of generated materials that are recovered rather than disposed and unlike the Diversion Rate, does not include green waste that is used as alternative daily cover.

Recovered Organic Waste Products - Compost and/or renewable transportation fuel made from organic material recovered from the waste stream, as defined in SB 1383.

Republic Services - The city's contract operator of the Palomar Transfer Station.

Roll-Off Service - Service provided using containers typically varying in size from 10 to 40+ cubic yards. Roll-off containers are designed to be transported by special roll-off trucks, and are commonly used to contain loads of construction and demolition waste, dirt and concrete, and other types of waste.

Sharps - Devices with sharp points or edges that can puncture or cut skin (e.g., needles).

Source Reduction - Also referred to as Waste Prevention (or waste reduction) is the elimination of waste before it is created (e.g., using a reusable rather than a disposable cup)

Sustainability | Sustainable Development - The UN World Commission on Environment and Development defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainable Materials Management - A systematic approach to using and reusing materials productively over their entire life cycles, where waste from one activity becomes the resource for another.

Take-Back Ordinances - Ordinances that require retails to take back certain products that they cell when they have reached the end-of-their useful lives.

Universal Waste | U-Waste - A category of hazardous waste that includes fluorescent lamps, cathode ray tubes, instruments that contain mercury, batteries, and other items.

Waste Prevention - Also referred to as Source Reduction (or waste reduction) is the elimination of waste before it is created (e.g., using a reusable rather than a disposable cup).

Acronyms

AD	Anaerobic digestion
ADC	Alternative daily cover
C&D	Construction and Demolition
CWM	Coast Waste Management
CRV	California Redemption Value
EPA	Environmental Protection Agency
EPR	Extended Product Stewardship
HHW	Household Hazardous Waste
PPCP	Pharmaceuticals and Personal Care Products
PTS	Palomar Transfer Station
RCRA	Resource Recovery Act
SMMP	Sustainable Materials Management Plan

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1.1 Sustainability in Carlsbad

The purpose of sustainability in Carlsbad - and its incorporation throughout the city's General Plan - is for the city to responsibly develop and account for long-term projected population growth and its potential impact on the environment. By accounting for sustainability in this process, and particularly with the development and implementation of this Sustainable Materials Management Plan (SMMP), Carlsbad can reduce its contribution to global climate change, minimize its reliance on fossil-fuel sources, decrease consumption of natural resources, promote active living and access to healthy food, and demonstrate its commitment and leadership in sustainability.

1.2 Sustainable Materials Management Plan

1.2.1 Purpose of the Plan

The purpose of the SMMP is to identify specific policies and ordinances, programs and services, service provider contractual requirements, and facility capacity that Carlsbad should pursue to achieve its sustainable materials management objectives. The SMMP is organized into the following three phases:

Phase 1 **Ensure compliance with all state solid waste regulations currently in effect.**

Phase 2 **Achieve regulatory compliance with all SB 1383 regulations.**[1]

Phase 3 **Establish sustainable materials management systems throughout Carlsbad.**

Phase 1 and Phase 2

Phases 1 and 2 are both specific to ensuring Carlsbad's compliance with State of California solid waste regulations. Phase 1 is specific to complying with all regulations currently in effect (particularly Assembly Bill (AB) 939, AB 341, AB 1826, and AB 1594). Phase 2 is specific to ensuring Carlsbad's compliance with the regulatory requirements of Senate Bill (SB) 1383 (Short-Lived Climate Pollutants), which largely take effect on January 1, 2022, and address the management of residential and commercial organics.

Phase 3

Completing Phase 1 and Phase 2 will ensure the city's compliance with all state solid waste regulations currently in effect. Achieving those goals will also increase the diversion of materials in the city and increase the city's use of sustainably produced materials. It will not however result in the establishment of sustainable materials management systems. For that to occur, the city's efforts need to extend well beyond those necessary to simply achieve regulatory compliance (i.e., Phases 1 and 2).

For Carlsbad to sustainably manage the materials that are generated in the city there needs to be significant additional efforts specific to the upstream design and production, consumption

[1] SB 1383 (Short-Lived Climate Pollutants) is undergoing final rule making and it is expected to be final during the Fall 2019. Once the regulations have been finalized, the relevant SMMP actions should be reviewed to confirm they are consistent with the final regulations.

and use, and end of life management of those materials. Phase 3 provides for the development of sustainable materials management systems in all city government departments and throughout Carlsbad.

Completing Phase 3 will result in the transformation of the city's current solid waste management system to a sustainable materials management system, aligning that system with, and supporting the city's overall sustainability goals, including but not limited to the reduction of greenhouse gases.

Carlsbad's "Sustainability" core value of its General Plan calls for building the city's sustainability initiatives to emerge as a leader in green development and sustainability, with particular focus on water, energy, recycling, and foods. For Carlsbad to be a leader in green development and sustainability it needs to make major progress toward, and ultimately complete Phase 3 of this SMMP.

Implementation of Carlsbad's SMMP and its completion of Phase 3 will result in the following:

1. **Sustainable materials management systems in all city government departments;**
2. **Sustainable materials management systems throughout Carlsbad's residential and commercial sectors, and public areas and venues; and**
3. **Establishing the city as a leader in sustainable materials management**.

1.2.2 Structure of the Plan

The SMMP's "actions" for each of the 3 Phases are presented in the context of the following three elements of sustainable materials management systems (life-cycle phases), with the major types of actions associated with each element noted:

1. **Upstream Design and Production** - Designing and producing sustainable materials and products that have high post-consumer recycled content and contain no or minimal raw (virgin) materials, have no or limited packaging, are non-toxic, and are readily recyclable. Major related actions include:
    a. **Sustainable Procurement**
    b. **Material Bans[2]| Disposal Bans**
    c. **Product Stewardship | Take Back Ordinances**
2. **Consumption and Use** - Consuming and using sustainably produced materials and products in a manner that is consistent with the hierarchy of waste reduction, reuse, and recycling. Major related actions include:
    a. **Waste Prevention | Source Reduction**
    b. **Material Reuse**
    c. **Sustainable Materials Market Development and Support**
3. **End-of-Life Management** - Maximizing diversion of materials and the production of post-consumer recycled content feedstock for upstream design and production of sustainable materials (i.e., closing the loop). Major related actions include:

[2] Also referred to as Product Bans.

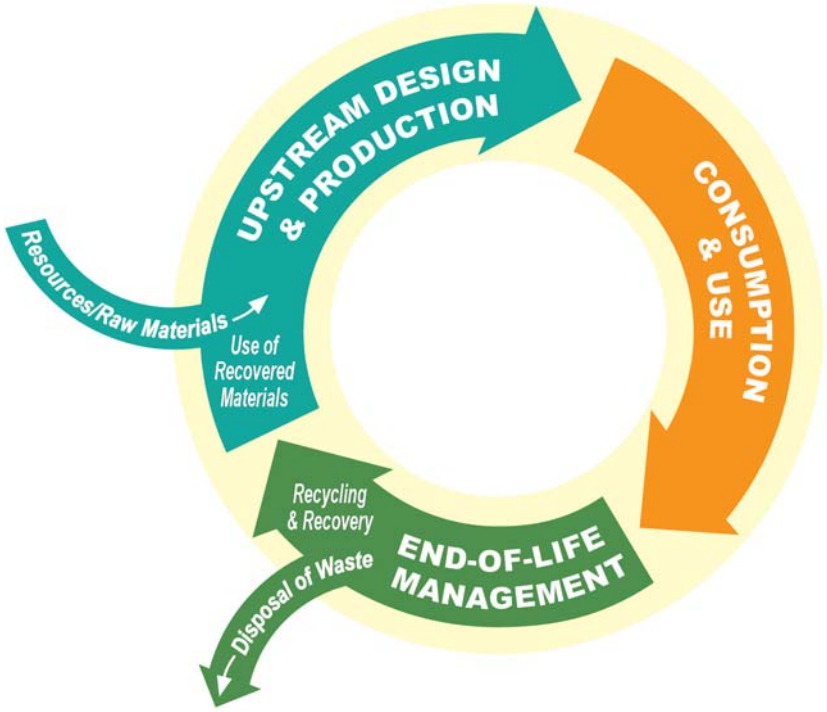
a. **Diversion Programs**

b. **Regional Advocacy and Support**

In support of city's the end-of-life management objectives it will need to negotiate changes to its existing collection contract and Palomar Transfer Station (PTS) operating contract, and/or draft new agreements and conduct competitive procurement processes for collection and transfer station services when the current contract terms expire. The City will also need to establish policies, enact or amend ordinances, and provide other support activities as deemed appropriate in support of its sustainable materials management objectives.

The structure of the three elements discussed above is graphically represented in **Figure ES-1** below.

Figure ES-1
Sustainable Materials Management System Elements
(i.e., Closed-Loop System)



1.3 Sustainable Materials Management Plan Actions

A summary of the SMMP actions for Phases 1, 2, and 3 is provided below, categorized according to the applicable sustainable materials management element.

1.3.1 Summary of Phase 1 Actions

The following actions will ensure city compliance with current state solid waste regulations. The applicable legislation associated with each action is noted.

Upstream Design & Production

Sustainable Procurement

No action is required

Material Bans| Disposal Bans

No action is required

Product Stewardship | Take Back Ordinances

No action is required

Consumption & Use

Waste Prevention | Source Reduction

No action is required

Material Reuse

No action is required

Sustainable Materials Market Development

No action is required

End-of-Life Management

Diversion Programs

1. Compost the green waste that the city's contract hauler collects or deliver to an Anaerobic Digestion facility for Processing (AB 939 and AB 1594).
2. Process the construction and demolition (C&D) debris that the city's contract hauler collects for recovery of targeted materials (AB 939 and CALGreen).
3. Provide commercial organic waste collection services to all commercial covered generators (AB 1826).[3]

Regional Advocacy and Support

No action is required

1.3.2 Summary of Phase 2 Actions

The following actions will ensure the city's compliance with SB 1383 requirements, beginning on January 1, 2022.

Upstream Design & Production

Sustainable Procurement

1. Annually procure a quantity of "recovered organic waste products" (i.e., compost and renewable transportation fuel) that meets or exceeds the city's SB 1383 annual recovered organics waste product procurement target.

[3] Covered generators are accounts that are subject to the regulations.

2. Ensure that at least 75% of city government's annual purchase of paper products are recycled-content.

Material Bans| Disposal Bans

No action is required

Product Stewardship | Take Back Ordinances

No action is required

Consumption & Use

Waste Prevention | Source Reduction

No action is required

Material Reuse

No action is required

Sustainable Materials Market Development

1. Develop markets for recovered organic waste products and other recovered products within all city government departments and throughout Carlsbad.

End-of-Life Management

Diversion Programs

1. Implement required residential and commercial organics collection services.
2. Develop required edible food recovery program.

Regional Advocacy and Support

No action is required

1.3.3 Summary of Phase 3 Actions

The various upstream design & production, consumption and use, and end-of-life management actions listed below all support the development of sustainable materials management systems in Carlsbad.

Upstream Design & Production

Sustainable Procurement

1. Adopt a city government best practices Sustainable Materials Purchasing and Procurement Policy.

Material Bans | Disposal Bans

2. Material Bans - Evaluate and adopt appropriate material bans (e.g., single-use plastics, disposable food ware packaging).

3. Disposal Bans - Ban the disposal of green waste and C&D debris at the PTS, and through the city's residential and commercial collection systems.[4]

Product Stewardship | Take-Back Ordinances

4. Consider adopting take-back ordinances for products that are difficult or costly to manage.
5. Advocate for product stewardship and extended producer responsibility (EPR).

Consumption & Use

Source Reduction

1. Identify and realize waste prevention opportunities in all city government departments.
2. Support waste prevention opportunities throughout Carlsbad.

Material Reuse

3. Identify and realize material reuse opportunities in all city government departments.
4. Support the expansion of a reuse economy throughout Carlsbad.

Sustainable Materials Market Development

5. Identify and realize opportunities for city government's use of sustainably produced materials in place of products made from raw materials.
6. Support the development of markets for sustainably produced products throughout Carlsbad.

End-of-Life Management

Diversion Programs

1. Maximize the diversion of commercial recyclables.
2. Maximize the diversion of green waste.
3. Maximize the diversion of C&D debris.
4. Develop prioritized list of other materials to target for sustainable management. Summarize recommended actions for managing those materials for review by the city council, and implement approved management strategies.
5. Expand recycling and organic waste collection in city controlled public areas and venues.

[4] Under such a disposal ban, green waste and C&D debris would continue to be accepted at the PTS, however facility users would be required to segregate those materials, and the PTS contract operator would be required to process and divert those materials.

Regional Advocacy and Support

6. Advocate for and support the implementation of the County's Food Donation Action Plan for the San Diego Region and pursue enhancements to Carlsbad's food security infrastructure in conjunction with the development of the city's required SB 1383 edible food recovery program.
7. Advocate for and support the development of regional markets and processing capacity for hard to recycle materials for which markets and processing capacity does not currently exist.
8. Advocate for and support the development of additional local and regional organic material processing capacity sufficient to manage all of the organic material generated in Carlsbad and San Diego County.

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2.1 Sustainability and Sustainable Materials Management

2.1.1 Sustainability

The term "sustainability" can be applied in many contexts. Environmental sustainability, for example, can be exemplified by the way that a lumber company harvests trees over time to support continued use of the forest. Economic sustainability can pertain to how a business sets its prices to ensure that its employees are paid, its bottom line is met, and the company can sustain itself financially. Social sustainability includes providing equitable opportunities and outcomes for all community members, particularly the most vulnerable community members.

As discussed in the city's General Plan, most recently updated in 2015, a cohesive sustainability framework needs to incorporate not only environmental, but also economic and social considerations, where the intersection of the three constitutes sustainable development (**Figure 2-1**):

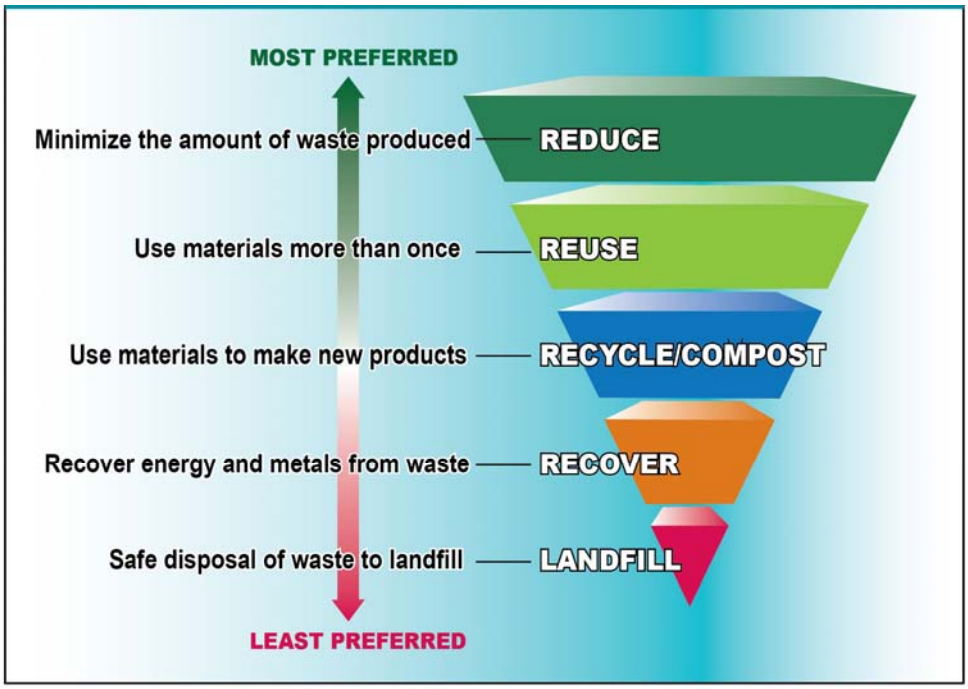
Figure 2-1
Sustainable Development

2.1.2 Sustainable Materials Management

Sustainable materials management specifically addresses the environmental aspect of sustainability - it is a systematic approach to using and reusing materials more productively over their entire life cycles, where waste from one activity becomes the resource for another. Sustainable materials management represents a fundamental shift from waste management to materials management and can lead to the reduction of greenhouse gases from within the city, thus lessening Carlsbad's impact on climate change.

Sustainable materials management seeks to reduce the consumption of raw (virgin) materials in the production of new materials and products, minimize the generation of materials (source reduction), maximize the productive use of materials that are generated by reusing and/or repurposing those materials, and then minimize the amount of materials that are ultimately disposed when they reach the end of their useful life. Under this system, once a product reaches its end of life (i.e., it has no additional reuse potential), recycling/composting should first be attempted, followed by recovery for energy, and, as a last resort safe disposal to landfill (see **Figure 2-2**).

Figure 2-2
Waste Management (Materials Management) Hierarchy



2.1.3 Community Vision, Core Values and Sustainability Guiding Principles

The city's General Plan includes a Community Vision - developed in 2010 after engaging the community for a two-year period - that identifies Carlsbad's most important core values and provides guiding principles for the city as it plans for the future. Those core values' guiding principles include:

1. Small town feel, beach community character, and connectedness;
2. Open space and the natural environment;
3. Access to recreation and active, healthy lifestyles;
4. The local economy, business diversity, and tourism;
5. Walking, biking, public transportation, and connectivity;
6. ***Sustainability***;
7. History, the arts, and cultural resources;

8. High-quality education and community services; and
9. Neighborhood revitalization, community design, and livability.

Specific values that the city has identified as part of the Sustainability core value include:

1. Green Development
2. Water Conservation, Recycling, and Desalination
3. Water Quality
4. Energy Security
5. Recycling, Composting, and Waste Reduction
6. Healthy and Sustainable Food

Envision Carlsbad's *Existing Conditions and Issues Exploration* includes the following details about sustainability that were considered when developing this SMMP:

- **Waste reduction and recycling** - The city supports programs that manage the overall waste stream of the city and that maximize the amount of waste that is recycled by its residents, citizens, and businesses. The city promotes the ability to quickly and conveniently dispose of hazardous waste.
- **Efficient transportation and low emission fuel sources** - The city believes that effective traffic management is an important element affecting the quality of life within the city. The city supports programs that optimize the flow of traffic, the use of low-emission alternative fuel vehicles, and the increased availability and use of mass transit and other non-automotive modes of transportation. The city encourages participation in research programs designed to test and improve alternate fuel vehicles.
- **Sound procurement decisions** - The procurement of products and services by the city, its residents, businesses, and institutions result in environmental, social, and economic impacts both in this region and the country. Where possible, the city's procurement systems should support the use of recycled materials and products with low carbon footprints (low use of carbon or greenhouse gas producing products in the manufacture, installation, maintenance, or disposal of the product).

Additionally, the city has the following six guiding sustainability principles:

1. **Being a model community** - Carlsbad desires to be a model community by creating a sustainable, high quality of life for those who live, work, and play in the city.
2. **Creating a sustainable system** - Sustainability is based on achieving a long-term balance among social, economic, and environmental factors.
3. **The participation of Carlsbad residents is vital to its success** - The city recognizes that it takes the collective efforts of its citizens to make its vision a reality. Residents have a responsibility to be informed, involved, and engaged in the development of their community.
4. **A proactive approach to sustainability guides city policy** - Carlsbad is committed to proactively addressing existing and potential community needs without compromising

future generations. The city encourages staff to participate in research opportunities that may further its goals of creating a sustainable community.

5. **Carlsbad recognizes the local and global impacts of decision making** - Local social, economic, and environmental issues cannot be separated from the bigger picture. Carlsbad recognizes the interconnectedness of citizens, associations, and communities and the profound impact that one community's actions may have on another.
6. **Developing a sustainable community is based on employing cost-effective programs** - The city recognizes that both financial and staff resources are limited; therefore, those programs and activities providing the highest benefit to the community and representing best-cost solutions should be considered.

2.2 Sustainable Materials Management Plan

2.2.1 Purpose of the Plan

This SMMP is intended to be a living document, helping to guide the city, its residents, and businesses toward more sustainable use of our material resources. The purpose of the SMMP is to identify specific policies and ordinances, programs and services, service provider contractual requirements, and facility capacity that Carlsbad should pursue to achieve its sustainable materials management objectives. The SMMP is organized into the following three phases:[1]

Phase 1 **Ensure compliance with all state solid waste regulations currently in effect.**

Phase 2 **Achieve regulatory compliance with all SB 1383 regulations.[2]**

Phase 3 **Establish sustainable materials management systems throughout Carlsbad.**

2.2.2 Structure of the Plan

The SMMP's "actions" for each of its three Phases are presented in the context of the following three elements of sustainable materials management systems (life-cycle phases), with the major types of actions associated with each element noted:[3]

1. **Upstream Design and Production** - Designing and producing sustainable materials and products that have high post-consumer recycled content and contain no or minimal raw (virgin) materials, have no or limited packaging, are non-toxic, and are readily recyclable. Major related actions include:
    a. **Sustainable Procurement**

---

1 Phases 1 and 2 are specific to the city achieving regulatory compliance and take priority over Phase 3. Once the city completes Phases 1 and 2 its attention and resources will shift to Phase 3.

2 Those regulations begin to take effect as of January 1, 2022.

3 These three elements are used by various entities to reflect the elements of a sustainable materials management system. The also align with the 5 phases of Environmental Protection Agency (EPA)'s Life Cycle of Waste Management, as follows: **Materials Extraction** and **Manufacturing** = Element #1 - Upstream Design and Production; **Distribution** and **Usage** = Element #2 - Consumption and Use; and **End-of-Life Management** = Element 3 - End-of Life Management.

   b. **Material Bans| Disposal Bans**

   c. **Product Stewardship | Take Back Ordinances**

2. **Consumption and Use** - Consuming and using sustainably produced materials and products in a manner that is consistent with the hierarchy of waste reduction, reuse, and recycling. Major related actions include:

   a. **Waste Prevention | Source Reduction**

   b. **Material Reuse**

   c. **Sustainable Materials Market Development and Support**

3. **End-of-Life Management** - Maximizing diversion of materials and the production of post-consumer recycled content feedstock for upstream design and production of sustainable materials (i.e., closing the loop). Major related actions include:

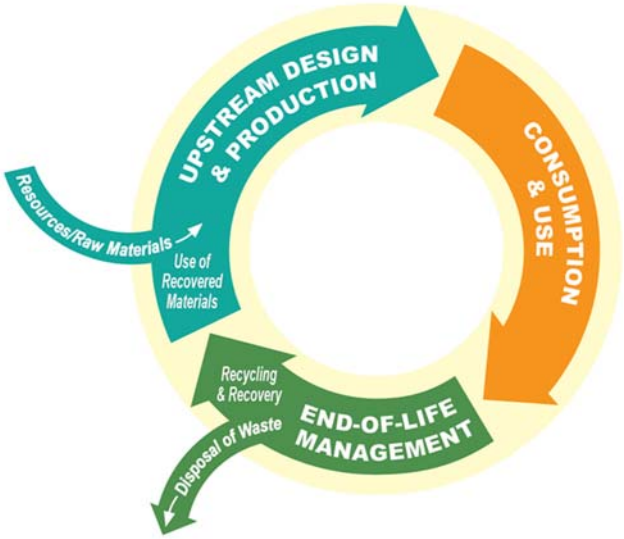
   a. **Diversion Programs**

   b. **Regional Advocacy and Support**

In support of the end-of-life management strategies related to the above major actions, the city will need to negotiate changes to its existing collection contract and PTS operating contract, and/or draft new agreements and conduct competitive procurement processes for collection and transfer station services when the current contract terms expire.

The structure of the three elements discussed above is graphically represented in **Figure 2-3** below.

Figure 2-3
Sustainable Materials Management System Elements
(i.e., Closed-Loop System)



In addition to the Phase 2 actions identified in this SMMP, there are a number of policies, ordinances, and other support activities that the city is required to undertake to comply with SB 1383, which are in some cases applicable to more than one of the three sustainable material

management elements. **Appendix 2A** provides a summary discussion of those required actions.

2.2.3 Sustainable Materials Management Plan Vision

Phase 1 - **Ensure compliance with all state solid waste regulations currently in effect.**

The SMMP envisions the city ensuring compliance with all state solid waste regulations currently in effect by increased recovery of C&D debris, composting of green waste that the city's contracted hauler delivers to the PTS, and the implementation of an AB 1826 commercial organics collection program, supported by required public education and outreach.

Phase 2 - **Achieve regulatory compliance with all SB 1383 regulations**

The SMMP envisions the city achieving full regulatory compliance with all applicable SB 1383 regulations, as of January 1, 2022, when those regulations largely take effect. This will require the city to provide SB 1383 organic collection services to all residents and businesses, and implement an edible food recovery program. The city will also need to complete the required SB 1383 planning, procurement, public education and outreach, ordinance development, enforcement, and monitoring activities.

Phase 3 - Establish sustainable materials management systems throughout Carlsbad.

Going beyond Phase 1 and Phase 2 regulatory compliance, the SMMP envisions the city becoming a leader in sustainable materials management through the development of sustainable materials management systems in each city government department and citywide.

Carlsbad's city government plans to take a lead role and serve as an example to residents and businesses with respect to sustainable materials management. In support of that effort, Sustainable Material Management Strategic Plans will be developed for all city government departments as part of the development of the SMMP's implementation plan. Those strategic plans will be based on an evaluation of each department's purchasing and procurement practices (upstream design and production), consumption and use of materials, and end-of-life management practices, thereby covering the entire sustainability materials management life-cycle. The city plans to also actively seek out businesses interested in developing sustainable materials management "partnerships", and assist those businesses with developing sustainable procurement, consumption and use, and end-of-life management practices.

Implementing sustainable materials management systems in Carlsbad will require a rethinking and restructuring of how city government, residents, and businesses purchase, use, and manage materials at the end of their useful lives. It will require commitment, hard work, and a well-designed implementation plan. Effective public education, outreach, technical assistance, and stakeholder involvement will be critical to success. Through a concerted commitment to and implementation of sustainable material management principles, the city can make meaningful progress towards achieving the SMMP's vision.

Overall, Carlsbad's SMMP envisions the following:

- **City as a Model** - Establishing city government as a model for the greater Carlsbad community through the implementation of sustainable materials management systems in

all city departments that incorporate best management practices specific to upstream design and production, consumption and use, and end-of-life management.

- **City Influence on the Greater Community** - Establishing specific sustainability expectations for various sectors of customers (residential, commercial, institutional, and schools) by developing policies and establishing programs, as well as collaborating with and providing appropriate incentives to the sectors.
- **Upstream Design and Production** - Influencing changes in the material extraction, manufacturing, and distribution of materials to the extent possible within the region by working with regional manufacturers and industries to effect positive change, while also supporting policies at the state and federal level.
- **Consumption and Use** - Providing opportunities to our community to reduce waste, including reducing single-use items, and developing and expanded reuse economy in the city.
- **End-of-Life Management** - Maximizing the diversion of recyclable and organic materials and supporting the development of regional recycling and organic material processing capacity.
- **Implementation Plan** - Developing a detailed implementation plan that reflects the goals and actions of this SMMP.
- **Community Involvement** - Including community decision making in the development of solid waste policies and programs.
- **Considers all Definitions of Sustainability** - Considering the financial and social impacts of creating a sustainable materials management system and reducing the impact to sensitive communities.

2.2.4 Supporting Public Education, Outreach and Technical Assistance Program

Public education and community outreach will play an important role in Carlsbad's sustainable materials management planning and implementation. This is particularly true with respect to building community support for high diversion programs, and establishing sustainable materials management systems. To build that community support, community public education and outreach should start early, involve the community in making important decisions, use Carlsbad's local traditions and culture to increase the impact of those efforts, and keep the community involved through public meetings, newsletters and public announcements.

The SMMP envisions that Carlsbad's overall sustainable material management efforts will be supported by a comprehensive Sustainable Materials Management Public Education, Outreach, and Technical Assistance Program that supports the required and planned SMMP actions. **Appendix 2B** provides an overview of the city's current public education and outreach efforts and recommendations for improvement, along with examples of successful public education and outreach programs in other jurisdictions.

2.2.5 Key Items Needed for Implementation

Actions specific to each of the SMMP's three Phases can begin immediately, with a target date for substantial completion of Phase 1 by July 1, 2020, and Phase 2 by January 1, 2022. The later date corresponds with CalRecycle's timeline to begin enforcing SB 1383 residential and commercial organic recycling requirements.[4] Key items that must be implemented include the following:

- Develop an Implementation Plan for this SMMP
- Adopt a Best Practices Sustainable Materials Purchasing and Procurement Policy
- Implement changes to collection contract and PTS operating contract
- Adopt city ordinances to support this SMMP

Additional resources, including staffing and funding will be needed to complete the SMM Plan Phases.

2.2.6 Performance Metrics

Establishing performance benchmarks, measuring progress against those benchmarks, and identifying opportunities for improvement is the foundation of an effective management system. For purposes of gauging the effectiveness of Carlsbad's progress toward its sustainable material management objectives, performance metrics should be identified, and performance should be tracked relative to the established metrics. **Appendix 2C** provides an initial list of recycled content material procurement metrics, and diversion metrics, which should be reviewed and adjusted as appropriate as the SMMP is implemented.

2.3 Federal (EPA) Sustainable Materials Management Planning

The United States Environmental Protection Agency (EPA) is responsible for protecting human health and the environment. As such, the department develops laws and regulations, resource guides, specific programs to address aspects like clean air and water, and also enforces policy.

The Resource Conservation & Recovery Act (RCRA) provides the legislative basis for EPA's Sustainable Materials Management Program, setting a strong preference for resource conservation over disposal. EPA's 2002 report, Beyond RCRA: Waste and Materials Management in 2020 made the argument for focusing efforts on materials management. One of the findings of that report was the need for society to shift focus away from waste management toward materials management.

The EPA's 2009 report, Sustainable Materials Management: The Road Ahead, provided recommendations and an analytical framework for moving toward sustainable materials

[4] Certain other SB 1383 requirements become effective at a later date (e.g., January 1, 2024).

management. In October 2015, the U.S. EPA's Sustainable Materials Management Program Strategic Plan was issued (**Appendix 2D**), which included the following objectives:

- **Decrease disposal rate** - Track and reduce the overall amount of materials disposed, which encompasses activities targeting source reduction, reuse, recycling, and prevention;
- **Reduce environmental impacts of materials** - Reduce the environmental impacts of materials across their life cycle, including reduced greenhouse gas emissions and water and energy use;
- **Increase socio-economic benefits** - Track and report material impacts on the economy as well as social aspects; and
- **Increase capacity of state and local governments, communities, and key stakeholders to adopt and implement sustainable materials management policies, practices, and incentives** - Increase the number of states and communities where sustainable materials management capacity has been expanded as a result of the EPA's technical assistance and support. It also involves increasing the per capita quantity and/or quality of recyclables recovered for manufacturing and increasing the number of households with access to organic collection and recycling.

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3.1 Introduction

Completing Phase 1 of this SMMP will ensure the city's compliance with state solid waste regulations currently in effect. Completing Phase 2 of this SMMP will ensure the city's compliance with SB 1383 regulations, effective as of January 1, 2022. The following five (5) pieces of legislation are the most impactful to the development the city's solid waste management system. The first four relate specifically to Phase 1, the fifth (SB 1383) applies to Phase 2.[1]

AB 939 Integrated Waste Management Act (1989)

AB 341 Mandatory Commercial Recycling (2011)

AB 1594 Green Use as ADC (2014)

AB 1826 Mandatory Commercial Organics Recycling (2014)

SB 1383 Short-Lived Climate Pollutants (2016)

This section includes relevant legislation, details related to material bans and extended producer responsibility.

3.2 Major Impacting Legislation

3.2.1 AB 939 – Integrated Waste Management Act

Overview

AB 939, among other things, established an integrated waste management hierarchy to guide the California Integrated Waste Management Board and local agencies in implementation, in order of priority: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. AB 939also required each city and county to develop a plan (i.e., Source Reduction and Recycling Element (SRRE)) to divert 25% of all solid waste from landfill or transformation by January 1, 1995 through source reduction, recycling, and composting activities, and percent by January 1, 2000. Local agencies report back their progress in achieving waste diversion annually via the Electronic Annual Report (EAR).

Impact on City

While the City is currently in compliance with the 50% minimum diversion requirement it will lose the diversion credit it is currently receiving for its green waste that is currently used as alternative daily cover (ADC) as of January 1, 2020. At current levels of ADC use, and assuming all other solid waste diversion factors remain the same, the city's recycling rate will fall below AB 939's 50% minimum diversion requirement at that time unless corrective actions are taken (e.g., the city's green waste is composted or anaerobically digested so that it retains the diversion credit for that material).

[1] A complete accounting of California solid waste legislation can be found on CalRecycle's website at https://www.calrecycle.ca.gov/laws/legislation/calhist.

3.2.2 AB 341 - Mandatory Commercial Recycling

Overview

AB 341 (1) requires CalRecycle to issue a report to the Legislature that includes strategies and recommendations that would enable the state to divert 75 percent of the solid waste generated in the state from disposal by January 1, 2020; (2) requires businesses that meet specified thresholds in the bill to arrange for recycling services by January 1, 2012; (3) streamlines the amendment process for non-disposal facility elements, by allowing changes without review and comment from a local task force; and (4) allows a solid waste facility to modify their existing permit, instead of having to undergo a permit revision, under specified circumstances.

Impact on City

AB 341 requires all multifamily residential properties (with 5 units or more) (regardless of solid waste generation) and businesses that generate four (4) cubic yards of solid waste per week to sign up for recycling collection service (covered generators). CWM currently offers commercial recycling services to all commercial businesses, including AB 341 covered generators.

Phase 3 of the SMMP goes beyond AB 341 requirements with the implementation of universal commercial recycling serviced for all commercial accounts, not just covered generators.

3.2.3 AB 1594 – Green Waste Used as Alternative Daily Cover

Overview

Provides that the use of green material as alternative daily cover is disposal and does not constitute diversion through recycling, as of January 1, 2020. (Chapter 719). Green material can continue to be used as alternative daily cover (ADC), however it will not count as diverted material.

Impact on City

The majority of the green waste collected by CWM in Carlsbad is used as ADC, which does not qualify of diversion as of January 1, 2020. At current levels of ADC use, and assuming all other solid waste diversion factors remain the same, the city's recycling rate will fall below AB 939's 50% minimum diversion requirement as of January 1, 2020.

3.2.4 AB 1826 - Mandatory Commercial Organics Recycling

Overview

AB 1826 requires commercial businesses to arrange for recycling services for organic waste. Local jurisdictions are also required to adopt an organic waste recycling program.

Signed by Governor Brown in 2014, AB 1826 requires commercial businesses and multi-family properties[2] to implement organics recycling programs for the diversion of organic waste[3] from landfills.

Under AB 1826, local jurisdictions are required to implement an organics recycling program appropriate for that jurisdiction, designed specifically to divert commercial organic waste. AB 1826 implementation includes the following four local jurisdiction requirements:

- Identify Covered Generators Component – Identify commercial businesses and multi-family properties (collectively, "covered generators") that must comply with the regulations of AB 1826;
- Organics Recycling Service Component – Ensure that organics recycling services are available to all covered generators;
- Education and Outreach Component – Conduct education and outreach to covered generators about the state law and how to comply; and
- Compliance Monitoring Component – Identify covered generators that are not in compliance and inform them of their requirements and how to comply.

Impact on City

In accordance with AB 1826, Carlsbad must develop a full scale commercial organics recycling program. The city has conducted a review of options with its contract hauler and the PTS contract operator. The city has also been collaborating with the San Diego Association of Governments (SANDAG) Solid Waste Technical Advisory Committee on regional planning for required infrastructure, programs, and best practices for food waste reduction, and diversion. The city also conducted a Food Waste Reduction and Recycling Pilot Program, and city staff worked with the County of San Diego to develop a Food Donation Action Plan for the San Diego region.

3.2.5 SB 1383 - Short Lived Climate Pollutants

Overview

SB 1383 (1) codifies various aspects of the California Air Resources Board's Short-Lived Climate Pollutant Plan; (2) requires the California Energy Commission to develop recommendations to increase the use of renewable gas; (3) sets organics disposal reduction targets; and, (4) provides CalRecycle the regulatory authority required to achieve the waste sector aspects of the Short-Lived Climate Pollutant Plan.

Passed in 2016, the bill aims to reduce Short Lived Climate Pollutants, or "Super Pollutants", emitted in the state, including methane from the waste sector. SB 1383 sets a goal to reduce organic waste by 50% from the 2014 level by 2020 and 75% from the 2014 level by 2025. Additionally, the bill establishes a target of recovering 20% of currently disposed edible food for human consumption by 2025.

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[2] For the purposes of AB 1826 compliance, a "multi-family property" is defined as a multi-family dwelling that consists of five or more units. Multi-family dwellings that consist of four units or fewer are exempt from all provisions of the law.

[3] Organic waste, which is regulated under AB 1826, means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

SB 1383 Article 16 (Administrative Civil Penalties for Violations of Requirements of this Chapter), requires that jurisdictions adopt an ordinance or enforcement mechanisms to impose penalties for violations that are equivalent to or stricter that those amounts specified in the Article, and as described further below.

Violations for property owners and organic waste generators include, but are not limited to the following:

- Failure of property owners to provide or arrange for organic collection service (i.e., 100% service subscription);
- Failure of organic waste generators to prohibit their employees from placing organic waste in a container not designated to receive organic waste (i.e., 100% participation/capture rate);
- Failure of organic waste generators to periodically inspect waste containers for contamination and inform employees if containers are contaminated; and
- Failure of edible food generators to arrange to recover edible food.

Jurisdiction imposed fines for these and certain other violations are structured in three levels:

- Level 1 (first violation) - $50-$100 per violation, per day.
- Level 2 (second violation) - $100-$200 per violation per day.
- Level 3 (Third and subsequent violations) - $250-$500 per violation per day.

Article 16 also establishes penalties that CalRecycle may impose on jurisdictions for failure to comply with requirements, including the following:

- Failure to implement required residential and commercial organic collection services;
- Failure to conduct required route audits and monitor containers for contamination;
- Failure to adopt required ordinances or similar enforcement mechanisms;
- Failure to enforce required ordinances or similar enforcement mechanisms;
- Failure to implement a required edible food recovery program;
- Failure to provide required public education;
- Failure to comply with required CALGreen building standards;
- Failure to keep required records; and
- Failure to provide required reports.

Jurisdictional penalties related to the above requirements are structured in three levels:

- Level 4 (first violation) - $500-$2,500 per violation, per day.
- Level 5 (second violation) - $1,000-$5,000 per violation per day.
- Level 6 (Third and subsequent violations) - $5,000-$10,000 per violation per day.

SB 1383 also establishes penalties for haulers, including self-haulers, and other entities.

Impact on City

SB 1383 requires jurisdictions, including Carlsbad, to take a wide range of specific actions, including:

- Imposing subscription, source separation, and education requirements and associated penalties on organic material generators including businesses and multi-family customers;
- Meeting certain targets for procurement of end-use organic waste products internally and/or as a requirement on contractors and/or haulers;
- Engaging in annual outreach efforts to organic waste generators, outreach to edible food generators, and quarterly contamination route monitoring that includes distribution of contamination tags to customers.
- Requiring edible food generators to donate edible food, and collecting records and enforcing requirements; and
- Requiring certain self-haulers of organic waste to source-separate, deliver for diversion, keep records of amounts delivered, and report annually to jurisdictions (residential self-haulers are exempt).

3.3 Legislative Material bans and Extended Producer Legislation

3.3.1 Extended Producer Responsibility

Extended producer responsibility (EPR) is a strategy of holding product developers, manufacturers, distributors and other material companies responsible for the products that they are creating and thus putting into the waste stream. Specific strategies can include take-back programs of certain materials for proper management and disposal/diversion (such as with pharmaceuticals and sharps), placing a cost on a product for the funding of proper management of that waste stream (such as with mattresses and carpet) or requiring proper labeling and instructions on packaging/products. EPR programs add the environmental costs associated with a product throughout the product life cycle to the market price of that product.[4] EPR legislation is a driving force behind the adoption of remanufacturing initiatives because it "focuses on the end-of-use treatment of consumer products and has the primary aim to increase the amount and degree of product recovery and to minimize the environmental impact of waste materials".[5]

3.3.2 Material bans

The goal of enacting a product ban is to stimulate the use of products or materials that are more sustainable by disallowing the sale/distribution of less environmentally-conscious option from the waste stream and driving attention/incentive (socially, financially, etc.) to the better option. It is not clear, however, whether substitute products are in fact better for the environment. Some experts contend that bans do not reduce waste but merely change its composition, or even create more of it, while others contend that bans provide a greater

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4 OECD (2001). *Extended Producer Responsibility: A Guidance Manual for Governments*. Paris, France.

5 Johnson, Michael R.; McCarthy, Ian P. (2014-10-01). "Product recovery decisions within the context of Extended Producer Responsibility". *Journal of Engineering and Technology Management*. Engineering and Technology Management for Sustainable Business Development. **34**: 9–28. doi:10.1016/j.jengtecman.2013.11.002.

benefit of starting or continuing the conversation of proper waste habits, and may motivate greater change within the industry.

3.3.3 Proposed and Existing Extended Producer Responsibility Legislation[6]

Proposed Legislation

SB 54 - Single-Use Plastic Waste: Reduction (Introduced December 11, 2018)

The goal of this bill is to reduce the amount of single-use plastic in the waste stream by requiring that CalRecycle develop a scoping plan to address the following regulations: source reduce, to the maximum extent possible, single-use packaging and products; to source reduce or recycle at least 75% of single-use plastic packing and products by 2030; and to require that all single-use packaging and products distributed or solid in California be recyclable or compostable on and after 2030. Manufacturers/distributors of single-use plastic in California would be required to demonstrate a recycling rate of not less than 20% on and after January 1, 2022 and 40% as of January 1, 2026. This bill has the potential to reduce the amount of single-use plastic waste entering California's waste stream, polluting our oceans, littering our local communities and beaches, and costing local governments millions of dollars in cleanup costs.

Existing Legislation

SB 212 - Statewide Drug and Sharps Take Back Program (2018)

SB 212, which was signed into law on October 1, 2018, and requires entities selling drugs or home-use medical sharps in California to individually, or in cooperation with other entities, develop and implement a statewide drug and/or home-generated sharps waste stewardship plan for the collection and disposal of home-generated drug and sharps waste. For drug stewardship plans, the plan must have five collection sites per county or one per 50,000 people, whichever is greater. For home-generated sharps stewardship plans, collection is done through prepaid mail-back containers, for which distribution is made or initiated at the point of sale with no cost to the consumer. It also requires CalRecycle to adopt specific regulations no later than January 1, 2021.

AB 1884 - Plastic Straws (2018)

AB 1884, which went into effect as of January 1, 2019, prohibits full-service restaurants from providing single-use plastic straws to consumers unless requested by the consumer. This covers full-service dining, but not takeout establishments like fast-food restaurants. The goal of this bill is to reduce the amount of single-use plastic straws in the waste stream and particularly was created to address plastic waste in coastal communities and California beaches. Financial penalties to a restaurant for violations include $25 per day not to exceed

[6] Source: California Product Stewardship Council.

$300 annually. Several California cities have already adopted ordinances similar to AB 1884, including Manhattan Beach, which in June 2018 banned plastic straws, stirrers and utensils.

SB 254 - Used Mattress Recovery and Recycling Act (2013)

SB 254, which went into effect on January 1, 2014 is aimed at reducing the amount of mattresses that end up in landfills as well as reducing the illegal dumping of mattresses. The bill requires retailers to provide consumers the option to have old mattresses picked up, requires the mattress recycling organization to develop a state plan for recycling used mattresses, and prohibits a manufacturer, renovator or retailer from selling in or importing a mattress into the state under noncompliance circumstances. This bill helped to establish the website Bye Bye Mattress which helps residents find drop-off locations for their used mattresses.

AB 2398 – Producer Responsibility for Carpet (2010)

AB 2398 is a Carpet Stewardship law, signed by the governor of California, on September 30, 2010. The purpose of the law is to increase the diversion and recycling of carpet in the state of California. As of July 1, 2011, the State began charging a $.25/square yard of carpet sold in California called the Carpet Stewardship Assessment. Retailers must include the $0.10/sq. yd. Carpet Stewardship Assessment fee as an after-tax line item on a customer invoice. Unlike other proposed stewardship legislation that are intended to fund the entire burden of end-of-life management, this law is designed to find ways to incentivize the growth of carpet reclamation and recycling and still allow the market to work.

AB 1343 – Architectural Paint Stewardship (2010)

AB 1343 creates a producer managed post-consumer paint recovery program. It requires architectural paint manufacturers to develop and implement a stewardship plan to reduce the generation of post-consumer paint, promote reuse of paint, and manage the end-of-life post-consumer paint in an environmentally sound manner.

SB 346 – Brake Pad Partnership (2010)

SB 346 phased copper out of brake pads sold in California. It was a negotiated agreement with the producers to stop copper pollution at the source. This measure was the only feasible way to reduce the single most significant source of copper in urban watersheds, which kills marine organisms and fatally impairs the viability of salmon and other fish, frustrating State, regional and local government efforts to meet our water quality objectives in the Bay Area and Southern California.

AB 1879 – Green Chemistry Program (2008)

AB 1879 required the California Department of Toxic Substances Control (DTSC) under the Green Chemistry Initiative to adopt, by January 1, 2011, regulations to establish a process by which chemicals or chemical ingredients in products may be identified and prioritized for consideration as being chemicals of concern.

AB 2347 – Recycling Mercury Thermostats (2008)

AB 2347 established a shared responsibility program for the recycling of mercury thermostats and relieved pressure on cash-strapped local governments. This bill took a producer

responsibility approach for establishing effective mercury recycling collection programs, allowing Californians to return waste thermostats to retail locations that sell new ones, establishing convenient collection sites for contractors, and requiring companies that produce thermostats to fund the recycling program.

AB 1860 – Unsafe Products: Recall or Warning (2008)

The Product Recall Safety and Protection Act (Act) requires the immediate removal from the market and notice to consumers for products subject to recall or warnings. The Act also requires a product manufacturer whose product is subject to a recall and/or warnings to provide for the safe return of the product to the manufacturer at no cost to the end consumer or retailer, and requires the manufacturer to properly dispose of the product and not export the product, or permit the product to be exported, for disposal in a manner that poses significant risk to the public health or the environment.

4.1 Introduction

Coast Waste Management (CWM), a division of Waste Management Inc., has an exclusive contract for the provision of residential and commercial solid waste, recycling and green waste collection services in Carlsbad. With the exception of residential and commercial recyclable materials, E-waste, white goods, and a portion the construction and demolition debris collected by CWM, all franchised materials collected by CWM are delivered to the PTS, which is operated by Republic Services (Republic) under contract to the city. The majority of solid waste from the PTS is landfilled at Republic's Otay Landfill in Chula Vista.

The PTS is the one of only two large volume transfer station in northern San Diego County, with more than 50% of the material that passes through that facility coming from outside of the city. EDCO Waste and Recycling Services also operates a large volume transfer station in Escondido, and a C&D debris processing facility in San Marcos, which currently receives CWM C&D debris that is not delivered to the PTS.

4.2 City Historical Diversion and Recycling Rates

AB 939, which was passed in 1989, required jurisdictions in California to meet diversion goals of 25% by 1995 and 50% by the year 2000. In 2011, the Legislature passed AB 341, which among other things, established a new statewide goal of 75-percent recycling through source reduction, recycling, and composting by 2020.

Table 4-1 provides historical diversion rates and recycling rates for the past 10-years for both the city of Carlsbad and statewide.[1] As shown, the city's diversion rate was 53% in 2017,[2] down from a high of 67% in 2010. While the city's diversion rate was generally comparable to the statewide rate from 2008 to 2012, over the past 5-years it has been less than the statewide average.

On the other hand, Carlsbad's recycling rate was 44% in 2017, and has outpaced the statewide average, although less so in recent years. Of particular note is that the statewide recycling rate of 44% in 2016, the most recent year for which statewide data is available, is well below the 2020 75% recycling goal.

The difference between Carlsbad's Diversion Rate (53% in 2017) and Recycling Rate (44% in 2017) is due to the use of the city's green waste as alternative daily cover (ADC) at Republic's Otay Landfill. If that material, which does not count toward diversion under AB 341 were composted, the city's Recycling Rate and Diversion Rate would be the same.

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1 Several activities which ***count toward diversion*** under AB 939 ***do not count toward recycling*** under AB 341, including ADC, alternative intermediate cover (AIC), other beneficial reuse at landfills, transformation credit and waste derived fuel. These five activities are instead defined as "disposal-related activities."

2 The most recent year for which data is currently available.

Table 4-1
City and Statewide Diversion and Recycling Rates

Year	Carlsbad		Statewide	
	Diversion Rate	Recycling Rate	Diversion Rate [1]	Recycling Rate [2]
2008	61%	57%	59%	*Not Reported*
2009	65%	60%	65%	
2010	67%	60%	65%	49%
2011	66%	59%	65%	49%
2012	66%	59%	66%	50%
2013	61%	55%	65%	50%
2014	57%	51%	65%	50%
2015	57%	52%	63%	47%
2016	54%	47%	61%	44%
2017	53%	44%	*Not yet reported*	

(1) includes alternative daily cover (ADC) diversion

(2) Does not include ADC diversion

CalRecycle reported that a major reason the state's recycling rate has been decreasing is the rise over the past several years of both total disposal and per capita disposal. CalRecycle pointed to several reasons for the rising disposal volumes including relatively low disposal costs, higher wages driving increased consumption, slow-to-develop domestic markets for recyclable materials, declining international markets for recyclables and a lack of in-state infrastructure to process organics.

4.3 Contracted Service Providers

4.3.1 Coast Waste Management

Single-Family Services

Residents are provided weekly solid waste, recycling and green waste collection services in containers provided by CWM. Solid waste, recycling and green waste containers are provided in three sizes: 35, 64, and 96-gallons. Residents are allowed up to three recycling carts and three green waste carts at no additional cost. Extra solid waste carts are provided at an additional monthly rate.

Multi-Family and Commercial Services

CWM provides solid waste services to commercial and multi-family accounts using commercial cans and bins ranging in size from 2 cubic yards to 6 cubic yards, and 3-cubic yard commercial compactors. Service is provided up to six days per week. Commingled recycling, and source

separated cardboard and mixed paper recycling services are also provided to commercial accounts. Commercial green waste collection service is also provided at an additional cost.

CWM also offers 3-cubic yard special haul (temporary service), and 3 and 4-cubic yard C&D debris recycling service.

Roll-Off Services

CWM provides industrial customers with roll-off services for 10-cubic yard to 40-cubic yard bins, as well as specialized compactors.

Other Services

Bulky Item Collection - For items that are too large to fit into the trash can, residents may request the pickup of household bulky goods. Residents may dispose of up to five bulky household items, three times annually, at no charge. Residents may schedule additional pick-up appointments at a cost of $35 for the first item and $5 for each subsequent item.

Christmas Tree Recycling - CWM collects Christmas trees the first two weeks following Christmas on the regularly scheduled collection day. There are also a number of drop-off locations within the city where residents can take their trees for recycling.

Drop-Off / Buy-Back Center - CWM operates a non-franchised drop-off buy-back center at the PTS. The Center accepts California Redemption Value (CRV) bottles and cans in for cash. Also accepted for drop off are non-CRV bottles and cans, newspaper, mixed paper and cardboard.

CWM Franchised Diversion Rate

Table 4-2 provides a summary of CWM's collection contract diversion rate for the residential, commercial and roll-off waste streams, and overall for the past 5 years. As shown, over the past five years there has been relatively little change in CWM's total diversion rate.

Table 4-2
CWM Collection Contract Diversion Rate

Waste Stream	2014	2015	2016	2017	2018	*5-Year Average*
Commercial Diversion %	10.2%	12.3%	12.4%	13.3%	14.0%	12.4%
Residential Diversion %	54.7%	54.5%	53.7%	54.8%	53.1%	54.2%
Roll-Off Diversion %	21.5%	17.4%	26.6%	32.5%	28.7%	25.3%
Total Diversion %	**32.2%**	**31.9%**	**33.2%**	**35.4%**	**33.8%**	**33.3%**

4.3.2 Republic Services | Palomar Transfer Station Inc.

Republic Services operates the Palomar Transfer Station (PTS), which is located in Carlsbad. The PTS is a large volume transfer/processing facility that is owned by the County, leased to Carlsbad, and operated by Republic under contract to the city. It is permitted to accept mixed municipal, construction/demolition, and industrial waste, and green materials.

PTS Incoming and Outgoing Tonnages

Table 4-3 provides a summary of the incoming and outgoing tons from the PTS for 2018. As shown, with the exception of 22 pounds of solid waste that was disposed of at the El Sobrante

Landfill in Riverside County, all of the solid waste received at PTS in 2018 was disposed at Republic's Otay Landfill in Chula Vista.

Of particular note is Republic's management of the C&D debris and green waste received at the PTS:

- Of the 3,470 tons of C&D debris received at the PTS, 1,010 tons (29%) were delivered to Republic's Otay Landfill C&D processing facility for processing, with the remaining 71% disposed as municipal solid waste (MSW); and
- Of the 47, 546 tons of green waste received at the PTS, 4,078 tons were composted (9%), while the remaining 38,387 tons (81%) were used as alternative daily cover (ADC) at the Otay Landfill.

Table 4-3
PTS Incoming and Outgoing Tonnages (2018)

		Tons	% of Total	
PTS Incoming Tons				
MSW[(1)]		391,603	88%	
Recycling		2,756	1%	
C&D[(2)]		3,471	1%	
Green Waste		47,546	11%	
Mattress		-	0%	
	Total	**445,376**	**100%**	
PTS OutgoingTons				
Otay Landfill				
MSW		395,263		
Recycling		-		
C&D		1,010	29%	Processed
Green Waste		38,387	81%	ADC
Mattress		-		
	Total	**434,660**		
El Sobrante Landfill				
MSW		22		
	Total	**22**		
Agromin				
Green Waste		4,078	9%	Composted
	Total	**4,078**		
Orange MRF				
Recycling		2,353		
	Total	**2,353**		
Total Outgoing Materials				
MSW		395,285		
Recycling		2,353		
C&D		1,010		
GW		42,465		
Mattress		-		
	Total	**441,113**		

PTS Tonnages by Jurisdiction

Table 4-4 provides a summary of the total tons delivered to the PTS in 2018 and the city's portion of that tonnage.

Table 4-4
PTS Tonnages by Jurisdiction (2018)

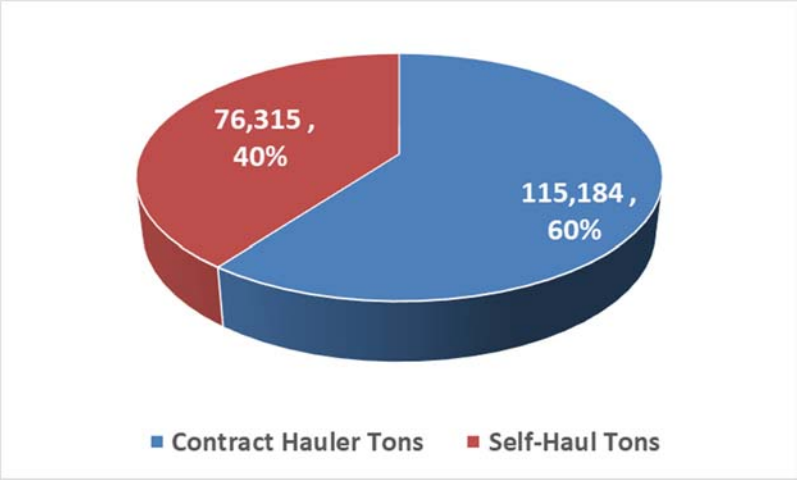
Jurisdiction	Tonnages					
	Buried		Non-Buried		Total	
	Tons	% of Total	Tons	% of Total	Tons	% of Total
Carlsbad	155,297	39%	36,203	72%	191,500	43%
All Other Jurisdictions	239,777	61%	14,174	28%	253,952	57%
Totals	**395,074**	**100%**	**50,376**	**100%**	**445,452**	**100%**

As shown, 43% of the tonnage received at the PTS in 2018 came from the city, while 57% came from outside the city. This tonnage distribution highlights the regional use of the PTS.

PTS City Self-Haul Tonnages

Figure 4-1 provides a breakdown of the portion of the total 2018 city tons delivered to the PTS by CWM versus self-hauled by residential and commercial generators. As shown, 40% of the total material Republic reported as delivered to the PTS from sources within the city was attributed to self-haulers, while 60% was delivered by PTS.[3] The self-haul tonnage attributed to the city, as a percentage of total city tons (40%), is twice as high as the statewide self-haul average of 20% of total tons. This raises a concern as to the accuracy of the reporting of city self-haul tonnages delivered to the PTS, and warrants additional review by the city. Any reduction in the total self-haul tons attributed to the city would increase the city's calculated diversion rate.

Figure 4-1
City Contract Hauler and Self-Haul Tonnage to PTS (2018)



[3] City self-haul tonnage represented 44% of the total city tonnage delivered to the PTS in 2017.

4.4 Disposal Tonnages by Facility

Table 4-5 provides a summary of the city's 2018 disposal tonnages by facility. As shown, more than 96% of the city's disposal tonnage was landfilled at the Otay Landfill. The vast majority of that tonnage transferred through the PTS (97%). The city's disposal facility profiles for 2013, 2014, 2015, 2016 and 2017 are generally similar.

Table 4-5
City Disposal Tonnages by Facility (2018)

Destination Facility	Disposed	
	Tons	% of Total
Otay Landfill	156,693	96.2%
Sycamore Landfill	2,773	1.7%
El Sobrante Landfill	2,646	1.6%
West Miramar Sanitary Landfill	471	0.3%
Kettleman Hills - B18 Nonhaz Codisposal	69	0.0%
Mid-Valley Sanitary Landfill	69	0.0%
McKittrick Waste Treatment Site	50	0.0%
Azusa Land Reclamation Co. Landfill	46	0.0%
Olinda Alpha Sanitary Landfill	11	0.0%
Frank R. Bowerman Sanitary LF	3	0.0%
Lamb Canyon Sanitary Landfill	2	0.0%
Simi Valley Landfill & Recycling Center	1	0.0%
Total	162,834	100.0%

Historically as much as 10% or more of the total tonnage assigned to the city that was reported as disposed at the Otay Landfill was not reported as transferred through the PTS. As such, that tonnage would have had to have been directly hauled to the Otay Landfill more than 50 miles away. Going forward, it is suggested the city review the sources of city tonnage that is delivered to the Otay Landfill but is not transferred through the PTS to confirm that it is being correctly reported as originating from the city of Carlsbad.

4.5 Analysis of Additional Diversion

For purpose of gauging the potential impact of the various SMMP required and planned actions, an analysis was conducted of the additional diversion Carlsbad may be able to achieve through those required and planned diversion actions. The analysis calculated the additional diversion associated with the following materials contained within the residential, commercial

and self-haul waste streams, assuming capture rates for the targeted materials of 10%, 25%, 75% and 100%:[4]

- Recyclable materials;
- Organic materials;
- Household Hazardous Waste (HHW), Electronic waste (E-waste), Universal Waste (U-waste);
- Textiles;
- Carpet;
- Bulky Items;
- C&D Debris; and
- Tires.

The resulting additional diversion associated with the residential, commercial and self-haul waste streams are shown in **Table 4-6**, **Table 4-7**, and **Table 4-8**, respectively, with corresponding **Figure 4-2**, **Figure 4-3**, and **Figure 4-4** providing a comparison of the potential increase in the city's overall diversion rate. Each of these tables provides the city's current "Baseline" with respect to the total tons generated, diverted and disposed that are attributed to Carlsbad, and the associated city diversion rate, which was 53% in 2017. The Tables then show the increase in the tons diverted, and decrease in tons disposed associated with capturing 10%, 25%, 50% and 100% of the targeted materials listed above. The corresponding figures show the related increase in the city's diversion rate associated with each of the noted targeted material capture rates.

Table 4.9 and **Figure 4-4** show the overall increase in the city's diversion rate accounting for the combined impacts of the additional residential, commercial and self-haul diversion for the associated capture rates. As shown, were the city to recovery 100% of the targeted materials from its those waste streams, the city's diversion rate would increase by 30%, from 53% to 83%.

It should be noted that this analysis is based on general statewide waste composition data and is not specific to Carlsbad. Additionally, the self-haul analysis considers all self-haul tonnages, including those that are not delivered to the PTS and over which the city has no contractual control. With that said, the analysis shows that while there is potential for recovering additional material from both the residential and commercial waste streams, the potential for recovery of self-haul material exceeds the combined totals of both the residential and commercial waste streams, with the majority of that self-haul diversion associated with C&D debris, bulky items, and green waste.

[4] Waste residential, commercial, and self-haul waste composition data was taken from CalRecycle's 2014 Disposal-Facility-Based Characterization of Solid Waste in California.

Figure 4-2
Additional Residential Diversion Potential

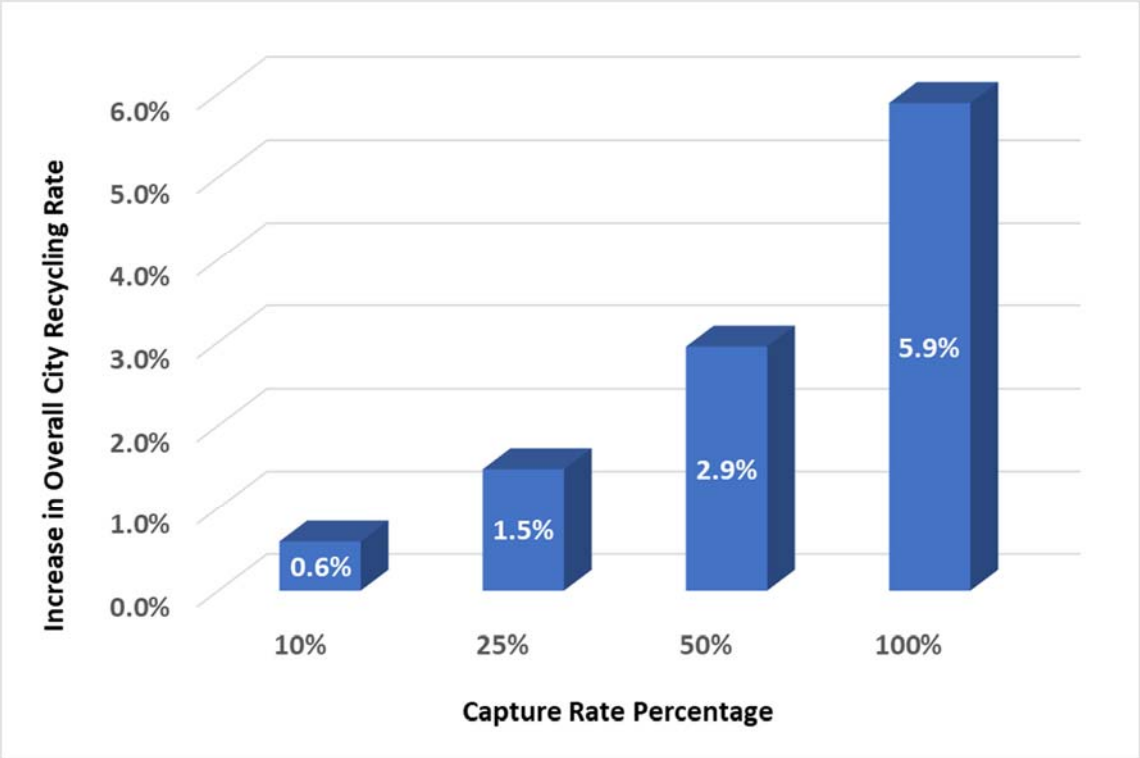


Table 4-6
Additional Residential Diversion Potential

	Current Baseline	Assumed Capture Rate | Tons Recovered			
		10%	25%	50%	100%
Current City Material Generation Rate	347,860	347,860	347,860	347,860	347,860
Tons Diverted	184,283	186,331	189,402	194,521	204,759
Tons Disposed	163,577	161,529	158,458	153,339	143,101
Diversion Rate	**53.0%**	**53.6%**	**54.4%**	**55.9%**	**58.9%**
Diversion Rate Increase vs. Baseline	**0.0%**	**0.6%**	**1.5%**	**2.9%**	**5.9%**

Figure 4-3
Additional Commercial Diversion Potential

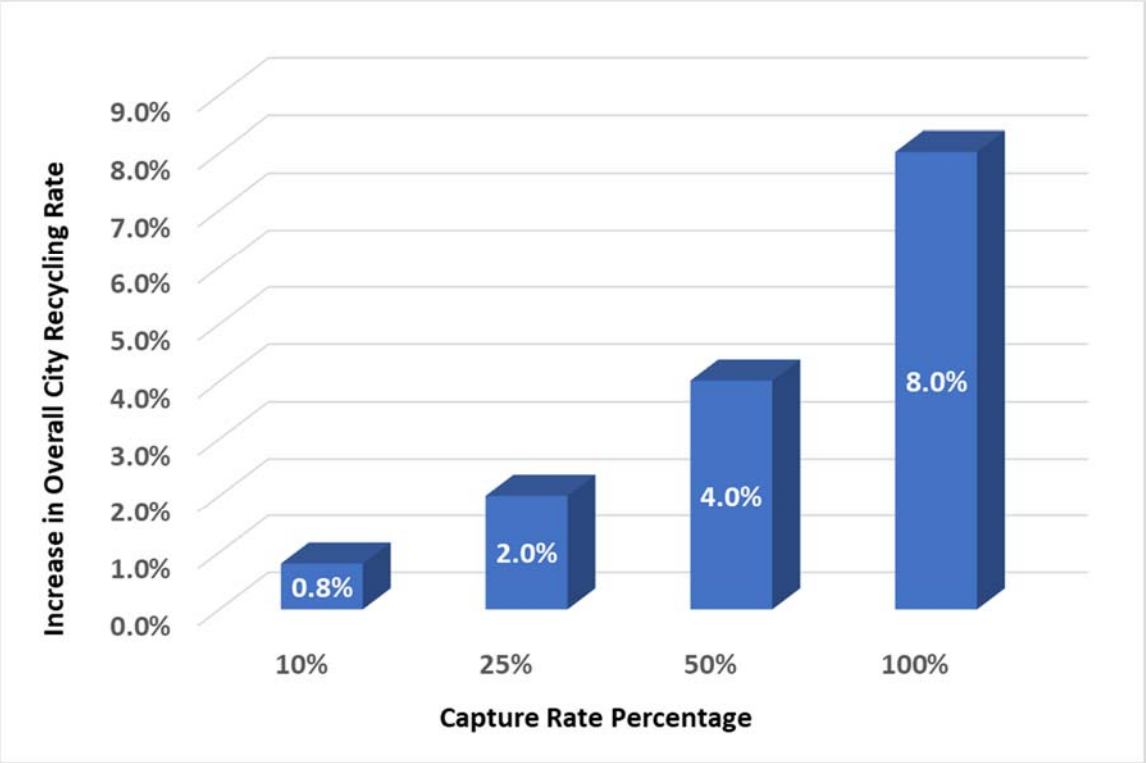


Table 4-7
Additional Commercial Diversion Potential

	Current Baseline	Assumed Capture Rate | Tons Recovered			
		10%	25%	50%	100%
Current City Material Generation Rate	347,860	347,860	347,860	347,860	347,860
Tons Diverted	184,283	187,072	191,255	198,227	212,171
Tons Disposed	163,577	160,788	156,605	149,633	135,689
Diversion Rate	**53.0%**	**53.8%**	**55.0%**	**57.0%**	**61.0%**
Diversion Rate Increase vs. Baseline	**0.0%**	**0.8%**	**2.0%**	**4.0%**	**8.0%**

Figure 4-4
Additional Self-Haul Diversion

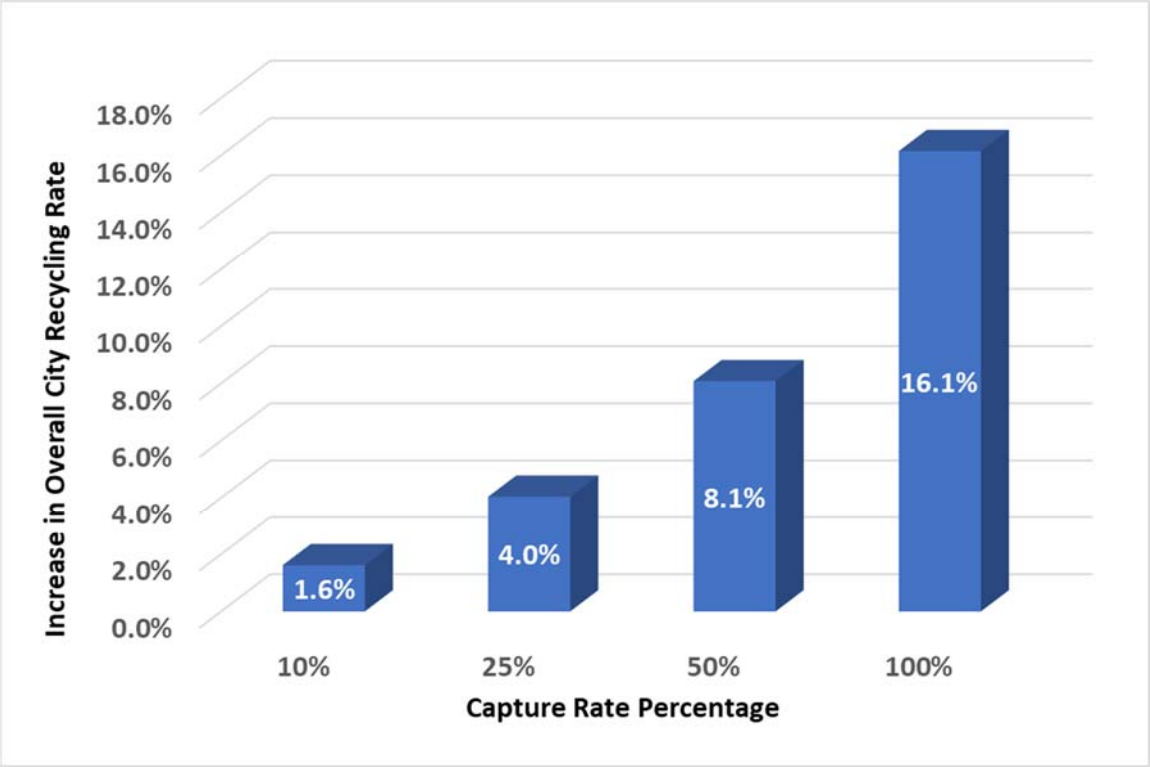


Table 4-8
Additional Self-Haul Diversion Potential

	Current Baseline	Assumed Capture Rate | Tons Recovered			
		10%	25%	50%	100%
Current City Material Generation Rate	347,860	347,860	347,860	347,860	347,860
Tons Diverted	184,283	189,900	198,326	212,370	240,457
Tons Disposed	163,577	157,960	149,534	135,490	107,403
Diversion Rate	**53.0%**	**54.6%**	**57.0%**	**61.1%**	**69.1%**
Diversion Rate Increase vs. Baseline	**0.0%**	**1.6%**	**4.0%**	**8.1%**	**16.1%**

Figure 4-5
Cumulative Additional Diversion

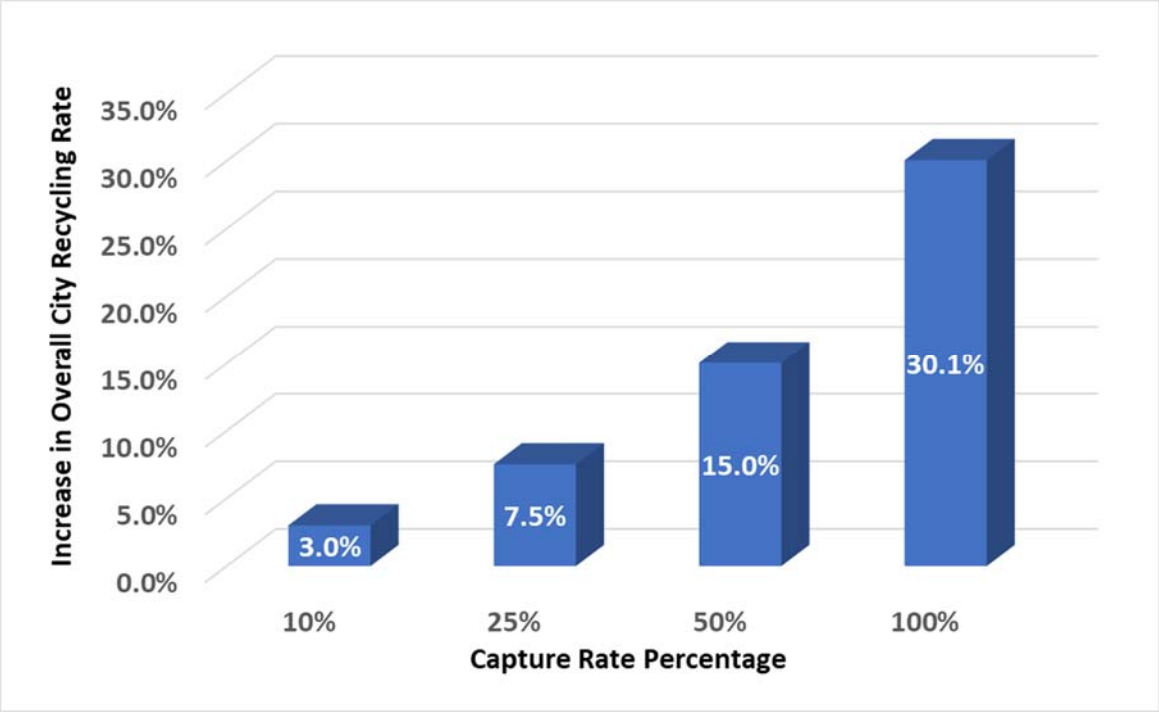


Table 4-9
Cumulative Additional Diversion Potential

Waste Stream	Current Baseline	Assumed Capture Rate | Increase in Overall City Divesion Rate			
		10%	25%	50%	100%
Residential		0.6%	1.5%	2.9%	5.9%
Commercial		0.8%	2.0%	4.0%	8.0%
Self-Haul		1.6%	4.0%	8.1%	16.1%
Diversion Rate Increase vs. Baseline		**3.0%**	**7.5%**	**15.0%**	**30.1%**
Overall City Diversion Rate	**53.0%**	**56.0%**	**60.5%**	**68.0%**	**83.0%**

4.6 Review of Service Contracts

4.6.1 Renegotiation of Service Contracts | Competitive Procurement of Contract Service Providers

Carlsbad's collection contract with CWM expires on July 1, 2022, after SB 1383 commercial organic compliance requirements begin to take effect on January 1, 2022. The PTS operating contract with Republic expires on July 1, 2027. Changes to both of these contractual arrangements will be required to support the city's sustainable materials management objectives. It is the city's intention to hire a qualified contractor to assist with any necessary contract negotiations or competitive procurement processes related to these two service contracts.

4.6.2 Collection Contract

The city entered into its current contract with CWM on July 1, 2012. Due to the passage of time, and new legislation such as AB 1826 and SB 1383, the terms and conditions of that contract are now inadequate. Ultimately, a new collection contract will need to be drafted that aligns with all relevant legislation. That new contract should include the following general components and support the city's maximum diversion and sustainable materials management objectives:

- Clear and specific definitions applicable to new requirements;
- Clear delineation of all regulatory, operational and financial responsibilities;
- Clear, objective and quantifiable performance standards applicable to new requirements;
- Regular reporting of performance relative to each established objective and quantifiable performance standard;
- Indemnity/coverage for new regulatory requirements for which the contractor has been assigned responsibility;
- Diversion and sustainable materials management programs, services and standards;
- How payments to the city are to be calculated– gross revenue, flat fee, etc.;
- Recycled material contamination protocols and cart/container overage protocols applicable to new requirements; and
- An effective means for holding the contractor to its contractual obligations, short of breach of contract (i.e., meaningful liquidated damages |administrative charges)).

4.6.3 Palomar Transfer Station Operating Contract

The city entered into its current PTS operating contract with Republic Services on June 1 2002 (Effective Date). The term of the contract was twenty-five (25) years, ending at midnight on May 31, 2027. The initial ten years of that 25 year term, was the "PTS Initial Operation Period", during which time the city agreed to direct all city contract hauler waste, and all other waste it controlled to the PTS. Amendment No. 3 to the PTS operating contract, executed in February

2012, extended the Initial PTS Operating Period by ten (10) years and one (1) month to July 1, 2022. The PTS operating contract will also need to be revised to support the city's sustainable materials management objectives. As with the city's collection contract, any new PTS operating contract should include the general components listed above for the city's collection contract, as applicable.

4.7 Rates and Rate Structure

Appendix 4A provides a review of the city's current residential and commercial rates and rate structure.

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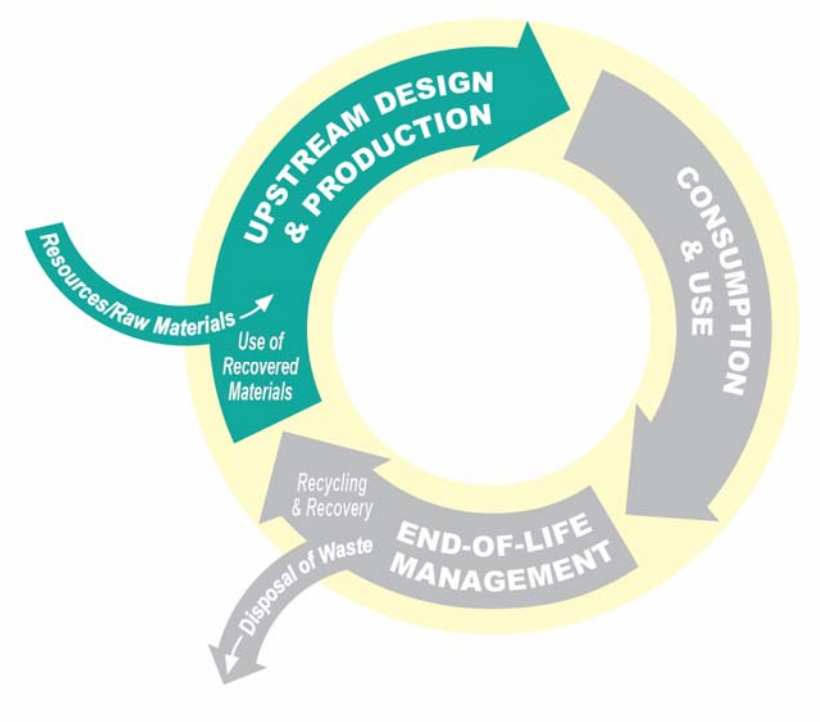
5.1 Introduction

The sustainable materials life-cycle starts with the upstream design and production of sustainable materials and products (**Figure 5-1**), which incorporate the following:

- Designing products for long-life that can be repaired and reused; rather than designing single use disposable products, or designing products for planned obsolescence;[1]
- Maximizing the use of post-consumer recycled materials and minimizing the use of raw (virgin) materials in the production process;
- Producing products that are recyclable and can be easily recycled;
- Eliminating all unnecessary packaging; and
- Eliminating toxic components.

Figure 5-1
Upstream Design & Production



[1] Producing consumer goods that rapidly become obsolete and so require replacing, achieved by frequent changes in design, termination of the supply of spare parts, and the use of nondurable materials.

5.2 City Ability to Influence Upstream Design and Production | Summary of Required and Planned Actions

Carlsbad has the ability to influence sustainable upstream design and production through the following three (3) major types of actions, which are summarized below:

1. **Sustainable Procurement**
2. **Material Bans | Disposal Bans**
3. **Product Stewardship | Take-back Ordinances**

The specific upstream design and production actions that are covered in Sections 5.3, 5.4 and 5.5 are organized into one of the above major types of actions, as applicable.

5.2.1 Sustainable Procurement

City's Ability to Influence

As one of the largest purchasing entities in the city, Carlsbad's city government has significant leverage to support the production of sustainably produced materials and demonstrate its commitment to sustainability through its purchasing and procurement policies and practices.

Summary of Required and Planned Actions

The SMMP envisions Carlsbad's city government, residents, and businesses maximizing their purchase and use of sustainable materials, thereby supporting the development of a local market (demand) for sustainable materials, and "closing the loop". In this regard, Carlsbad's city government will help lead the way, establishing a best practice Sustainable Materials Purchasing and Procurement Policy under which the purchase of sustainably produced products and materials by city government and contracted service providers is a requirement not simply a preference.

5.2.2 Material Bans | Disposal Bans

City's Ability to Influence

The city can enact material bans (product bans) and disposal bans to accomplish the following:

- **Material Bans** - Prevent the generation of hard-to-recycle materials and/or materials that have significant negative environmental impact.
- **Disposal Bans** - Ban the disposal of materials for which available recycling alternatives exist (e.g., green waste, C&D debris).

Summary of Required and Planned Actions

The SMMP envisions the city establishing material bans for targeted materials (e.g., single use plastics) that are costly or hard to manage and/or have a significant local negative environmental impacts, as directed by the City Council.

The SMMP also envisions the city establishing green waste and C&D debris disposal bans in support of maximizing the diversion of those materials, and considering disposal bans for other targeted materials in the future.[2]

5.2.3 Product Stewardship | Take-Back Ordinances

City's Ability to Influence

The city can continue and expand its support for regional, state, and national product stewardship efforts. It can also require local retailers to take-back certain products that they sell that are difficult or costly to manage (e.g., batteries, sharps, pharmaceuticals and personal care products).

Summary of Required and Planned Actions

The SMMP envisions that the city will expand its support for product stewardship and will incorporate extended producer responsibility (EPR) requirements into its Sustainable Materials Purchasing and Procurement Policy. The city will also consider establishing take-back ordinances for hard and/or costly to manage materials.

5.3 Required Phase 1 Actions

Sustainable Procurement

No action is required

Material Bans | Disposal Bans

No action is required

Product Stewardship | Take-back Ordinances

No action is required

5.4 Required Phase 2 Actions

The following upstream design and production actions will ensure the city's compliance with SB 1383:

Sustainable Procurement

1. Annually procure a quantity of recovered organic waste products that meets or exceeds the city's SB 1383 annual recovered organics waste product procurement target.
2. Ensure at least 75% of city government's annual purchases of paper products are recycled-content.

[2] The intent of such bans, which are not uncommon, is to require generators to use available diversion programs for the targeted material types or potentially face fines or penalties. SB 1383 effectively bans disposal of green waste, as well as food waste.

Material Bans | Disposal Bans

No action is required

Product Stewardship | Take-back Ordinances

No action is required

A more detailed discussion of the above actions is provided below.

5.4.1 Sustainable Procurement

1. Annually Procure a Quantity of Recovered Organic Waste Products that Meets or Exceeds Carlsbad's Annual Recovered Organics Waste Product Procurement Target

Summary

SB 1383 requires California jurisdictions to procure compost and/or renewable transportation fuel made from organic materials recovered from their waste streams. SB 1383 provides a formula for calculating the recovered organic material targets for a jurisdiction, which works out to the following annual targets for Carlsbad:

- 4,700 tons of compost (~18 tons per day 5 days per week)[3]
- 153,000 diesel gallon equivalents

Required Actions

- Establish "recovered organic waste product" purchasing guidelines as a component of the city's Sustainable Materials Purchasing and Procurement Policy that supports maximizing the productive use of recovered organic waste products in city government functions.
- Annually procure a quantity of recovered organic waste product that meets or exceeds the city's SB 1383 annual target.

2. Ensure At Least 75% of City's Annual Purchases of Paper Products Are Recycled-Content

Summary

SB 1383 requires that at least 75 percent of a jurisdiction's paper products be recycled content paper. Paper products include, but are not limited to paper janitorial supplies, cartons, wrapping, packaging, file folders and hanging files, building insulation and panels, corrugated boxes, tissue, and toweling.

Currently all printer paper supplied to city government machines is required to be at least 30% post-consumer waste. The Purchasing Department is pursuing quotes for paper with a higher

[3] Compost, mulch and other materials made from recovered organic waste products have multiple uses, and applying compost (organic fertilizer) to land can increase the amount of carbon stored in these soils and contribute to the reduction of greenhouse gas emissions in support of Carlsbad's Climate Action Plan objectives.

percentage of post-consumer recycled content percentage and is considering a pilot program of using 100% recycled-content paper. The city is also pursuing enhanced access to other environmentally friendly supplies from its contracted office supply vendor.

Required Actions

- Establish recycled content paper product purchasing guidelines that meet or exceed the SB 1383 requirements as a component of the city's Sustainable Materials Purchasing and Procurement Policy.

5.5 Planned Phase 3Actions

The following upstream design and production actions will support the development of sustainable materials management systems throughout Carlsbad's city government, residential and commercial sectors, and public spaces and venues.

Sustainable Procurement

1. Adopt a city government best practices Sustainable Materials Purchasing and Procurement Policy.

Material Bans | Disposal Ban

2. Material Bans - Evaluate and adopt appropriate material bans (e.g., single-use plastics).
3. Disposal Bans - Ban the disposal of green waste and C&D debris at the PTS, and through the city's residential and commercial collection systems. [4]

Product Stewardship | Take-Back Ordinances

4. Consider adopting take-back ordinances for products that are difficult or costly to manage.
5. Advocate for product stewardship and EPR.

A more detailed discussion of the above actions is provided below

5.5.1 Sustainable Procurement

1. Adopt a Sustainable Materials Purchasing and Procurement Policy

Summary

Carlsbad's current purchasing policy is "to purchase and use recycled products except when such use negatively impacts health, safety or operational efficiency." The Purchasing Department grants "a 15 percent preference, not to exceed $1,000 per contract," for recycled products, with "The preference percentage is based on the lowest bid or price quoted by the vendor or contractor offering non-recycled products." [5]

[4] Under such a disposal ban, green waste and C&D debris would continue to be accepted at the PTS, however facility users would be required to segregate those materials, and the PTS contract operator would be required to process and divert those materials.

[5] http://www.carlsbadca.gov/services/depts/finance/contracting/default.asp

While the current policy has moved the city in the right direction, there is a need to do more than simply provide preferences for environmentally preferable materials if broader markets for those materials are to be established. Establishing effective municipal sustainable purchasing and procurement policies is an important part of any comprehensive sustainable materials management plan. Carlsbad's interest in environmentally preferable procurement measures for both government operations and the wider community is forward-thinking and has the potential to create a significant environmental impact both within and outside city boundaries.

Enacting a city sustainable materials purchasing and procurement policy will improve the efficiency by which public money is spent, while at the same time using market power to bring about major environmental and social benefits. The impact of sustainable materials purchasing and procurement policy measures extends beyond sustainable materials management and supports overall sustainability by reducing waste, lowering carbon emissions, reducing energy and water consumption, protecting biodiversity, and supporting fair and sustainable economic growth, and will deliver social benefits within and beyond the city.

Appendix 5A outlines a framework and best practices for a city government Sustainable Materials Purchasing and Procurement Policy, and provides a summary of options for citywide sustainable purchasing policies.

Planned Actions

- Draft, adopt and implement a city government Sustainable Materials Purchasing and Procurement Policy.

5.5.2 Material Bans | Disposal Bans

2. Evaluate Material Bans

Summary

Material bans are very effective at preventing hard-to-recycle materials from winding up in the waste stream or from becoming litter. Examples of products that the city could consider targeting as part of a material ban include:

- Polystyrene Foam; and
- Single-Use Plastic Straws, Stirrers, and Cutlery.

A more detailed discussion of material bans (product bans) is provided in **Appendix 5A**.

Planned Actions

- Develop a list of materials to be considered for bans along with the rational for banning those materials and present to the city council for review.
- Implement city council approved material bans.

3. Adopt Green Waste and C&D Debris Disposal Bans

Summary

One of the most efficient and cost effective means for increasing diversion is to maximize the recovery of materials through existing recycling programs. That is the rationale of SB 1383 as

it relates to organic material and its requirement that all commercial accounts must subscribe to service and actively divert the targeted organic materials.[6] This rational also applies to all other materials for which there are existing recovery programs, and extends to PTS and other facility recovery operations, as well as source separated collection programs.

Collection programs and PTS recovery operations exist for green waste and C&D debris generated in Carlsbad. While some of that material is recovered, substantial quantities are still being landfilled. To manage any material sustainably, efforts need to support maximizing the diversion of that material.

Planned Actions

- Ban the disposal of green waste and C&D debris at the PTS, and throughout the city's residential and commercial solid waste collection systems.[7]
- Implement additional bans for targeted materials as diversion programs are made available (e.g., textiles, carpets, mattresses).

5.5.3 Product Stewardship | Take-Back Ordinances

4. Consider Adopting Take-Back Ordinances for Products that are Difficult or Costly to Manage

Summary

Take-Back ordinances (mandatory retailer take-back programs) require local retailers to take-back various materials (HHW, E-waste, batteries, sharps, fluorescent lights, and pharmaceuticals and personal care products (PPCP)) from consumers at no charge. Many local governments have passed take-back ordinances as one means for helping to manage problem materials. Take-back ordinances are not EPR or product stewardship, since they do not directly engage the producer, but they can place pressure on the retailers to pressure the producers to change product design and packaging and to start EPR collection programs.

Planned Actions

- Develop a list of materials to be considered for a take-back ordinance along with the rational for requiring retailers to take-back those materials and present to the city council for consideration.
- Implement city council approved take-back ordinances.

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[6] Consistent with this requirement, the city plans to require that all commercial accounts subscribe to, and actively participate in the city's existing commercial recycling program (see Section 7.4.1 #3).

[7] Under such a disposal ban, green waste and C&D debris would continue to be accepted at the PTS, however facility users would be required to segregate those materials, and the PTS contract operator would be required to process and divert those materials.

5. Advocate for Product Stewardship and Extended Producer Responsibility

Summary

Product stewardship is a strategy whereby manufactures and others along the product supply chain share in the financial and physical responsibility for collecting and recycling products at the end of their useful lives. When manufacturers share the costs of managing the materials they produce they have an incentive to use recycled materials in new products and design products to be less toxic and easier to recycle, incorporating environmental concerns into the earliest stages of product design and effectively supporting sustainable materials management.[8]

EPR is a mandatory type of product stewardship that includes, at a minimum, the requirement that the manufacturer's responsibility for its product extends to post-consumer management of that product and its packaging. There are two related features of EPR policy: (1) shifting financial and management responsibility, with government oversight, upstream to the manufacturer and away from the public sector; and (2) providing incentives to manufacturers to incorporate environmental considerations into the design of their products and packaging.[9]

Planned Actions

- Support the California Product Stewardship Council, Product Stewardship Institute and/or other regional and national product stewardship organizations.
- Advocate for statewide and national packaging and product design policies that encourage items to be repairable, reusable, fully recyclable/compostable, and less toxic.
- Advocate for and support a regional initiative to encourage businesses to produce sustainable materials, products, and packaging.
- Consider providing sustainable materials management incentives to local manufacturers, distributors, and retailers.

[8] Source: Product Stewardship Recommendations Report, Minnesota Pollution Control Agency.
[9] Source: Product Stewardship Institute.

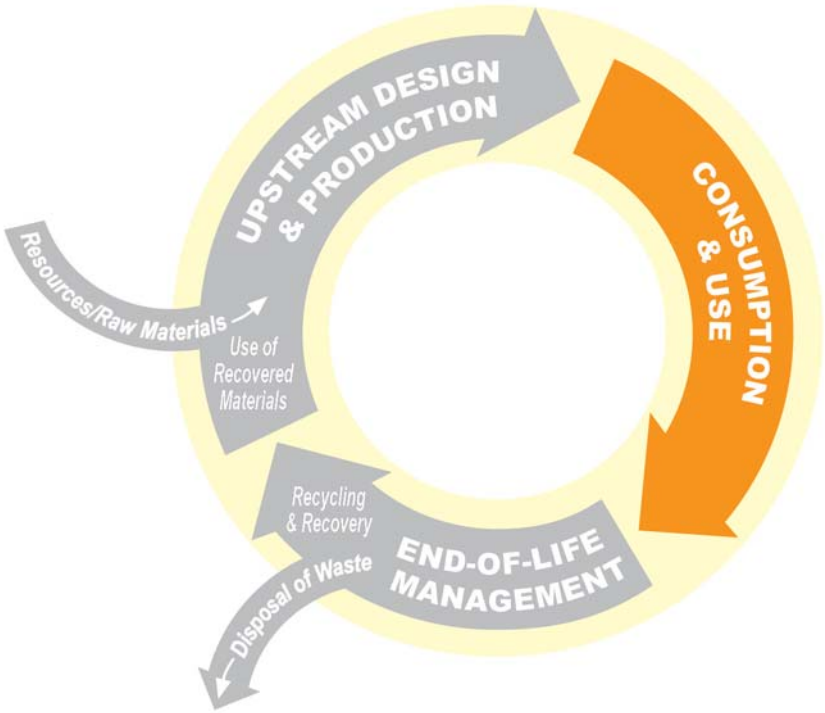
6.1 Introduction

Sustainable consumption and use of a product or material is the second phase of the three sustainable materials management phases (**Figure 6-1**). Once materials have been sustainably produced they are distributed for consumption and use.

Sustainable consumption and use first seeks to use less materials (waste prevention or source reduction), thereby eliminating the need to manage materials once that have been generated. Having focused on minimizing the generation of materials as the first priority, attention shifts to maximizing the useful life of those products that are produced by consuming those products efficiently (i.e., not wasting them), and maximizing their useful life through repair, reuse, and repurposing, as applicable.

Sustainable consumption also requires that the materials that are being consumed and used have been sustainably produced. Purchasing sustainably produced materials creates the demand (markets) for recycled content products that is required to close the loop.

Figure 6-1
Consumption and Use



6.2 City Ability to Influence Consumption and Use | Summary of Required and Planned Actions

Carlsbad has the ability to influence sustainable consumption and use of materials and products that are generated in the city through the following three (3) major types of actions, which are summarized below.

1. **Waste Prevention | Source Reduction**
2. **Material Reuse**
3. **Sustainable Materials Market Development**

The specific consumption and use actions that are covered in Sections 6.3, 6.4 and 6.5 are organized into one of the above major types of actions, as applicable.

6.2.1 Waste Prevention | Source Reduction

City's Ability to Influence

The city can take steps to reduce the amount of materials that are used throughout all city government functions and operations, and provide waste prevention public education, outreach and technical support to residents and businesses.

Summary of Required and Planned Actions

Sustainable Materials Management Plans will be developed for all city government departments as part of the development of the SMMP's implementation plan. Those strategic plans will include identifying waste prevention and source reduction opportunities in each city department. The city will also develop a residential and commercial waste prevention component of the city's Sustainable Materials Management Public Education, Outreach, and Technical Assistance Program that supports waste prevention opportunities throughout Carlsbad

6.2.2 Material Reuse

City's Ability to Influence

The city can take steps to maximize the repair, reuse and/or repurposing materials that are used throughout all city government functions and operations, and provide material reuse public education, outreach and technical support to residents and businesses.

Summary of Required and Planned Actions

The city will take a lead role with respect to material reuse by identifying and realizing material reuse opportunities in all city government departments through the development and implementation of department specific Sustainable Materials Management Plans. The city will also actively support the expansion of a reuse economy in the city that will include establishing a reuse component of the city's bulky item collection program, and working with the city's repair community stakeholders to explore ways to create a permanent, sustainable repair function in the city.

6.2.3 Sustainable Materials Market Development

City's Ability to Influence

The city can support the production of sustainable materials by purchasing sustainable materials in place of virgin materials, and requiring all of its contracted service providers to do the same. It can also provide sustainable purchasing related public education, outreach and technical support to residents and businesses.

Summary of Required and Planned Actions

Carlsbad's city government will maximize it productive use of recovered organic waste products in support of achieving the city's SB 1383 procurement target for those materials. The city plans to also actively promote and support the use of recovered organic waste products within Carlsbad's home gardening, small-scale urban farming, and agricultural sectors.

While the city's sustainable materials market development and support efforts will initially focus on recovered organic waste products due to SB 1383's associated procurement requirements, the city intends to undertake a concerted effort to also maximize city government's purchase of other sustainably produced materials, and support the expanded use of sustainably produced materials citywide.

It is city government's objective to purchase materials that contain as much or more total post-consumer content than the total quantity materials that are recovered from city government operations through the city's end-of-life materials management system (i.e., a zero or net positive sustainable materials management impact).

6.3 Required Phase 1 Actions

Waste Prevention | Source Reduction

No action is required

Material Reuse

No action is required

Sustainable Materials Market Development

No action is required

6.4 Required Phase 2 Actions

The following consumption and use action will contribute to ensuring the city's compliance with SB 1383, effective as of January 1, 2022.

Waste Prevention | Source Reduction

No action is required

Material Reuse

No action is required

Sustainable Materials Market Development

1. Develop markets for recovered organic waste products (compost and renewable transportation fuel), and other recovered products within all city government departments and throughout Carlsbad.

A more detailed discussion of the above action is provided below.

6.4.1 Sustainable Materials Market Development

1. Develop Markets for "Recovered Organic Waste Products" within all City Government Departments and throughout Carlsbad.

Summary

One of the most significant challenges to the development of sustainable materials management systems is developing markets for materials that have been sustainably produced. In this regard, one of the most immediate challenges is developing practical markets for the significant quantities of "recovered organic waste products" that will be generated as a result of SB 1383.

Section 5.4.1 - Item #1 addresses city government's procurement of quantities of recovered organic waste products (compost and renewable transportation fuel) that meet or exceed its calculated annual targets. To accomplish that objective and maximize its use of sustainable produced material, the City needs to assess the opportunity for the use of sustainably produced products in place non-sustainably produced products in each city government department, operation and service.

Required Actions

- Evaluate opportunities for the use, or increased use of recovered organic waste products and other sustainably produced materials by all city government departments and realize available opportunities.
- Annually procure for Carlsbad city government's use, quantities of recovered organic waste products that meet or exceed the city's SB 1383 procurement target. Require all contract service providers to use recovered organic waste products, as applicable.
- Actively promote and support the use of recovered organic waste compost products within Carlsbad's home gardening, small-scale urban farming, and agricultural sectors.
- Develop a Strategic Plan to Maximize Local Use of Recovered Organic Waste Products that considers and provides a context for the above Required Actions, and any other appropriate related actions.

6.5 Planned Phase 3 Actions

The city will pursue the following consumption and use actions to support the development of sustainable materials management systems throughout Carlsbad's city government, residential and commercial sectors, and public spaces and venues.

Waste Prevention | Source Reduction

1. Identify and realize waste prevention opportunities in all city government departments.[1]
2. Support waste prevention opportunities throughout Carlsbad.

Material Reuse

3. Identify and realize material reuse opportunities in all city government departments.[2]
4. Support the expansion of a reuse economy in Carlsbad.

Sustainable Materials Market Development

5. Identify and realize opportunities for city government's use of sustainably produced materials in place of products made from raw materials.[3]
6. Support the development of markets for sustainably produced products throughout Carlsbad.

A more detailed discussion of the above actions is provided below.

6.5.1 Waste Prevention | Source Reduction

1. Identify and Realize Waste Prevention Opportunities in All City Government Departments

Summary

Waste prevention, also known as source reduction, is the elimination of waste before it is created. It is the most preferable option for managing waste. In making solid waste management decisions consideration should be given to purchasing practices to determine if materials can be moved "upstream" into the waste prevention and reuse categories instead of focusing on recycling as the first and only materials management option. By minimizing the volume of raw materials, supplies or packaging used, direct savings are realized.

Planned Actions

- Identify and realize waste prevention opportunities in all city government departments.
- Develop, adopt, and implement a city government Waste Prevention and Reduction Policy.

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1 To be done in conjunction with the assessment that is undertaken in support of developing Sustainable Materials Management Strategic Plans for all city government departments.

2 Ibid.

3 Ibid.

2. Support Waste Prevention Opportunities Throughout Carlsbad

Summary

As discussed above, waste prevention is the preferable waste management option, and the city plans to support and promote waste prevention options citywide.

Planned Actions

- Develop a residential and commercial waste prevention component of the city's Sustainable Materials Management Public Education, Outreach, and Technical Assistance Program that includes food waste prevention.

6.5.2 Material Reuse

3. Identify and Realize Material Reuse Opportunities in all City Government Departments

Summary

Reusing materials and/or repurposing them so that those materials do not end up in the waste stream is the most preferable waste management action after waste prevention. Reuse prevents material from entering the landfill, and has been an important way of getting needed materials to disadvantaged populations. In many cases, reuse supports local community and social programs, while providing donating businesses with tax benefits and reduced disposal fees.

While reuse may be a foreign concept to those raised in the "disposable economy", it is a concept that is very real in communities throughout the world. Reuse is gaining renewed attention in California and nationally, and offers practical application to Carlsbad in support of its sustainability goals and objectives.

The SMMP envisions Carlsbad undertaking a concerted effort to increase the reuse of materials generated in the city, facilitate through the development and implementation of a Strategic Plan to Maximize Material Reuse, as a component of the SMMP's overall Implementation Plan.

Planned Actions

- Identify opportunities for reuse and repurposing of all materials used by all city government departments with consideration for the following, in order or priority:
  - Reuse by the same department;
  - Reuse by another department;
  - Reuse by a non-city governmental entity; and
  - Repurposing.

4. Support the Expansion of a Reuse Economy in the City.

Summary

As discussed above, reducing the amount of waste generated is the most preferable waste management activity, and the city plans to support and promote waste prevention options citywide.

Planned Actions

- **Develop Material Repair Capacity in the City** - Work with repair community stakeholders to explore ways to create a permanent, sustainable repair function in the city.
- **Consider Incentives for the Reuse, Rental, Repair Industry** - Explore the potential for providing incentives for reuse, rental and repair through contract incentives, material exchanges, and direct assistance.
- **Establish Reuse Component of Bulky Item Collection Program** - Establish material reuse requirements as part of the city's contract hauler's bulky item collection program.
- **Support the Development of a Private Sector or Non-Profit Building Material Reuse Center / Reuse Exchange** - Investigate the feasibility of creating a Building Material Reuse Center in the region for the sale of salvaged building materials.
- **Require Deconstruction and Source Separation of Construction Materials** - Consider the development of an ordinance to require deconstruction[4] as a condition of demolition permits.
- **Advocate for Statewide Packaging and Product Design Policies** - Advocate for policies that encourage items to be repairable, reusable, fully recyclable/compostable, and less toxic.

6.5.3 Sustainable Materials Market Development

6. Identify and Realize Opportunities for City Government's Use of Sustainably Produced Materials in Place of Products Made from Raw Materials

Summary

To be successful in its efforts to sustainably manage materials, Carlsbad plans to procure significant quantities of recovered organic waste products, as discussed above. It also plans to require that its suppliers to provide sustainable produced material options, and require its contractors to purchase and use sustainable produced materials, as available.

Planned Actions

- Support Carlsbad's residents and businesses access to affordable sustainable materials and develop a sustainable purchasing component of the city's Public Education, Outreach, and Technical Assistance Program.

[4] The selective dismantlement of building components, specifically for re-use, repurposing, recycling, and waste management.

- Identify and realize all opportunities for Carlsbad city government's widespread use of sustainably produced materials.

7. Support the Development of Markets for Sustainable Products Throughout Carlsbad

Summary

To achieve its overall sustainable materials management goals, Carlsbad plans to pursue the widespread purchase and use of sustainably produced materials throughout the city.

Planned Actions

- Support Carlsbad's residents and businesses access to affordable sustainable materials and develop a sustainable purchasing component of the city's Public Education, Outreach, and Technical Assistance Program.

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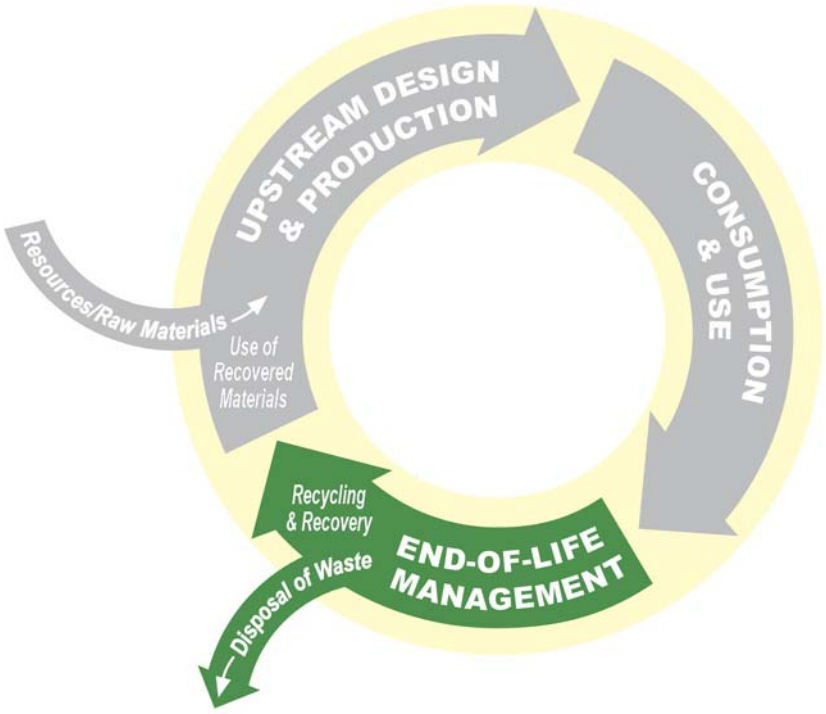
7.1 Introduction

Sustainable end-of-life management is the third phase of the three sustainable materials management phases (**Figure 7-1**). Having sustainably produced and consumed a material or product and that material has reach the end of its useful life, it needs to be properly and sustainably managed. Sustainable end-of-life management involves creating opportunities for the recovery and diversion of materials from the landfill through policies, regulations, collection programs and services, and material recovery operations.

Figure 7-1

End-of-Life Management



7.2 City Ability to Influence End-of-Life Management | Summary of Required and Planned Actions

Carlsbad has significant control over the end-of-life management of the materials and products that are generated in the city through the following two (2) major types of actions, which are summarized below:

1. **Diversion Programs**
2. **Regional Advocacy and Support**

The specific end-of-life management actions that are covered in this Sections 7.3, 7.4 and 7.5 are organized into one of the above major types of actions, as applicable.

In support of the city's end-of-life management objectives, it will need to negotiate changes to its existing collection contract and PTS operating contract, and/or draft new agreements and conduct competitive procurement processes for collection and transfer station services when the current contract terms expire.

7.2.1 Diversion Programs

City's Ability to Influence

Collection Programs - The city has the ability to provide every residential and commercial account in Carlsbad with comprehensive recycling and organic material collection services that support maximizing the diversion of those materials.

Material Recovery Operations - The city has the ability to require the recovery of targeted materials that are received at the PTS through the terms of the PTS operating contract, and to establish supporting disposal bans on those targeted materials. The city also has the ability to direct material that its contract hauler collects to the PTS and/or other facilities and to have that material processed for diversion of targeted materials.

Summary of Required and Planned Actions

Carlsbad's residents and businesses will be provided with public education, outreach, and technical assistance to support their efforts to maximize their recovery of the targeted materials, and to produce high quality recyclable and organic material streams.

Carlsbad's end-of-life management actions include a focus on maximizing the diversion of all materials for which current recovery programs exist. This will be accomplished by providing every residential, commercial and city government account with comprehensive recycling and organic material collection services (i.e., service subscription is not optional). These comprehensive collection services will be supported by policies and regulations that require residential and commercial generators to actively participate in the collection programs that are provided, and produce quality recyclable and organic material streams, free from contamination.

Carlsbad's end-of-life management actions also focus on maximizing the recovery of green waste, and C&D debris, as well as other materials that the city may want to target in the future. This will be facilitated through recovery of those materials at the PTS and/or other facilities and will be supported by the city's adoption of green waste and C&D debris disposal bans that require generators (including PTS residential and commercial self-haulers) to segregate those materials to facilitate their recovery.

7.2.2 Regional Advocacy and Support

City's Ability to Influence

While there are many aspects of the city's end-of-life management system that the city has control over, others require regional planning and coordination, which the city can advocate for and support (e.g., regional material processing capacity).

Summary of Required and Planned Actions

In addition to the above efforts to maximize diversion, Carlsbad plans to advocate for and support regional efforts to develop regional processing capacity for organic materials and to

expand regional markets for recovered organic waste products. Carlsbad plans to also advocate for and support the development of regional capacity for hard to recycle materials for which markets and processing capacity does not currently exist. Additionally, Carlsbad plans to advocate for countywide and statewide bans on hard to manage materials and materials that have a significant negative environmental impact. Finally, recognizing that recovery and distribution of edible food to food insecure individuals and families is the highest and best use of any material that is disposed, Carlsbad is committed to not only achieving the 20% edible food recovery goal of SB 1383, but to exceeding that goal.

7.3 Required Phase 1Actions

In addition to taking all actions necessary to maintain compliance with AB 341 (Mandatory Commercial Recycling), the city plans to also undertake the following end-of life management actions to comply with all current state solid waste management regulations:

Diversion Programs

1. Compost the green waste that the city's contract hauler collects or deliver to an anaerobic digestion facility for processing.
2. Process the C&D debris that the city's contract hauler collects for recovery of targeted materials.
3. Provide AB 1826 commercial organic waste collection services to all commercial covered generators.[1]

In addition to the above actions, the city should seek to increase the number of commercial accounts that currently subscribe to commercial recycling services and the amount of recyclable materials that are recovered from each account. Specific actions for maximizing the diversion of commercial recyclables are discussed in Section 7.5.1.

Regional Advocacy and Support

No action is required

A more detailed discussion of the above actions is provided below.

7.3.1 Diversion Programs

1. Compost the Green Waste that the City's Contract Hauler Collects or Deliver it to an Anerobic Digestion Facility for Processing

Summary

In 2017 the city's contract hauler delivered more than of 21,000 tons of city green waste to the PTS. All of that green waste was used as alternative daily cover (ADC) and the city received diversion credit for that material. The city's 2017 diversion rate was 53%. Had Carlsbad not received diversion credit for that green waste its 2017 diversion rate would have been 44%, lower than AB 939's 50% minimum diversion requirement. Assuming all other factors remain the same, if the city's green waste continues to be used as ADC, as of January 1, 2020 the city

[1] Covered generators are accounts that are subject to the regulations.

will not be in compliance with AB 939's 50% minimum required diversion rate.[2] The city has two major options for processing its green waste, composting that material or sending it to an anerobic digestion (AD) facility for processing. Composting and AD capacity is limited in the region and the city will need to secure sufficient processing capacity for its green waste.

Required Actions

- Secure processing capacity for the city's green waste.
- Compost or anaerobically digest the green waste that the city's contract hauler collects.
- Secure required commercial organics processing capacity through regional solid waste management service providers.

2. Process the C&D Debris that the City's Contract Hauler Collects for Recovery of Targeted Materials

Summary

CalRecycle notified the city in May 2017 that its C&D debris diversion program may negatively impact its ability to meet the AB 939 requirement in the next jurisdictional review cycle. A small portion of the C&D debris that is received at the PTS is currently being transferred to Republic's C&D processing facility at its Otay Landfill in Chula Vista, however the vast majority of the C&D debris received at the PTS is currently being landfilled. Additional recovery of materials from C&D loads is one of the most cost efficient options the city has to increase its diversion rate, and is necessary if the city is to sustainably manage C&D debris.

Required Actions

- Process all C&D debris collected by the city's contract hauler.

3. Provide AB 1826 Commercial Organic Waste Collection Services to all Commercial Covered Generators

Summary

AB 1826 requires that multi-family accounts be offered green waste collection services, and commercial accounts be offered organic waste collection services, with organics including food waste. The city's contract hauler currently offers multi-family and commercial green waste collection services. It does not however provide commercial organic waste collection services, nor is it contractually obligated to do so. As such, the city is not in compliance with AB 1826 as it relates to offering commercial organic waste collection service.

Required Actions

- Provide commercial organic waste collection services to all SB 1826 commercial covered generators.
- Satisfy all other AB 1826 compliance requirements.

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[2] Note: A small portion of the city contract hauler's green waste is now being composted and qualifies as diverted under AB 1594. That small portion, however, is not sufficient for the city to meet the minimum 50% diversion rate requirement, all other factors the same as they were in 2017.

- Secure required commercial organics processing capacity through regional solid waste management service providers.

7.4 Required Phase 2 Actions

As of the drafting of this SMMP, SB 1383 is the only new solid waste legislation that the city will need to comply with that is not covered under the required Phase 1 actions above. Therefore, the following items are all specific to SB 1383.

The city plans to undertake the following end-of life management actions needed to comply with SB 1383 regulatory requirements:

Diversion Programs

1. Implement required residential and commercial organics collection services.
2. Develop required edible food recovery program.

Regional Advocacy and Support

No action is required.

A more detailed discussion of the above actions is provided below.

7.4.1 Diversion Programs

1. Implement Required Residential and Commercial Organics Collection Services

SB 1383 requires that jurisdictions adopt and implement residential and commercial organics waste collection services. A three-container organic waste collection service is planned for the city consistent with the existing three-container residential and commercial solid waste, recyclables, and green waste collection systems that are now in place.

a. Residential Organics Collection Services

Summary

The city's contract hauler currently provides weekly residential collection of green waste. The city can satisfy the residential organic waste collection requirements of SB 1383 by incorporating food waste into the residential green waste collection program.

Required Actions

- Incorporate residential organic material into the current residential green waste collection program.
- Provide for the transfer of residential organics to a city-approved organic material processing facility.

b. Commercial Organics Collection Services

Summary

As discussed above, the city's contract hauler does not currently provide commercial organic waste collection services. To comply with SB 1383, commercial organic waste collection

services must be ***provided*** to every commercial covered generator not just ***offered***, which is all that AB 1826 Phase 1requires.

Required Actions

- Provide commercial organics collection service to all commercial accounts, unless granted a waiver by the city.[3]
- Provide for the transport of commercial organics to a city-approved organic material processing facility.
- Secure required commercial organics processing capacity through regional solid waste management service providers.

2. Develop Required Edible Food Recovery Program

Summary

SB 1383 has a goal of recovering and distributing the equivalent of 20% of the total amount of (recoverable) commercial edible food that is currently disposed to food insecure individuals and families by 2025. In support of that objective, SB 1383 requires that jurisdictions implement an edible food recovery program to achieve the 20% recovery goal.

Required Actions

- Develop and implement an edible food recovery program that complies with the regulations.

7.5 Planned Phase 3 Actions

The city plans to pursue the following end-of-life management actions to support the development of sustainable materials management systems throughout Carlsbad's city government departments, residential and commercial sectors, and in public spaces and venues.

Diversion Programs

1. Maximize the diversion of commercial recyclables.
2. Maximize the diversion of green waste.
3. Maximize the diversion of C&D debris.
4. Develop prioritized list of other materials to target for sustainable management. Summarize recommended actions for managing those materials for review by the city council, and implement approved management strategies.
5. Expand recycling and organic waste collection in city controlled public areas and venues.

Regional Advocacy and Support

[3] The city may grant exemptions to the requirements of SB 1383 for commercial accounts that generate little or no organic materials.

6. Advocate for and support the implementation of the County's Food Donation Action Plan for the San Diego Region, and pursue enhancements to Carlsbad's food security infrastructure in conjunction with the development of the city's required SB 1383 edible food recovery program.
7. Advocate for and support the development of regional markets and processing capacity for hard to recycle materials for which markets and processing capacity does not currently exist.
8. Advocate for and support the development of additional local and regional organic material processing capacity sufficient to manage all of the organic material generated in Carlsbad and San Diego County.

A more detailed discussion of the above actions is provided below.

7.5.1 Diversion Programs

1. Maximize the Diversion of Commercial Recyclables

Summary

Maximizing the diversion of the city's commercial recyclables (and all source separation programs) requires:

1. Maximizing subscription to the diversion program; and
2. Maximizing the capture rate of targeted recyclable materials.

The city is currently in compliance with AB 341's mandatory commercial recycling requirements, meaning that recycling service is available to all commercial accounts, education and outreach information is being provided, and noncompliant covered generators are being provided with followed up information. However, not all of the city's commercial businesses are subscribed to commercial recycling services, and those that are subscribed are not necessarily recycling all of the targeted materials. There is an opportunity to increase both the number of commercial accounts that subscribe to commercial recycling services, and the amount of recyclables recovered from those commercial accounts that subscribe to service in support of maximizing the diversion of commercial recyclables from Carlsbad's waste stream.

Planned Actions

1. Establish property owner, and commercial account requirements for commercial recycling that are equivalent to the SB 1383 commercial organic service requirements, including but not limited to securing service, monitoring for contamination, and educating employees.

2. Maximize the Diversion of Green Waste

Summary

To support sustainable management of green waste in the city and throughout the PTS service area all green waste that is received at the PTS needs to be composted, not just that delivered by the city's contract hauler.

Planned Actions

- Adopt a city ordinance that bans the disposal of green waste in the city, or its use as ADC.

3. Maximize the Diversion of C&D Debris

Summary

To support the sustainable management of C&D debris in the city and throughout the PTS service area all C&D debris that is received at the PTS needs to be processed for material recovery, not just that delivered by the city's contract hauler.

Planned Actions

- Adopt a city ordinance that bans the disposal of C&D debris in the city.

4. Develop Prioritized List of Other Materials to Target for Sustainable Management, Summarize Recommended Actions for Managing Those Materials for Review by the City Council, and Implement Approved Management Strategies

Summary

To sustainably manage a material that material must be recovered when it comes to the end of its useful life. It then needs to be processed, as necessary, to provide feed stock for the subsequent production of new recycled content products. Materials that are not recoverable, or for which no markets exists cannot be sustainably managed. The city has in place diversion programs directed at many of the materials that are generated by residents and businesses, however there are other materials that are currently disposed that have value (e.g., textiles), and others that are problematic and may best be managed by material bans or other means (e.g., single-use plastics, cigarette butts, non-compostable food ware).

Planned Actions

- Develop a prioritized list of additional materials to target for sustainable materials management. Present recommended actions for managing those materials to the city council, and implement approved strategies.

5. Expand Recycling and Organic Waste Collection In Public Areas and Venues

Summary

The development of sustainable materials management systems in Carlsbad needs to consider not only city government buildings, residences, and businesses but also public spaces and venues. As part of the city's sustainable materials management efforts, Carlsbad needs to determine how to best manage materials that are generated, and/or deposited in collection receptacles in those public spaces and venues.

Planned Actions

- Evaluate and assess current public space and large venue material management practices and develop plan for the implementation of sustainable material management systems in public spaces and venues.

7.5.2 Regional Advocacy and Support

6. Advocate for and Support the Implementation of the County's Food Donation Action Plan and Pursue Enhancements to Carlsbad's Food Security Infrastructure in Conjunction with the Development of the City's Required SB 1383 Edible Food Recovery Program.

Summary

California's hunger relief and edible food recovery system is organized largely at the county level, which is the case in San Diego County. That system is comprised of many dedicated professionals and volunteers across a wide range of programs, services and organizations. A fundamental weakness of that system, however, is the lack of overall coordination among all stakeholders. San Diego County has been one of the most proactive counties in California with respect to addressing food insecurity and yet and estimated 1 in 7 residents of the County are food insecure.

Planned Actions

- Advocate for the ongoing implementation of the County's Food Donation Action Plan for the San Diego Region. Specifically with respect to Carlsbad, advocate for and pursue the enhancement of the city's food security infrastructure (organizations, programs and services) to provide 100% food security to every resident of Carlsbad. This should be done in conjunction with the development of the city's required SB 1383 edible food recovery program, which presents a unique opportunity for supporting and ultimately achieving 100% food security in Carlsbad.

7. Advocate for and Support the Development of Regional Markets and Processing Capacity for Hard to Recycle Materials for which Markets and Processing Capacity Does not Currently Exist

Summary

Absent the banning of materials that cannot be effectively recycled, or the manufacturer's product stewardship of those materials, materials for which there are no established markets will continue to be landfilled.

Planned Actions

- Advocate for and support the development of regional markets and processing capacity for hard to recycle materials (e.g., textiles, hard to recycle plastics like film packaging and rigid plastic products) and other targeted materials.

8. Advocate for and Support the Development of Additional Local and Regional Organic Material Processing Capacity Sufficient to Manage All of the Organic Material Generated in Carlsbad and San Diego County.

Summary

It is estimated that to achieve the targets outlined in SB 1383 California will need to recycle at least 20 million tons of organic waste. Depending on facility size, CalRecycle estimates the state

will need 50 to 100 new or expanded composting and AD facilities — at roughly $2 billion in capital costs.

Planned Actions

- Advocate for and support the development of additional regional organic material processing capacity.

Appendix 2A

SB 1383 Required Policies, Ordinances, and Other Support Activities

R3

SB 1383 Required Policies, Ordinances and Other Support Activities

SB 1383 includes the following requirements that the city will need to undertake and complete:

1. Conduct required organic waste and edible food recovery capacity planning;
2. Draft and adopt a required SB 1383 ordinance, and CALGreen ordinance;
3. Provide required organic waste and edible food recovery education and outreach;
4. Develop and implement required SB 1383 inspection and enforcement program;
5. Implement required SB 1383 reporting; and
6. Ensure compliance with required cart colors and cart labeling requirements.

A discussion of each of these activities is provided below along with the Required Actions the City will need to take.

1. Conduct Required Organic Waste and Edible Food Recovery Capacity Planning

Summary

a. Organic Waste Recycling Capacity

SB 1383 requires counties, in coordination with cities and regional agencies located within the county to estimate the amount of new or expanded organic waste recycling capacity that will be needed to processing the additional organic waste. If a county determines that additional organic waste capacity is needed, the county will notify the jurisdiction or jurisdictions that lack sufficient capacity and each jurisdiction will be required to submit an implementation schedule demonstrating how it will ensure there is enough new or expanded capacity to meet the required demand.

b. Edible Food Recovery Capacity

SB 1383 requires counties, in coordination with cities and regional agencies located within the county to identify the amount of capacity at edible food recovery organizations that is necessary to recover 20% of the edible food that is estimated to be disposed. If a county identifies that new or expanded capacity is needed then the jurisdiction or jurisdictions that lack sufficient capacity will be required to submit an implementation schedule demonstrating how it will ensure there is enough new or expanded capacity to meet the required demand.

Required Actions

- In conjunction with the County of San Diego, conduct the required organic waste recycling capacity, and edible food recovery capacity planning.

2. Draft and Adopt Required SB 1383 Ordinance and CALGreen Ordinances

a. Draft and Adopt a SB 1383 Ordinance

Summary

By January 1, 2022, jurisdictions are required to adopt enforceable ordinances consistent with SB 1383 requirements to mandate organic waste generators, haulers (including self-haulers), and other applicable entities comply with SB 1383 requirements. Jurisdictions may designate a public or private entity to fulfill responsibilities of regulations through a hauler contract or memorandum of understanding, but the jurisdictions will remain ultimately responsible for compliance.

Required Actions

- Draft the required SB 1383 ordinance.

a. Draft and Adopt a CALGreen Ordinance (SB 1383)

Summary

CALGreen is California's state-mandated green building code. The purpose of CALGreen is to improve public health, safety, and general welfare through enhanced design and construction of buildings using concepts which reduce negative impacts and promote those principles which have a positive environmental impact and encourage sustainable construction practices. SB 1383 requires jurisdictions to adopt an ordinance or enforceable requirement that complies with specific provisions of CALGreen that support the recovery of C&D debris.

Required Actions

- Draft the required CALGreen ordinance.

3. Provide Required Organic Waste and Edible Food Recovery Education and Outreach

Summary

Prior to February 1, 2022, and annually thereafter, a jurisdiction must provide residential and commercial organic material generators with required public education and outreach. Self-haulers and back-haulers must also be provided with information regarding SB 1383 self-haul and back-haul requirements.

Required Actions

- Develop and provide required education and outreach.

4. Develop and Implement Required Inspection and Enforcement Program

Summary

By January 1, 2022, jurisdictions are required to implement an inspection and compliance program for organic waste generators, edible food generators, and edible food recovery organizations. If an entity is found to be in violation of the regulations, the jurisdiction shall provide noncompliant accounts with education materials. On or after January 1, 2024,

jurisdictions shall take enforcement actions against noncompliant accounts, including imposing established penalties on generators who fail to comply.

Required Actions

- Develop and implement required inspection and enforcement program.

5. Implement Required Reporting

Summary

SB 1383 requires all jurisdictions to:

- File an Initial Jurisdiction Compliance Report that contains the ordinance(s) adopted, the date when containers will comply with the established standards, and other required reporting items; and
- Report annually to CalRecycle on SB 1383 implementation and compliance starting on August 1, 2022.

Required Actions

- Implement required reporting.

6. Ensure Compliance with Required Cart Colors and Cart Labeling Requirements

Summary

a. Container Colors

SB 1383 requires that a grey or black container shall be used for garbage, blue for recycling, and green for organic waste by either year 2032 or the end of their useful life, whichever comes first.

b. Container Labeling

Commencing January 1, 2022, a jurisdiction shall place and maintain a label on each new container or lid provided to generators specifying what materials are allowed to be placed in each container.

Required Actions

- Ensure that all containers conform to the SB 1383 color requirements, and container labeling requirements by the specified dates.

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Appendix 2B

Public Education and Outreach

Current Public Education and Outreach

The City's solid waste management and sustainability public education and outreach program includes both City efforts, and contractually required public education requirements specified in the City's Collection Contract with CWM.

City Public Education and Outreach

Public education and outreach provided by the City specifically includes:

- A City website with solid waste information for residents and businesses;
- Recycling Champion Program for businesses (and Recycling Champion of the Quarter in 2017), which includes a short video online that describes the program;
- Residential Recycling and Trash Guide;
- Multifamily Recycling Guide;
- Providing a customized tote bag for multifamily accounts;
- Solid waste signs available for customers to print from online;
- Engagement of a contractor (reEarth Consulting) in 2019 to conduct a pilot program for reducing plastic and single-use disposables in restaurants); and
- Engagement of a contractor in 2019 to provide elementary school education, community workshops, creek and beach clean-ups, online updates and business education.

CWM Public Education and Outreach

Per Section 6.06.1 of the Collection Contract, the contractor is required to create/implement the following ongoing education and outreach related elements:

- Instructional / How-to Packet to new customers;
- Container labels and hot stamps on recycling and green waste containers;
- Corrective Action Notice for addressing contamination;
- Website (with City-specific information);
- Attendance and promotion at City community events;
- Performance of commercial waste audits; and
- Assistance with the Green Business Program (including promotion of businesses).

In addition to what is contractually required of CWM, CWM also provides the following related education and outreach services, as reported in the 2018 Annual Report to CalRecycle:

- Production, printing and distribution of a City Commercial Recycling Guide;
- Sponsorship of at least two articles and four ads in the Carlsbad Business Journal targeted at AB 341 and AB 1826;
- Tracking of businesses that refuse recycling service (where three attempts and a site visit have been executed) to the City;

- Contact three to five multifamily dwellings each moth to increase diversion and participation in a recycling program; and
- Assistance with distribution of guides, posters, and reusable bags to HOAs and MFDs property owners.

Recommendations for Improvement | Expansion of City Public Education and Outreach Efforts

1. **Request more effective data**: In order to better assist planning, enforcement, and/or evaluating the effectiveness of education and outreach program(s), the City should collect data from residential and/or commercial customers. Obtaining this information will specifically help in understanding challenges, opportunities, and strategies for effective waste systems. Such information may include waste characterization information, infrastructure details (space constraints), purchasing protocol, staff feedback and/or questions, suggestions to the program, etc. The waste hauler may be able to collect this information on the City's behalf. Likely this information will come from in-person site-visits and interviews with in-house staff. Check-in / follow-up with property managers to confirm whether they have shared information that was provided for their tenants. Understanding the unique and specific situations that customers are faced with will help the City and waste hauler develop more effective program(s).
2. **Create printed media as a resource toolkit:** Go above and beyond what the State requires cities to provide businesses by developing a more comprehensive packet of helpful information and resources for businesses. The goal of the resource guide would be to educate and train staff how to properly manage their facility's waste. This could include information related to reduce, reuse, recycling, organics recycling, and the proper source separation of materials at the bin. This could also include information on green purchasing polices (see **Section 8** - City Government and Community Purchasing Polices). Staff often want to do the "right thing" in their workplaces but simply don't know how. A resource guide would help with this.
3. **Online updates:** More and more, people are turning to internet and social media platforms to find information, inspiration, and learn. It is important for the City to focus on the development of its online presence and provide information in an easy-to-understand, visual way. There are existing online resources like online quizzes, games, and other waste trivia that could help in educating the community about proper source separation. The City may also want to include more information on its social media pages, or consider creating a dedicated page (on Facebook, Instagram, etc.) for information related to sustainability and solid waste. Examples of content online include virtual campaigns, online games, resource sharing, video series, commonly asked questions, etc. The possibilities for engaging people digitally/online are vast and due to its accessibility, convenience, and visual nature, can be a very effective educational tool.
4. **In-person site visits:** The value of conducting in-person site visits for setting up programs that work efficiently, and for providing training to staff, goes far beyond the impact of print or online material. Although this method of conducting education and outreach takes more time to do than most other elements of an education and

outreach plan, and the amount of people reached is less than other methods, the impact is far-reaching. The City should consider conducting (or contract the service out) site visits to generators to inform them of regulatory requirements, available programs and services, and provide technical assistance and support with efforts to maximize diversion and implement sustainable business practices. Waste Management may currently do this for some business, but the efforts could be expanded to reach more businesses, and/or provide more visits to the same business for consistency and follow-up.

5. **Update to City resource documents:** The City may want to consider updating its existing resource documents to include information related to proper waste management within a facility. Some documents to consider are the City's "Guide to Opening an Eating Establishment", any internal event planning or purchasing documents that may exist, etc. Documents should be revised to include information about food donation, food waste reduction, diverting recyclable material and organic waste, and education about proper source separation and contamination.

6. **Promote City-wide diversion opportunities:** Increase promotion of existing events / opportunities not specifically limited to City or franchised events such as green events, community green events, forums, conferences, etc. The City may consider developing ways to more actively promote reuse stores, thrift stores, bottle-refilling stations, and other businesses that are rooted in reducing waste such as with a "green shopping passport", promotion in local media, social media platforms, etc.

7. **More publicity for diversion opportunities:** There are opportunities currently available to Carlsbad's residents that they may not be aware of. The City may want to consider including information on such opportunities in public education and outreach media. Examples include drop-off sites for mattresses, carpet, paint, HHW, plastic bags, batteries, etc. Although some if not most of these diversion opportunities may be organized and operated by entities other than the City or its contractors, they are opportunities nonetheless and more publicity could only better help the cause.

8. **Promote successful businesses:** In order to strengthen the incentive for businesses to participate in a waste reduction program, the City can promote the efforts of the City's Recycling Champion, the San Diego Green Business Project,[1] the California Green Business[2] program(s), etc. Promotion may come in the form of stickers, advertisement in local print media or the City's website, award/certification forms for businesses to display, etc. Additionally, the City may want to reach out to businesses and survey what would motivate them to participate and use that information to develop an incentive strategy.

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[1] The San Diego Green Business Program encourages businesses in the region to be more sustainable by offering tools and resources, and may be referenced in developing education and outreach and/or providing a participatory incentive to businesses. More information can be found here: https://www.sandiegocounty.gov/deh/doing_business/chd_greenbus.html

[2] The California Green Business Program is a recognition program for businesses that take steps to operate more sustainably, which includes elements like energy, water, waste, transportation, etc. This opportunity is not readily available in San Diego County but may be a good reference in the future. More information can be found here: https://greenbusinessca.org/

9. **Better record keeping / reporting:** Some self-haulers may not be aware of the necessity of diverting their collected material. In order to provide more information to this group of the community, the City may want to create or revise existing documents for self-haulers to document origin of material, material type, where it is being delivered, etc.

10. **Emphasize transparency:** Transparency of the City's status with this legislation may incentivize parts of the community to increase their efforts. The City may want to consider sharing their covered generator compliance percentage (while maintaining confidentiality of individual businesses) to demonstrate what additional efforts are needed as well as highlighting the participation of those businesses that are incompliance. This may be advertised in conjunction with the City's Recycling Champions program.

11. **Debunk misconceptions / shift public perception:** Common misconceptions in the waste industry include the idea that "people don't care", that "our waste gets separated anyway" or that "my decisions don't matter anyway". There are surely other misperceptions about waste that deeply affect one's behavior towards waste disposal, and may be effecting decision making at the community level. This recommendation is an attempt to better understand the community-at-large, and even specific community groups' misconceptions about waste so that the City and/or Waste Management can better understand the viewpoints of its customers, the level of interest, the perceptions, etc. and perhaps address such misconceptions in programming. The City can take the pulse of the community by conducting polls, case studies, focus groups, and/or interviews. With this information, the City can develop informational sheets, communication campaigns, and other educational pieces that address the public's perception of recycling, food recovery, and other elements of correct source separation. Additionally, by sharing publicly how the community feels and thinks about various waste topics, the City can shift the collective perception. The idea is to show the level of interest / support from the community, and what people want to see or support. For example, many event planners over-plan on meal preparation because they don't want to run out of food, but perhaps if they knew that event attendees were ok with other options, they may order less. Additionally, restaurants may consider reducing the size of their portions or offering a discounted price for a smaller portion if they knew customers would approve of the change.

    One big misconception that food-generating facilities have is the possibility of legal issues resultant in donating food. Two state laws have been codified that protect the rights of these businesses and further encourage the donation of edible food: The Good Samaritan Act, and AB 1219 the California Good Samaritan Act. Providing information about these laws and encouraging businesses to donate may help to change the inaccurate perception that it may lead to lawsuit.

12. **Promote private resources:** There are lots of great waste-saving resources, apps, and technology developed by private companies that are available to residents and customers. Some examples include food recovery apps, event planning apps to help determine the amount/type of food needed, reuse apps for finding donation items, and more. The City could promote these resources online, in printed media, during in-person site visits, etc.

13. **Regularly scheduled community events:** Meeting with organizations in-person to discuss new laws, strategies, and other elements of proper waste management programs can be a helpful education and outreach strategy. Although time consuming, it provides the opportunity to strengthen relationships, collaborate, share resources and educate people. The City may want to consider hosting quarterly meetings with umbrella organizations such as the following:
    - Chamber of Commerce;
    - Largest waste-generating businesses; and
    - Self-haul companies / landscapers.

Examples of Other Jurisdictions' Successful Education and Outreach Programs

1. **San Francisco** - San Francisco Department of Environment developed a custom Signmaker Tool to help businesses, schools and homes sort materials accurately. Users can customize the size as well as the items that should go into each bin.
2. **Emeryville** - Similarly, the City of Emeryville offers free stickers, recycling and compostable containers to Businesses. The City also provides free compost and recycling training to businesses upon request.
3. **Sonoma County** - Sonoma County aims to enhance their technical assistance services by providing bilingual education to support all residents and businesses. The City partners with their waste hauler to provide on-site education on recycling and composting as well as best practices for source reduction in Spanish.
4. **Baltimore** - Mr. Trash Wheel of Baltimore uses the power of nature to keep their water front clean. The river's current provides power to turn the water wheel, which collects trash and debris from the water and deposits it into a dumpster barge. Residents follow Mr. Trash Wheel's Twitter for quirky, yet informative updates on material bans, statistics on trash collected and tips for waste prevention.
5. **State of Oregon** - The state of Oregon implements Sustainable Consumption Curriculum for grades 6-12 as a subset of Education for Sustainable Development. Learning outcomes can be categorized as attitudes, knowledge, skills and behavior leading to ecological responsibility, social responsibility, global solidarity as well as action and involvement.
6. **Boulder, CO** - High school students in Boulder, Colorado tour Zero Waste businesses to see firsthand that business as usual can mean more than profit maximization. They tour ice cream shops powered by wind, zero waste hotels and Google's campus that features collection bins for hard-to-recycle items that are sent to CHaRM for recycling.
7. **Boulder, CO** Eco-Cycle's Green Star Schools program has more than 80 schools and 21,000 students enrolled in the Boulder County. Eco-Cycle provides ongoing projects and training to increase recycling, reduce plastic consumption and provide hard-to-recycle disposals on campus. Green Star Schools also have zero

waste lunch programs which allows students to sort their food waste, recyclable cartons and deposit their reusable plates and utensils into wash stations.

8. **Los Angeles** - In the City of Los Angeles, the California Department of Conservation, Division of Recycling sponsors a program to provide at-risk young adults and school aged youth opportunities for success through job skills training, education and work experience with an emphasis on conservation and service projects that benefit the community. These young people develop and service recycling accounts, set up recycling campaigns and partners with non-profits to deliver recyclable materials to recycling centers.

Appendix 2C

Performance Metrics

Procurement Metrics[1]

- ✓ **City Department Non-Virgin Material Procurement Rates** - The percentage of materials, by major material type, that are reused or have post-consumer content.
  - o **Proposed Targets:**
    - ▪ **50% by 2022**
    - ▪ **100% by 2025**
- ✓ **Percentage of paper products from post-consumer content**
  - o **Proposed Targets:**
    - ▪ **100% by 2022**
- ✓ **Percentage of paper with 100% post-consumer content**
  - o **Proposed Targets:**
    - ▪ **50% by 2022**
    - ▪ **100% by 2025**
- ✓ **Tons of Recovered Organic Waste Product utilized**
  - o **Proposed Targets:**
    - ▪ **1,000 tons by 2022**
    - ▪ **5,000 tons by 2025**

Diversion Metrics

- ✓ **Individual City Department Diversion Rates**
  - o **50% Diversion Rate by 2022**
  - o **75% Diversion Rate by 2025**
- ✓ **Designated Hauler Diversion Rate**
  - o **Proposed Targets:**
    - ▪ **50% Commercial Diversion Rate by 2025**
    - ▪ **75% Commercial Diversion Rate by 2030**
- ✓ **PTS Diversion Rate**
  - o **Proposed Targets:**
    - ▪ **Green Waste - 100% by 2022**
    - ▪ **Construction and Demolition Debris - 100% Processed by 2022**
    - ▪ **Self-Haul Loads - 50%+ Targeted Material Capture Rate by 2025**
- ✓ **City's CalRecycle (Disposal Based) Diversion Rate**
  - o **Proposed Targets:**
    - ▪ **75% by 2025**
    - ▪ **90% by 2030**

[1] By individual City department and for City-government overall.

Appendix 2C

Performance Metrics

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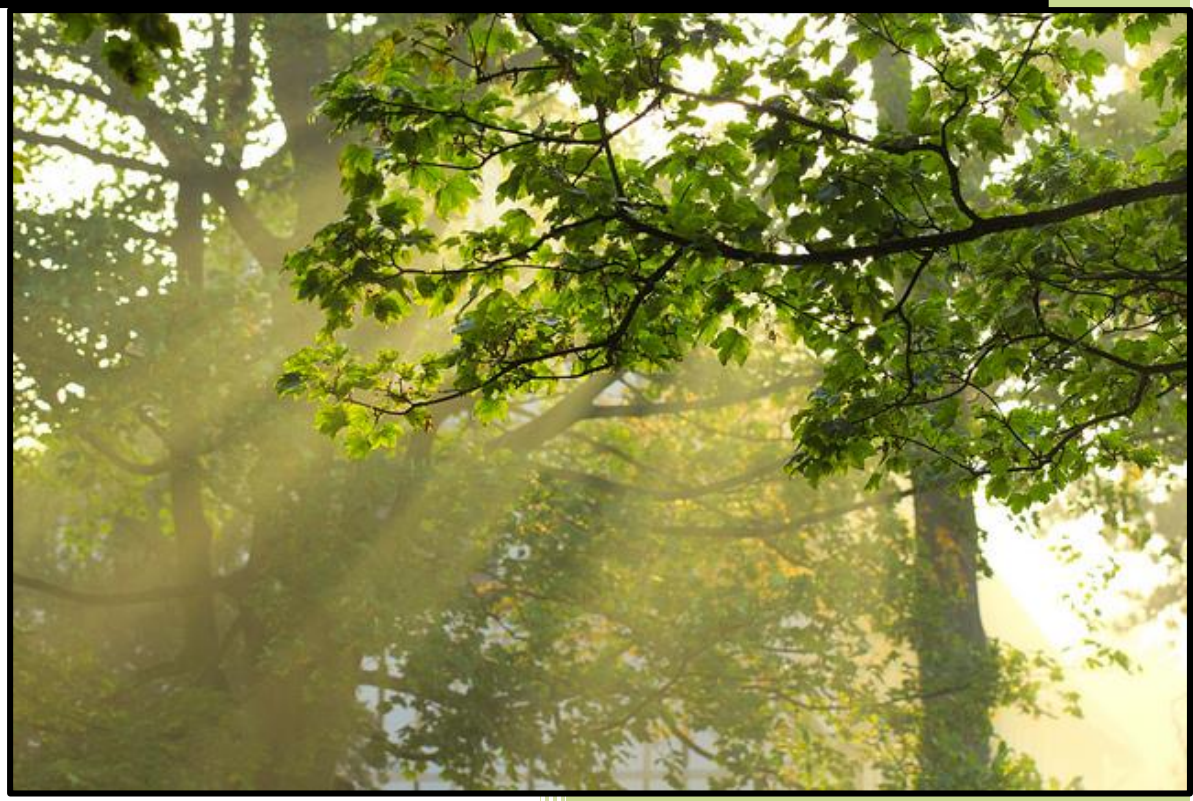
Appendix 2D

U.S. EPA Sustainable Materials Management Program
Strategic Plan

R3

Fiscal Year
2017 - 2022

U.S. EPA Sustainable Materials Management Program Strategic Plan



October 2015

EPA's Mission

To Protect Human Health and the Environment

Sustainable Materials Management (SMM) Program Vision

Protecting human health and the environment by advancing the sustainable use of materials throughout their lifecycle to minimize waste and environmental impacts

SMM Program Objectives

Objective 1: Decrease disposal rate - This objective focuses on tracking and reducing the overall amount of materials disposed, which would encompass activities targeting ***source reduction, reuse, recycling*** and ***prevention***.

Objective 2: Reduce environmental impacts of materials - This objective focuses on reducing the environmental impacts of materials across their life cycle, including greenhouse gas emissions and reductions in water and energy use.

Objective 3: Increase socio-economic benefits - This objective focuses on tracking and reporting material impacts on the economy as well as social aspects.

Objective 4: Increase capacity of state and local governments, communities and key stakeholders to adopt and implement SMM policies, practices and incentives - This objective involves increasing the number of states and communities where SMM capacity has been expanded as a result of EPA's technical assistance and support. This objective also involves increasing the per capita quantity and/or quality of recyclables recovered for manufacturing and increasing the number of households with access to organic collection and recycling.

SMM Strategic Priorities

The Built Environment

Sustainable Food Management

Sustainable Packaging

Additional Emphasis Areas

Sustainable Electronics Management

Life Cycle Assessment and SMM International Efforts

Overarching Measurement Efforts

Introduction

Sustainable Materials Management (SMM) is an approach to serving human needs by using/reusing resources productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all associated environmental impacts.[1] This SMM Strategic Plan covers a 5-year period from Fiscal Year (FY) 2017 to 2022.

According to the UN Environment Programme (UNEP), "Humans are consuming resources and producing waste at a greater scale than ever before and per capita consumption levels are projected to increase with continued development." For every 1% increase in GDP, resource use has risen 0.4%.[2] Further, "one half to three quarters of annual resource inputs to industrial economies is returned to the environment as wastes within just one year."[3]

> "One half to three quarters of annual resource inputs to industrial economies is returned to the environment as wastes within just one year."
>
> - *Weight of Nations: Material Outflows from Industrial Economies, World Resource Institute*

The Resource Conservation & Recovery Act (RCRA) provides the legislative basis for EPA's Sustainable Materials Management (SMM) Program, setting a strong preference for resource conservation over disposal. EPA's report, *Beyond RCRA: Waste and Materials Management in 2020* (2002) made the argument for focusing efforts on materials management, and EPA's report, *SMM: The Road Ahead* (2009) provided recommendations and an analytical framework for moving toward sustainable materials management. The *Road Ahead* serves as the foundation for the SMM Program. In addition, EPA's waste hierarchy continues to provide guidance, highlighting ***source reduction/waste prevention & reuse*** over recycling and composting, energy recovery, and treatment & disposal.

Responsibility for managing materials and waste is largely at the state and local levels, yet capacity and approaches vary widely. EPA helps to provide national consistency and co-implements RCRA with states by providing states, businesses and others stakeholders with national standards, guidelines, and technical support to more effectively conserve and manage materials and waste. In addition, through its convening role, EPA facilitates the dialogue and collaboration needed to address the complex challenges we face to sustainably manage our natural resources while experiencing healthy economic growth. Indeed, access to and increased utilization of U.S. collection, processing and recycling infrastructure is imperative if SMM is to succeed. Material recovery and waste reduction are essential components to the productive and sustainable use of materials across their entire life cycle to conserve resources, reduce waste, slow climate change, and minimize the environmental impacts of the materials we use. Yet every day, the lack of such infrastructure contributes to the problem of Americans wasting valuable commodities and resources by discarding reusable or recyclable materials. National system approaches and methods are needed to reduce waste and disposal and increase recycling rates by capturing high quantity wastes (packaging and containers, organic residuals, etc.) more effectively and efficiently through developing capacity to convert these materials into marketable, useable commodities and products that yield substantial economic and environmental benefits.

EPA's SMM Program activities are specifically reflected in EPA's FY2014-FY2018 Strategic Plan Goal 3, as well as the Cross-Cutting Strategy Working Toward a Sustainable Future. Specific SMM Program commitments and targets were articulated (and met) in EPA's FY2014 Action Plan under the Agency's Cross-Cutting Sustainability Strategy, and SMM is highlighted again in the FY2016 Action Plan. SMM was listed along with Green Products and Procurement, Green Infrastructure, and Energy Efficiency as the first areas of emphasis when the Agency responded to the National Academy of Sciences recommendations to EPA for

[1] Sustainable Materials Management: The Road Ahead. EPA. 2009.
[2] Circular Advantage: Innovative Business Models and Technologies to Create Value in a World without Limits to Growth http://www.accenture.com/us-en/Pages/insight-circular-advantage-innovative-business-models-value-growth.aspx

[3] Matthews, Emily, et al. Weight of Nations: Material Outflows from Industrial Economies. World Resource Institute. Washington, DC, 2000.

implementing sustainability across the Agency. Sustainable Food Management continues to be recognized by the Administrator, across the Agency and with outside stakeholders as an area of significant importance. The White House Council on Environmental Quality recognized and supported SMM Program efforts around the Federal Green Challenge and continues to recognize EPA's leadership role across federal agencies in the National Strategy for Electronics Stewardship.

SMM Program efforts also are aligned with international priorities and efforts aimed at managing our global resources. SMM is recognized internationally and EPA is collaborating with partners and stakeholders in a variety of initiatives such as: the UNEP 10 Year Framework of Programme Consumption and Production, efforts led by the Organization for Economic Cooperation and Development, and the development of the United Nation's Sustainable Development Goal for the U.S. that addresses food loss and food waste, among others. Most recently, EPA represented the U.S. Government in the G7 Resource Efficiency area and saw its recommendations on materials management and life cycle-based decision making reflected in the G7 Declaration and Annex that resulted from the G7 Summit of world leaders in June 2015. Significant follow-up efforts are underway related to the G7 Alliance formed that will continue to progress SMM approaches and concepts at home and abroad.

The SMM Program Strategic Plan specifically builds on efforts initiated in 2010 when the Office of Resource Conservation and Recovery (ORCR) and the EPA Regions shifted program emphasis from a broad array of resource recovery initiatives to sustainable materials management. The current SMM Program has demonstrated measureable results in its efforts in sustainable food management, sustainable electronics management and the federal government leading by example (which include the Food Recovery, Electronics and Federal Green Challenges); measurement, state capacity, and local government zero waste efforts; and efforts to support evaluating the beneficial uses of industrial materials. Much has been learned from the current SMM Program and EPA has received and will continue to seek input on its SMM initiatives both informally and formally (e.g., Packaging Dialogue (2012), Electronics Forum (2014), Sustainable Food Management Summit (planned for November 2015), and various discussions at the EPA regional level.

In FY 2017-FY 2022, EPA will continue to invest in improving measurement systems that can be used to track and evaluate trends associated with prevention, reuse, recycling, disposal, processing capacity, feedstocks for markets, and public access to recycling or reuse options. In addition, EPA will maintain and improve the analytical tools and methods for quantifying the environmental and economic impacts of SMM efforts. Work will build on the current three SMM Challenges to better support the strategic priorities. The beneficial use evaluations for industrial materials and C&D materials will be completed and shared and will serve as the foundation for future efforts. Finally, collaboration with stakeholders at the national and international levels will continue and be strengthened.

SMM Program Objectives & Strategic Priorities

The three strategic priorities chosen as the focus of the SMM Program from FY2017 to FY2022 present significant opportunities for environmental, economic, social (and program performance) results. The Strategic Priority Areas are: 1) The Built Environment; 2) Sustainable Food Management; and 3) Sustainable Packaging. Work under each of these areas will support the four primary SMM Program objectives to:

1. Decrease the disposal rate, which includes ***source reduction, reuse, recycling*** and ***prevention***;
2. Reduce the environmental impacts of materials across their life cycle;
3. Increase socio-economic benefits; and
4. Increase the capacity of state and local governments, communities and key stakeholders to adopt and implement SMM policies, practices and incentives.

The specific activities provided as examples under each Strategic Priority Area in this Strategic Plan are only a sampling of potential efforts and might evolve based on program transition efforts in FY2016 and early FY2017. These example activities also represent a continuum; different parts of the country have different needs relative to materials management. It also is important to leverage existing stakeholder relationships, and EPA expertise and capacity that varies from Region to Region and in Headquarters. Thus, not every EPA Region will engage in every activity being proposed under this Strategic Plan; there is a flexible yet focused package of recommended core elements and action areas that are measurable, scalable, and when combined, enable us to implement a cohesive national SMM Program focused on management of materials throughout their life cycle. EPA will continue to commit to achieving specific goals within the recommended national program priority areas. Greater emphasis will be placed on targeting, measuring and reporting environmental outcomes to augment the current targeting of specific numbers of SMM Challenge participant recruitment and retention.

The Built Environment:

1. Incorporate lifecycle SMM concepts into the built environment marketplace.

Anticipated Outcomes by 2022:

- Increase safe reuse and recycling of C&D materials.
- Increase the safe beneficial use of high priority industrial byproduct materials.

2. Advance climate adaptation and community resilience efforts.

Anticipated Outcomes by 2022:

- A national data tracking approach to begin to measure amounts of debris generated and how it is managed.
- Decreased disposal of debris (measured by new national tracking system).
- Improved disaster debris management plans in communities to enhance resilience to disasters.
- Improved building codes and ordinances in communities to reduce disaster debris.

3. Improve and enhance data & measurement of C&D and industrial byproduct materials.

Anticipated Outcomes by 2022:

- A national baseline and trend data for generation, reuse, recycling and disposal of C&D materials (based on methodology implemented in FY16).
- A national, replicable methodology to provide baseline and trend data for generation, reuse, recycling, and disposal of high-priority industrial byproduct materials; and
- Improved and expanded WARM and other tools and calculators to allow quantification of environmental and economic benefits and impacts related to C&D materials management and industrial byproduct materials.

Sustainable Food Management:

1. Develop an infrastructure to support alternatives to landfill disposal of wasted food.

Anticipated Outcomes by 2020:

- Increase the number of new and existing composting and anaerobic digestion facilities that accept wasted food.

2. Promote opportunities across the entire food life cycle to reduce wasted food from landfills, with a preference for those approaches higher up on EPA's food recovery hierarchy.

Anticipated Outcomes by 2022:

- Make progress towards the U.S. 50% reduction of food loss and waste 2030 goal by decreasing the amount of wasted food from retail to consumer, as well as the amount of food waste ultimately disposed of in landfills.

3. Improve and standardize measurement of wasted food.

Anticipated Outcomes by 2022:

- Quantify the number of composting and anaerobic digestion facilities that accept wasted food.
- Align EPA's measurement with other national and international protocols to create uniform methods; and
- Develop a comprehensive report on food loss that identifies key opportunities to target source reduction and diversion activities within the food life cycle and capture the environmental, social and economic impacts from wasted food.

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Sustainable Packaging:

1. Convening and Partnerships: Infrastructure.

2. Work Across EPA and with Other Federal Agencies as Strategic Partners.

3. Research, Data, and Measurement for Packaging.

Anticipated Outcomes by 2022:

- Increase per capita quantity of recyclables collected.
- Increase yield rates of recyclables collected, processed and made available to the secondary materials market (quality).
- Increase average household lbs/year of recyclables collected.
- Increase access to and participation in recycling collection.

Additional Emphasis Areas: Work will also be conducted in the area of Sustainable Electronics Management (e.g., SMM Electronics Challenge and National Strategy for Electronics Stewardship). There are Life Cycle Assessment (LCA) efforts involving the development of tools, SMM indicators and work to develop a Federal LCA Commons (a network of interoperable data, databases and models that facilitate the ability to conduct LCAs). In addition, SMM international efforts and overarching measurement and analysis that support the SMM Program will continue.

SMM and the Built Environment

Opportunities exist for increasing safe reuse, recycling and safe disposal of industrial byproducts, building materials and debris. Over 500 million tons of industrial materials are generated in the U.S. each year. Over 110 million residences exist in the U.S., almost 70% of which are single-family homes with a wide range of materials, goods and services used directly or indirectly in construction and potential demolition. In addition, natural disasters can create millions of debris. For example, Hurricane Andrew generated 20 million cubic yards of debris – enough to fill a football field a mile high. The following Action Areas outline how EPA will work to implement a life cycle, systems-based approach to address the full range of impacts associated with materials management in the built environment.

Action Area 1: Incorporate lifecycle SMM concepts into the built environment marketplace. Work to influence the building design marketplace, including architects, engineers, product designers, educators and students by working with federal, state, and community stakeholders to adopt and implement SMM policies, practices and incentives that affect designing, building, using, renovating, demolishing, recycling or reusing materials in the built environment.

Anticipated Outcomes by 2022:

- Increase safe reuse and recycling of C&D materials.
- Increase the safe beneficial use of industrial byproduct materials, such as coal fly ash and spent foundry sand.

Examples of Possible Activities:

- Integrate SMM into an existing lifecycle building design competition.
- Target large construction or demolition projects for beneficial use or recycling.

Action Area 2: Advance climate adaptation and community resilience efforts. Advance climate adaptation efforts and strengthen community resilience to natural disasters through sustainable construction techniques and improved disaster debris planning and management.

Anticipated Outcomes by 2022:

- A national data tracking approach to begin to measure amounts of debris generated and how it is managed.
- Decreased disposal of debris (measured by new national tracking system).
- Improved disaster debris management plans in communities to enhance resilience to disasters.
- Improved building codes and ordinances in communities to reduce disaster debris.

Examples of Possible Activities:

- Expand measurement and tracking systems used by EPA, FEMA and the Army Corps to capture actual debris amounts and disposition; and develop model contracts for emergency situations.
- Engage with building code organizations to have them consider incorporating SMM concepts into applicable codes in order to improve resiliency of built environment in communities.

Action Area 3: Improve and enhance data & measurement of C&D and industrial byproduct materials. Provide high-quality scientific information and data, and develop and maintain tools to quantify the environmental and economic benefits of adopting and implementing SMM policies, practices and incentives in the built environment.

Anticipated Outcomes by 2022:

- A national baseline and trend data for generation, reuse, recycling and disposal of C&D materials (based on methodology implemented in FY16)
- A national, replicable methodology to provide baseline and trend data for generation, reuse, recycling, and disposal of high-priority industrial byproduct materials; and
- Improved and expanded WARM and other tools and calculators to allow quantification of environmental and economic benefits and impacts related to C&D materials management and priority industrial byproduct materials.

Examples of possible activities:

- Develop transparent and replicable data sources and reports for industrial byproduct materials generation, reuse, recycling and disposal
- Develop tools and calculators to estimate other environmental benefits and economic benefits associated with reuse and recycling of C&D and the priority industrial byproduct materials.

Sustainable Food Management

The case for focusing SMM Program efforts on sustainable food management is compelling. Roughly one third of the food produced in the world for human consumption every year (approximately 1.3 billion tonnes) gets lost or wasted (UNEP 2011). In addition, in the United States, more than 30% of edible food goes to waste costing Americans approximately $161 billion annually. The cost to the environment is staggering. Food loss represents a tremendous waste of resources used in production such as land, water, energy, and inputs. Food is the largest stream of materials in our landfills, accounting for 21% of the American waste stream. This large volume of disposed food is a main contributor to the roughly 18% of total U.S. methane emissions that come from landfills. Costs are even greater considering that 48 million Americans, of which roughly 16 million are children, live in food insecure households. One UNEP global indicators goal is to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030. To achieve this ambitious goal, the U.S., led by EPA and USDA, need to work with the public and private sectors to reduce wasted food by roughly 66 billion pounds within 15 years.

Action Area 1. Develop an infrastructure to support alternatives to landfill disposal of wasted food. Work with stakeholders to develop and expand organic residual collection and processing infrastructure and technologies, such as increasing the number of new and existing composting and anaerobic digestion (AD) facilities that accept wasted food.

Anticipated Outcome by 2020:

- Increase the number of new and existing composting and anaerobic digestion facilities that accept wasted food.

Examples of Possible Activities:

- Work with strategic partners such as states, municipalities, and industry groups to facilitate capacity building for the collection and processing of food residuals.

Action Area 2: Promote opportunities across the entire food life cycle to reduce wasted food from landfills, with a preference for those approaches higher up on EPA's food recovery hierarchy. Deliver tools and education, and convene networks across the food spectrum to implement more sustainable food management practices.

Anticipated Outcomes by 2022:

- Make progress towards the U.S. 50% reduction of food loss and waste 2030 goal by decreasing the amount of wasted food from retail to consumer, as well as the amount of food waste ultimately disposed of in landfills.

Examples of possible Activities:

- Host food recovery and waste reduction stakeholder dialogues with key players in the food economy.
- Implement existing tools and approaches to connect sectors that produce excess food and other organic residuals with those who can beneficially use the materials; and to reduce residential food waste.
- Facilitate development of community-based approaches to achieve common objectives and/or share expertise and best practices.

Action Area 3: Improve and standardize measurement of wasted food. Provide high-quality scientific data and improve tools to quantify the environmental, social and economic benefits from implementing sustainable food management policies, practices and incentives.

Anticipated Outcomes by 2022:

- Align EPA's measurement with other national and international protocols to create uniform methods.
- Develop a comprehensive report on food loss that identifies key opportunities to target source reduction and diversion activities within the food life cycle and capture the environmental, social and economic impacts from wasted food.

Examples of Possible Activities:

- Quantify the number of composting and anaerobic digestion facilities that accept wasted food.
- Collaborate with groups such as the UN and other federal agencies to align measurement protocols.
- Work with other federal agencies to develop a comprehensive report on food loss throughout the U.S. food system.

Sustainable Packaging

Americans generate approximately 250 million tons of municipal solid waste (MSW) every year with a stagnant 35 % recycling rate (a rate that is at or near the bottom compared with other industrialized nations.) According to EPA's 2013 SMM Facts and Figures Report, approximately 30% of the MSW generated is composed of containers and packaging-related materials, or over 75 million tons. The Packaging Strategic Area focuses on increasing the quantity and quality of reused and recycled materials from MSW, development of sufficient public and private sector collection and processing infrastructure and end markets, promoting the productive and sustainable use of materials across their entire life cycle, and leveraging how the federal government, private industry and consumers reduce the use of materials through thoughtful policy, manufacturing innovations, and information that consider the life-cycle impacts.

Anticipated Outcomes by 2022:

- Increase per capita quantity of recyclables collected.
- Increase yield rates of recyclables collected, processed and made available to the secondary materials market (quality).
- Increase average household lbs/year of recyclables collected.
- Increase access to and participation in recycling collection.

Action Area 1. Convening and Partnerships: Infrastructure. Work with States, communities, non-governmental organizations (NGOs) and industry on common interests and alignment on systematic and life-cycle based approaches, including supportive policies, practices and incentives; alignment of measurement systems, metrics, and benchmarking; and transparency of secondary materials markets and end users.

Examples of Possible Activities:

- Convene national stakeholder dialogues on key packaging source reduction and waste topics to actively promote the connection between reducing and recovering packaging waste.

- Develop and actively engage regional collaboratives to work with states, communities, NGOs and industry on supportive policies, practices and incentives, and actionable data and measurement.

Action Area 2. Work Across EPA and with Other Federal Agencies as Strategic Partners. Work with other EPA program offices and other federal agencies as strategic partners to coordinate and harmonize packaging-related policies and programs, research and development of new materials, and/or recycling processes for hard-to-recycle materials.

Examples of Possible Activities:

- Support implementation of EPA's Office of Water's Trash Free Waters program, which is working to reduce loadings of plastic packaging in our nation's waters; and continue to coordinate with OCSPP to strengthen and support packaging criteria.

- Coordinate and work with other agencies that influence SMM in areas such as; mandates on labeling; environmental claims standards; coordinated programs and grants for collection and processing infrastructure; and, economic development with state and industry-led efforts.

- Scale-up and leverage partnership with Department of Defense and its Net Zero Program to incentivize and support development and optimization of community-based and local recycling infrastructure.

Action Area 3. Research, Data, and Measurement for Packaging. Increase the availability of information that supports recycling of packaging; expand and enhance materials flow studies and efforts; apply life-cycle analysis methods and tools to identify the environmental impacts of packaging materials and forms, and support the adoption of SMM policies optimizing materials flows for recovered packaging using data gathered on material production, LCA and disposal/recycling practices.

Examples of Possible Activities:

- Convene national stakeholder dialogues to align national definitions, metrics and benchmarking or indicators needed for transparency in reporting for system enhancements and interventions that maximize the recovery of materials.

- Build on and scale-up LCA tools and foster the use of database approaches like the LCA Digital Commons that help make lifecycle thinking a reality.

Appendix 4A

Rates and Rate Structure

R3

Introduction

Rates and rate structures play an important role in sustainable materials management systems. Rates must be set so that the haulers', and processing facility operators' additional costs for diversion programs are fully funded. Additionally, rate structures should be designed to incentivize the generator (i.e., residential and commercial accounts, and self-haulers) to divert the targeted materials.

Residential Rates

Background

Jurisdictions use a range of residential rate structures. In California, variable can rates are common. The term "variable can rate" (or "pay-as-you-throw") refers to the structuring of garbage collection rates so that different sized containers are charged different rates, as compared to a "flat rate" where the price is the same regardless of service volume (e.g., the cost for a 64-gallon container is the same as a 90-gallon container).

There are four general types of variable can rate pricing structures:

1. **Regressive**: The per-unit cost of the container decreases as container size increases.
2. **Volume-based**: The per-unit cost is the same for all container sizes.
3. **Progressive**: The per-unit cost of the container increases as the container size increases.
4. **Cost of Service**: The price is set based on the actual cost to service the different container sizes.[1]

A major objective of variable can rates is to provide an economic incentive for residents to participate in recycling programs, which were typically provided at no additional cost (i.e., built into the solid waste rate and not visible to the customer on the rate sheet). Under this system, a resident that actively recycles can potentially reduce their solid waste service level (e.g., from 90-gallons per week to 60-gallons per week), and realize an associated cost savings.

While variable can rates have supported jurisdictional diversion efforts by providing a financial incentive to residents to recycle and reduce their solid waste service level, significant differences in the cost between 30, 60 and 90 gallon carts has been cited as a contributing factor to the contamination of residential recyclables, which has contributed to China's current ban on contaminated recyclables. Some jurisdictions that had more aggressive variable rates have moved toward "cost of service" rates to eliminate the financial subsidies among 30, 60

[1] The cost to collect a 20-gallon container is largely the same as a 90-gallon container, the only major cost differences are the cost of the container and the disposal cost. This translates into a difference of perhaps $5+/- dollars per month (i.e., the cost of service differential).

and 90 gallon accounts that are inherent to variable can rate structures, and potential Proposition 218 issues, and/or to attempt to reduce recyclable material contamination.[2]

Residential Rate Structure

Carlsbad's monthly residential rate for a 64- or 96-gallon cart is $21.55, while the cost of a 35-gallon cart is $19.51 per month; $2.04 less that the 64-96 gallon rate. An extra trash cart costs $2.48 per month. The current rate structure provides a backyard service option at a monthly rate of $27.57.

Residential Rate Structure Analysis

Carlsbad's residential rate structure is a reasonable representation of a **Cost of Service** rate structure, which we is consistent with Proposition 218 and should be maintained. The current rate for backyard service is well below the actual cost of that service.

Rate Structure Recommendations

- Maintain the current residential rate structure;
- Eliminate the option for backyard service, except for accounts were there is no able bodied person in the house, and they provide a doctor's note. [3]
- Explore mechanisms to "incentivize" increased residential recycling, green waste, and organics diversion, including prohibiting the disposal of residential recyclables, green waste, and organics (i.e., mandatory residential recycling and organics diversion ordinance), and establish a fee for recyclables and organics placed in the solid waste container.[4]

Commercial Rates

The city's commercial rate structure will need to be redesigned under a universal collection system. As part of that redesign process, consideration should to be given to opportunities to incentivize commercial accounts to fully participate in the commercial recyclable material (AB 341) and commercial organic waste (AB 1826 and SB 1383) diversion programs.

Background

Subsidized Recycling and Organic Rates

Fully Subsidized (Bundled) Rates - It has been the common practice of many jurisdictions to offer commercial recycling service at no additional cost to the account, with a single solid waste rate that includes commercial recycling service (and in some cases organic service). Under this

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[2] It can also be argued that any variable can rate structure other than cost of service rates penalizes larger families who may generate less trash per family member than smaller families, but due to the larger number of family members generate more trash overall.

[3] If Carlsbad wishes to maintain backyard service it is recommended that the rate be set to at least cover the cost of service, which is likely at least double the existing monthly rate.

[4] E.g., The city of Watsonville has a "Recycle Items in Garbage Cart" fee of $24.75.

rate structure there is significant financial incentive for commercial accounts to participate in the recycling programs as doing so can enable them to reduce their weekly solid waste service level and their monthly rate.

While this type of rate structure provides a significant incentive to commercial accounts to participate in commercial recycling programs, it has the exact opposite impact on the private hauler. The more commercial accounts that subscribe to the commercial hauler's recycling program the more it costs the hauler, as they have to provide additional services. This creates a significant financial disincentive for haulers to actively increase commercial recycling participation or recyclable material capture rates. In addition, as commercial accounts increase their recovery of recyclable materials, they can reduce their solid waste service levels, which results in lower net revenues to the private haulers. This results in a second negative financial incentive for haulers to actively increase commercial recycling.

Partially Subsidized Rates - It is becoming more common for jurisdictions to set a rate for commercial recycling and commercial organic services that is less than the cost of solid waste service (e.g., 50% of the solid waste rate). Under this type of rate structure there is still a financial incentive for businesses to recycle materials, although less than the financial incentive that a fully subsidized rate provides, and revenue is generated for the hauler to offset at least some of the associated cost of providing recycling and organic services. The extent to which the recycling rate (or organic rate) covers, or does not cover the actual cost of providing recycling service determines if there is still any level of financial disincentive for the hauler to increase its commercial recycling efforts.

Cost of Service Rates

From the hauler's perspective, the "breakeven" rate for providing recycling and organic services is a "cost of service rate". A cost of service rate fully covers the cost to the hauler of providing the service, without surplus or subsidy. The "problem" with cost of service commercial recycling rate is that the cost of commercial recycling is approaching the cost of solid waste disposal and as such there is little if any financial incentive for accounts to actively recycle. There is even more of a "problem" with commercial organics recycling cost of service rates, since the cost of commercial organic service is often as much, or more than the cost of solid waste disposal. This results in a negative financial incentive to the generator to participate in the program.

SB 1383 Food Recovery Funding

SB 1383, as currently drafted, requires that Carlsbad implement an edible food recovery program. Food recovery is a waste management activity, as that material would otherwise enter the waste stream. As such, some level of SB 1383 food recovery funding through the commercial rates is not unreasonable. In fact, SB 1383 specifically provides for funding required food recovery operations through "franchise fees, local assessments, or other funding mechanisms",[5] and requires that a jurisdiction obtain funding for and additional required edible food recovery infrastructure (Section 18992.2(b) - Page 26).

The SMMP envisions establishing a funding mechanism through the solid waste rates that not only covers the cost of additional food recovery infrastructure (e.g., edible food recovery and distribution costs), but also the cost of the existing edible food recovery infrastructure. In doing

[5] Section 18991.1(b) - page 23.

so, it is Carlsbad's objective to provide a sustainable funding source for all edible food recovery and distribution operations in the city, which is a ***Best Management Practice***.

Commercial Rate Structure

The city's commercial rate structure establishes solid waste rates for varying bin sizes from 2 to 5 cubic yards, and varying weekly collection frequencies of from one to six times per week. There are separate rates for commercial recycling and commercial yard waste cart and bin service. There is also a commercial 3-yard split bin rate.

Rates for 35, 64, and 96-gallon commercial cans collected up to three times per week are also set. Those can rates include one 96-gallon recycling cart for the same rate.

Commercial Rate Structure Analysis

The city's commercial rate structure is broken into separate commercial solid waste, recycling, and yard waste rates. A comparison of those rates is provided in **Attachment 1**. As shown, commercial recycling rates are set at between 45% and 72% of the associated solid waste rate depending on the size of the container and frequency of collection, while commercial yard waste rates are effectively the same as the solid waste rate (99%-102%) for the same level of service.

Rate Structure Recommendations

The commercial rate structure should be redesigned with the implementation of universal commercial organic recycling (Phase 1), and universal commercial recycling (Phase 2). The new rate structure should include a base rate tied to the solid waste service volume, which covers the cost of the solid waste service level, plus a minimum weekly commercial recycling service level (e.g., 90-gallons), and a minimum weekly commercial organic collection service volume (e.g., 90 gallons).[6] Charges for additional recycling collection and organic collection service levels should be set based on the actual incremental cost to provide that additional service volume.[7]

Roll-Off Rates

Roll-off rates are comprised of a cost per pull regardless of the size of the debris box[8] with the processing or disposal tip fee charged directly to the customer based on the number of tons and per ton processing or disposal rate. This is a cost of service rate structure. The SMMP envisions maintaining the current roll-off rate structure, with requirements for processing of loads with targeted materials (e.g., construction and demolition debris).

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6 To maximize diversion, all commercial accounts, not just AB 341 covered generators should be provided with commercial recycling service.

7 Under this rate structure there may be a need to adjust rates and hauler compensation after the roll-out of universal services to reflect actual versus projected service levels.

8 The rational is that it costs effectively the same to deliver and collect a 20 yard debris box as it does a 10, 30 or 40 yard debris box.

Construction & Demolition Rates

Amendment 3 to the Palomar Transfer Station operating contract established a "PTS Construction and Demolition Fee" of $55.00 per ton, as compared to the PTS Solid Waste Fee of $39.00 per ton. This rate applies to the city's contract hauler, as well as self-haulers. The higher fee for C&D debris is to compensate Republic for the additional cost associated with processing C&D debris at its Otay C&D/Inert Debris Processing Facility.

On of the issues that CalRecyle raised with respect to the city's C&D diversion program was that:

> *The cost of the franchise hauler C&D recycling service is far more than disposal services. This significant price difference is compelling disincentive for smaller projects - that tend to not self-haul their recycling - to recycle*

It is not clear what the above statement was referring to, as the city's approved rate schedule includes 3-, and 4-yard temporary C&D Recycling Bins at a rate less than the associated Special Haul Bin Rates.

CalRecycle could have raised a similar "concern" with respect to the PTS rate for C&D debris, which as discussed above, is significantly higher than the associated solid waste rate. As such, there is a financial disincentive for users delivering C&D debris to the PTS to have that material handled as C&D debris. Unless there is a need for the entity that is delivering C&D debris to have that material classified as C&D debris and processed (e.g., for purposes of supporting LEED certification), or C&D debris received at the PTS is required to be processed that material would continue to be received as solid waste and landfilled.

The bottom line is that it costs more to process C&D debris than it does to landfill that material. As such, unless the city's contracted hauler and PTS contractor are compensated for that additional cost through the rates or other means (e.g., subsidized by the overall residential or commercial rates), it is not reasonable to require them to absorb that additional cost.

Comparative Rate Survey

Attachment 2 provides the results of a residential and commercial rate survey that was completed by CWM in 2018, and accounts for differences in the following components of those rates:

- Hauler compensation;
- Franchise fees;
- AB 939 fees;
- Stormwater fees;
- HHW fees; and
- Other fees.

As shown, the hauler compensation portion of the city's residential rate is among the lowest in San Diego County, and the hauler compensation portion of the city's commercial rate for a 3-yard container collected one time per week is the lowest in the County.

Appendix 4A

Rates and Rate Structure

Attachments:

1 Commercial Solid Waste, Recycling and Yard Waste Rate Comparison

2 Rate Survey

Commercial Solid Waste

Bin Size (yd3)	Frequency (times/week) 1	2	3	4	5	6
2.0	$ 82.03	$ 144.42	$ 206.83	$ 269.15	$ 331.59	$ 393.99
3.0	$ 111.47	$ 203.31	$ 295.12	$ 386.94	$ 478.76	$ 570.60
4.0	$ 148.66	$ 277.66	$ 406.71	$ 535.71	$ 664.73	$ 793.75
5.0	$ 185.85	$ 352.08	$ 518.29	$ 684.50	$ 850.73	$ 1,016.95

Commercial Solid Waste

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2.0	$ 82.03	$ 144.42	$ 206.83	$ 269.15	$ 331.59	$ 393.99
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5.0	$ 185.85	$ 352.08	$ 518.29	$ 684.50	$ 850.73	$ 1,016.95

Commercial Recycling

Rates

Bin Size (yd3)	Frequency (times/week) 1	2	3	4	5	6
2.0						
3.0	$ 80.56	$ 136.29	$ 192.01	$ 247.73	$ 295.69	$ 354.61
4.0	$ 81.87	$ 138.49	$ 195.11	$ 251.72	$ 300.46	$ 360.33
5.0						

Percent of Solid Waste Rate

Bin Size (yd3)	Frequency (times/week) 1	2	3	4	5	6
2.0						
3.0	72%	67%	65%	64%	62%	62%
4.0	55%	50%	48%	47%	45%	45%
5.0						

Commercial Yard Waste

Rates

Bin Size (yd3)	Frequency (times/week) 1	2	3	4	5	6
2.0						
3.0	$ 113.76	$ 201.27				
4.0						
5.0						

Percent of Solid Waste Rate

Bin Size (yd3)	Frequency (times/week) 1	2	3	4	5	6
2.0						
3.0	102%	99%				
4.0						
5.0						

Attachment 1

Attachment 2

Rate Survey

The following information is based on a rate comparison summary that was completed by Coast Waste Management in 2018. As shown in **Table 1**, the hauler compensation portion of the City's residential rate is among the lowest in San Diego County, and the hauler compensation portion of the City's commercial rate for a 3-yard container collected one time per week is the lowest in the County. (**Table 2**).[1]

Table 1
Residential Rate Comparison

City	Hauler Compensation	Franchise Fee	AB 939 Fee	Storm Water	HHW Fee	Other	Total	Effective Date
Chula Vista - 64 gal	$16.33	$3.27	$0.81	$0.00	$0.00		$20.41	Effective 9/1/16
National City	$16.36	$1.67	$0.57	$0.00	$0.00		$18.60	Effective 7/1/17
Carlsbad	$16.37	$1.72	$0.00	$3.46	$0.00		$21.55	Effective 7/1/18
Escondido	$17.17	$1.91	$0.21	$0.00	$0.52		$19.81	Effective 1/1/18
San Marcos	$17.62	$4.03	$0.54	$0.00	$0.00		$22.19	Effective 7/1/17
Oceanside	$17.81	$1.72	$0.00	$0.64	$0.00	$1.07	$21.24	Effective 7/1/18
Lemon Grove	$18.12	$3.49	$0.19	$0.00	$0.00		$21.80	Effective 7/1/17
Coronado	$18.33	$0.00	$1.38	$0.00	$0.00		$19.71	Effective 7/1/17
Santee	$18.35	$2.21	$0.44	$0.00	$0.00		$21.00	Effective 7/1/18
Poway	$18.35	$2.04	$1.20	$0.00	$0.00		$21.59	Effective 7/1/17
Del Mar	$18.36	$2.28	$0.00	$0.00	$0.00	$2.13	$22.77	Effective 7/1/18
Imperial Beach	$18.75	$10.54	$0.00	$0.00	$0.00		$29.29	Effective 7/1/17
La Mesa	$18.80	$0.80	$0.62	$0.00	$0.11		$20.33	Effective 7/1/17
Encinitas	$18.98	$1.00	$0.21	$0.00	$0.00		$20.19	Effective 8/1/17
Vista	$19.00	$2.11	$0.07	$0.00	$0.00		$21.18	Effective 7/1/17
Chula Vista - 96 gal	$19.22	$3.84	$0.97	$0.00	$0.00		$24.03	Effective 9/1/16
El Cajon	$19.62	$3.57	$0.61	$0.00	$0.00		$23.80	Effective 7/1/18
Solana Beach	$19.92	$1.61	$0.00	$2.64	$0.00		$24.17	Effective 7/1/17

Chula Vista residential rates not updated for 2017, 2018

[1] Some commercial rates may include recycling and/or organic service as part of the solid waste rate, while others, like the City, charge a separate rate for commercial recycling and commercial yard waste service. Such differences will impact any rate comparisons.

R3

Rate Survey

Table 2
Commercial Rate Comparison (3 yard bin - 1 time per week)

City	Hauler Compensation	Franchise Fee	AB 939 Fee	Storm Water	HHW Fee	Other	Total	Effective Date
Carlsbad	$84.10	$8.83	$0.00	$18.54	$0.00		$111.47	Effective 7/1/18
Oceanside	$86.75	$8.36	$0.00	$3.16	$0.00	$5.26	$103.53	Effective 7/1/18
Escondido	$92.78	$10.31	$0.21	$0.00	$0.52		$103.82	Effective 1/1/18
San Marcos	$92.78	$21.20	$0.00	$0.00	$0.00		$113.98	Effective 7/1/17
Chula Vista	$92.98	$18.60	$4.64	$0.00	$0.00		$116.22	Effective 7/1/17
Santee	$94.13	$11.36	$2.27	$0.00	$0.00		$107.76	Effective 7/1/18
La Mesa	$94.99	$3.93	$4.12	$0.00	$0.59		$103.63	Effective 7/1/17
Solana Beach	$95.15	$7.81	$1.09	$10.25	$0.00		$114.30	Effective 7/1/17
Encinitas	$95.86	$5.05	$0.32	$0.00	$0.00		$101.23	Effective 7/1/17
Lemon Grove	$98.14	$12.25	$0.97	$0.00	$0.00		$111.36	Effective 7/1/17
Poway	$99.02	$11.00	$0.00	$0.00	$0.00		$110.02	Effective 7/1/17
Del Mar	$99.73	$12.43	$0.00	$0.00	$0.00	$12.16	$124.32	Effective 7/1/18
Imperial Beach	$100.44	$56.50	$0.00	$0.00	$0.00		$156.94	Effective 7/1/17
Coronado	$101.42	$0.00	$7.67	$0.00	$0.00		$109.09	Effective 7/1/17
El Cajon	$101.95	$18.55	$3.17	$0.00	$0.00		$123.67	Effective 7/1/18
Vista	$103.09	$11.45	$0.00	$0.00	$0.00		$114.54	Effective 7/1/17
National City	$103.51	$10.57	$3.38	$0.00	$0.00		$117.46	Effective 7/1/17

R3

Appendix 5A

City Government and Citywide Sustainable Purchasing Policies and Practices

R3

City Government Sustainable Purchasing Policies

Overview

When local governments commit to purchasing sustainable products, more responsibly-sourced goods, buying less and adopting strong and clear policies around these practices, they can save money, protect human and environmental health, improve the availability of green products in the marketplace, conserve resources, and lead by example. Local governments are often the largest consumer of commodities and services in any community, a fact which gives them significant leverage to promote better purchasing. What's more, when governments demonstrate that committing to environmental purchasing is possible within their own operations, it gives them the credibility to ask businesses and residents in the wider community to follow suit. Sustainable procurement can be best achieved by adopting a strong, clear, streamlined procurement policy that acknowledges local context, includes best practices, and has an accompanying plan for implementation (often in the form on regulations). The best sustainable procurement policies will not only be effective in achieving purchasing goals, but will also send a signal – both internal and external – that sustainable purchasing is an integral part of a community that has committed to reducing its negative impact on the environment.

Current Carlsbad Purchasing Policy

Carlsbad's purchasing policy is "to purchase and use recycled products except when such use negatively impacts health, safety or operational efficiency." The Contracting and Purchasing Department grants "A 15 percent preference, not to exceed $1,000 per contract," for recycled products, with "The preference percentage…based on the lowest bid or price quoted by the vendor or contractor offering non-recycled products." [1]

While this language is an excellent starting point, Carlsbad's commitment to adopting a Sustainable Materials Management Plan is an opportunity to look at sustainable purchasing in a more holistic way and codify an unrivaled green purchasing policy that will establish the best possible building blocks for a first-class program. The following two sections describe various regional, state and federal policies related to green purchasing to inspire an updated policy as well as tested recommendations to consider when shaping an updated sustainable purchasing ordinance.

State and Federal Policies and Commitments to Sustainable Purchasing

There are a variety of federal, state and regional policies and commitments that outline or require environmentally preferable purchasing practices. While most of these do not impose requirements specifically on Carlsbad, they can be valuable guidelines; key initiatives are listed below:

1) **SB 1383 (Article 12)** – While still in regulatory development phase, the current proposed procurement regulations of SB 1383 (Article 12) would require California jurisdictions to procure finished compost and recycled paper products that meet certain minimum requirements.[2]

[1] http://www.carlsbadca.gov/services/depts/finance/contracting/default.asp

[2] https://www.calrecycle.ca.gov/docs/cr/laws/rulemaking/slcp/proposedregulations.pdf

It is highly recommended that any purchasing policy adopted by the City includes a reference to and is consistent with, or exceeds, SB 1383 requirements.

2) **EPA's Comprehensive Procurement Guidelines (CPG)** – Since the first guidelines were issued in 1983, the CPG of the Resource Conservation and Recovery Act (RCRA) have been a go-to resource.[3] [4] Though more than three decades old, the CPG still proves to be an effective tool. The federal government and jurisdictions across the country use these guidelines to require minimum levels of recycled content for 61 commonly purchased product categories. Many jurisdictions have formally integrated the CPG into a local ordinance. While these guidelines only relate to recycled content and are not considered the most progressive, requiring the purchase of CPG recycled levels at a minimum is an easy starting point.

3) **Executive Order 13693: Planning for Sustainability in the Next Decade** – Executive Order 13693 is a policy that focuses on reducing the federal government's greenhouse gas emissions by at least 40 percent over the next decade, relative to 2008 levels.[5] It recognizes that the products we purchase, at all points in their lifecycle, can have an impact on the climate. Included in the policy is a wide range of sustainability purchasing commitments, from buying Energy Star electronics and appliances, to post-consumer recycled paper, to water conserving building materials, to less-toxic chemicals. This policy is inspirational, and many commitments can easily be adapted for Carlsbad and included local ordinance or goals.

4) **World Environment Day's Urban Environmental Accords** – In 2005, mayors across the world committed to 21 actions recognized as the Urban Environmental Accords.[6] One of these actions was to commit to enacting citywide policies reducing the use of disposable, toxic and non-renewable products by at least 50%. Carlsbad might consider adopting a similar goal.

5) **Green Cities California** – By becoming a member of Green Cities California, Carlsbad could join 17 other jurisdictions that have pledged to purchase only 100% post-consumer recycled content, eliminate the use of bottled water, address overconsumption, purchase climate friendly foods, and share resources and best practices.[7]

Green Purchasing Policy Framework

Even the most forward-thinking and well-intentioned sustainable purchasing programs can be ineffective if the foundational policy lacks certain key elements. The report by the Urban Sustainability Director's Network and the Responsible Purchasing Network outlines excellent recommendations in, The Buck Starts Here: Sustainable Procurement Playbook for Cities by Alicia Culver of RPN and others.[8]

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3 https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program

4 https://www.epa.gov/rcra

5 https://www.epa.gov/greeningepa/executive-order-13693-planning-federal-sustainability-next-decade

6 https://sfenvironment.org/sites/default/files/editor-uploads/initiatives/uea_Urban_Environmental_ Accords.pdf

7 http://www.greencitiescalifornia.org/

8 http://www.responsiblepurchasing.org/purchasing_guides/playbook_for_cities/rpn_usdn_playbook_for_cities.pdf

Many guidelines below are adapted from pages of this report and from first-hand experience with green purchasing for local government by Cascadia Consulting Group. The best sustainable purchasing policies include key elements such as aggressive but achievable goals, requirements for measuring progress, commitment to source reduction, clear delineation or roles and responsibilities and more. As they say, the devil is in the details. Carlsbad should consider incorporating some or all of the following best practices into a new sustainable purchasing policy:

1) **Establish sustainable procurement goals.** By establishing clear goals, staff will be held accountable to measure sustainable procurement and continuously improve the program. Goals can be part of a city resolution, an executive order, or an overarching comprehensive purchasing ordinance. The City might consider committing to increasing the amount of environmentally preferable products by a certain percentage every year, or to decreasing the amount of harmful products purchased. Another strategy is to set measurable goals for certain product categories or for the entire profile of products purchased. To determine where best to start, it would be beneficial to conduct a baseline analysis of current purchases, identify priority product categories, and develop goals from there. Goals should be specific, measurable, achievable and time-bound.

2) **Delineate staff roles and responsibilities.** Key staff should be identified and held accountable to meeting policy goals. It is critical that the *appropriate* departments and people are responsible for administration and enforcement of the ordinance. These staff should have authority over citywide purchasing decisions, such as the department head and employees of the Contracting and Purchasing Division. Other jurisdictions have made the mistake of giving an environmental department exclusive responsibility for overseeing the purchasing program, only to find later that their work lacks effectiveness and has fostered a tense relationship with purchasing staff. Consider designating a supporting role to Environmental Management staff, such as requiring regular research of sustainable products, making recommendations for targeted product categories, product specification guidelines, and updating recommendations regularly.

3) **Identify products to target and prohibit during the regulation process and review regularly.** It is difficult, and in most cases, impossible, to review every purchase by City staff to determine if requested products have sustainability attributes. By prioritizing product categories through regulation and updating this list regularly so, staff can focus their efforts where they count. Factors to consider when identifying priority categories could be quantity purchased, dollars spent, impacts on human health (food, chemical cleaners, batteries), green product availability and price (compared to the more harmful products), and promotion of waste prevention or more composting (for example, electric hand dryers, compostable bags, etc.). Carlsbad might also consider developing a prohibited products list which could include committing to banning the purchase of bottled water, polystyrene foam, plastic products labeled “biodegradable” or virgin office paper to name a few options.

4) **Require development of sustainable procurement tools.** Because many procurement employees lack expertise around environmentally preferable products, access to tools and resources will support contracting staff with making easy, informed decisions and

increase the likelihood that they will fully integrate green purchasing into their regular operational procedures. A few resources that may be helpful to develop are below:

- **Authorization of the use of third-party certification labels**. For example, Cradle to Cradle for consumer goods,[9] Energy Star for appliances,[10] EPEAT for electronics,[11] or Green Seal for cleaning products or paper.[12] Carlsbad might consider requiring the Environmental Management division to vet third-party certifiers and develop a list of labels that are stringent and not backed industry groups.
- **Model contract specifications for priority product categories**. Many jurisdictions from around the country with green purchasing programs are willing to share their research and contract language, and much is available online. There is no need to reinvent the wheel but the Environmental Department might consider designating a staff person to conduct this research task once per year. The employee should consolidate this information and recommend certain model contracts to use as templates. Staff might even recommend "piggybacking" off of certain contracts with open agreements.
- **Summarize preexisting guidelines**. Such as the EPA's Comprehensive Procurement Guidelines for city staff and highlight the most relevant for Carlsbad.
- **Develop a green contracting process checklist** and provide this resource to purchasing agents. Environmental and Contracting staff could collaborate to develop this resource. This checklist will help remind the purchasing division all the important steps to follow and ensure targeted product bids only allow for products that meet minimum requirements and prevent unwanted products from being included at all.

5) **Make sustainable procurement the default action for all major purchasing decisions.** If those who are making purchases need to take a variety of extra steps to determine how and where to purchase sustainable products, they are less likely to make the right choice. Sustainable purchasing can be made easy through a variety of methods. Staff could be required to go out to bid for targeted product categories, include green products specifications in RFPs and only make contracted products available that meet sustainable specifications. They could consider upgrading their purchasing software interface to only allow certain products to be purchased or work with their vendors to design custom catalogs for green products and prohibit the purchase of unwanted products where available.

6) **Incorporate life-cycle costing (LCC), total cost of ownership (TCO), or other best value assessment methods when making purchasing decisions.** According to the Responsible Purchasing Network, "using LCC or TCO, rather than relying only on initial cost as the basis for making purchasing decisions, offers the most economic value over the lifecycle of the product.

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9 https://www.c2ccertified.org/

10 https://www.energystar.gov/

11 https://greenelectronicscouncil.org/epeat/epeat-overview/

12 https://www.greenseal.org/

Sustainable products and services can reduce costs associated with energy and water consumption, waste disposal, etc. or yield other benefits (such as improving air quality or helping a municipality meet its water quality goals). However, they can have a higher initial price. Conversely, some less sustainable purchases with lower initial price tags may cost the jurisdiction additional funds through their useful lives (e.g., additional energy costs, hazardous waste removal costs, etc.). In order to be able to guard against unwanted additional costs from less sustainable products, and also justify sustainable products and services in the procurement decision making process, staff may need to be expected to account for these total costs and benefits in all relevant purchases."[13]

7) **Avoid being too prescriptive.** It is generally not practical to develop sustainability standards for all products, especially since environmental attributes evolve over time. Making policies that are too prescriptive or that do not allow for future flexibility can lock a jurisdiction into addressing only certain product types, focus staff on evaluating products in a narrow way and prevent evolution of the sustainable purchasing program. It is recommended that any future procurement policy adopted by the City be flexible and adaptable to a changing marketplace.

8) **Include waste prevention as part of the mandate.** The most environmentally responsible product is one that is never purchased. Many communities have committed to buying less as part of their purchasing policy. To do this, the policy can consider including a variety of source reduction mandates such as requiring a program that makes City-owned furniture, electronics, equipment and supplies available to other City offices for reuse (through redistribution) before buying new. The City and County of San Francisco has an excellent "Virtual Warehouse"[14] and the template online materials exchange platform is available at no charge to other jurisdictions.[15] Carlsbad might also consider measuring waste reduction as part of tracking requirements and rewarding those agencies that have reported fewer purchases over time with public recognition or awards. Finally, Carlsbad could consider removing any penalties associated with not using budget funds for commodities purchasing (doing away with use-it-or-lose-it budgeting). Practicing effective source reduction will eliminate impacts associated with entire product lifecycles such as mining, water use, chemicals, GHG emissions and resource consumption – and doing it well will eliminate the need to spend time determining which product is the right one.

9) **Include tracking and reporting requirements.** In order to determine if a program is on track to meet its goals, program performance must be measured. All vendors selling to Carlsbad should be obligated to submit regular purchasing reports which includes product information, data around products sold with required environmental attributes and those that do not. Vendors should be required adhere to a standard reporting formats in order to make it easy for city staff to consolidate numerous reports and track city wide performance.

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13 http://www.responsiblepurchasing.org/purchasing_guides/playbook_for_cities/rpn_usdn_playbook_for_cities.pdf

14 https://warehouse.sfenvironment.org

15 https://sites.google.com/a/sfenvironment.org/virtual-warehouse-template

Four excellent examples of green purchasing policies from around the country that are innovative and include many of the above best practices are:

- **The City of Portland's Sustainable Procurement Policy –** While some consider it excessively long and complex, the City of Portland's 2018 policy is without a doubt, one of the premier sustainable procurement policies.[16] It aims to integrate fiscal responsibility, social equity, and community and environmental stewardship into its purchasing practices, clearly delineates roles and responsibilities, calls for the development of sustainable procurement tools, includes clear vendor reporting requirements and more. "The City [of Portland] recognizes that the types of products and services the City buys have inherent social, human health, environmental and economic impacts, and that the City should make procurement decisions that embody the City's commitment to sustainability."
- **The District of Columbia's Environmentally Preferable Purchasing Policies** – This set of policies has fostered the development of a comprehensive suite of resources for those making purchasing decisions including environmental specification guidance for 90 product and service types across 14 categories.[17] The policies also include clear tracking and reporting requirements and makes sustainable procurement the default action for contracts over $100,000.
- **Alameda County's Environmentally Preferable Purchasing Policy** – Alameda's policy embodies best practices by clearly delineating County roles and responsibilities, requiring staff to consider the total lifecycle of products purchased, prioritizing waste prevention by identifying alternative options to purchasing new products, and requiring the County to share key learnings with businesses and the public.[18]
- **King County's Sustainable Purchasing Ordinance, Executive Order and related policies –** Long recognized as one of the strongest green purchasing programs in the country, King County in Washington State's policy has been in place since 1989.[19] However, in 2018, it passed an improved policy that redefines "sustainable" as more than just environmental, clarifies agency responsibilities, and uses ecolabels and environmental certifications as minimum requirements. It also aligns the County's purchasing with other relevant policies, including King County's Strategic Climate Action Plan (SCAP), Green Building Ordinance, and Equity & Social Justice initiatives.

Green Purchasing Implementation Best Practices

It is important that every sustainable procurement policy is accompanied by certain practices to ensure full implementation and impact. Some of these best practices include:

- **Train employees responsible for departmental purchases annually.** Contracting and Environmental staff alone cannot be expected to make sure all products purchased by City employees are the right ones. It is important to conduct regular training, preferably annually or more frequently, for key departmental liaisons who sign off on purchases.

16 https://www.portlandoregon.gov/brfs/article/695574
17 https://ocp.dc.gov/page/about-sustainable-purchasing-program
18 https://www.acgov.org/sustain/what/purchasing/policy.htm
19 https://www.kingcounty.gov/depts/finance-business-operations/procurement/for-government/environmental-purchasing/policies.aspx

Regular training should cover where and how to buy green products, the newest products available, why green purchasing is important, and how to help prevent City staff from doing the wrong thing. Educating these employees could lead them to become green purchasing champions and provide a check on the daily government purchases.

- **Promote successes.** Promoting program successes can bring a coalition of support for any future purchasing policies Carlsbad might consider for the greater community. To promote the program, the City might consider developing case studies, sharing annual reports that track green purchases, sharing contract language, conducting workshops for local businesses to share their product research, and developing a new public-facing green purchasing website.
- **Survey end-users regularly.** Make it a practice to survey end-users on the performance and their perception of green products. This will provide opportunity to change course if the selected product is simply disliked by users or if there are any valid concerns about product performance. Conducting regular surveys also presents an opportunity for purchasing staff to teach end users about the benefits of green products, allay any misconceptions, and train staff on the proper usage of these products.
- **Test all new products before making them required.** Always engage end users to test any proposed new products before making them a requirement for the larger government audience. It is important to do this to prevent requiring the purchase of products with unforeseen performance issues and to make sure that one green product that no one likes does not result in a bad reputation or distrust for the entire sustainable purchasing program.

City-Wide Sustainable Purchasing Policies

The City can have a large impact on purchasing within the community by implementing strategies such as material bans, incentives, disincentives, surcharges, and extended producer responsibility policies. In addition to conserving resources and reducing waste generation, these types of measures may reduce litter and prevent litter impacting the nearby marine ecosystem. The City should consider targeting products that have a known impact on the environment or human health or products that are expensive for the City to manage.

Background

Carlsbad is a medium-sized coastal city in San Diego County, and is part of the San Diego metropolitan area. The City's population was estimated at approximately 115,000 in 2017 and it has exhibited modest, continuous growth.[20] Tourism is a major industry for the City: a 2015 report for the City found that upwards of 3 million tourists visit the City each year, and that number has been growing.[21]

[20] https://www.census.gov/quickfacts/carlsbadcitycalifornia

[21] http://carlsbadlifeinaction.com/wp-content/uploads/2015/05/SAG-Tourism-Industry-Study-Report-FINAL-012815.pdf

With the City's prominent coastal location nearby San Diego and Los Angeles, its growing population, and its rising rates of tourism, any forward-thinking City-Wide policies that reduce or improve purchases of consumer goods within the City will have a significant impact beyond Carlsbad's borders. Policies implemented in the City could support marine protection, reduce negative environmental impacts, as well as inspire visitors and neighboring communities to follow suit.

Material Bans

Cities across the world have implemented various material (product) bans, which are very effective at preventing hard-to-recycle materials from winding up in the waste stream or from becoming litter. While material bans are sometimes politically difficult to enact, the idea is becoming increasingly familiar as cities ban a wide array of plastic products. Here are some examples of products that the City could consider targeting as part of a material ban.

- **Polystyrene Foam** – The reasons to target polystyrene, often referred to as Styrofoam, are many. Studies have shown that polystyrene is "reasonably anticipated to be a human carcinogen;" it can break into small pieces, making it hard to collect and dispose of properly; and it is very expensive to recycle.[22] According to Californians Against Waste, 120 cities or counties in California have adopted some form of local ordinance banning polystyrene for uses including coffee cups, bowls, plates, and clam shell containers.[23] By banning polystyrene, the City would join a national trend.
- **Single-Use Plastic Straws, Stirrers, and Cutlery** – Though they may be made of recyclable plastic, these small plastic items are very difficult to capture at recycling facilities because they fall through the sorting equipment and can't be captured easily. Because these items are small they also easily end up as litter and many ocean-side communities are banning these items as a measure to keep their beaches and ocean ecosystems free from debris. In 2018, Malibu, CA imposed a ban on all of these items.[24] Seattle, WA has banned plastic utensils and straws.[25] In January 2019, Berkeley, CA passed a "Disposable-Free Dining" ordinance banning the use of all single-use non-compostable dining ware.[26]

Incentives

Community-Based Social Marketing research recognizes that incentives can nudge people's behavior toward environmentally preferable options. Small changes, such as charging a low fee for a single-use cup, can create a change in purchasing for businesses who distribute these products and change in product use habits, such as encouraging people to use a reusable drink container. Imposing a charge (legally different from a fee or a tax – money collected is kept by the business) on an unwanted product incentivizes source reduction and can be just a small amount compared of the overall cost of an item, but it can drastically alter people's perceptions of the necessity of the consumer product.

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22 http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=18725

23 https://www.cawrecycles.org/polystyrene-local-ordinances/

24 https://www.latimes.com/local/lanow/la-me-ln-malibu-plastic-ban-20180226-story.html

25 https://www.cbsnews.com/news/seattle-becomes-first-u-s-city-to-ban-plastic-utensils-and-straws/

26 https://www.breakfreefromplastic.org/2019/01/17/berkeley-city-council-ordinance-to-curb-disposable-foodware/

This technique is often used to transition a community towards a material ban or in conjunction with a ban, to encourage sustainable behavior when a ban alone is not practical, and to increase access to sustainable alternatives to environmentally harmful products.

- **Charge on Disposable Cups:** Not only has Berkeley, CA recently banned all to-go cups that are not compostable, the city has also imparted a 25-cent fee on any to-go cups that customers request. One benefit of Berkeley's law is that businesses keep each 25-cent fee that they charge, which can cover the cost of compostable cups or go toward their bottom lines.[27] This incentivizes businesses to comply with the law.
- **Tap Water at Food Service Businesses** – Simply requiring food service establishments to make tap water accessible to their customers can act as an incentive to nudge behavior towards choosing tap water over bottled water. Requiring foodservice businesses to make tap water easily available to patrons, even in the form of a simple pitcher by the door, can allow community members easy and free access to municipal water. This can lead to fewer purchases of bottled water and other drinks, which are less efficient, less regulated, and more wasteful than tap water. According to the Pacific Institute:
    - Producing the bottles for American consumption required the equivalent of more than 17 million barrels of oil, not including the energy for transportation
    - Bottling water produced more than 2.5 million tons of carbon dioxide
    - It took 3 liters of water to produce 1 liter of bottled water[28]

  It may be beneficial to enact this policy in conjunction with a ban on bottled water, create an incentive to promote bringing your own bottle or require durable water glasses be provided by food service establishments in the City.
- **Small Homes Building Incentives:** Smaller homes create a range of environmental benefits compared to large homes: they often use fewer materials, which translates into fewer resources spent and less construction and demolition waste generated; their smaller envelopes require less energy for heating, cooling, and appliances; and they contain less storage space, encouraging people to buy only essential items.[29] Portland, Oregon has pioneered an incentive system to promote building houses of 500 square feet and smaller. The program waives development fees that homeowners normally pay to city bureaus, which can total up to $15,000. It requires property owners to not use the new unit as a short-term rental. In the years since the program began, the number of applicable permits granted has risen from 24 permits in 2009 to 615 in 2016.[30] The City can consider this type of incentive to indirectly influence residents' purchasing habits.

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27 https://sanfrancisco.cbslocal.com/2019/01/22/berkeley-pass-ordinance-food-container-ban-paper-cup-fee/

28 https://pacinst.org/publication/bottled-water-and-energy-a-fact-sheet/

29 https://www.psychologytoday.com/us/blog/life-simplified/201305/creating-small-environmentally-friendly-living-spaces

30 https://expo.oregonlive.com/news/erry-2018/06/16ffe297a74289/portland_council_enshrines_inc.html

- **Incentives to Reduce Microplastic Pollution** – Microplastics, defined as pieces of plastic debris less than 5 millimeters in diameter, originate from synthetic materials, such as synthetic textiles, food packaging, and health and beauty products. Microplastics are a major source of water pollution globally.[31] In December 2015, President Obama signed the Microbead-Free Waters Act of 2015, which bans plastic microbeads in cosmetics and personal care products, but microplastics from synthetic textiles and other sources remain prevalent in the United States.[32] In 2018, the European Parliament voted in favor of banning microplastics because of concern for the harm they cause to marine ecosystems and to humans.[33] While banning microplastics would be an unprecedented step for a US city and would position the City as a sustainability leader, especially in its coastal location, a ban may not yet be practical. Instead, Carlsbad may consider creating polices that require education of residents about the problem and encouraging residents to purchase clothing made with natural fibers such as wool, cotton, or hemp. Some options are:

    - Require clothing vendors who sell synthetic textiles to educate customers about the benefits of machine washing less frequently or handwashing synthetic fibers.
    - Require clothing vendors impose a small charge on synthetic textiles.

  Any of these incentives will signal that Carlsbad is at the forefront of microplastics issues.

Extended Producer Responsibility and Product Stewardship

According to CalRecycle, Extended Producer Responsibility (EPR), also known as Product Stewardship, is a "strategy to place a shared responsibility for end-of-life product management on the producers, and all entities involved in the product chain, instead of the general public; while encouraging product design changes that minimize a negative impact on human health and the environment at every stage of the product's lifecycle".[34]

Since product lifecycles tend to cross jurisdictional boundaries, it is most important for communities to advocate for strong EPR policies at the County, State, and Federal level. Although cities have had some success enacting EPR policies locally, regional policies benefit from economies of scale and can more effectively develop product take-back programs. Carlsbad staff might consider becoming involved with non-profit EPR advocacy groups such as the California Product Stewardship Council, Upstream or the Product Stewardship Institute. By partnering with these groups, Carlsbad officials can stay apprised of trends and proposed State and Federal policies and can advocate for impactful EPR laws by sending support letters or speaking at Legislative Hearings.

County governments have also successfully adopted EPR policies. As these County policies become more numerous, they have been shown to move the State to act and have encouraged manufacturer support of State-mandated EPR laws.

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31 https://storyofstuff.org/wp-content/uploads/2017/02/IUCN-report-Primary-microplastics-in-the-oceans.pdf

32 https://www.fda.gov/Cosmetics/GuidanceRegulation/LawsRegulations/ucm531849.htm

33 https://chemicalwatch.com/register?o=70327&productID=1&layout=main

34 https://www.calrecycle.ca.gov/epr

For example, in the case of pharmaceuticals, after 11 California counties adopted or publicly considered EPR Drug Take Back laws[35], the State of California subsequently adopted the manufacturer-supported SB 212 – Pharmaceutical and Sharps Waste Stewardship law.[36] Carlsbad might consider convening a working group with other cities in San Diego County to urge the County government to act on EPR by considering these important policies. Given its location along the coast, Carlsbad may consider pushing for the County to adopt policies for the product that always tops the list of the Ocean Conservancy's International Coastal Cleanup most littered item -- cigarette butts,[37] or for a commonly discarded yet toxic household item -- batteries.

- **Cigarette Butts:** Up to two-thirds of the nearly 5.6 trillion cigarettes with filters manufactured each year are discarded irresponsibly, according to the Cigarette Butt Pollution Project.[38] For Carlsbad, a tobacco product litter fee can decrease how often these items end up in storm drains, the municipal water system, or the environment. The journal article *Tobacco Industry Responsibility for Butts: A Model Tobacco Waste Act*[39] describes how national and subnational jurisdictions may adopt a policy to address the environmental impacts of tobacco-related litter. The model policy can be easily be adapted for county jurisdictions.

  Carlsbad might also consider supporting a local or county vote for a cigarette litter abatement fee. In 2009, San Francisco's Tobacco Litter Abatement Ordinance[40] was adopted and established an $0.85/pack fee on cigarettes sold in San Francisco -- the money collected helps fund the City and County's litter abatement costs. California's Proposition 26, passed after the San Francisco ordinance took effect, now makes fees more difficult to adopt due to the 2/3 voter approval requirement, but many communities have floated the idea of putting these litter fees before voters. Most recently, in 2016, Richmond, CA[41] considered a ballot measure to request voter support for an additional fee on cigarette purchases that would go towards their litter clean-up costs. While a litter fee it may not be considered "true EPR" because it does not directly require manufacturers to take responsibility for the end-of-life management of their products, a policy of this sort certainly has indirect manufacturer impacts. When retailers and consumers bear the management cost, instead of general taxpayers, manufacturers are eventually impacted. It would be a bold move for the City of Carlsbad to ask voters to support a fee of this kind. A seaside community taking a stance on the littering of this harmful product – a plastic filter that tests at levels meeting the thresholds of hazardous waste[42] – would send a strong message to cigarette manufacturers, smokers and retailers to take more responsibility for their harmful product at the end-of-life.

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35 https://www.calpsc.org/city-county-ordinances-for-safe-dis

36 https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB212

37 https://oceanconservancy.org/blog/2018/08/31/tobacco-butts-pack-poisonous-punch-people-ocean/

38 https://www.nbcnews.com/news/us-news/plastic-straw-ban-cigarette-butts-are-single-greatest-source-ocean-n903661

39 https://tobaccocontrol.bmj.com/content/26/1/113

40 https://sftreasurer.org/sites/default/files/Documents/Business_Zone/o0173_09.pdf

41 https://councilofindustries.org/wp-content/uploads/2016/06/Litter-Tax-Agenda-Report.pdf

42 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2697937/

- **Batteries:** Improper battery disposal can cause human health issues and environmental pollution.[43] Additionally, lithium ion batteries are the largest source of reported fires at waste management facilities in California.[44] While Carlsbad currently has a program in which community members can drop off batteries at the Oceanside or Vista Household Hazardous Waste drop-off locations, by adopting a County law that would require battery manufacturers and retailers to fund and manage a more expansive battery collection program, Carlsbad could reduce the possibility that this problem product winds up in the trash, recycling or environment.

  In 2008, San Luis Obispo County adopted an ordinance that requires all retailers of household batteries to establish a program to properly collect them[45]. This innovative law expands battery recycling convenience in San Luis Obispo County. Over 14 million pounds of batteries were recycled by this program in 2016 alone[46]. If Carlsbad worked with other Cities to push for a San Diego County Ordinance, modeled after San Luis Obispo County, and included a requirement that manufacturers participate in funding and designing such a program, it can significantly reduce the possibility that hazardous alkaline and lithium ion batteries wind up in the trash or recycling.

Conclusion

Sustainable procurement policy is part of the future, not only locally in the Carlsbad, but worldwide. With its growing population, steadily burgeoning tourist industry, and progressive outlook, Carlsbad is in a uniquely favorable position to implement both City government and Citywide purchasing policies. Enacting a City government environmentally preferable purchasing policy will improve the efficiency by which public money is spent, while at the same time using market power to bring about major environmental and social benefits. Citywide purchasing policy measures can have an even greater impact by reducing waste, lowering carbon emissions, reducing energy and water consumption, protecting biodiversity, supporting fair and sustainable economic growth, and delivering social benefits throughout, and even beyond, the City. These best practices and new ideas can act as a launching pad for Carlsbad to signal its commitment to environmental and social responsibility to its residents, visitors, and the wider world.

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43 https://calpsc.org/mobius/cpsc-content/uploads/2015/01/life_cycle_impacts_of_alkaline_batteries _ 2011_02.pdf

44 https://calpsc.org/mobius/cpsc-content/uploads/2018/04/CPSC-Survey-Results-Regarding-Fires-in-the-Waste-Management-Industry-FINAL-4-9-18.pdf

45 https://www.iwma.com/wp-content/uploads/recyclist/userfiles/Ordinances/Ordinance%202008-1.pdf

46 https://www.iwma.com/guide/batteries-single-use/