



ADMINISTRATION AND FINANCE



STAFF REPORT

To: SBWMA Board Members
From: Kevin McCarthy, Executive Director, and Senior Staff
Date: March 26, 2015 Board of Directors Meeting
Subject: Review of Draft 2015 Long Range Plan

Recommendation

This staff report is for discussion purposes only and no formal action is requested of the Board of Directors.

Summary

This 2015 Draft Long Range Plan is the key deliverable for phase four of a five-phase effort to complete the JPA's first comprehensive long range plan since 2002. A TAC meeting will be held on April 9, 2015 to get feedback on this draft Plan. The last phase of this Long Range Plan process is the Board's approval of a final Plan.

The Plan is really a blueprint to assist the Board of Directors with future decision-making on enhancements to the existing solid waste, recycling, and organics collection and processing system for our service area of approximately 450,000 people in San Mateo County with a primary focus on the next five-year period.

The JPA's last Long Range Plan was drafted in 2002, then updated in 2005 and became the starting point for the development of the franchised collection programs and services rolled out in January 2011. A masterplan for the Shoreway Environmental Center was approved by the Board in April 2007 and was the basis for the \$46 million in capital improvements completed between the fall of 2009 and the spring of 2011.

With the rollout of new franchised collection services and completion of the Shoreway masterplan improvements in 2011, the SBWMA now has one of the highest regarded and most innovative collection and processing systems in the country. This system provides a solid foundation to build on to address any future diversion needs, changes in State laws and regulations, and new policy goals established by the SBWMA Board of Directors.

This draft Plan addresses policy, programmatic and infrastructure needs to meet the requirements of Assembly Bill (AB) 341 with its 75% statewide recycling goal by 2020 and more recent legislation such as AB 1826 and its mandatory commercial organics recycling provisions. The draft Plan also includes recommendations for operational improvements affecting collection and Shoreway operations with a goal of improved efficiency, cost savings and environmental improvements.

The draft Plan in and of itself is not a decision-making tool for future decisions by Member Agencies in 2017 to extend or not the term of their existing Franchise Agreements with Recology San Mateo County and other critical contractual decisions such as:

- Future decision by the JPA whether or not to extend the term of the Shoreway Operations Agreement with South Bay Recycling (SBR)
- Future expiration on December 31, 2019 of the Ox Mountain Disposal Agreement

There are recommendations in this draft Plan that do affect the future scope of work for the Franchise Agreements and Shoreway Operations Agreement, but staff will outline separate processes in the coming months for how the JPA and Member Agencies can successfully prepare for and execute on critical contractual decisions.

Analysis

Assessment and Evaluation of Policy, Program and Infrastructure Enhancements

In assessing and evaluating potential enhancements to our existing recycling and solid waste collection and processing system the key guiding principles were:

- Meeting the State's 75% recycling goal by 2020
- Leveraging existing infrastructure and investments
- Programs that address any existing service voids or deficiencies
- Cost-effective and efficient programs

More specific to the existing Shoreway Environmental Center infrastructure not only was there a focus on achieving cost effective waste diversion but also identifying enhancements that would improve the efficiency of facility operations, and customer and worker experience and safety.

There were also specific enhancements developed through collaboration with Recology including two operational improvements: conversion of the existing collection fleet from using 5% biodiesel to a future fleet that runs on compressed natural gas (CNG), and potential use of split-body (two-compartment) collection vehicles to service residential customers.

Staff also worked closely with Recology to develop future measured diversion forecasts associated with existing commercial recycling and organics outreach efforts, notably to address the mandatory commercial organics requirements of Assembly Bill (AB) 1826 which take effect in April 2016.

Collection Programs and Policies

In order to identify opportunities for enhancing existing programs and services, specific program metrics were reviewed such as sector (e.g., residential, commercial, etc.) specific diversion rates, customer participation rates, and look at the types of materials (i.e., waste composition) that are being disposed. Staff's review of the program metrics resulted in the following findings:

- While we have a relatively high residential diversion rate of 66.5%, there remains opportunity to further increase participation and setout rates to divert more materials.
- The continued drought has contributed to an annual reduction in residential compost set-out participation levels.
- The overall diversion rate has remained stable and while still below 50%, it will likely increase once the data obtained through implementing the commercial recycling reporting Ordinance is included.
- Multi-family continues as a unique challenge and opportunity for diversion improvement especially due to this sector's high rate of disposal of both recycling and compost materials.
- The commercial sector contributes the largest percentage by sector of garbage and approximately half of the recycling and compost materials targeted for recycling are recovered through the BizSMART program. Therefore, while the extent of improvement in recycling and compost collection services remains unknown until more recycling data is obtained from this sector, there appears to be considerable room for improvement in existing recycling and compost collection services.
- Public education and outreach is critically connected to the success of all the programs and affects participation and diversion rates.
- Public education and outreach spending has declined to an ongoing maintenance level.

Shoreway Processing and Transfer Infrastructure

Staff's review of waste diversion options at Shoreway was focused primarily on a review of waste composition data at the Transfer Station to determine the potential for additional materials recovery. Such waste composition data was projected into future years as part of our measured diversion forecast to identify actual disposed tons available for "back-end" (i.e., after source separation collection programs at homes and businesses) recovery at the Transfer Station. Significant quantities of organics and to a lesser extent recyclable materials were identified for recovery.

Significant effort also went into identifying specific infrastructure enhancements that would be needed to support potential collection program enhancements such as the future use of CNG collection vehicles. A new CNG facility would be required to be built at Shoreway along with closeout of the existing diesel fuel storage and dispensing system.

Due to the JPA's interest in having office and public meeting space at Shoreway, several options were explored as part of this Plan. Such options to some extent are impacted by other Shoreway enhancements (i.e., Transfer Station building improvements) identified.

Recommendations

The draft Plan provides recommendations with decision-making timelines and estimated costs, both one-time and ongoing, and capital requirements. As noted in the draft Plan, future rate analysis will be required to determine potential collection rate savings or increases and impacts on tipping fees charged at Shoreway for franchise and non-franchise tonnage. The recommendations can be summarized as follows:

Collection Operational Improvements and Program Enhancements

- Use of CNG in future collection fleet effective January 2021.
- Conduct a pilot project in FY1516 to study routing efficiencies using split-body collection vehicles over two four-week pilot periods between September and November 2015 for approximately 16,000 single family homes. Split-body vehicles allow for the collection of two types of material streams (e.g., garbage and recycling) utilizing one truck as opposed to two trucks.
- Piloting every other week collection of garbage from approximately 8,000 residential homes over a three month pilot period sometime in FY1516.
- Modify Recology's current commercial outreach reporting requirements to implement a Commercial Subscription and Participation Compliance Status Report for use in setting outreach priorities and tracking progress to diversion goals. This change will be supplemented with enhanced commercial public education and outreach efforts to be piloted in FY1516.
- Implement a model public spaces recycling collection pilot in a downtown area and a park setting with a goal of ultimately developing a more uniform approach across Member Agencies to complement existing residential and commercial recycling and organics collection services. Existing funds are available to start this pilot in FY1415 with some supplemental funds required to continue into FY1516.
- Rollout an enhanced residential public education and outreach pilot in FY1617 to test a dedicated campaign service area-wide and for specific Member Agencies with lower residential diversion rates. The pilot goal is to measure the cost effectiveness of enhanced public education to increase residential diversion rates.

Policy Initiatives

- Develop a model Extended Producer Responsibility (EPR) policy for Board consideration and approval in FY1516. The policy will facilitate more active SBWMA engagement with supporting state EPR legislation.
- Do not consider implementing any mandatory recycling ordinances until measured diversion results are known after 2020.

- Do not consider any disposal bans on designated materials (e.g., green waste, cardboard, etc.) until measured diversion results are known after 2020.

Shoreway Facility Enhancements

- Install a mixed waste processing system in the Transfer Station in 2018 to recover organics and recyclables from residential and commercial waste delivered to the Transfer Station by Recology collection vehicles. Recovered organics to be transferred to the Silicon Valley Clean Water wastewater treatment plant for digestion and energy production. Recyclables to be processed further as needed at existing onsite MRF.
- Expand the Transfer Station building in 2017/2018 to accommodate the new mixed waste processing system.
- Pursue one of three options to provide for onsite SBWMA office space and new public meeting space (for Board meetings and other public uses). The specific option to be pursued should be determined after a final decision is made on the mixed waste processing system and related Transfer Station building improvements.
- Install a CNG fueling system in 2020 to provide for future fuel needs for the collection fleet. This project would also involve the closeout of the existing diesel fuel storage and dispensing system.
- Include a multi-year capital plan for repairing approximately four acres of paving in the corporation yard area used by Recology.
- Replace all large light fixtures in the MRF, Transfer Station and Recology maintenance shop areas with LED lighting in FY1516.
- Conduct a stakeholder engagement process in FY1516 to determine what additional components can be added to our existing environmental education program with a focus on increasing recycling and composting efforts at schools in our service area.

Based on the above recommendations and a baseline forecast for current commercial recycling and organics outreach efforts, staff projected future measured diversion levels by sector and overall as shown in **Table 1** below:

Table 1: Baseline Forecast w/ Enhanced Residential Public Education and MSW Processing Starting in 2018*

<u>Sector</u>	<u>Actual Results</u>		<u>Projected Results</u>					
	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	71.32%	76.35%	76.60%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	48.75%	58.77%	58.77%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	60.09%	67.61%	67.73%

**Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion*

These figures do not include any diversion data as a result of the implementation of the Commercial Recycling Reporting Ordinance as the first required reports per the Ordinance are not due until May 1, 2015. When this data becomes available and is reviewed by staff an updated diversion forecast will be prepared which will likely put us even closer to the State's 75% diversion goal by 2020.

Background

At the November 20, 2014 Board meeting staff provided a progress report on phase two of the Long Range Plan workplan and noted the upcoming milestone of the visioning workshop. A successful Long Range Plan visioning workshop was held on November 6, 2014 which was well-attended by Board and TAC members, Member Agency staff and community leaders.

On September 12, 2014 the Board approved the guiding principles for use in assessing and evaluating program, policy, and Shoreway infrastructure enhancements. The approved guiding principles reflect Board Member feedback to incorporate meeting the State's 75% recycling goal by 2020, making sure product quality and end-market considerations reflect economic considerations, and that proposed programs address any existing service voids or deficiencies.

The SBWMA FY1415 budget approved by the Board on June 26, 2014 included a workplan and budget of \$232,500 for the development of a Long Range Plan. \$187,500 was earmarked for the Plan development and \$45,000 for research associated with the organics recovery project with Silicon Valley Clean Water (formerly SBSA).

Fiscal Impact

The Board review and approval of the 2015 Long Range Plan has no specific fiscal impact as separate Board actions will have to be taken in future years to approve recommended projects. The draft Plan in Section 5 outlines decisions by year which will be requested of the SBWMA Board and/or Member Agencies to implement the recommendations.

In the upcoming fiscal year (FY1516) there are a number of recommendations for one-time expenditures to support implementation of pilot projects, and complete additional technical and financial analysis of the mixed waste processing system, including building improvements.

For FY1516, the projected spending from the operating expense budget totals \$476,591 with \$206,591 for collection related programs and outreach, and \$270,000 related to Shoreway operations. \$274,000 is also recommended as a capital expense to retrofit large lighting fixtures in the MRF, Transfer Station, and Recology maintenance shop with high-efficiency LED lights. A \$55,422 adjustment is also recommended to Recology's 2016 compensation to cover costs associated with the split-body collection vehicle pilot project.

Future year financial decisions are summarized at the end of Section 5 in the draft Plan.

Attachments:

Attachment A – Draft 2015 Long Range Plan

SOUTH BAYSIDE WASTE MANAGEMENT AUTHORITY 2015 DRAFT LONG RANGE PLAN



March 26, 2015

Acknowledgements

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SECTION 1






INTRODUCTION

1. Introduction

A. Organization of the Document

The draft Long Range Plan has been organized in a manner to make it as reader-friendly as possible, using color coding, summary tables and sections. The color coding is located in the header of each page. Each page number is in a color coded text box to allow the reader to quickly identify whether the information on that page (and section) pertains to the whole system/overview, collection programs and policies, or processing and transfer infrastructure. The color coding used is as follows:

-  = Whole System/Overview
-  = Collection Programs and Policies
-  = Processing and Transfer Infrastructure

The draft Plan can be read in full, however, one of the significant features used in this document are the summary tables to capture the major details of the respective section. These summary tables were developed using a reader-friendly 11"x17" landscape format intentionally.

The Plan has been organized into sections as follows:

- **Section 1 – Introduction.** This section provides an overview through the Executive Summary and highlights the recommendations for Board consideration.
- **Section 2 – State and Local Policy and Regulatory Framework.** This section provides a background on State policies that impact the SBWMA and Member Agencies related to solid waste and recycling; and also provides a summary of the JPA governance structure, contracts and policies.
- **Section 3 – Waste Reduction, Recycling and Composting Policies, Programs and Shoreway Infrastructure.** This section provides an overview and assessment of the SBWMA's existing collection and processing systems.
- **Section 4 – Evaluation of Waste Reduction, Recycling and Composting Policies, Programs and Shoreway Infrastructure.** This section provides details on the measured diversion forecast service area wide for 2015-2020 and possible enhancements to the SBWMA's existing collection and processing systems to reach the State's 75% recycling goal by 2020.
- **Section 5 – Recommendations and Next Steps.** This section provides a summary of the recommended enhancements to the existing SBWMA collection and processing systems, timeline, cost projections and next steps.
- **Attachments.** This section includes the attachments referenced in the Plan.

B. SBWMA Guiding Principles

The September 11, 2014 Board-approved Guiding Principles listed below were used to evaluate any proposed policy, program and infrastructure enhancement considered in this draft Long Range Plan to ensure that it was in line with the Agency's goals and objectives.

- **Maintain and Support an Economically Sustainable Solid Waste System**
 - Leverage existing infrastructure
 - Provide cost-effective and efficient programs
 - Maintain rate stability and predictability
 - Incorporate economic incentives through:
 - Commodity revenue sharing
 - Rate structure improvements
 - Performance standards
 - Promote economic development where feasible
 - Ensure the highest and best use of recoverable materials and implications for end markets so program are economically and environmentally sustainable
 - Support product stewardship policies and initiatives
- **Enhance Environmental Benefits to the Community**
 - Increase and maximize participation in programs and services to reduce and reuse waste
 - Reduce and mitigate landfill and other facility impacts
 - Reduce collection fleet and transfer trailer fleet emissions
 - Develop and sustain strategic community partnerships
 - Support local, state and national mandates, including the State's 75% recycling goal by 2020
 - Promote behavior change through public education
 - Invest in new, safe technologies and processes for infrastructure
- **Provide High Quality and Convenient Programs and Services**
 - Ensure that program initiatives are convenient, accessible and appropriate
 - Provide incentives to participate in programs where feasible
 - Enhance public education to maximize participation
 - JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
 - Ensure proposed programs identify any service voids or deficiencies

C. Executive Summary

Overview of Purpose and Use for the Long Range Plan

This draft Long Range Plan is the key deliverable for phase four of a five-phase effort to complete the JPA's first comprehensive long range plan since 2002. The last phase is the Board's approval of a final Plan. The Plan is really a blueprint to assist the Board of Directors with future decision-making on enhancements to the existing solid waste, recycling, and organics collection and processing system for our service area of approximately 450,000 people in San Mateo County with a primary focus on the next five-year period.

The JPA's last Long Range Plan was drafted in 2002, then updated in 2005 and became the starting point for the development of the franchised collection programs and services rolled out in January 2011. A masterplan for the Shoreway Environmental Center was approved by the Board in April 2007 and was the basis for the \$46 million in capital improvements completed between the fall of 2009 and the spring of 2011.

With the rollout of new franchised collection services and completion of the Shoreway masterplan improvements in 2011, the SBWMA now has one of the highest regarded and most innovative collection and processing systems in the country. This system provides a solid foundation to build on to address any future diversion needs, changes in State laws and regulations, and new policy goals established by the SBWMA Board of Directors.

The Plan addresses policy, programmatic and infrastructure needs to meet the requirements of Assembly Bill (AB) 341 with its 75% statewide recycling goal by 2020 and more recent legislation such as AB 1826 and its mandatory commercial organics recycling provisions. The Plan also includes recommendations for operational improvements effecting collection and Shoreway operations with a goal of improved efficiency, cost savings and environmental improvements.

The Plan in and of itself is not a decision-making tool for future decisions by Member Agencies in 2017 to extend or not the term of their existing Franchise Agreements with Recology San Mateo County and other critical contractual decisions such as:

- Future decision by the JPA whether or not to extend the term of the Shoreway Operations Agreement with South Bay Recycling (SBR)
- Future expiration after December 31, 2019 of the Ox Mountain Disposal Agreement
- Future expiration of disposal and processing agreements for HHW, C&D processing and source separated organics (for composting) processing

There are recommendations in this draft Plan that do effect the future scope of work for the Franchise Agreements and Shoreway Operations Agreement but staff will outline separate processes in the coming months for how the JPA and Member Agencies can successfully prepare for and execute on the critical contractual decisions noted above.

The Plan provides final recommendations with decision-making timelines and estimated costs, both one-time and ongoing, and capital requirements. As noted in the Plan, future rate analysis will be required to determine potential collection rate savings or increases and impacts on tipping fees charged at Shoreway for franchise and non-franchise tonnage.



Waste Reduction, Recycling, Composting Policies, Programs and Shoreway Infrastructure

Collection and Processing Systems Overview

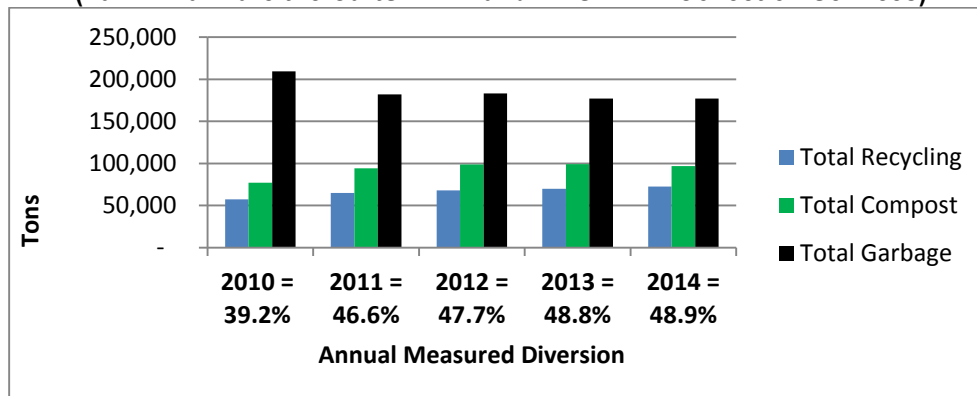
The RethinkWaste-owned Shoreway Environmental Center serves as a regional solid waste and recycling facility for receiving, handling and transferring of recyclables, organics and garbage. Through a lease with the JPA, Recology occupies approximately six to seven acres of the 16-acre Shoreway facility, which is used as its base of operations for the franchised collection services provided to the twelve RethinkWaste Member Agencies. The rest of the Shoreway Environmental Center is occupied by the materials handling facilities which include the Materials Recovery Facility (MRF), Transfer Station, scale house and Public Recycling Center which are all operated by SBR.

The Recology collection services Franchise Agreements with the Member Agencies provide the exclusive right for the company to collect recyclables, organic materials and garbage from single-family dwelling (SFD) residential customers and garbage from commercial customers, which include multi-family dwellings (MFD), businesses and Member Agency facilities. Recyclables and organic materials are also collected from commercial customers on a non-exclusive basis.

Assessment of Collection Programs and Policies

The CartSMART residential and BizSMART commercial programs and services provide a wide array of opportunities for the RethinkWaste Member Agency's customers to properly handle recyclables, organic material and discards. The implementation of these programs and services has resulted in increasing overall measured diversion service area wide from 39.2% to 48.9%, as shown in **Table 1.1**, and has also provided significant tangible benefits such as delivering a more robust and convenient system.

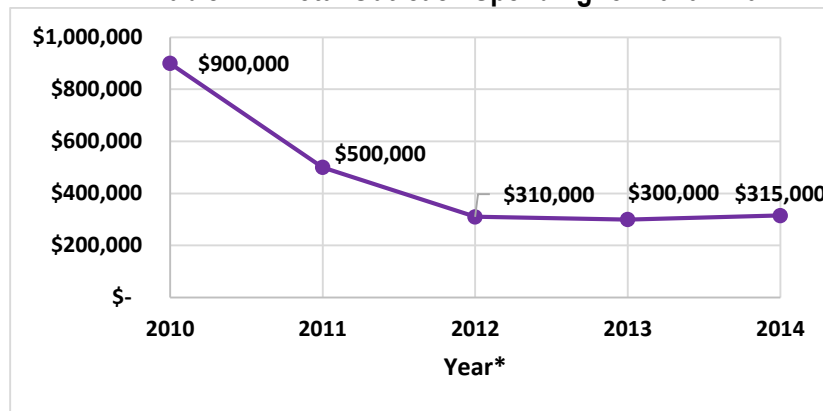
**Table 1.1: Total Franchised Collection Tons for 2010 – 2014
(2011 – 2014 are the CartSMART and BizSMART Collection Services)**



**RethinkWaste will begin collecting non-franchise commercial diversion data in 2015 with the Board passage of the Commercial Recycling Reporting Ordinance in October 2014. This data will supplement the only currently available data on commercial recycling which is provided by Recology for franchised services.*

To achieve the measured diversion results noted in **Table 1.1**, RethinkWaste has historically used, and continues to use, a multi-faceted and comprehensive approach to public education and outreach to support the collection programs and services. **Table 1.2** below shows the historical amount spent on all public education and outreach efforts from 2010-2014. The magnitude of service changes that were launched in 2011 resulted in the need for major outreach efforts to educate customers on the changes. The outreach costs were significantly reduced starting in 2012 and have stayed consistent as public education and outreach efforts have transitioned to ongoing maintenance of the existing programs.

Table 1.2: Total Outreach Spending for 2010 – 2014



*RethinkWaste operates on a fiscal year budget. The amounts shown in the table are averaged to show costs on a calendar year basis.

Analysis of Program Metrics

In order to identify opportunities for enhancing existing programs and services, specific program metrics were reviewed such as sector (e.g., residential, commercial, etc.) specific diversion rates, customer participation rates, and a look at the types of materials (i.e., waste composition) that are being disposed.

Table 1.3 below captures the significant increase in diverted tons and measured diversion rate for the residential sector from 2010 to 2011 after rollout of the new franchised collection services. Since 2011, both tonnages and diversion rates have changed very little with an actual slight drop in the diversion rate from 2013 to 2014.

**Table 1.3: Residential Franchised Collection Tons for 2010 – 2014
(2011-2014 is the CartSMART Collection Services)**

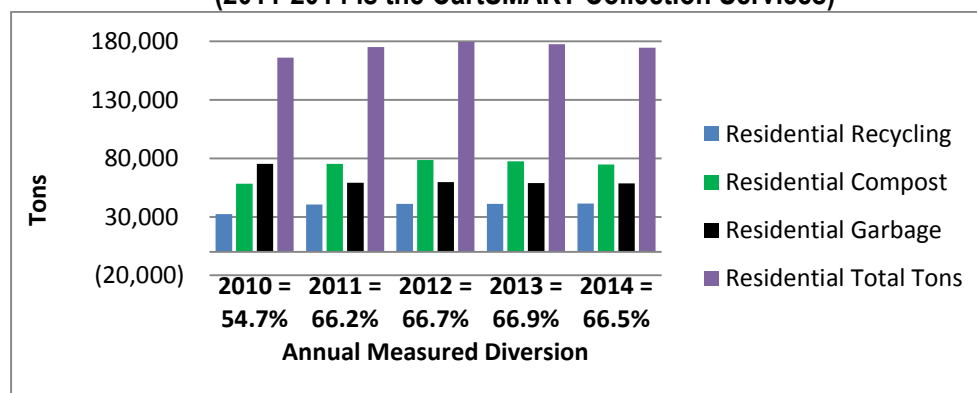
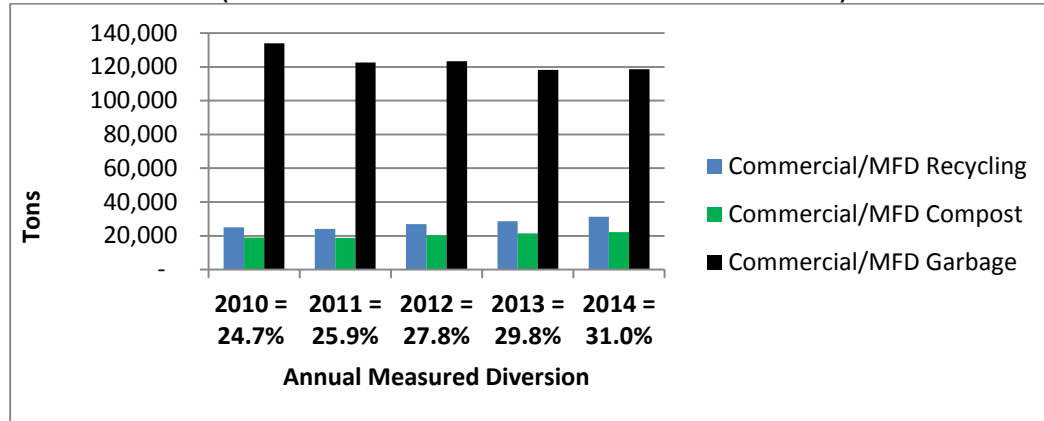


Table 1.4 below provides details on the franchised commercial recycling outreach effort by showing the historical tonnage data for commercial customers broken out by material type and annual measured diversion rates from 2010-2014. While the overall measured commercial diversion rate has increased year-over-year since the launch of the BizSMART services in 2011, two-thirds of the materials being generated by this sector continue to be landfilled.

**Table 1.4: Commercial and Multi-Family Collection Tons for 2010 – 2014
(2011 – 2014 is the BizSMART Collection Services)**



A key component of the BizSMART commercial services is the Franchise Agreement required commercial recycling outreach staff of nine full-time Recology employees to increase waste diversion. This team is exclusively dedicated to promoting the BizSMART collection services and providing technical assistance to all commercial customers, including MFDs and Member Agency facility customers.

Table 1.5: Franchised Disposal Rates of Existing Recycle and Compost Programs

Sector	Percent of Material Disposed	
	Recycling Program Targeted Materials	Organics Program Targeted Materials
Single-Family Residential	28%	24%
Multi-Family Residential	59%	93%
Commercial	45%	54%

As the data in **Table 1.5** shows, there remains an opportunity to enhance diversion through a focus on increased recovery of recyclables and organic materials that could be diverted through the existing programs and services. The residential sector disposes of 28% of the targeted recycling materials and 24% of the compost materials. The MFD sector currently discards approximately 60% of the targeted recycling materials and over 90% of the organic materials. The commercial sector discards 45% of the recyclable materials and over 50% of the organic materials targeted for diversion. Therefore, there remains significant room for improvement in collecting the targeted recycling and organic materials.

At a high level, what we see in the data captured in the above **Tables 1.1 – 1.5** is as follows:

- While we have a relatively high residential diversion rate of 66.5%, there remains opportunity to further increase participation and setout rates to divert more materials.
- The overall diversion rate has remained stable and while still below 50%, it will likely increase once the data obtained through implementing the Commercial Recycling Reporting Ordinance is included.

- Multi-family continues as a unique challenge and opportunity for diversion improvement especially due to this sector's high rate of disposal of both recycling and compost materials.
- The commercial sector contributes the largest percentage by sector of garbage and approximately half of the recycling and compost materials targeted for recycling are recovered through the BizSMART program. Therefore, while the extent of improvement in recycling and compost collection services remains unknown until more recycling data is obtained from this sector, there appears to be considerable room for improvement in existing recycling and compost collection services.
- Public education and outreach is critically connected to the success of all the programs and affects participation and diversion rates.
- Public education and outreach spending has declined to an ongoing maintenance level.
- After experiencing a large increase in recycling with the implementation of the Recology services in 2011, the overall diversion rate has since remained flat, with only small percentage increases annually. This despite a continued drought resulting in an annual reduction in residential compost set-out participation.

Based on the above findings, staff's research and data from Recology regarding use of CNG fuel, and a recommendation from Recology to pilot the use of a split-body collection vehicles, a set of collection program enhancements and new programs were recommended for evaluation and consideration and are detailed in **Table 1.6** on the following page.

Table 1.6: Enhancements to Existing Collection Programs and Policies

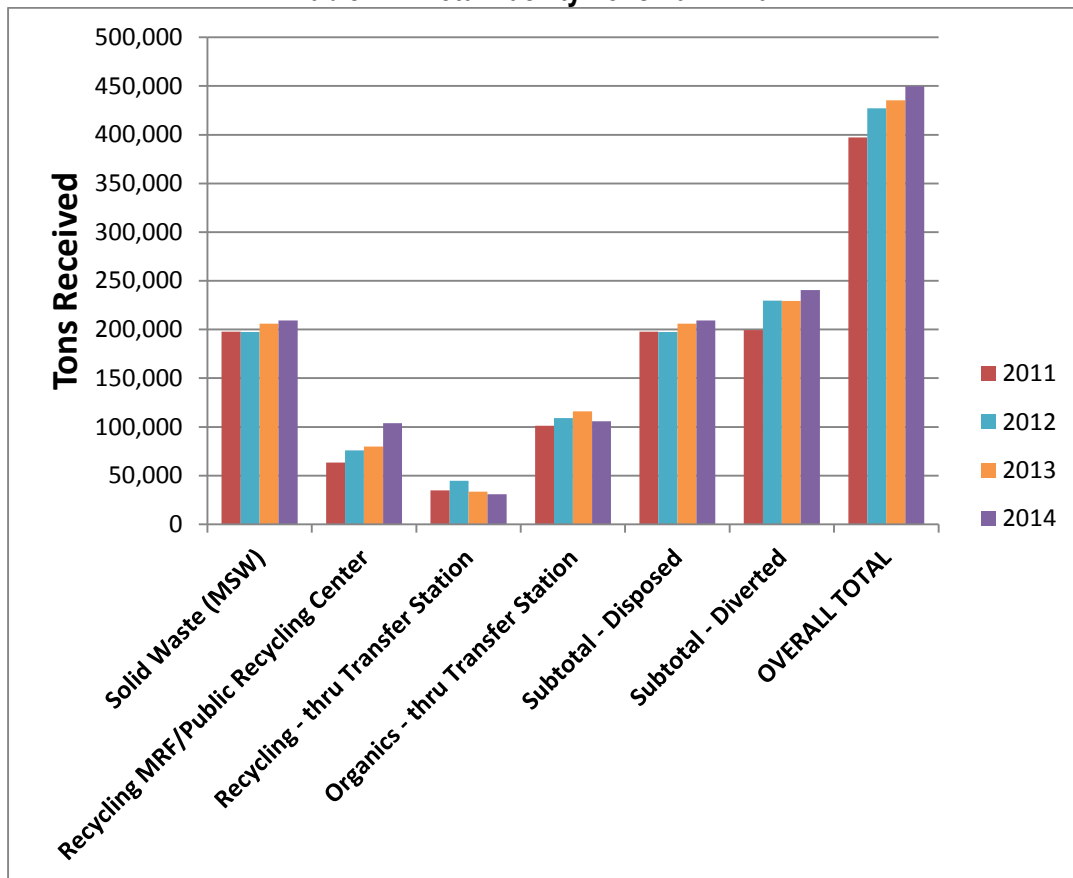
<u>Name/Title</u>	<u>Proposed Enhancement</u>	<u>Guiding Principle</u>
COLLECTION PROGRAMS AND POLICY		
<p>Compressed Natural Gas (CNG) Fleet Conversion Project The Recology collection fleet currently runs on B5 biodiesel fuel (i.e., 5% biodiesel and 95% ultra-low sulfur diesel diesel).</p>	<p>The fuel used to run the collection fleet will be changed to compressed natural gas.</p>	<ul style="list-style-type: none"> • Reduce collection fleet emissions • Provide cost-effective and efficient programs • Invest in new, safe technologies and processes for infrastructure
<p>SFD Split-Body Collection Vehicle Pilot Project The Recology collection fleet currently consists of single-compartment, fully automated collection vehicles.</p>	<p>Conduct a pilot project to study routing efficiencies using split-body collection vehicles.</p>	<ul style="list-style-type: none"> • Ensure that program initiatives are convenient, accessible and appropriate • Provide cost-effective and efficient programs
<p>SFD Every Other Week Garbage Collection Pilot Project SFD residents currently have weekly garbage collection service.</p>	<p>Conduct a pilot project to study the cost effectiveness of collecting garbage every other week.</p>	<ul style="list-style-type: none"> • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal • Increase and maximize participation in programs and services to reduce and reuse waste
<p>Commercial Recycling Outreach Program Project The Franchise Agreements with Recology annually fund a commercial recycling outreach program which will cost \$912,362 for 2015 and it can be refocused to target specific businesses.</p>	<p>Implement a metrics driven sales oriented approach to increase diversion coupled with enhanced public education and outreach efforts.</p>	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
<p>Public Spaces Recycling Pilot Program There is currently no uniform program across the service area for recycling in public spaces such as parks, sports fields or downtowns.</p>	<p>Implement model public spaces recycling collection in a downtown area and a park setting.</p>	<ul style="list-style-type: none"> • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities

<u>Name/Title</u>	<u>Proposed Enhancement</u>	<u>Guiding Principle</u>
<p>Enhanced Residential Public Education and Outreach Pilot Program Current efforts are sector specific and primarily general with a focus on overall participation.</p>	<p>Conduct a pilot program focusing on cost-effective, measurable dedicated campaigns with incentives and new messaging/tools.</p>	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
<p>Mandatory Residential and Commercial Recycling Ordinance There are no mandatory residential recycling requirements currently. Limited mandatory commercial requirements are in place through the State's AB 341 and San Carlos' ordinance only.</p>	<p>Develop a policy framework to implement mandatory recycling.</p>	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
<p>Organic Materials (Green Waste and Food Scraps) Disposal Ban Can currently place organic materials in garbage for disposal.</p>	<p>Develop a policy framework to implement a Countywide ban on disposal of organic materials.</p>	<ul style="list-style-type: none"> • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities • Support local, state and national mandates, including meeting the State's 75% recycling goal • Ensure the highest and best use of recoverable materials and implications for end markets so programs are economically and environmentally sustainable
<p>Extended Producer Responsibility (EPR) Policy Framework The Board has not adopted a policy position on EPR and thus staff is unable to comment on or take a position on proposed legislation except on a case by case basis.</p>	<p>Establish a framework for Board consideration to facilitate supporting EPR legislation and policy.</p>	<ul style="list-style-type: none"> • Support product stewardship policies and initiatives • Ensure the highest and best use of recoverable materials and implications for end markets so programs are economically and environmentally sustainable • Promote economic development where feasible

Assessment of Processing and Transfer Infrastructure

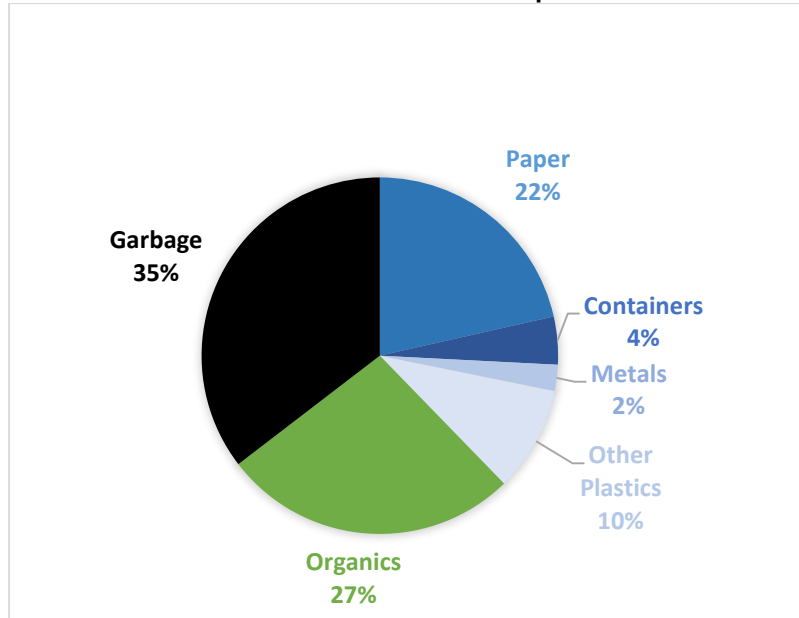
Table 1.7 below shows the tons received into the Shoreway facility by large categories of materials (i.e., solid waste, organics, and recyclables) and in aggregate by disposal, diversion and total for the years of 2011-2014. Overall, the facility tonnage has been increasing each year.

Table 1.7: Total Facility Tons 2011 - 2014



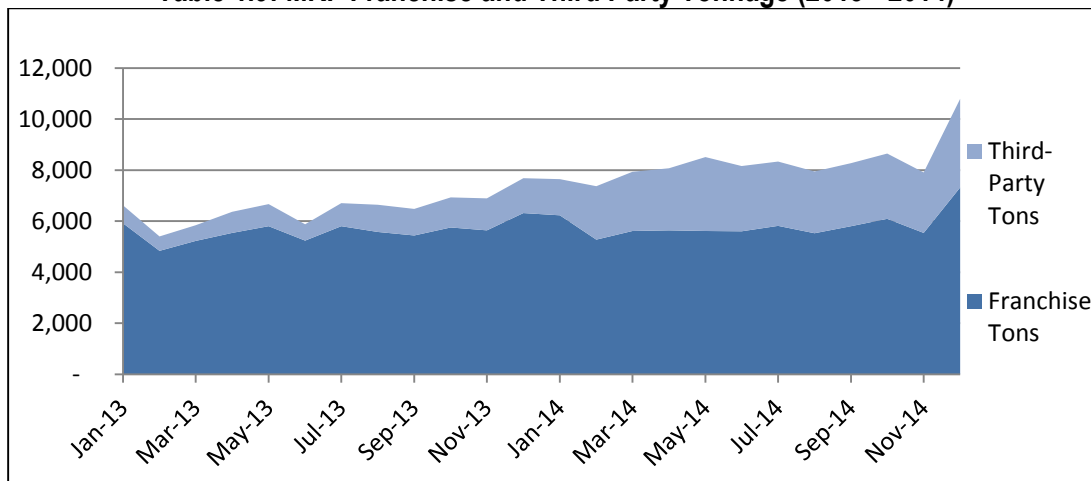
To better understand the composition of the waste materials being handled at the Transfer Station and to determine the potential for additional materials recovery, RethinkWaste conducted waste composition studies of the Commercial/MFD sector and SFD sector in February 2012 and November 2012. When the results from these studies were combined, it showed that there was a significant opportunity for additional diversion as can be seen in **Table 1.8 on the following page**. Staff recently completed some updated, but limited, waste composition analysis and future work will be scheduled to make sure we have the most current data before any major decisions are made.

Table 1.8: RethinkWaste Waste Composition Studies



MRF: The MRF was designed to process all of the recyclables from the SBWMA service area in one shift of operation. As is shown in **Table 1.9** below, the tonnage processed by the MRF has increased approximately 25% or 100 tons per day from additional third-party tons (materials from outside of the franchise area processed at the MRF in exchange for host fee payments to the SBWMA).

Table 1.9: MRF Franchise and Third Party Tonnage (2013 - 2014)



The third party tons have exceeded the building's material storage space; the tipping area is undersized for the extra trucks and additional inbound material. To address this issue, the Board has approved a capital budget with funds to complete a MRF tipping area extension construction project which will add 2,720 square feet to the building and is expected to be completed in 2015.

Environmental Education Center and Tours Program: At the LEED® Gold certified Shoreway Environmental Center, the SBWMA operates an award-winning environmental education program that offers indoor and outdoor

educational features to teach school children and the general public about waste reduction, recycling, and composting and more broadly about resource conservation practices (e.g., visitors learn about conservation practices related to waste, water and energy).



As a testament to its popularity and success, the education center has hosted over 16,000 visitors (see **Table 1.10** below) in its first three years (2012-2014) of operation.

Table 1.10: Shoreway Tour Visitors

	2012	2013	2014	Total
Public Tour Participants	690	1,216	1,496	3,402
School Participants	4,215	4,819	3,948	12,982
Total Tour Participants	4,905	6,035	5,444	16,384

RethinkWaste has made incremental but meaningful enhancements since the launch of our environmental education program in January 2012 to include additional educational outreach programs such as the Annual “Earth Day” event, annual “Trash-to-Art Contest, and free school compost giveaway program, among others.

The JPA has a strong foundation to build upon with its popular and cost effectively managed environmental education program with public and school tours coupled with community events and service learning activities with art and poster contests. RethinkWaste is currently only minimally engaged in school or community-based environmental education/service learning outside of the Shoreway environmental education tour program.

There is a vast array of additional components that can be added to our program including a number of school-based programs and non-profit partnerships to support educational efforts, such as:

- Enhanced curriculum and related service learning activities
- Support for setting up recycling and organics collection programs

Other Buildings and Site Infrastructure: With the exception of the MRF and the Transfer Station improvements, the other buildings (occupied by Recology administrative staff, truck shop, container shop, and dispatch) were built prior to 1980. These buildings include a 10,000 sq. ft. administrative building and approximately 20,000 sq. ft. of maintenance buildings, driver, dispatch, and storage areas. The areas are generally unimproved since their original construction and because of their age and heavy use, require frequent maintenance and upkeep by the SBWMA. In general, the spaces meet Recology’s current needs and no major building capital projects are anticipated based on Recology needs.

Potential Onsite SBWMA Meeting Space and Public Meeting Space

Due to the JPA's interest in having office and public meeting space at Shoreway, several options were explored as part of this Plan.

Fuel Storage and Dispensing System

Combined, all of Recology's and SBR's trucks consume an average of one million gallons of diesel fuel per year. This fuel is stored and dispensed from an onsite fuel station that is comprised of three 15,000 gallon underground storage tanks (USTs), one primary dispensing island, and a satellite dispenser used by SBR. The USTs are single wall fiberglass that were installed in 1980 and are not compliant with current tank code. Except for the fuel monitoring software program that was installed by Recology in 2011, the fuel dispensing system is antiquated and in poor condition. While JPA staff has recommended the removal of these dispensers and tanks and replacing them with above ground storage tanks to reduce the risk for ground water contamination, staff is now in the process of assessing the potential to largely replace diesel fuel with CNG.

Site Paving

During the master plan construction, half of the paving at the Shoreway facility was replaced with new concrete paving. However, the area of the Shoreway site that is used by Recology for truck parking, maintenance and employee parking has original asphalt topping that is nearing the end of its useful life and is show signs of failure. The roughly six acres of paving is being patched on an as-needed basis as part of routine facility maintenance but within the next five years large portions of the six acres of asphalt will need to be removed and replaced.

Energy Saving Projects

LED Lighting Retrofit - At the time of the master plan construction, LED lighting technology was not reliable enough to use in the buildings or parking areas. LEDs are now available and are more energy efficient and longer lived than the 150 existing metal-halide light fixtures in the MRF and Transfer Station.

Battery Power Storage - PG&E provides power to Shoreway and charges for the amount of power consumed and the peak power used. Installation of photovoltaics at Shoreway in 2011 has helped reduce the facility's overall power use, but peak-power charges caused by the processing equipment create a high electricity bill.

Table 1.11 on the following page summarizes the Shoreway infrastructure related enhancements and new programs recommended for evaluation and consideration, and the subsequent section of this Report provides a more detailed review of the identified programs, service needs and enhancements.

Table 1.11: Enhancements to Shoreway Infrastructure

Name/Title	Proposed Enhancement	Guiding Principle
SHOREWAY INFRASTRUCTURE		
<p>Mixed Waste Processing in the Transfer Station All garbage is directly hauled to the landfill and is not processed for additional recovery.</p>	<p>Mixed waste processing system located at the Transfer Station to recover recyclables and organics. Recyclables to be processed further at onsite MRF. Organics to be transferred to SVCW for digestion and energy production.</p>	<ul style="list-style-type: none"> • Invest in new, safe technologies and processes for infrastructure • Support local, state and national mandates, including meeting the State’s 75% recycling goal • Leverage existing infrastructure • Develop and sustain strategic community partnerships
<p>Shoreway Transfer Station Building Improvements No processing of garbage.</p>	<p>Existing site and building layout will need to be altered to accommodate mixed waste processing system at Transfer Station.</p>	<ul style="list-style-type: none"> • Leverage existing infrastructure • Provide cost-effective and efficient programs • Reduce and mitigate landfill and other facility impacts • Invest in new, safe technologies and processes for infrastructure • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
<p>SBWMA Administrative Offices and Public Meeting Space The SBWMA offices are located offsite and the agency pays rent for office space.</p>	<p>Options for building SBWMA office space and public meeting space were researched and are presented.</p>	<ul style="list-style-type: none"> • Provide cost-effective and efficient programs • Leverage existing infrastructure
<p>MRF Single Stream Processing Equipment Replacement Existing MRF single stream processing equipment operates two shifts per day Monday-Friday to process recyclables from franchise areas and non-franchise (“3rd party”) sources.</p>	<p>Need to replace specific equipment components due to intensive use since original installation in 2011.</p>	<ul style="list-style-type: none"> • Leverage existing infrastructure • Provide cost-effective and efficient programs • Reduce and mitigate landfill and other facility impacts • Invest in new, safe technologies and processes for infrastructure • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities

Name/Title	Proposed Enhancement	Guiding Principle
<p>MRF Building Tipping Area Expansion Existing MRF tipping area is undersized to receive all franchise and non-franchise tons resulting in additional operational expense to keep materials “pushed up” into building so compliant with site permits.</p>	<p>Existing identified and budgeted project to construct a MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to handle 3rd party tonnage into MRF.</p>	<ul style="list-style-type: none"> • Leverage existing MRF infrastructure to reduce project capital costs • Provide cost-effective and efficient programs • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
<p>Other Shoreway Infrastructure Improvements Shoreway site issues include: antiquated diesel fuel system, deteriorating paving, and high energy costs.</p>	<p>Improvements include conversion to a CNG fueling system, improved paving and other enhancements promoting energy conservation.</p>	<ul style="list-style-type: none"> • Provide cost-effective and efficient programs • Reduce and mitigate landfill and other facility impacts • Invest in new, safe technologies and processes for infrastructure • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities • Reduce collection fleet emissions
<p>Environmental Education Center and Tour Program Enhancements RethinkWaste is only minimally engaged in school or community based environmental education outside of the tour program.</p>	<p>Determine what additional components can be added to support educational efforts.</p>	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Develop and sustain strategic community partnerships • Support local, state and national mandates, including meeting the State’s 75% recycling goal



Evaluation of Waste Reduction, Recycling and Composting Policies, Programs and Shoreway Infrastructure Enhancements

This section captures an evaluation of operational improvements, programs, policies and infrastructure enhancements summarized in **Tables 1.6 and 1.11**.

A baseline disposal and diversion tonnage forecast was built and captured in **Table 1.12** to have a diversion foundation to build upon for projecting future diversion assuming various program and infrastructure enhancements. As can clearly be seen from these projections, the SBWMA and its Member Agencies will not be anywhere near achieving the State 75% recycling goal by 2020.

Table 1.12: Baseline Measured Diversion % Forecast*

Sector	Actual Results		Projected Results					
	2013	2014	2015	2016	2017	2018	2019	2020
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	66.59%	66.59%	66.59%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	38.72%	40.64%	41.99%
Overall	48.83%	48.90%	49.38%	50.77%	51.94%	52.73%	53.68%	54.35%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.

Table 1.12 above provides a forecast of the baseline measured diversion rate by sector and overall for the RethinkWaste service area from 2015-2020 assuming there are no changes to existing programs, policies or infrastructure (with the exception of anticipated impacts AB 1826 will have on the Commercial/MFD sector starting in 2016).

Table 1.13 on the following page summarizes the enhancements and new programs by sector, and the subsequent **Tables 1.14 and 1.15** provide greater detail on the enhancements and new programs, including diversion impacts and costs.

Table 1.13: Summary of Policy and Program Enhancements by Sector

<u>Proposed Enhancement</u>	<u>Sector</u>		<u>Type of Program</u>		
	<u>Residential</u>	<u>Commercial</u>	<u>Policy</u>	<u>Program/Service</u>	<u>Operational Improvement</u>
CNG Fleet Conversion Project	✓	✓			✓
SFD Split-Body Collection Vehicle Pilot Project	✓				✓
SFD Every Other Week Garbage Collection Pilot Project	✓			✓	
Commercial Recycling Outreach Program Project		✓		✓	
Public Spaces Recycling Pilot Program		✓		✓	
Enhanced Residential Public Education and Outreach Pilot Program	✓			✓	
Mandatory Residential and Commercial Recycling Policy	✓	✓	✓		
Organic Materials (Green Waste and Food Scraps) Disposal Ban	✓	✓	✓		
Extended Producer Responsibility (EPR) Policy Framework	✓	✓	✓		
Mixed Waste Processing in Transfer Station	✓	✓			✓
Shoreway Transfer Station Building Improvements	✓	✓			✓
SBWMA Administrative Offices and Public Meeting Space					✓
MRF Single Stream Processing Equipment Replacement	✓	✓			✓
MRF Building Tipping Area Expansion	✓	✓			✓
CNG Fueling System	✓	✓			✓
Other Shoreway Infrastructure Improvements					✓
Environmental Education Center and Tour Program Enhancements	✓	✓		✓	

Table 1.14: Estimated Diversion Potential by Policy or Program Enhancement

<u>Proposed Enhancement</u>	<u>Sector</u>	<u>2015 Diversion (Tons/year)</u>	<u>2016 Diversion (Tons/year)</u>	<u>2017 Diversion (Tons/year)</u>	<u>2018 Diversion (Tons/year)</u>	<u>2019 Diversion (Tons/year)</u>	<u>2020 Diversion (Tons/year)</u>
Commercial Recycling Outreach Program Project	Commercial	Supports continued growth in existing commercial recycling outreach program and new mandates of AB 1826.					
Public Spaces Recycling Pilot Program	Commercial	N/A	N/A	Diverted tons to be estimated after FY1516 pilot			
Enhanced Residential Public Education and Outreach Pilot Program	Residential	N/A	N/A	Limited diversion in pilot phase	759	1,302	429
Mixed Waste Processing in Transfer Station	Comm. & Residential	N/A	N/A	N/A	24,795	49,591	49,591

Table 1.15: Summary of Programs, Services and Shoreway Infrastructure Enhancements

Proposed Enhancement	Program Cost Summary	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes
COLLECTION PROGRAMS AND POLICY				
<p>CNG Fleet Conversion Project The fuel used to run the collection fleet will be changed from B5 biodiesel to CNG.</p>	<ul style="list-style-type: none"> • Annual fuel savings: \$1,556,100 • Other reduced ops. expense: \$103,438 • Annual increase in depreciation expense (year 1): \$570,717 • 10-year average interest expense: \$95,862 • Net savings per year of: \$992,960 or \$9,929,600 over 10 years 	N/A	Requires purchase of 127 CNG compatible collection vehicles to deliver services for 120 existing routes.	Requires installation of a CNG fueling system.
<p>SFD Split-Body Collection Vehicle Pilot Project (proposed by Recology) Conduct a pilot project to study routing efficiencies using split-body collection vehicles.</p>	<p>Pilot program cost to Recology: \$55,422 in 2016.</p> <p>RethinkWaste additional public education expense: \$16,391 in FY1516.</p>	Member Agencies would require a modification to current collection service provided to residential customers in pilot. Member Agencies requested to provide relief on specific LDs during pilot.	<ul style="list-style-type: none"> • Garbage and recycling will be collected in different compartments of the same truck • No day of week routing changes are anticipated 	Minor impact on scale house operations due to trucks weighing twice for each load delivered.
<p>SFD Every Other Week Garbage Collection Pilot Project Conduct a pilot project to study the cost effectiveness of collecting garbage every other week.</p>	Pilot Program Cost: \$119,200 in FY1516.	Same as above.	Affects pilot area only: Residents can subscribe to EOW garbage service; no changes to existing routes.	N/A
<p>Commercial Recycling Outreach Program Project Implement a metrics driven sales oriented approach to increase diversion coupled with enhanced outreach efforts.</p>	<p>Supplemental outreach costs: \$50,000 - \$60,000 in FY1516.</p> <p>Recology (annual) staffing cost for 2014 was \$912,362.</p>	N/A	N/A	N/A

Proposed Enhancement	Program Cost Summary	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes
<p>Public Spaces Recycling Pilot Program Implement model public spaces recycling collection in a downtown area and a park setting.</p>	<p>Pilot program cost: \$46,000 total \$35,000 budgeted in FY14/15 \$11,000 to be budgeted in FY15/16</p>	<p>Pilot participants cooperation is required; no policy changes applicable.</p>	<ul style="list-style-type: none"> • Increased # of public space receptacles for franchised collection services • Increased # of receptacles handled by Agency staff • Potential increase in capacity of bins on site at Agency facilities 	<p>N/A</p>
<p>Enhanced Residential Public Education and Outreach Pilot Program Conduct a pilot program focusing on cost-effective, measurable campaigns for the residential sector, incentives and new messaging/tools.</p>	<p>Service area wide campaign cost: \$100,000 in FY1617. Community based outreach cost: \$75,000 in FY1617.</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
<p>Mandatory Residential and Commercial Recycling Ordinance Develop a policy framework to implement mandatory recycling.</p>	<p>Implementation (first-year) expense: \$303,000 Annual recurring expense: \$268,000</p>	<p>Yes – potential Member Agency adoption of new ordinance.</p>	<p>May result in additional franchised collection services.</p>	<p>N/A</p>
<p>Organic Materials (Green Waste and Food Scraps) Disposal Ban Develop a policy framework to implement Countywide ban on disposal of organic materials.</p>	<p>Implementation expense: \$60,000</p>	<p>Yes – adoption of Countywide ordinance.</p>	<p>N/A</p>	<p>Potential modification to rates charged to self-haul customers to impose a premium to deliver banned materials without proper separation.</p>
<p>EPR Policy Framework Establish a framework for Board consideration to facilitate supporting EPR legislation and policy.</p>	<p>Policy implementation and ongoing expense to be incurred in existing RethinkWaste staffing expense.</p>	<p>Yes – if individual Member Agency's want to adopt an EPR framework.</p>	<p>N/A</p>	<p>N/A</p>

Proposed Enhancement	Program Cost Summary	Shoreway Facility Changes
SHOREWAY INFRASTRUCTURE		
<p>Mixed Waste Processing in the Transfer Station Waste processing system located at the Transfer Station to recover recyclables and organics. Recyclables to be processed further at onsite MRF. Organics to be transferred to SVCW for digestion and energy production.</p>	<ul style="list-style-type: none"> Year 1 net increase (\$5.19M in new ops. expense - \$3.28 in new commodity revenue) in cost of \$1.9M to process all waste in TS Annual depreciation expense (year 1): \$1.28M FY1516 project development cost: \$183,000 	<p>Installation of new processing equipment within Transfer Station and westward expansion of Transfer Station building. Depending upon size of Transfer Station building expansion may require demolition of Recology Administration building and construction of new Admin. bldg. to the east of Transfer Station. New processing system assumed operational by July 2018.</p>
<p>Shoreway Transfer Station Building Improvements Existing site building layout will need to be altered to accommodate mixed waste processing system at Transfer Station.</p>	<ul style="list-style-type: none"> Est. building cost of \$2.53 million for small TS building expansion Est. building cost of \$11.52 million for Large TS building with new Recology office area FY 1516 building design and estimating cost of \$51,000 for Small TS building (incl. in mixed waste processing project dev. costs) 	<p>Two Transfer Station build out scenarios: small expansion of 4,400 sq. ft. or large expansion of 12,000 sq. ft. (large expansion would require demolition of Administration building and construction of new Administration building).</p>
<p>MRF Single Stream Processing Equipment Replacement Need to replace specific equipment components due to intensive use since original installation in 2011.</p>	<p>Existing cash reserves include an equipment replacement reserve fund to pay for such equipment replacement.</p>	<p>Table 4.36 in Section 4 identifies a schedule for equipment component replacement from 2015 thru 2023.</p>
<p>MRF Building Tipping Area Expansion Existing identified and budgeted project to construct a MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to handle 3rd-party tonnage into MRF.</p>	<p>FY1415 budget of \$450,000. Current project construction estimate of \$438,741.</p>	<p>Construction of a 2,720 sq. ft. expansion of MRF tipping area</p>
<p>CNG Fueling System Installation of a new CNG fueling system to support new CNG collection fleet.</p>	<p>New utility connection infrastructure for CNG system estimated at \$1.375 – \$1.8M.</p> <p>Current SBWMA reserve of \$1.24M in Shoreway remediation fund to substantially cover project costs.</p>	<p>Requires installation of a CNG fueling system. Would also involve the closeout of the existing UST system. Would add 1 new aboveground storage tank (AST) for diesel for SBR transfer trailers. See Table 4.38 in Section 4 for more details on Shoreway operational costs associated with this project.</p>

Proposed Enhancement	Program Cost Summary	Shoreway Facility Changes
<p>Other Shoreway Infrastructure Improvements Improvements include improved paving and other enhancements promoting energy conservation.</p>	<p>Paving cost estimated at \$2.0M. \$45,000 LED lighting retrofit in FY1415 and \$274,000 in FY1516.</p>	<p>Remove and replace 4 acres of asphalt Install new LED high-bay lighting in all Shoreway buildings</p>
<p>Environmental Education Center and Tour Program Enhancements Conduct stakeholder engagement process with local educators to identify which environmental education programs best complement existing efforts.</p>	<p>\$62,000 in one-time costs to be included in the FY1516 budget.</p>	<p>No</p>

Based on the results of the evaluation, two future diversion forecast scenarios were developed and are captured in **Tables 1.16** and **1.17** below. **Table 1.16** provides a forecast of the measured diversion rate by sector and overall RethinkWaste service area from 2015-2020 assuming the implementation of the Enhanced Residential Public Education and Outreach Program, and no other changes to existing programs, policies or infrastructure (with the exception of anticipated impacts AB 1826 will have on the commercial/MFD sector starting in 2016). The effects of the enhanced outreach are anticipated to be felt starting in the last half of 2018, resulting in a 2.5% increase in residential recycling and organic materials tonnages, 5% increase in 2019 as the full impacts are realized over the whole year, and dropping to an additional 2% in 2020 as the program effects wind down. There is parallel decrease in residential garbage from 2018-2020.

Adding the enhanced residential outreach results in increasing the residential forecasted baseline diversion rate in 2020 from 66.59% to 68.22%.

Table 1.16: Baseline Forecast w/ Enhanced Residential Public Education Starting in 2018*

Sector	Actual Results		Projected Results					
	2013	2014	2015	2016	2017	2018	2019	2020
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	67.02%	67.88%	68.22%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	38.72%	40.64%	41.99%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	52.95%	54.33%	55.17%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.

Table 1.17 below provides a forecast of the measured diversion rate by sector and overall RethinkWaste service area from 2015-2020 assuming the implementation of the Enhanced Residential Public Education and Outreach Program as noted in **Table 1.16** and the Mixed Waste Processing System in the Transfer Station starting in July 2018. No other changes to existing programs, policies or infrastructure have been assumed (with the exception of anticipated impacts AB 1826 will have on the Commercial/MFD sector starting in 2016 through 2018). Based on the timing of the project, the mixed waste processing operation results in the recovery of an additional 24,795 tons of organic and recyclable materials in 2018 from the residential and commercial sectors, and 49,591 tons in both 2019 and 2020. There is parallel decrease in garbage from 2018-2020.

Adding the enhanced residential outreach and mixed waste processing results in increasing the overall forecasted baseline diversion rate in 2020 from 54.35% to 67.73%.

Table 1.17: Baseline Forecast w/ Enhanced Residential Public Education and MSW Processing Starting in 2018*

Sector	Actual Results		Projected Results					
	2013	2014	2015	2016	2017	2018	2019	2020
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	71.32%	76.35%	76.60%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	48.75%	58.77%	58.77%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	60.09%	67.61%	67.73%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.



Recommendations and Next Steps

Table 1.18 on the next page summarizes all of the recommendations for Board consideration. The recommendations are broken out into collection related operational improvements, programs/services enhancements; policy initiatives; and Shoreway infrastructure improvements. Cost estimates associated with the recommendations are current year estimates and no collection and Shoreway rate analysis has been completed; that will be a follow-up item once the Board approves the final 2015 Long Range Plan.

Finally, it is critical to understand that the Long Range Plan is really a “blueprint” for future Board actions related to increasing measured diversion, and driving operational improvements. As outlined on the following pages there are a number of decisions that flow from the recommendations in **Table 1.18**.

As shown in **Table 1.18**, implementing the recommendations will increase measured diversion from our forecasted baseline of **54.35% in 2020 to an estimated 67.73% in 2020**. These figures do not include any diversion data as a result of the implementation of the Commercial Recycling Reporting Ordinance as the first required reports per the Ordinance are not due until May 1, 2015. When this data becomes available and is reviewed by staff an updated diversion forecast will be prepared which will likely put us even closer to the State’s 75% diversion goal by 2020.

Table 1.18: Summary of Recommendations for Policies, Program and Shoreway Infrastructure Enhancements

Name/Title	Recommendation	Project Benefits
Collection Operational Improvement:		
CNG Fleet Conversion Project	The franchised service provider collection fleet to run on CNG effective 1/1/21 (assumed start of new Franchise Agreements). Recology to include this assumption in their proposal for an extension of their existing Franchise Agreements in 2017.	<ul style="list-style-type: none"> • Net collection ops. cost savings of \$992,960/year starting in 2021 • Approximately 20%-23% reduction in greenhouse gas emissions
SFD Split-Body Collection Vehicle Pilot Project	Conduct pilot project in FY1516 to study routing efficiencies using split-body (two- compartment) collection vehicles over two four-week pilot periods between September and November 2015. Recology proposes to conduct first pilot in Menlo Park and the other in Burlingame and adjoining County pockets. Approximately 8,000 homes per week (two routes) effected during each pilot period.	<ul style="list-style-type: none"> • Pilot project to assess potential routing efficiencies to determine if this type of collection vehicle can be cost effectively deployed in the future in our service area
Collection Program/Service Enhancement:		
SFD Every Other Week Garbage Collection Pilot Project	<p>Conduct a pilot project in FY1516 to study the cost effectiveness of collecting garbage every other week. Pilot details not final but assumes would cover approximately 8,000 homes (two routes) over a three month period.</p> <p>Pilot would have to be approved by the County LEA which enforces State solid waste and related laws and regulations.</p>	<ul style="list-style-type: none"> • Potentially significant increase in diversion • Potential cost savings from reduced collection routes • Potential reduction in greenhouse gas and other harmful vehicle emissions <p>Note: Pilot project results to be evaluated to determine if this change in residential service levels and routing are to be included in the future Franchise Agreements. A solid waste rate study would need to be completed to assess this option and others for future consideration in the Franchise Agreements.</p>
Commercial Recycling Outreach Program Project	Modify Recology's current reporting requirements to implement a Commercial Subscription and Participation Compliance Status Report for use in setting outreach priorities and tracking progress to diversion goals. Couple this change with enhanced commercial public education and outreach efforts. Project to be implemented in FY1516.	<ul style="list-style-type: none"> • Supports Recology's efforts to achieve the forecasted commercial diversion shown in Table 1.12 and Table 1.16 • Establish clear diversion targets for collection services contractor • Increase return on investment in franchised commercial outreach program
Public Spaces Recycling Pilot Program	Implement model public spaces recycling collection in a downtown area and a park setting. Goal is to develop a more uniform approach across the Member Agencies that complements the existing residential and commercial recycling and organics collection services. Project to be implemented in FY1415 and FY1516.	<ul style="list-style-type: none"> • Increased diversion from the commercial sector (public spaces) • Reduce litter • Expand opportunities to engage public in recycling and reinforce messaging

<u>Name/Title</u>	<u>Recommendation</u>	<u>Project Benefits</u>
Enhanced Residential Public Education and Outreach Pilot Program	Conduct a pilot program focusing on cost-effective, measurable dedicated campaigns service-area wide and for specific Member Agencies with lower diversion rates. Pilot to be conducted in FY1617.	<ul style="list-style-type: none"> • Increase in residential recycling and organic materials: 2.5% in 2018, 5% in 2019, and 2% in 2020 • Forecasted increase in residential diversion from 66.59% in 2015 to 68.22% in 2020 per Table 1.16
Policy Initiative:		
EPR Policy Framework	Establish a framework for Board consideration to facilitate supporting EPR legislation and policy. Implement in FY1516.	<ul style="list-style-type: none"> • Provides SBWMA the opportunity to become engaged in State-wide efforts to enact EPR related policy • Requires product manufacturers to take financial responsibility for collection, recycling and disposal of their products • Provides incentive for manufacturers to design products for recyclability and with reduced toxicity • Reduces cost to ratepayers for proper handling, recycling and disposal of various product types
Shoreway Infrastructure Enhancement:		
Mixed Waste Processing in Transfer Station	Installation of a mixed waste processing system located in an expanded footprint in the existing Transfer Station. System to recover recyclables and organics from residential and commercial waste delivered to the Transfer Station by Recology collection vehicles. Recyclables to be processed further at existing onsite MRF. Organics to be transferred to SVCW for digestion and energy production. System can also process, at a projected expense less than existing organics processing, source separated organics from Recology franchised collection programs. System operational in 2018.	<ul style="list-style-type: none"> • Significant diversion potential of 49,591 tons/year starting in 2018 • Increases overall measured diversion from 51.94% in 2017 to 67.73% in 2020 per Table 1.17 • Low cost per diverted ton at \$38.42/ton for base-case scenario (small TS expansion with fiber recovery) • Leverages existing infrastructure at SVCW to reduce the project capital costs • Reduction of greenhouse gasses through recovery of green energy from waste and reduced landfilling • Viable project for State grant funding
Shoreway Transfer Station Building Improvements	Expand Transfer Station footprint to accommodate a mixed waste processing system. Two Transfer Station expansion scenarios: small expansion of 4,400 sq. ft. or large expansion of 12,000 sq. ft. Small expansion would not provide for new office and public meeting space. Large expansion would require demolition of Recology Administration building and construction of new Administration building. Large expansion would allow for new office and public meeting space as described further below.	<ul style="list-style-type: none"> • See above

Name/Title	Recommendation	Project Benefits
<p>SBWMA Administrative Offices and Public Meeting Space</p>	<p>Pursue one of three options to provide for onsite (at Shoreway) SBWMA office space and new public meeting space (e.g., for Board meetings, seasonal workshops and other public needs). There are three options for SBWMA office space with two of the options also providing public meeting space.</p> <p>Option 1 would be to remodel 3,000 sq. ft. of space on the second floor of Recology Administration Building; this option does not provide for public meeting space. Option 1 is possible if do small Transfer Station expansion. Option 2 would consist of constructing a new two-story building in the existing visitor parking lot. The first floor would be a parking garage and the second floor will be split between office space and public meeting space totaling 5,614 sq. ft. Option 3 would be associated with the large Transfer Station expansion scenario. Office space and public meeting space would be housed in a two-story building adjacent to the Transfer Station. Both floors would be approx. 3,000 sq. ft.</p> <p><u>Staff recommends that no decision be made on these improvements until a final decision is made on the mixed waste processing project and related Transfer Station building improvements.</u></p>	<ul style="list-style-type: none"> • All options would provide for SBWMA office space and thus save approx. \$60,000 per year in office lease costs • Options 2 and 3 would provide for public meeting space for Board meetings and other public meetings and onsite public events
<p>MRF Single Stream Processing Equipment Replacement</p>	<p>No recommended change to existing Board policy or direction. Staff to include a forecast for MRF equipment replacement in the FY1516 budget; the budget will include a rolling five-year capital budget. Existing cash reserves include an equipment replacement reserve fund to pay for such equipment replacement.</p>	<p>N/A</p>
<p>MRF Building Tipping Area Expansion</p>	<p>This is existing identified and budgeted project to construct MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to for 3rd party tonnage into MRF. FY1415 budget of \$450,000. Current project construction estimate of \$438,741.</p>	<p>N/A</p>

Name/Title	Recommendation	Project Benefits
CNG Fueling System at Shoreway	Installation of a CNG fueling system at Shoreway in 2020 to support future fuel needs for collection fleet. Would also involve the closeout of the existing UST system. Would add one new AST for diesel for SBR transfer trailers.	<ul style="list-style-type: none"> • Supports conversion of the collection fleet to CNG with significant operational cost savings • Eliminates future potential groundwater contamination at Shoreway from fueling operations
Other Shoreway Infrastructure Improvements	<p>Site Paving No recommended change to existing Board policy or direction. Staff to include a forecast for site paving costs in capital spending portion of FY1516 budget.</p> <p>New LED Lighting LED lighting retrofit in the MRF, Transfer Station and Recology maintenance shops.</p>	<ul style="list-style-type: none"> • Extend life of pavement in the corp. yard area used by Recology • Power cost savings after 1.3 year payback period • Improved interior lighting for safer environment
Environmental Education Center and Tour Program Enhancements	Conduct a stakeholder engagement process in FY1516 to determine what additional components can be added to our existing environmental educational efforts with a focus on increasing recycling and composting efforts at schools in our service area. RethinkWaste is only minimally engaged in school or community based environmental education outside of the existing tour program.	<ul style="list-style-type: none"> • Complements existing RethinkWaste recycling outreach efforts to residents and businesses • Engages local educators to identify synergies to maximize effectiveness of new programs • Enhances return on investment in broader outreach campaigns

Timeline and Cost Projections Associated with Future Decisions by SBWMA Board and/or Member Agencies

In order to implement the recommendations outlined in **Table 1.18**, the following decisions by year will be requested of the SBWMA Board and/or Member Agencies.

Timeline

2015

- **SFD Split-body Collection Vehicle Pilot Project** – SBWMA Board decides whether to include one-time expenses of \$16,391 in FY1516 budget. Board also provides direction to Recology as to whether to include one-time expenses of \$55,422 in their 2016 Compensation application submitted in June.
- **SFD Every Other Week Garbage Collection Pilot Project** – SBWMA Board decides whether to include one-time expenses of \$119,200 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **Commercial Recycling Outreach Program Project** – SBWMA Board decides whether to include one-time expenses of \$50,000 - \$60,000 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **Public Spaces Recycling Pilot Program** – SBWMA Board decides whether to include one-time expenses of \$11,000 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **EPR Policy Framework** – SBWMA Board decides whether to adopt an EPR Policy Framework.
- **Mixed Waste Processing in the Transfer Station** – SBWMA Board decides whether to include one-time project development expenses of \$183,000 in FY1516 budget. No impact on 2015 or 2016 contractor compensation.
- **SBWMA Administrative Offices and Public Meeting Space** – SBWMA Board decides whether to include \$25,000 in one-time costs in FY1516 budget to further refine building cost estimates. Board could also decide to move forward on Option 1 (\$275,000) to remodel the upstairs portion of the Recology Administration building or Option 2 (\$3.33 million) to build a new two-story building in the visitors parking lot. Staff recommends that no decision be made on these improvements until a final decision is made on the mixed waste processing project and related Transfer Station building improvements.
- **MRF Single Stream Processing Equipment Replacement** – SBWMA Board will adopt annual budget with five-year capital spending plan (plan updated each year for a rolling five-year period). Sufficient cash reserves already in place for forecasted equipment replacement needs.
- **MRF Building Tipping Area Expansion** – SBWMA Board considers approval of construction contract award in April or May 2015. Capital line item already included in adopted FY1415 budget.
- **Site Paving** – SBWMA Board approval of FY1516 budget with five-year capital spending plan to include site paving needs.
- **New LED Lighting** – SBWMA Board will decide whether to approve or not inclusion of the estimated \$274,000 in the FY1516 capital budget.
- **Environmental Education Center and Tour Program Enhancements** – SBWMA Board decides whether to include \$62,000 in one-time costs in FY1516 budget to complete stakeholder engagement process.

2016

- **CNG Fleet Conversion Project** - SBWMA and Member Agencies decide if CNG fleet to be included in future scope of work for Franchise Agreements (2017 decision by Member Agencies whether to extend or not current Recology Franchise Agreements beyond 12/31/20).
- **SFD Split-body Collection Vehicle Pilot Project** – Based on pilot project results, SBWMA and Member Agencies decide if split-body vehicles to be included in future scope of work for Franchise Agreements.

- **SFD Every Other Week (EOW) Garbage Collection Pilot Project** – Based on pilot project results, SBWMA and Member Agencies decide if EOW solid waste collection to be included in future scope of work for Franchise Agreements.
- **Commercial Recycling Outreach Program Project** – Based on outreach pilot project results, SBWMA Board decides if expanded commercial outreach should be continued.
- **Public Spaces Recycling Pilot Program** – Based on pilot project results, SBWMA and Member Agencies decide if there is to be a full scale rollout across service area; could impact SBWMA FY1617 budget and Recology 2017 compensation.
- **Enhanced Residential Public Education and Outreach Pilot Program** – SBWMA Board decides whether to include one-time expenses of \$175,000 in FY1617 budget. No impact on 2016 or 2017 Recology compensation.
- **Mixed Waste Processing in the Transfer Station** – SBWMA Board makes decision on project based on updated project financial proforma. If decision is to implement, then would initiate project design and permitting in 2016 and develop plan of finance. Capital costs in FY1617- FY1718 budgets. Would also negotiate updated MOU with SVCW for Board consideration.

The above decision would also relate to the associated Transfer Station building improvements required to accommodate the new mixed waste processing system.

- **SBWMA Administrative Offices and Public Meeting Space** – The above decisions may effect which option, if any, the Board chooses for new SBWMA office space and public meeting space at the Shoreway Environmental Center.
- **Environmental Education Center and Tour Program Enhancements** - When staff completes the stakeholder engagement process then recommendations will come back to the Board for consideration for FY1617 budget.

2017

- **Enhanced Residential Public Education and Outreach Pilot Program** – Based on pilot project results, SBWMA Board decides if ongoing enhanced outreach effort is to be continued.
- **Mixed Waste Processing in the Transfer Station** – Board approval of construction contract award for building improvements and purchase of processing equipment. Negotiate Operations Agreement amendment for SBR compensation to operate new processing system; such amendments require approval of the SBWMA Board and separate approval by two-thirds (at least 8 of the 12) of the Member Agencies.

The above decision would also relate to the associated Transfer Station building improvements required to accommodate the new mixed waste processing system.

If issuance of new debt is needed to finance the project then this will require SBWMA Board approval and separate approval by two-thirds (at least 8 of the 12) of the Member Agencies.

2018/2019

- **CNG Fueling System** – SBWMA Board approval of Shoreway project expenses for site improvements, including closeout of USTs, installation of new AST, and site improvements required for new CNG fueling system. Current estimate of \$1.375 million to \$1.8 million with \$1.24 million in Shoreway remediation funds available to help offset costs.

2021

- **Mandatory Residential and Commercial Recycling Ordinance** – Analyze programmatic efforts through 2020 to determine measured diversion rate and progress towards State goal of 75%. If still short of goal then the SBWMA Board may decide to approve new policy tools.
- **Organic Materials (Green Waste and Food Scraps) Disposal Ban** – Analyze programmatic efforts through 2020 to determine measured diversion rate and progress towards State goal of 75%. If still short of goal then the SBWMA Board may decide to approve new policy tools.

Cost Projections

In the upcoming fiscal year (FY1516) there are a number of recommendations for one-time expenditures to support implementation of pilot projects, and complete additional technical and financial analysis of the mixed waste processing system, including building improvements.

For FY1516, the projected spending from the operating expense budget totals \$476,591 with \$206,591 for collection related programs and outreach, and \$270,000 related to Shoreway operations. \$274,000 is also recommended as a capital expense to retrofit large lighting fixtures in the MRF, Transfer Station, and Recology maintenance shop with high efficiency LED lights. A \$55,422 adjustment is also recommended to Recology's 2016 compensation to cover costs associated with the split-body collection vehicle pilot project.

\$175,000 is recommended to be included in the FY1617 operating budget to complete a residential outreach pilot to measure potential enhancements to diversion levels. Future residential diversion increases are assumed starting in calendar year 2018 based on increased outreach spending, though no cost estimates are currently provided for such outreach efforts.

Based on the results of the various pilots conducted in 2015 and 2016, there will be follow-up SBWMA Board and/or Member Agency decisions in 2016, 2017 and 2018 regarding full-scale rollout of programs and services (e.g., enhanced public education and outreach, Public Spaces recycling, etc.) and future franchised collection service operations (e.g., use of split-body collection vehicles and EOW solid waste collection). Notably, any changes to collection service operations would need to be analyzed from a rate perspective along with any other changes proposed by Recology and/or recommended by the SBWMA Board and Member Agencies.

Major decisions on the Shoreway facility capital improvements are assumed to occur in 2016 for the mixed waste processing system and related Transfer Station building expansion. Currently, the assumed base-case project would involve spending \$13.51 million, with \$2.53 million for a small expansion of the Transfer Station and \$10.58 million for processing equipment. Project funding sources could include the use of current undesignated cash reserves estimated at \$3.9 million (FY1415 mid-year budget document), new incremental undesignated cash reserves resulting from tipping fee increases at Shoreway, State grant funding, and new debt (bank loan, bonds, etc.) An analysis of tipping fees and other aspects of the Shoreway operations budget would need to be completed as part of any Board decision-making process for this project.

The above decisions related to the mixed waste processing project will also effect potential options related to the development of SBWMA office space and public meeting space at Shoreway. The SBWMA currently spends approximately \$60,000 per year to lease office space, and the Board Chair and Vice Chair requested an analysis of alternatives be included in the Long Range Plan. Three options are presented with a cost range of \$275,000 (to remodel the upstairs portion of the Recology Administration building) to \$3.33 million (to build a new two-story building in the visitors parking lot). Another option at a cost of \$977,550 would be tied to the large expansion option

for the Transfer Station. The lowest cost of \$275,000 provides for SBWMA office space, but no provision for public meeting space; if this option was pursued, however, an offsite location would need to be secured for Board meetings. The next lowest cost option at \$977,750 provides office and meeting space and is tied to a much more expensive (i.e., \$9.9 million higher) Transfer Station expansion scenario that is not the preferred option for the mixed waste processing project. The preferred alternative would be the \$3.3 million option that provides for both SBWMA office space and public meeting space on a long-term basis.

Finally, in 2019 the Board would face decisions around capital expenditures to support installation of a new CNG fueling system at Shoreway. Fortunately, the current estimated project costs of \$1.38 - \$1.8 million would largely be covered by an existing source of funds; \$1.24 million is currently available in a Shoreway remediation fund. Further, the net project costs would be more than offset by the annual franchised collection services operational savings identified at approximately \$1 million per year starting in 2021.

SECTION 2



STATE AND LOCAL POLICY AND REGULATORY FRAMEWORK

2. State and Local Policy and Regulatory Framework

A. State Policy and Regulatory Framework

Since the 1960s, federal, state, and city governments have developed a regulatory framework to ensure that solid and hazardous wastes are managed in an environmentally sound manner. Multiple agencies at each governmental level have responsibility for regulating each component of the solid waste management system including collection, processing, and final disposal. Regulation is generally used to set basic standards for waste transportation, handling, and disposal to ensure consistency and to protect public health and the environment. Education and voluntary programs are used to increase waste reduction, recycling, and composting rates and to promote producer responsibility (e.g., through voluntary take back programs).

Role of the State Government in Regulating Solid Waste

The California Environmental Protection Agency (CalEPA) is responsible for managing both hazardous and non-hazardous solid waste within the State. Several departments within CalEPA oversee implementation of State policies and programs.

The Department of Resources Recycling and Recovery (CalRecycle) manages non-hazardous waste collection, processing, recycling, and disposal. CalRecycle is responsible for monitoring cities and counties to ensure that they are implementing adequate source reduction, recycling, composting, and other diversion methods to meet State waste-diversion mandates. Assembly Bill 939 (AB 939), The California Integrated Waste Management Act of 1989 (Public Resources Code, Section 40000 et seq.) was one of the first recycling laws in the country to establish a preferred hierarchy for solid waste management and mandate recycling diversion goals. California has successfully used AB 939 to motivate cities and counties to reduce reliance on landfill disposal and increase waste diversion through source reduction, recycling, and composting. California is also likely to continue in this direction in the future as it works toward a statewide goal of 75% diversion by 2020 per AB 341.

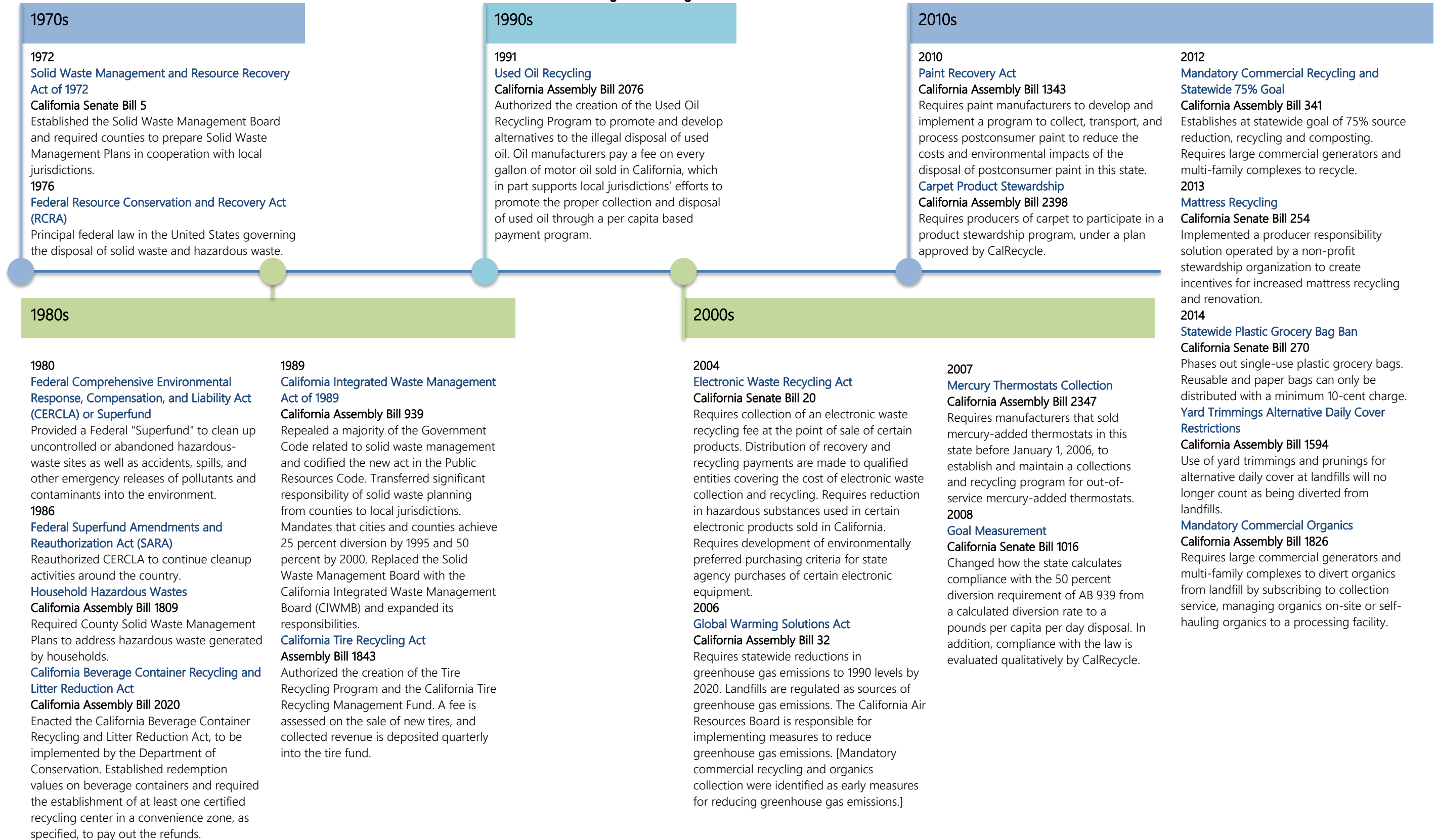
Please refer to **Figure 2.1** which displays a timeline of key solid waste related legislation, which by and large are the responsibility of CalEPA and CalRecycle to manage.

CalRecycle also administers the California Beverage Container Recycling and Litter Reduction Act (Bottle Bill), which was enacted in 1986. Beverage containers covered under the act are labeled California Redemption Value "CRV." Consumers pay \$0.05 for containers under 24 ounces and \$0.10 for containers over 24 ounces. That money is returned to consumers when they recycle their containers, or is donated to a curbside operator or non-profit recycler depending on how the consumers choose to recycle the container. The Bottle Bill has resulted in an overall 85% recovery rate for covered beverage containers.

The Department of Toxic Substances Control (DTSC) focuses on preventing humans and ecosystems from exposure to hazardous chemicals and keeping these materials out of the waste stream. DTSC restores contaminated resources, enforces hazardous waste laws, reduces hazardous waste generation and encourages the manufacture of chemically safer products (through Green Chemistry initiatives).

The California Air Resources Board (CARB) is responsible for maintaining healthy air quality, including developing the regulations to enforce the Global Warming Solutions Act (AB 32), enacted in 2006. With the passage of AB 32,

Figure 2.1: Legislative Timeline



California became a national leader in legislation to reduce greenhouse gas emissions. This act makes a commitment to reduce the State's emissions to 1990 levels by 2020, which is a reduction of approximately 25 percent from the expected emissions in the absence of regulation. The initial AB 32 Scoping Plan identified several activities to reduce greenhouse gas emissions in the waste management sector, including the consideration of mandatory commercial recycling regulations. Assembly Bill 341, described below, was adopted to codify this provision into State law.

The local Air Quality Management Districts throughout the State are responsible for ensuring that ambient air quality standards are attained and maintained in their respective air basins. The SBWMA is located within the Bay Area Air Quality Management District (BAAQMD), which regulates local air quality. All new construction within the BAAQMD, including solid waste processing and disposal facilities, must undergo a New Source Review in compliance with federal, State, and BAAQMD regulations.

Role of Local Jurisdictions in Regulating Solid Waste

AB 939 and subsequent legislation codified the role of local jurisdictions in managing solid waste. Cities and counties must plan and implement policies and programs to reach and maintain the 50% diversion requirement measured as a reduction in disposal in pounds per person per day. All of the JPA Member Agencies are in compliance with the AB 939 requirements. Local jurisdictions have a critical role in implementing State-mandated requirements, such as AB 939, and more recently the mandatory commercial recycling requirements of AB 341 and organics diversion requirements of AB 1826. With the support of the SBWMA and contracted service providers, the Member Agencies have successfully met the challenges of these State mandates and are well positioned to meet future requirements.

Local jurisdictions and JPAs have a direct role in solid waste management and can enact ordinances and legislation to further enhance local programs. For example, ten of the twelve member agencies have adopted local construction and demolition debris ordinances or resolutions requiring diversion of construction and demolition debris.¹ In addition, the City of San Carlos adopted a commercial and multi-family complex mandatory recycling ordinance.

The SBWMA also recently adopted a local commercial recycling reporting ordinance which requires businesses that backhaul recyclable materials, and haulers, brokers and other entities that provide recycling collection services to businesses in the SBWMA service area to report quarterly on the quantity of recycling they collect.

Recent State Legislation Affecting SBWMA Policies and Programs

Mandatory Commercial Recycling (AB 341)

On July 1, 2012, the State's mandatory commercial recycling law, AB 341, was implemented. The law requires all businesses that generate more than four cubic yards of solid waste per week and multi-family complexes with five or more units to arrange for recycling services. To comply with AB 341, commercial businesses and multi-family complexes that meet the criteria must implement recycling services through one or more of the following methods:

- Self-haul recyclable materials to a recycling center
- Subscribe to recycling services through a private hauler
- Arrange for the pickup of recyclable materials

¹Note that the West Bay Sanitary District does not have jurisdiction over construction permitting. Link to member agency ordinances and resolutions at: <http://www.rethinkwaste.org/businesses/construction-demolition-recycling/member-agency-c-d-ordinances> (accessed January 30, 2015).

- Subscribe to recycling services that can include mixed-waste processing that yields diversion results comparable to source separation

To comply with AB 341, local governments are required to implement a commercial recycling program that consists of education, outreach and monitoring of business. In addition, each jurisdiction must annually report to CalRecycle its progress with AB 341 implementation, including outreach, monitoring and enforcement by providing updates in its electronic annual report. The SBWMA manages the AB 341 mandatory commercial recycling requirements and submits the electronic annual reports on behalf of its Member Agencies. All of the JPA Member Agencies are in compliance with the AB 341 mandatory commercial recycling requirements.

AB 341 also established a statewide goal of 75% source reduction, recycling, and composting by 2020. AB 341 specifies that disposal-related diversion, such as incineration and beneficial reuse of discarded materials at landfills, including Alternative Daily Cover (ADC), is not considered recycling and does not contribute to the 75% goal. The Statewide goal does not directly impact local jurisdictions which are required to maintain the reduction in disposal in pounds per person per day (per capita) targets of AB 939.

Mandatory Recycling of Commercial Organics (AB 1826)

AB1826 was approved by the Governor on September 28, 2014 and will take effect on April 1, 2016. Similar to AB 341, AB 1826 requires businesses and multifamily complexes with five or more units to arrange for organics collection services. The implementation schedule is scaled so that larger businesses, those with 8 or more cubic yards of organics, must comply with the requirement by April 1, 2016; those with 4 or more cubic yards of organics must comply by January 1, 2017; those with 4 cubic yards of commercial solid waste must comply by January 1, 2019; and those with 2 cubic yards of commercial solid waste or more must comply by January 1, 2020.

This bill also requires each jurisdiction, by January 1, 2016, to implement an organics recycling program to divert organics from the businesses.

Statewide Plastic Grocery Bag Ban (SB 270)

Senate Bill (SB) 270 was set to take effect on July 1, 2015 and prohibited a retail establishment, defined as having gross annual sales of two million dollars or more, or at least 10,000 square feet of retail space, from providing a single-use carryout bag to a customer at the point of sale. On and after July 1, 2016, this bill was to expand to convenience food stores, prohibiting them from providing a single-use carryout bag to a customer. The bill instead was to allow recycled paper bags, compostable plastic bags, or reusable bags to be made available for purchase at \$0.10, and provided free of charge to specified food program participants. It required CalRecycle to certify reusable bag producers, and publish a list to its website that includes the name and location of all bag producers that have been certified, and establish a fee schedule that will generate revenues sufficient to cover CalRecycle's costs to certify that the bags meet specified requirements.

While SB 270 was passed last year, opponents of the measure recently secured enough signatures to put the ban to a referendum in November 2016, putting the statewide ban on hold until then. However, the referendum does not affect any locally adopted legislation regarding plastic bag bans including those adopted by the SBWMA Member Agencies.

B. JPA Governance Structure, Contracts and Policies

1. Governance Structure

RethinkWaste, legally known as the South Bayside Waste Management Authority, operates under a Joint Powers Agreement (JPA Agreement), which was first executed in June 1982 (under the Agency name South Bayside Transfer Station Authority) and last amended in July 2013. The term of the current JPA Agreement is at least until December 31, 2019 or “until such further time necessary to repay any revenue bonds issued by the SBWMA.” The SBWMA issued \$53.5 million in revenue bonds on September 1, 2009 with the last bonds maturing on September 1, 2036.

The JPA Agreement provides for the exercise of certain powers common to the Member Agencies and provides for the “joint ownership, financing, administration, and operation of the Facilities (Shoreway facility), and for the joint planning, adoption, financing, administration, management, review, monitoring, enforcement and reporting of Solid Waste, Recyclable Material, and Plant Collection activities in the service area.” All major contracts that the SBWMA directly manages (e.g., Shoreway Operations Agreement with South Bay Recycling, Processing and Disposal Agreements, Shoreway License Agreement with Recology, etc.) or provides administrative support for (e.g., Member Agency Collection Services Franchise Agreements) are on a calendar year basis. The setting of solid waste rates by Member Agencies is also done on a calendar year basis. Furthermore, the JPA’s bond indenture of trust requires a calendar year financial statement.

2. Contracts

The SBWMA Member Agencies hold individual Franchise Agreements for collection services with Recology San Mateo County as of January 1, 2011. The agreements continue through December 31, 2020 with an option to extend in 2017. Recology collects residential and commercial solid waste, recyclable materials and organics materials, and delivers them to the Shoreway facility for processing, staging and shipment to offsite processors and end markets. Recology provides all staffing for the collection operations, including customer service. The Franchise Agreements include performance standards, including incentives and disincentives, and liquidated damages, to ensure that the materials are collected in a manner to maximize diversion, operational efficiencies, revenue and cost-savings. The Franchise Agreements prescribe certain responsibilities for the JPA with contract administration, including managing the annual compensation adjustment process and nearly all aspects of public education and outreach.

The JPA directly holds a number of contracts as follows:

- Operations Agreement with South Bay Recycling (SBR), LLC for the Shoreway facility
- San Carlos Franchise Agreement
- Shoreway License Agreement with Recology
- Ox Mountain (Allied Waste/Republic Services) Disposal Agreement
- BFI (Allied Waste/Republic Services) Newby Island Organics Processing Agreement
- Recology-Grover Organics Processing Agreement
- Harvest Power California, LLC Organics Processing Agreement
- Zanker Road Resource Recovery C&D Processing Agreement
- WM Curbside, LLC, At Your Door Special Collections – Door-to-Door HHW Collection Agreement

Table 2.1 on the following page provides a summary of the contracts with more specific information provided on each contract immediately after the table.

Table 2.1: JPA Contracts and Member Agency Franchise Agreement Summary

<u>Contract</u>	<u>Company/Agency</u>	<u>Expiration*</u>	<u>Status/Future Plans</u>
Collection Franchise Agreement(s)	Recology	December 31, 2020	Staff will be working with a technical consultant(s) in FY1516 to review Recology's operational costs. Staff will also be recommending to the Board additional steps to take to prepare Member Agencies in deciding whether to extend the agreement(s) or not in 2017. A key step will be a review of the uniform franchise agreement.
Shoreway Operations Agreement	SBR	December 31, 2020	Staff will be working with a technical consultant(s) in FY1516 to review SBR's operational costs. Staff will also be recommending to the Board additional steps to take to prepare for a JPA decision regarding whether to extend the Ops. Agreement or not. A key step will be a review of the Ops. Agreement itself. Please note the JPA has the exclusive right to extend the Agreement for one-year periods up to a total of three years; notice to be provided at least six months before expiration of current Agreement.
San Carlos Franchise Agreement	City of San Carlos	In effect in tandem with Shoreway's Conditional Use Permit	No action necessary unless the current Conditional Use Permit is modified.
Shoreway License Agreement with Recology	Recology	December 31, 2020 unless previously extended by agreement of both parties.	This Agreement essentially runs concurrent with Franchise Agreements so the decisions on the Franchise Agreements will effect whether this Agreement is extended or not.
Ox Mountain Disposal Agreement	BFI (Allied Waste/Republic Services)	December 31, 2019	Staff to explore opportunities to negotiate an early extension of the contract if the right financial deal can be negotiated and presented to the Board.
Organics Processing Agreement	BFI (Allied Waste/Republic Services) Newby Island	December 31, 2017	Staff to evaluate contract in FY1617 to assist the JPA in deciding whether to extend the agreement or not per contract terms.
Organics Processing Agreement	Recology-Grover Environmental Products	December 31, 2020	Staff to evaluate contract in FY1920 to assist the JPA in deciding whether to extend the agreement or not per contract terms.
Organics Processing Agreement	Harvest Power California, LLC	December 31, 2017	Staff to evaluate contract in FY1617 to assist the JPA in deciding whether to extend the agreement or not per contract terms.
C&D Processing Agreement	Zanker Road Resource Recovery	January 31, 2017	Staff to evaluate contract in FY1516 to assist the JPA in deciding whether to extend the agreement or not per contract terms.
Door-to-Door HHW Collection Agreement	WM Curbside, LLC At Your Door Special Collections	December 31, 2015	Contract has one last extension remaining which would extend the agreement through December 31, 2016. Due to a potential significant rate increase upon contract end, staff is exploring other options for the service.

*Unless stated otherwise, the expiration is at midnight on the date shown.

Shoreway Operations Agreement: This 10-year agreement between the JPA and SBR covers operation of the SBWMA-owned Shoreway facility (i.e., inclusive of the Materials Recovery Facility, Transfer Station, Scale House and Public Recycling Center.) The agreement began January 1, 2011 and continues through December 31, 2020 with up to three one-year options to extend. Residential and commercial solid waste, recyclable materials and organics that are collected by the franchised hauler (Recology) are taken to the Shoreway facility for processing, staging and shipment to offsite processors and end markets. SBR provides all staffing for the aforementioned operations of the Shoreway facility. The agreement includes performance standards, including incentives and disincentives, and liquated damages to ensure that materials are processed in accordance with the SBWMA's specifications to maximize diversion, operational efficiencies, revenue and cost-savings.

At the request of SBR, the Board approved a change in the majority ownership of SBR from Community Recycling and Recovery, which is a 60% owner, to Recology Inc. (parent company of Recology San Mateo County) who plans on acquiring them. The consent to assignment was approved at a Special Board meeting on December 17, 2014.

San Carlos Franchise Agreement: This agreement memorializes the terms of payment by the JPA to the City of San Carlos of a franchise fee of 5% of gate fees (excludes commodity revenues) collected at the Shoreway Environmental Center as the host city for the facility.

Shoreway License Agreement with Recology: As the owner of the Shoreway Environmental Center, the SBWMA entered into a license agreement with Recology to allow the company to operate out of this facility. This 10-year agreement coincides with the Member Agencies' Franchise Agreements and outlines the terms of Recology's tenancy at the Shoreway facility and the responsibilities of both SBWMA and Recology with regard to Recology housing its operations at Shoreway.

Ox Mountain Disposal Agreement: This 15-year disposal agreement between the JPA and Ox Mountain Landfill, located off Highway 92 in Half Moon Bay, covers the exclusive disposal of solid waste from the Shoreway facility and grants the JPA with "most favored customer" pricing meaning no other customer shall receive lower pricing. Disposal rates charged to the JPA are set annually by Ox Mountain and reflect an annual adjustment equal to 80% of CPI for the contractor fee component plus the pass through of government fees. The 2015 disposal rate is \$39.62 per ton of which \$11.23 per ton are government fees (\$9.83 per ton paid to the County of San Mateo and \$1.40 per ton paid to the State Board of Equalization). When the cost of transportation is included, the total cost to dispose of garbage is \$55.35 per ton. Republic Services has projected that the Ox Mountain Landfill has an enough fill capacity to last another 20 years at the current rate of landfilling. The current agreement is set to expire on December 31, 2019.

The Ox Mountain Landfill is the closest landfill to the Shoreway facility (13 miles) and is the only active landfill in San Mateo County. In 2014, staff conducted a rate survey that compared the total costs of disposal and transportation to various landfills in the region to benchmark the current costs and to help anticipate the potential for disposal cost increases after the contract expiration in 2019. The survey revealed that the JPA's current total cost for disposal and transportation is 10% to 20% below the "market rate." Stated another way, the JPA's costs for solid waste transportation and disposal is likely to increase 10% to 20% after 2019.

Organics Processing Agreements: The JPA holds three separate organics processing agreements to process organic materials collected in the service area into finished compost. SBR transports the organics

materials from the Shoreway facility to the three different vendors. All three agreements were effective January 1, 2015, to but are set to expire on varying dates. **Table 2.2** identifies the processors and the terms of the agreements.

Table 2.2: Organics Processing Agreements

Processor	Contract Expiration	Contract Extension
BFI (Allied Waste/Republic Services) Newby Island - San Jose	December 31, 2017	Up to two one-year options
Recology-Grover Environmental Products - outside Tracy	December 31, 2020	Up to two one-year options
Harvest Power California, LLC -Lathrop	December 31, 2017	By mutual agreement

To ensure the highest and best use of the organic materials, the agreements prohibit the processors from disposing of or using any of the JPA’s materials as alternative daily cover (ADC) at a landfill. The JPA also receives an annual allotment of finished compost for free for community compost giveaway events for Member Agencies and for pick-up at the Shoreway facility. Unlike the agreements with Newby Island and Recology-Grover, which receive the majority of the organic materials due to having the capacity and have a minimum annual tonnage guarantee included as a result, the agreement with Harvest Power does not have a minimum tonnage guarantee due to their being a relatively new processing facility with limited capacity.

Zanker Road Resource Recovery C&D Processing Agreement: Zanker Road Resource Recovery has been successfully processing construction and demolition (C&D) debris for the SBWMA since 2006 at its San Jose facility achieving diversion rates over 80% while providing a smooth operational interface with the Shoreway facility operator. C&D is primarily delivered to the Shoreway facility by self-haul customers who pay by the cubic yard to dump mixed scrap materials from building construction and demolition projects.

Shoreway’s tip rates for C&D are designed to cover the cost of: 1) handling the materials through the transfer station, 2) transportation to Zanker, and 3) the tip fee for processing this material. The facility is the only C&D recycling facility that is located close to Shoreway (23 miles from Shoreway). Using sorting equipment, Zanker is able recover wood, concrete, drywall, roofing, metals and various other scrap materials from C&D. In 2014, the total cost to transport and process C&D is \$72.91 per ton. The existing agreement was amended in 2012 to extend the contract an additional three years until January 31, 2017.

WM Curbside LLC, At Your Door Special Collections – Door-to-Door HHW Collection Agreement: The JPA entered into an agreement with WM Curbside LLC, dba At Your Door Special Collection, in November 2009 to provide door-to-door collection service of household hazardous waste (HHW), universal waste, electronic waste and sharps from single-family and multi-family dwellings from participating Member Agencies from January 1, 2010 through December 31, 2012. The agreement has been amended three times, extending the term through December 31, 2015. The SBWMA has sole discretion to extend the agreement for one more year, from January 1, 2016 through December 31, 2016.

WM Curbside has stated the JPA will be facing a significant rate increase because the rate charged to the SBWMA is significantly lower than what is charged to other California jurisdictions. For example, San Ramon’s rate in 2016 will be \$0.74 per single-family dwelling, per month vs. \$0.42 for the SBWMA. As a result, the

company intends to increase the JPA's rate for the program to be in alignment with rates charged to other communities starting in 2017 after expiration of the current agreement.

The program was rolled out initially to the cities of Belmont, Hillsborough, San Carlos and San Mateo in May 2010, and all other Member Agencies have since joined, with the Town of Atherton and the City of Redwood City as the remaining two who started the program on March 1, 2015.

3. Policies

Unlike other similar recycling and solid waste agencies, the JPA has historically not been an agency that has adopted policies or ordinances to promote higher diversion or change social behavior. Currently the only ordinance adopted by the SBWMA Board of Directors is SBWMA Ordinance No. 002 – Commercial Recycling Reporting Requirements, which went into effect on January 1, 2015. The ordinance requires businesses that back haul recyclable materials, and haulers, brokers and other entities that provide recycling collection services to businesses in the SBWMA service area to report recycling data (i.e., weight information on the types of recyclables collected by city) to the JPA on a quarterly basis starting in 2015. Prior to the ordinance's passage, the JPA only received information from Recology as the franchised hauler. This data will be used to help determine a more comprehensive diversion rate for the commercial sector, to evaluate whether additional recycling programs are needed and to assist the Member Agencies with compliance with State laws related to waste reduction and recycling.

The JPA did enact a policy early on as it related to prohibiting the use of yard trimmings as alternative daily cover. This provision was amended into the Shoreway Operations Agreement with BFI/Allied Waste in 2002. This policy was adopted by the State of California with passage of AB 1594 in 2014.

SECTION 3



WASTE REDUCTION, RECYCLING AND COMPOSTING POLICIES, PROGRAMS AND SHOREWAY INFRASTRUCTURE

3. Waste Reduction, Recycling and Composting Policies, Programs and Shoreway Infrastructure

A. Overview

1. Collection and Processing Systems Overview

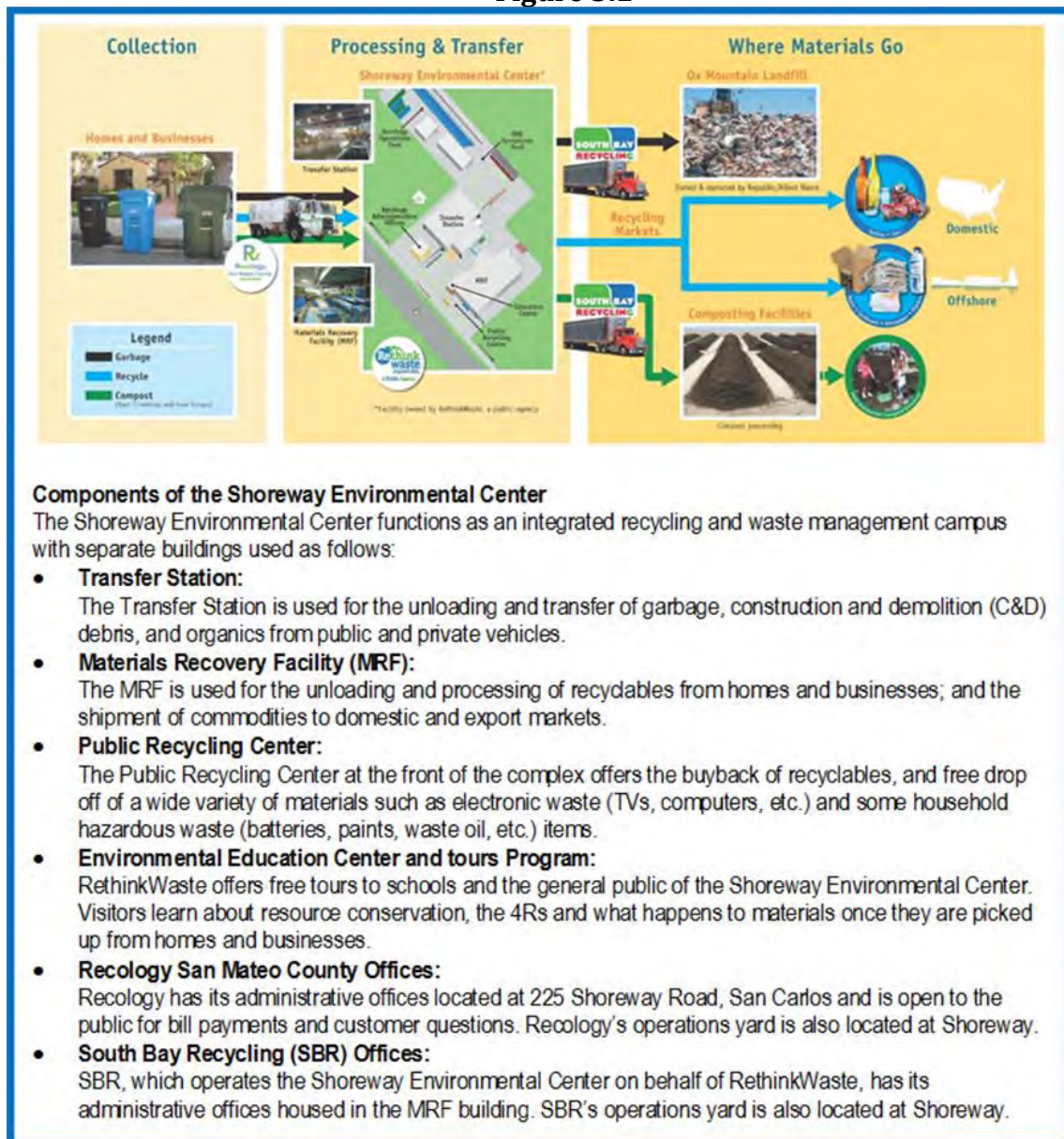


The RethinkWaste-owned Shoreway Environmental Center serves as a regional solid waste and recycling facility for receiving, handling and transferring of recyclables, organics and garbage. The 16-acre integrated campus (see Figure 3.1 on the next page) includes the following buildings and uses: Transfer Station, Materials Recovery Facility (MRF), Public Recycling Center, Environmental Education Center, Recology San Mateo County administrative offices and corporation yard, vehicle fueling stations, and SBR offices. The JPA, as the Shoreway facility owner and landlord, is responsible for all facility capital projects and ongoing maintenance of the facility, including nearly 200,000 square feet of building space and \$17 million of SBWMA owned materials processing equipment.

Recology occupies approximately six to seven acres of the 16-acre Shoreway Environmental Center which is used as its base of operations for the franchised collection services provided to the twelve RethinkWaste Member Agencies. The Recology administration office building and corporation yard buildings and ancillary areas are owned by the JPA and leased back to Recology via a License Agreement (trucks, other rolling stock, maintenance supplies and tools are provided by Recology). The rest of the Shoreway Environmental Center is occupied by the materials handling facilities which include the MRF, transfer station, scale house and Public Recycling Center which are all operated by SBR. Residential and commercial solid waste, recyclable materials and organics that are collected by the franchised hauler (Recology) are taken to Shoreway for processing, staging and shipment to offsite processors and end markets. In addition to the facility operations, SBR runs 22 long haul tractor-trailers to transport garbage, organic materials, and C&D to offsite processing and/or disposal facilities. As with Recology's Franchise Agreements, SBR's Operations Agreement with the JPA extends through December 31, 2020.

RethinkWaste purchased the Shoreway facility in March 2000 from BFI Waste Systems of North America for \$20 million with such debt retired in 2008. Groundbreaking on a \$46 million master plan capital improvement project to transform the outdated facility into the new Shoreway Environmental Center took place in December 2008 with a grand opening held on September 27, 2011. The capital improvements provided the necessary infrastructure for the new franchised collection programs rolled out on January 1, 2011 and replaced inefficient site operations.

Figure 3.1



All twelve Member Agencies participated in the RethinkWaste-led competitive procurement request for proposals (RFP) process which resulted in each Agency executing a ten-year Franchise Agreement with Recology San Mateo County, commencing January 1, 2011 through December 31, 2020. These Franchise Agreements provide the exclusive right for Recology to collect recyclables, organic materials and garbage from single-family dwelling (SFD) residential customers and garbage from commercial customers, which include multi-family dwellings (MFD), businesses and Member Agency facilities. Recyclables and organic materials are also collected from commercial customers on a non-exclusive basis. Recology utilizes a mix of collection vehicles which includes both automated (for carts) and semi-automated (for carts and bins) truck types, all collecting a single material (i.e., recyclables, organic materials or garbage). All materials collected by Recology are delivered to the RethinkWaste-owned Shoreway Environmental Center in San Carlos for recycling processing, transportation and disposal.

The franchised services also include an array of other appointment based or seasonal services that customers can use including but limited to:

- Twice annual on-call bulky item collection program
- Holiday tree collection
- Community events such as compost giveaway events, shred/e-scrap events, etc.

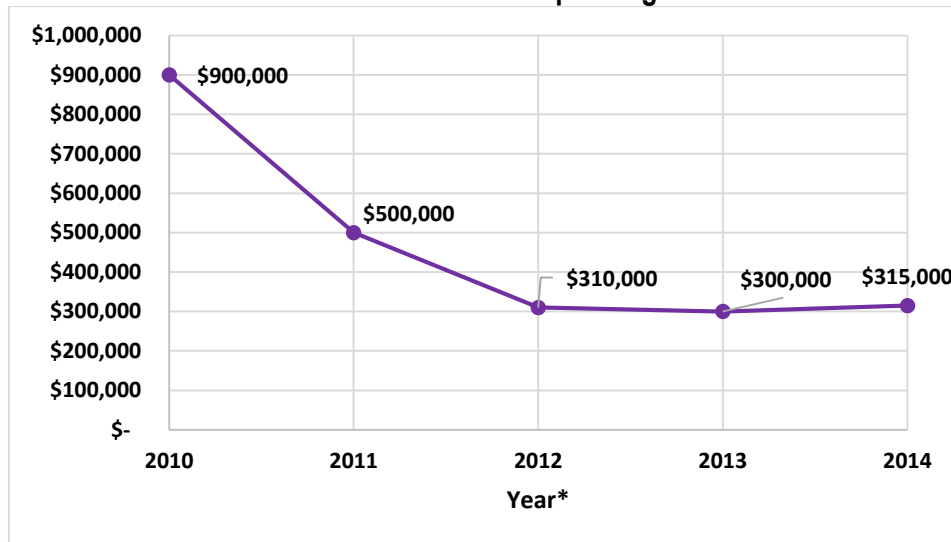
There are also “unscheduled” services provided for an additional fee that customers can subscribe to such as back-yard service, extra pick-ups, additional carts, container cleaning, etc. These services and the associated costs are detailed in Attachment Q (Unscheduled Services) to the Franchise Agreement.

RethinkWaste also manages a separate contract with At Your Door Special Collection (WM Curbside, LLC) to provide door-to-door collection of household hazardous waste (HHW) upon request from SFD and MFD customers. All twelve Member Agencies participate in the Door-to-Door HHW Collection Program as of March 1, 2015.

All of the above programs and services are supported by a robust, multi-faced public education and outreach effort focused on maximizing customer knowledge of and proper use of the services offered. This public education and outreach effort is managed primarily by RethinkWaste with Recology taking the lead only on direct technical assistance to help businesses set-up recycling and compost collection programs.

RethinkWaste has historically used, and continues to use, a multi-faceted and comprehensive approach to deliver messages to its customers based on survey results, benchmarking data and analysis of its efforts to ensure its effectiveness. This includes a combination of direct mail, newsletters, electronic media, social media, collection vehicle signs, website, and bill inserts, among others, for message delivery. **Table 3.1** on the following page shows the historical amount spent on all public education and outreach efforts from 2010-2014. The magnitude of service changes that were launched in 2011, primarily affecting single-family residential customers, resulted in the need for major outreach efforts to educate customers on the changes. This resulted in the significantly higher outreach costs in 2010 leading up to the program transition and carrying into 2011. The outreach costs were significantly reduced starting in 2012 and have stayed consistent as public education and outreach efforts have transitioned to ongoing maintenance of the existing programs.

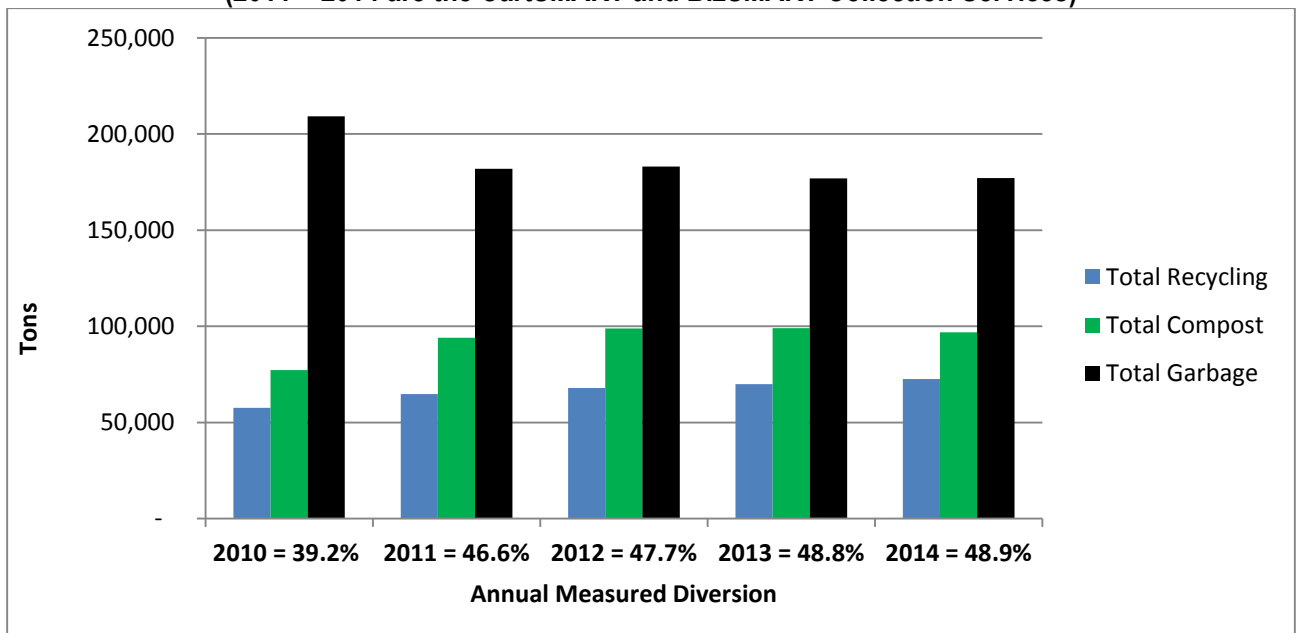
Table 3.1: Total Outreach Spending for 2010 – 2014



*RethinkWaste operates on a fiscal year budget. The amounts shown in the table are averaged to show costs on a calendar year basis.

Table 3.2 below shows annual tonnage data by material type (i.e., recycling, compost, garbage) and overall (inclusive of residential and commercial sectors) annual measured diversion rates from 2010-2014. Recycling and composting rates improved significantly with the rollout of new services in 2011 and small year over year improvements continue.

**Table 3.2: Total Franchised Collection Tons for 2010 – 2014
 (2011 – 2014 are the CartSMART and BizSMART Collection Services)**



*RethinkWaste will begin collecting non-franchise commercial diversion data in 2015 with the Board passage of the Commercial Recycling Reporting Ordinance in October 2014. This data will supplement the only currently available data on commercial recycling which is provided by Recology for franchised services.

2. Existing Collection Programs

a. CartSMART Residential Services

Approximately 93,000 SFD households (one to four living units) are provided weekly curbside recycle, compost and garbage collection services through the CartSMART residential program. Each household sets its materials out in wheeled carts (20, 32, 64 and 96 gallon) provided by Recology which are then collected by automated trucks. Recycling is single stream (commingled), and the compost program includes yard trimmings, food scraps and food- and beverage-soiled paper products. Used motor oil and motor oil filters, cell phones and household batteries are also collected curbside weekly by Recology.

Table 3.3 below captures the significant increase in diverted tons and measured diversion rate for the residential sector from 2010 to 2011 after rollout of the new franchised collection services. Since 2011 both tonnages and diversion rates have changed very little with an actual slight drop in the diversion rate from 2013 to 2014. In fact, only two of the 12 Member Agencies, Foster City and Hillsborough, experienced a very minor increase in their residential diversion rates from 2013 to 2014.

Residents are kept apprised of key service details (e.g., what materials should be placed in each cart) through an ongoing public outreach and education effort which includes regular communications such as a quarterly newsletter, bill inserts, posters, website postings, social media, collection vehicle signage and direct mail, among others.

**Table 3.3: Residential Franchised Collection Tons for 2010 – 2014
(2011-2014 is the CartSMART Collection Services)**

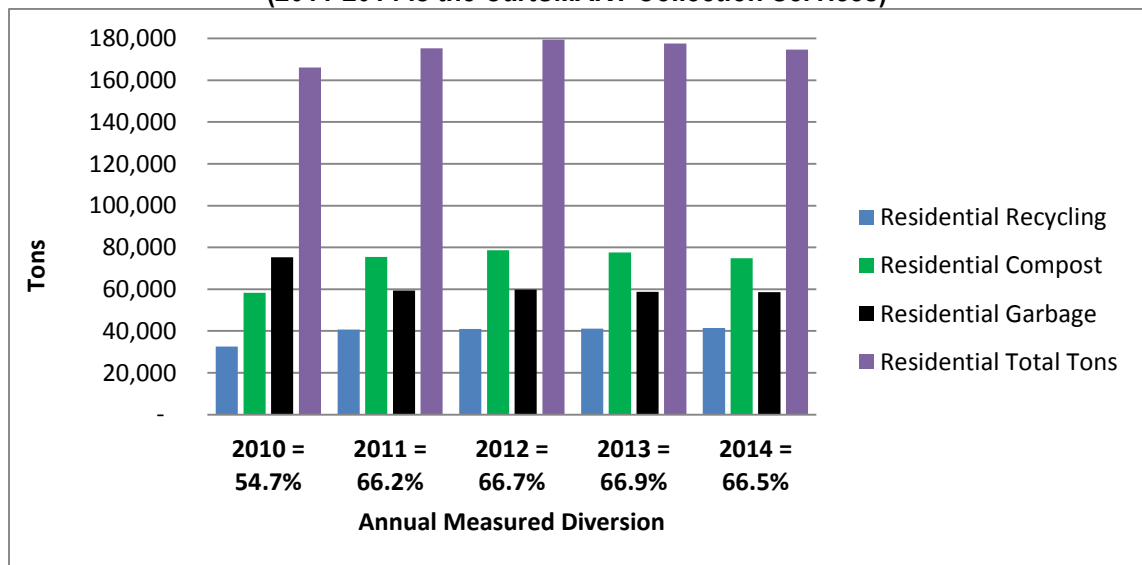
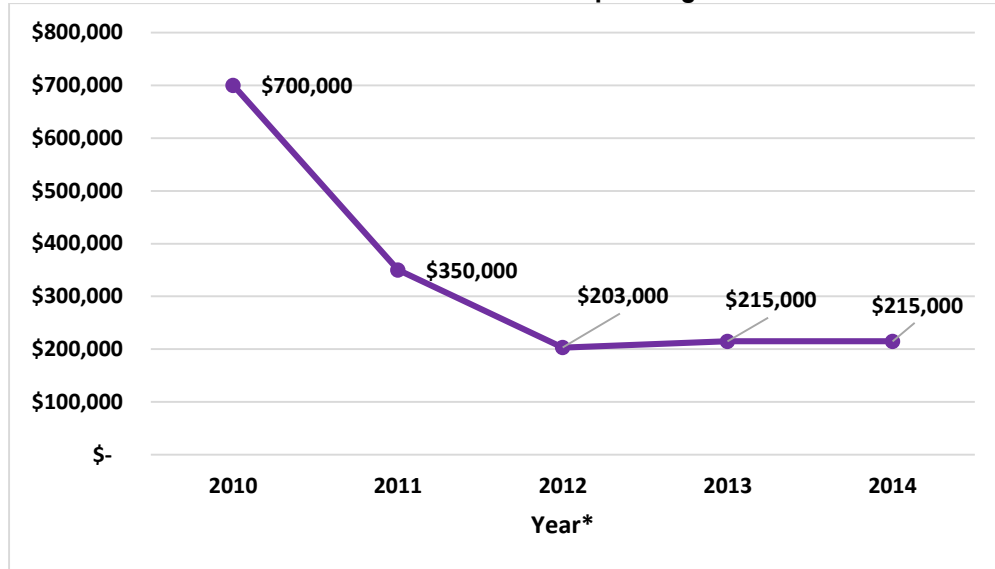


Table 3.4 on the following page shows the historical amount spent on the CartSMART residential public education and outreach efforts from 2010-2014. Again, the significantly higher costs in 2010 and 2011 are a result of the rollout of the new franchised collection services in 2011. Since the rollout, residential outreach costs have remained consistent but substantially below the 2010/2011 levels.

Table 3.4: CartSMART Residential Outreach Spending for 2010 – 2014

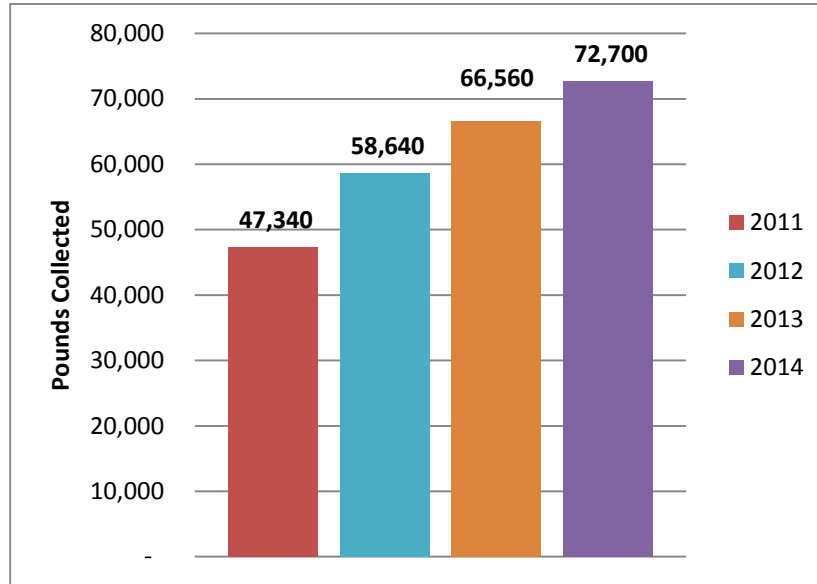


**RethinkWaste operates on a fiscal year budget. The amounts shown in the table are averaged to show costs on a calendar year basis.*

Program metrics such as diversion rates and participation rates are regularly monitored to track program results. Surveys have also been done periodically to further drill down on customer knowledge or awareness of the services offered. For example, through a 2012 Customer Satisfaction Survey of residents, it was discovered that residents were not very aware of certain services such as door-to-door HHW collection program, the twice annual on-call bulky item collection program, and the curbside collection of household batteries and cell phones.

Staff took the survey results and devised specific strategies to increase customer awareness and participation in these programs in 2013 and such efforts were largely successful. **Tables 3.5, 3.9 and 3.10** on the following pages show the historical trends of program participation in the curbside collection of household batteries and cell phones, the twice annual on-call bulky item collection program and the door-to-door HHW collection program, respectively. All three show a significant increase in participation following the focused outreach efforts in 2013.

**Table 3.5: Curbside Collection of Household Batteries and Cell Phones for 2011 – 2014
CartSMART Collection Services**



b. BizSMART Commercial Services (for businesses and multi-family dwellings)

Approximately 9,200 MFD (five or more units) complexes (totaling 45,000 units), businesses and Member Agency Facilities are provided recycle, compost and garbage collection services through the BizSMART commercial collection program. These customers subscribe to a minimum of weekly garbage collection in Recology provided carts or bins of various sizes. Recycle collection services is offered at no additional charge for customers who subscribe to the garbage collection services provided by Recology. Compost/plant materials collection is offered at a discounted rate that is 25% to 50% below the cost of garbage service depending on the Member Agency.

Also included in the BizSMART service is collection of Member Agency public containers located on streets and in parking lots and parks that are accessible for curbside collection. MFD complexes are also eligible for household battery and cell phone collection with their BizSMART carts or they can request a designated container to centralize collection.

Commercial Recycling Technical Assistance

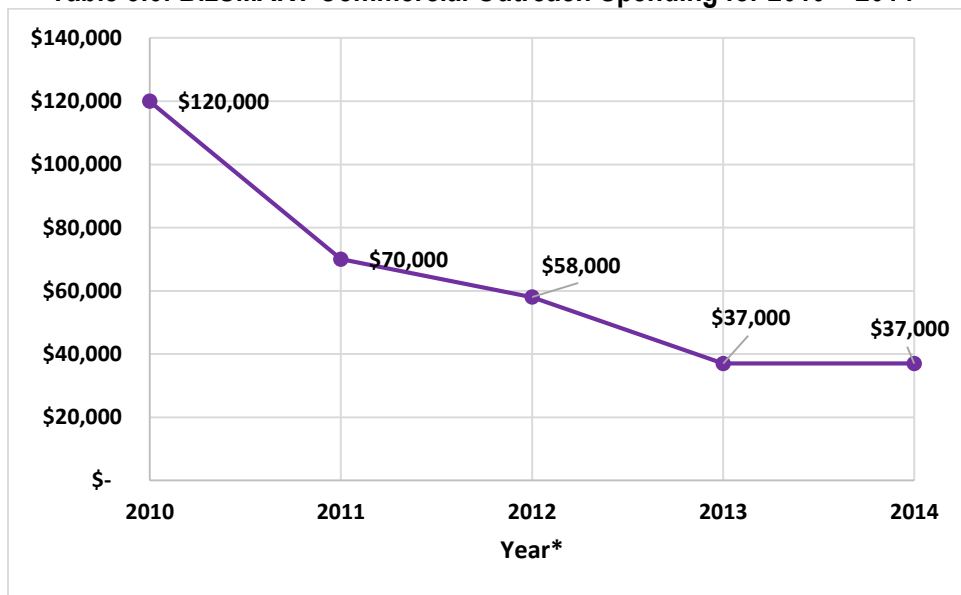
A key component of the BizSMART commercial services is the Franchise Agreement required commercial recycling outreach staff of nine full-time Recology employees to increase waste diversion. This team is exclusively dedicated to promoting the BizSMART collection services and providing technical assistance to all commercial customers, including MFDs and Member Agency Facility customers. The technical assistance includes on-site waste assessments, visual audits, and direct contact/meetings with customers to promote programs and services, and distribution of outreach materials and other assistance as needed.

RethinkWaste works closely with Recology to develop specific outreach tools (e.g., “buddy bags” and MFD toolkits to MFD complexes, posters, labels and other related collateral) and also provides internal containers to businesses (e.g., cardboard and plastic deskside recycling bins, “slim-jims” for recycling and

organics) and Member Agency Facilities. The cost for these items is included in the RethinkWaste annual budget and \$70,000 was included in the FY1415 budget.

Table 3.6 below shows the historical amount spent on public education and outreach for the commercial sector from 2010-2014. Again, the significantly higher spending in 2010 and 2011 are a result of the rollout of the new franchised collection services in 2011. Since the rollout, commercial outreach costs have remained consistent but substantially below the 2010/2011 levels. The majority of the ongoing outreach costs are primarily associated with the purchase of the “buddy bags” and internal containers.

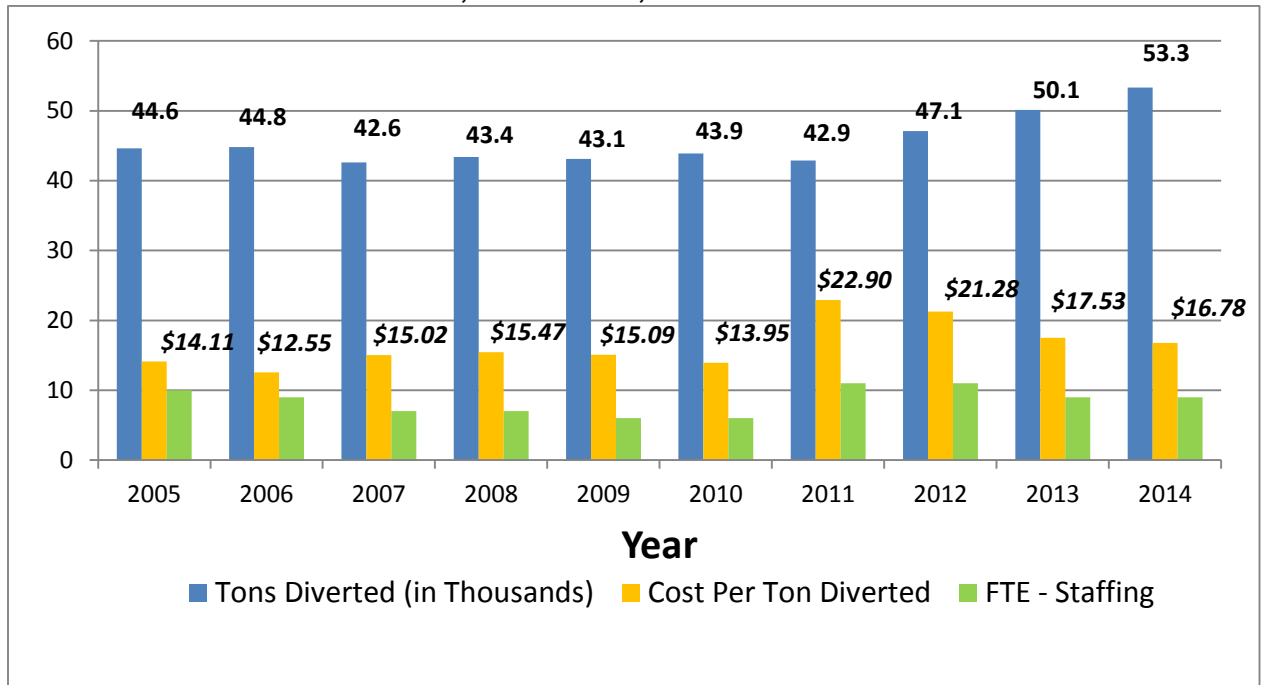
Table 3.6: BizSMART Commercial Outreach Spending for 2010 – 2014



**RethinkWaste operates on a fiscal year budget. The amounts shown in the table are averaged to show costs on a calendar year basis.*

Table 3.7 on the next page captures several key metrics for the commercial recycling outreach program over the past 10 years including: total tons diverted, SG&A (“sales, general and administrative”) cost per diverted ton, and staffing levels (for outreach staff). The cost per diverted ton figures shown in orange reflect the annual SG&A costs associated with the outreach program divided by the actual annual tons diverted. These SG&A costs went up significantly in 2011 with the much higher headcount levels with Recology, though staff negotiated with Recology for the elimination of two waste diversion auditor positions in 2013 so the costs are now more in line with historical figures.

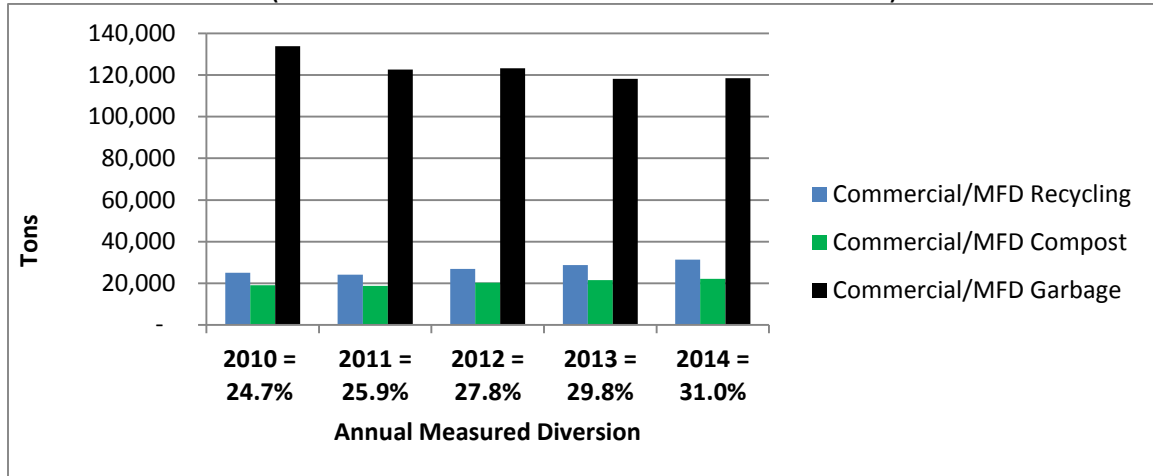
**Table 3.7: Franchised Commercial Outreach:
 Diverted Tons, Cost Per Ton, Headcount for 2005 - 2014**



Over time it appears headcount levels for outreach staff don't necessarily correlate with higher or lower diversion rates. It should be noted that Recology took over the commercial outreach effort from Allied in July 2010, six months before the rollout of new collection services. Recology's scope of services within the new franchised agreements included a "sales blitz" starting six months before the rollout to essentially reach out and contact all businesses that did not have recycling and/or compost collection services.

Table 3.8 on the following page provides additional details on the franchised commercial recycling outreach effort by showing the historical tonnage data for commercial customers broken out by material type and annual measured diversion rates from 2010-2014. While the overall measured commercial diversion rate has increased year-over-year since the launch of the BizSMART services in 2011, two-thirds of the materials being generated by this sector continue to be landfilled. However, two positive trends are that disposal continues to decline annually while the diversion rate increases. A reason for the increase in overall diversion is that while disposal is decreasing, recycling and compost collection remains stable or has increased slightly. Thus, the reduced disposal contributes significantly to the annual increase in diversion; however, there still remains considerable room for improvement in increasing both recycling and compost collection.

**Table 3.8: Commercial and Multi-Family Collection Tons for 2010 – 2014
 (2011 – 2014 is the BizSMART Collection Services)**



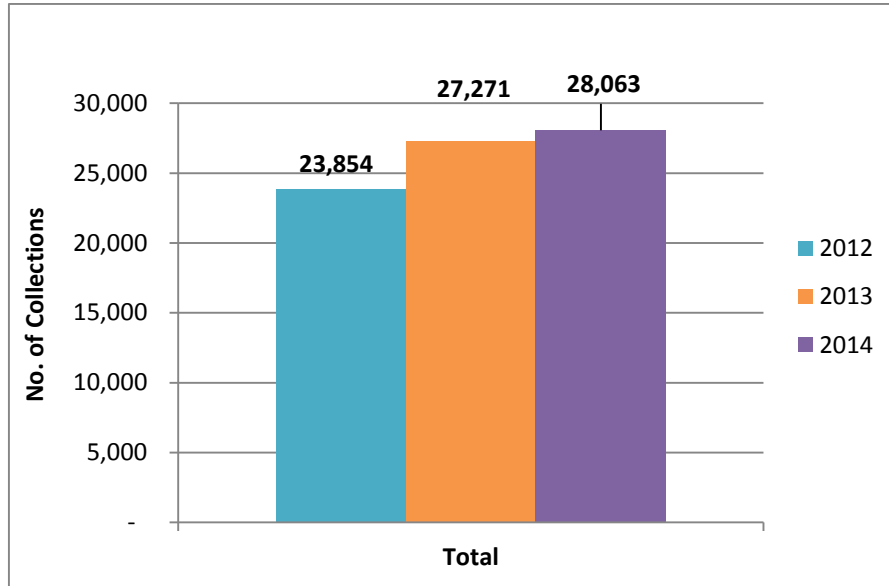
c. Beyond the Cart (other services)

In addition to the Recycle, Compost and Garbage collection services included in the CartSMART and BizSMART programs, SFD and MFD customers are provided the following services:

- Twice Annual On-Call Bulky Item Collection Program** – SFD residents contact Recology to schedule a recycling collection of large items such as mattresses or appliances, excess plant materials and wood, and to dispose of excess trash or bulky items. The twice annual service is provided between February 1 and December 31 and households are limited to the amount of materials they can set out each collection. MFD complexes are also eligible to schedule this service twice annually and the amount collected is based on the number of units. MFD property owners/managers must schedule the collection. In addition, Member Agency Facilities can receive this service annually upon request and the amount of materials collected is limited. Additional collections for SFDs, MFDs and Member Agency Facilities can be scheduled for a fee for service based on approved rates.

Table 3.9 on the next page shows the historical number of collections from 2012-2014, with a significant increase in 2013 due to the focused outreach efforts. The increased outreach efforts included adding a second bill insert to promote the program, regular inclusion in newsletters and promotion through social media.

**Table 3.9: On-Call Bulky Item Collection Program for 2012 – 2104
 CartSMART Collection Services**

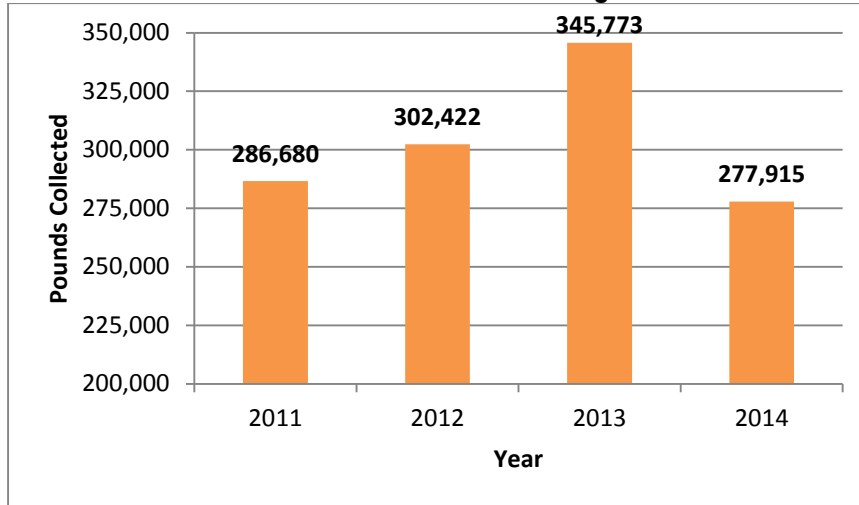


*2011 data not available/provided by Recology.

- **Holiday Tree Collection** - Recology collects holiday trees curbside from SFD residential customers between December 26 and January 31 each year when placed adjacent to resident's green Compost cart. Trees up to eight feet in length can be set out, but all decorations and tree stands must be removed. Flocked trees are accepted. Multi-family complexes are provided holiday tree collection in bins or drop boxes per request of the property owner/manager at no additional cost.
- **Door-to-Door Household Hazardous Waste Collection** – All SFD and MFD residences are eligible for the Door-to-Door HHW Collection Program managed by RethinkWaste and provided by At Your Door Special Collection (WM Curbside, LLC). Residents can schedule this service throughout the year upon request.

Table 3.10 on the following page shows the historical number of pounds collected from 2011-2014, with a significant increase in 2013 due to the focused outreach efforts and including the City of Burlingame which increased the number of collections and pounds collected by approximately 15% from 2012. The drop in 2014 pounds are primarily attributable to three factors: 1) when initiating service in a community, we typically see a high level of participation given the extended outreach to that community; 2) residents participating for the first time contribute significant amounts of materials due to many residents storing their materials for a number of years and when this pent up demand is met, less items are set out going forward or residents have less need to schedule another appointment for a long time; and 3) reduced outreach efforts due to budgetary constraints during the first half of 2014 as RethinkWaste operates on a fiscal year budget. In addition, there is a lag time between when an outreach effort is initiated and when it has an impact due to how quickly thereafter appointments are made and when the material is collected.

Table 3.10: Door-to-Door HHW Collection Program for 2011 – 2014



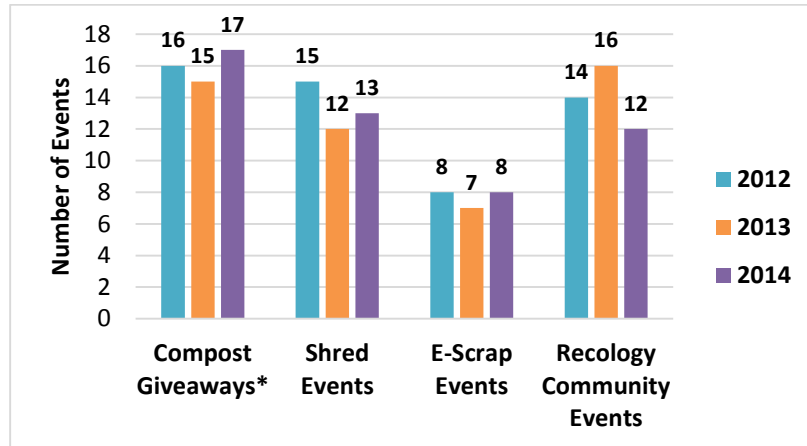
d. Community Events

The Franchise Agreements with Recology provide Member Agencies with compost giveaways, confidential document destruction and winter coat drive events and RethinkWaste organizes compost giveaway and shred/e-scrap events, as follows:

- **Compost Giveaway Events** – A Recology “Bring Your Own Bucket Event” is provided to each Member Agency annually at no additional charge. Member Agencies can also request to have additional compost giveaway events for a delivery fee. The compost provided by RethinkWaste at no additional cost for the giveaways is through the JPA’s organics processing contracts with BFI Newby Island and Recology-Grover Environmental Products.
- **Shred/E-Scrap Events** – Recology provides one Confidential Document Destruction Event annually for each Member Agency and additional events are provided for a fee. Upon request by a Member Agency, RethinkWaste organizes E-Scrap collection to coincide with the Shred Event.
- **Coats for Kids** – Recology provides an annual “Coats for Kids Program” to collect used winter coats curbside and at drop-off locations for a period of one to two weeks typically in the fall for donation to local non-profits organizations.

Table 3.11 on the following page shows the historical number of Community Events held from 2012-2014.

**Table 3.11: Community Events for 2012 – 2014
 CartSMART Collection Services**

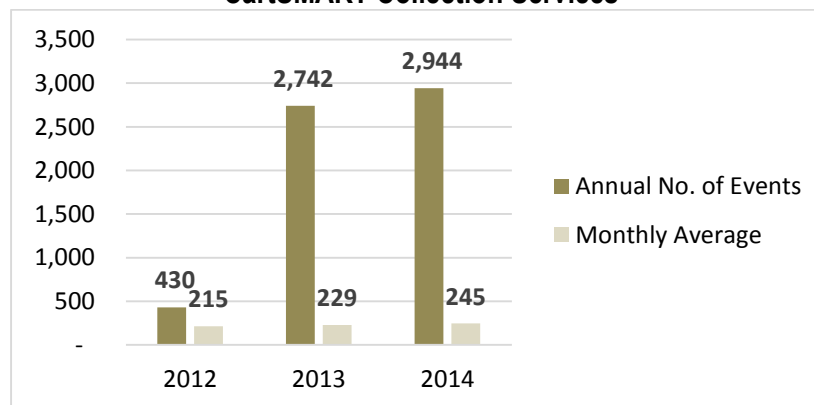


*Table does not include weekly compost giveaways held March-October annually by City of San Mateo.

e. Commercial/Businesses, Large Events and Member Agency Requested Specific Services

- Community Events** – Recology provides recycle, garbage and compost (if one or more cubic yard of compost material is generated per day at the venue or event) collection services for those events as specified in each Member Agency’s Franchise Agreement - Attachment C. Member Agencies can also request the staffing of a booth hosted by Recology for these events. RethinkWaste supplements Recology’s community events services by providing two trailers and 500 ClearStream® Recycle, Compost and Garbage containers owned by RethinkWaste. In addition, community groups, organizations and Member Agencies can also request the use of the ClearStreams for their events.
- Abandoned Waste Collection Services** – Recology collects abandoned or illegally dumped waste from public rights of way within 24 hours upon request from Member Agencies. **Table 3.12** below details the number of events for 2012-2014. Data was first reported in 2012.

**Table 3.12: Abandoned Waste Collection Events for 2012 – 2014
 CartSMART Collection Services**



3. Existing Processing and Transfer Infrastructure

a. Transfer Station

The Transfer Station is used for the unloading and transfer of garbage, yard trimmings and food waste (“organics”), C&D debris, and other materials from franchised (Recology) collection vehicles and public vehicles. Materials are consolidated and loaded into large transfer trailers for shipment to offsite processing and/or disposal sites. The north side of Transfer Station handles franchised collection vehicles and the south side of the building is used for the public loads.

Table 3.13 below shows the tons received into the Shoreway facility by large categories of materials (i.e., solid waste, organics, and recyclables) and in aggregate by disposal, diversion and total for the years of 2011-2014. Overall, facility tonnage has been increasing each year.

Table 3.13: Total Facility Tons 2011 - 2014

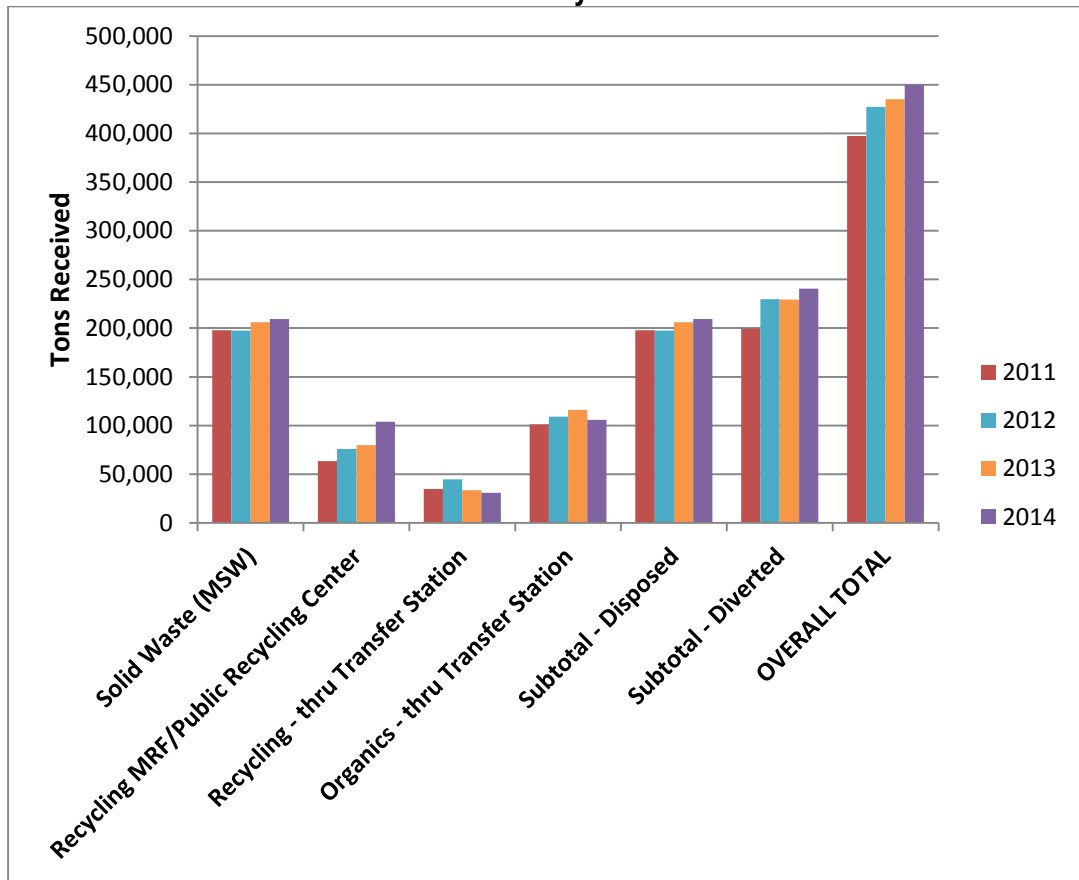


Table 3.14 on the following page takes the major categories of materials handled through the Transfer Station in 2014 and shows their end destinations and the respective mileage of each destination from the Shoreway facility.

Table 3.14: Transfer Station Material Destination

Material Type	Processor / Destination	Tons per Year	Distance from Shoreway
Inerts and C&D	Zanker Road Recovery	29,571	23 miles
Green/Organics	Recology-Grover	43,917	73 miles
Green/Organics	Newby Island	50,767	25 miles
Solid Waste	Ox Mountain Landfill	209,312	13 miles

To address operational efficiency and safety needs, significant improvements were made to the Transfer Station building during the 2011 master plan construction that included the following:

- Construction of a vehicle bridge across the tunnels and a north entrance to the tipping floor to provide more unloading space and easier access for franchise vehicles.
- Expansion of the public or self-haul side of the building by 15,000-sq. ft. to provide more space for customers to unload their vehicles.
- Construction of an equipment shop, office area, and employee restrooms to support the drivers and Transfer Station equipment operation.
- New building siding, installation of photovoltaics, new lighting, and the installation of translucent paneling on the walls and roof to improve the exterior aesthetics of the building and interior lighting to conserve energy.
- Refurbishment of the Transfer Station tunnels and tunnel scale system.

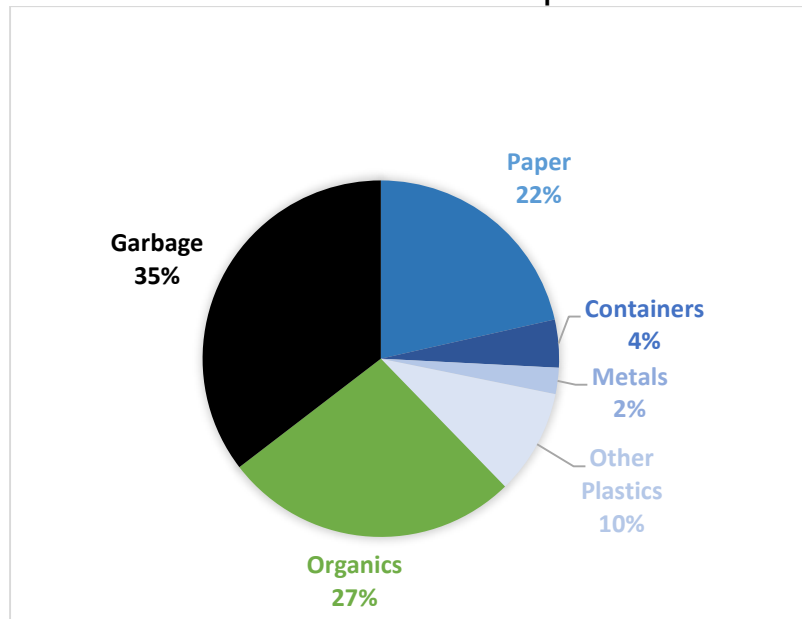


Master plan enhancements significantly improved the operations of the public side of the facility and improved traffic flow into the main floor area to make room for additional waste processing operations.

To better understand the composition of the waste materials being handled at the Transfer Station and to determine the potential for additional materials recovery, RethinkWaste conducted waste composition studies of the Commercial/MFD sector and SFD sector in February 2012 and November 2012 (the waste composition studies from the different sectors were combined to create an overall composition of the franchised garbage stream and the percentages of recyclable and organic materials to create **Table 3.15** on the following page). Based on the data obtained from these studies, staff has identified a significant opportunity for additional diversion through a mixed waste processing system installed at the Transfer Station to recover the recyclable and organic materials remaining in the waste stream.

Mixed-waste processing systems are widely used throughout Europe, where by EU Directive, all waste must be processed for material recovery prior to disposal. Similar systems are gaining traction in California as municipalities and waste management companies work to gain greater diversion.

Table 3.15: RethinkWaste Waste Composition Studies



b. Materials Recovery Facility (MRF)

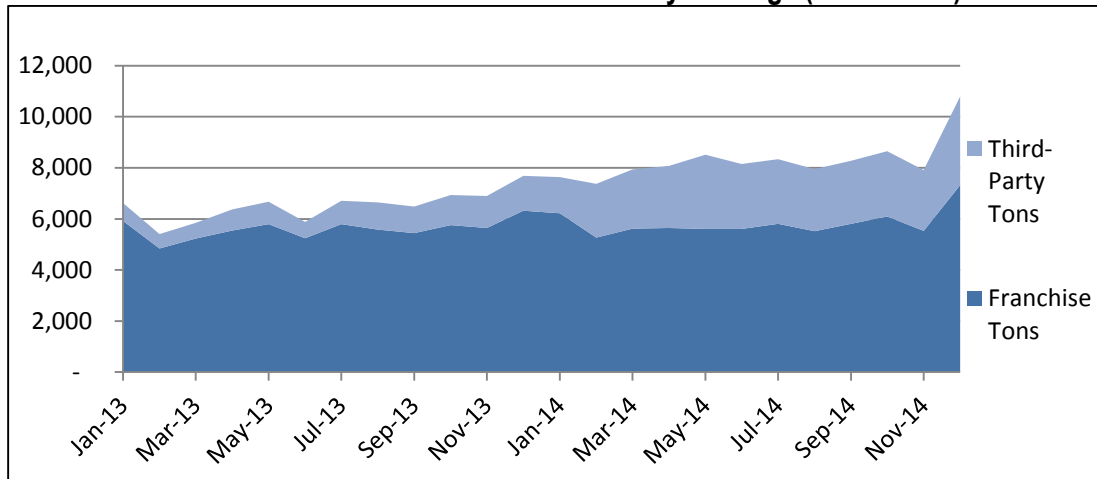
The MRF processes commingled recyclable materials collected by Recology from the RethinkWaste service area and “third-party” recyclable materials from cities outside the service area. The 70,200 square-foot building houses a \$17 million state-of-the-art single stream (commingled) processing system designed and installed by Bulk Handling Systems (BHS). The sorting system uses mechanical separation technologies to cost effectively separate the mixed recyclable materials for maximum recovery. The MRF has separate tipping areas and processing lines for residential and commercial recyclables which are processed using a series of conveyors, screens, magnets and optical sorters to separate paper (fiber) from containers that are further sorted into newspaper, mixed paper, cardboard, glass, aluminum, tin and plastics. In addition to the mechanical sorting, sort-line workers from the San Mateo County’s Vocational Rehabilitation Services program work to clean the recyclables to the standards of the commodity buyers.



The MRF sorting equipment is relatively new and there have been no major equipment failures since the system began operations in 2011. In addition to the regular preventative maintenance provided by SBR to keep the system at peak performance, BHS provides quarterly equipment maintenance through a long-term maintenance contract that was purchased with the system. As the site and equipment owner, SBWMA staff provide regular inspections to ensure that the Agency’s assets are well maintained by SBR. In anticipation of some of the system’s components wearing out, the SBWMA maintains an equipment replacement reserve fund to pay for equipment replacement over the remaining life of the system.

The MRF was designed to process all of the recyclables from the SBWMA service area in one shift of operation. As is shown in **Table 3.16** below, the tonnage processed by the MRF has increased approximately 25% or 100 tons per day from additional third-party tons (materials from outside of the service area processed at the MRF in exchange for host fee payments to the SBWMA). To process the additional tonnage at the MRF, SBR added a second processing shift in 2014. Host fee payments to the SBWMA for each ton processed have generated approximately \$525,000 in additional revenues over the 2013-2014 time period.

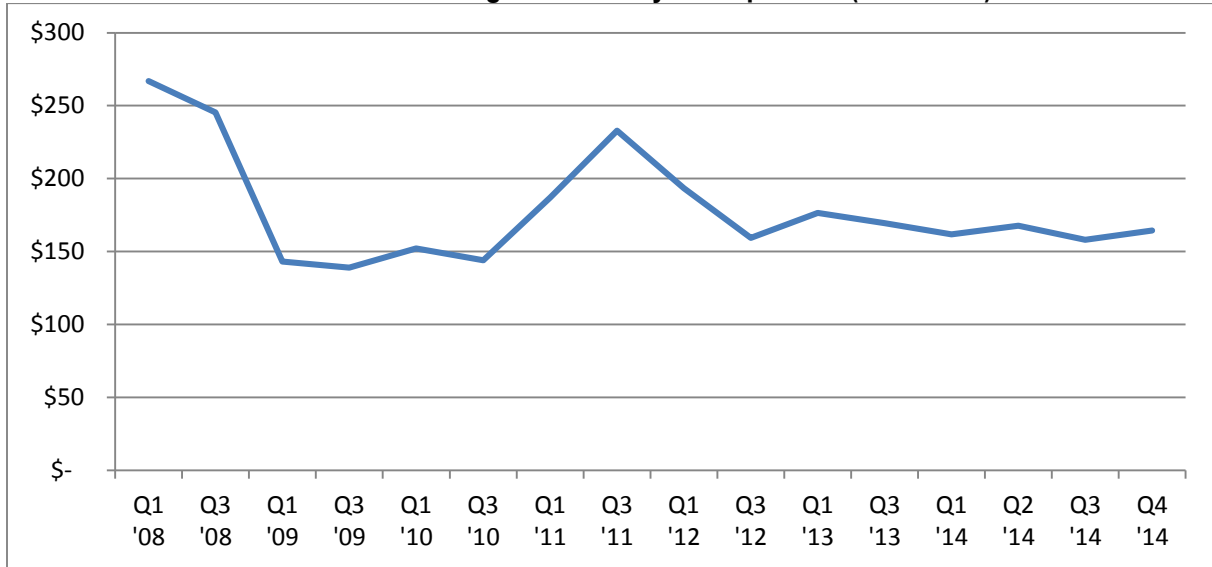
Table 3.16: MRF Franchise and Third Party Tonnage (2013 - 2014)



While the host fees provide a financial benefit to the SBWMA, the additional third party tons have exceeded the building’s material storage space, specifically, the tipping area is undersized for the extra trucks and additional inbound material. To address this issue, the Board has approved a capital budget with funds in FY1415 to complete a MRF tipping area extension construction project which will add 2,720 square feet to the building and is expected to be completed in 2015.

The SBWMA relies on SBR to market the commodities that are sorted from the mixture of residential and commercial recyclable materials. The commodities are traded on international commodity markets with most of the material being sold for use by manufactures in China. As illustrated by **Table 3.17** on the following page, commodity revenues tend to fluctuate based on market supply and demand as well as geopolitical influences, policy changes in host countries, shipping costs and petroleum prices. There are several mechanisms in place to mitigate dramatic swings in commodity pricing, namely: 1) the Operations Agreement has a commodity revenue guaranty of \$5.55 million dollars per year (the amount that SBR is obligated to pay the SBWMA each year as a “floor price” for commodities sold from Shoreway); 2) the commodity revenue share; and, 3) the SBWMA maintains a rate stabilization fund to mitigate dramatic commodity fluctuations (the SBWMA tapped this reserve as recently as 2008 when there was a worldwide drop in commodity pricing).

Table 3.17: Average Commodity Price per Ton (2008-2014)



Under the terms of the Operating Agreement, the revenues from the sales of the recyclable commodities are shared between the SBWMA and SBR 73% and 27% respectively. The commodity share structure is a component of SBR's overall income and serves as an incentive for SBR to maintain high diversion and high commodity sales prices. The commodity revenues received by the SBWMA are used to offset the cost of materials handling at Shoreway and the provision of other SBWMA services. **Tables 3.18** and **3.19** below provide a summary of the tons processed at the MRF in 2014 and the associated commodity revenues.

Table 3.18: 2014 Total Tons by Commodity

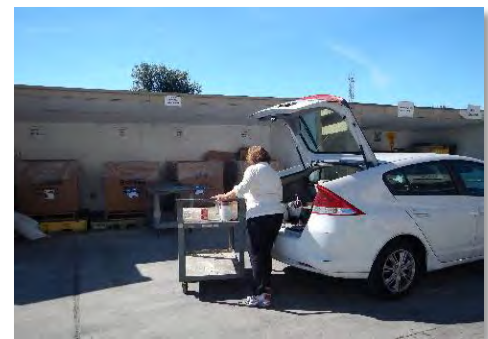
Material Type	Tons
CONTAINERS	
Total Tons - CONTAINERS	18,249
FIBERS	
Total Tons - FIBERS	47,083
OVERALL TONS	65,332

Table 3.19: 2014 Total Revenue by Commodity

Material Type	Revenue
CONTAINERS	
Total Revenue - CONTAINERS	\$5,476,919
FIBERS	
Total Revenue - FIBERS	\$5,434,779
OVERALL REVENUE	\$10,911,697

c. Public Recycling Center

One of the unique features of the Shoreway Environmental Center is its redesigned Public Recycling Center (PRC). The PRC was rebuilt in 2011 to be easily accessible to the public and provides both a free drop-off area and a buy-back area where customers can recycle such items as cardboard, scrap metal, electronics, household cooking oil, sharps, and fluorescent tubes, as well as get paid for CRV containers and cardboard. The PRC is where RethinkWaste service area residents can recycle many



household items that are not collected as part of the curbside recycling or the HHW collection programs. The PRC is located in front of the MRF with its own entrance and exit that provides the public a safe and convenient recycling experience. In 2014, the PRC took in over 3,000 tons of materials that might otherwise have gone to landfill.

d. Environmental Education Center and Tours Program

At the LEED® Gold certified Shoreway Environmental Center, the SBWMA operates an award-winning environmental education program that offers indoor and outdoor educational features to teach school children and the general public about waste reduction, recycling, and composting and more broadly about resource conservation practices (e.g., visitors learn about conservation practices related to waste, water and energy). The indoor Environmental Education Center consists of museum-quality exhibits, reuse art, a talking robot and an educational classroom (called the Rethinker Room). The outdoor environmental education area includes a large solar installation, 10,000 gallon rainwater harvest tank and rainwater garden, water and energy conservation exhibits, garden and composting demonstration areas, and a covered area with tables and benches made from reclaimed wood and old tires.





These indoor and outdoor features take center stage in tours conducted by the environmental education staff; local school children and the general public experience firsthand what happens to their garbage, recyclables, yard trimmings and food scraps once they are collected and delivered to the Shoreway facility. In tours through the MRF and Transfer Station, visitors walk through the active operational areas in a safe manner. Children and adults alike come away amazed by the grand scale of the recycling operations and in seeing how their bottles, cans and paper are separated and prepared for sale. All visitors learn how to best participate in the CartSMART and BizSMART recycling and compost collection programs.

Tours for school children are designed to engage students and increase their knowledge through active learning experiences. The curriculum goal is to educate kids in resource conservation and 4Rs (Reduce, Reuse, Recycle and Rot/Composting) behaviors so that they will be empowered to conserve resources in their lives and practice recycling at their schools and residences. The tour activities are based on best practices in environmental education and provide connections to the California State Common Core Standards.

After the Shoreway facility tours, RethinkWaste staff provide teachers with a post tour packet that includes a lesson plan, reflection worksheet, post-tour surveys, a pledge to reduce waste and some fun facts about Shoreway. Follow-up with teachers and post tour engagement is limited by staffing and time constraints.

As a testament to its popularity and success, the education center has hosted over 16,000 visitors (see **Table 3.20** below) in its first three years (2012-2014) of operation.

Table 3.20: Shoreway Tour Visitors

	2012	2013	2014	Total
Public Tour Participants	690	1,216	1,496	3,402
School Participants	4,215	4,819	3,948	12,982
Total Tour Participants	4,905	6,035	5,444	16,384

The tour program has also touched a large percentage of schools, in our target age range of 4th to 6th grades, with at least one class attending from 72% of elementary schools and 51% of middle schools in San Mateo County.

Staff is also proud to share that when the environmental education program was benchmarked against five other successful programs, our tour program component was the most productive in terms of number of

tours conducted per year and tours conducted per staff person. **Tables 3.21 and 3.22** below are for tours conducted in 2013 and this data was included in a benchmarking staff report provided in the May 22, 2014 Board packet.

Table 3.21: Shoreway Tour Program Comparison

<u>Organization</u>	<u>Program Age (Years)</u>	<u>Tours/Year</u>
RethinkWaste	2	232
StopWaste (JPA in Alameda County)	19	225
Marin Sanitary Service (private company)	23	110
EcoCycle (nonprofit, Boulder County, CO)	27	100
SF Environment (San Francisco Dept. of Environment)	15	78
Recyclemore (Contra Costa County)	15	39

Table 3.22: Shoreway Tour Program Staffing Comparisons

<u>Organization</u>	<u># of FTEs</u>	<u>Program Statistics</u>		<u>Tours/FTE</u>
		<u># of Tours</u>	<u># of Visitors</u>	
RethinkWaste	1.8	232	6,072	129
SF Environment	0.7	78	2,367	111
Marin Sanitary	1	110	3,407	110
StopWaste	3.73	225	9,000	60
Recyclemore	1	39	1,191	39
Ecocycle*	6	100	2,500	17

*Ecocycle conducts 1500 in-classroom presentations to 45,000 students within the same program budget.

Community Engagement Enhancements

RethinkWaste has made incremental but meaningful enhancements since the launch of our environmental education program in January 2012 to include educational outreach programs such as:

- Annual “Earth Day” event held in April each year since 2012. The event includes informational booths, music, food, arts and crafts, games, tours, free compost, and lots more. Over 750 people have attended this event over the past three years.



- Annual “Trash-to-Art Contest” for 4th-6th grade classes in which 30 classes have participated since the program was launched in 2013.

- Free School Compost Giveaway program where schools can receive up to five 50-pound bags of compost for a school garden project, or up to 20 cubic yards for a landscaping project. Since the program was launched in February 2013, a total of 35 bags and 95 cubic yards have been donated.
- The Night@Shoreway event where community groups get a “behind the scenes” night tour of the Shoreway Environmental Center and participate in fun learning activities. Three events have been held since this program was launched in November 2013.
- RethinkWaste, in collaboration with RecycleWorks San Mateo County and TechShop, held its first Fixit Clinic on July 26, 2014 from 11 am to 2 pm at the Shoreway Environmental Center. The general public was invited to bring their broken, non-functioning items such as electronics, small household appliances, computers, electronic toys and other items for assessment, disassembly and possibly repair. Fixit coaches were on hand to help disassemble and troubleshoot items. 100 people attended the workshop. (72% of the items were diagnosed and/or fixed.)
- An America Recycles Day Poster Contest launched in November 2014 to 3rd-6th grade students with the theme, “Rethink Waste – This Is How I Recycle!” Staff received over 200 posters from 20 schools by the December 19, 2014 deadline.



e. Other Buildings and Site Infrastructure

Administrative and Support Buildings

With the exception of the MRF and the Transfer Station improvements, the other buildings (occupied by Recology administrative staff, truck shop, container shop, and dispatch) were built prior to 1980. These buildings include a 10,000 sq. ft. administrative building and approximately 20,000 sq. ft. of maintenance buildings, driver, dispatch, and storage areas. The areas are generally unimproved since their original construction and because of their age and heavy use, require frequent maintenance and upkeep by the SBWMA. In general, the spaces meet Recology’s current needs and no major building capital projects are anticipated based on Recology needs.

(Due to the SBWMA considering installation of a mixed waste processing system in the northern portion of the Transfer Station, and the JPA’s interest in having office and public meeting space at Shoreway, the existing Recology administration building could be impacted. One option being considered includes expanding the Transfer Station westward to provide a mix of operational space, office space and public meeting space and relocating the Recology administrative building behind the Transfer Station.)

Fuel Storage and Dispensing System

Combined, all of Recology's and SBR's trucks consume an average of one million gallons of diesel fuel per year. This fuel is stored and dispensed from an onsite fuel station that is comprised of three 15,000 gallon underground storage tanks (USTs), one primary dispensing island and a satellite dispenser used by SBR. The USTs are single wall fiberglass that were installed in 1980 and are not compliant with current tank code. Except for the fuel monitoring software program that was installed by Recology in 2011, the fuel dispensing system is antiquated and in poor condition. While JPA staff has recommended the removal of these dispensers and tanks and replacing them with above ground storage tanks to reduce the risk for ground water contamination, staff is now in the process of assessing the potential largely to replace diesel fuel with compressed natural gas (CNG).

Traffic Flow, and Vehicle Safety and Parking

Traffic safety, back up at the facility scales, and efficient vehicle flow were major problems of the old facility and have been effectively eliminated through the Shoreway master plan construction improvements. By relocating the scales and providing ample onsite vehicle stacking before the scales, the overflow of traffic onto Shoreway Road has been eliminated and waiting times have been reduced for collection and public vehicles. Also, onsite vehicle traffic flow and safety has been improved by creating clear lanes of travel for vehicles traveling to the different areas of the site. Public safety was also improved with the expansion of the Transfer Station to provide a separate area for small, public self-haul vehicles away from large commercial collection trucks.

Due to space constraints at the Shoreway site, vehicle parking is a challenge. The parking needs for daily operations include parking for 120 collection vehicles, 22 tractor trailers, and over 200 personnel vehicles. There is limited visitor / tour parking at the front of the MRF building and this is easily overwhelmed by large groups or meetings at the site. All future planning for the site will need to carefully consider the impact on parking and the potential for seeking off-site parking.

B. Assessment of Policies, Programs and Shoreway Infrastructure Enhancements

The previous section consisted of an inventory of the existing programs and infrastructure to help identify if any program and service enhancements are needed in the future. Meetings with Recology and South Bay Recycling (SBR) were held on September 10, 2014 and September 23, 2014; and the SBWMA's Technical Advisory Committee (TAC) on October 9, 2014 to obtain their feedback on whether existing programs and infrastructure should be kept as-is, changed or eliminated. SBWMA staff also worked with technical consultants to evaluate the existing programs and infrastructure and any proposed enhancements. The Board-approved Long Range Plan Guiding Principles were used as the primary criteria to make the determinations on program and service enhancements. Therefore, the considerations in selecting program and service enhancements included:

- meeting the State's 75% recycling goal by 2020;
- making sure product quality and end-market considerations reflect economic considerations;
- leveraging existing infrastructure and investment;
- programs that address any existing service voids or deficiencies;
- cost-effective and efficient programs; and,
- programs/services recommended by Recology and SBR.

Follow-up meetings and discussions with Recology continued through February 2015 on their recommendations, including using split-body collection vehicles for residential service and ongoing outreach and education for commercial customers to determine operational efficiencies, costs and diversion impacts.

Table 3.23 on the following page summarizes the enhancements and new programs recommended for evaluation and consideration, and the subsequent **Section 4** of this Plan provides a more detailed review of the identified programs, service needs and enhancements.

Table 3.23

Name/Title	Existing Program/Infrastructure	Proposed Enhancement	Guiding Principle
COLLECTION PROGRAMS AND POLICY			
Compressed Natural Gas (CNG) Fleet Conversion Project	The Recology collection fleet currently runs on B5 biodiesel fuel (i.e., 5% biodiesel and 95% ultra-low sulfur diesel diesel).	The fuel used to run the collection fleet will be changed to compressed natural gas.	<ul style="list-style-type: none"> • Reduce collection fleet emissions • Provide cost-effective and efficient programs • Invest in new, safe technologies and processes for infrastructure
SFD Split-Body Collection Vehicle Pilot Project	The Recology collection fleet currently consists of single-compartment, fully automated collection vehicles.	Conduct a pilot project to study routing efficiencies using split-body collection vehicles.	<ul style="list-style-type: none"> • Ensure that program initiatives are convenient, accessible and appropriate • Provide cost-effective and efficient programs
SFD Every Other Week Garbage Collection Pilot Project	SFD residents currently have weekly garbage collection service.	Conduct a pilot project to study the cost effectiveness of collecting garbage every other week.	<ul style="list-style-type: none"> • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal • Increase and maximize participation in programs and services to reduce and reuse waste
Commercial Recycling Outreach Program Project	The Franchise Agreements with Recology fund a commercial recycling outreach program costing approximately \$800,000 per year and it can be refocused to target specific businesses.	Implement a metrics driven sales oriented approach to increase diversion coupled with enhanced public education and outreach efforts.	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
Public Spaces Recycling Pilot Program	There is currently no uniform program across the service area for recycling in public spaces such as parks, sports fields or downtowns.	Implement model public spaces recycling collection in a downtown area and a park setting.	<ul style="list-style-type: none"> • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
Enhanced Residential Public Education and Outreach Pilot Program	Current efforts are sector specific and primarily general with a focus on overall participation.	Conduct a pilot program focusing on cost-effective, measurable dedicated campaigns with incentives and new messaging/tools.	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
Mandatory Residential and Commercial Recycling Ordinance	There are no mandatory residential recycling requirements currently. Limited mandatory commercial requirements are in place through the State's AB 341 and San Carlos' ordinance only.	Develop a policy framework to implement mandatory recycling.	<ul style="list-style-type: none"> • Enhance public education to maximize participation • Promote behavior change through public education • Increase and maximize participation in programs and services to reduce and reuse waste • Provide cost-effective and efficient programs • Support local, state and national mandates, including meeting the State's 75% recycling goal
Organic Materials (Green Waste and Food Scraps) Disposal Ban	Can currently place organic materials in garbage for disposal.	Develop a policy framework to implement a Countywide ban on disposal of organic materials.	<ul style="list-style-type: none"> • JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities • Support local, state and national mandates, including meeting the State's 75% recycling goal • Ensure the highest and best use of recoverable materials and implications for end markets so programs are economically and environmentally sustainable
Extended Producer Responsibility (EPR) Policy Framework	The Board has not adopted a policy position on EPR and thus staff is unable to comment on or take a position on proposed legislation except on a case by case basis.	Establish a framework for Board consideration to facilitate supporting EPR legislation and policy.	<ul style="list-style-type: none"> • Support product stewardship policies and initiatives • Ensure the highest and best use of recoverable materials and implications for end markets so programs are economically and environmentally sustainable • Promote economic development where feasible

Name/Title	Existing Program/Infrastructure	Proposed Enhancement	Guiding Principle
SHOREWAY INFRASTRUCTURE			
Mixed Waste Processing in the Transfer Station	All garbage is directly hauled to the landfill and is not processed for additional recovery	Mixed waste processing system located at the Transfer Station to recover recyclables and organics. Recyclables to be processed further at onsite MRF. Organics to be transferred to SVCW for digestion and energy production.	<ul style="list-style-type: none"> Invest in new, safe technologies and processes for infrastructure Support local, state and national mandates, including meeting the State's 75% recycling goal Leverage existing infrastructure Develop and sustain strategic community partnerships
Shoreway Transfer Station Building Improvements	No processing of garbage.	Existing site and building layout will need to be altered to accommodate mixed waste processing system at Transfer Station.	<ul style="list-style-type: none"> Leverage existing infrastructure Provide cost-effective and efficient programs Reduce and mitigate landfill and other facility impacts Invest in new, safe technologies and processes for infrastructure JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
SBWMA Administrative Offices and Public Meeting Space	The SBWMA offices are located offsite and the JPA pays rent for office space.	Options for building SBWMA office space and public meeting space were researched and are presented.	<ul style="list-style-type: none"> Provide cost-effective and efficient programs Leverage existing infrastructure
MRF Single Stream Processing Equipment Replacement	Existing MRF single stream processing equipment operates two shifts per day Monday-Friday to process recyclables from franchise areas and non-franchise ("3 rd party") sources.	Need to replace specific equipment components due to intensive use since original installation in 2011.	<ul style="list-style-type: none"> Leverage existing infrastructure Provide cost-effective and efficient programs Reduce and mitigate landfill and other facility impacts Invest in new, safe technologies and processes for infrastructure JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
MRF Building Tipping Area Expansion	Existing MRF tipping area is undersized to receive all franchise and non-franchise tons resulting in additional operational expense to keep materials "pushed up" into building so compliant with site permits.	Existing identified and budgeted project to construct a MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to handle 3 rd party tonnage into MRF.	<ul style="list-style-type: none"> Leverage existing infrastructure Provide cost-effective and efficient programs JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities
Other Shoreway Infrastructure Improvements	Shoreway site issues include: antiquated diesel fuel system, deteriorating paving, and high energy costs.	Improvements include conversion to a CNG fueling system, improved paving and other enhancements promoting energy conservation.	<ul style="list-style-type: none"> Provide cost-effective and efficient programs Reduce and mitigate landfill and other facility impacts Invest in new, safe technologies and processes for infrastructure JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities Reduce collection fleet emissions
Environmental Education Center and Tour Program Enhancements	RethinkWaste is only minimally engaged in school or community based environmental education outside of the tour program.	Determine what additional components can be added to support educational efforts.	<ul style="list-style-type: none"> Enhance public education to maximize participation Promote behavior change through public education Increase and maximize participation in programs and services to reduce and reuse waste Provide cost-effective and efficient programs Develop and sustain strategic community partnerships Support local, state and national mandates, including meeting the State's 75% recycling goal

1. Collection Programs and Policies

The CartSMART, BizSMART and Beyond the Cart programs and services provide a wide array of opportunities for the RethinkWaste Member Agency’s customers to properly handle recyclables and discards. The implementation of these programs and services has resulted in increasing overall measured diversion service area wide from 39.2% to 48.9% and has also provided significant tangible benefits such as delivering a more robust and convenient system. The existing programs and services currently result in an overall measured diversion rate of 48.9%, which compares favorably to other Bay Area jurisdictions such as the cities of Fremont, and San Francisco as shown in **Table 3.24** below. However, the current 48.9% diversion rate is still well below the State’s 75% diversion goal by 2020 and the JPA’s 75% goal.

Table 3.24: Examples of Overall Diversion Rate

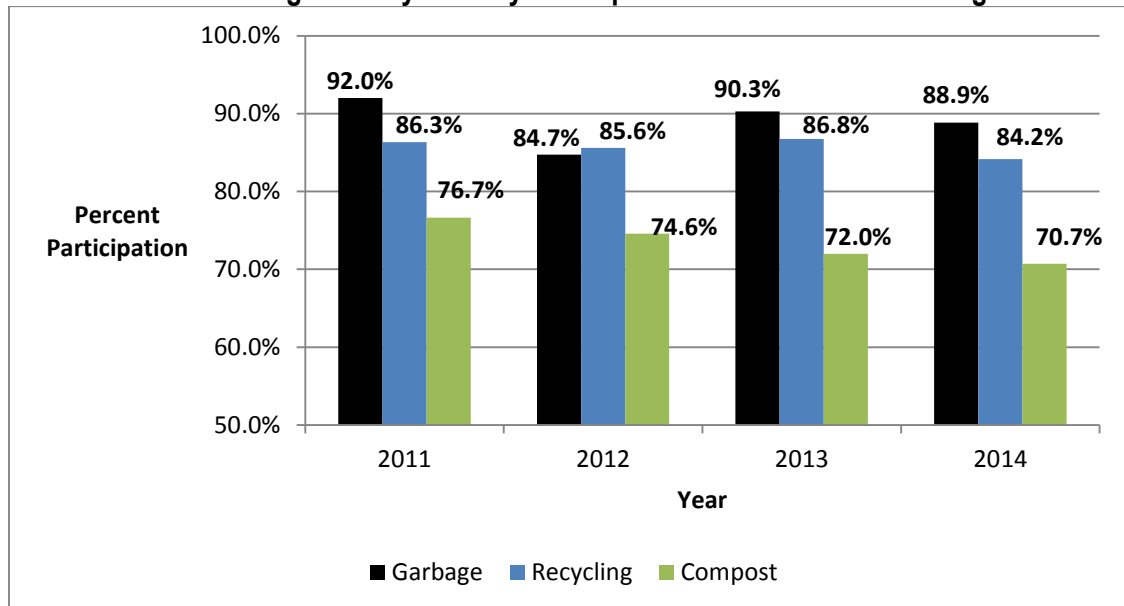
Agency	Overall Diversion Rate
SBWMA	48.9%
Fremont	33.7%
San Francisco	53.2%

With the Board approval of the Commercial Recycling Reporting ordinance, the JPA will begin obtaining non-franchise commercial diversion starting in the spring of 2015 which will likely significantly increase our overall measured diversion rate which only includes the materials collected through the Recology Franchise Agreements.

Analysis of Program Metrics

In order to identify opportunities for enhancing existing programs and services, specific program metrics were reviewed such as sector (e.g., residential, commercial, etc.) specific diversion rates, customer participation rates, and the types of materials (i.e., waste composition) that are being disposed. **Table 3.25** on the following page shows that monthly participation in the CartSMART residential services varies by material type collected. Garbage collection participation rates went down in 2012 but have remained steady over the past two years. Recycling participation has remained steady since 2011 with a small reduction in 2014; however, participation in the organics program has declined annually by approximately 2% each year.

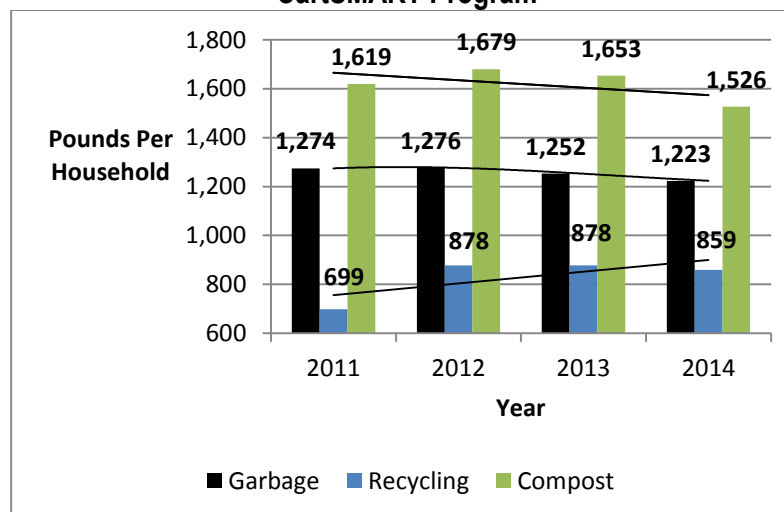
Table 3.25: Single-Family Monthly Participation in the CartSMART Program



¹The Monthly Participation Percent is based on the Route Assessment data compiled by Recology over a 4-week period in April/May each year and thus represents the percentage of homes that set out materials during these four weeks.

The amount of material generated by single-family households also varies by material type set-out (i.e., average amount of pounds set-out for collection over a specified period of time). As **Table 3.26** shows, garbage collection pounds set out on an annualized basis have remained steady with a small decrease shown from 2011 to 2014. Recycling pounds set out increased significantly in 2012 but has leveled off since and while organics set-outs remained stable from 2011-2013, they dropped slightly in 2014. Thus, it appears that customers are setting out less organics for collection which in-part can be attributed to the ongoing drought in recent years.

Table 3.26: Single-Family Annual Pounds per Household Set-Out in the CartSMART Program



In addition to looking at customer participation and set-out rates, it is also important to understand what percent of the materials targeted for diversion (i.e., recyclables and organics) are actually being diverted and what percent of recyclables and organic materials are still being disposed. **Table 3.27** provides this data by sector as determined by waste characterization studies recently conducted for each sector (refer to **Table 3.15**).

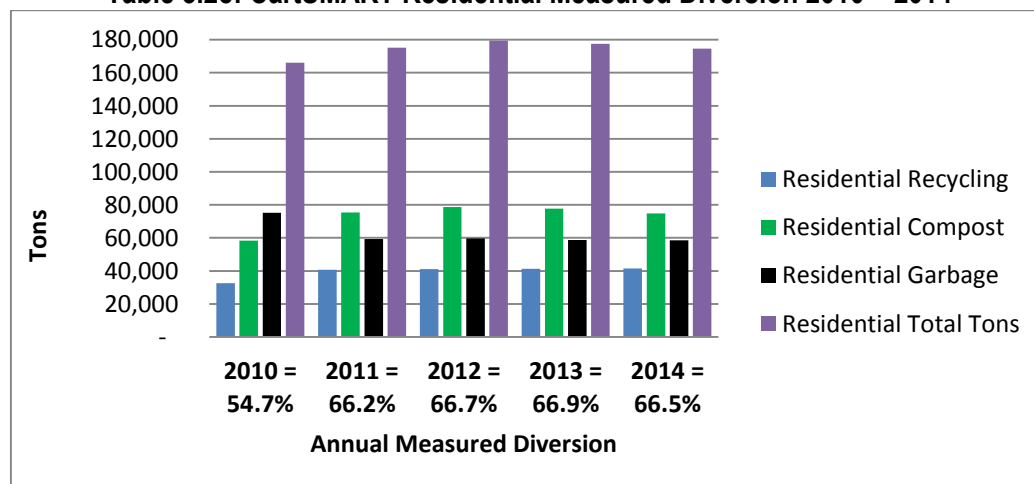
Table 3.27: Franchised Disposal Rates of Existing Recycle and Compost Programs

Sector	Percent of Material Disposed	
	Recycling Program Targeted Materials	Organics Program Targeted Materials
Single-Family Residential	28%	24%
Multi-Family Residential	59%	93%
Commercial	45%	54%

As the data in **Table 3.27** shows, there remains an opportunity to enhance residential diversion through a focus on increased recovery of recyclables and organic materials that could be diverted through the existing programs and services. The residential sector disposes of 28% of the targeted recycling materials and 24% of the compost materials. The MFD sector currently discards approximately 60% of the targeted recycling materials and over 90% of the organic materials. The commercial sector discards 45% of the recyclable materials and over 50% of the organic materials targeted for diversion. Therefore, there remains significant room for improvement in collecting the targeted recycling and organic materials.

In addition, while the start of the CartSMART services resulted in a significant increase in measured residential diversion in 2011, the measured diversion rate has remained fairly static since 2012 with 0.5% and 0.2% increases in 2012 and 2013, respectively, as shown in **Table 3.28** below.

Table 3.28: CartSMART Residential Measured Diversion 2010 – 2014



The diversion related effectiveness of the existing programs and services can be measured by assessing which additional quantities of targeted materials that are currently disposed are still available for recovery. In addition, the amount of disposal generated by each sector lends itself to determining the priorities in maximizing diversion from landfill. As the data in **Table 3.29** on the following page shows, the Commercial (47%) and MFD

(20%) sectors combined account for approximately 2/3 (i.e., 67%) of all franchised disposal, while the residential sector contributes 1/3 (i.e., 33%).

Table 3.29: Percentage of Disposal by Sector

Sector	Percent of Material Currently Disposed
Single-Family Residential	33%
Multi-Family Residential	20%
Commercial	47%
Total	100%

Another factor contributing to the volume and quality of recyclable materials set out for collection through both the BizSMART and CartSMART collection services programs is the amount of contamination of the targeted recyclable materials that is present. While there will always be some inherent contamination of materials due to the design of the collection system and customer behavior, the trend has been generally positive with regard to minimizing contamination through the collection services. **Table 3.30** below shows how for the first time the last three consecutive contamination sampling events (i.e., for 2013 and 2014) have resulted in Recology complying with collecting materials that meet the contractually allowable maximum contamination thresholds.

Table 3.30: Recology Contamination Sampling Compliance 2011 – 2014

Recology Contamination Sampling Compliance - Exceeding Allowable Contamination Threshold = "No"											
Material Category	Time Period (Year and Quarter)										
	2011				2012			2013		2014	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3/Q4 ¹	Q1/Q2	Q3/Q4	Q1/Q2	Q3/Q4
Commercial Recyclables	No	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Residential Recyclables	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Commercial Organics	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residential Organics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Commercial Plant	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

¹ The negotiated improvements to the Franchise Agreements and cost savings to the SBWMA in-part resulted in the SBWMA only conducting the contamination sampling procedure twice per year and applying the results from one quarters sampling to two quarters.

At a high level, what we see in the data captured in the above **Tables 3.24-3.30** is as follows:

- While we have a relatively high residential diversion rate of 66.5%, there remains opportunity to further increase participation and setout rates to divert more materials.
- The overall diversion rate has remained stable and while still below 50%, it will likely increase once the data obtained through implementing the commercial recycling reporting Ordinance is included.
- Multi-family continues as a unique challenge and opportunity for diversion improvement especially due to this sector's high rate of disposal of both recycling and compost materials.
- The commercial sector contributes the largest percentage by sector of garbage and approximately half of the recycling and compost materials targeted for recycling are recovered through the BizSMART program. Therefore, while the extent of improvement in recycling and compost collection services remains unknown until more recycling data is obtained from this sector, there appears to be considerable room for improvement in existing recycling and compost collection services.
- Public education and outreach is critically connected to the success of all the programs and affects participation and diversion.

- The Franchise Agreements and Shoreway Operations Agreement place a high priority on minimizing the collection of recyclables with high levels of contamination and compliance with collecting recyclables below the allowable contamination thresholds continues to trend positively. In addition, this trend of reduced contamination can also be attributed to the ongoing public education efforts as the messaging to residents consistently focuses on the proper separation and placement of materials in their containers.
- After experiencing a large increase in recycling with the implementation of the Recology services in 2011, the overall diversion rate has remained flat since with small percentage increases annually. This despite a continued drought resulting in an annual reduction in residential compost set-out participation.

Identified Programs and Service Needs and Enhancements

The following is an overview of the enhancements and new programs recommended for evaluation and consideration that are further detailed in the subsequent **Section 4** of this Plan.

Compressed Natural Gas (CNG) Fleet Conversion

Recology currently uses a 5% biodiesel fuel blend in their collection fleet. The current popularity of collection fleets conversion by other public and private haulers seems to indicate that (under current fuel pricing) Compressed Natural Gas (CNG) provides a less expensive long-term fueling option as well as greater environmental benefits through emission reductions compared to the currently used biodiesel blend. Staff is working with Recology and CNG vendors to collect the necessary information to prepare a detailed assessment.

SFD Split-Body Collection Vehicle Pilot Project

While single-compartment collection vehicles used by Recology to service single-family residents result in larger route sizes (more homes collected per route) and less trips to unload at the Shoreway Environmental Center, it does result in having three vehicles collect from each home. This has resulted in customer complaints to Recology about the number of vehicles that are in their neighborhoods. To potentially address this issue, Recology is recommending a pilot program utilizing split-body collection vehicles to co-collect the garbage and recycling at each home. This would result in two vehicles servicing a home instead of three. The pilot would take place over two four-week periods, with approximately 8,000 homes in each period. The data gathered from the pilot would be used to determine any routing efficiencies, cost benefits and feasibility of expanding the program service area wide.

SFD Every Other Week Collection Pilot

Increasing outreach supporting and encouraging diversion efforts by the residential sector will continue to increase and instill positive behavior change, thus staff is recommending implementation of a pilot project to assess the feasibility and cost effectiveness of pursuing a every other week (EOW) garbage collection system. While a wide-scale change to EOW garbage collection would require overhauling the structure of how garbage/recycle/compost rates are charged, staff is not addressing this issue as part of the Long Range Plan.²

²This issue of restructuring rates is a larger policy decision that will likely be pursued individually by Member Agencies over time. Staff is not addressing this issue as part of the Long Range Plan, but will budget funds in FY1516 to assist Member Agencies with this issue if requested. It is staff's intention to conduct rate analysis work in FY 1516 and FY 1617 to address service area-wide rate scenarios and potential changes to the

The EOW garbage collection pilot would entail studying two residential routes. Numerous aspects of this change in collection service would be assessed including participation, diversion, contamination, collection cost savings, effectiveness of outreach, customer perceptions, etc. However, this pilot project would first require obtaining approval from the San Mateo County Department of Environmental Health who acts as the Local Enforcement Agency regulating the handling of solid waste.

Commercial Recycling Outreach Program Project

The existing commercial recycling outreach program has been successful in many respects, yet the Commercial sector still discards a significant quantity of materials targeted for diversion through the current programs and services. This program is funded through the Member Agencies Franchise Agreements and only with Recology's collaboration and cooperation can improvements be pursued. Staff is recommending a project to implement a metrics oriented approach to focus specifically on types of commercial accounts which potentially generate high volumes of targeted recycle and compost materials in their discards. This effort would require Recology's cooperation with modifying aspects of its current reporting and analyzing the reworked reports. In addition, this effort would also entail through direct outreach to the customers identified as potentially generating high volumes of targeted recycle and compost materials and strategically redeploying Recology's commercial recycling outreach staff in a focused effort to increase diversion. A pilot project to measure the effectiveness of supplemental public education and outreach are also included is part of this effort.

Public Spaces Recycling Program Pilot Project

The opportunity for the public to consistently and conveniently separate materials targeted for diversion through the current programs and services needs improvement service area wide. While the areas in need of improvement for each Member Agency vary, the common theme is that there is no standard system which provides a convenient and effective program for residents to source separate targeted recyclable and organic materials. Staff is recommending a pilot program in two Member Agencies to establish an infrastructure in a downtown area and a park setting which provides a convenient and effective program to capture recyclable and organic materials currently discarded. The FY1415 budget includes funding for a pilot project of this type. In addition, staff has supplemented the information and analysis provided in the Public Spaces Recycling research project report produced in 2014, in order to develop a framework of best practices to implement a program service area wide. The details and scope of the service area wide program will be brought to the Board once tangible experience is gained from implementation of the pilot project.

Enhanced Residential Public Education and Outreach Pilot Project

As previously discussed, except for the significant outreach campaigns deployed for the launch of the new CartSMART and BizSMART programs in 2011, which placed a heavy emphasis on educating customers and a call to action on how to use the new containers, including what specifically goes in each, the current efforts are sector specific and primarily general in their messaging to promote overall participation in the programs and services. As seen by the data, this has resulted in program participation and diversion, especially in the residential sector, leveling off or even declining. Staff is recommending a pilot program

current contractor's compensation adjustment methodology. This work will be pursued concurrently with the process to determine the Member Agency's preferences regarding extending the current contractor agreements or to conduct a competitive procurement.

focusing on cost-effective, measurable dedicated campaigns for the residential sector with targeted new messages, calls to action, incentives and tools.

Mandatory Residential and Commercial Recycling Ordinance Policy Consideration

Future consideration of mandatory residential and commercial recycling should potentially be explored after data is collected through implementation of the RethinkWaste Commercial Recycling Reporting System Ordinance. Until this data is obtained, the clear picture of how much actual diversion is occurring in the commercial sector cannot be formed.

Organic Materials Disposal Ban Policy Consideration

While the SBWMA cannot ban material at the landfill as it is outside of the Agency's jurisdiction, it can facilitate and collaborate with the County on developing such policy. A disposal ban on organic materials at the landfill would promote higher diversion efforts, preserve needed future capacity at the landfill, and reduce the generation of methane which is 27 more times potent of a greenhouse gas than carbon dioxide. Other jurisdictions have taken this approach and it has been successful in reducing the disposal of organic materials at a very low cost.

Extended Producer Responsibility (EPR) Framework

Passing a resolution adopting an Extended Producer Responsibility (EPR) Policy Framework will enable RethinkWaste staff to actively support legislation and the efforts of the California Product Stewardship Council (CPSC). The EPR programs/policies generally promote producer compliance in managing the reuse, recycling and/or safe disposal of products resulting in reducing the cost to ratepayers for the handling, recycling and disposal of various consumer products.

2. Processing and Transfer Infrastructure



The Shoreway Environmental Center serves the critical function of being the hub for the collection services and materials handling infrastructure that support the many programs and goals of the JPA. The Shoreway facility, as the central location where all the materials are handled, provides RethinkWaste additional diversion opportunities through both onsite and offsite materials processing. Cost effective waste diversion is a strategic goal considered in the Shoreway infrastructure assessment process. Other goals include: efficiency of facility operations, customer and worker experience and safety, and the consideration of how the Shoreway infrastructure fits into the long-term goals and regulatory compliance needs of the JPA. Specifically, the JPA still has work to do to boost the current 48.5% measured diversion rate to achieve the State's 75% diversion goal by 2020 and the JPA's 75% goal.

Mixed Waste Processing in the Transfer Station

As discussed earlier in this report, waste characterization studies performed by the SBWMA indicate that large amounts of organic materials, and to a lesser extent recyclables, remain in the waste stream. Staff has been working on a project to process the mixed solid waste at the Transfer Station to recover the remaining organic and recyclable materials. A key component of the project concept is the partnership with Silicon Valley Clean Water (SVCW) to process the organic materials (food waste) into energy using anaerobic digestion (AD). By leveraging the existing infrastructure and generating electricity to offset facility power costs, it is expected that SVCW will be able process the organic materials recovered from the garbage at a cost effective tipping rate.

Both agencies signed an MOU on April 24, 2014 and initiated a preliminary technical and feasibility study. Results of the study indicate that up to 160 tons per day of organic materials could be diverted from the SBWMA's waste and used to generate approximately two megawatts of power when incorporated into SVCW's AD process. Additionally, a mixed waste processing system at the transfer station could recover up to **60** tons per day of recyclable commodities that could be mixed with and sold with the other commodities from the MRF. In total, this project has the potential to divert up to 25-30% of the solid waste stream.

Shoreway Transfer Station Building Improvements

The MRF and Transfer Station buildings were substantially improved during the 2011 master plan construction. As part of the long range plan process and the need to achieve additional recovery, staff has assessed the current Transfer Station and other Shoreway buildings for a possible location to install a mixed waste processing system.

Due to the overall space constraints at Shoreway, the only location for a mixed waste processing system is at the current Transfer Station, however, the current building is too small and must be expanded in order to accommodate additional equipment and operations. Staff is currently in the process of evaluating mixed waste processing systems and conducting equipment layout scenarios. Preliminary results of this assessment have identified two preferred options: 1) a westward expansion of the Transfer Station building by 4,400 square feet that would fit behind the existing Recology administration building; and 2) a larger westward expansion of 12,000 square feet of operational area. Option 2 would require the demolition of the current Recology administration building and the construction of a new 10,000 square feet two-story building to the east of the Transfer Station.

SBWMA Administrative Offices and Public Meeting Space

The SBWMA is assessing the opportunity to relocate its offices from the current location at the San Carlos Library building to the Shoreway Environmental Center. The JPA currently leases office space from the City of San Carlos (for the past 12 years) and has the free use of the library's Community Room that is used for our monthly Board meetings. The current lease for approximately 2,500 square feet costs the JPA, with rent and utilities included, roughly \$60,000 per year and expires after June 30, 2015. Staff is in the process of negotiating a lease extension with the City.

Staff has worked with JRMA Architects to develop three potential options for creating office space for the JPA staff and public meeting space at the Shoreway facility. These options are:

- Option 1 - take over and remodel approximately 3,000 square feet of space on the second floor of the Recology administration building. This space largely comprises the current upstairs meeting room where Board meetings were previously held and some adjacent office space near the kitchen.
- Option 2 - construct a new building in the visitors parking lot next to the MRF with a ground level parking garage and a second floor with office space a community meeting room (for Board meetings and other public needs.) The second floor area would be 5,500-6,000 square feet.
- Option 3 - construct office and meeting space that would be added to and be integrated with an expansion to the Transfer Station building.

The evaluation of options will be substantially influenced by the space needs for the mixed waste processing system in the Transfer Station. A small expansion of the Transfer Station (approx. 4,400 sq. ft.) would allow for consideration of Options 1 and 2. Option 3 is tied to a larger expansion (approx. 12,000 sq. ft.) of the Transfer Station. It should be noted that Option 1 would require the JPA to secure meeting space offsite for Board meetings. Both Options 2 and 3 would provide for office space for JPA staff and community meeting space.

MRF Single Stream Processing Equipment Replacement and MRF Building Tipping Area Expansion

As discussed earlier, the MRF equipment building and sorting system was constructed in 2011 and has been operating for roughly four years. The building and the sort system have fully met the original design goals and have exceeded the productivity and efficiency expectations of the JPA. Additionally, the system has performed reliably and there have been no large un-warranted equipment failures that the SBWMA has had to pay for. Another measure of the MRF system performance has been the product quality and over last four years, there have been no commodity rejections or down-grades.

The MRF was designed to process all of the franchise recyclables (~280 tons per day) in one shift of operations. Over 2013 and 2014, SBR and the SBWMA have worked together to “market” the second-shift MRF processing capacity of the MRF. Currently the MRF has a full second shift and processing an additional 115 tons per day of third-party material supplied by Recology. The third party tonnage has financially benefited the SBWMA through the collection of host-fee payments of \$13.37 per ton (2015 fee amount) and over the past two years the JPA has received a total of \$525,000 in third party revenues.



While the MRF sorting equipment has kept up with the increase in operating hours and tonnage, the MRF building was not sized for the additional tonnage and truck unloading and there are frequent backs-ups during busy periods of the day. The Board has approved a budget amount of \$450,000 for the construction of a MRF building tipping area expansion to alleviate the pressure on the tipping area and the risk of regulatory violation and construction of this project is planned for 2015.

CNG Fueling System

As discussed in the **Section 3.B.1** (see page 74), The SBWMA is assessing the option of converting the Recology collection fleet from diesel to compressed natural gas (CNG) to obtain the benefits of using a cleaner burning and less expensive fuel. To support a CNG collection fleet, the existing diesel fuel system would need to be replaced with a CNG fueling system. This system would be connected to the PG&E pipeline and a gas compression and dispensing system would be installed in the Recology area currently used for vehicle fueling and parking. Prior to converting to CNG, the existing diesel fuel system would need to be removed – this system is antiquated, in need of replacement and contains underground storage tanks (USTs) that present an increased risk of leaking and groundwater contamination. (Note that the current UST’s are tested quarterly and there is no indication of leaking.)

At this time, the use of CNG in large tractor trailers has not proven operationally viable so the SBR transfer trailer fleet would not be converted to CNG; these trucks may still need to be fueled using a small diesel system, however, it is likely that CNG tractor trailers will be available within the next 5 to 10 years.

Other Shoreway Infrastructure Improvements

During the master plan construction, half of the paving at the Shoreway Center was replaced with new concrete paving. The area of the Shoreway site that is used by Recology for truck parking, maintenance and employee parking and shown in the image on the following page, has original asphalt topping that is nearing the end of its useful life and is show signs of failure. The roughly six acres of paving is being patched on an as-needed basis as part of routine facility maintenance but within the next five years large portions of the six acres of asphalt will need to be removed and replaced.

Aerial Photo of Shoreway with Recology's Operational Area



Energy Saving Projects

LED Lighting Retrofit - At the time of the master plan construction, LED lighting technology was not reliable enough to use in the buildings or parking areas. LEDs are now available and are more energy efficient and longer lived than the 150 existing metal-halide light fixtures in the MRF and Transfer Station. By conducting an operating and replacement cost assessment, staff has determined that a complete re-lamping of the facilities to LEDs promises energy cost savings.

Battery Power Storage - PG&E provides power to Shoreway and charges for 1) the amount of power consumed and 2) the peak power used. Installation of photovoltaics at Shoreway in 2011 has helped reduce the facility's overall power use, but peak-power charges caused by the processing equipment create a high electricity bill. New battery storage systems offer a way to reduce peak power usage and associated PG&E "demand charges." Modeling of the power usage at Shoreway show that battery systems can save the SBWMA \$10,000 per year in PG&E demand charges.

Environmental Education Center and Tour Program Enhancements

The JPA has a strong foundation to build upon with its popular and cost effectively managed environmental education program with public and school tours coupled with community events and service learning activities with art and poster contests. RethinkWaste is currently only minimally engaged in school or community-based environmental education/service learning outside of the Shoreway environmental education tour program.

Staff completed, with the support of a consultant, a follow-up study to the May 2014 benchmarking report to capture operational details and best practices associated with model environmental education programs. Excerpts from the study can be found in **Attachment A**.

RethinkWaste is fortunate in that there are several innovative and cost-effective programs in the Bay Area where local governments partnered with the community, their waste haulers, local businesses and schools to further robust educational and experiential programs that have quantifiable and measurable outcomes. These best practices provide a starting point for proven strategies that can be adapted or replicated in the RethinkWaste service area.

As shown in **Table 3.31**, beyond the current scope of our program, there is a vast array of additional components that can be added to our program including a number of school-based programs and non-profit partnerships to support educational efforts.

There are many worthwhile non-profit and non-governmental organizations created by educators, parents and community groups to enhance and often times supplement in-classroom and service learning activities in the schools.

Many of these organizations offer their services for free to the schools but depend heavily on the financial support of the business community and local governments to fund long term sustainable programs.

Table 3.31: Matrix of Environmental Education Programs

	<u>RethinkWaste</u>	<u>StopWaste</u> (JPA in Alameda County)	SF Dept. of <u>Environment</u>	<u>Marin Sanitary</u> (private company)	<u>Eco-Cycle</u> (nonprofit in Boulder County, CO)
FACILITY TOURS	✓	✓	✓	✓	✓
SCHOOL BASED PROGRAMS:					
Classroom Curriculum	Post-tour learning activity; on-site Rethinker classroom	✓	✓	On-site Environmental Classroom	✓
Service Learning	Fix-it Clinic, Trash to Art contest, etc.	✓	✓	Through Marin School of Environmental Leadership	✓
Assemblies/School Presentations		✓	✓	✓	✓
Diversion Programs	Currently limited to private schools subject to franchise.	✓	✓	✓	✓
District Level and School Based Green Teams		✓	✓	✓	✓
Waste Mgt. Policies		✓	✓	✓	✓
School Gardens	Limited compost donation program	✓	✓	✓	✓
NON-PROFIT PARTNERSHIPS		✓	✓	✓	✓

Staff is recommending that we identify environmental education and service learning program expansion options with a primary goal of supporting the JPAs goal of reaching 75% diversion. Those teachable moments from our existing tour program could be reinforced if the resource conservation messaging was integrated into the classroom to support and compliment the JPAs recycling outreach to homes, and businesses. We know that messaging needs to be continuous and pervasive where people live, learn, work and play.

Service learning also goes hand in hand with what is taught in the classroom or learned through the tour. It is an opportunity to put knowledge of resource conservation into action while encouraging community service and team building.

Before staff can recommend specific program options there remains a few critical unanswered questions: what do our customers want; what environmental education programs fit best into existing efforts in the schools in our service area and what areas for expansion make the most sense?

Staff's recommendation is to redeploy one of our environmental educators to conduct a nine-month stakeholder engagement process to answer these questions. The deliverable for this process would include:

- By April 2016, staff would come back with a final report and recommendations on what environmental education programs the JPA can best integrate into our current program to meet the needs of our customers; these will be recommendations vetted by key stakeholders from local schools, nonprofits and related organizations focused on environmental education.

SECTION 4



EVALUATION OF WASTE REDUCTION, RECYCLING AND COMPOSTING POLICIES, PROGRAMS AND SHOREWAY INFRASTRUCTURE ENHANCEMENTS

4. Evaluation of Waste Reduction, Recycling and Composting Policies, Programs and Shoreway Infrastructure Enhancements

A. Disposal and Diversion Tonnage Forecast for 2015-2020

Table 4.1: Baseline Measured Diversion % Forecast*

Sector	Actual Results		Projected Results					
	2013	2014	2015	2016	2017	2018	2019	2020
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	66.59%	66.59%	66.59%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	38.72%	40.64%	41.99%
Overall	48.83%	48.90%	49.38%	50.77%	51.94%	52.73%	53.68%	54.35%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.

Table 4.1 above provides a forecast of the baseline measured diversion rate by sector and overall for the RethinkWaste service area from 2015-2020 assuming there are no changes to existing programs, policies or infrastructure (with the exception of anticipated impacts AB 1826 will have on the Commercial/MFD sector starting in 2016). As can clearly be seen from these projections, the SBWMA and its Member Agencies will not be anywhere near achieving the State 75% recycling goal by 2020. More detail on the assumptions used to create Table 4.1 are provided below.

Residential

The residential 2015 forecast is based on adjusting the 2014 actual figures by the average change in tonnage over the three prior years. This resulted in decreasing residential solid waste by 0.42%, increasing residential recycling by 0.30% and decreasing residential organic materials by 0.21%. The residential forecast for 2016-2020 assumes no changes to diversion or disposal which is based primarily on maintaining the current level of public education and outreach. However, it is important to note that many factors ultimately influence materials generation, including but not limited to economic conditions and weather conditions; wet weather tends to increase green waste generation and the opposite is true with drought conditions.

Commercial

The commercial 2015 forecast is also based on trends from the prior three years in tonnage. This resulted in increasing commercial, multi-family and roll-off solid waste by 5%, 5% and 10%, respectively; while commercial organic materials is increased by 3% and roll-off organic materials is decreased by 2%. In addition, the forecast includes an analysis of data and projections provided by Recology related to performance of its commercial recycling and organics outreach program. This analysis resulted in increasing the capture rate of recycling by 2.0% and organic materials by 3%.

Staff also used data and projections from Recology for commercial recycling and organics (per AB 1826) to arrive at tonnage assumptions for 2016-2018. The assumed tonnage forecast is as follows: 2016 – recycling increased by 5%, organic materials by 10%; 2017 – organic materials increased by 10%; 2018 – recycling and organic materials increased by 2.5%. No tonnage adjustments were assumed for 2019 and 2020 given the projected start-up of the mixed waste processing operation in July 2018; such a system can be used to comply with AB 1826 requirements. Ongoing use of public outreach and education tools are assumed for 2015-2020.

For all of the commercial diversion assumptions, it was assumed if a ton was diverted than one corresponding less ton was disposed of; staff made no assumptions regarding factors influencing overall generation such as economic conditions and drought.

Overall

The overall measured diversion rate forecast by year is simply a combination of total tons diverted and disposed from all sectors (i.e., residential and commercial/MFD).

Table 4.2A below provides a forecast of the measured diversion rate by sector and overall RethinkWaste service area from 2015-2020 assuming the implementation of the Enhanced Residential Public Education and Outreach Program, and no other changes to existing programs, policies or infrastructure (with the exception of anticipated impacts AB 1826 will have on the commercial/MFD sector starting in 2016). The effects of the enhanced outreach are anticipated to be felt starting in the last half of 2018, resulting in a 2.5% increase in residential recycling and organic materials tonnages, 5% increase in 2019 as the full impacts are realized over the whole year, and dropping to an additional 2% in 2020 as the program effects wind down. There is parallel decrease in residential garbage from 2018-2020. The same assumptions that were used to create the residential diversion rate in **Table 4.1** for 2015-2017 were used in **Table 4.2A**. The same assumptions that were used to create the commercial diversion rate in **Table 4.1** for 2015-2020 were used in **Table 4.2A**.

Adding the enhanced residential outreach results in increasing the residential forecasted baseline diversion rate in 2020 from 66.59% to 68.22%.

Table 4.2A: Baseline Forecast w/ Enhanced Residential Public Education Starting in 2018*

Sector	Actual Results		Projected Results					
	2013	2014	2015	2016	2017	2018	2019	2020
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	67.02%	67.88%	68.22%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	38.72%	40.64%	41.99%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	52.95%	54.33%	55.17%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.

Table 4.2B on the following page provides a forecast of the measured diversion rate by sector and overall RethinkWaste service area from 2015-2020 assuming the implementation of the Enhanced Residential Public Education and Outreach Program as noted in **Table 4.2A**, and the Mixed Waste Processing System in the Transfer Station starting in July 2018. No other changes to existing programs, policies or infrastructure have been assumed (with the exception of anticipated impacts AB 1826 will have on the Commercial/MFD sector starting in 2016 through 2018). Based on the timing of the project, the effects of the mixed waste processing result in the recovery of an additional 24,795 tons of organic materials in 2018 from the residential and commercial sectors, and 49,591 tons in both 2019 and 2020. There is parallel decrease in garbage from 2018-2020.

The same assumptions that were used to create the residential and commercial diversion rates in **Table 4.2A** for 2015-2017 were used in **Table 4.2B**. Adding the enhanced residential outreach and mixed waste processing results in increasing the overall forecasted baseline diversion rate in 2020 from 54.35% to 67.73%.

Table 4.2B: Baseline Forecast w/ Enhanced Residential Public Education and MSW Processing Starting in 2018*

<u>Sector</u>	<u>Actual Results</u>		<u>Projected Results</u>					
	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	71.32%	76.35%	76.60%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	48.75%	58.77%	58.77%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	60.09%	67.61%	67.73%

**Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.*

B. Evaluation of Policies, Programs and Shoreway Infrastructure Enhancements

The previous sections of this Plan consisted of an inventory of the existing programs and infrastructure to help identify if any program and service enhancements are needed in the future, and a summary of the enhancements and new programs recommended for evaluation and consideration.

Table 4.3 below summarizes the enhancements and new programs by sector, and the subsequent **Tables 4.4** and **4.5** provide greater detail on the enhancements and new programs, including diversion impacts and costs. Following the summary tables is a detailed description of each individual policy, program and infrastructure enhancement recommended for evaluation and consideration.

Table 4.3: Summary of Policy and Program Enhancements by Sector

<u>Proposed Enhancement</u>	<u>Sector</u>		<u>Type of Program</u>		
	<u>Residential</u>	<u>Commercial</u>	<u>Policy</u>	<u>Program/Service</u>	<u>Operational Improvement</u>
CNG Fleet Conversion Project	✓	✓			✓
SFD Split-Body Collection Vehicle Pilot Project	✓				✓
SFD Every Other Week Garbage Collection Pilot Project	✓			✓	
Commercial Recycling Outreach Program Project		✓		✓	
Public Spaces Recycling Pilot Program		✓		✓	
Enhanced Residential Public Education and Outreach Pilot Program	✓			✓	
Mandatory Residential and Commercial Recycling Policy	✓	✓	✓		
Organic Materials (Green Waste and Food Scraps) Disposal Ban	✓	✓	✓		
EPR Policy Framework	✓	✓	✓		
Mixed Waste Processing in Transfer Station	✓	✓			✓
Shoreway Transfer Station Building Improvements	✓	✓			✓
SBWMA Administrative Offices and Public Meeting Space					✓
MRF Single Stream Processing Equipment Replacement	✓	✓			✓
MRF Building Tipping Area Expansion	✓	✓			✓
CNG Fueling System	✓	✓			✓
Other Shoreway Infrastructure Improvements					✓
Environmental Education Center and Tour Program Enhancements	✓	✓		✓	

Table 4.4: Diversion Potential by Policy or Program Enhancement

Proposed Enhancement	Sector	2015 Estimated Diversion (Tons/year)	2016 Estimated Diversion (Tons/year)	2017 Estimated Diversion (Tons/year)	2018 Estimated Diversion (Tons/year)	2019 Estimated Diversion (Tons/year)	2020 Estimated Diversion (Tons/year)
CNG Fleet Conversion Project	Residential	N/A					
SFD Split-Body Collection Vehicle Pilot Project	Residential	N/A					
SFD Every Other Week Garbage Collection Pilot Project	Residential	N/A					
Commercial Recycling Outreach Program Project	Commercial	Supports continued growth in existing commercial recycling outreach program and new mandates of AB 1826.					
Public Spaces Recycling Pilot Program	Commercial	N/A	N/A	Diverted tons to be estimated after FY1516 pilot			
Enhanced Residential Public Education and Outreach Pilot Program	Residential	N/A	N/A	Limited diversion in pilot phase	759	1,302	429
Mandatory Residential and Commercial Recycling Policy	Commercial	No diversion estimates provided					
Organic Materials (Green Waste and Food Scraps) Disposal Ban	Commercial	No diversion estimates provided					
EPR Policy Framework	Comm. & Residential	No diversion estimates provided					
Mixed Waste Processing in Transfer Station	Comm. & Residential	N/A	N/A	N/A	24,795	49,591	49,591

Table 4.5: Summary of Programs, Services and Shoreway Infrastructure Enhancements

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
COLLECTION PROGRAMS AND POLICY									
<p>CNG Fleet Conversion Project The fuel used to run the collection fleet will be changed from B5 biodiesel to CNG.</p>	<ul style="list-style-type: none"> Annual fuel savings of \$1,556,100 Other reduced ops. expense of \$103,438 Annual increase in depreciation expense (year 1) of \$570,717 10-year average interest expense of \$95,862 Net savings per year of \$992,960 or \$9,929,600 over 10 years 	N/A	N/A	Requires purchase of 127 CNG compatible collection vehicles to deliver services for 120 existing routes.	Requires installation of a CNG fueling system. Would also involve closeout of existing underground storage tank (UST) system. Would add 1 new aboveground storage tank (AST) for diesel for SBR transfer trailers. See Table 4.37 for more details on Shoreway operational costs associated with this project.	<ul style="list-style-type: none"> Net collection ops. cost savings of \$0.99M/year starting in 2021 Approximately 20%-23% reduction in greenhouse gas emissions Eliminates future potential groundwater contamination at Shoreway from fueling operations 	<ul style="list-style-type: none"> Subject to price fluctuations of CNG fuel CNG dispensing system may impact collection vehicle parking capacity 	<ul style="list-style-type: none"> Need to negotiate CNG fueling system financing and supply agreement between franchised service provider and 3rd party Need to implement Shoreway site improvements Complex project management to phase in new CNG system and closeout old USTs 	<ul style="list-style-type: none"> Closeout of old diesel system, installation of new AST diesel system for SBR and installation of new CNG system in six to nine month period in 2020 Recology purchase and delivery of new CNG collection vehicles in late 2020
<p>SFD Split-Body Collection Vehicle Pilot Project (proposed by Recology) Conduct a pilot project to study routing efficiencies using split-body collection vehicles.</p>	<p>Pilot program cost to Recology: \$55,422 in 2016.</p> <p>RethinkWaste additional public education expense: \$16,391 in FY1516.</p>	N/A	Participating Member Agencies would be requiring a modification to the current collection service provided to residential customers. Participating Member Agencies requested to provide relief on specific Liquidated Damages during pilot phase.	<ul style="list-style-type: none"> Garbage and recycling will be collected in different compartments of the same truck No day of week routing changes are anticipated 	Minor impact on scale house operations due to trucks weighing twice for each load delivered.	TBD	TBD	<ul style="list-style-type: none"> Requires public education campaign Recology customer service call center may be impacted with additional calls May cause resident confusion since one truck will be collecting both garbage and recycling Service change of limited duration may result in resident confusion 	Recology may include results in proposal for an extension to the existing Franchise Agreements in 2017.

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
<p>SFD Every Other Week Garbage Collection Pilot Project Conduct a pilot project to study the cost effectiveness of collecting garbage every other week.</p>	<p>Pilot Program Cost: \$119,200 in FY1516.</p>	<p>Residential recycling, organic materials and garbage</p>	<p>Participating Member Agencies would be requiring a modification to the current collection service provided to residential customers. Participating Member Agencies requested to provide relief on specific Liquidated Damages during pilot phase.</p>	<p>Affects pilot area only: Residents can subscribe to EOW garbage service; no changes to existing routes.</p>	<p>N/A</p>	<ul style="list-style-type: none"> • Potential increase in diversion • Potential cost savings • Potential reduction in greenhouse gas and other harmful vehicle emissions • Heightened awareness of residents leading to long-term positive behavior change 	<ul style="list-style-type: none"> • Service provided will be temporary and will revert to weekly collection at end of pilot; some residents may be upset with this • Customers may have concerns with increased vectors or aesthetic issues • If full rollout, potential reduced rate revenue • If rolled out before 2021, service provider would have some “stranded” assets 	<ul style="list-style-type: none"> • Requires approval of the Local Enforcement Agency • Requires approval of effected Member Agencies 	<ul style="list-style-type: none"> • Design pilot: Fall 2015 • Commence public education and outreach: January 2016 • Conduct pilot project: March-May 2016 • Compile results & make recommendations: June 2016
<p>Commercial Recycling Outreach Program Project Implement a metrics driven sales oriented approach to increase diversion coupled with enhanced outreach efforts.</p>	<p>Supplemental outreach costs: \$50,000 - \$60,000 in FY1516. Recology (annual) staffing cost for 2015 is \$912,362.</p>	<p>Recycling, organic materials and garbage</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> • Increased diversion from the commercial sector, though not clear how much • Establish clear diversion targets for contractor • Increase return on investment in franchised program 	<ul style="list-style-type: none"> • Some up-front administrative effort in consolidating reports • Cultural shift regarding program management by contractor • Without full cooperation and ownership of new approach by contractor, limited results will be achieved 	<ul style="list-style-type: none"> • Requires full cooperation from contractor • Requires contractor to adjust their approach and may take some time to realize the full benefit 	<ul style="list-style-type: none"> • By summer 2015 modified reports can be utilized to set diversion goals for business types and accounts • January 2016-ongoing; analysis of program results • FY1516: development and launch of supplemental public education and outreach efforts

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
Public Spaces Recycling Pilot Program Implement model public spaces recycling collection in a downtown area and a park setting.	Pilot program cost: \$46,000 total \$35,000 budgeted in FY14/15 \$11,000 to be budgeted in FY15/16	Commercial and Member Agency Facility (public space) recycling, organic materials and garbage	Pilot participants cooperation is required; no policy changes applicable.	<ul style="list-style-type: none"> Increased number of public space receptacles for franchised collection services Increased number of receptacles handled by Agency staff Potential increase in capacity of bins on site at Agency facilities 	N/A	<ul style="list-style-type: none"> Increased diversion from the commercial sector (public spaces) Reduce litter Expand opportunities to engage public in recycling and reinforce messaging Member Agency and RethinkWaste commitment to leadership in recycling and improvement to public spaces Increase value to the ratepayers of current franchise agreement Provides opportunity for community partnerships with park users 	<ul style="list-style-type: none"> Potentially result in increased workload for parks and public space maintenance staff Increases Member Agency assets that require maintenance (public space containers) 	<ul style="list-style-type: none"> Requires cooperation from Member Agency staff and Recology 	<ul style="list-style-type: none"> April-June 2015: purchase new assets July 2015 install assets August-Dec 2015: monitor pilot sites Jan-Feb 2016: review results, issue lessons learned and recommendations April 2016: budget for full-scale roll-out July-December 2016: commence full-scale roll-out
Enhanced Residential Public Education and Outreach Pilot Program Conduct a pilot program focusing on cost-effective, measurable dedicated campaigns for the residential sector, incentives and new messaging/tools	Service area wide campaign cost: \$100,000 in FY1617. Community based outreach cost: \$75,000 in FY1617.	Residential recycling, organic materials and garbage	N/A	N/A	N/A	<ul style="list-style-type: none"> Increased diversion from the residential sector Facilitate long-term behavior change requiring less future investment in outreach 	N/A	<ul style="list-style-type: none"> Design public outreach campaigns Work with Member Agencies on tailored campaigns for their community 	<ul style="list-style-type: none"> FY1617: development and campaign launches
Mandatory Residential and Commercial Recycling Ordinance Develop a policy framework to implement mandatory recycling.	Implementation (first-year) expense: \$303,000 Annual recurring expense: \$268,000	Residential, commercial, multi-family and Member Agency organic materials and recycling	Yes – potential Member Agency adoption of new ordinance.	May result in additional franchised collection services.	N/A	<ul style="list-style-type: none"> Increase diversion cost-effectively Heighten public awareness leading to long-term positive behavior change Reduced greenhouse gas emissions Increase competitive advantage of businesses that embrace recycling and sustainable practices 	<ul style="list-style-type: none"> Requires individual Member Agencies to adopt policy or for SBWMA to adopt policy and implement on behalf of Agencies Ideally would include regional cooperation 	<ul style="list-style-type: none"> Requires extensive stakeholder engagement process Requires wide-spread public education campaign 	<ul style="list-style-type: none"> Recommended for consideration in future years if 75% goal is not met by end of 2020

<u>Proposed Enhancement</u>	<u>Program Cost Summary</u>	<u>Targeted Materials</u>	<u>Required Policy Change by Member Agency</u>	<u>Collection Changes</u>	<u>Shoreway Facility Changes</u>	<u>Pros</u>	<u>Cons</u>	<u>Implementation Issues</u>	<u>Schedule</u>
Organic Materials (Green Waste and Food Scraps) Disposal Ban Develop a policy framework to implement a Countywide ban on disposal of organic materials.	Implementation expense: \$60,000	Residential, commercial, multi-family and Member Agency organic materials	Yes – adoption of Countywide ordinance.	N/A	Potential modification to rates charged to self-haul customers to impose a premium to deliver banned materials without proper separation.	<ul style="list-style-type: none"> • Increase diversion cost-effectively • Heighten public awareness • Reduced greenhouse gas emissions 	<ul style="list-style-type: none"> • Requires Countywide implementation • Ideally would include regional cooperation 	<ul style="list-style-type: none"> • Would require cooperation from the County Board of Supervisors to adopt new ordinance 	<ul style="list-style-type: none"> • Recommended for consideration in future years if 75% goal is not met by end of 2020
EPR Policy Framework Establish a framework for Board consideration to facilitate supporting EPR legislation and policy	N/A Policy implementation and ongoing expense to be incurred in existing RethinkWaste staffing expense.	A variety of materials and product types depending on the scope of the policy initiative(s)	Yes – if individual Member Agency's want to adopt an EPR framework.	N/A	N/A	<ul style="list-style-type: none"> • Requires product manufacturers to take financial responsibility for collection, recycling and disposal of their products • Provides incentive for manufacturers to design products for recyclability and with reduced toxicity • Reduces cost to ratepayers for proper handling, recycling and disposal of various product types 	<ul style="list-style-type: none"> • Requires action at state level • Increases RethinkWaste staff responsibilities related to reviewing state legislation • Ideally would include regional cooperation 	<ul style="list-style-type: none"> • Relies heavily on State legislative action 	<ul style="list-style-type: none"> • October 2015: Draft Resolution presented to TAC for review and comment • November 2015: Board considers adopting Resolution • January 2016-ongoing: RethinkWaste staff participation in development of policy initiatives

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
SHOREWAY INFRASTRUCTURE									
<p>Mixed Waste Processing in the Transfer Station Mixed Waste Processing system located at the Transfer Station to recover recyclables and organics. Recyclables to be processed further at onsite MRF. Organics to be transferred to SVCW for digestion and energy production.</p>	<ul style="list-style-type: none"> Year 1 net increase (\$5.19M in new ops. expense - \$3.28 in new commodity revenue) in cost of \$1.9M to process all waste in TS Annual depreciation expense (year 1) of \$1.28M FY1516 project development cost of \$183,000 	Residential and commercial recyclables and organics.	No	No	Installation of new processing equipment within the Transfer Station and a westward expansion of the Transfer Station building. Depending upon size of Transfer Station building expansion may require demolition of the Recology Administration building and construction of a new Admin bldg. to the east of the Transfer Station. New processing system assumed to be operational by July 2018.	<ul style="list-style-type: none"> Significant diversion potential of 49,591 tons/year Leverages existing infrastructure at SVCW to reduce the project capital costs Reduction of greenhouse gasses through recovery of green energy from waste and reduced landfilling Viable project for state grant funding 	<ul style="list-style-type: none"> Significant capital requirements for processing equipment of \$10.98 million Short-term impacts to Transfer Station operations Potential amendment to Operations Agreement Some operational risk with new "organics press" technology from Anaergia 	<ul style="list-style-type: none"> Need to procure new processing equipment Complex project management to install and start-up new processing system while continuing Transfer Station operations Need to negotiate a scope of work and associated compensation for SBR to operate new processing system Need to negotiate terms and conditions associated with SVCW accepting organic slurry feedstock from SBWMA May need to secure new financing (bank loan, bond, etc.) 	Key FY1516 tasks include: complete additional waste comp. studies, 30% design level complete for processing system layout within Transfer Station, identify permitting issues and needs, development of updated MOU between SBWMA and SVCW, development of draft agreement with Anaergia for provision of technology, development of draft agreement with SBR to operate processing system, and prepare draft plan of finance.
<p>Shoreway Transfer Station Building Improvements Existing site building layout will need to be altered to accommodate waste processing system at Transfer Station.</p>	<ul style="list-style-type: none"> Est. building cost of \$2.53 million for small TS building expansion Est. building cost of \$11.52 million for Large TS building with new Recology office area FY 1516 building design and estimating cost of \$51,000 for Small TS building (incl. in Mixed Waste Processing project dev. costs) 	N/A	No	No	Two Transfer Station build out scenarios: small expansion of 4,400 square feet or large expansion of 12,000 square feet (large expansion would require demolition of administration building and construction of new administration building).	<ul style="list-style-type: none"> Maximizes use of existing Transfer Station footprint Provides for significant new, cost effective diversion option within Transfer Station Large expansion scenario provides opportunity for new SBWMA administrative offices and public meeting space (e.g., for Board meetings) See option 3 below 	<ul style="list-style-type: none"> Significant capital requirements for building improvements of \$2.53M million for small expansion to \$11.52M for large expansion Short-term impacts to Transfer Station operations Potential significant short-term impacts to Recology administrative operations New permitting requirements May impact already limited site parking capacity 	<ul style="list-style-type: none"> Need to bid out construction project(s) Complex project management to construct building improvements while continuing Transfer Station operations May need to establish interim Recology administrative operations May need to secure new financing (bank loan, bond, etc.) Secure permit revisions 	<ul style="list-style-type: none"> Identify costs associated with an interim Transfer Station operations plan and interim Recology administrative operations plan Prepare draft plan of finance

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
<p>SBWMA Administrative Offices and Public Meeting Space Options for building SBWMA office were researched and are presented.</p>	<p>Three cost options for SBWMA office space were developed:</p> <p>Option 1: Recology building remodel estimated cost of \$275,000</p> <p>Option 2: would cost an estimated \$3.33M</p> <p>Option 3: would cost an estimated \$977,550</p> <p>FY1516 design support for option analysis and decision making \$25,000.</p>	<p>N/A</p>	<p>No</p>	<p>No</p>	<p>Three options for SBWMA office space with two of the options also providing public meeting space. Option 1 would be to remodel 3,000 sq. ft. of space on the second floor of Recology Admin. Building; this option does not provide for public meeting space. Option 1 is possible if do small Transfer Station bump out.</p> <p>Option 2 would consist of constructing a new two-story building in the existing visitor parking lot. The first floor would be a parking garage and the second floor split between office space and public meeting space. Both floors would be approx. 5,614 sq. ft.</p> <p>Option 3 would be associated with the large Transfer Station expansion scenario. Office space and public meeting space would be housed in a two-story building adjacent to the Transfer Station. Both floors would be approx. 3,000 sq. ft.</p>	<ul style="list-style-type: none"> • All options would provide for SBWMA office space and thus save approx. \$60,000 per year in office lease costs • Options 2 and 3 would provide for public meeting space for Board meetings and other public meetings and onsite public events 	<ul style="list-style-type: none"> • Significant capital requirements for Options 2 and 3. • New permitting requirements • May impact already limited site parking capacity 	<ul style="list-style-type: none"> • Need to bid out construction project(s) • May need to secure new financing (bank loan, bond, etc.) • Secure permit revisions • May need to identify offsite parking options 	<ul style="list-style-type: none"> • Prepare draft plan of finance • Potentially identify and secure offsite parking
<p>MRF Single Stream Processing Equipment Replacement Need to replace specific equipment components due to intensive use since original installation in 2011.</p>	<p>Existing cash reserves include an equipment replacement reserve fund to pay for such equipment replacement.</p>	<p>N/A</p>	<p>No</p>	<p>No</p>	<p>Table 4.36 identifies a schedule for equipment component replacement from 2015 thru 2023.</p>	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> • Need to confirm with SBR and equipment manufacture a final equipment replacement schedule 	<ul style="list-style-type: none"> • Completion of project summer 2015

Proposed Enhancement	Program Cost Summary	Targeted Materials	Required Policy Change by Member Agency	Collection Changes	Shoreway Facility Changes	Pros	Cons	Implementation Issues	Schedule
MRF Building Tipping Area Expansion Existing identified and budgeted project to construct a MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to handle 3 rd -party tonnage into MRF.	FY1415 budget of \$450,000 . Current project construction estimate of \$438,741 .	N/A	No	No	Construction of a 2,720 sq. ft. expansion of MRF tipping area	N/A	N/A	N/A	<ul style="list-style-type: none"> Board consideration of approval of construction contract award in April or May 2015 Three month project construction period
CNG Fueling System Installation of a new CNG fueling system.	New utility connection infrastructure for CNG system estimated at \$1.375 – \$1.8M . Current SBWMA reserve of \$1.24M in Shoreway remediation fund to substantially cover project costs.	N/A	N/A	Requires purchase of 127 CNG compatible collection vehicles to deliver services for 120 existing routes.	Requires installation of a CNG fueling system. Would also involve the closeout of the existing underground storage tank (UST) system. Would add 1 new aboveground storage tank (AST) for diesel for SBR transfer trailers. See Table 4.38 for more details on Shoreway operational costs associated with this project.	<ul style="list-style-type: none"> Minimal new funding needed given existing funds available in Shoreway remediation fund Net collection ops. cost savings of \$0.99M/year starting in 2021. Approximately 20%-23% reduction in greenhouse gas emissions Eliminates future potential groundwater contamination at Shoreway from fueling operations 	<ul style="list-style-type: none"> CNG dispensing system may impact collection vehicle parking capacity 	<ul style="list-style-type: none"> Need to negotiate CNG fueling system financing and supply agreement. Need to implement Shoreway site improvements Complex project management to phase in new CNG system and closeout old USTs 	<ul style="list-style-type: none"> Closeout of old diesel system, installation of new AST diesel system for SBR and installation of new CNG system in six-nine month period in 2019 Recology purchase and delivery of new CNG collection vehicles in late 2020
Other Shoreway Infrastructure Improvements Improvements include improved paving and other enhancements promoting energy conservation.	Paving cost estimated at \$2.0M . \$45,000 LED lighting retrofit in FY1415 and \$274,000 in FY1516.	N/A	N/A	N/A	Remove and replace 4 acres asphalt Install new LED high-bay lighting in all Shoreway buildings	<ul style="list-style-type: none"> Extend life of Recology operations area Power cost savings after 1.3 year payback period for LED lighting installation Improved interior lighting for safer environment 	<ul style="list-style-type: none"> Cost of paving Capital cost of lighting 	N/A	<ul style="list-style-type: none"> Need for paving work based on failure rate of existing paving – estimated 2-4 years LED lighting pilot in FY1415 and full Shoreway lighting replacement in FY1516
Environmental Education Center and Tour Program Enhancements Conduct stakeholder engagement process with local educators to identify which environmental education programs best complement existing efforts.	\$62,000 in one-time costs to be included in the FY1516 budget	Residential and commercial recyclables and organics	No	No	No	<ul style="list-style-type: none"> Complements existing RethinkWaste recycling outreach efforts to residents and businesses Engages local educators to identify synergies to maximize effectiveness of new programs 	<ul style="list-style-type: none"> Potential future costs associated with new programs 	<ul style="list-style-type: none"> Need to identify key stakeholders and complete research and engagement tasks 	<ul style="list-style-type: none"> April 2016 staff prepares final report and recommendation to Board for potential inclusion in FY1617 budget

1. Collection Programs and Policies

a. CNG Fleet Conversion

Goals

Franchised collection service provider to rollout on January 1, 2021 a new collection fleet run CNG so as to reduce operational costs (namely fuel cost savings vs. diesel) and realize associated reductions in greenhouse gas emissions. This collection operations improvement project supports multiple LRP Guiding Principles including:

- Reduce collection fleet emissions
- Provide cost-effective and efficient programs
- Invest in new, safe technologies and processes for infrastructure



Overview

Staff worked closely with Recology to prepare a financial analysis of this fleet conversion to CNG fuel effective January 1, 2021. Based on an analysis of a capital and depreciation schedule assuming replacement of 127 collection vehicles (for 120 collection routes), and a comparison of current CNG fuel price vs. diesel fuel price the following was determined:

- Incremental change in truck capital of \$5.136 million resulting in annual increase in depreciation of **\$570,717**.
- 10-year annual average interest expense associated with new capital of **\$95,862**. Vehicle purchase financed by Recology at an assumed interest rate of 3.5%.
- Annual fuel savings of **\$1,556,100** million based on assumed CNG fuel price of \$1.80 per gallon vs. a diesel price of \$3.48 per gallon. The \$1.80 per gallon figure includes assumed finance charges associated with a 3rd party vendor purchasing, installing and maintaining the CNG fuel supply system.
- Reduced operating ratio (profit) to Recology on lower annual operating expense of \$103,438
- **Net savings per year of \$992,960 or \$9,929,600 over ten years.**

A review of historical CNG and diesel fuel prices shows that the actual projected fuel savings could be significantly higher than assumed above. The historical price trends over the last eight years indicate that CNG prices on average changed 4.5% below diesel prices; this means the “spread” between the prices we have assumed above (CNG at \$1.80/gallon vs. \$3.48/gallon for diesel) would be 4.5% greater. Assuming a 2% greater spread scenario and the 4.5% spread scenario, the ten year savings could be from \$16.4 million to \$24.0 million. It should be noted, though, that in 2014, CNG rose 3% higher than diesel and 1.3% higher in 2013. To understand the price spread risk, this project would break even if diesel prices declined 4% per year and CNG prices increased 4.5% per year over the next ten years. This scenario is highly unlikely.

In addition to the cost benefits, conversion to CNG includes environmental benefits through reduced emissions. CNG is estimated to produce approximately 20%-23% less carbon dioxide (CO₂) emissions than diesel. Based on calculations, there would be a 909 kg/gasoline gallon equivalent (gge) reduction in CO₂ annually per collection route if converted to CNG, for a total of 109,134 kg/gge reduction annually for all 120 routes. These reductions equal removing approximately 38 passenger vehicles off the road annually. In addition, CNG trucks have been found to average 10 decibels quieter than diesel engines.

Please see **Section 4.B.2** (page 156) for a full description on the required infrastructure improvements at Shoreway to support this project. In order to support the installation of a CNG fuel supply system, the SBWMA will be required to make site improvements including removal of the existing diesel storage (underground storage tanks) and dispensing system, installation of an aboveground diesel storage and dispensing system (for SBR transfer trailer fleet), electrical and gas connections from the CNG system to PG&E utility lines, Maintenance Shop upgrades, piping to fuel dispensers, etc.

b. SFD Split-Body Collection Vehicle Pilot Project

Goals

Recology has proposed to implement a pilot project to determine whether the use of split-body collection vehicles would provide routing efficiencies and other benefits to the residential sector. It is anticipated that the results of this pilot project, if deemed favorable, would be included by the company in an extension proposal to the Franchise Agreements in 2017. (The Franchise Agreements with Recology will expire in 2020, and these agreements provide a deadline by the end of 2017 for both Recology and the Member Agencies to make a decision regarding extending the current contracts or putting the services out to bid.)



This program expansion option supports multiple LRP Guiding Principles including:

- Ensure that program initiatives are convenient, accessible and appropriate
- Produce cost-effective and efficient programs

Overview

This option proposed by Recology involves conducting an eight-week pilot program to test split-body collection vehicles to co-collect garbage and recycling from residential customers in order to measure the potential operational savings, benefits and drawbacks. Recology is currently using single-compartment collection vehicles throughout the RethinkWaste service area, resulting in three different trucks to service a home (i.e., recycling, composting and garbage). While this collection approach does provide for larger route sizes (more homes collected per route than can be accomplished with a split-body vehicle) and less trips to unload at the Shoreway Environmental Center, it has resulted in some complaints to Recology about the number of vehicles driving through residential neighborhoods.

The pilot would be divided into two four-week periods between September and November 2015. Recology has proposed leasing four split-body vehicles (three route vehicles and one spare) with a 60:40 split ratio to collect both recycling (60%) and garbage (40%) to replace four total routes during the pilot – two single-body recycle and two single-body garbage routes during each period of the pilot. Thus, three split-body trucks will replace four single-body trucks. Recology has identified two routes in Menlo Park for the first four-week pilot covering approximately 8,330 homes per week, and another two routes servicing Burlingame and San Mateo County's franchised area for approximately 7,950 homes for the second pilot period.

As new split-body vehicles are not currently available for leasing from the truck manufacturer, Recology will use semi-automated split-body vehicles currently in use at other Recology companies. The leased split-body vehicles will not have Recology's local onboard GPS tracking system, Routeware, thus the company has proposed hiring three temporary employees to ride along on the pilot routes to document the data needed for the pilot. The data collected will include the number of customers per route, number of set-outs by commodity (recycling and/or garbage), on-route time, unloading time, and tons delivered by commodity and by load. RethinkWaste will take the lead in education and outreach by notifying customers in the selected pilot routes through bill inserts, cart hangers/tags, robocalls and truck signs.

Recology is anticipating a potential increase in the number of customer calls during the pilot as their normal service time may change. As such, Recology will be contacting the Member Agencies in the pilot to request that certain liquidated damages related to the call center be waived during the pilot.

Recology is currently using split-body vehicles to service residential customers in San Francisco, San Bruno, Vacaville, Vallejo and Gilroy. Possible benefits include routing efficiency from reduced time to service each home, reduced number of vehicles on streets on service days from three to two vehicles, lessening road impacts, reduced greenhouse gas emissions, and reduced operational costs. Potential negative impacts could include non-optimal payload capacities requiring additional trips to Shoreway when one compartment fills before the other and increased unloading times at Shoreway as vehicles will be required to weigh in and out twice per load. In addition, the split-body vehicles may not be suitable for all of the jurisdictions in the service area, which may result in a net zero effect to the current number of routes. The cost allocation to Member Agencies would also need to be revisited if the program is rolled out service area wide as the garbage and recycle collection times would be identical.

The budget pilot project would include \$71,813 in one-time costs to be included in the Recology's 2016 compensation application and the SBWMA's FY1516 budget as follows:

- \$55,422 pilot program cost to Recology, including vehicle lease and hiring of temporary employees
- \$16,391 RethinkWaste additional public education expense

Please refer to **Attachment B** for Recology's pilot proposal and cost breakdown.

c. SFD Every Other Week Garbage Collection Pilot Project

Goals

RethinkWaste is proposing to implement an every other week (EOW) residential garbage collection pilot project to cost-effectively gather information and data on collection operations, participation rates, outreach strategies, and customer perceptions related to EOW residential garbage collection service. While this service is not commonly provided in North America, many jurisdictions in the U.S. and Canada have successfully implemented this service and realized cost savings, increased diversion and reduced the greenhouse gas emissions impact of providing typical residential collection services.



Implementation of this pilot project, which could eventually be extended and expanded to other Member Agencies, supports several LRP Guiding Principles including:

- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Provide cost-effective and efficient programs
- Increase and maximize participation in programs and services to reduce, reuse, recycle and compost waste
- Promote behavior change through public education
- Provide incentives to participate in programs where feasible

Overview

EOW residential garbage collection refers specifically to biweekly residential garbage collection and weekly recycling and compost collection. A pilot project will be designed to offer this service to 2 routes or approximately 8,200 households over a 3 month period (for each route). The routes will be selected to test a wide range of variables related to providing collection services in an effort to obtain data that can be applied to the entire service area. RethinkWaste will work closely with Recology in selecting the routes, obtaining the necessary approvals from the targeted communities and in final design of the pilot project. It is important to note that RethinkWaste has discussed this pilot project at length with Recology and they do not anticipate operational impacts that would increase collection expense during the pilot. The cost of the pilot will be primarily related to public education and outreach, subsidizing a nominal discount to customers who subscribe to participate, data collection and related administrative expenses.

Regulatory Considerations

A primary challenge that will need to be addressed to implement an EOW collection pilot is regulatory related. In 2011, RethinkWaste explored conducting an EOW collection pilot and requested authorization from the local enforcement agency (LEA), the San Mateo County Department of Environmental Health. The LEA, noted at that time that there were factors that precluded their approval of a pilot program. The LEA specifically cited State law that requires that "...refuse, except for inert materials, shall not remain on any premises for more than seven days."³ This determination effectively precluded implementation of the EOW residential garbage collection pilot which the City of San Carlos had agreed to explore. Since the majority of "refuse" that concerned

³California Code of Regulations (CCR) Title 14, Chapter 3, Section 17331. Frequency of Refuse Removal.

the LEA consisted of food scraps, which would still be collected weekly in the green compost cart, the primary concerns was related to used diapers and pet waste which are not targeted for composting.

However, since 2011, the City of San Francisco⁴, through the services of Recology, have successfully implemented a program which mandated that diapers and pet waste be placed in the garbage container and collected weekly, preventing households that produce this waste from participating in the pilot. The RethinkWaste pilot project will be designed to take this approach and perhaps other approaches that would mitigate the operational inefficiency (and limit the potential associated cost savings) of requiring collection weekly if these materials are generated. For example, options cited for managing diapers and pet wastes by other communities which have implemented EOW collection include:

- Offering a diaper tag program which allows families with children of diaper age to receive an annual allotment of complimentary diaper tags to be placed on a clear bag of diapers and collected curbside;
- Providing vouchers to residents to dispose of diapers and pet waste at Shoreway for free;
- Encouraging the use of reusable/cloth diapers;
- Encouraging the practice of flushing human and dog waste;
- Bagging pet waste and diapers using an approved type of bag (compostable vs non-compostable);
- Encouraging the use of a pet waste collection service;
- Bagging garbage and storing it in a container with a tight fitting lid to prevent access by vectors;
- Encouraging that containers be stored in a cool place, out of direct sunlight; and
- Using an odor neutralizer (e.g., baking soda, clothes dryer sheets, air fresheners, including activated carbon products and a few drops of perfume).

While several jurisdictions surveyed reported public health/quality of life issues due to EOW collection, some jurisdictions, including Bellingham, Olympia, Renton, Yakima, and Tacoma, Washington did not report an increase in public health issues as compared to weekly garbage collection.

Examples of Other Communities

Our research identified more than 30 jurisdictions that have implemented full-scale EOW collection programs in the U.S. and Canada, with Olympia, Washington being the first to implement EOW collection in 1998. Other jurisdictions that are currently conducting pilot programs include the City of San Francisco and the City of Yakima, Washington, while other California cities, including Berkeley and Santa Monica are considering EOW residential garbage collection.

Implementation of EOW residential garbage collection is a relatively new concept in North America; however, it is widespread in the United Kingdom.⁵ Twelve years ago only 13 local jurisdictions in the United Kingdom provided EOW garbage collection; however, presently 299 out of 406 local authorities (74%) have introduced

⁴The City of San Francisco's EOW pilot program (Pay Per Setout Service) allows residents to opt out of trash pickup each week although residents are required to have at least one trash pickup per month. For each week an account does not put out their black trash bin they receive a 10 percent discount off their trash bill. To participate in the "Pay Per Setout Service" residents must place all food scraps, soiled paper and yard trimmings in their green compost bin. Accounts that generate disposable diapers and pet waste must place that material in the black trash bin and have it collected weekly (i.e., they cannot participate in the EOW collection program).

⁵The United Kingdom of Great Britain is comprised of the island of Great Britain the north-eastern part of the island of Ireland (Northern Ireland), and many smaller islands.

alternatives to weekly garbage collection, including 100% of those in Wales and Northern Ireland and 84% in Scotland.⁶

While EOW collection has been implemented in numerous jurisdictions in North America, and is being actively considered by others, some jurisdictions have decided not to pursue EOW, perhaps most notably Seattle. The City of Seattle implemented a six-month EOW pilot program in 2012 covering 800 accounts. A post pilot survey found that approximately one third of the participants opposed City-wide implementation of the program due to odor, increased scavenger sightings, and increased street litter due to overflowing containers. As a result, Seattle decided not to implement EOW collection.

Contamination Issues

As discussed in **Section 3**, RethinkWaste has placed a high priority on minimizing contamination of recycling and organics collection to increase diversion and maximize commodity revenue. If residents are provided an incentive to reduce the frequency of garbage collection, it is possible that contamination of the recycling and compost containers may result. Jurisdictions which have implemented an EOW program and have experienced this problem, include Portland, OR, Seattle, WA, Surrey, BC, and Durham, Ontario.

As part of the pilot project, RethinkWaste will conduct a pre-project baseline contamination sampling survey and monitor this aspect of the program frequently. In addition, RethinkWaste will also be testing the correlation of various public education and outreach strategies with several aspects of participation, including but not limited to the impact on contamination of the recycling and compost set-outs.

Benefits

Benefits associated with EOW collection that have been cited include the following:

- Increased diversion;
- Reduced costs; and
- Reduced truck traffic and greenhouse gas emissions.

In addition to greenhouse gas emission reductions, reductions in other vehicle emissions impacting air quality and public health would also result, including reduced generation of particulates contributing to smog.

Increased Diversion

As discussed in **Section 3**, Residential recycling rates across the RethinkWaste service area have effectively been flat for the past 3 years. While residents are diverting a significant portion of the targeted materials, the majority of the waste stream is comprised of material that may be diverted through the existing residential recycling and compost services. The potential for increased diversion associated with EOW collection is a significant reason for RethinkWaste to consider this pilot project.

In general, EOW residential garbage collection appears to incentivize recycling and composting, and helps increase recycling awareness. Experience in the United Kingdom has shown that EOW collection results in an increase in both participation in recycling and set-out rates for recycling containers. The Daventry District Council (England) experienced a 45% increase in recyclables collected when they switched to EOW residential garbage collection. Experience also suggests that rather than doubling the amount of garbage per set-out every

⁶Alternate Weekly Waste Collections Work, David Riggle, BioCycle Magazine July 2013.

other week versus weekly, it is more likely to be 1.5 times the weight, due to the reduced capacity for garbage and increased diversion of materials.⁷

Table 4.6 below provides a summary of reported changes in disposal rates and diversion tonnages for various jurisdictions in North America that have implemented EOW residential garbage collection. As shown, in all cases the jurisdictions reported decreases in disposal and increases in diversion, although as noted, the implementation of EOW residential garbage collection was often done in conjunction with other program changes (e.g., adding collection of organics, increasing organics collection to weekly service), which does not enable the diversion impact specific to EOW collection to be quantified. However, those jurisdictions where the only reported change to the collection program was the implementation of EOW collection (Seattle, WA; North Vancouver, British Columbia, and York, Ontario), all reported an associated decrease in disposal and increased diversion. This finding was supported by a survey of municipalities across North America conducted by the City of Ottawa that found that, in general, **those jurisdictions with EOW collection of garbage and weekly collection of compost have a significantly higher diversion rate than those jurisdictions with weekly collection of garbage.**

Table 4.6: EOW Residential Garbage Collection Disposal and Diversion Impacts

Jurisdiction	Population	Program Phase	Disposal Change	Recycling Change	Organics Change	Diversion Change	Notes
USA							
Portland, OR	609,456	Active	-44%		+24%		Implemented w/ weekly organics and recyclables collection.
Renton, WA	97,003	Active	-18%	+27%	+44%		Implemented w/ updated recycling program and compost program.
Seattle, WA	652,405	Pilot	-15%	+13%		+1.3%	Biweekly garbage alone.
Canada							
Durham, ON	561,258	Active	-10%	-15%	+6%	+27%	Implemented w/ with organics collection - Phase 1, 4/8 jurisdictions. Has PAYT.
Halton, ON	501,669	Active				+4%	Implemented w/ region-wide Green Cart program. Has PAYT.
Ottawa, ON	883,391	Active			+25%	+9%	Implemented w/ organics collection increased to weekly.
Peel, ON	1,296,814	Pilot	-13%	+4%	+9%	+5%	Pilot results, currently being evaluated. Has PAYT.
Port Coquitlam, BC	150,000	Active			+6%	+10%	Implemented w/ increased organics collection frequency seasonally.
Surrey, BC	394,980	Active	-43%	+81%	+6%	+18%	Implemented w/ with organics collection.
Vancouver, BC	578,040	Active	-39%	+10%	+2000%		Implemented w/ organics collection increased to weekly.
York, ON	1,032,524	Active				+6%	Biweekly garbage alone.
average			-26%	+20%	+17%	+10%	"Organics Change" does not include Vancouver, BC
median			-18%	+12%	+9%	+8%	

As shown in **Table 4.6**, several jurisdictions reported diversion that ranged from 1.3% for Seattle's pilot program to 27% for Durham, Ontario. For purposes of developing planning level projections of the potential diversion that RethinkWaste might achieve with EOW collection we would therefore suggest using relatively conservative planning level estimates as compared to the figures reported in **Table 4.6**.

Table 4.7 on the following page provides an analysis of the additional tons that would result from the implementation of EOW residential garbage collection by RethinkWaste based on various assumed increases

⁷WRAP Final Report; Alternate weekly collections guidance, July 2007 (page 20 Section 2.6.1 and 2.6.2).

in the residential diversion rate. As an example, if the implementation of EOW collection increased the residential diversion rate by 1%, this would equate to the diversion of an additional 1,736 tons, and increase the system-wide diversion rate by 0.5%. Similarly, if the implementation of EOW collection increased the residential diversion rate by 10%, this would equate to the diversion of an additional 17,360 tons, and increase the system-wide diversion rate by more than 5% to 53.9%.

The greatest potential for cost savings and a potential increase in diversion is associated with the assumption that this program would be implemented system-wide.

The cost savings would be realized through re-routing and reducing the number of collection vehicles. Thus, a system-wide roll-out of this service would likely not transpire until expiration of the current Recology Franchise Agreements in 2020. Implementation of an EOW program in the short term for all or part of the service area may result in underutilized assets (i.e., idle vehicles which depreciation expense is still owed) and would require re-routing, which to gain maximize cost effectiveness, would require a service-area wide roll-out.

Table 4.7: Projected Diversion Impact of Implementing EOW Collection in RethinkWaste’s Service Area (Based on 2014)

Assumed Increase in Residential Diversion Percentage	Additional Tons Diverted	Residential Diversion Rate	Total Increase in System-Wide Diversion Rate	System-Wide Diversion Rate
0%	--	66.5%	--	48.9%
1%	1,736	67.5%	0.5%	49.4%
2%	3,472	68.5%	1.0%	49.9%
5%	8,680	71.5%	2.5%	51.4%
10%	17,360	76.4%	5.0%	53.9%

Reduced Costs

EOW garbage collection may result in reduced costs due to:

- Increased collection efficiency and fewer solid waste routes with associated labor, capital and operating and maintenance cost savings;
- Reduced disposal expense due to less generation of garbage; and
- Increased commodity revenue due to increase in collection of recyclable materials.

Mitigating Factors:

- The reduced costs may be limited by an increase in collection costs associated with more recycling and composting routes.
- Higher compost expense may be accrued if participation in compost collection increases, since compost is more expensive than disposal.
- The initial implementation of the program will require an investment in public education, although this outreach would likely supplant other outreach efforts.

Our research suggests that EOW collection, without a weekly option, might result in a total net residential solid waste system savings on the order of perhaps 10-20%. If an option for weekly collection of diapers, pet waste and/or other materials is required, the potential for cost savings may be reduced. While some level of cost

savings would be expected, the potential for increased diversion is perhaps the most significant resulting benefit.

Table 4.8 illustrates identified cost impacts associated with EOW residential garbage collection reported by a number of jurisdictions.

Table 4.8: EOW Residential Garbage Collection Cost Savings

Jurisdiction	Population	Program Phase	Cost Savings	Other
USA				
Berkeley, CA	116,768	Planning Level Projection	\$469,000/yr	Estimated if biweekly garbage collection is implemented.
Portland, OR	609,456	Active	Offset	Stable rates due to reduced solid waste fees and increased food composting fees.
Renton, WA	97,003	Active		Increase in customer rates due to organics processing.
Seattle, WA	652,405	Pilot	\$6.4 million/yr. (Based on Pilot Program results)	30% total cost reduction. 30% reduction in truck traffic. 15% reduction in hauling emissions.
Tacoma, WA	203,446	Active	\$1 million/yr	44% reduction in Fuel Costs ~ \$163,000. 20% reduction in CO ₂ Emissions.
Canada				
Guelph, ON	114,940	Active	\$1.5-2.8 million/yr	Includes moving to a cart system.
Ottawa, ON	883,391	Active	\$9 million/yr	Net annual collection savings.
Peel, ON	1,296,814	Pilot	\$5-7 million/yr (Based on Pilot Program results)	Net annual collection savings, without implementation costs.
Toronto, ON	2,503,000	Active	\$343,000	Savings after one year of implementation in 2002.

Reduced Truck Traffic and Greenhouse Gas Emissions

EOW garbage would be expected to result in reduced greenhouse gas emissions due to:

- Reduced collection vehicles and associated fuel consumption and associated emissions; and
- Reduced methane from organics decomposition at landfill.

The Seattle PUC estimated that EOW pickups should reduce garbage truck traffic by an estimated 30 percent, resulting in a 15 percent drop in trash hauling emissions. The City of Tacoma reported a 20 percent reduction in CO₂ emissions.

Pilot Program Budget

As stated above, the costs associated with this pilot project are primarily related to public education and outreach, subsidizing a nominal discount to customers who subscribe to participate, data collection and related administrative expenses. We do not anticipate disrupting the collection services provided by Recology which would otherwise result in increased operational costs.

Table 4.9: EOW Pilot Budget

<u>Expense Item</u>	<u>Amount</u>
Public Education and Outreach	\$25,000
Discount to Customers (4,100 customers; \$2.00/month discount for 3 months)*	\$49,200
Contamination Sampling	\$15,000
Customer Surveys	\$5,000
Data Management and Administrative Expense	\$15,000
Total Budget	\$119,200

**Assumes full participation which is not anticipated. The discount will only be provided to eligible customers that subscribe to the service during pilot.*

Rate Structure Considerations

The Member Agencies rates are by and large publicized as the “solid waste rate.” However, the rate actually covers the full cost of collection services which includes recycling, composting, twice annual bulky items collection, initial overages, etc.; as well as the processing of recyclables and compost, operation of the Shoreway Environmental Center, Recology’s customer service call center, public education and outreach, etc. If residents are offered EOW garbage collection services, it is likely that they will expect a 50% reduction in cost commensurate with the less frequent service, given the terminology associated with what they are paying for (i.e., the “solid waste rate”). However, as discussed above EOW garbage collection service equates to one fewer truck trip of six every two weeks; thus, reducing on-route vehicle time by 1/6 or 17%, not 50%.

Implementation of a wide-scale EOW program will likely require restructuring rates to shift the paradigm of how the cost of collection services are paid for. This is basically a shift in terminology as currently the Member Agencies associate the cost to ratepayers as their “solid waste rate.” However, the rates charged ratepayers do not just cover the cost to collect “solid waste,” but rather the full cost of collection services and this change in messaging and adjustment to public perceptions will need to be addressed to avoid confusion and ensure clarity of messaging and transparency.

As mentioned prior, the LRP is not intended to address issues with the current rate structure; however, this is a critical challenge that would need to be addressed in order to implement EOW residential garbage collection service for an entire jurisdiction or to the service area as a whole. This pilot project will explore customers perceptions regarding the terminology used to convey what the “solid waste rate” covers and the services offered.

d. Commercial Recycling Outreach Program Project

Goals

Through the Member Agencies Franchise Agreements with Recology, the SBWMA ratepayers fund a commercial recycling technical assistance program run by Recology which will cost \$912,362 in 2015. Recology reported a commercial sector measured diversion rate of 31% for 2014 as discussed in **Section 3**. Another performance measure reported by Recology is the “service level” diversion rate of 53.43%⁸. The difference between these two “diversion rates” is that the former denotes the actual percentage of recycling (which includes compost) tons collected by Recology (thus disposal is 69%) and the latter represents customer subscription levels.



RethinkWaste has developed recommendations to improve the functioning of Recology’s Commercial Recycling Outreach Program and increase diversion through the BizSMART commercial recycling and composting collection services. While Recology has increased commercial recycling each year, the company has previously indicated that reporting requirements in the Franchise Agreements for this program are onerous and can be streamlined; unfortunately staff has not received specific feedback on what Recology would like to change in the reports. With this in mind, staff and its consultant R3 took the initiative to try and improve the reports so they are more useful and can be better used by Recology to track progress against specific diversion related metrics.

Staff believes the components of this project, improved reporting and enhanced outreach, are critical pieces needed so Recology can meet the forecasted commercial recycling and commercial organics diversion levels found in **Tables 4.1** and **4.2A**.

Improvement of the current Recology Commercial Recycling Outreach Program supports the following LRP Guiding Principles:

- Leverage existing infrastructure
- Provide cost effective and efficient programs
- Support local, state and national mandates, including meeting the State’s 75% recycling goal by 2020
- Increase and maximize participation in programs and services to reduce, reuse, recycle and compost waste
- Promote behavior change through public education

Overview

In reviewing Recology reports and the waste composition data collected by RethinkWaste, the following observations can be shared:

- Approximately 60% of garbage that is sent to landfills by Recology commercial and multi-family customers could be diverted by existing source separation programs;

⁸The “service level” diversion rate is the ratio of collection containers in service for recycling and organics to garbage. Thus, 53% means a little more than ½ of all collection service is for recycling and compost, and a little less than ½ is for garbage.

- Approximately half of targeted recyclables generated by these customers are collected for recycling (for a capture rate of around 50%), yet virtually 100% of commercial and multi-family customers subscribe to recycling collection service so customer participation rates are lagging; and
- Approximately one-third of materials landfilled by commercial and multi-family customers are targeted organics, and levels of subscription in organics collection programs remains low (12-15%).

Recology Commercial Recycling Outreach Program Franchise Agreement Requirements

RethinkWaste and Recology have dedicated a considerable amount of resources to outreach and public education for purposes of increasing the diversion of materials from the commercial and multi-family sectors. Section 7.04.A (Commercial Recycling Promotion Staff) of the Recology Franchise Agreement(s) state:

- *Contractor shall maintain a Commercial Recycling promotion program staff that will be primarily responsible for supporting Commercial and Multi-Family Dwelling Accounts and Agency Facilities Recycling-related Collection services. The Commercial Recycling promotion staff for the SBWMA Service Area shall consist of a minimum of the following full-time staff: eight (8) "sales" representatives (recycling coordinators), two (2) diversion auditors and one (1) supervisor (commercial recycling manager) as specified in Attachment O.*

Note: Per improvements (i.e., amendments) to the Franchise Agreements negotiated in 2012/2013 that resulted in cost savings for both Recology and the SBWMA, the headcount for the Commercial Recycling Outreach Program was reduced from 11 to 9 by eliminating the diversion auditor positions. The direct labor cost associated with Recology's Commercial Recycling Outreach Program Staff for 2014 was \$895,393 (2015 is \$912,362).

Section 7.04.E states that:

- *Contractor shall provide full on-site waste assessments and technical assistance to, at a minimum, one-hundred (100) of the Agency's largest Commercial Generators (based on weekly Solid Waste generation) annually to assist in maximizing diversion. For all other Commercial Generators, Contractor shall provide technical assistance as needed or requested and visual on-site Collection Container assessments at least once every three (3) years. Contractor shall document the site assessments, the date of the assessment, the Person contracted, the Solid Waste, Source Separated or Targeted Recyclable Materials, and Organic Materials service levels at the time of the assessment, and recommended changes to service level(s). Contractor shall submit results of site assessments monthly, or upon request, provide copies of assessment data and recommendations for individual site assessments.*

Note: Per the contract amendments mentioned above, the total number of on-site waste assessments which Recology is obligated to perform was reduced from 1,061 to 796.

Section 7.05.A.1 requires Recology to:

Provide on-site assessments to all Multi-Family Residential Complexes containing twenty (20) or more residential units once every three years (Section 7.05.A.1). Therefore, all commercial accounts and all multi-family accounts with 20 or more residential units should have been audited at least once at this point of the term of the agreement which commenced on January 1, 2011, and at least two more times before the end of the current term in 2020.

Prioritizing Recology Commercial Outreach Efforts and Resources

Increasing diversion through the BizSMART commercial and multi-family recycling and compost collection services will result from increasing the number of accounts that subscribe to service for each program (Subscription Compliance) and increasing the capture rate of targeted materials by accounts subscribed to each service (Participation Compliance). To support increasing Subscription Compliance and Participation Compliance there are two basic initial pieces of information that should be tracked and reported:

1. Subscription Compliance: How many and which targeted businesses are and are not subscribed to the commercial recycling and commercial organics programs?
2. Participation Compliance: Of those businesses that are Subscription Compliant, what is their level of participation or what percentage of their waste stream is comprised of targeted materials (i.e., both recycling and compost)?

Recology currently tracks and reports overall Subscription Compliance rates by Member Agency⁹ and by individual accounts.¹⁰ Recology also tracks and reports the results of the required waste assessments.¹¹ This information includes estimates of the percentage of disposal comprised of targeted recyclables and organics based on one-time visual observations conducted at the time of the audits, essentially a Participation Compliance snapshot. However, it has not been determined what effort would be needed to combine the pertinent data (i.e., subscription and participation information) into a single report, which would be the most useful way to collect and maintain this data.

Having a list of all accounts that conveniently identifies Subscription Compliance status and Participation Compliance (i.e., the percentage of recyclables and organics in the waste stream) would be extremely useful for purposes of prioritizing efforts to increase diversion and to subsequently establish diversion goals for accounts. Incorporating these two elements into one report (a Commercial Subscription and Participation Compliance Status Report), would facilitate establishing diversion goals and additionally greatly support the ultimate goal of increasing diversion from the commercial and multi-family waste streams. Ideally that report would include each account's business type's designation and would enable the data to be sorted based on the percentage of recyclables and/or organics in each account's waste stream.

Attachment C (Example - Commercial Subscription and Participation Compliance Report) provides an example of the type of individual account information envisioned for the Commercial Subscription and Participation Compliance Status Report. RethinkWaste anticipates using a Commercial Subscription and Participation Compliance Report database as follows to focus and prioritize Recology's outreach efforts and resources:

Commercial Recycling

- Sort the database by total weekly recycling service level and identify those accounts that are not Subscription Compliant with the commercial and multi-family recycling program and target those businesses for subscription to the recycling program;
- Sort the percentage of recyclables in the "MSW" (i.e., garbage) column (Total Weekly MSW x RCY) from largest to smallest. The accounts with the largest percentages are currently disposing the greatest volume of recyclables and should be prioritized for outreach to increase Participation Compliance.

⁹Recology Quarterly Report worksheet source files provided to RethinkWaste - tab "M7a. Acct Summary Subscription."

¹⁰Recology Quarterly Report worksheet source files provided to RethinkWaste - tab "M10a. Top 100 MSW Gen Diversion."

¹¹Recology Quarterly Report worksheet source files provided to RethinkWaste - tab "M4a. On-site Assmnts Vis Audits."

Commercial Organics

- Sort the database by business type and then by total weekly organics service level. Identify all those accounts in “Food Services/Groceries”: that are not Subscription Compliant and target those businesses for subscription to the organics program;
- Sort the percentage of organics in the MSW waste stream (Total Weekly MSW x ORG) from largest to smallest. The accounts with the largest percentages are disposing the greatest volume of organics and should be prioritized for outreach to increase Participation Compliance.

Table 4.10 below provides a comparison of how a Commercial Subscription and Participation Compliance Status Report can be used to assist with setting commercial outreach priorities and tracking and quantifying progress.

Staff also can supplement these reports through utilizing existing contractual tools, namely the Franchise Agreement provisions 7.06 and 7.07, waste generation/characterization studies and program monitoring respectively, to further track and quantify progress towards Subscription and Participation compliance.

Table 4.10: Commercial Outreach Setting Priorities and Tracking and Quantifying Progress

Objectives	Current Method	Enhanced Method
Setting Priorities	Staff meets with representatives from each Member Agency annually to identify specific businesses to target for onsite waste assessments and also develops additional internal annual commercial outreach goals and objectives.	Use Commercial Subscription and Participation Compliance Status Report as basis for setting initial priorities for each Member Agency within each of the following four areas: (1) Increase commercial recycling program Subscription Compliance (2) Increase commercial recycling program Participation Compliance (3) Increase commercial organics program Subscription Compliance (4) Increase commercial organics program Participation Compliance Meet with representatives from each Member Agency annually and revise above priorities.
Tracking and Quantifying Progress	Limited use of metrics and tracking specific progress related to increasing commercial recycling program and commercial organics program Subscription and Participation Compliance.	Commercial Subscription and Participation Compliance Status Report can be used to track and report: (1) Percentage of commercial accounts that are Subscription Compliant with commercial recycling and organics programs; and (2) Percentage of total commercial waste stream comprised of recyclable materials and organic materials

The metrics driven approach envisioned by RethinkWaste will facilitate Recology focusing its Commercial Recycling Outreach Program staff resources dedicated to the commercial and multi-family sector to specifically:

- Increase commercial and multi-family organic program Subscription Compliance;
- Increase commercial and multi-family recycling program Participation Compliance; and
- Establish metrics driven diversion goals for commercial account types and specific businesses.

Prioritizing the above three objectives will assist Recology with:

- Identifying commercial recycling Subscription Compliant accounts that have the highest percentage of recyclable materials in their waste stream and targeting those accounts for increased Participation Compliance; and
- Efforts to increase organic program Subscription Compliance focus on identifying which commercial businesses with business type designations of: Food Service/Groceries; Hotels; and Education, are not Subscription Compliant and targeting those accounts for compliance.

Rationale for Program Improvements

While RethinkWaste has a mature commercial and multi-family recycling program, 27% of the landfilled commercial tons are comprised of materials targeted by the commercial recycling program. The majority of those tons are comprised of mixed paper (i.e., 64%). However, as shown in **Table 4.11** below, there is virtually 100% Subscription Compliance for the commercial recycling program within both the commercial and multi-family sectors. As such, the opportunity to maximize diversion through increasing subscription levels appears to be largely realized. Any additional increases in the diversion of targeted recyclable materials from the commercial and multi-family waste streams will therefore be largely dictated by the ability of RethinkWaste and Recology to increase Participation Compliance. This simply put means to collect more recycling from the accounts which Recology provides collection service.

Table 4.11: Commercial and Multi-Family Subscription Compliance Percentages

Sector	Subscription Compliance Rates		
	Solid Waste	Recycling	Organics
Commercial	100%	99%	15%
Multi-Family	100%	98%	12%

Source: Recology San Mateo County

This project with Recology will focus in-part on providing answers to the following questions and to institutionalize the key takeaways that are learned in answering and documenting the data associated with answering these questions:

1. Which specific businesses are not Subscription Compliant?
2. Of those businesses that are not Subscription Compliant which are non-compliant by choice (i.e., do not wish to participate) and which are non-compliant due to factors beyond their control (e.g., space limitations)?
3. Of those businesses that are Subscription Compliant:
 - a. Which have Participation Compliance information (i.e., visual waste composition data from waste audits)?
 - b. Can a report be generated that lists the waste composition data for: (1) each of the top 100 commercial accounts; and (2) all commercial accounts, ideally by business type, so that:
 - i. Those accounts that have not received waste audits or for which waste composition data is not available can be identified, and future audits planned; and
 - ii. Those accounts that have the greatest percentage of recyclables and/or organics in the waste stream can be identified and targeted.
 - c. Are there programmatic changes that can be made to increase Participation Compliance?

- d. Is there additional outreach, public education or technical support that can be provided to increase Participation Compliance?
- e. What specific next steps should RethinkWaste and Recology take to increase BizSMART commercial recycling program Participation Compliance?
- f. What if any associated reporting should there be (content, format and frequency)?

Reporting and reports should be used as a tool. The specific information that is tracked and reported should have a clear purpose in support of overall program goals. As such, opportunities to enhance and/or streamline current reporting requirements should be identified to eliminate any unnecessary, labor intensive reporting requirements, and implement new reporting requirements that can service as effective tools for supporting future commercial and multi-family outreach efforts. In order to accomplish this, Recology's capability to generate a Commercial Subscription and Participation Compliance Status Report shall be determined. If that capability does not currently exist, the company will be requested to develop a proposal explaining what it would take to develop that capability.

In addition, to further support efforts to increase the diversion from the commercial and multi-family sectors, RethinkWaste suggest the following goals be applied to the Recology Commercial Recycling Outreach Program:

1. Develop the ability to generate a Commercial Subscription and Participation Compliance Status Report by end of 2015, with the capability to sort accounts based on the established commercial account categories (i.e., business types) and the percentage of recyclables and/or organics in the waste stream.
2. Identify accounts that are not Subscription Compliant and begin tracking whether that is by choice (i.e., do not wish to participate) or due to factors beyond their control (e.g., space limitations)?
3. Begin reporting the results of the waste assessments to enable sorting by the percentage of recyclables and/or organics in the waste stream of each account (i.e., reporting those percentages in dedicated worksheet columns).
4. Set capture rate goals for the commercial and multi-family recycling and organics programs and continue to measure progress via periodic waste composition studies.
5. In cooperation with RethinkWaste, implement a Management by Metrics (M&M) approach to the Commercial Recycling Outreach Program, where feasible, to quantify the effectiveness of specific outreach efforts in support of identifying the most effective deployment of available resources.
6. Achieve a 5% increase in the commercial recycling program Participation Compliance as measured by average tons per account diverted by the end of 2015 and 10% by the end of 2016.
7. Achieve a 100% organics Subscription Compliance for Food Services/Groceries, Hotels and Education accounts by the end of 2015.
8. Realize no more than 10 percent of readily recyclable or compostable materials landfilled by 2020 (i.e., a 90% capture rate).

To support these goals and maximize diversion through enhancing recycling participation rates and organics subscription and participation rates, RethinkWaste would suggest supplementing the existing BizSMART public education and outreach efforts with the following projects:

Recycling Ambassador Program: Multi-family continues to be a labor-intensive sector in terms of outreach needs. While the current practice of on-site visits by Recology, using buddy bags, door hangers and the

toolkits have been identified through the consultants' research as best practices, additional tools and efforts are needed to supplement the existing outreach if greater diversion rates are to be achieved.

This pilot would entail recruiting and training MFD tenants as Ambassadors for their complex, to network with their neighbors and educate them on the programs and services. They would support such tactics as a customized newsletters, posters and signage with a door-to-door element. Such programs have been proven to be successful in other communities. As an example, Toronto, Canada needed to increase recycling at its MFD complexes in order to meet a 70% diversion goal by 2010. Their outreach team trained 180 "3R Ambassadors" representing 5% of the buildings in the city. Citywide, MFD recycling rose 13%-20% in four years, and waste generation declined. In addition, results of the program showed that buildings with ambassadors saved an average of 15% on their garbage bills.

In addition, a recycling party to kick off the program, or recognition event at the end of the pilot with incentives or prizes could be used to incentivize participation.

The budget for this outreach pilot to be included in the FY1516 budget would be \$25,000-\$30,000.

Commercial Focused Outreach: To move business beyond compliance with AB 341's mandatory recycling component and simply having recycling service to truly making the most of it to maximize diversion, more touch points are needed to help businesses see value in fully embracing recycling. This outreach pilot would target those businesses identified as having the highest percentage of recyclable or organic materials in their waste stream with the aim of further building upon the relationships already formed by Recology. This effort would include a series of direct mail pieces, both in the form of official letters and brochures/postcards, updated website page with resources, toolkits, direct contact following each targeted piece, increased technical assistance and partnerships with business organizations such as chambers of commerce.

The budget for this outreach pilot to be included in the FY1516 budget would be \$25,000-\$30,000.

e. Public Spaces Recycling Pilot Project

Goals

Staff is recommending implementation of a pilot project to increase recycling in two different public space settings: a downtown shopping district area and a park. The project will test public education and promotion strategies, monitor participation, diversion, contamination and assess operational impacts and costs.

A downtown area is recommended due to the high foot traffic and associated generation of high garbage and potential recyclables. Based on the field study observations conducted during RethinkWaste's prior research¹², the City of Burlingame's downtown area is a strong candidate for a potential pilot study. This site could serve as a good baseline to identify the effects of adding public space recycling containers to an area that did not previously have recycling containers.



The second setting, a park area, is selected for the pilot due to this type of setting being underserved in many Member Agencies per observations conducted during RethinkWaste's prior research. Staff will work with a Member Agency to develop and implement a park area pilot project. The pilot will fund a trailer to haul Recology carts (interior of park away from curb or street) to a central location for collection by the company. Public education and outreach strategies will be tested along with the other variables mentioned above for the downtown area. In addition, the parks and recreation staff who handle the containers at the park will be surveyed as part of the pilot project to document their experiences and lessons learned.

This pilot project supports several LRP Guiding Principles including:

- Leverage existing infrastructure
- Provide cost effective and efficient programs
- Increase and maximize participation in programs and services to reduce, reuse, recycle and compost waste
- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Promote behavior change through public education
- Enhance public education to maximize participation
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion activities
- Ensure proposed programs identify any service voids or deficiencies

Overview

RethinkWaste conducted a project with Cascadia Consulting in 2014 to explore improving public space recycling programs with the goal of increasing the amount of recyclables captured. Public space recycling generally refers to permanent recycling containers installed in open areas accessible to the public in locations such as parks, shopping centers, streetscapes, beaches, and may also include temporary recycling bins at special events. Collection from public space recycling containers offers the opportunity to capture recyclables that may otherwise be landfilled. However, public space recycling programs generally recover minimal

¹²RethinkWaste Public Space Recycling Best Practices and Recommendations Summary Report July 2014

quantities of lower value recyclable materials due to improperly designed or implemented programs and the challenges associated with “community” containers. Recyclables are also heavily scavenged from these containers.

The project researched successful public space recycling programs and identified recommended program implementation strategies for RethinkWaste’s twelve Member Agencies to improve recovery rates in public space recycling programs. The project entailed a literature review of public space recycling best practices and common barriers and developing case studies of successful public space recycling programs in other jurisdictions. In addition, an online survey of Member Agency staff and a field survey of existing public space recycling and garbage collection programs in RethinkWaste’s Member Agencies were also conducted.

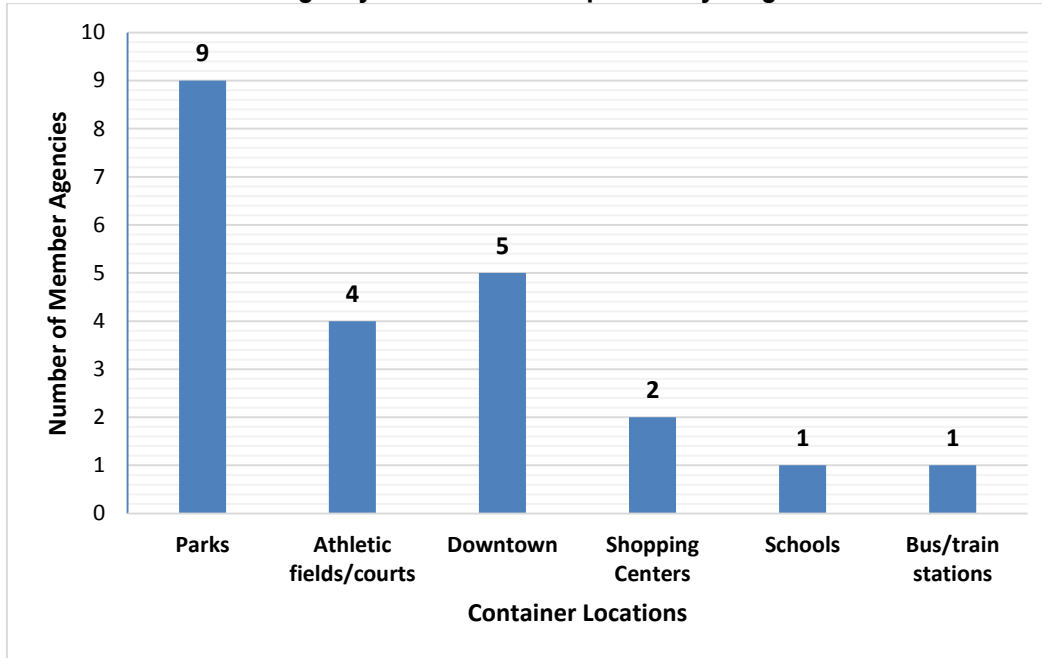
Common best practices resulting from the literature review include: locating recycling containers adjacent to garbage containers, using consistent or standardized container types and messaging (e.g., signs, text, colors), locating containers in high foot traffic areas, and involving all responsible staff in container purchasing and maintenance decisions. The project also included research and interviews to develop case studies of successful public space recycling programs in the following cities: New York City, St. Paul, Philadelphia and Seattle. The case studies identified program costs as the greatest barrier to program success and highlighted the importance of utilizing pilot studies and purchasing containers in stages rather than all at once to manage program costs.

Ten Member Agencies completed a web-based survey that was used to provide insights on current public recycling practices at each Member Agency. The field study performed in eleven Member Agencies documented current recycling infrastructure in public spaces in each Member Agency. The survey and field study results indicate that each Member Agency needs to implement the best practices identified in the literature review and case studies to successfully capture more recyclables in their public space recycling programs, particularly in the areas of container location and design, messaging and program management.

RethinkWaste Service Area-wide Findings

The results of surveying Member Agency staff are cited in **Table 4.12** on the following page and identify parks and downtown areas as the most popular and with the highest potential to increase recycling. Identifying high foot traffic areas is important to ensuring sufficient public space recycling and garbage containers to capture the recyclables and garbage that the public generates. The Member Agencies reported that container locations are most commonly selected based on: land use type, pedestrian traffic patterns, and feedback from the public and collection staff.

Table 4.12: Member Agency Current Public Space Recycling Container Locations



Responsible Departments/Divisions

Member Agencies reported that the current public space recycling programs involve coordination between multiple departments or divisions, as shown in **Table 4.13**. This division of responsibility can lead to budget and servicing issues, so regular and efficient inter-departmental coordination is important to ensure program success.

Table 4.13: Public Space Recycling Program Member Agency Responsible Departments/Divisions

Member Agency	Agency Department/Division				
	Parks	Streets	Environmental Programs	Public Works	Franchised Hauler
Atherton	P, I, S				
Belmont	P, I, S		P	P	S
County of San Mateo		I	P, S		
East Palo Alto		P, I, S			
Foster City	P, I, S		P		S
Hillsborough		I, S	P	P, I	S
Redwood City	P, I	P, I			
San Carlos	S	I	P		S
San Mateo	P, I, S	P, I, S	P, I, S		S

P=Purchase, I=Installation, S=Service/Collection

Implementation of the Pilot Project Service Area Wide

The results of the pilot project will be analyzed and used by RethinkWaste to design a system-wide program since improvements to public space recycling are needed throughout the service area. The aforementioned research conducted by RethinkWaste in-part resulted in overall recommendations for Member Agency program

design and operation (see **Table 4.14** on the next page). These recommendations are based on the literature review and case study best practice findings, and the Member Agency web and field survey findings, which demonstrated what changes the current Member Agency public space recycling programs need to implement. The pilot project results will be used to develop approaches to assist each Member Agency with adopting the recommendations based on the feasibility for their program.

It is important to note that the recommendations presented in **Table 4.14** on the following page are relevant to all RethinkWaste Member Agencies. RethinkWaste and its Member Agencies should consider developing consistent messaging throughout the RethinkWaste service area to increase awareness and ease of proper participation. In addition, as a long term goal, the purchase of new or replacement containers that are similar throughout the RethinkWaste service area would also be conducive to increasing the public's recognition of the program and containers across jurisdictional boundaries. However, this may not be feasible as some Member Agencies may have their own aesthetic needs for containers, but whenever possible, Member Agencies should work together to create a consistent program across the RethinkWaste service area.

Table 4.14: Overall Recommendations for Member Agency Public Space Recycling Programs

Recommendations	
Container Type	<ul style="list-style-type: none"> • Be consistent in container type to avoid confusion among public • Select recycling containers that are clearly different than garbage containers (e.g., color-coded) • Install containers with the proper capacity based on site-specific projected generation and frequency of collection • Ensure containers are properly designed to deter scavenging and illegal dumping • Reduce contamination with restrictive lids designed for desired recyclables (e.g., restricted opening for paper/bottle openings) • Select durable, easy to service containers
Container Location	<ul style="list-style-type: none"> • Always locate garbage and recycling containers together • Supply sufficient number of container sets in heavy foot traffic areas (e.g., park entrances, restrooms, train/bus stations) • Research busiest, high-traffic locations for best container placement
Container Signage	<ul style="list-style-type: none"> • Ensure design of messaging is consistent for all types of containers at all locations • Large, clear, consistent text • Graphics • Multi-lingual • Color-coded containers/lids • Supplemental sign on or around containers can support recycling message
Program Administration	<ul style="list-style-type: none"> • Get feedback from collection staff on container design and location • Determine desired recyclables (single-stream vs. select materials) and implement across Member Agencies for consistency • Form a partnership with transit organizations (e.g. Caltrain, SamTrans) to provide public space recycling containers at transit stations • Require franchised hauler to participate in program through the provision/collection of containers as a contract requirement • Track recycling progress (volumes/tonnage) and monitor program for improvements
Program Outreach	<ul style="list-style-type: none"> • Assign Recycling Coordinator/Ambassador • Promote program at kick-off/special events • Use social media and agency websites to promote program • Educate city employees, businesses, vendors, and other community members using or providing services near the bins • Items accepted in public space recycling containers should mirror what is accepted in residential/commercial recycling programs
Program Maintenance	<ul style="list-style-type: none"> • Place bins near access points (e.g., park entrances) for easy collection • Keep bins cleaned and well maintained to avoid overflow that deters public from using containers properly • Monitor/remove contamination prior to collection • Replace/repair broken or outdated containers/signage • Use existing collection routes to service containers
Program Cost	<ul style="list-style-type: none"> • Place containers in locations suitable for the franchised hauler to collect to maximize value of existing franchise agreement(s) • Purchase containers in bulk for cost discounts • Select city staff, hauler, or other contractor to service containers based on the most economical collection and transport process • Partner with business improvement districts, building owners and property managers, schools and universities, transit organizations (e.g. Caltrain, SamTrans) and individual corporate businesses to provide/maintain public containers

Common Barriers to Success in Public Space Recycling

The literature review found that common barriers to implementing and maintaining successful public space recycling programs was securing funding sources for container purchases and ongoing operational costs, such as labor time for collection and maintenance. Insufficient recycling container quantities related to limited funding can lead to reduced capacity to capture recyclables and associated contamination, resulting in lower quality recyclables. Poorly designed containers (including lid shape and signage), poorly located containers, and a lack of outreach can also result in contaminated recycling streams. The most common barriers to successful public space recycling programs cited among the organizations researched as part of the literature review are identified in **Table 4.15**.

Table 4.15: Literature Review Results: Common Barriers for Public Space Recycling Programs

<u>Barriers</u>
Limited funding for container purchases and ongoing program maintenance and collection service.
Ensuring consistent collection service based on limitations in existing program infrastructure and contracts.
Poorly designed containers and those located in infrequently used areas.
Contaminated low quality recyclables recovered.
The ability to adapt program needs and design based on local conditions which can vary from site to site.
Containers can attract illegal dumping or be used improperly by the public to dispose of trash, which compromises the quality of the recyclables collected.

Diversion Potential

The literature and case study review revealed that tracking volumes of recyclables collected and encouraging feedback from the staff that service/collect materials from the containers are important for monitoring public space recycling program success in recovering recyclables. However, none of the Member Agencies responding to the survey reported that they track the volume of materials collected from public space garbage or recycling containers and this is not currently tracked by Recology. The City of San Mateo did report that their public space recycling program is working and their best practices of color coding recycling containers to match the franchised hauler carts and using the carts themselves in public spaces have aided in public recognition of the containers and subsequent success in recovering recyclables.

The pilot project will attempt to quantify participation, diversion and contamination. The lessons learned will be shared with the intent of developing a system to quantify diversion from public space recycling for each Member Agency.

While in both the downtown area and park setting the garbage containers are anticipated to be filled to capacity daily, the recycling containers will not due to scavenging, based on observations of similar downtown areas and parks. Therefore, the actual diversion results will depend on statistics derived from collection services, anecdotal information obtained through interviews and direct observations conducted during monitoring activities.

Pilot Project Budget

As shown in **Table 4.16** below, the FY1415 budget includes \$35,000 to implement a public spaces recycling pilot project. The FY1516 budget will include \$11,000 in expense to conduct the follow-up surveying and contamination sampling.

Table 4.16: Budget for FY1415 and FY1516

<u>Item</u>	<u>FY1415</u>	<u>FY1516</u>
16 Sets of Containers (Downtown Area)	\$18,000	
Installation	\$3,000	
2 Cart Trailers (2 Park Areas)	\$8,000	
Public Education & Outreach	\$5,000	
Contamination Sampling		\$10,000
Administration and Surveys	\$1,000	\$1,000
Total	\$35,000	\$11,000

f. Enhanced Residential Public Education and Outreach Pilot Program

Goals

Identify and implement cost-effective, measurable public education and outreach campaigns for the residential sector with targeted new messages, calls to action, incentives and tools as a pilot program with a primary goal of supporting the JPA's goal of increasing the current SBWMA-wide residential diversion rate of 66.5% to the State's goal of 75% diversion by 2020. Based on historical diversion trends, new and additional efforts are needed to revitalize the residential program as diversion rates have leveled off, and slightly declined this past year.



This pilot program option supports multiple LRP Guiding Principles including:

- Enhance public education to maximize diversion
- Promote behavior change through public education
- Increase and maximize participation in programs and services to reduce and reuse waste
- Provide cost-effective and efficient programs
- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020

Overview

This pilot program involves developing and implementing dedicated public education campaigns targeting residents and measuring/tracking changes to residential diversion rates. The pilot efforts proposed are based on identified best practices to drive behavioral change and increase participation rates. Current outreach efforts that have proven to be effective to raise awareness and participation, including newsletters, bill inserts, and truck signs, among others would be integrated into the pilot projects. Existing staff would manage the process with assistance from technical consultant(s) to produce any outreach materials needed. The proposed pilot outreach campaigns are detailed below.

While there was a significant increase in residential diversion from 54.7% to 66.2% due to the rollout of new services in 2011, residential diversion has since levelled off to approximately 66%, reaching a high of 66.9% in 2013, and slightly declining to 66.5% in 2014. However, waste characterization research shows that there are still significant amounts of recyclable and organic materials left in the waste stream. To move the current residential diversion rate to 75% equates to an increase of 8.5%. To increase the residential diversion rate by 1% equates to increasing recycling and organic materials collected by approximately 1,736 tons over 2014 tonnages, and decreasing garbage tonnages by the equivalent 1,736 tons at the same time over 2014.

The outreach targeting residents would entail two approaches, with the first being a service area wide approach, and the second, a grassroots/community based approach targeting Member Agencies with below-average residential diversion rates.

Service Area Wide Campaign:

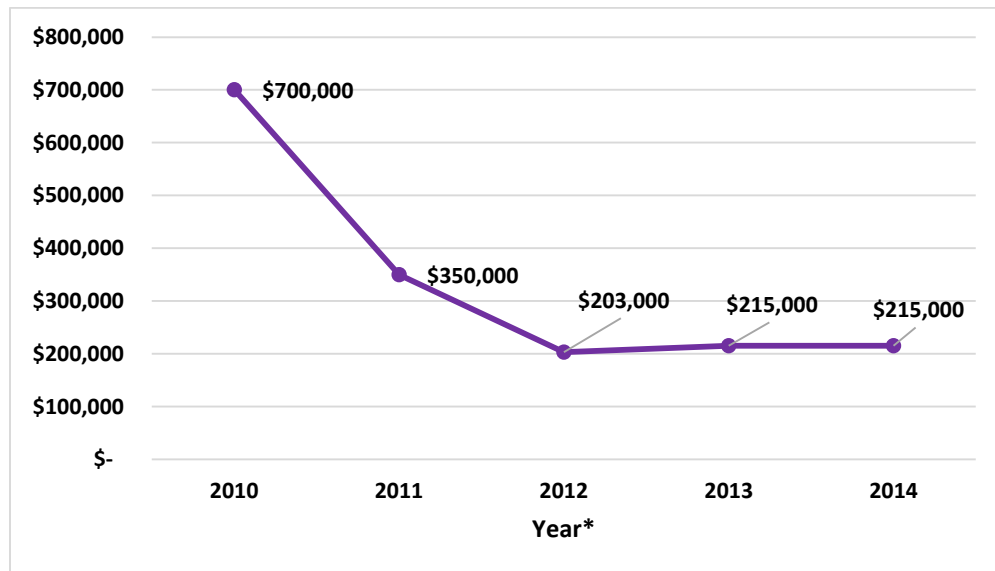
This campaign would be a year-long campaign in FY1617 designed to create new awareness for the CartSMART program, with a focus on the recycle and compost carts. The campaign would include a call to action based on research of messages that motivate the target audience to drive more material out of the garbage into recycling primarily through mass media and advertising using newspapers, online media and

bus shelters, as well as newsletters, bill inserts and direct mail. The difference between this campaign and what has been done the last few years is that it would be focused and build on each other with a uniform theme/tagline/message. While there has been consistency in prior messaging, content and look, it has been focused at a general level of program awareness. In addition, while some advertising has been done to promote special programs like the Door-to-Door HHW program, there has not been any advertising done to promote the overall CartSMART program since its launch in 2011.

As an example of a service area wide approach, Milwaukee’s “Recycle for Good” brand and campaign reinvigorated their program and resulted in a 10.4% increase in recycling tonnage. The amount of organic materials set out by residents in the RethinkWaste service area in the last quarter of 2010 increased almost by nearly 2,000 tons when compared to the same period in 2009 because there was consistent messaging and reminders to residents about what went into the green compost cart. There was no change in service, capacity or types of materials accepted in the program. SF Environment also relies heavily on this service area wide approach for its residential outreach.

The budget for this outreach pilot to be included in the FY1617 budget would be approximately \$100,000 above the FY1415 budget levels. **Table 4.17** below shows the historical residential outreach spending.

Table 4.17: CartSMART Residential Outreach Spending for 2010 – 2014



*RethinkWaste operates on a fiscal year budget. The amounts shown in the table are averaged to show costs on a calendar year basis.

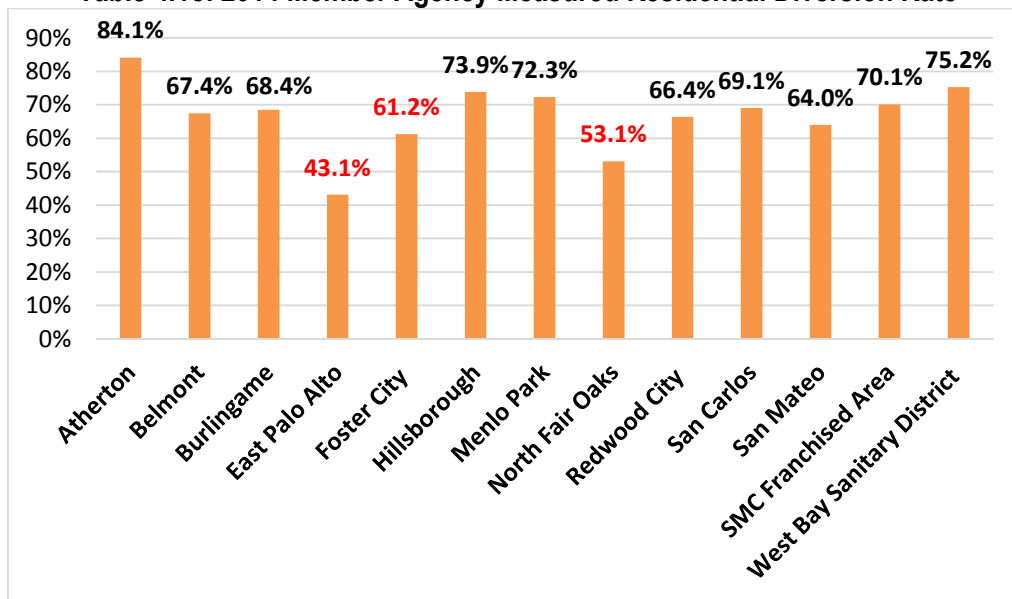
Community Based Campaign:

This campaign would also be a year-long campaign in FY1617 targeting Member Agencies with below-average residential diversion rates in comparison to others in the JPA through a grassroots, community based effort incorporating research, cart/door hangers; contests and/or incentives; a “peer-to-peer” strategy featuring residents in newsletters, brochures, social media; and door-to-door outreach among others. The efforts would tie back to the service area wide campaign, but be customized to address the unique needs of

the communities as identified by the specific Member Agency. Research shows that it often takes hearing or seeing a message between six and ten times for it to be recalled.

Table 4.18 below shows the 2014 measured residential diversion rate by Member Agency. East Palo Alto (43.1%), North Fair Oaks (53.1%) and Foster City (61.2%) have the lowest residential diversion rates. Both East Palo Alto and North Fair Oaks have mandatory garbage subscription levels to address the needs of their respective communities. East Palo Alto mandates a minimum 96-gallon garbage service level and North Fair Oaks requires a minimum 64-gallon garbage service level. While Foster City does not have garbage service level requirements, they do have a high number of smaller residential lots and multi-family complexes with no or limited individual yards that fall under the single-family category due to how they are serviced. These factors contribute to all three communities being the only Member Agencies whose residents continue to set out more garbage than organic materials. As of 2011, all other communities set out more organic materials than garbage by their residents.

Table 4.18: 2014 Member Agency Measured Residential Diversion Rate



The budget for this outreach pilot to be included in the FY1617 budget would be approximately \$75,000 above the FY1415 budget levels.

g. Mandatory Residential and Commercial Recycling Ordinance

Goals

SBWMA or its Member Agencies could implement mandatory requirements in order to motivate all residential, commercial, institutional, and public agency generators to separate recyclable and compostable materials from the waste they generate at their homes or places of business, and place it in the appropriate recycling or organics container on a regular basis for collection.

A Mandatory Recycling and Composting Ordinance would need to be carefully developed based on feedback from various stakeholder groups, and publicized adequately to inform all residents, businesses, service providers, and others of the intent and purpose of the ordinance.

This policy tool could be initiated by individual Member Agencies or the SBWMA Member Agencies could participate in a single, uniform ordinance adopted by the SBWMA. An ordinance of this type would be developed to require all single-family residences, multi-family complexes, commercial businesses, institutions, and public agencies to participate in recycling and organics diversion programs offered by RethinkWaste such as the CartSMART and BizSMART programs, notwithstanding specific limitations on the scope of the Franchise Agreements per section 4.02.



This policy initiative supports several LRP Guiding Principles including:

- Leverage existing infrastructure
- Provide cost-effective and efficient programs
- Increase and maximize participation in programs and services to reduce and reuse waste
- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Promote behavior change through public education
- Provide incentives to participate in programs where feasible
- Enhance public education to maximize participation

Overview

RethinkWaste would first develop a model ordinance for consideration by the SBWMA Board that could be adopted by the SBWMA or by individual Member Agencies. Upon completion of a comprehensive stakeholder engagement process, RethinkWaste would report back to the Board comments, concerns, inquiries and lessons learned. The Board and/or the Member Agencies could then decide their preferred approach regarding participating in a regional ordinance adopted and administered by RethinkWaste or adopting individual ordinances at the Member Agency level and tasking RethinkWaste to assist with public education/outreach and enforcement.

Local examples of mandatory ordinances include:

Mandatory Commercial and Multi-Family Residential Recycling Ordinance – City of San Carlos

Adopted by the City Council in April 2010, the ordinance was implemented in two phases. Commercial and multi-family residential solid waste customers that have 2 cubic yards or more of garbage collection service per week were required to have recycling services by January 1, 2011. Food service establishments and special events that have 2 cubic yards or more of garbage collection service per week were required to have organics collection services by January 1, 2012. Enforcement of the ordinance is a three-step process: issuance of a courtesy notice, issuance of a warning notice, and issuance of a violation notice. The City has the authority to impose administrative penalties of up to \$500 per violation. Prior to adoption of the ordinance, SBWMA led an extensive stakeholder outreach process on behalf of the City. According to a case study¹³ prepared by the Institute for Local Government, businesses in San Carlos were very supportive of the City's efforts to move from a voluntary to a mandatory recycling program. Many businesses were motivated to support the ordinance because it was a locally designed program as opposed to a potential mandate. Businesses wanted broader coverage – that is, more businesses and material types included – and faster implementation. The mandatory phase of the program began in January 2011. Recology works with the individual businesses proactively to explain the program and promote compliance. To date, no enforcement actions have been taken since the program became mandatory.

Mandatory Commercial Recycling and Composting Ordinance – Alameda County Waste Management Authority/StopWaste

The Alameda County Waste Management Authority (StopWaste) was formed in 1976 as a joint powers authority to ensure sufficient landfill capacity in the region. The 17 member agencies include Alameda County, all of the cities in Alameda County and two sanitary districts. In 1990, Alameda County voters passed a ballot initiative that established a 75% goal and assessed fees on tons disposed at landfill to fund waste prevention and recycling programs. The StopWaste Executive Director, Mr. Gary Wolff, provided a detailed presentation on his agency's mandatory commercial recycling ordinance at the RethinkWaste Visioning Workshop on November, 6, 2014.

This ordinance, adopted in January 2012 and phased in over two years, requires businesses, institutions and multi-family properties with five or more units to sort their recyclables from their garbage. Single-family residences up to four units are not affected by the ordinance. Multi-family property owners as well as businesses and institutions that generate food waste, such as restaurants and grocery stores, must also sort compostables from their garbage. These requirements are effective within participating areas of Alameda County.¹⁴

The ordinance requires the recycling and compost service to be sufficient to handle the amount of targeted materials generated at the location. This includes cardboard, newspaper, white paper, mixed recyclable paper, recyclable glass food and beverage containers, metal (aluminum and steel) food and beverage containers, PET (#1) and HDPE (#2) plastic bottles, food scraps and compostable paper. Unlike other

¹³Institute for Local Government: Adopting a Mandatory Commercial Recycling Ordinance: The Experience of the City of San Carlos <http://www.ca-ilg.org/sustainability-case-story/adopting-mandatory-commercial-recycling-ordinance> (compiled May 2011).

¹⁴Member agencies had the opportunity to “opt out” of participation in the mandatory ordinance. Two out of the 17 member agencies have opted-out of Phase 1 (mandatory recycling) and Phase 2 (mandatory composting) of the ordinance and two more of the member agencies have opted-out of Phase 2 only.

communities, where the requirement is on the books, but not enforced, the Authority is making a serious effort to enforce the ordinance. Inspectors hired by StopWaste lift lids of the solid waste containers at businesses and check whether there are recyclable or compostable materials present. Violators receive notices of non-compliance. The intent of enforcement is to change behavior rather than to punish or generate revenue through fines. This intent is codified by the enforcement policies for the ordinance which requires a three step process of Official Notification, Warning, and finally as a last resort, Citation. Implementing these policies requires staff and inspector trainings, inspections, and official communications with regulated parties about enforcement (including legal review). The Authority's 2014-15 budget for enforcement is \$1,078,743, which includes: 3 full-time equivalent (FTE) contract inspectors, 1/2 FTE contract enforcement officer (retired Alameda Co. Sheriff), 1/2 FTE clerical, 1/2 FTE inspection/data manager, 1/4 FTE enforcement officer, and 1/4 FTE for IT, media, and communications and non-staff expenses.

The ordinance is still in the implementation phase, thus no diversion results have been reported. StopWaste has initiated a benchmark study to evaluate its progress towards its goal of less than 10% recyclable and compostable materials disposed in the garbage by 2020.

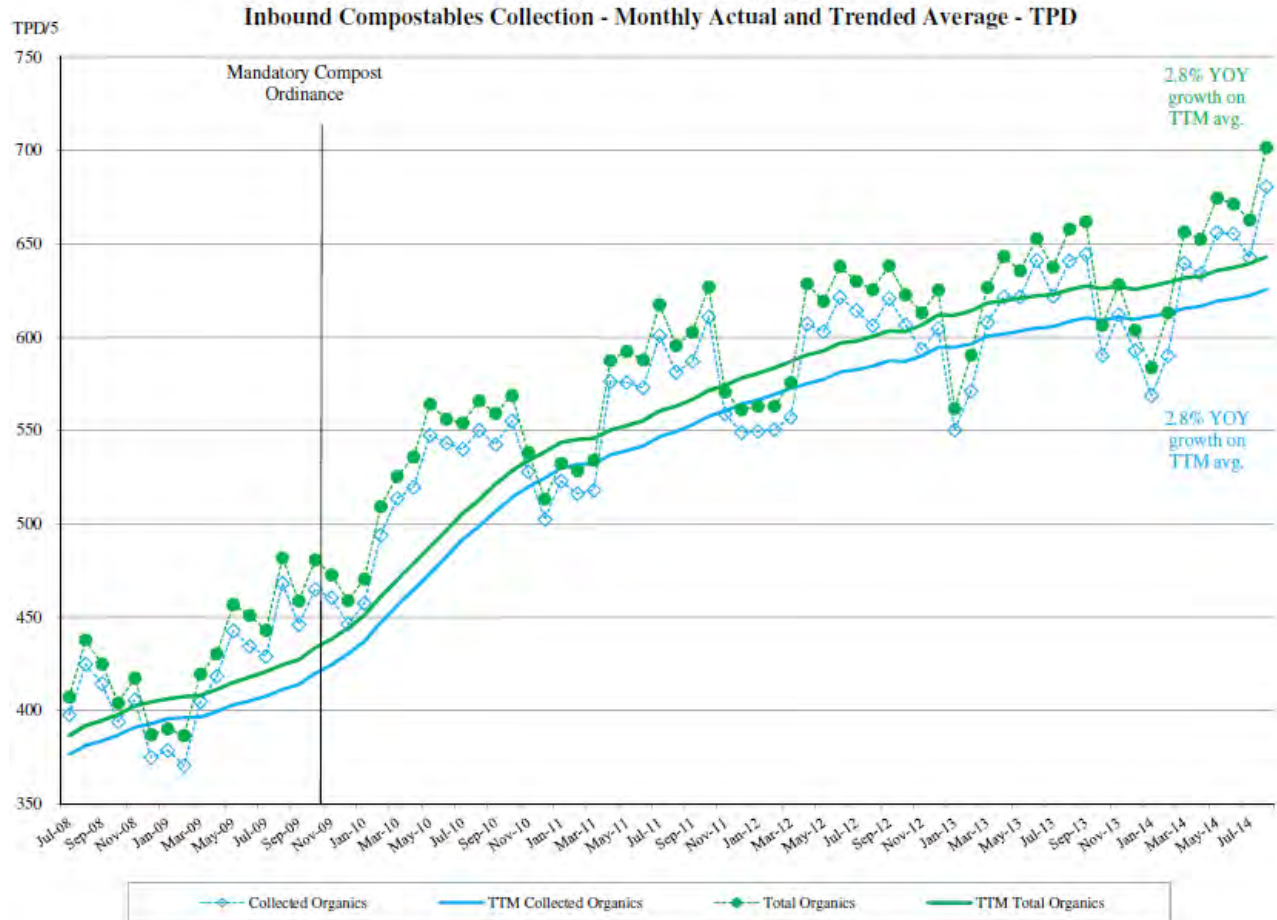
Mandatory Recycling and Composting Ordinance – City and County of San Francisco

San Francisco's Mandatory Recycling and Composting Ordinance requires residents and businesses to keep recyclables and organic materials out of their garbage container. Passed by the San Francisco Board of Supervisors in 2009, it became the first local municipal ordinance in the United States to universally require source separation of all organic material, including food scraps. All residents and businesses are required to subscribe to adequate recycling, composting, and garbage service and to properly participate by ensuring targeted materials are not disposed. Residents can also choose to compost at home and take recyclables to appropriate recycling centers. Building owners can be fined if they fail to provide tenants with adequate recycling, composting and garbage services and information on their proper use. The City has focused its efforts on ensuring that all buildings have the necessary recycling and composting collection services. Door-to-door outreach is conducted by the City's Environment Now interns. San Francisco's Commercial Recycling Manager provided a detailed presentation on his agency's mandatory recycling and composting ordinance at the RethinkWaste Visioning Workshop on November 6, 2014. During this presentation, it was noted that the City's diversion of organics increased by approximately 50% from November 2009 (when the Ordinance was passed) to July 2014. (See **Table 4.19** on the next page.)

Environment Now is a green careers program that helps prepare workers for jobs in the green industry. The interns conduct environmental outreach activities throughout San Francisco including programs for energy efficiency, recycling, toxics reduction and food security, with an emphasis on neighborhoods in need. Because many Environment Now participants come from these underserved communities, they are able to reach traditionally hard-to-reach audiences and boost community participation in the City's environmental initiatives. Environment Now was originally funded through a federal grant and is now included in the outreach budget for the City. Environment Now currently employs ten interns. The 2014 Environment Now budget was \$1.5 million and the revenue source was the City's Impound Account (which is a collection rate surcharge).¹⁵

¹⁵San Francisco Department of the Environment 2013-2014 Budget
http://www.sfenvironment.org/sites/default/files/agenda/attach/departementoftheenvironment_budget_fy13and14_0.pdf

Table 4.19: Mandatory Ordinance Results on San Francisco Organics Materials
Recology San Francisco Region



Advantages and disadvantages of mandatory requirements are similar to those of disposal bans and include:

Advantages

- Allows local communities to tailor recycling requirements and provides more specificity and certainty of compliance than the requirements under State law
- Ensures that generators of recyclable and compostable materials are fully participating in diversion programs
- Can address all generators (not just those specified under State law)
- Provides an incentive to source-separate materials at home and at work
- Similar to seat belt laws, enacting the requirement will change behavior even without heavy enforcement
- Enforcement can be scaled based on violations
- Instills sustained behavior change

Disadvantages

- May appear duplicative of State requirements (for multi-family and commercial)
- Requires education and enforcement

- Could be perceived as onerous

Mandatory Recycling and Composting Implementation Plan

A key recommendation from RethinkWaste's mandatory ordinance pilot project for San Carlos was to undertake a stakeholder engagement process to assist in the program design. Businesses in San Carlos encouraged the City to create a level playing field by requiring a broader range of commercial generators (including those with 2 cubic yards or more of solid waste collection) and a broader range of material types (including organics) than the ordinance originally contemplated.

As a result, the ordinance adopted by the City with the endorsement of the Chamber and business community had more requirements than those imposed by the State's AB 341 mandatory commercial recycling law. Staff recommends that the lessons learned from the San Carlos pilot should be considered when developing a future model mandatory recycling ordinance, including, but not limited to:

- Require all customers (residential, commercial, industrial, institutional and member agency facilities) to be covered by the ordinance
- Require all services (recycling, organics, and construction and demolition diversion) to be covered by the ordinance
- In addition to receiving collection services, require customers to sort properly (no recycling or organics in the garbage, no garbage in the recycling or organics)
- Emphasize education rather than enforcement, but provide a scaled enforcement program with courtesy notices, warning notices, and violation notices
- Use existing outreach staff or contractor resources, including the franchised solid waste and recycling service provider to provide outreach and technical assistance, as included in the Franchise Agreements¹⁶
- Use contract staff to provide quarterly inspections and issuance of notices

Since full scale implementation of the SBWMA CartSMART and BizSmart programs, there is nearly universal acceptance of recycling and organics services by residential customers and recycling services by commercial customers. However, the commercial sector subscription rate for compost collection service is still quite low as discussed above. This will likely change per implementation of AB 1826 which requires businesses to subscribe to compost collection services in a phased in approach from 2016 to 2020 based on levels of organics generation, and thus may significantly increase the commercial sector subscription rate for the BizSMART compost collection services.

For these reasons, staff is recommending the Board consider this policy alternative after 2020 as the results of other programs to increase diversion are tracked and measured. While a mandatory ordinance may result in

¹⁶Franchise Agreement(s) Section 7.04(l): Mandatory Commercial Recycling Assistance to Agency. In the event Agency adopts a policy or strategy to encourage or require Recycling at Commercial and Multi-Family Dwelling Customers, Contractor shall assist Agency and SBWMA with implementing the policy or strategy. Contractor shall be required to provide Agency with prompt notification of Customers that do not comply with the policy or strategy based on the observations of Contractor's employees. Contractor shall assist the Agency and SBWMA with collecting related data from Commercial and Multi-Family Dwelling Customers and facilitating outreach and education programs focusing on encouraging participation by these Customers in the mandatory Recycling policy or strategy. Upon request from Agency, Contractor shall modify its protocol regarding use of non-collection notices pursuant to subsection 8.02.F to include Solid Waste Containers, in order to assist with implementing Agency's mandatory Commercial Recycling policy or strategy.

significant cost-effective diversion, staff views this approach as a low priority in the short term given the potential to enhance the existing system and make improvements with the goal of increasing diversion. In addition, in the coming years the results of the SBWMA Commercial Recycling Reporting Ordinance will provide valuable insights on commercial sector diversion, which in turn will allow the SBWMA to more fully consider the implications of adopting this policy alternative.

Mandatory Ordinance Cost Estimate

In developing a cost estimate for implementing the Mandatory Recycling and Composting ordinance, the following was taken into account:

- Staff time will be needed for program and ordinance development
- Staff time will be needed to conduct stakeholder meetings (assume 24 meetings, two for each Member Agency)
- Education materials including website updates, direct mail, advertisements and press releases
- Contractor resources for quarterly inspections and issuance of notices
 - Assumes 250 commercial customers inspected per quarter, targeting different geographic areas and generator sectors each quarter. (Another 250-500 to be inspected by Recology.)
 - Assumes 500 residential customers inspected per quarter, targeting different geographic areas and generator sectors each quarter
 - Notices would be mailed to non-compliant generators
 - Referrals for technical assistance would be made to existing SBWMA and Recology staff

Table 4.20 below provides the costs for both the first year of implementation and in subsequent years; these costs are above and beyond existing RethinkWaste outreach spending and the Recology commercial outreach program costs. It is important to note that these projected costs are significantly below the costs of the benchmarked communities, StopWaste and San Francisco, based on several factors:

- SBWMA has significant programs in place for outreach and technical assistance (which is the focus of San Francisco’s efforts in implementing its mandatory ordinance)
- SBWMA’s territory is somewhat smaller than StopWaste’s (17 member agencies compared to 12, 1.5 million population compare to less than 500,000)
- SBWMA staff have been able to implement similar large-scale efforts cost-effectively with minimal staffing

Table 4.20: Mandatory Ordinance Estimated Program Costs

Program Cost	Residential Sector	Commercial Sector	Implementation Expense (Year One)	Second Year & Annually Recurring
Program/Ordinance Development	N/A	N/A	\$5,000	N/A
Stakeholder Meetings	\$4,000	\$4,000	\$8,000	N/A
Public Education & Outreach	\$25,000	\$25,000	\$50,000	\$28,000
Quarterly Inspections	\$160,000	\$80,000	\$240,000	\$240,000
Total Annual “New” Cost:	N/A	N/A	\$303,000	\$268,000

h. Organic Materials (Green Waste and Food Scraps) Disposal Ban

Goals

RethinkWaste can lead by example in encouraging the County Board of Supervisors to consider adopting an Organic Materials (Green Waste and Food Scraps) Disposal Ban which would significantly increase diversion of these materials from the Ox Mountain landfill. While the SBWMA could adopt an ordinance banning these materials from disposal at Shoreway, this approach may only result in customers bringing these materials to other disposal facilities and essentially drive away business with little impact on diversion. However, if this were a countywide initiative and even a multi-county effort, the impact could be significant with regard to diversion, saving landfill space and reducing the most potent greenhouse gas generating materials deposited in landfills (i.e., green waste and food scraps sent to landfill are potent methane producing materials and methane is 27 times more potent a greenhouse gas than CO₂).



This program supports multiple LRP Guiding Principles including:

- Ensure the highest and best use of recoverable materials and implications for end markets so programs are economically and environmentally sustainable
- Reduce and mitigate landfill and other facility impacts
- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Promote behavior change through public education
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities

Overview

Communities across the U.S. have increased participation in recycling and composting programs through the implementation of disposal bans. Most of the focus on disposal bans has been on toxic materials, electronic waste, appliances and yard trimmings. Over half of the states in the U.S. have a disposal ban for yard trimmings. State bans are also supplemented by local bans and enforcement. For example, Mecklenburg County, North Carolina is reinforcing the state ban on plastic beverage containers, aluminum cans, wood pallets and appliances through implementation of local bans and enforcement. The City of Seattle, Washington has achieved a 70% diversion rate in its residential programs through implementation of a local disposal ban of recyclable materials and yard trimmings, where residents may not place recyclable materials or yard trimmings in their collection containers for solid waste. Metro Vancouver, British Columbia is also considering implementation of a food scrap ban. Bans may be enforced at transfer stations, landfills or at the point of collection.

Examples of Other Communities

Each of the disposal bans described below have been implemented at a countywide level. SBWMA operates one of the several transfer and disposal facilities within San Mateo County. Thus, a disposal ban is more likely to be effective if it was implemented in cooperation with the San Mateo County Board of Supervisors, since the Ox Mountain Landfill, the primary disposal facility in the County, is located in the unincorporated area of San Mateo County. In addition, a disposal ban should be implemented throughout the local area, to ensure that self-haulers were not driven away from Shoreway to facilities that do not require separation. To accomplish this, SBWMA would work with other communities in San Mateo and Santa Clara counties and the program operators

of the transfer stations and landfills to implement countywide ordinances requiring targeted materials to be diverted from disposal.

Plant/Yard Debris – Alameda County Waste Management Authority (StopWaste)

The Alameda County Waste Management Authority (StopWaste) is a joint powers agency (JPA) which includes as its member agencies all 17 jurisdictions in the County. The plant debris disposal ban took effect January 1, 2010 and was targeted at professional landscapers and gardeners who collect and haul substantial amounts of plant debris to Alameda County solid waste facilities (i.e., transfer stations and landfills). While all communities in Alameda County provide residential curbside collection of plant debris, the ban requires landscapers to segregate the loads of materials brought to transfer stations and landfills. The ban also requires public agencies to separate plant debris from other materials hauled from debris boxes located at municipal corporation yards and materials delivered directly via municipal vehicles. Plant debris that is problematic to effectively compost (such as palm fronds and sod) is exempt from the ban. The ordinance requires landfills and transfer stations to assess a 50% surcharge on mixed loads or require customers to separate their loads. StopWaste spent \$100,000 on outreach and technical assistance to implement the ban. In addition, the equivalent of 0.5 full time equivalent (FTE) in staff time was used during the first year of implementation to coordinate efforts and inform landscapers and gardeners of the new requirements. Since 2010, less than 100 hours per year are spent in monitoring and enforcing the ban. StopWaste has not conducted a waste characterization study since enacting the ban; however, staff report that the ban has been very successful and very little plant debris is disposed in landfills.

Appliances, Cardboard, Tires, Scrap Metal, Wood, Yard Debris – Sonoma County

Landfills and transfer stations in the County prohibit the disposal of specific materials, including appliances, cardboard, tires, scrap metal, wood and yard debris. The ordinance was enacted by the Sonoma County Board of Supervisors in 1994 and targeted self-haul customers at the County's transfer stations and landfills. Violators are required to pay to the County a sum equal to three times the amount of the County standard tipping fee. The ordinance has been lightly enforced, but the requirement and notification of the requirement has changed the behavior of self-haul generators. The County has spent minimal staff effort in enforcing the ban, but self-haulers at the landfills and transfer stations have generally complied with the requirements.

Recyclable Materials¹⁷ – Santa Cruz County

The Santa Cruz County disposal ban took effect on January 1, 2006 and applies to all recyclable and compostable materials. Self-haulers must separate their loads prior to delivering them to the County's transfer stations and landfills. Residential and commercial generators in the county must not place recyclable or compostable materials in solid waste containers. Recyclable materials and yard trimmings collection is available to all residential and commercial customers within the county and is included as a part of the solid waste collection service. Violators are required to remove recyclable materials from solid waste prior to collection or disposal. The Public Works Director is empowered to grant exemptions. The

¹⁷"Recyclable materials" or "recyclables" means that portion of solid waste which is separated from other solid waste for recycling and includes, without limitation, newspaper, cardboard, office paper, mixed waste paper (including junk mail, catalogues, craft bags and craft paper, paperboard, egg cartons, phone books, brown paper, grocery bags, colored paper, construction paper, envelopes, legal pad backings, shoe boxes, cereal and similar food boxes), computer paper, magazines, aseptic packaging, milk and juice cartons, glass, aluminum cans, trays and foil, tin cans, steel cans, small metal scrap, appliances, PETE, HDPE and mixed plastic containers (all types of numbers 3 through 7), used motor oil, used automotive oil filters, and dry cell batteries. "Recyclable materials" also means yard waste, wood waste and reuse materials.

County has spent minimal staff effort in enforcing the ban, but self-haulers at the landfills and transfer stations have generally complied with the requirements. The County has not enforced the ban at the household or business generator level and the level of compliance with the ordinance is not known.

Advantages and disadvantages of disposal bans include:

Advantages

- Ensures that generators of recyclable and compostable materials are fully participating in diversion programs
- Provides an incentive to source-separate materials at job sites and corporation yards
- Similar to seat belt laws, enacting the requirement will change behavior even without heavy enforcement or investment in enforcement
- Enforcement can be scaled based on violations
- Instills sustained behavior change

Disadvantages

- Could drive mixed loads to other disposal facilities
- Requires education and enforcement (Santa Cruz County initiated a three-year enforcement schedule: first year - communicated requirements, second year - issued warnings, third year - issued fines)
- Could be perceived as onerous

Disposal Ban Program Design

The initial implementation of a disposal ban would apply to self-haul customers and municipal vehicles using the Shoreway Environmental Center (and potentially the Ox Mountain Landfill within the unincorporated area of San Mateo County). Self-haul customers would be expected to only bring segregated loads such that materials could be readily unloaded and placed in their appropriate bins or bunkers. Targeted materials would include those prevalent in the self-haul discard stream, including but not limited to plant debris, yard trimmings and clean lumber. To implement this program, the self-haul customer incentive could be changed so that customers are assessed a surcharge for bringing in loads of targeted material mixed with other solid waste (or these customers could simply be turned away for not being compliant, which is not a preferable alternative). Alameda County requires facility operators to assess a 50% surcharge on mixed loads and Sonoma County can assess a 300% surcharge.

Staff is recommending the Board consider this policy alternative after 2020 as the results of other programs to increase diversion are tracked and measured, particularly implementation of AB 1826. While a disposal ban may result in significant cost-effective diversion, staff views this approach as a low priority in the short term given the potential to enhance the existing system and make improvements with the goal of increasing diversion. In addition, in the coming years the results of the SBWMA Commercial Recycling Reporting Ordinance will provide valuable insights on commercial sector diversion, which in turn will allow the SBWMA to more fully consider the implications of adopting this policy alternative.

Disposal Ban Cost Estimate

In developing a cost estimate for implementing the Organic Materials Disposal Ban, the following was taken into account:

- Staff time will be needed for program and ordinance development
- SBWMA supporting development of a Countywide ordinance and participating in countywide stakeholder meetings (assume 300-400 staff hours)
- Education materials including website updates, self-haul flyers, posters, bill inserts, advertisements and press releases
- One-time costs are annualized over 10 years to estimate total annual costs

Based on these assumptions, the total expense for RethinkWaste to implement a disposal ban would be approximately \$60,000.

i. EPR Policy Framework

Goals

The SBWMA can support State and federal efforts to build the environmental costs into the price of products and packaging and then require manufacturers to take back products at the end of their useful life. SBWMA already does this on a limited basis through its support of groups like the California Product Stewardship Council (CPSC) and Californians Against Waste (CAW) at the State level. SBWMA has been a long-time supporter of both CPSC and CAW, and annually donates \$3,500 and \$1,250 to these organizations, respectively.

Adopting a resolution in support of product stewardship would provide a more formal way for SBWMA to weigh-in in a timely manner in response to legislation, issue letters of support or concern, and attend meetings and hearings, as appropriate.



Currently, 37 California counties and 108 cities have adopted product stewardship policy resolutions, representing 64% of the State population.¹⁸

Product stewardship policies implemented at the State level have had a direct positive effect on SBWMA operations and resources. SBWMA and the Member Agencies receive revenues and avoid the cost of disposal for targeted materials covered by State law. For 2014 the revenues received include:

- Electronic Waste - \$70,515
- California Redemption Value Beverage Containers - \$3,724,000
- Latex paint (PaintCare program) – \$23,124

Adopting a formal product stewardship policy in turn supports several LRP Guiding Principles including:

- Support product stewardship policies and initiatives
- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Promote behavior change through public education

Overview

According to the Institute for Local Self-Reliance, each ton of garbage landfilled or burned, creates about 71 tons of waste on average "upstream" from the mining, manufacturing and distribution of materials in the product lifecycle. By recycling one ton of waste, we can divert one ton of waste from disposal. However, by reducing waste by one ton, through waste prevention strategies, effectively 72 tons of waste (one ton of garbage plus 71 tons of upstream waste) are diverted from disposal.¹⁹

Product Stewardship is the act of minimizing health, safety, environmental and social impacts, and maximizing economic benefits of a product and its packaging throughout all lifecycle stages. A fundamental premise of

¹⁸California Product Stewardship Council 2014 Annual Report, http://calpsc.org/mobius/cpsc-content/uploads/2014/12/2013-14_AnnualReport_FINAL_2014_8_15_2014.pdf

¹⁹Brenda Platt and Neil Seldman, Institute for Local Self-Reliance, Waste and Recycling in the U.S. 2000, GrassRoots Recycling Network, 2000, p. 13. Based on data reported in Office of Technology Assessment, Managing Industrial Solid Wastes from Manufacturing, Mining, Oil, and Gas Production, and Utility Coal Combustion (OTA-BP-O-82), February 1992, pp. 7, 10.

product stewardship is that the producer of the product has responsibility to minimize adverse impacts, along with other stakeholders, such as suppliers, retailers, and consumers, who also play a role. Stewardship can be either voluntary or required by law.

Extended Producer Responsibility (EPR) is a mandatory type of product stewardship that includes, at a minimum, the requirement that the producer's responsibility for their 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 producer and away from the public sector; and 2) providing incentives to producers to incorporate environmental considerations into the design of their products and packaging.

Formed by local zero waste communities, the mission of CPSC is to shift California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public cost and drive improvements in product design that promote environmental sustainability. SBWMA has been a local government member of CPSC since its inception. One of the initiatives of the CPSC is to implement producer responsibility at the State level.

On September 19, 2007, CalRecycle adopted an overall framework for an Extended Producer Responsibility System in California. Many of the concepts that are part of this framework have been included in State legislation that has been introduced and that would authorize CalRecycle to implement a statewide product stewardship program and select products that would be regulated under that program. The goal of the legislation is to improve product design, encourage reuse and recycling, address excessive packaging, provide convenient collection alternatives for consumers, provide incentives for producers to reduce the lifecycle impacts of products and packaging, and reduce the use of toxics in products. Since adoption of the framework, the State legislature has enacted several bills addressing problem products including, mercury thermostats, paint, carpet, mattresses, and single-use plastic bags.

Additional problem products targeted for policy action by CPSC are pharmaceuticals and batteries.

There are many specific types of product policies, including:

- Product stewardship where there is shared responsibility (between consumers, ratepayers, local governments and manufacturers) for managing discarded products
- Extended Producer Responsibility where the manufacturer pays for and provides the infrastructure for managing its products from cradle to cradle
- Product redesign where manufacturers are required to make their products less toxics or more recyclable, compostable or repairable
- Recycled content where manufacturers are required to include a minimum amount of recycled content in their products

Examples of Other Communities

The CPSC has confirmed that 138 local governments in California have passed an EPR resolution. Attached as **Attachment D** is an example of a model policy is Resolution No. 27741 passed by the City of Santa Rosa City Council on September 28, 2010. In addition, numerous local governments, businesses and non-profits have endorsed CPSC's Product Stewardship and Extended Producer Responsibility: Definitions and Principles which is provided as **Attachment E**.

Product Policy Resolution Cost Estimate

No significant costs are expected to be incurred in the adoption of the Extended Producer Responsibility Policy Resolution. SBWMA has been a long-time supporter of both CPSC and CAW. Each of these Sacramento-based advocacy organizations work on product policies at the State level, including product stewardship and Extended Producer Responsibility initiatives, problem product bans and fees, product redesign, and recycled content requirements. These organizations provide timely information on pending legislation and keep SBWMA staff informed on the issues. On occasion, RethinkWaste staff may travel to Sacramento or to regional meetings to participate in discussions regarding the pertinent policy initiatives; however, no significant fiscal impact is anticipated as this travel expense is already budgeted.

Product Stewardship Policy Resolution Diversion Potential

The diversion potential of the product policy resolution is directly related to the materials targeted in future legislation. Previous legislative efforts have addressed large items, such as tires, mattresses and carpet; and toxic materials, such as mercury containing devices (e.g., thermostats, switches), used oil, paint and electronics. Current legislative efforts have been aimed at household batteries, pharmaceuticals, and sharps. These products do not represent a significant fraction of the disposed waste by the SBWMA Member Agencies. However, they are difficult to handle, potentially toxic, are expensive for SBWMA to manage appropriately and are, therefore, appropriate targets for product stewardship legislation.

Table 4.21: Product Policy Resolution Implementation

<u>Action Step</u>	<u>Responsible Party</u>	<u>Timeframe</u>	<u>Resources</u>
Develop SBWMA Product Stewardship policy resolution	SBWMA staff	Fall 2015	Staff time
Participate in policy discussions and prepare letters of support for State legislation and local initiatives	SBWMA staff	Ongoing	Staff time

2. Processing and Transfer Infrastructure

a. Mixed Waste Processing in the Transfer Station

Goals

The goal of this project is to design, install and operate a mixed waste processing system in the Transfer Station to recover recyclables and organic materials that are currently being discarded in the trash by residential and commercial franchised customers. As required by state legislation AB 1826, starting in 2016 most commercial, institutional, and MFD locations must implement an organics recycling program. Installing a mixed waste processing system with organics recovery is a method of complying with AB 1826 and can complement existing source separated organics collection programs. Organics that are recovered will be transported to the SVCW wastewater treatment plant to be anaerobically digested to produce green energy (biogas).



The development of a mixed waste processing system in the Shoreway Transfer Station supports multiple LRP Guiding Principles including:

- Support local, state and national mandates, including meeting the State's AB1826 requirements for commercial organics recycling and the 75% recycling goal by 2020
- Leveraging existing infrastructure
- Develop and sustain strategic community partnerships
- Provide cost-effective and efficient programs
- Reduce and mitigate landfill and other facility impacts
- Invest in new, safe technologies and processes for infrastructure
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities

Overview

Significant improvement in the recovery of recyclable and organic materials can be achieved through a combination of enhancements to collection, outreach programs, and back-end recovery of such materials from the garbage tipped at the Shoreway Transfer Station. Compliance with commercial organic regulation AB 1826 and high levels of diversion can be achieved through a mixed waste processing system in the Transfer Station to significantly increase the agency's overall diversion levels towards the 75% goal. The conceptual project development of a mixed waste processing system to recover recyclables and organic materials from the garbage stream has been under evaluation by staff since last year and project updates have been presented to the Board most recently in January 2015. The state has approved this type of system as an alternative to source separated commercial organics (food rich organics and not green waste) collection programs to comply with future AB 1826 commercial organics recycling requirements. The cost to SBWMA businesses for the implementation of AB 1826 is currently being evaluated by Recology and by SBWMA staff.

Project Evaluation

Garbage that is delivered to the Transfer Station is composed of waste from three different sectors collected by Recology – single family residential, multi-family dwelling, and commercial. Though each stream has a different waste composition, **Table 4.22** on the following page shows that there are high volumes of recyclables and organic materials still present in the garbage from all of the sectors, but notably in multi-family and commercial.

By analyzing the waste stream, it is estimated that there is a total of 49,591 tons of recyclable material that could potentially be recovered from the waste stream through a mixed waste processing system.

Table 4.22: Percent of Recoverable Materials Currently Disposed

Sector	Percent of Material Disposed	
	Recycling Program Targeted Materials	Organics Program Targeted Materials
Single-Family Residential	29%	15%
Multi-Family Residential	59%	93%
Commercial	45%	54%

(Table 4.24 provides the amount of Recyclable and Organic materials that are still present in the garbage as determined by waste characterization studies conducted for the Commercial/MFD sector, SFD sector and MFD sector in February 2012, November 2012, and September 2013, respectively).

Staff has researched the effectiveness of different types of mixed waste processing systems at capturing recyclable and organic materials to determine how much material could be recovered from the SBWMA's franchise waste stream. As part of this research, staff has visited many of the large mixed waste processing systems that are operating in California (see **Table 4.23** for a listing of mixed waste processing facilities) and has consulted with industry experts and system manufacturers. In principle, mixed waste processing systems use similar materials processing technology to the equipment currently operating at the Shoreway MRF to separate single stream recyclable materials (e.g., mixed waste systems employ a combination of screening, air, optical and magnetic separation technologies to recover recyclable and organic material from garbage). Based on the evaluation of mixed waste processing systems currently in operation and the reliability of the sorting equipment used at the Shoreway MRF, staff is confident that a mixed waste system can effectively recover the targeted materials. It should be noted that the system can also process the current stream (~15,000 tons per year) of source separated organic materials that are already collected by Recology or if financially beneficial, this stream can continue to go to composting).

Table 4.23: List of Mixed Waste Processing Systems in California

City	Project Description	Approx. Tons/year Processed
San Jose	Commercial waste MRF processing system 2013 Organics to energy AD project 2014	
Sunnyvale	MSW MRF – operating since 2000	
City of Industry	Athens Mixed Waste MRF – 1997	500,000
City of Los Angeles	Athens Mixed Waste MRF – 2014	250,000
City of Stanton	CR&R Mixed Waste MRF – 1995	300,000
City of Los Angeles	Community Recycling (now Recology) – 1994	300,000
City of Huntington Beach	Rainbow Disposal – Mixed Waste MRF	250,000

The number of mixed waste processing technologies in California that target organic material for recovery and treatment is growing. The Bay Area in particular is leading the State in the implementation of these systems to

convert organic material through anaerobic digestion (AD) into green energy and compost. For example, the following projects have been constructed locally:

- San Jose's commercial wet/dry program that was initiated in July 2012 involves mixed waste processing and organic materials recovery at Newby Island and subsequent processing of the food waste fraction at a nearby anaerobic digestion facility operated by Zero Waste Energy (commenced operations in 2014).
- Also in San Jose, Green Waste Recovery installed a mixed waste processing system where recyclable and organic materials are recovered from multi-family accounts and the organic fraction is transported to Z-Best composting facility in Gilroy.
- An organic material digester was completed in January 2015 at South San Francisco Scavenger/Blue Line Transfer to digest source separated organics into a bio-CNG for use in fueling the collection vehicles.
- Several AD projects that target the organic fraction of the waste stream are in various stages of development and implementation by waste processors and wastewater treatment plants in the Bay Area including Marin Sanitary, Napa wastewater treatment facility and East Bay Municipal Utility District in Oakland.

Since organic material (food waste) is the single largest fraction of the waste stream (roughly 28%), diverting this stream has been a primary focus in designing a mixed waste processing system for Shoreway. Effectively diverting organic materials is a complicated process because it involves two distinct processing steps: first the organic material must be separated from the garbage, and second the organic material must be anaerobically digested in a completely different system to convert the material to biogas. While there are AD systems that are being constructed in the Bay Area to treat the organic fraction from solid waste, staff has found that there is a high capital and operating cost to running a stand-alone AD treatment system. Specifically, the staff evaluated dry anaerobic digestion systems sold by Zero Waste Energy and Harvest Power; and wet anaerobic digestion systems sold by OWS, and Clean World Partners and found the capital intensiveness of these treatment systems has made it difficult for them to compete with the comparatively low-cost of landfilling).

Anaerobic digestion is a foundational treatment technology used by wastewater treatment facilities around the world to digest organic materials. Though early conversations with SVCW, staff learned that their wastewater treatment facility located at Redwood Shores, has a large AD system with an excess capacity that could be adapted to process the SBWMA's organic material into biogas that could be used by SVCW to power their plant. Since 2012, the SBWMA and SVCW have been researching a processing partnership that would leverage each other's existing infrastructure and would reduce the capital expense of constructing a stand-alone AD facility. Through a processing partnership, the SBWMA would operate a mixed waste process system at the Transfer Station to extract the organic fraction from the garbage and transport this organic material to SVCW for anaerobic digestion and electricity generation. In 2014, the SBWMA and the SVCW Boards of Directors approved a memorandum of understanding to research the technical and financial feasibility of the concept and both agencies have substantially completed the preliminary research.

Description of the Processing System and Technology

A mixed waste processing system to recover recyclable and organic materials would be located inside of the Shoreway Transfer Station and would involve waste processing equipment somewhat similar to the single stream processing system used at the Shoreway MRF. As illustrated in the **Figure 4.1** below, a mixed waste processing system at the Shoreway Transfer Station would first recover recyclable materials that would be

further processed at the Shoreway MRF and sold with the other commodities; and second the organic fraction would be extracted from the waste stream and the recovered organic fraction or slurry would be transported to SVCW in an end-dump trailer for further cleaning and digestion.

Figure 4.1: Mixed Waste Process Flow Diagram

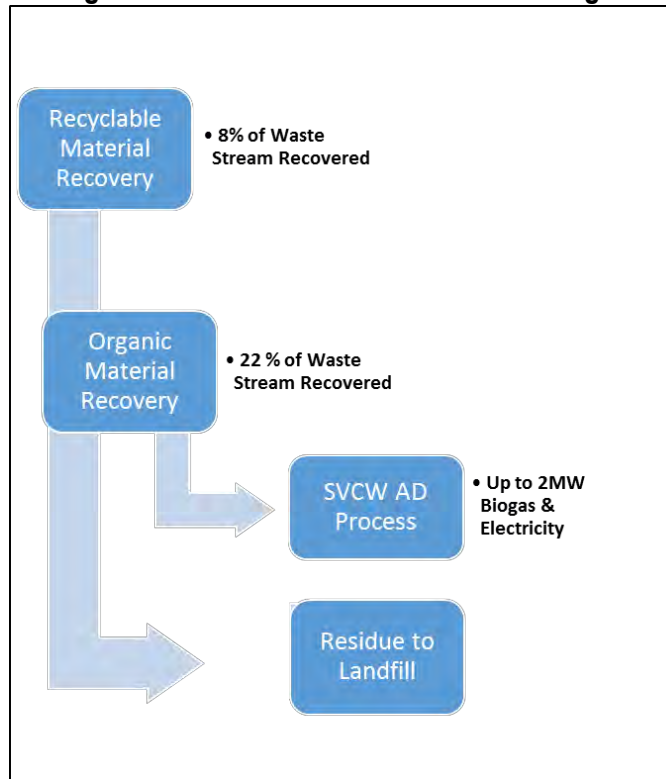
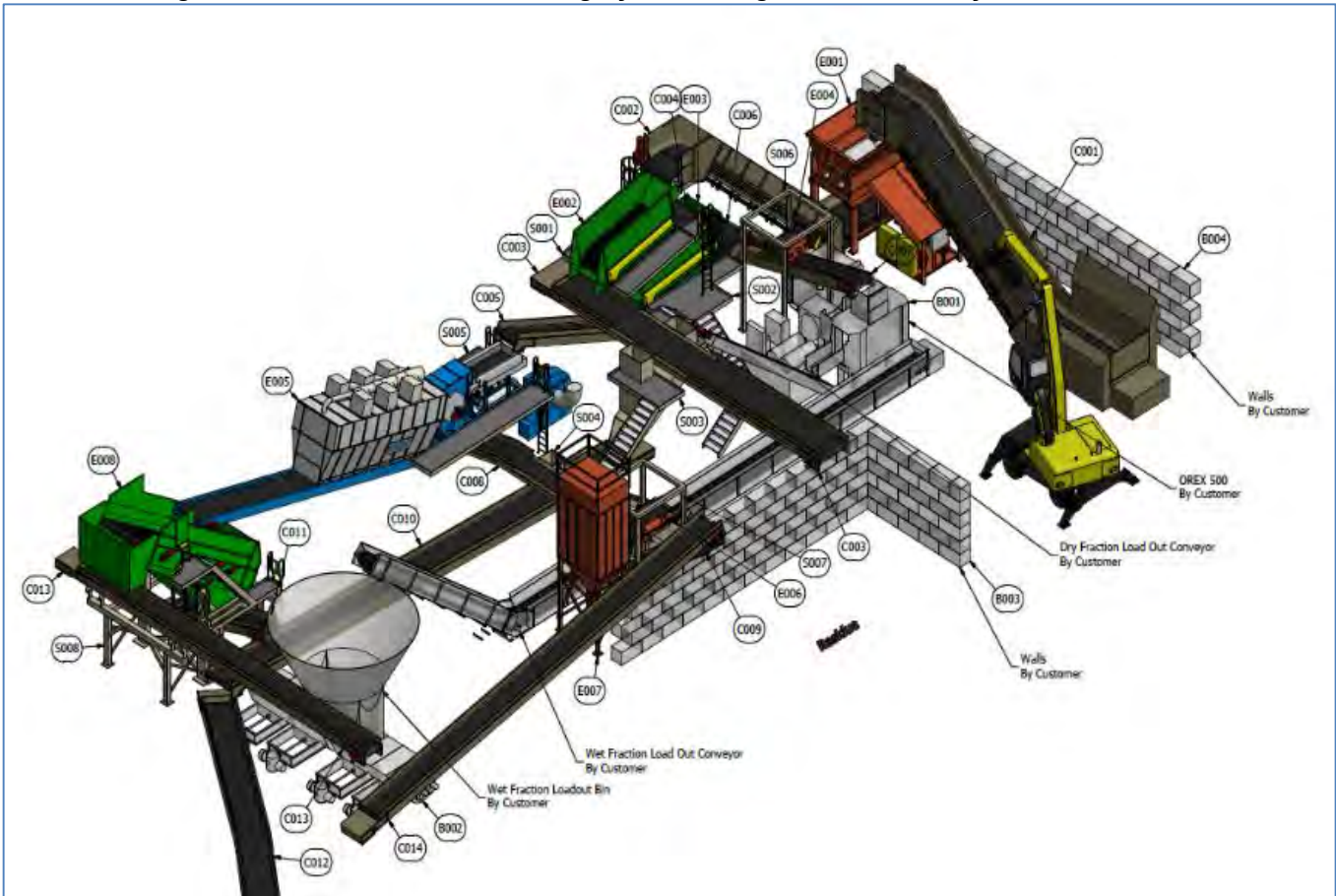


Figure 4.2: Mixed Waste Processing System Designed for Shoreway Transfer Station



A mixed waste processing system designed specifically to fit inside of the Shoreway Transfer Station (shown in **Figure 4.2** above) would process the nearly 625 tons per day of garbage delivered by Recology collection vehicles. The system would process waste at a rate of 45 tons per hour, would operate two-shifts per day, and would require an operational and maintenance staff of about fourteen people. SBR would operate the processing system under newly negotiated terms of the Operations Agreement. The mixed waste process system would involve shredding the waste into smaller than 18 inches and then utilizing screening, air, and optical separation systems to separate the waste into recyclable materials (e.g., containers, paper, and metals) and organic material / food waste. The organic materials would be further processed onsite by using an extraction press (a high-pressure press similar to a baler provided by Anaergia) to produce an organic slurry. Roughly seven loads per day of organic slurry would be trucked from the Shoreway Transfer Station to SVCW for cleaning and anaerobic digestion. The biogas produced from the anaerobic digestions process would be used to generate green electricity to power SVCW's onsite power needs or sold to PG&E.

Financial Analysis

For the purpose of comparing the proposed mixed waste processing system to the agency’s current costs of waste disposal at Ox Mountain, a financial model (proforma) was created that captures project revenues, expenses (capital and operational costs) and projected cash flow for year 1 of this proposed new operation. In terms of revenues, the existing franchise disposal rate of \$92 per ton was used as the tipping fee and conservative recovery rates and commodity price assumptions were used for recovered recyclables (i.e., assumes a recovery rate of 75% for containers and 50% for dry paper). Operating cost assumptions include using the 2015 MRF processing fee per ton of \$82.73 for all recovered recyclables (i.e., paper and containers) that will require secondary separation, current Ox Mountain disposal rate of \$39.62 per ton, current Transfer Station handling fee per ton of \$12.59 paid to SBR, current transportation rates per ton mile (equates to \$15.73 per ton to Ox Mountain and proposed rate of \$6.76 per ton to SVCW) paid to SBR, and a new processing fee of \$33.24 per ton or organic material to be paid to SVCW. Capital cost assumptions were as follows: an interest of 4.5% was used; and depreciable life assumptions of 10 years for processing equipment, 30 years for building improvements, and 7 years for rolling stock. Actual preliminary capital cost estimates are as follows:

- Processing equipment \$7,173,359*
- AD organics press equipment \$3,811,000*
- Transfer Station building expansion of 4,400 sq. ft. \$2,532,200
- Rolling stock (excavator, loader, and 2 end-dump trailers) \$385,000*

*The equipment cost estimates include a 10% contingency.

Given these assumptions above, **Table 4.24** provides a financial summary of the base- case project (year 1) which shows that there would be a net cost (above current Transfer Station operating costs) of **\$10.76 per ton** for each ton of solid waste processed by the mixed waste processing system at the Transfer Station.

Table 4.24: Mixed Waste Processing System – Base-Case System (Small TS with Fiber Recovery)

	Current	Proposed	Better / <Worse>
Inbound Tons - Franchise Solid Waste	177,098	177,098	-
Disposed Tons - Franchise Solid Waste	177,098	127,507	49,591
New Diverted Tons	-	49,591	49,591
<hr/>			
Revenue - Tip Fee	\$ 16,293,016	\$ 16,293,016	\$ -
Revenue - Commodity Revenue	\$ -	\$ 3,282,030	\$ 3,282,030
Revenue Total	\$ 16,293,016	\$ 19,575,046	\$ 3,282,030
Expense	\$ 12,032,038	\$ 17,219,555	\$ (5,187,517)
Contribution to Reserves	\$ 4,260,978	\$ 2,355,491	\$ (1,905,487)
<hr/>			
Revenue / Inbound Ton	\$ 92.00	\$ 110.53	\$ 18.53
Cost / Inbound Ton	\$ 67.94	\$ 97.23	\$ (29.29)
Contribution / Inbound Ton	\$ 24.06	\$ 13.30	\$ (10.76)
Incremental Net Contribution / Incremental Diverted Ton			\$ (38.42)
SBWMA Capital		\$ 13,517,059	

Modeling of Alternative Scenarios and Financial Sensitivity

Several alternative scenarios were considered in the financial evaluation of the mixed waste processing system at Shoreway described above. Specifically, three alternative scenarios are presented below have potential impacts on the overall system processing costs.

1) Adjust the size of the Transfer Station building expansion from the assumed 4,400 square foot addition to a 12,000 square foot addition that would include the construction of a new Recology administration building. The mixed waste processing system designed for the Shoreway Transfer Station assumes that the Transfer Station building will be expanded by 4,400 square feet to accommodate mixed waste processing system, however, the operational space needs of the processing system have not been fully explored and still have a degree of uncertainty. For the purpose of providing a conservative alternative scenario for the Transfer Station building costs, a Transfer Station building design was evaluated that would enlarge the Transfer Station to the site maximum size of 12,000 square feet. In this scenario, the Recology administration building would be demolished for the expanded Transfer Station and a new 10,000 square foot Recology administration building would be constructed. The total capital costs associated with this alternative scenario are \$12,497,010 inclusive of a 10% contingency. When compared to the construction costs assumed in the base-case, the large Transfer Station build-out would add \$9,964,819 in construction expense and produces financial results summarized below in **Table 4.25**.

Table 4.25: Mixed Waste Processing System – Alternative Large TS with Fiber Recovery

	Current	Proposed	Better / <Worse>
Inbound Tons - Franchise Solid Waste	177,098	177,098	-
Disposed Tons - Franchise Solid Waste	177,098	127,507	49,591
New Diverted Tons	-	49,591	49,591
Revenue			
Revenue - Tip Fee	\$ 16,293,016	\$ 16,293,016	\$ -
Revenue - Commodity Revenue	\$ -	\$ 3,282,030	\$ 3,282,030
Revenue Total	\$ 16,293,016	\$ 19,575,046	\$ 3,282,030
Expense			
Expense	\$ 12,032,038	\$ 18,055,665	\$ (6,023,627)
Contribution to Reserves	\$ 4,260,978	\$ 1,519,380	\$ (2,741,597)
Per Ton Metrics			
Revenue / Inbound Ton	\$ 92.00	\$ 110.53	\$ 18.53
Cost / Inbound Ton	\$ 67.94	\$ 101.95	\$ (34.01)
Contribution / Inbound Ton	\$ 24.06	\$ 8.58	\$ (15.48)
Incremental Net Contribution / Incremental Diverted Ton			\$ (55.28)
SBWMA Capital		\$ 24,459,419	

2) Adjust the commodity value of the paper recovered by the mixed waste processing system from the assumed average commodity price of \$118.00 per ton to \$0 per ton. The mixed waste processing system at the Transfer Station is designed to capture containers (bottles and cans) and paper (cardboard, newspaper, and mixed paper) from the waste stream. There is some concern about quality and “marketability” of the paper that would be recovered from the waste steam primarily due to moisture

contamination. While staff visited other processing facilities to understand the fiber quality that could be captured by a mixed waste processing system at Shoreway, the high degree of waste stream variability coupled with the use of different recovery technologies made it difficult to ascertain paper quality that would be captured through mixed waste processing system at Shoreway. **Table 4.26 Small TS without Fiber Recovery** and **4.27 Large TS without Fiber Recovery** capture the financial impact of not recovering / selling paper (\$645,280 per year) on the Small and Large Transfer Station expansion scenarios.

Table 4.26: Mixed Waste Processing System - Small TS without Fiber Recovery

	Current	Proposed	Better / <Worse>
Inbound Tons - Franchise Solid Waste	177,098	177,098	-
Disposed Tons - Franchise Solid Waste	177,098	127,507	49,591
New Diverted Tons	-	49,591	49,591
Revenue - Tip Fee	\$ 16,293,016	\$ 16,293,016	\$ -
Revenue - Commodity Revenue		\$ 2,636,750	\$ 2,636,750
Revenue Total	\$ 16,293,016	\$ 18,929,766	\$ 2,636,750
Expense	\$ 12,032,038	\$ 17,193,590	\$ (5,161,552)
Contribution to Reserves	\$ 4,260,978	\$ 1,736,176	\$ (2,524,802)
Revenue / Inbound Ton	\$ 92.00	\$ 106.89	\$ 14.89
Cost / Inbound Ton	\$ 67.94	\$ 97.09	\$ (29.15)
Contribution / Inbound Ton	\$ 24.06	\$ 9.80	\$ (14.26)
Incremental Net Contribution / Incremental Diverted Ton			\$ (50.91)
SBWMA Capital		\$ 13,517,059	

Table 4.27: Mixed Waste Processing System – Large TS without Fiber Recovery

	<u>Current</u>	<u>Proposed</u>	<u>Better / <Worse></u>
Inbound Tons - Franchise Solid Waste	177,098	177,098	-
Disposed Tons - Franchise Solid Waste	177,098	127,507	49,591
New Diverted Tons	-	49,591	49,591
Revenue			
Revenue - Tip Fee	\$ 16,293,016	\$ 16,293,016	\$ -
Revenue - Commodity Revenue	\$ -	\$ 2,636,750	\$ 2,636,750
Revenue Total	\$ 16,293,016	\$ 18,929,766	\$ 2,636,750
Expense			
Expense	\$ 12,032,038	\$ 18,081,630	\$ (6,049,592)
Contribution to Reserves	\$ 4,260,978	\$ 848,136	\$ (3,412,842)
Per Ton Metrics			
Revenue / Inbound Ton	\$ 92.00	\$ 106.89	\$ 14.89
Cost / Inbound Ton	\$ 67.94	\$ 102.10	\$ (34.16)
Net Income per Ton	\$ 24.06	\$ 4.79	\$ (19.27)
Incremental Net Contribution / Incremental Diverted Ton			\$ (68.82)
SBWMA Capital		\$ 24,459,419	

3) Adjustment of the SVCW tip fee for organics slurry by +/- \$10 per ton. SVCW has been working on a parallel path of modeling the financial feasibility of a system to anaerobically digest the 32,300 tons per year of organic fraction produced from the mixed waste processing system at Shoreway. SVCW has not fully vetted all of their capital improvement costs associated with the project and the SVCW tip fee of \$33.73 per ton of organic slurry assumed in the base-case could change. It is estimated that SVCW will need to spend \$15-\$19 million in capital plant improvements to be able to digest the organic slurry material into electricity. To provide a sensitivity analysis on the SVCW tip fee's impact to the SBWMA mixed waste processing cost, a range +/- \$10 per ton was analyzed and results in increase or decrease of \$365,000 per year or \$7.36 per ton for all of the scenarios.

Project Benefits

There are numerous project benefits to the agency from the implementation of a mixed waste processing system at the Transfer Station that include:

- The operation of a mixed waste processing system with organics recovery and AD at SVCW would meet the organics waste recycling requirements of AB1826 and may minimize the need for greatly expanded food waste collection for commercial, institutional, and MFD in the service area.
- 25-30% of the SBWMA's garbage can be recovered through a mixed waste processing system that can significantly boost the agency's overall diversion level.
- Processing the organic fraction at SVCW's wastewater treatment facility reduces the capital requirement to treat the organic material by leveraging SVCW's existing infrastructure and thereby reduced the overall cost of mixed waste processing.

- The organic materials that are captured through a mixed waste processing system can be diverted from landfill and be anaerobically digested to generate green power.
- Up to two-megawatts of green electricity can be produced on a continuous basis by digesting the organic materials from Shoreway creating a new revenue stream that helps to offset the cost of mixed waste processing. Specifically, the estimated value of the power generated through SVCW's AD and biogas combustion is valued at roughly \$2 million per year.
- The sale of additional recyclable materials creates a new revenue stream valued at \$3,282,030 per year that helps to lower the cost of a mixed waste processing.
- With less garbage being sent to the landfill the agency's disposal and transportation cost are reduced which helps to lower the cost of mixed waste processing. Specifically, it is estimated that the reduction in garbage disposal at Ox Mountain would have a financial benefit of reducing the Agency's annual disposal and transportation cost by \$2,652,000 per year. The landfill contract at Ox Mountain landfill will expire in 2019. A landfill survey completed by the SBWMA in 2014 estimates that the tip fee at Ox Mountain could increase \$20.00 per ton starting in year 2020. Reducing the amount of garbage sent to the landfill would reduce the impact of a potential landfill tip fee increase starting in 2020.
- A reduction in the amount of garbage shipped to Ox Mountain landfill would help preserve the disposal capacity and extend the life of the landfill for the County's future use.
- There are several grant funding opportunities (CalRecycle, California Energy Commission and other State entities) that are applicable to this project. In fact, SCVW has recently received a grant of \$1.4 million from the California Energy Commission to research how a food waste digestion project such as this could increase energy production.
- The materials diversion success of a mixed waste processing system does not rely on residential and commercial customers to source separate materials, no customer training or behavior change is necessary to achieve high levels of new diversion.
- Since the SBWMA would own and control the mixed waste processing system at the Transfer Station, there would be a high level of assurance that the money spent to boost diversion would be well spent.
- A mixed waste processing system would not disrupt the Member Agency's revenue streams. Since the Member Agency's collection revenues are tied to garbage service, any reduction in garbage generation translates to a reduction in rate revenue. Diversion achieved through a mixed waste processing system captures recyclable materials after garbage fees have been paid by customers and therefore Member Agency revenues remain unaffected.

Both the SBWMA and SVCW has progressed rapidly in completing the preliminary technical and financial feasibility of the mixed waste processing system. Based on the positive results from the study to date, SVCW has expressed their interest in continuing to develop the project to a point where a "go-no-go" decision can be made. The analysis by both the SBWMA and SVCW have identified areas that require further study and design in order to make a final determination on the project's viability, however, from the research completed to date,

no “fatal flaws” have been identified by either SVCW or the SBWMA. The next phase of project feasibility analysis will include: design to a 30% design level on the capital components and structures associated with the project and defining the roles and contractual responsibilities of the many project stakeholders. The following **Table 4.28** provides details of the next steps in project development.

Table 4.28: Mixed Waste Processing System Development Tasks

<u>Task</u>	<u>Description</u>	<u>Date and Duration</u>
Budget for project work to be completed in FY1516 is developed for presentation to the Board of Directors	SBWMA staff will prepare a budget continued project feasibility analysis to be completed in FY1516 budget year for SBWMA Board consideration at the May 28 meeting	March-June 2015
Additional waste composition research	System capture rates of recyclable and organic material need to be verified through a waste analysis and materials marketability needs to be verified	March-May 2015
Final decisions on viability of fiber recovery and commodity sales	Based on the samples collected from the waste analysis, the commodity value of recovered fiber need to be determined	May 2015
Final system layout and decision on the Transfer Station building construction	A detailed system layout and floor space utilization analysis need to be conducted to determine the Transfer Station space needs and building construction costs estimated	June 2015
Confirmation from regulatory agencies for project development at SBWMA and SVCW	CalRecycle regulates the activities, tons and hours of the Transfer Station operation and will need to be consulted about the project for concept approval	July 2015
Development of a Draft MOU between SBWMA and SVCW for the Boards of Directors to consider	A MOU will be developed that clarifies core terms of the project and commits each agency to fund continued project feasibility development to a 30% design level	November 2015
Completion of a draft agreement with Anaergia for the provision of equipment and services	Anaergia is a key vendor stakeholder in the portion of the part of the process that links the organic material extraction at Shoreway and SVCW digestion process and would supply equipment and services to develop the project	November 2015
Completion of an draft agreement with SBR for the operation of the mixed waste processing system	SBR is a key stakeholder in the operation of the mixed waste processing system at the Transfer Station and the terms and costs to be agreed upon	November 2015
Grant applications completed and submitted to CalRecycle, California Energy Commission, and others	Grant opportunities are being explored and present an opportunity to reduce the cost of processing	Ongoing
Development of a draft Plan of Finance	Financing options and financing expense estimates for the SBWMA portion of the project will be evaluated	February 2016

For the next phase of the mixed waste processing system project development, staff will come back to the Board with a final recommended budget for FY1516 that will include items and estimated costs shown in **Table 4.29** Mixed Waste Processing System – FY1516 Project Development Budget below. It is expected that through the completion of the tasks listed in the **Table 4.28** Implementation Schedule above and items shown in **Table 4.29**, staff will be in a position to present a final mixed waste processing project study and cost proposal to the Board in early 2016 that defines the costs and benefits of the project. (Note that the architectural design fees shown in **Table 4.29** would be removed from the final project costs as the preliminary architectural design work will have been completed in FY1516.)

Table 4.29: Mixed Waste Processing System – FY1516 Project Development Budget

<u>Description of Item</u>	<u>Estimate Cost of Item</u>
Transfer Station equipment space utilization assessment	\$12,000
Building architectural design (30% design) and estimating	\$51,000 (\$342,000 Large TS)
Waste composition analysis and market study	\$30,000
Legal and financial contract development support	\$30,000
<u>Project development consulting and permitting support</u>	<u>\$60,000</u>
Total Project development expenses for FY1516	\$183,000 (\$474,000 Large TS)

b. Shoreway Transfer Station and Other Building Improvements

Goals

The installation of a mixed waste processing system will require an expansion of the Transfer Station building to meet the equipment and operating space needs of the system as described in **Section 4.B.2.a**. Working with JRMA architects (the firm that designed the master plan improvements completed in 2011) staff has evaluated several Transfer Station building expansion options and has also evaluated several options for building onsite office and public meeting space for the SBWMA. This infrastructure expansion option supports multiple LRP Guiding Principles including:



- Support local, state and national mandates, including meeting the State's 75% recycling goal by 2020
- Leverage existing infrastructure
- Provide cost-effective and efficient programs
- Reduce and mitigate landfill and other facility impacts
- Invest in new, safe technologies and processes for infrastructure
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities

Overview

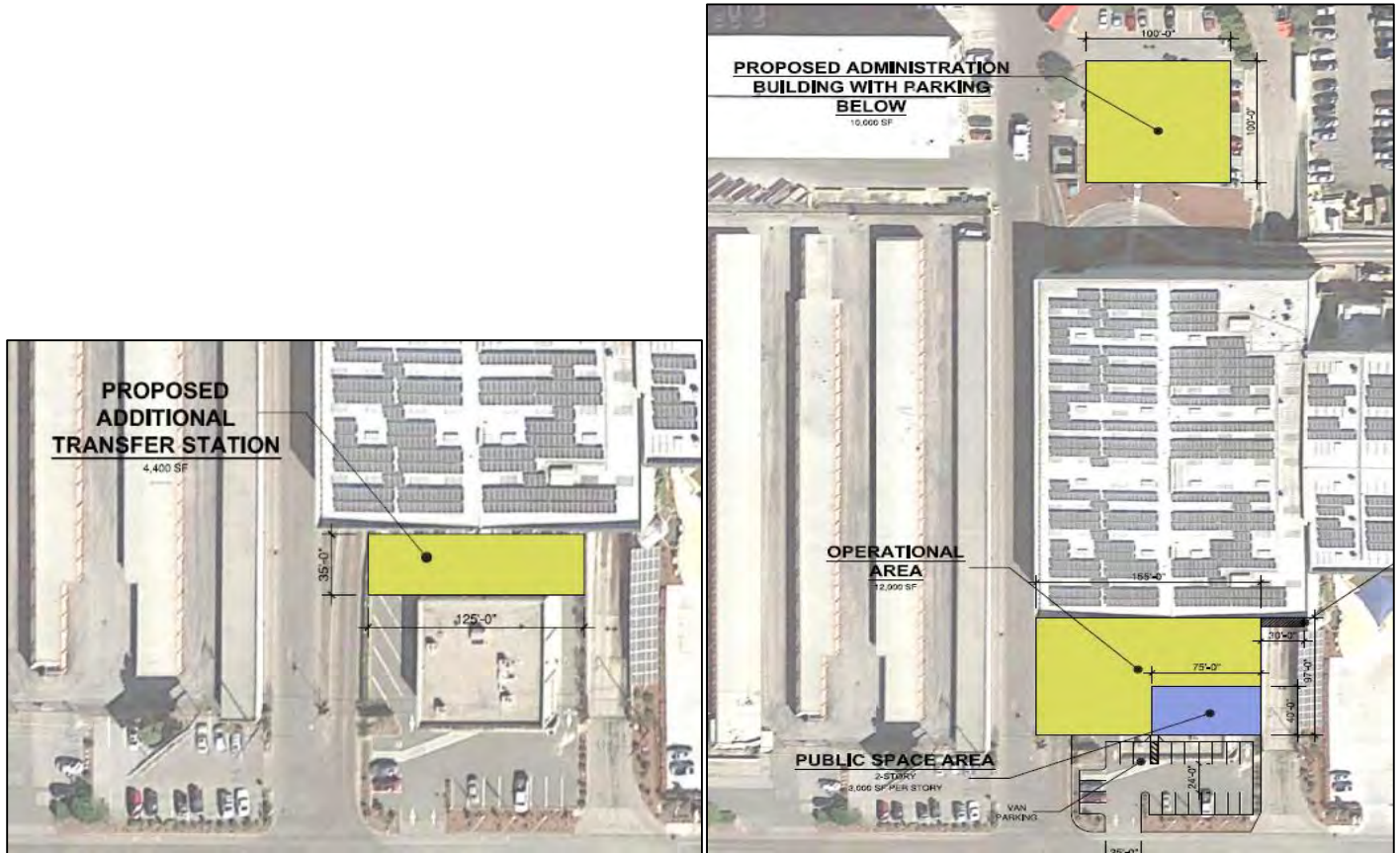
Transfer Station Operational Areas

The existing operational area of the Transfer Station building is roughly 70,000 square feet with 56,000 square feet dedicated to truck unloading, materials storage, and transfer of garbage and green waste into tractor trailers for transport to offsite disposal and processing locations. The mixed waste processing system has been designed to fit into the northwest side of the Transfer Station building and an expansion of the northwestern side of the building would be required. As presented in the mixed waste processing section above, the base-case system assumes a Transfer Station expansion of 4,400 square feet at an estimated cost of \$2,532,200.

While the current project evaluation assumes that an additional 4,400 square feet will accommodate the needs of the new processing system operation, the site footprint could accommodate a larger Transfer Station expansion of roughly 12,000 square feet (toward the northwest front of the property to the edge of Shoreway road and inline with the front of the MRF building) if needed for additional materials processing space. In the large Transfer Station expansion of 12,000, the 10,000 square foot Recology administration building would be demolished and a new Recology 10,000 square foot administration building would be constructed behind (to the southeast) the Transfer Station in an area that is currently used for parking. The new Recology administration building would be a two-story structure with understory parking space for employee vehicle parking needs (see **Figure 4.3** for both Transfer Station expansion options). As described below, the larger Transfer Station expansion option would also provide space for SBWMA administrative offices and public meeting space. A budget amount of \$25,000 will be included in the FY1516 budget for additional design and concept development to assist in the decision making process on the preferred SBWMA administration area construction.

Figure 4.3: Proposed Transfer Station Building Expansion Options

(Shows Small 4,400 sq. ft. and Large 12,000 sq. ft. Transfer Station expansion with new proposed Recology Administration Building with Parking Below shown in back of the Transfer Station)



c. SBWMA Administrative Offices and Public Meeting Space

The SBWMA leases roughly 2,500 square feet of office space from the City of San Carlos and has use of the adjoining community meeting room at the library building (at no cost) for Board of Directors meeting and other meetings. The current rent expense with utilities is roughly \$60,000 per year. Staff has worked with JRMA Architects to evaluate options for creating new SBWMA office and meeting space at Shoreway. Three potential options were evaluated and associated construction costs were estimated. These three options are presented in the tables below.

Table 4.30: Option 1 – Remodel of Recology Administration Building for SBWMA Offices

Description	Cost	Evaluation Findings
<p>Take over and remodel 3,000 square feet of space on the second floor on the Recology administration building and add an elevator for public access.</p> <p>The site plan below shows the location of proposed additional Transfer Station area and the existing Recology administration building where the SBWMA offices would be located.</p>	<p>\$275,000</p>	<p>This option consumes surplus office space, meeting space and kitchen space used by Recology on an as-needed basis.</p> <p><u>This options does not provide meeting space for SBWMA Board meetings.</u> The addition of SBWMA staff would strain current parking availability and could require the rental of additional parking offsite.</p>
<p><i>The site plan below shows the location of proposed 4,400 sq. ft. Transfer Station expansion and the existing Recology administration building where the SBWMA offices would be located.</i></p>		

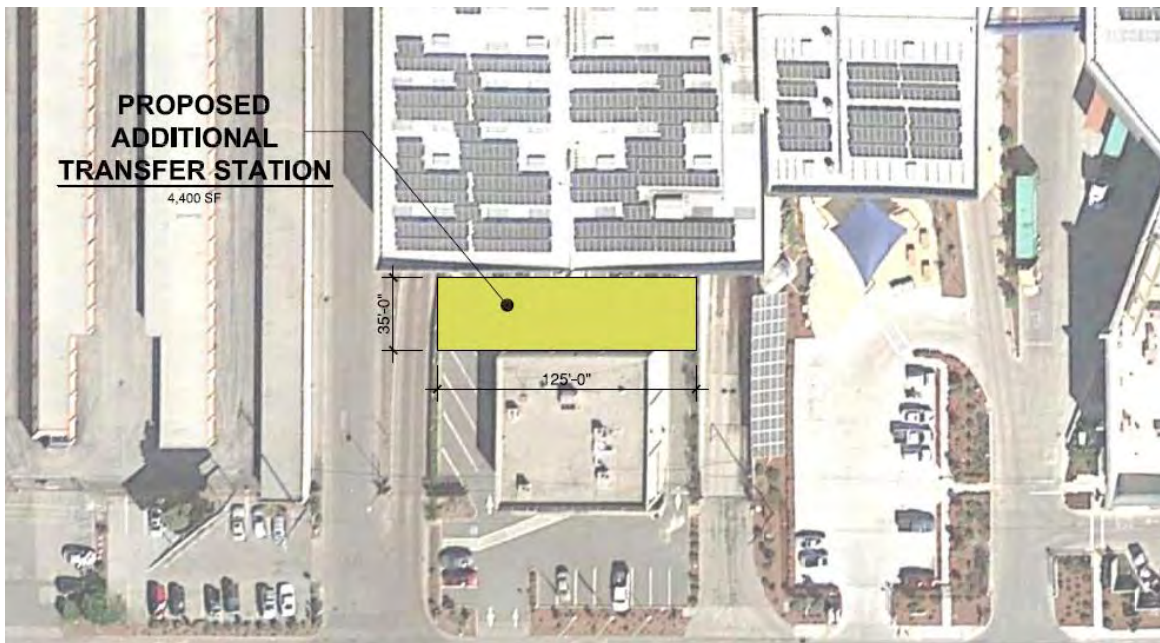


Table 4.31: Option 2 – Construction of New Stand Alone SBWMA Office and Public Meeting Space

<u>Description</u>	<u>Cost</u>	<u>Evaluation Findings</u>
Construction of a new two-story 5,628 sq. ft. stand-alone office building between the MRF and the Transfer Station; this is currently the visitors parking lot. The building has understory parking and 5,628 sq. ft. of upstairs space for SBWMA offices and public meeting space.	\$3,339,000	<p>Provides SBWMA office and meeting space. Building is separate from SBR and Recology buildings.</p> <p>Increases onsite parking needs that could require additional parking to accommodate SBWMA staff and meetings.</p>

The site plan below shows in yellow the location of proposed SBWMA office and public meeting space with parking below.

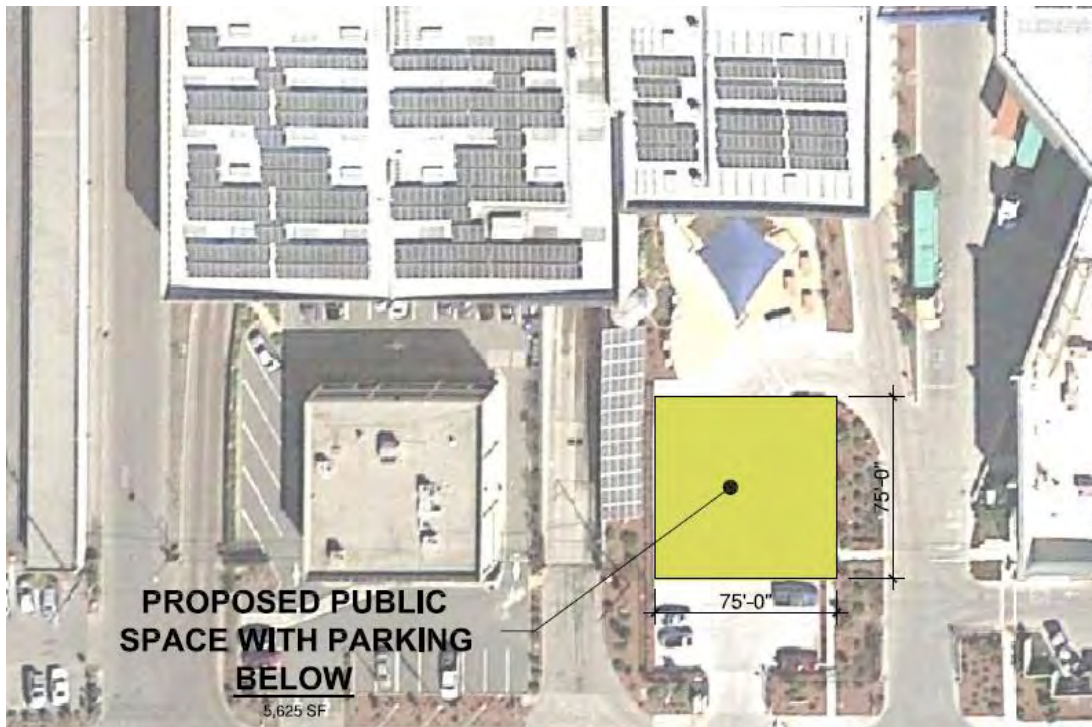
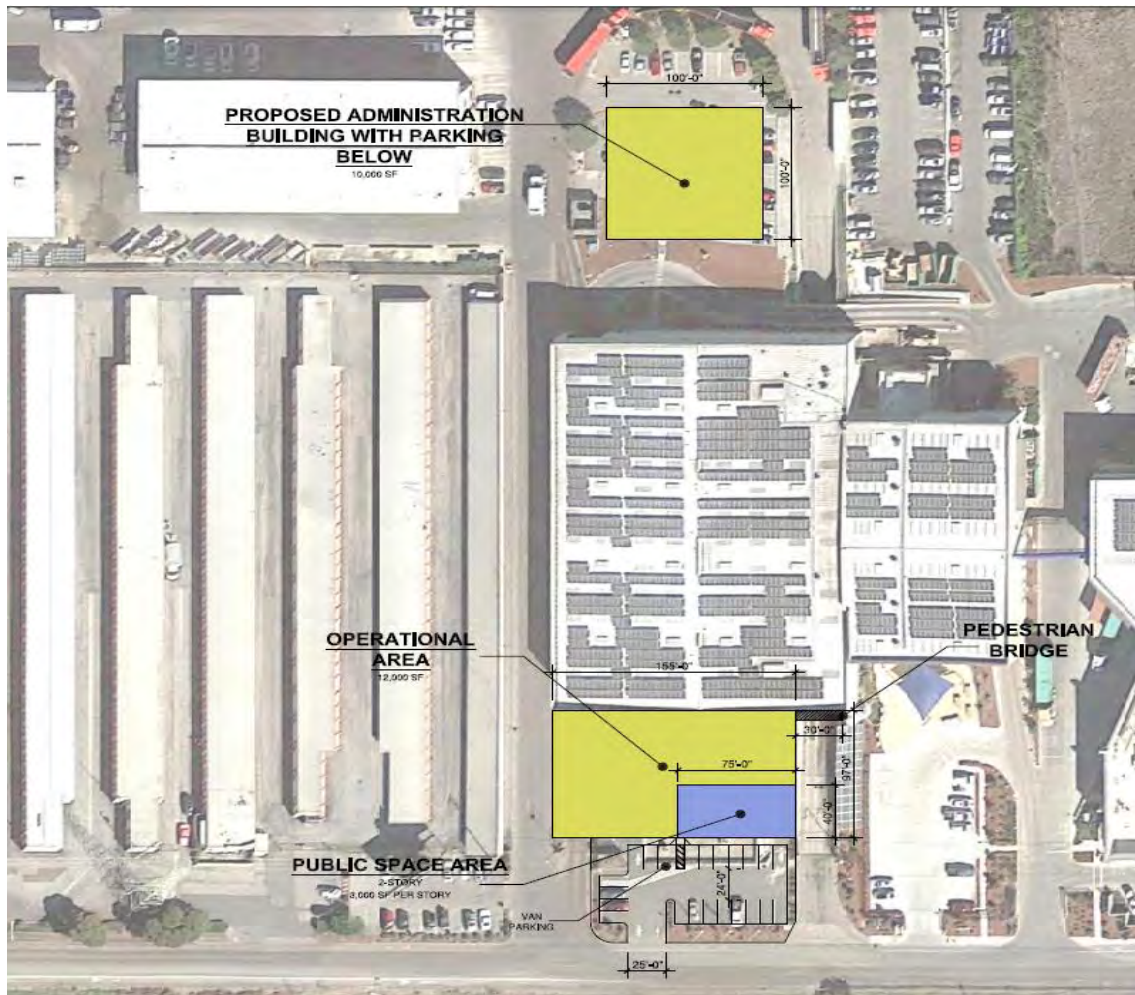


Table 4.32: Option 3 - Construction of New SBWMA Office and Public Meeting Space (Shown in Blue) within Transfer Station Expansion

Description	Cost	Evaluation Findings
Construct office and meeting space that would be added to and integrated with an enlargement to the Transfer Station building. Only an option if the Transfer Station is fully built out.	\$977,550	Can only be constructed if the Transfer Station is fully built out for the mixed waste processing system or for TS future processing needs. Two level construction with first level providing 3,000 sq. ft. of meeting space and second level providing 3,000 sq. ft. of office space. The addition of SBWMA staff would require the addition of parking area.

The site plan below shows the large Transfer Station expansion labeled "Operational Area" where the current Recology administration building is located, proposed SBWMA office and meeting space shown in blue labeled "Public Space", and a new Recology administration building with parking below shown in yellow behind the existing Transfer Station building.



d. MRF Single Stream Processing Equipment and Building Expansion

This section summarizes future processing equipment needs and the expansion of the MRF tipping area. The information is provided for the purposes of completeness related to Shoreway improvements. The SBWMA already has cash reserve funds set aside in an equipment replacement fund for single stream processing equipment replacement and the Board has already approved a budget which includes capital funds for the MRF tipping area expansion (“MRF canopy project”).



MRF Single Stream Processing System Equipment Replacement Schedule

In 2011, the SBWMA purchased and installed the single stream processing equipment currently operated by SBR to sort residential and commercial recyclables. The SBWMA paid roughly \$17 million for the MRF system and the equipment is being depreciated over a 12-year schedule. Due to the intensive use of the equipment and the physical and mechanical wear over time, staff anticipates the need to replace specific system components and has factored equipment replacement expense into the agency’s long-term financial forecasts. The equipment replacement schedule shown in **Table 4.33** below shows the expenditures by year on the MRF equipment and the status of the SBWMA’s Equipment Replacement Reserve (The MRF Equipment Replacement Schedule was developed in consultation with BHS (the system manufacturer) and reflects the current rate of system utilization (currently operating two 7-hours shifts per day). Note that staff and SBR continue to evaluate the rapid changes in consumer packaging and have included upgrades to specific sort system components to ensure that the Shoreway MRF processing system stays current with the changing inbound recycling stream.

Table 4.33: MRF Equipment Replacement Schedule

Based on MRF Equipment Manufacturer Replacement Estimate									
	FY1415	FY1516	FY1617	FY1718	FY1819	FY1920	FY2021	FY2122	FY2223
Beginning Reserve Balance	\$1,426,611	\$1,562,156	\$1,603,950	\$1,559,495	\$1,695,039	\$1,830,584	\$1,692,378	\$1,546,673	\$1,463,467
MRF Equipment Reserve	\$295,885	\$295,885	\$295,885	\$295,885	\$295,885	\$295,885	\$295,885	\$295,885	\$295,885
Forecasted Equipment Replacement	-\$160,341	-\$254,091	-\$340,341	-\$160,341	-\$160,341	-\$434,091	-\$441,591	-\$379,091	-\$559,091
Ending Reserve Balance	\$1,562,156	\$1,603,950	\$1,559,495	\$1,695,039	\$1,830,584	\$1,692,378	\$1,546,673	\$1,463,467	\$1,200,262

MRF Building Tipping Area Extension

The Shoreway MRF is processing roughly 110 tons per day of third party tonnage. The MRF building was designed to handle only the franchise tonnage and the additional third party tonnage has expanded the daily inbound tonnage beyond the building’s designed storage capacity. To accommodate the additional tonnage at the MRF, the SBWMA Board budgeted \$450,000 in construction capital in FY1415 to expand the MRF tipping area. The MRF tipping area extension project will provide the necessary vehicle unloading area and materials storage space to ensure that the MRF stays in regulatory compliance. The State’s solid waste regulatory agency (CalRecycle/LEA) that oversees the Shoreway facility and the City of San Carlos Planning and Building Departments have reviewed and approved the architectural plans for the MRF tipping areas extension project. **Figure 4.4** shows a rendering of the MRF tipping area extension and the location of the new area on the Shoreway site. The actual construction period is estimated to take three months with project completion anticipated in fall of 2015 (depending on whether a contract for construction is approved by the Board at the April or May 2015 meeting, the construction is estimated to end in September or November 2015).

Figure 4.4: Rendering of Shoreway MRF Tipping Area Extension and Site Plan with Construction Location Shown



Project Cost

The total cost estimate for the project is \$438,741 on a budgeted amount of \$450,000.

e. CNG Fueling System

Goals

The conversion of the collection fleet from diesel to CNG fuel and the installation of a CNG fueling system meets the long-term goals of the agency and supports multiple LRP

Guiding Principles including:

- Reduce collection fleet emissions
- Provide cost-effective and efficient programs
- Reduce and mitigate landfill and other facility impacts
- Investing in new, safe technologies and processes for infrastructure
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities



Project Details

Recology operates 127 route collection vehicles and consumes roughly one million gallons of diesel per year to provide collection services to the 12 Member Agencies. Diesel fuel is a significant annual operating expense for Recology, and the SBWMA and Recology have been evaluating ways to reduce the cost of fuel and the collection fleet’s air emissions impact. Amongst the nation’s largest waste hauling companies, there is a trend to convert collection fleets to CNG fuel to capture the benefit of CNG’s lower fuel cost. As discussed in **Section 4.B.1.a** (page 96), CNG is currently less than half the cost of diesel and could potentially provide the \$0.99 million in annual savings compared to current fuel costs. Recology uses the Shoreway fuel system infrastructure to fuel all collection vehicles and a conversion of the current diesel collection fleet would require a complete retrofit of the fueling system at Shoreway. Staff has evaluated the logistics, the site constraints, and the costs of installing CNG fuel system so that these infrastructure changes can be factored into the overall cost of converting the collection fleet to CNG.

Given the tight space constraints at Shoreway, the area currently utilized by the diesel fuel system would need to be repurposed to accommodate a new CNG fueling system. This would require the diesel dispensing system (including the three 15,000 gallon UST tanks) be removed and closed to the standards of the State Water Board prior to the installation of a new CNG dispensing system. This process would need to be closely coordinated to minimize the fuel system down-time and the SBWMA would need to ensure that the new CNG fuel system is reliably operating prior to the new CNG collection fleet coming online. Through consultation with Recology, consultants, CNG fuel system vendors, and other agencies SBWMA staff has concluded that Shoreway has enough space for a new CNG fuel system but that the truck parking area will need to be reconfigured (CNG refueling requires that each vehicle be connected to fuel lines overnight, thus each vehicle must have its own dispenser installed in the parking area between trucks which requires greater separation between vehicles than the current parking layout allows).

The main component of a CNG fuel system is a central gas compression and storage facility - a system sized to handle the large number of vehicles at Shoreway would require a compression and storage supply system that would take up roughly 32,000 square feet. This system would need to be connected to PG&E’s electrical and gas supply lines. PG&E supplies gas at a fairly low pressure (60 PSI) so the natural gas from the pipeline needs to be compress prior to filling the collection vehicle tanks. Connecting the CNG compression and storage system to the PG&E utility lines (in Shoreway’s case at the front of the property roughly one thousand feet from the fuel station) is typically the responsibility of the property owner, while the installation of the CNG gas

compression & storage facility, the individual vehicle fuel connections, and the onsite dispensers are typically installed by a CNG vendor. (See images in **Figure 4.5** where these components are shown displayed in order.)

Figure 4.5: Components of a CNG Fuel System



CNG fuel providers offer many contracting and financing options for the installation of a CNG fuel system. Staff has evaluated a “turn-key” contracting method that was recently followed by another JPA, the Monterey Regional Waste Management District (MRWMD), in their conversion from diesel to CNG. In their turn-key contracting method, MRWMD contracted with a CNG fuel vendor to provide “design, build, own, operate, and finance” services to the JPA in exchange for a long-term (15year) fuel purchase agreement. The advantages to this type of arrangement are as follows:

- The CNG vendor takes all risk and responsibility for the fueling system installation and operations.
- All CNG facility maintenance items and costs related to potential interruptions of fuel supply are the responsibility of the CNG system vendor.
- The Collection Services provider would likely contract directly with the CNG fuel vendor for the provision of CNG and the CNG station and thus the SBWMA would be removed from liability.
- The substantial cost of the CNG fuel system (estimated at \$2.5M) would be financed by the CNG fuel vendor.
- The existing Shoreway site lease agreement between Recology and the SBWMA can be structured to serve as a contractual tool to transfer the ownership of the CNG fuel system to the SBWMA at the end of the fuel purchase agreement.

If the SBMMA decides to enter into a turn-key CNG system installation agreement as described above, the SBWMA would still bear the responsibility and the cost for timely connection to PG&E’s utilities’ (from the PG&E utility supply lines to the CNG fuel system). This installation would need to be carefully budgeted and scheduled so that the work is completed prior converting the collection fleet to CNG.

Cost of CNG Fuel System

As shown in **Table 4.34**, the SMWMA capital costs for utility connection and the costs to the prepare collection vehicle maintenance areas for CNG vehicles is estimated at \$1,100,000 - \$1,525,000. Prior to converting to CNG, the SBMWA will need to pay for the removal the existing diesel system estimated at one-time costs of \$275,000 and pay to install a small diesel tank and dispensing system to fuel the transfer trucks estimated at \$100,000.

In 2014, the SBWMA completed a groundwater remediating project to remediate pre-existing contamination at the site. The SBWMA maintains an unspent reserve of approximately \$1,240,000 (Allied Waste Remediation Settlement) that could be applied to cover most of the expenses associated with the diesel system removal and CNG connection. (Staff would recommend using the Shoreway remediation fund balance of \$1.24 million to help pay for the CNG project costs.)

Table 4.34: Shoreway CNG Fuel Supply System Project Costs

FY1920	SBWMA Cash Flow	
	Low Estimate	High Estimate
Remove Underground Tanks	\$275,000	\$275,000
SBWMA Capital for CNG System	\$1,100,000	\$1,525,000
Cash Flow	\$1,375,00	\$1,800,000
Shoreway Remeditation Funds Available	\$1,240,000	\$1,240,000
CNG Project Cost (Net SBWMA Funds)	\$135,000	\$560,000

Financing arrangement for the purchase of the CNG compression and storage system are offered by CNG fuel vendors and the terms and scope of the contracts are quite flexible. Financing services provided by the CNG fuel vendor would need to be defined to evaluate the best financial arrangement for the SBWMA. **Table 4.35** shows the combined financial picture of the collection operations savings and the SBWMA Shoreway CNG project costs in **Table 4.34** above.

Table 4.35: Total CNG Costs

CNG COLLECTION COST IMPACT		2020	2021
Franchised Service Provider (Recology estimates)		N/A	
Net Annual Operating Cost Savings (Fuel and ops. savings - capital expense)			(\$992,960)
SHOREWAY OPERATIONS EXPENSE (SBWMA)			
Remove Underground Tanks (one-time expense)		\$275,000	
SBWMA Capital (Low Estimate)		\$1,100,000	
SBWMA Capital (High Estimate)		\$1,525,000	
subtotal:		\$1,375,000 - \$1,800,000	
SBWMA Available Funds**		\$1,240,000	
potential funding needed:		\$135,000 - \$560,000	
* Annual savings through 10-year franchise Agreement			
**Current balance in Shoreway remediation fund. Funds leftover from Allied Waste remediation settlement fund.			

Implementation

The implementation schedule for a CNG fuel system installation at Shoreway is expected to take one year and would involve a lengthy application, grid evaluation and transformer installation required by PG&E. The schedule for actual site construction (i.e., installation of the connection lines and placement of the CNG compression and storage facility is estimated to take 6 months excluding the SBWMA funds approval process). Since the removal of the existing diesel tank and fuel supply system is a necessary critical path item and since the risk of ground water contamination could significantly lengthen removal process, it is recommended that the time schedule to complete this work be evaluated and completed well in advance (two years prior) of converting the collection fleet to CNG fuel.

f. Other Shoreway Infrastructure Improvements

As the critical hub for the collection services and materials handling infrastructure, the SBWMA staff closely monitor the condition of the Shoreway Environmental Center and make facility improvements to keep the center functioning efficiently. Staff has evaluated opportunities to improve the efficiency of the facility operations, worker and customer safety and experience and has considered how the Shoreway infrastructure fits into the long-term goals and needs of the JPA. As an outcome of this evaluation process, staff has identified the following projects for further consideration: Shoreway site paving improvements, and implementation energy conservation systems (e.g., battery storage system and LED lighting retrofit).



Site Paving

The paving areas around the MRF and Transfer Station were largely replaced with new concrete during the 2011 master plan construction, however, the paved areas in the back half of the Shoreway property have not been improved. These paved areas are heavily used by Recology as their base of operations for truck parking, maintenance and fueling. Staff has been monitoring the condition of the pavement over the past several years and in the areas of heavy vehicle travel, the asphalt paving has started to fail. Of the roughly six acres of paved area, four acres will need to be removed and replaced at some point in the next five years. The rate of failure is largely dependent on the amount of rain during the winters as saturation and instability of the subsoil is the largest factor in hastening the pavement degradation. Staff has obtained cost estimates of \$2 million for the removal and replacing four acres of paving to a depth of 6 inches (note that this cost will fluctuate slightly with the price of oil). Patch paving will be performed to maintain the operability of the paved areas on an as-needed basis or until the area is repaved. Staff will include a forecast of this sending in the FY1516 budget, five-year capital spending worksheet.

Shoreway LED Lighting Retrofit

Goals

The conversion of the Shoreway lighting from the metal halide lighting to newer LED lighting technology meets the long-term goals of the agency and support multiple LRP Guiding Principles including:

- Reduce emissions
- Provide cost-effective and efficient programs
- Reduce and mitigate landfill and other facility impacts
- Invest in new, safe technologies and processes for infrastructure
- JPA Member Agency facilities and the Shoreway facility to serve as models for high diversion facilities


Overview

When the master plan construction was completed in 2011, LED lighting technology was not mature and large high-bay light fixtures used at Shoreway were not available. Since 2011, there has been rapid advancement in LED chip technology and the costs for LEDs have come down to the point where it makes financial sense to replace the existing lighting fixtures at Shoreway with energy saving LEDs. There are 783 industrial lighting fixtures (high-bay fixtures) at the Shoreway MRF, Transfer Station and in the Recology shop buildings. The cost to retrofit all of these fixtures is estimated at \$274,000.

Financial Analysis

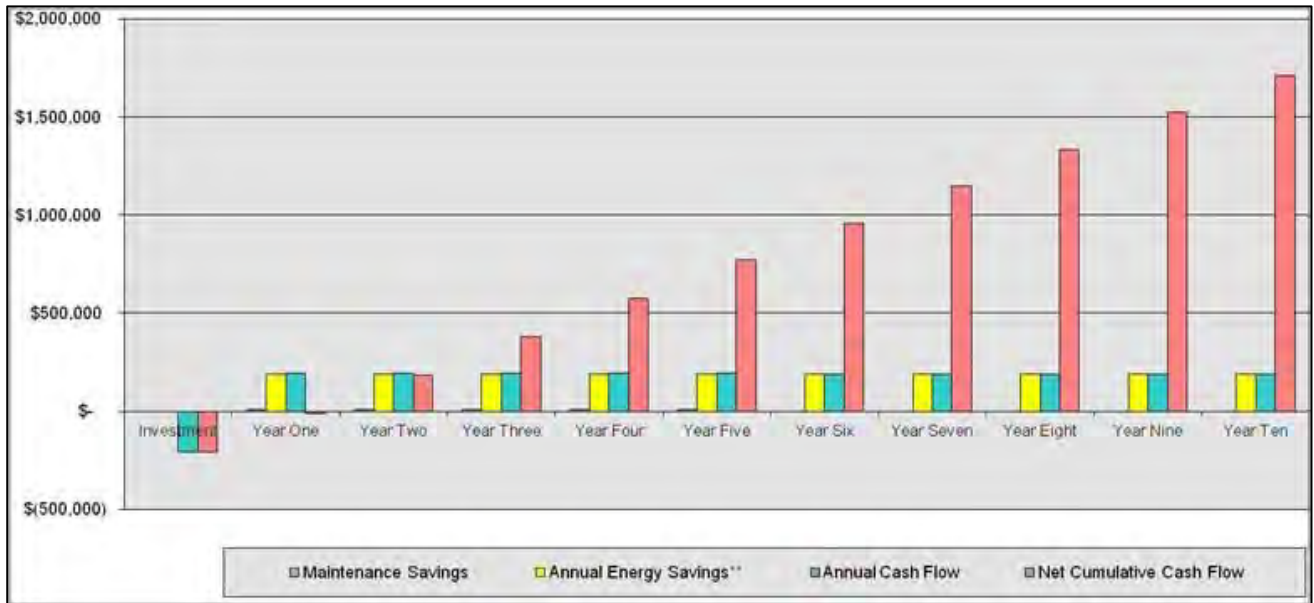
A LED lighting retrofit that assumes all of the 783 high-bay lights at Shoreway are replaced with LEDs and is expected to have a payback of approximately 1.3 years (i.e., the project would achieve positive net cash flow after finance payments within 1.3 years). **Figure 4.6** below provides a sample financial analysis of a Shoreway LED lighting retrofit project.

Figure 4.6: LED Retrofit Energy Saving Analysis

LED Lighting Upgrade Analysis	
Prepared for: Shoreway Environmental Center	
	
Project Cost:	\$274,050.00
<i>(783 fixtures, includes sales tax and rebate of \$125,280.00)</i>	
Annual Energy Savings	\$162,611.64
Annual Demand Savings	\$15,628.74
Annual Tax Avoidance	\$9,756.70
Annual Maintenance savings	\$20,877.91
Total Annual Savings	\$208,874.99
Return on Investment	76.22%
Payback (Years)	1.31
Warranty	10 Years
Longevity (based on L70)	18.5 Years

A summary of the cumulative net cash flow impact over a 10 year period is shown in **Table 4.36** on the following page. The LED fixtures are estimated to last roughly 18 years however, with the rapid pace of LED technology improvements along with rising energy costs there will likely be cost justification to retrofit again before the end of the 18 year estimated life.

Table 4.36: LED Retrofit Ten Year Cumulative Cash Flow Benefit



Benefits

LED technology provides improved CRI (higher clarity), better distribution (improved spread), significantly longer life (10x+), and reduced maintenance and disposal costs (no mercury).

Implementation

A pilot project is planned to be completed before the end of this fiscal year (initial pilot project of 90 fixtures costing approximately roughly \$45,000). Information regarding the lighting color, intensity, and location would be refined based on the pilot and the full retrofit of the high-bay fixtures at the Shoreway buildings would happen in FY1516.

Battery Storage Project

Shoreway’s PG&E electric bill consists of two types of charges: *energy* costs, and instantaneous or peak power usage called *demand* costs. The Shoreway MRF has several major pieces of equipment (including balers, large fans used in air separation, and conveyor motors) that cause demand spikes. The demand cost portion of the electric bill from this equipment is significant, sometimes tens of thousands of dollars per month and they vary from 24 cents per kW in winter part peak periods to almost 33 dollars per kW in summer peak periods.

Figure 4.7 shows a portion of a Shoreway electric bill from April 2014 where the demand charge peak during the month was 657 kW, which created a cost of over \$8,000, or about one-third of the total bill expense. This is a typical level for Shoreway electric bills, however, as noted above summer Demand rates are almost three times higher than this rate, so Shoreway summer demand charges are even higher and represent an even greater proportion of the total electric bill expense. In addition, PG&E has been increasing the demand charges portion of the power bill (e.g., recently, PG&E raised the summer demand charges 17% from 2014 to 2015). A battery storage system can be used to reduce electric demand charges by capping the spikes or surges in power created by large equipment operating at peak load. In so doing, the battery’s storage system “erases” the power demand peaks seen by the PG&E meter and thus reduce PG&E’s demand charge

Figure 4.7. PG&E Electricity Bill with Demand Charges Circled

ENERGY STATEMENT				Account No: 8995189956-9
www.pge.com/MyEnergy				Statement Date: 04/30/2014
				Due Date: 05/19/2014
Details of Electric Charges				Service Information
03/29/2014 - 04/28/2014 (31 billing days)				Meter # 1009398442
Service For: 333 SHOREWAY RD				Current Meter Reading 9,890
Service Agreement ID: 8995189497				Prior Meter Reading 9,320
Rate Schedule: E19S Medium General Demand-Metered TOU Service				Difference 570
				Meter Constant 300 000000
				Total Usage 170,400 000000 kWh
03/29/2014 - 04/28/2014				Meter # 1009398442
Customer Charge	31 days	@ \$19 71253	\$611 09	Current Meter Reading 8,485
Demand Charge				Prior Meter Reading 7,995
Max Part Peak	657 000000 kW	@ \$0 21000	137 97	Difference 490
Max Demand	657 000000 kW	@ \$12 24000	8,041 66	Meter Constant 300 000000
Energy Charges				Reactive Power 147,000 000000 kVar
Part Peak	104,700 000000 kWh	@ \$0 09975	10,443 83	Serial D
Off Peak	65,700 000000 kWh	@ \$0 07832	5,145 62	Rotating Outage Block 5F
Power Factor Adjustment (@ 76 00% Power Factor)			76 68	
Energy Commission Tax			49 42	
Total Electric Charges			\$24,506.29	

Because the battery system is constantly discharging and recharging throughout the day and the month, it requires a battery that is able to sustain a high cycle life and therefore are constructed out of lithium-ion that has a cycle life of ~10,000 cycles. Additionally, demand occurs at random times due to random events caused by real time loads turning on and off. Predictably offsetting this demand on a consistent basis, and anticipating and reserving an appropriate amount of battery capacity to compensate for them, requires a complex system and software to perform this task. Five battery storage system vendors were evaluated in 2014. Of these five vendors, GreenCharge Networks and GELI, were short listed because they could accommodate the large battery size required by the Shoreway operation, they had proven technologies that have been installed in several locations, and they provided financing options the SBWMA was looking for.

- STEM
- Sharp Electronics
- Demand Energy
- GreenCharge Networks (GCN)
- GELI (Growing Energy Labs, Inc.)

With the information that has been collected from this survey of battery storage systems, staff has concluded the following:

- 1) Battery storage systems can provide a meaningful reduction to current PG&E demand charges (estimated at \$10,000 or more per year).
- 2) With the addition of a mixed waste processing system at the Transfer Station, the power usage and energy savings potential will increase.
- 3) The energy storage market is fast evolving and new technologies and vendors are emerging all of the time.

- 4) The State rebate program is at risk of running out of funds in future years and this funding pool needs to be monitored to take advantage of available rebates.
- 5) By reducing PG&E demand charges, a battery storages system will also serve to hedge against future PG&E demand charge increases.

While staff is encouraged at the prospect of the battery storage systems to reduce the current and future demand charges that are a large component of the Shoreway PG&E electrical bill, there will likely be changes at Shoreway and within the battery storage system industry that make it prudent to wait before installing a system. For this reason, staff is recommends a resurvey of the battery storage market and a new financial analysis be completed within two to three years.

g. Environmental Education Center and Tours Program

Goals

Identify environmental education and service learning program expansion options with a primary goal of supporting the JPAs goal of reaching 75% diversion. Resource conservation messaging, including education on how our current recycling and organics collection and processing programs work, from our existing tour program will be integrated into the classroom in schools in our service area to support and compliment the JPAs recycling outreach to homes, and businesses. Public education and outreach is proven to be most effective when delivered in multiple ways and in a continuous and pervasive manner to our target audience (i.e., where our customers live, learn, work and play).



This program expansion option supports multiple LRP Guiding Principles including:

- Support local, state and national mandates, including meeting the State’s 75% recycling goal by 2020
- Increase and maximize participation in programs and services to reduce, reuse, recycle and compost waste
- Develop and sustain strategic community partnerships
- Promote behavior change through public education

Overview

This option involves completing a nine-month stakeholder engagement process to address a few critical questions: what environmental education programs fit best into existing efforts in the schools in our service area and what areas for expansion make the most sense? One of the JPA’s two existing environmental educators would manage the engagement process which would include the following key steps:

- **Expanded Information Gathering and Networking**
 - Survey schools and school districts on their existing recycling/composting programs, school gardens, environmental initiatives, and environmental service learning programs to identify best practices. Gather information through onsite visits, surveys, small group meetings, etc.
 - Through such surveying identify environmental education champions and leaders to engage more fully through participation in a blue ribbon committee, adhoc advisory groups, etc.
 - Survey recycling service providers to gain statistics and build profiles of school and district-wide recycling programs and diversion levels to tie back to school tour database (i.e., understand details of school diversion, school recycling program participation, profile and costs of recycling/composting services offered).
 - Develop informational profiles of the “green awareness” of schools: What is their level of interest and current involvement in recycling? What are their challenges and constraints to recycling? What do the schools need the most in order to expand green awareness on campus?
 - As the above information is gathered, revise as necessary the pre and post-tour teacher surveys to capture information about what environmental topics are currently being taught in the classroom so that tour messaging and pre/post curriculum can be custom tailored.

- Convene a blue-ribbon committee, ad hoc advisory groups, and/or focus groups, etc. to explore and discuss environmental education and environmental program best practices and identify how best RethinkWaste can support broader implementation of such best practices. Develop a short-list of pilot program ideas based on feedback from stakeholders.
- Evaluate collaboration opportunities and partnerships with non-profits and businesses for expansion of tour and environmental education programs.
- Host a community workshop if applicable, with panels of educators, non-profit service providers, Green Teams, community service organizations. This may or may not be connected to the blue-ribbon committee noted above.
- Develop an implementation plan, time-line, budget and staffing needs for 1) pilot level expansion of programs and 2) full program build-out.

The budget for this engagement process would include \$62,000 in one-time costs to be included in the FY1516 budget as follows:

- \$37,000 for retention of our existing current seasonal tour position for one-year to meet the minimum staffing requirements for the tour program
- \$25,000 for consultant support during the engagement process including assistance with managing the blue-ribbon committee process.

Staff believes this is the most cost effective approach with utilization of an existing staff person plus supplemental support from a consultant. An alternative approach of having a consultant lead the engagement process would be more costly and create a missed opportunity for one of our existing environmental educators to more fully engage with our customer base of local schools and environmental educators.

By April 2016, staff would come back with a final report and recommendations on what environmental education programs the JPA can best integrate into our current program to meet the needs of our customers; these will be recommendations vetted by key stakeholders from local schools, nonprofits and related organizations focused on environmental education.

RethinkWaste is fortunate in that there are several innovative and cost-effective programs in the Bay Area where local governments partnered with the community, their waste haulers, local businesses and schools to further robust educational and experiential programs that have quantifiable and measurable outcomes. An example of these best practices implemented by StopWaste can be found in **Attachment A**.

SECTION 5



RECOMMENDATIONS AND NEXT STEPS

5. Recommendations and Next Steps

A. Summary of Recommendations

Table 5.1: Summary of Recommendations for Policies, Program and Shoreway Infrastructure Enhancements

Name/Title	Recommendation	Annual Diversion	Cost/Diverted Ton	Project Benefits
Collection Operational Improvement:				
CNG Fleet Conversion Project	The franchised service provider collection fleet to run on CNG effective 1/1/21 (assumed start of new Franchise Agreements). Recology to include this assumption in their proposal for an extension of their existing Franchise Agreements in 2017.	N/A	N/A	<ul style="list-style-type: none"> Net collection ops. cost savings of \$992,960/year starting in 2021 Approximately 20%-23% reduction in greenhouse gas emissions
SFD Split-Body Collection Vehicle Pilot Project	Conduct a pilot project in FY1516 to study routing efficiencies using split-body (two-compartment) collection vehicles over two four-week pilot periods between September and November 2015. Recology proposes to conduct the first pilot in Menlo Park and the other in Burlingame and adjoining County pockets. Approximately 8,000 homes per week (two routes) effected during each pilot period.	N/A	N/A	<ul style="list-style-type: none"> Pilot project to assess potential routing efficiencies to determine if this type of collection vehicle can be cost effectively deployed in the future in our service area
Collection Program/Service Enhancement:				
SFD Every Other Week Garbage Collection Pilot Project	<p>Conduct a pilot project in FY1516 to study the cost effectiveness of collecting garbage every other week. Pilot details not final but assumes would cover approximately 8,000 homes (two routes) over a three month period.</p> <p>Pilot would have to be approved by the County LEA which enforces State solid waste and related laws and regulations.</p>	Potentially Significant	Determine after pilot	<ul style="list-style-type: none"> Potentially significant increase in diversion Potential cost savings from reduced collection routes Potential reduction in greenhouse gas and other harmful vehicle emissions <p>Note: Pilot project results to be evaluated to determine if this change in residential service levels and routing are to be included in the future Franchise Agreements. A solid waste rate study would need to be completed to assess this option and others for future consideration in the Franchise Agreements.</p>
Commercial Recycling Outreach Program Project	Modify Recology's current reporting requirements to implement a Commercial Subscription and Participation Compliance Status Report for use in setting outreach priorities and tracking progress to diversion goals. Couple this change with enhanced commercial public education and outreach efforts. Project to be implemented in FY1516.	Supports meeting forecasted growth in commercial diversion shown in Table 4.1 and Table 4.2A.	Determine after pilot	<ul style="list-style-type: none"> Supports Recology's efforts to achieve the forecasted commercial diversion shown in Table 4.1 and Table 4.2A Establish clear diversion targets for collection services contractor Increase return on investment in franchised commercial outreach program
Public Spaces Recycling Pilot Program	Implement model public spaces recycling collection in a downtown area and a park setting. Goal is to develop a more uniform approach across the Member Agencies that complements the existing residential and commercial recycling and organics collection services. Project to be implemented in FY1415 and FY1516.	Determine after pilot	Determine after pilot	<ul style="list-style-type: none"> Increased diversion from the commercial sector (public spaces) Reduce litter Expand opportunities to engage public in recycling and reinforce messaging
Enhanced Residential Public Education and Outreach Pilot Program	Conduct a pilot program focusing on cost-effective, measurable dedicated campaigns service-area wide and for specific Member Agencies with lower diversion rates. Pilot to be conducted in FY1617.	<p>Increase in residential recycling and organic materials:</p> <ul style="list-style-type: none"> 2.5% in 2018 5% in 2019 2% in 2020 <p>Forecasted increase in residential diversion from 66.59% in 2015 to 68.22% in 2020. See Table 4.2A.</p>	TBD	<ul style="list-style-type: none"> Increased diversion from the residential sector

Name/Title	Recommendation	Annual Diversion	Cost/Diverted Ton	Project Benefits
Policy Initiative:				
<p>EPR Policy Framework</p>	<p>Establish a framework for Board consideration to facilitate supporting EPR legislation and policy. Implement in FY1516.</p>	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> • Provides SBWMA the opportunity to become engaged in State-wide efforts to enact EPR related policy • Requires product manufacturers to take financial responsibility for collection, recycling and disposal of their products • Provides incentive for manufacturers to design products for recyclability and with reduced toxicity • Reduces cost to ratepayers for proper handling, recycling and disposal of various product types
Shoreway Infrastructure Enhancement:				
<p>Mixed Waste Processing in the Transfer Station</p>	<p>Installation of a mixed waste processing system located in an expanded footprint in the existing Transfer Station. System to recover recyclables and organics from residential and commercial waste delivered to the Transfer Station by Recology collection vehicles. Recyclables to be processed further at existing onsite MRF. Organics to be transferred to SVCW for digestion and energy production. System can also process, at a projected expense less than existing organics processing, source separated organics from Recology franchised collection programs. System operational in 2018.</p>	<p>49,591 tons per year of new diversion starting in 2018.</p> <p>Would increase overall measured diversion from 51.94% in 2017 to 67.73% in 2020 per Table 4.2B.</p>	<p>\$38.42/ton for the base- case scenario (small TS expansion with fiber recovery; see Table 4.27). Large TS expansion with fiber recovery would be \$55.28/ton. (See Table 4.28)</p>	<ul style="list-style-type: none"> • Significant diversion potential of 49.590 tons/year starting in 2018 • Low cost per diverted ton • Leverages existing infrastructure at SVCW to reduce the project capital costs • Reduction of greenhouse gasses through recovery of green energy from waste and reduced landfilling • Viable project for State grant funding
<p>Shoreway Transfer Station Building Improvements</p>	<p>Expand Transfer Station footprint to accommodate a mixed waste processing system. Two Transfer Station expansion scenarios: small expansion of 4,400 sq. ft. or large expansion of 12,000 sq. ft. Small expansion would not provide for new office and public meeting space. Large expansion would require demolition of Recology Administration building and construction of new Administration building. Large expansion would allow for new office and public meeting space as described further below.</p>	<p>N/A. Transfer Station building expansion options are part of mixed waste processing system project.</p>	<p>TS building expansion costs are included in the above figures.</p>	<ul style="list-style-type: none"> • See above
<p>SBWMA Administrative Offices and Public Meeting Space</p>	<p>Pursue one of three options to provide for onsite (at Shoreway) SBWMA office space and new public meeting space (e.g., for Board meetings, seasonal workshops and other public needs). There are three options for SBWMA office space with two of the options also providing public meeting space.</p> <p>Option 1 would be to remodel 3,000 sq. ft. of space on the second floor of Recology Administration Building; this option does not provide for public meeting space. Option 1 is possible if do small Transfer Station expansion.</p> <p>Option 2 would consist of constructing a new two-story building in the existing visitor parking lot. The first floor would be a parking garage and the second floor will be split between office space and public meeting space totaling 5,614 sq. ft.</p> <p>Option 3 would be associated with the large Transfer Station expansion scenario. Office space and public meeting space would be housed in a two-story building adjacent to the Transfer Station. Both floors would be approx. 3,000 sq. ft.</p> <p><u>Staff recommends that no decision be made on these improvements until a final decision is made on the mixed waste processing project and related Transfer Station building improvements.</u></p>	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> • All options would provide for SBWMA office space and thus save approx. \$60,000 per year in office lease costs • Options 2 and 3 would provide for public meeting space for Board meetings and other public meetings and onsite public events

Name/Title	Recommendation	Annual Diversion	Cost/Diverted Ton	Project Benefits
MRF Single Stream Processing Equipment Replacement	No recommended change to existing Board policy or direction. Staff to include a forecast for MRF equipment replacement in the FY1516 budget; the budget will include a rolling five-year capital budget. Existing cash reserves include an equipment replacement reserve fund to pay for such equipment replacement.	N/A	N/A	N/A
MRF Building Tipping Area Expansion	This is an existing identified and budgeted project to construct a MRF canopy to expand tipping area for collection vehicles to unload recyclables. Project required to handle 3 rd party tonnage into MRF. FY1415 budget of \$450,000. Current project construction estimate of \$438,741.	N/A	N/A	N/A
CNG Fueling System at Shoreway	Installation of a CNG fueling system at Shoreway in 2020 to support future fuel needs for collection fleet. Would also involve the closeout of the existing UST system. Would add one new AST for diesel for SBR transfer trailers.	N/A	N/A	<ul style="list-style-type: none"> • Supports conversion of the collection fleet to CNG with significant operational cost savings • Eliminates future potential groundwater contamination at Shoreway from fueling operations
Other Shoreway Infrastructure Improvements: <i>Site Paving</i> <i>New LED Lighting</i>	No recommended change to existing Board policy or direction. Staff to include a forecast for site paving costs in capital spending portion of FY1516 budget. LED lighting retrofit in the MRF, Transfer Station and Recology maintenance shops.	N/A	N/A	<ul style="list-style-type: none"> • Extend life of pavement in the corp. yard area used by Recology • Power cost savings after 1.3 year payback period • Improved interior lighting for safer environment
Environmental Education Center and Tour Program Enhancements	Conduct a stakeholder engagement process in FY1516 to determine what additional components can be added to our existing environmental educational efforts with a focus on increasing recycling and composting efforts at schools in our service area. RethinkWaste is only minimally engaged in school or community based environmental education outside of the existing tour program.	TBD	TBD	<ul style="list-style-type: none"> • Complements existing RethinkWaste recycling outreach efforts to residents and businesses • Engages local educators to identify synergies to maximize effectiveness of new programs • Enhances return on investment in broader outreach campaigns

Table 5.1 on the previous pages summarizes all of the recommendations for Board consideration. The recommendations are broken out into collection related operational improvements, programs/services enhancements; policy initiatives; and Shoreway infrastructure improvements. As stated in **Section 1** (Executive Summary) of this Report, these recommendations do not address other critical items such as the expiration of future contracts and what actions are recommended (see **Table 2.1** for a summary of JPA contracts and Member Agency Franchise Agreements) as those actions will be addressed through a separate process.

Cost estimates associated with the recommendations are current year estimates and no collection and Shoreway rate analysis has been completed; that will be a follow-up item once the Board approves the final Long Range Plan.

Finally, it is critical to understand that the Long Range Plan is really a “blueprint” for future Board actions related to increasing measured diversion, and driving operational improvements. As outlined on the following pages and in **Table 5.3**, there are a number of decisions that flow from the recommendations in **Table 5.1**.

As shown in **Table 4.1** and **Table 5.2** below (same table previously shown as **Table 4.2B**), implementing the recommendations will increase measured diversion from our forecasted baseline of 54.35% in 2020 to an estimated 67.73% in 2020. These figures do not include any diversion data as a result of the implementation of the Commercial Recycling Reporting Ordinance as the first required reports per the Ordinance are not due until May 1, 2015. When this data becomes available and is reviewed by staff an updated diversion forecast will be prepared which will likely put us even closer to the State’s 75% diversion goal by 2020.

Table 5.2: Baseline Forecast w/ Enhanced Residential Public Education and MSW Processing Starting in 2018*

<u>Sector</u>	<u>Actual Results</u>		<u>Projected Results</u>					
	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Residential	66.90%	66.48%	66.59%	66.59%	66.59%	71.32%	76.35%	76.60%
Commercial/MFD	29.77%	31.04%	32.01%	34.79%	37.13%	48.75%	58.77%	58.77%
Overall	48.83%	48.90%	49.39%	50.77%	51.94%	60.09%	67.61%	67.73%

*Commercial Recycling Reporting Ordinance data is not included in the forecasted Commercial/MFD and Overall measured diversion rates.

B. Timeline and Cost Projections Associated with Future Decisions by SBWMA Board and/or Member Agencies

In order to implement the recommendations outlined in **Table 5.1**, the following decisions by year will be requested of the SBWMA Board and/or Member Agencies. **Table 5.3** graphically depicts the overall timeline for the recommended policies, programs, and Shoreway enhancements.

Timeline

2015

- **SFD Split-body Collection Vehicle Pilot Project** – SBWMA Board decides whether to include one-time expenses of \$16,391 in FY1516 budget. Board also provides direction to Recology as to whether to include one-time expenses of \$55,422 in their 2016 Compensation application submitted in June.
- **SFD Every Other Week Garbage Collection Pilot Project** – SBWMA Board decides whether to include one-time expenses of \$119,200 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **Commercial Recycling Outreach Program Project** – SBWMA Board decides whether to include one-time expenses of \$50,000 - \$60,000 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **Public Spaces Recycling Pilot Program** – SBWMA Board decides whether to include one-time expenses of \$11,000 in FY1516 budget. No impact on 2015 or 2016 Recology compensation.
- **Extended EPR Policy Framework** – SBWMA Board decides whether to adopt an EPR Policy Framework.
- **Mixed Waste Processing in the Transfer Station** – SBWMA Board decides whether to include one-time project development expenses of \$183,000 in FY1516 budget. No impact on 2015 or 2016 contractor compensation.
- **SBWMA Administrative Offices and Public Meeting Space** – SBWMA Board decides whether to include \$25,000 in one-time costs in FY1516 budget to further refine building cost estimates. Board could also decide to move forward on Option 1 (\$275,000) to remodel the upstairs portion of the Recology Administration building or Option 2 (\$3.33 million) to build a new two-story building in the visitors parking lot. Staff recommends that no decision be made on these improvements until a final decision is made on the mixed waste processing project and related Transfer Station building improvements.
- **MRF Single Stream Processing Equipment Replacement** – SBWMA Board will adopt annual budget with five-year capital spending plan (plan updated each year for a rolling five-year period). Sufficient cash reserves already in place for forecasted equipment replacement needs.
- **MRF Building Tipping Area Expansion** – SBWMA Board considers approval of construction contract award in April or May 2015. Capital line item already included in adopted FY1415 budget.
- **Site Paving** – SBWMA Board approval of FY1516 budget with five-year capital spending plan to include site paving needs.

- **New LED Lighting** – SBWMA Board will decide whether to approve or not inclusion of the estimated \$274,000 in the FY1516 capital budget.
- **Environmental Education Center and Tour Program Enhancements** – SBWMA Board decides whether to include \$62,000 in one-time costs in FY1516 budget to complete stakeholder engagement process.

2016

- **CNG Fleet Conversion Project** - SBWMA and Member Agencies decide if CNG fleet to be included in future scope of work for Franchise Agreements (2017 decision by Member Agencies (MAs) whether to extend or not current Recology Franchise Agreements beyond 12/31/20).
- **SFD Split-body Collection Vehicle Pilot Project** – Based on pilot project results, SBWMA and Member Agencies decide if split-body vehicles to be included in future scope of work for Franchise Agreements.
- **SFD Every Other Week (EOW) Garbage Collection Pilot Project** – Based on pilot project results, SBWMA and Member Agencies decide if EOW solid waste collection to be included in future scope of work for Franchise Agreements.
- **Commercial Recycling Outreach Program Project** – Based on outreach pilot project results, SBWMA Board decides if expanded commercial outreach should be continued.
- **Public Spaces Recycling Pilot Program** – Based on pilot project results, SBWMA and Member Agencies decide if there is to be a full scale rollout across service area; could impact SBWMA FY1617 budget and Recology 2017 compensation.
- **Enhanced Residential Public Education and Outreach Pilot Program** – SBWMA Board decides whether to include one-time expenses of \$175,000 in FY1617 budget. No impact on 2016 or 2017 Recology compensation.
- **Mixed Waste Processing in the Transfer Station** – SBWMA Board makes decision on project based on updated project financial proforma. If decision is to implement, then would initiate project design and permitting in 2016 and develop plan of finance. Capital costs in FY1617- FY1718 budgets. Would also negotiate updated MOU with SVCW for Board consideration.

The above decision would also relate to the associated Transfer Station building improvements required to accommodate the new mixed waste processing system.

- **SBWMA Administrative Offices and Public Meeting Space** – The above decisions may effect which option, if any, the Board chooses for new SBWMA office space and public meeting space at the Shoreway Environmental Center.
- **Environmental Education Center and Tour Program Enhancements** - When staff completes the stakeholder engagement process then recommendations will come back to the Board for consideration for FY1617 budget.

2017

- **Enhanced Residential Public Education and Outreach Pilot Program** – Based on pilot project results, SBWMA Board decides if ongoing enhanced outreach effort is to be continued.
- **Mixed Waste Processing in the Transfer Station** – Board approval of construction contract award for building improvements and purchase of processing equipment. Negotiate Operations Agreement amendment for SBR compensation to operate new processing system; such amendments require approval of the SBWMA Board and separate approval by two-thirds (at least 8 of the 12) of the Member Agencies.

The above decision would also relate to the associated Transfer Station building improvements required to accommodate the new mixed waste processing system.

If issuance of new debt is needed to finance the project then this will require SBWMA Board approval and separate approval by two-thirds (at least 8 of the 12) of the Member Agencies.

2018/2019

- **CNG Fueling System** – SBWMA Board approval of Shoreway project expenses for site improvements, including closeout of USTs, installation of new AST, and site improvements required for new CNG fueling system. Current estimate of \$1.375 million to \$1.8 million with \$1.24 million in Shoreway remediation funds available to help offset costs.

2021

- **Mandatory Residential and Commercial Recycling Ordinance** – Analyze programmatic efforts through 2020 to determine measured diversion rate and progress towards State goal of 75%. If still short of goal then the SBWMA Board may decide to approve new policy tools.
- **Organic Materials (Green Waste and Food Scraps) Disposal Ban** – Analyze programmatic efforts through 2020 to determine measured diversion rate and progress towards State goal of 75%. If still short of goal then the SBWMA Board may decide to approve new policy tools.

Cost Projections

Table 5.4 on p.177 summarizes all the cost projections associated with each of the recommendations by year. In the upcoming fiscal year (FY1516) there are a number of recommendations for one-time expenditures to support implementation of pilot projects, and complete additional technical and financial analysis of the mixed waste processing system, including building improvements.

For FY1516, the projected spending from the operating expense budget totals \$476,591 with \$206,591 for collection related programs and outreach, and \$270,000 related to Shoreway operations. \$274,000 is also recommended as a capital expense to retrofit large lighting fixtures in the MRF, Transfer Station, and Recology maintenance shop with high efficiency LED lights. A \$55,422 adjustment is also recommended to Recology's 2016 compensation to cover costs associated with the split-body collection vehicle pilot project. \$175,000 is recommended to be included in the FY1617 operating budget to complete a residential outreach pilot to measure potential enhancements to diversion levels. Future residential diversion increases are assumed starting in calendar year 2018 based on increased outreach spending, though no cost estimates are currently provided for such outreach efforts.

Based on the results of the various pilots conducted in 2015 and 2016, there will be follow-up SBWMA Board and/or Member Agency decisions in 2016, 2017 and 2018 regarding full-scale rollout of programs and services (e.g., enhanced public education and outreach, Public Spaces recycling, etc.) and future franchised collection service operations (e.g., use of split-body collection vehicles and EOW solid waste collection). Notably, any changes to collection service operations would need to be analyzed from a rate perspective along with any other changes proposed by Recology and/or recommended by the SBWMA Board and Member Agencies.

Major decisions on the Shoreway facility capital improvements are assumed to occur in 2016 for the mixed waste processing system and related Transfer Station building expansion. Currently, the assumed base-case project would involve spending \$13.51 million, with \$2.53 million for a small expansion of the Transfer Station and \$10.58 million for processing equipment. Project funding sources could include the use of current undesignated cash reserves estimated at \$3.9 million (FY1415 mid-year budget document), new incremental undesignated cash reserves resulting from tipping fee increases at Shoreway, State grant funding, and new debt (bank loan, bonds, etc.) An analysis of tipping fees and other aspects of the Shoreway operations budget would need to be completed as part of any Board decision-making process for this project.

The above decisions related to the mixed waste processing project will also effect potential options related to the development of SBWMA office space and public meeting space at Shoreway. The SBWMA currently spends approximately \$60,000 per year to lease office space, and the Board Chair and Vice Chair requested an analysis of alternatives be included in the Long Range Plan. Three options are presented with a cost range of \$275,000 (to remodel the upstairs portion of the Recology Administration building) to \$3.33 million (to build a new two-story building in the visitors parking lot). Another option at a cost of \$977,550 would be tied to the large expansion option for the Transfer Station. The lowest cost of \$275,000 provides for SBWMA office space, but no provision for public meeting space; if this option was pursued, however, an offsite location would need to be secured for Board meetings. The next lowest cost option at \$977,750 provides office and meeting space and is tied to a much more expensive (i.e., \$9.9 million higher) Transfer Station expansion scenario that is not the preferred option for the mixed waste processing project. The preferred alternative would be the \$3.3 million option that provides for both SBWMA office space and public meeting space on a long-term basis.

Finally, in 2019 the Board would face decisions around capital expenditures to support installation of a new CNG fueling system at Shoreway. Fortunately, the current estimated project costs of \$1.38 - \$1.8 million would largely be covered by an existing source of funds; \$1.24 million is currently available in a Shoreway remediation fund. Further, the net project costs would be more than offset by the annual franchised collection services operational savings identified at approximately \$1 million per year starting in 2021.

Table 5.3: Implementation Timeline for Recommended Policies, Program and Shoreway Infrastructure Enhancements

Policies, Programs, and Shoreway Infrastructure Enhancements	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
COLLECTION PROGRAMS										
CNG Fleet Conversion Project										
SFD Split-Body Collection Vehicle Pilot Project										
SFD Every Other Week (EOW) Garbage Collection Pilot Project										
Commercial Recycling Outreach Program Project										
Public Spaces Recycling Pilot Program										
Enhanced Residential Public Education and Outreach Pilot Program										
Mandatory Residential and Commercial Recycling Ordinance										
Organic Materials (Green Waste and Food Scraps) Disposal Ban										
EPR Policy Framework										
SHOREWAY OPERATIONS										
Mixed Waste Processing in the Transfer Station										
Shoreway Transfer Station Building Improvements										
SBWMA Administrative Offices and Public Meeting Space										
MRF Single Stream Processing Equipment Replacement										
MRF Building Tipping Area Expansion										
CNG Fueling System										
Other Shoreway Infrastructure Improvements										
<i>Site Paving</i>										
<i>New LED Lighting</i>										
Environmental Education Center and Tour Program Enhancements										
Collection Programs		Symbol: Reverse diagonal stripe pattern shown above means potential full-scale rollout.								
Shoreway Operations										

Table 5.4: Summary of Projected Costs by Year

Policies, Programs, and Shoreway Infrastructure Enhancements	Costs					
	2015	2016	2017	2018	2019	2020
COLLECTION PROGRAMS						
CNG Fleet Conversion Project						Franchise collection service provider to purchase new CNG compatible collection vehicles. Based on current fleet would be 127 vehicles at an estimated net increase (in collection vehicle capital) of \$5.136M .
SFD Split-Body Collection Vehicle Pilot Project	\$16,391 in FY1516 budget.	\$55,422 in 2016 Recology Compensation.				
SFD Every Other Week (EOW) Garbage Collection Pilot Project	\$119,200 in FY1516 budget.					
Commercial Recycling Outreach Program Project	\$50,000 - \$60,000 in FY1516 budget.					
Public Spaces Recycling Pilot Program	\$11,000 in FY1516 budget.					
Enhanced Residential Public Education and Outreach Pilot Program		\$175,000 in FY1617 budget				
EPR Policy Framework	Existing staff time					
SHOREWAY OPERATIONS						
Mixed Waste Processing in the Transfer Station	\$183,000 in FY1516 budget for project development expense (refined design, waste comp. analysis, etc.).			\$10.98 million for processing equipment. Includes 10% contingency.		
Shoreway Transfer Station Building Improvements		\$2.53 million for Transfer Station - small expansion or \$13.47 million for Transfer Station - large expansion. Includes \$977,550 for 2-story admin. bldg to house SBWMA offices and public meeting space. Both TS expansion scenario figures include 10% contingency.				
SBWMA Administrative Offices and Public Meeting Space	\$25,000 in one-time costs in FY1516 budget to further refine building cost estimates.	Option 1 (\$275,000) to remodel the upstairs portion of the Recology Admin. building or Option 2 (\$3.33 million) to build a new two-story building in the visitors parking lot. Staff recommends that no decision be made on these improvements until a final decision is made on the mixed waste processing project and related Transfer Station building improvements.				

Policies, Programs, and Shoreway Infrastructure Enhancements	Costs					
	2015	2016	2017	2018	2019	2020
MRF Building Tipping Area Expansion	Project already in adopted FY1415 budget.					
CNG Fueling System					\$1.375 million to \$1.8 million. \$275,000 in non-capx and \$1.1 million - \$1.525 million in capital. \$1.24 million in Shoreway remediation funds available to help offset costs.	
Other Shoreway Infrastructure Improvements						
<i>Site Paving</i>	Forecasted spending to be included in five-year capital budget in FY1516 budget documents.					
<i>New LED Lighting</i>	\$274,000 in one-time costs in FY1516 budget.					
Environmental Education Center and Tour Program Enhancements	\$62,000 in one-time costs in FY1516 budget.					



ATTACHMENTS



STAFF REPORT

To: SBWMA Board of Directors

From: Bill Widmer, Chair of the Board of Directors

Date: March 26, 2015 Board of Directors Meeting

Subject: Appointment of Board Members to Adhoc Subcommittee for the Executive Director Annual Performance Review and Goal Setting Process

Recommendation

This staff report is for discussion purposes only and no formal action is requested of the Board of Directors.

The SBWMA Board Chair has requested creation of an adhoc Board subcommittee with at least three but less than 6 Board Members to participate in the annual performance review and goal setting process of the Executive Director. Self-nominations and input should be given no later than close of business April 3, 2015.