Final Report

2012 Five Year Program Audit

Alameda County Source Reduction and Recycling Board

July 2013

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2012 Five Year Program Audit

Alameda County Source Reduction and Recycling Board

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Acknowledgements

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EXECUTIVE SUMMARY

BACKGROUND

Alameda County Waste Management Authority

The Alameda County Waste Management Authority operates under a joint exercise of powers agreement among the County of Alameda, each of the fourteen cities within the county, and two sanitary districts which also provide refuse and recycling collection services. The Authority, established in 1976, is governed by a 17 member board composed of elected officials appointed by each member agency. Funding for the Authority is derived from waste import mitigation fees and facility fees (AB939 fees) at the Altamont and Vasco Road landfills and up until July 31, 2012 the Tri-Cities landfill. The Authority is responsible for the preparation of Alameda County's Integrated Waste Management Plan and Hazardous Waste Management Plan and provides support to member agencies in the implementation of those plans. The Authority manages a long range program for development of solid waste facility capacity and offers a wide variety of other programs in the areas of waste reduction, market development, technical assistance and public education.

Alameda County Source Reduction and Recycling Initiative Charter Amendment

The Alameda County Source Reduction and Recycling Initiative Charter Amendment (Measure D) was adopted by voters in November 1990. Measure D set forth county-wide goals for the reduction and diversion of non-hazardous solid wastes from landfill, created a framework for comprehensive source reduction and recycling programs, imposed a $6.00 per ton surcharge on wastes landfilled in the unincorporated county to fund these programs (increased eleven times, due to CPI, between 2001 and 2011 to $8.23/ton effective January 1, 2011), and established the Alameda County Source Reduction and Recycling Board to oversee distribution of funds and the conduct of county-wide programs.

Under Measure D, the Recycling Board is mandated to establish recycling programs necessary to meet the recycling policy goals set forth in the Initiative which parallel and exceed those mandated by State law.

Alameda County Source Reduction and Recycling Board

The 11 member Recycling Board is made up of five elected public officials from the Alameda County Waste Management Authority, and six professional experts in specified areas of waste reduction, appointed by the Alameda County Board of Supervisors. Funding for the Recycling Board is derived from the (current) $8.23 per ton disposal fee surcharge at the Altamont and Vasco Road landfills. Fifty percent of the surcharge revenues are distributed to participating municipalities for the maintenance and expansion of municipal recycling programs; five percent are

earmarked for Alameda County government; and 45 percent are budgeted and spent by the Board in the prescribed areas of grants to non-profits, source reduction, market development, recycled product procurement and administration.

Under Measure D, the Recycling Board is mandated to establish recycling programs necessary to meet the recycling policy goals set forth in the Initiative which parallel and exceed those mandated by State law. Measure D (Subsection 64.040 (C)) also requires the Recycling Board to prepare audits every five years, that provide a narrative and analytical evaluation of all recycling programs within the County; a statistical measure of progress toward the recycling policy goal then in effect; an evaluation of the recycling board's activities; and recommendations to the Recycling Board, the Board of Supervisors, the Authority and the municipal governing bodies for the maintenance and expansion of recycling programs. This report in conjunction with Newpoint's financial review fulfills the audit requirement for the time period 2007 to 2011.

StopWaste

The Alameda County Waste Management Authority and the Alameda County Recycling Board are now collectively known as StopWaste (also referred to here as the Agency), an integrated agency whose mission is to provide the most environmentally sound waste management program for the people of Alameda County. StopWaste operates as a single organizational unit with an Executive Director and self-managed project teams.

KEY FINDINGS

1. Progress Toward Diversion Goals

The past five years have seen bolstered recycling programs combined with food scraps collection for single family residential homes by every member agency. Based on the CalRecycle methodology, StopWaste and its member agencies achieved a County-wide diversion rate of 72 percent in 2011. Member agency rates in 2011 using the same methodology varied from 65 percent in Oakland and Emeryville to 79 percent in Albany. (See Table 2 in Section 2.)

The County appears well poised to achieve the 75 percent diversion goal, although exceeding and sustaining this level will require continuing efforts. The mandatory commercial and multi-family recycling ordinance which went into effect July 1, 2012, and increasing efforts to educate the public to increase participation and capture rates (especially for food scraps) appears to have a good probability of nudging the County over the 75 percent level, based on the CalRecycle methodology used by StopWaste to develop the diversion estimates in Table 2.

2. Redefining Diversion Progress

After a broad stakeholder engagement effort, StopWaste finalized its Strategic Workplan 2020 in July of 2010. The Workplan reaffirmed the long-range goal of achieving maximum feasible waste reduction, and introduced a new metric: reducing the portion of readily recyclable or compostable materials in the disposal stream to no

more than 10 percent by 2020, starting from a 2008 baseline of a 57 percent for the overall disposal stream, and 65 percent for the residential waste stream. These rates, while on the high end of the spectrum, generally compare favorably with the out-of-County jurisdictions analyzed. (See Table 33 in Section 5.5.)

Achieving the new goal of reducing the readily divertible portion of the disposal stream to 10 percent or less, may prove more challenging than simply meeting the 75% diversion goal. StopWaste is on the cutting edge with this metric, but SAIC Team's analysis of other jurisdictions indicates that the highest performing jurisdictions are still in the mid thirty percent range (subject to various calculation assumptions).

3. Strategy and Approach

At the County-wide level, StopWaste has long been guided by a highly strategic, goal-oriented approach to programs, activities and outcomes, and this was emphasized even more with the adoption of the Strategic Workplan in 2010. Strengths include:

- Consistent use of outside funding sources wherever possible, for example, through State programs such as those targeting E-Waste, Used Oil and beverage containers, and grants from U.S. EPA, utilities and state agencies. These funds cover topics such as reuse, energy conservation, Bay Friendly activities, green building, E-Waste, household hazardous waste and others;
- Very extensive partnering, for example, with: other local solid waste and recycling agencies; utilities; non-profit organizations; industry trade associations; and other groups sharing a common interest;
- Strategic development and nurturing of independent non-profit organizations, for example, to undertake education, outreach and technical assistance related to Bay Friendly activities and green building;
- A proactive strategy that seeks to impact decisions regarding products manufactured and purchased in Alameda County, rather than dealing with them solely as discards;
- A comprehensive, broad approach that puts waste reduction squarely within the context of broader sustainability goals such as climate change, energy and resource conservation and economic development;
- Participation in organizations aimed at promoting state and industry policies/programs that forward StopWaste goals, such as the California Product Stewardship Council or the national Product Stewardship Institute.
- An approach to initiatives that balance the desire for unified, County-wide action with the need for member agencies to maintain autonomy and local control, for example, by providing opt-out provisions in the new mandatory commercial recycling and reusable bag ordinances.
- On behalf of its member agencies and with their active involvement, StopWaste has undertaken strategic initiatives to proactively address numerous issues at the forefront of local waste reduction and waste management programs or

conducted research to advance County-wide policy measures. Examples include:

- Advanced disposal fee research;
- Support of the Alameda County Board of Supervisors of the Alameda County Safe Drug Disposal Ordinance;
- Preparation of programmatic EIRs to support the siting of a local composting facility; commercial recycling ordinance and plastic bag ban ordinances;
- Investigated the potential for standard contract terms across member agencies; and
- Creation of the new goal to reduce readily recyclable or compostable materials in the disposal stream, which included county-wide research evaluating the need for new infrastructure to manage diverted materials to achieve the established goals.

While some of StopWaste's strategic initiatives have not yet achieved their goal, the Agency has diligently tracked needs and sought to systematically focus on top priorities needed to move the County and its member agencies towards established goals. Going forward, StopWaste may wish to consider reinforcing existing strategic initiatives, or launching new ones, targeting the following issues:

- Evaluating the pros and cons of member agencies moving to every-other-week garbage collection, and options to promote this approach should it be deemed appropriate. (See Section 7.4 below for more details.)
- Considering emerging technologies as a means of securing in-County organics management capacity. This is a long-standing Agency goal that has proven elusive. One option is to monitor progress in existing and planned anaerobic digestion facilities such as the Zero Waste Energy Development Corporation in San Jose, and consider focusing efforts on evaluating whether AD or other conversion technologies may have merit in the County, for example, for commercial organics and/or for MRF residuals.
- Evaluating the pros and cons, and options for member agency implementation of collection systems such as wet/dry approaches for commercial generators, tied to post-collection processing facilities designed to divert high percentages of materials. The County's processing facilities already engage in aggressive efforts to divert materials, but there may be potential for wet/dry systems to further increase yields. Again, StopWaste should monitor such approaches, for example at Republic Industries' remodeled Newby Island Resource Recovery Park in neighboring Milpitas, CA.

StopWaste member agencies continue to have very advanced waste reduction programs that meet or exceed the standards set in high performance communities across North America. Moreover, the programs have continued to evolve in the past five years, with all member agencies now providing residential organics collection, including food scraps, widespread commercial organics programs, and many implementing innovative contracting and rate incentives (for franchised haulers) to drive diversion.

Based on the analysis of 13 out-of-County jurisdictions presented in Section 5, jurisdictions with the highest diversion rates have every-other-week trash collection programs, mini-can options for residents, mandatory source separation ordinances coupled with disposal bans, incentive based rates, and tend to be located in regions with strong extended product stewardship activity. Alameda County and its member agencies have implemented several of the same programs including a disposal ban on plant debris, the widespread use of incentive based rates, and the mandatory commercial and multi-family recycling programs, but there are still a number of opportunities available for consideration.

The jurisdictional research of Section 5 was used to identify a number of potential programs for future consideration by StopWaste member agencies. These programs include those that have been used successfully in other jurisdictions that do not currently exist in the county or are improvements or refinements to existing StopWaste or member agency programs and are summarized below in alphabetical order. Table 34 in Section 7.3 provides additional details, in that it identifies out-of-County jurisdictions that have implemented the program and notes whether or not a similar program already exists in the County. Additionally, Section 7.4 focuses on one particularly intriguing option: moving to every-other-week garbage collection.

Programs for future consideration:

- **Anaerobic Digester with Power Generation** – Large-scale anaerobic digester to process organics and capture, clean, and sell or use bio-gas and compost by-products.
- **Clear Bag Program** – All trash must be placed in clear bags, allowing haulers to identify banned items; if present, trash is not collected and fines may be levied.
- **Commercial PAYT (Embedded recycling)** – Commercial trash rates embed the costs of recycling, generators pay for services based on the size of the trash container and the frequency of collection. Similar to residential PAYT, this program encourages diversion, but migration to lower levels of garbage service may require significant rate increases.
- **Community Based Social Marketing Outreach (with measurement)** – Use classic marketing techniques combined with sociological tools to encourage positive behaviors and actions. Many examples of programs exist. However there is little data available on the actual costs and impacts of these programs.
- **Compressed Natural Gas Fleets** – Employ contracts or ordinances to require that haulers use a 'green' CNG fleet to reduce the GHG impacts of collection.
- **Construction & Demolition, Enhanced** – Support building deconstruction practices with advanced permits and discounted fees (point-based programs are also commonly used to encourage deconstruction). Require deposits for large construction/demolition projects.
- **Contract Fees for Funding** – Use franchise fees to help fund diversion programs. Although charged to haulers, the fees are typically 'pass through'

fees that are paid by generators through rates. This can function as an alternative to tip fee surcharges as a funding source.

- **Contract Incentives** – Member agencies can include incentives for haulers (reduced franchise fees, increased revenues, etc.) and generators (rates that favor diversion) in future contracts.
- **Detailed Program Metrics and Tracking** – Use of waste characterization data to evaluate program effectiveness and identify future needs/opportunities. Data and approaches could potentially be adjusted to best support the new goal related to reducing readily recyclables/compostable materials in waste stream through more frequent, streamlined data gathering.
- **Every-Other-Week Trash for All Residents** – Residents have trash collected every-other-week (EOW). Typically includes weekly collection of organics; some couple the program with weekly collection of recycling, others have every-other-week recycling collection (alternating with trash) to reduce costs. Reasons to consider EOW garbage collection include improvement of existing diversion program performance and cost reductions. Member agencies are well poised for program adoption and there are a variety of ways to tailor the program. Section 7.4 is dedicated to EOW, providing more details on the benefits and providing recommendations and tips from jurisdictions that have implemented EOW.
- **Exclusive Contracts/Franchises for Commercial Sector –** Contract or franchise haulers to collect commercial sector materials with clauses to increase diversion. Contracts can include generator and hauler incentives, performance goals and metrics, education and outreach, reporting, contamination minimums, etc. They can also be structured to allow flexibility to generators and non-franchise haulers in situations where the franchise hauler cannot recycle a particular waste stream.
- **Expanded Material Disposal Bans** – Ban the disposal of items such as conventional recyclables, food scraps, construction and demolition debris, or mattresses and pallets (as in North Carolina) from the transfer station and/or the landfill.
- **Mandatory Source Separation** – Generators must source separate and cause to be recycled certain selected materials. Generator categories are:
    - Commercial - The program in some other cities is more aggressive than the current Alameda County Phase 1 ordinance requirement as it impacts all commercial generators (as will occur in Phase 2 of the Alameda County ordinance);
    - Multi-family; and
    - Single Family.
- **Non-Profit Partnerships** – Work with non-profit organizations to design and implement outreach and education programs, often used to implement school outreach programs.

- **Points-Based Incentive** – Cities have followed RecycleBank's lead and implemented their own recycling incentive programs giving residents points based on the amount they recycle that can be redeemed for coupons and discounts at local stores. The program is well liked by residents and can increase diversion.
- **Post-Collection Separation** – New generation 'dirty' MRF is used to separate recoverable items (recyclables and organics) from mixed MSW loads. The MRF works in conjunction with an organics processors to achieve high rates of diversion (70- 80 percent). Can employ wet/dry collection.
- **Pre-Paid Trash with Pay by Collection** – Residents must pre-pay their trash accounts. Money from the accounts is used for each collection, with residents only charged when they set out trash cart. Programs use RFID tags to record households' collections.
- **Regional EPR** – Work with product producers to improve end-of-life options for materials. Ontario relies on EPR for recyclables to help fund many of their programs.
- **Trash Tax or Other Funding Alternatives** – A voter approved tax used to fund zero waste and other diversion programs. A tax is levied on haulers and based on the number of accounts, the tax is passed through to generators.
- **Wet/Dry Collection** – A collection scheme that has generators separate materials into a Wet stream (organics, food soiled paper, tissues, paper towels) and a Dry stream (all other materials including recyclables). The streams are sent to facilities capable of post collection sorting and processing.

OVERALL ASSESSMENT AND CONCLUDING REMARKS

Alameda County's waste reduction programs continue to serve as a model for others across North America, at both the County-wide and the member agency levels. StopWaste, in conjunction with its member agencies has consistently demonstrated a highly strategic and comprehensive approach to tracking, evaluating options, planning and implementing new programs. As a result, programs and infrastructure have steadily evolved since adoption of Measure D, and most all of the approaches and programs used in other leading communities are either already in place, or have been evaluated in Alameda. The County and its member agencies have either exceeded the 75 percent diversion goal, or have demonstrated steady progress towards the goal. And the newly adopted goal to reduce readily recyclable or compostable materials in the disposal stream to 10 percent or less by 2020 will continue to focus tracking and programs on the specific materials and market development needed to ensure steady progress.

While there are no major gaps in the waste reduction strategies, programs and approaches in place in Alameda, there are some activities that County decision makers should continue to explore and/or new programs that should be evaluated. These include:

- Continuing to seek to establish in-County organics management capacity, possibly via anaerobic digestion or other conversion technologies;

- Moving to every-other-week garbage collection to further incentivize diversion in the residential sector by maximizing participation and capture rates;
- Evaluating wet/dry and other innovative collection systems, along with expanded post-collection processing systems; and
- Continued exploration of how EPR and other federal/state/local policies such as funding mechanisms can benefit local programs and assist in achieving long-term goals.

Overall, StopWaste and its member agencies are among the elite, high performing communities in terms of waste reduction and associated sustainability goals. The Agency is well poised to continue and expand upon this position as it follows the path laid out in its Strategic Work Plan.

Section 1
INTRODUCTION

SAIC and Skumatz Economic Research Associates (SERA) prepared this 2012 5-Year Program Audit Report for the Alameda County Source Reduction and Recycling Board, based on Measure D requirements. This Introduction describes the Recycling Board, Measure D requirements and report organization.

Alameda County Source Reduction and Recycling Board

The 11-member Recycling Board is made up of five elected public officials from the Alameda County Waste Management Authority, and six professional experts in specified areas of waste reduction, appointed by the Alameda County Board of Supervisors. Funding for the Recycling Board is derived from the (current) $8.23 per ton disposal fee surcharge at the Altamont and Vasco Road landfills. Fifty percent of the surcharge revenues are distributed to participating municipalities for the maintenance and expansion of municipal recycling programs; five percent are earmarked for Alameda County government; and 45 percent are budgeted and spent by the Board in the prescribed areas of grants to non-profits, source reduction, market development, recycled product procurement and administration.

Alameda County Waste Management Authority

The Alameda County Waste Management Authority operates under a joint exercise of powers agreement among the County of Alameda, each of the fourteen cities within the county, and two sanitary districts which also provide refuse and recycling collection services. The Authority, established in 1976, is governed by a 17-member board composed of elected officials appointed by each member agency. Funding for the Authority is derived from waste import mitigation fees and facility fees (AB939 fees) at the Altamont and Vasco Road landfills and up until July 31, 2012 the Tri-Cities landfill. The Tri-Cities landfill closed to regular incoming loads of municipal solid waste on August 1, 2012. The Facility Fee is also collected on wastes generated in Alameda County and hauled out-of-county for disposal. The Authority is responsible for the preparation of Alameda County's Integrated Waste Management Plan and Hazardous Waste Management Plan and provides support to member agencies in the implementation of those plans. The Authority manages a long range program for development of solid waste facility capacity and offers a wide variety of other programs in the areas of waste reduction, market development, technical assistance and public education.

StopWaste

The Alameda County Waste Management Authority and the Alameda County Recycling Board are now collectively known as StopWaste (or referred to here as the Agency), an integrated agency whose mission is to provide the most environmentally sound waste management program for the people of Alameda County. StopWaste operates as a single organizational unit with an Executive Director and self-managed

project teams, with a wide range of programs and activities as described in Section 4 of this report.

Measure D and the Required 5-Year Program Audit Report

The Alameda County Source Reduction and Recycling Initiative Charter Amendment (Measure D) was adopted by voters in November 1990. Measure D set forth county-wide goals for the reduction and diversion of non-hazardous solid wastes from landfill, created a framework for comprehensive source reduction and recycling programs, imposed a $6.00 per ton surcharge on wastes landfilled in the unincorporated county to fund these programs (increased 11 times, due to CPI, between 2001 and 2011 to $8.23/ton effective January 1, 2011), and established the Alameda County Source Reduction and Recycling Board to oversee distribution of funds and the conduct of county-wide programs.

Financial disbursements to municipalities (Measure D Subsection 64.060 (B)(1)) have been made to eleven cities and two sanitary districts since the inception of the Recycling Board. The cities of Fremont, Newark and Union City began paying into the Recycling Fund on a pro-rated basis in July 2010, when approximately 75 percent of their collective wastes began to be trucked to the Altamont Landfill. Prior to July 2010, all of the Tri-Cities' wastes were deposited in the Tri-Cities Recycling and Disposal Facility (formerly the Durham Road Landfill) located within the city limits of Fremont. Twenty-five percent of the Tri-Cities' waste continued to go to the Tri-Cities Landfill through July 2012. Accordingly, these three cities did not receive municipal disbursements from the Fund through FY 09/10, and received pro-rated payments through July 2012. The Tri-Cities Landfill closed to regular MSW from the Tri-Cities effective August 1, 2012 and all wastes from the Tri-Cities have flowed to the Altamont Landfill and were subject to the surcharge[1].

Under Measure D, the Recycling Board is mandated to establish recycling programs necessary to meet the recycling policy goals set forth in the Initiative which parallel and exceed those mandated by State law. Measure D (Subsection 64.040 (C)) also requires the Recycling Board to prepare periodic audits, as follows:

> "The Recycling Board shall contract, not more than four (4) years after the effective date of this Act, and then every five (5) years thereafter, for an audit to determine compliance with the Recycling Plan and the degree of progress toward the recycling policy goal then in effect. Said audits shall be conducted by an independent auditor (or auditors) with experience in source reduction and recycling. The reports of said audits shall be completed within one (1) year and issued to each municipality, the Board of Supervisors and the Authority. Said reports shall include at least the following:
>
> 1. A narrative and analytical evaluation of all recycling programs within Alameda County, whether funded through this Act or not, both Alameda County-wide and within each municipality;[2]
>
> 2. A statistical measure of the progress toward the recycling policy goal then in effect;

[1] Email Correspondence between Kathy Cote (City of Fremont) and Tom Padia (StopWaste), August 21, 2012

[2] "Municipalities" under Measure D refers to both incorporated cities and to sanitary districts that provide solid waste and recycling services. These are referred to as "Member Agencies" in this report.

3. An evaluation of the Recycling Board's activities, including, but not limited to, an accounting of the monies spent by the Recycling Board; and

4. Recommendations to the Recycling Board, the Board of Supervisors, the Authority and the municipal governing bodies for the maintenance and expansion of recycling programs, and any necessary resulting amendments to the Recycling Plan."

An initial "Four Year Measure D Audit" was completed in 1997, and "Five Year Audits" were completed in 2002 and 2008 by the competitively-selected firms of Brown, Vence & Associates and Hilton, Farnkopf & Hobson, respectively. The Recycling Board uses separate contracts for the waste diversion and financial components of the 5-Year Program Audit. Newpoint Group Consulting was selected through a competitive RFP process in July 2009 to perform a comprehensive financial review covering fiscal years 2006/2007 through 2010/2011, and to report on compliance with Measure D mandates (now complete). Through a separate RFP process, the Recycling Board selected SAIC to prepare this 2012 5-Year Program Audit Report which covers the period ending with calendar year 2011.

Report Overview and Organization

According to the Recycling Board RFP, the objectives of this study are to:

1. Meet statutory requirements of Measure D;
2. Profile and compare municipal waste reduction efforts in Alameda County with each other and with comparable jurisdictions elsewhere, and to broadly evaluate county-wide waste reduction program effectiveness; and
3. Profile and evaluate diversion strategies, policies, programs and metrics that might help Alameda County meet and measure its success in achieving the "75 percent and Beyond" diversion goal and other goals contained in the Strategic Workplan 2020.[3]

Compared to the 2008 5-Year Program Audit, this report is somewhat streamlined, as it:

- Combines information on member agency programs in summary tables, but does not present separate, individual member agency profiles;
- Focuses on municipally-controlled programs, with only a brief, high-level summary of private sector trends; and
- Limits the amount of research and analysis of specific issues as was conducted in previous Program Audits.

After this introduction, Sections 2 through 4 present data and information on member agency, private sector and County-wide programs, respectively. Section 5 profiles and contrasts activities in several jurisdictions outside Alameda County, including advanced programs and similar demographics as Alameda and with every-other week garbage collection, and comparing the readily divertible portion of the disposal stream for select jurisdictions. Section 6 discusses broad trends and issues affecting waste diversion efforts. And, Section 7 presents overall conclusions evaluating Alameda

[3] Available online at http://www.stopwaste.org/home/index.asp?page=975.

programs, along with recommendations for consideration by StopWaste and its member agencies.

Section 2
MEMBER AGENCY PROGRAMS

This section presents data and information summarizing diversion programs operated by StopWaste member agencies. During autumn 2012, SAIC collaborated with Agency representatives to compile these data from a range of sources including:

- Member agency presentation memos submitted to the Recycling Board between February 2011 and April 2012;
- 2011 annual hauler reports;
- StopWaste's Franchise database;
- California Department of Finance; and
- Member agency documents and websites.

The data presented in this Section were submitted to each member agency for final review and approval with a short survey, and cover the 2011 calendar unless noted otherwise. Data is reported separately for each StopWaste member agency, most of which are incorporated cities. However, there are two exceptions. Castro Valley Sanitary District (CVSD) is a public agency that provides service and represents most of the unincorporated community of Castro Valley. The Oro Loma Sanitary District (OLSD) is a local government special district which serves the communities of San Lorenzo, Ashland, Cherryland, Fairview as well as portions of Castro Valley and parts of the cities of Hayward and San Leandro. There is a small population living or working in unincorporated areas outside of these member agencies. These entities have not been covered under any franchise agreements for solid waste, recycling or organics collection during the period covered by this report, and information on them is not included here due to data collection challenges. A franchise agreement was negotiated for some east Alameda County unincorporated areas that started on January 8, 2013.

2.1 Demographics

Table 1 summarizes select demographics for each member agency, including: population; number of dwellings that are single-family (as defined by the member agency/franchise hauler), total (all-inclusive) multi-family units, number of multi-family units in a building/complex with five or more units, and mobile homes; geographic size; and the number of commercial businesses and commercial refuse accounts. The table also includes an estimate of the number of commercial businesses that produce significant quantities of organics (included because commercial organics is a high priority for increased diversion) and an estimate of total taxable sales (included to indicate the relative financial size of the commercial enterprises).

Table 1: Member Agency Demographics (2011)

Member Agency	Population	Ref	#SFD	Ref	SFD Definition	All MFD Units	Ref	5+ MFD Units	Ref	Mobile Homes	Ref	Area (sq. mi)	Ref	Number of Businesses	Ref	Total # Commercial Refuse Accounts	Ref	Organics-generating Businesses1	Ref	Taxable Sales ($000's)	Ref
Alameda*	74,774	A	17,749	B	SFD only	15,679	B	9,126	C	20	C	10.7	A	1,924	B	778	F	308	F	545,627	D
Albany	18,622	E	4,105	B	1 and 2 units	1,275	B	1,168	B	0	B	1.7	B	950	B	270	B	49	B	100,911,382	B
Berkeley	108,119	B	31,352	B	1 to 9 units	26,567	E	16,574	B	218	E	15.0	I	4,270	B	2,242	F	707	F	1,230,203	D
CVSD	53,166	H	15,000	B	SFD, 2 - 4	3,015	B	3,015	B	213	B	9.3	I	440	I	383	B	151	F	NA	NA
Dublin	46,785	E	10,926	E	SFD only	5,451	E	4,923	E	54	E	14.6	I	2,002	B	628	F	177	F	12,696	J
Emeryville	10,087	B	842	B	SFD only	5,518	B	5,426	B	36	E	1.2	A	684	B	285	B	153	F	583,453	D
Fremont	217,700	E	53,484	E	SFD only	20,212	E	17,780	E	726	E	94.0	A	5,479	B	1,851	F	655	F	2,446,240	D
Hayward*	138,286	K	32,620	B	SFD, 2 - 4	13,729	B	13,729	B	2,322	B	62.6	B	2,570	B	2,570	B	725	F	2,379,480,200	B
Livermore	82,400	E	24,165	E	SFD only	5,840	E	4,345	E	540	E	19.6	I	1,842	B	1,176	F	342	F	1,575,305	D
Newark	42,573	L	10,864	E	SFD only	2,550	E	1,981	E	0	E	13.9	A	1,165	B	740	F	233	F	706,336	D
Oakland	395,817	A	66,400	B	~SFD only	94,600	B	62,000	B	555	E	56.1	I	19,720	B	5,055	F	1,903	F	3,221,975	D
Oro Loma (L1)*	83,643	M1	19,384	B	~SFD only	8,886	B	308	B	435	B	13.0	N	470	B	470	B	26	B	NA	NA
Oro Loma (L2)*	8,827	M2				ND		ND		ND				ND		ND		ND		NA	NA
Oro Loma (L3)*	33,980	M3				ND		ND		ND				ND		ND		ND		NA	NA
Piedmont	10,807	E	3,866	S	SFD only	181	B	35	B	0	E	1.8	I	35	S	22	F	16	F	15,592	I
Pleasanton	71,269	E	8,965	E	SFD only	6,350	E	4,738	E	380	E	24.2	B	2,750	B	848	F	381	F	1,541,099	D
San Leandro*	50,970	B	13,500	E	SFD only	10,173	E	8,280	E	890	E	13.1	I	1,855	E	1,185	E	243	E	1,598,739	D
Union City	75,000	B	16,489	B	SFD, 2 - 4	7,916	B	5,483	B	896	B	19.0	B	1,075	B	614	B	126	B	687,658	F

Table 1References

A – http://quickfacts.census.gov/qfd/states/06000.html
B – Member agency provided data in survey
C – http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk
D – Board of Equalization, Taxable Sales in California (2009) - http://www.boe.ca.gov/news/pdf/ts_a09.pdf
E – California Department of Finance - www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php
F – Provided by member agency for Commercial Summary by Jurisdiction 7-2-2012.xls (last updated 7/12/2012) for the 7/13/2012 StopWaste TAC Meeting (handout)
G – Municipal Presentation to the Recycling Board – Between 2010 and 2011
H – 2012 Census population per StopWaste (Measure D June 2012 allocation)
I – StopWaste Franchise Database
J – City of Dublin - CAFR Report
K – City of Hayward website (reporting 94 percent of population here, the remainder reported as OLSD L2)
L – Newark_RFP_v8_071312_Final.pdf
M – M1 – population of L1 unincorporated
M2 – 6 percent of Hayward population of 147,113 (as reported on the City of Hayward website)
M3 – 40 percent of San Leandro population of 84,950
N – http://www.oroloma.org/asset/doc/budget/general%20information.pdf

Table 1 Notes

Alameda:
City staff has indicated The City of Alameda has segmented their residential community into 3 distinct segments: Single-family, Multi-plex (2-4 units), Multi-family (5+ units).

Hayward:
The Hayward population reported is 94% of the city population from the City of Hayward Website. The other 6% is reported as Oro Loma (L2).

Oro Loma:
Oro Loma is broken up into 3 service areas:

- L1 – is the unincorporated area
- L2 – is made up of 6% of the City of Hayward
- L3 – is ~40% of the City of San Leandro

San Leandro:
The San Leandro population noted is for the sector of the City serviced by ACI (i.e., ~60% of the total city population, the other ~40% is reported as Oro Loma (L3)). However, the remainder of the data (# of housing units, # of businesses etc.) is for the city as a whole.

2.2 Summary of Member Agency Disposal and Diversion

Table 2 presents estimated overall diversion rates for each member agency and the County as a whole, as calculated by StopWaste with data submitted to CalRecycle by each member agency, and based on CalRecycle's methodology. These theoretical diversion rates are based in part on projected waste generation, and therefore are highly uncertain. They are presented for consistency with prior reports and to show trends based on a common methodology. All member agencies have relatively high estimated diversion rates, ranging from 65 percent in Emeryville to 79 percent in Albany, with a weighted average County-wide rate of 72 percent.

Table 2: Member Agency Diversion Rates Based on CalRecycle Methodology (2007-2011)[4]

Member Agency	1995	2000	2005	2006	2007	2008	2009	2010	2011
Alameda	48%	65%	68%	68%	66%	67%	71%	75%	72%
Albany	42%	62%	70%	70%	71%	77%	78%	83%	79%
Berkeley	41%	49%	59%	59%	62%	66%	72%	76%	74%
Dublin	26%	54%	55%	55%	61%	66%	73%	73%	73%
Emeryville	51%	48%	64%	64%	63%	74%	70%	77%	65%
Fremont	49%	62%	63%	63%	64%	68%	71%	74%	73%
Hayward	41%	52%	62%	62%	56%	68%	68%	67%	71%
Livermore	26%	50%	63%	63%	60%	64%	71%	73%	74%
Newark	27%	53%	62%	62%	67%	72%	75%	69%	72%
Oakland	27%	52%	58%	58%	57%	66%	67%	65%	65%
Piedmont	47%	63%	64%	64%	68%	72%	84%	75%	69%
Pleasanton	28%	48%	53%	53%	55%	61%	71%	71%	73%
San Leandro	34%	51%	59%	59%	64%	73%	61%	69%	77%
Union City	49%	61%	62%	62%	71%	76%	77%	77%	75%
Unincorporated[5]	56%	65%	60%	60%	60%	63%	59%	67%	76%
Average	**39%**	**56%**	**61%**	**61%**	**63%**	**69%**	**71%**	**72%**	**73%**
County-Wide Weighted Rate[6]	**37%**	**54%**	**59%**	**59%**	**61%**	**67%**	**69%**	**70%**	**72%**

[4] Diversion rates calculated by StopWaste, based on data submitted to CalRecycle by jurisdictions.

[5] Unincorporated area includes Castro Valley Sanitary District and Oro Loma Sanitary District.

[6] The County-wide rate prior to 2007 is derived from disposal and generation estimates submitted to CIWMB by jurisdictions. Starting in 2007, the County-wide rate is a weighted average based on the population of each jurisdiction and its target disposal per capita.

In contrast to Table 2, Tables 3 to 5 below focus on municipally-controlled activities only, for which local data are available. Table 3 identifies the haulers and processing facilities member agencies contract with for residential and commercial refuse, recyclables and organics. Refuse is collected and hauled by regional or national companies for all the member agencies except the Cities of Berkeley and Pleasanton. Berkeley's Public Works Department collects and hauls refuse, recyclables and organics to their city-owned and operated Transfer Station. The City of Pleasanton's refuse, recyclables and organics are collected and hauled by Pleasanton Garbage Services, a locally-owned and operated business. All member agencies rely on out-of-county compost facilities, some of which are quite distant. Recycling processing, in contrast, is handled within the County except for Fremont and Union City, which truck commercial recyclables to Newby Island in neighboring Santa Clara County for processing.

Table 4 summarizes municipally controlled disposal and diversion, for both residential and (where applicable) commercial generators. While covering only part of the overall waste and diversion system, they are more accurate measures of member agency activities than the formula-derived diversion rates shown in Table 2. Municipally-controlled residential diversion rates vary considerably, ranging from 48 percent in Fremont and Union City to 70 percent in Piedmont. Municipally-controlled commercial diversion (this generally does not include C&D) rates range from 6 percent in Pleasanton to 66 percent in Albany. The large variance in municipally-controlled commercial recycling reflects differences in member agencies and the franchises that serve them. Pleasanton's commercial recycling franchise has been revising their service, having only offered paper and recycling cart service for the commercial section. Single stream recycling is now offered, but at no discount over the refuse rates, providing no financial incentive for business owners to recycle.

Table 5 summarizes overall disposal for each member agency. The total refuse tonnage disposed through franchised haulers and non-franchised haulers is used to estimate the total in-county disposal tonnage.

Table 3: Municipally-Controlled Haulers and Processing Facilities (2011)

Member Agency	Service Provider	Collection & Hauling Services[7]	Residential or Commercial Services	Contract Start	Contract Expiration	Ref	Refuse		Recyclables	Organics		Ref
							Transfer Station	Landfill	Intermediate Processing/ Transfer Station	Intermediate Processing/ Transfer Station	Composting Facility	
Alameda	ACI	All	Both	10/1/2002	9/30/2022	A	Davis Street	Altamont	ACI/TS MRF	ACI/TS MRF	Newby Island	B
	Biagini	Recycling	Commercial	2001	NA		NA	NA	Rock-Tenn	NA	NA	A
	WMAC	Recycling	Commercial	2001	NA		NA	NA	Davis Street	NA	NA	A
Albany	WMAC	All	Both	11/1/2001	10/31/2012	C	Davis Street	Altamont	Davis Street	Davis Street	Grover	B
Berkeley	City of Berkeley	All*	Both	NA	NA	D	Berkeley Transfer Station	Altamont	Community Conservation Center	Berkeley Transfer Station	Grover	B
	Ecology Center	Recycling*	Residential*	NA	6/30/2020		Community Conservation Centers	NA		NA	NA	
CVSD	WMAC	All	Both	5/1/2009	4/30/2019	E	Davis Street	Altamont	Davis Street	Davis Street	Grover and Redwood	E
Dublin	AVI	All	Both	7/1/2005	6/30/2020	C	NA	Altamont	Pleasanton Transfer Station/ BLT	Pleasanton Transfer Station	ColorScape II	B
Emeryville	WMAC	All	Both	2/1/2011	12/31/2020	A	Davis Street	Altamont	Davis Street	Davis Street	Grover	B
Fremont	Allied	All	Both	1/1/2003	6/30/2018	F	Fremont MRF/TS	Altamont	Residential: TS/BLT Commercial: Newby Island	Fremont TS/BLT	Newby Island	F
Hayward	WMAC	All	Commercial	6/1/2007	5/31/2014	B	Davis Street	Altamont	Davis Street	Davis Street	Grover Compost Facility	B
	Tri-CED	Recycling*	Residential	6/1/2007	5/31/2014	G	NA	NA	Tri-CED Recycling Center	NA	NA	G

[7] "All" includes solid waste, recycling and organics.
*See notes on member agencies in text below.

Member Agency	Service Provider	Collection & Hauling Services[7]	Residential or Commercial Services	Contract Start	Contract Expiration	Ref	Refuse		Recyclables	Organics		Ref
							Transfer Station	Landfill	Intermediate Processing/ Transfer Station	Intermediate Processing/ Transfer Station	Composting Facility	
Livermore	Livermore Sanitation	All	Both	7/1/2010	6/30/2020	A	NA	Vasco Road	LSI Direct Transfer Facility/Aladdin Ave	LSI Direct Transfer Facility	Grover	B
Newark	WMAC	All	Both	6/1/2005	5/31/2013	A	Fremont MRF/TS	Altamont	Davis Street	Davis Street	Grover	C
Oakland	WMAC	All*	Both*	12/1/1995	6/30/2015	A	Davis Street	Altamont	Davis Street	Davis Street	Grover	B
	CWS	Recycling	Both*	1/1/2005	6/30/2015	A	NA	NA	CWS MRF	NA	NA	C
OLSD Oro Loma (L1 uninc.)	WMAC	All	Both	1/1/2012	8/31/2024	A	Davis Street	Altamont	Davis Street	Davis Street	Redwood	B
Oro Loma (L2)*	WMAC	Solid Waste, Organics	Both	1/1/2012	8/31/2024	A	Davis Street	Altamont	NA	Davis Street	Redwood	A
Oro Loma (L3)*	WMAC	All	Both	1/1/2012	8/31/2024	A	Davis Street	Altamont	Davis Street	Davis Street	Redwood	A
Piedmont	Republic	All	Both	7/6/2008	6/30/2018	A	Golden Bear	Vasco Road/Keller Canyon	West County IRRF	West Contra Costa Compost Site	West County IRRF	H
Pleasanton	PGS	All	Both	4/1/1989	6/30/2019	I	Pleasanton TS	Vasco Road	Pleasanton MRF/TS	Pleasanton MRF/TS	ColorScape II	I
San Leandro	ACI	All	Both	2/1/2000	1/31/2021	J	Aladdin Ave	Vasco Road	Aladdin Ave	Aladdin Ave	Newby Island	B
Union City	Allied/ Republic	All	Both	7/1/2005	6/30/2015	A	Fremont TS	Altamont	Newby Island	Newby Island	Newby Island	A
	Tri-CED	Recycling, Organics	Both	4/1/2005	3/31/2015		NA	NA	Tri-CED Recycling Center	Newby Island	Newby Island	

*See notes regarding member agencies in text below.

Table 3 References

A – Member agency provided data in survey
B – Environmental Impact Report - Mandatory Recycling and Single Use Bag Ordinance; State Clearinghouse # 2011042012; 8-2011
C – StopWaste Franchise Database
D – Monthly Processor Statements
E – CVSan-WMAC 10 year Collection (2009-2019) and 20 year Disposal (2009-2029) Agreements
F – Allied-Fremont 2003 Franchise Agreement
G – Tri-CED-Hayward 2007 Franchise Agreement
H – Richmond Sanitation-Piedmont 2011 Franchise Agreement
I – Pleasant Garbage Service Agreement
J – ACI-San Leandro 2000 Franchise Agreement

Table 3 Notes

Information for Table 3 was culled from individual member agency franchise agreements collected in the StopWaste Franchise Database and confirmed by each member agency during the survey process.

Alameda:
ACI provides all collection services, recycling, organics, and solid waste, to the commercial sector in the city; however, both WMAC and Biagini continue to service grandfathered Commercial Recycle accounts only.

Berkeley:

- City staff provides recycling for commercial & 10+ MF units only.
- Ecology Center provides recycling collection for single family and 1-9 MF Units.
- Dry commercial solid waste ("rubbish") is open to competition under a non-exclusive franchise system.
- Major rubbish haulers include City of Berkeley, Republic Services (previously Richmond Sanitary or Berkeley Sanitary), and Waste Management.

Emeryville:
Unique provisions include terms requiring reducing franchised tonnage disposed to 8,000 tons by 2020, with liquidated damages if not achieved.

Hayward:
Unique provisions include that WMAC provides wet/dry routes for post-collection separation of discards for some commercial accounts. The information regarding recycling is valid for Oro Loma Sanitary District Area L2 as well.

Newark:
Separate agreements with BLT for transfer and disposal. Expires 6/30/2037. A new agreement with Allied/Republic due to begin 6/1/2013 for all three material types.

Oakland:

- WMAC provides recycling services for residences and small businesses for half the city, with organics collection for single family residences throughout the city including a small amount of multi-family.
- CWS provides recycling collection services to the residential sector and small businesses for the half the city not serviced by WMAC.
- In 2011, WMAC provided green cart/organics collection services at a nominal number of MFD that opted to subscribe to this service for an additional fee.
- Oakland has an open market for commercial recycling including source-separated commercial organics, with the exception of some small businesses covered under WMAC and CWS franchise agreements. Recology and Biagini are two haulers with significant activity under the open market.

Oro Loma Sanitary District:

OLSD is comprised of 3 areas:

- L1 refers to the unincorporated areas of San Lorenzo, Ashland, Cherryland, Fairview, and portions of Castro Valley. WMAC provides residents with every other week recycling.
- L2 refers to the area of Hayward within the OLSD, approximately 6 percent of the population of Hayward. OLSD provides garbage and green waste services (no recycling) to the L2 area, and these activities are reported as City of Hayward. Tri-CED, as a subcontractor to WMAC, provides weekly residential recycling.
- L3 refers the area of San Leandro within OLSD, approximately 40 percent of the population of San Leandro. OLSD provides garbage, green waste and recycling to the L3 area, mirroring the services provided by ACI in San Leandro. These activities are reported as City of San Leandro.

Union City:

As a sub-contractor to Allied Waste Services, Tri-CED provides weekly curbside collection of residential organics carts. Tri-CED also services commercial organics customers who prefer cart service (in addition to providing residential recycling services.)

Table 4: Member Agency Municipally-Controlled Diversion and Disposal Summary (2011)[8]

	Residential Franchise Based Activity (Net Tons)								Commercial Franchise Based Activity (Net Tons)							
Member Agency	Recycling	Ref	Organics	Ref	Total Diversion	Disposal	Total Generation	Diversion Rate	Recycling	Ref	Organics	Ref	Total Diversion	Disposal	Total Generation	Diversion Rate
Alameda	9,908	A	8,676	A	18,584	15,695	34,279	51%	559	B	1,666	B	2,225	15,044	17,269	13%
Albany	2,807	A	2,038	A	4,845	3,191	8,036	60%	1,603	A	1,213	A	2,816	1,460	4,276	66%
Berkeley	8,730	C	12,000	B	20,730	12,800	33,530	62%	2,813	B	5,636	B	8,449	31,155	39,604	21%
CVSD	6,116	D	8,207*	D	14,323	10,810	25,134	57%	1,604	D	ND*	D	1,604	5,837	7,441	22%
Dublin	4,636	B	4,871	B	9,507	4,635	14,141	67%	4,062	B	4,116	E	8,177	15,453	21,149	27%
Emeryville	1,218	A	425	B	1,643	926	2,569	64%	ND	F	1,080	F	1,080	4,863	5,943	18%
Fremont	18,591	A	27,800	B	46,391	50,229	96,620	48%	3,578*	G	1,361	G	4,939	59,709	64,648	8%
Hayward	10,665	H	14,409	H	25,073	22,990*	48,063	52%	28,605	H	8,136	H	36,741	53,766	90,507	41%
Livermore	12,212	I	17,268	I	29,480	14,280	43,760	67%	2,954*	A	1,622	A	4,576	33,906	38,482	12%
Newark	4,036	J	4,936	A	8,972	7,448	16,420	55%	1,587	J	0	J	1,587	20,499	22,086	7%
Oakland	35,676	K	35,824	K	71,500	ND	ND	ND	ND*	L	0	L	ND	73,000	73,000	ND
OLSD (L1)	4,669	B	9,713	B	14,382	14,563	28,945	50%	ND*	B	0	B	ND	3,989	3,989	ND
OLSD (L2)	ND	B	493	B	493	1,010	1,503	33%	ND	B	0	B	ND	336	336	ND
OLSD (L3)	3,113	B	5,954	B	9,067	6,532	15,599	58%	ND	B	0	B	ND	2,584	2,584	ND
Piedmont*	2,370	A	2,763	M	5,133	2,148	7,281	70%	ND	B	1,119	B	ND	ND	ND	ND
Pleasanton	6,171	A	12,915	A	19,086	16,987	36,073	53%	1,984	A	0	A	1,984	29,702	31,687	6%
San Leandro	5,616	B	8,860	N	14,476	8,994	23,470	62%	477	A	1,398	A	1,875	25,489	27,364	7%
Union City	5,962	B	8,033	B	13,995	14,975	28,970	48%	1,109	B	1,130	B	2,239	17,283	19,522	14%
Total	**124,806**		**180,314**		**327,680**	**208,213**	**464,393**	**71%**	**50,935**		**28,477**		**78,292**	**394,075**	**469,887**	**17%**

*See notes regarding member agencies in text below.

[8] ND in this and other tables indicates no data was available.

Table 4 References

A – Municipal Presentation to the Recycling Board – Between 2010 and 2011
B – Member agency provided data in survey
C – Monthly Processor Statements
D – 2011 Annual Report from Waste Management Incorporated
E – 2011 Annual Report from AVI
F – 2011 Annual Report from Waste Management Alameda County
G – 2011 Annual Report from Allied Services
H – 2011 Annual Report from Tri-CED
I – 2011 Annual Report from Livermore Sanitation
J – Newark_RFP_v8_071312_Final.pdf
K – 2011 Annual Report from WMAC and CMS
L – 2011 Annual Report from WMAC
M – 2011 Annual Report from Republic
N – 2011 Annual Report from ACI

Table 4 Notes

Commercial Franchise Recycling numbers do not include C&D.

Residential Diversion Rate "Total" was calculated by weighting each member agency's residential diversion weight multiplied by the population of the member agency, then dividing by the total population of Alameda County (i.e., sum of all member agency populations).

Commercial Diversion Rate "Total" was calculated by weighting each member agency's commercial diversion weight multiplied by the number of commercial accounts in the member agency's jurisdiction, then dividing by the sum of commercial accounts for the of member agencies with data.

Alameda:

- City staff provided residential recycling tonnage for Fiscal Year 2010-2011.
- City staff reported the net tons of commercial recycling (559 tons).
- Residential refuse was calculated from Total Refuse collected (30,739 tons) and Commercial Refuse collected (15,044 tons)
- Other figures from 9/13/12 City of Alameda Presentation to the Recycling Board

Albany:
City staff provided residential recycling tonnage for Fiscal Year 2010-2011.

Castro Valley Sanitary District:

- Member agency staff provided residential recycling tonnage for Fiscal Year 2010-2011.
- WMAC co-collects residential and commercial organics together. The organics are all reported as Residential.

Emeryville:
Figure provided by the Member Agency indicates 1,103 Multi-family tons + 115 Single-family tons.

Fremont:
Commercial recycling tonnage excludes the amounts collected from Fremont Unified School District and Construction/Demolition Debris tonnage.

Hayward:
The tonnage includes single family only.

Livermore:
Total commercial organics tonnage includes Multi-family residential organics tonnage. Residential organics (calendar year 2011) was provided via email correspondence from Celeste Storrs (City of Livermore) to Tom Padia (StopWaste) on Feb 27, 2013. Residential recycling is also for calendar year 2011.

Oakland:
The tonnage of franchised commercial recycling (Small Business Recycling only) is unknown as it is co-collected in residential recycling collection vehicles.

Oro Loma:
- The tonnage of franchised commercial recycling is unknown as it is co-collected in residential recycling collection vehicles.
- Commercial organics collections started on January 1, 2012.

Piedmont:
City staff provided data for the jurisdiction as a whole, without a breakout between residential and commercial, for Fiscal Year 2010-2011. The city wide data reported are:

- Recycling: 2,370
- Organics: 2,763
- Total Diversion: 5,133
- Disposal: 2,148
- Total Generation: 7,281
- Diversion Rate: 70 percent

San Leandro:
Multi-family residential organic collection services only offered to Multi-family dwellings with cart service.

Table 5: Total Refuse Disposal Tonnage (2011)

Member Agency	Total SF and MF Franchised Refuse (Tons)	Ref	Total Commercial Refuse disposed under franchise (Tons)	Ref	Total Refuse under Franchise (Tons)	Ref	Self-Haul and Other (Tons)*	Other Refuse (Tons)*	Total Refuse (Tons)*	% of Refuse not Collected Under Franchise
Alameda	ND	A	15,044	A	15,044	A	ND*	9,235	39,974	23%
Albany	3,191	B	1,460	C	4,651*	C	1,704	897	7,252	36%
Berkeley	12,800	A	31,155	A	43,955	A	15,445	15,873	75,273	42%
CVSD	10,810	D	5,837	D	16,647	D	ND	ND	ND	ND
Dublin	4,635	E	15,453	E	20,088	E	270	6,811	27,169	26%
Emeryville	926	A	4,863	B	5,788	A	ND	16,588	22,376	74%
Fremont	50,229	F	59,709	F	109,938	G	ND*	30,957	140,895	22%
Hayward (inc OLSD L2)	22,990*	B	53,767	B	76,757	B	7,434*	24,348	85,648	9%
Livermore	14,280*	A	33,906	A	48,186	A	ND	7,694	55,880	14%
Newark	7,448	H	20,499*	H	27,947	H	ND	3,327	31,274	11%
Oakland	ND	A	73,000	A	168,000	B	30,600	84,649	283,249	41%
OLSD (L1)	12,563	A	3,989	A	18,552	A	ND	ND	ND	ND
OLSD (L2)	1,010	A	336	A	1,346	A	ND	ND	ND	ND
OLSD (L3)	6,532	A	2,584	A	9,116	A	ND	ND	ND	ND
Piedmont	2,148	A	ND*	A	2,148*	A	ND	4,571	6,719	68%
Pleasanton	16,987	A	29,702	A	46,689	A	13,413	9,802	69,904	33%
San Leandro (non OLSD L3)	8,994	I	25,489	I	34,483	I	ND	65,123	99,606	65%
Union City	14,975	F	17,283	J	32,258	F	3530	1,147	38,950	17%
Total	**190,518**		**394,076**		**652,579**		**72,396**	**281,022**	**898,521**	

*See notes regarding member agencies in text below.

Table 5 References

A – Member agency provided data in survey
B – 2011 Annual Report from Waste Management Alameda County
C – Monthly Program Report for December 2011, submitted to SWP 12-30-2012
D – 2011 Annual Report from Waste Management Incorporated
E – 2011 Annual Report from AVI
F – 2011 Annual Report from Allied Services
G – 2011 Annual Report from BLT
H – Newark_RFP_v8_071312_Final.pdf
I – 2011 Annual Report from ACI
J – 2011 Annual Report from Fremont Transfer Station

Table 5 Notes

"Self-haul" and "other refuse" quantities are derived by subtracting" total refuse under franchise agreements" and reported "self-haul" and "other refuse" (from each member agency jurisdiction's Quarterly Tonnages Report) from the "total refuse" column. The resulting tonnage may include a portion of C&D and/or other disposal tonnages.

"Total refuse" is taken from the Alameda County Waste Management Authority Jurisdiction Quarterly Tonnages Report for 2011. This quantity does not include alternative daily cover (ADC), soil or other tonnage (such as beneficial uses like road base or soil erosion control).

Albany:
Albany provided a total refuse quantity under franchise that included more than commercial and residential. SAIC reported the sum of residential and commercial franchise refuse in the table, with remaining franchise refuse as reported added to "self-haul and other."

Berkeley:
Berkeley reported the quantities of city collection. There is no franchise agreement, and in addition to the City of Berkeley, there are several providers of rubbish collection.

Fremont:
"Self-haul disposal" is included in "other refuse." The member agency reported 38,805 tons as self-haul from a BLT report, but adding this to franchise refuse resulted in total disposal in excess of the 2011 jurisdiction report, implying some double counting.

Hayward:
- The residential data includes the portion of Hayward that falls in OLSD L2. It could not be verified if the commercial data reflects any OLSD L2 customers.
- The tonnage includes single family only.

Livermore:
"Franchised residential refuse" provided by member agency includes that which is generated in single-family households only.

Piedmont:
Commercial and residential refuse are co-collected. Note: Commercial sector is very limited.

San Leandro:
The data does not include the portion of San Leandro that falls in OLSD Area L3.

2.3 Municipally-Controlled Residential Programs

This section summarizes the member agency residential programs. Data on disposal, diversion and diversion rates for these programs is provided in Section 2.3 above. All residential programs are controlled by member agencies, through franchised contracts. Table 6 summarizes the types of materials accepted in residential curbside recycling programs for each member agency, and also identifies take-back or drop-off events and the reported curbside contamination rate. All member agencies collect a standard suite of materials including glass containers, metal containers, #1 and #2 plastics, mixed paper, newspaper and cardboard. Fourteen of the 16 profiled member agencies accept #3 – #7 plastics in addition to the standard #1 and #2 plastics.[9] The Ecology Center services approximately 25,000 single family accounts employing a split-cart dual stream collection (fibers and containers), and reported a mere 1.6 percent contamination rate in 8,730 tons of recyclables. The lowest contamination rate for single-stream collection was reported by Union City at 8 percent contamination in 5,962 tons. San Leandro reported the highest single-stream contamination rate with 22 percent in 5,616 tons.

Table 7 describes the type of residential curbside recycling services provided, funding sources and coverage across single and multiple family units. All member agencies use the single-stream collection method except the City of Berkeley which uses dual-stream collection.

In Oro Loma's unincorporated area (L1) and the portion of San Leandro located in OLSD (L3), a fee placed on the property tax roll is earmarked to offset or cover the fee for collection services. The property tax fee equates to $4.60/month for refuse, recycling and organics. Oro Loma's unincorporated L1 Area is serviced bi-weekly by WMAC for recycling. For the portion of Hayward that falls within the OLSD (L2) the monthly charge is $2.85/month for refuse and organics collection. In Union City parcelized multi-family units (typically a townhouse or condo with its own property owner) have two "special assessments" that are reflected on their property tax bill – one for recycling of $9.08 per month and one for $24.98 per month for refuse and organics collection (2011). All other member agencies provide weekly pickup of recyclables for which their collection service is bundled with their refuse collection service. Most all single-family dwellings are provided recycling collections. Multi-family curbside service levels vary more, from three percent in San Leandro to 100 percent in six of the member agencies.

Table 8 summarizes residential organics diversion programs, including the types of service, types of materials accepted, coverage and reported contamination rates. All of Alameda County's single-family dwellings receive organics-collection services and 12 of 16 member agencies offer organics-collection to at least some multi-family dwellings. All organics-collection service providers accept plant debris, food scraps, compostable paper, meat and bone. Services are bundled with refuse collection services for all jurisdictions except for Oro Loma where recycling and organics collection services are paid through property tax and for parcelized units in Union City

[9] Unincorporated Alameda County is a member agency, but was not profiled because franchised services were not in effect during this time period.

where there is a special assessment on the tax bill. The City of Berkeley reported the highest contamination rate at 7 percent.

Table 9 provides the refuse rates charged for each container size offered for each member agency. Further analysis of the refuse rates shows that the relative cost-per-gallon cost of refuse for single-family residential becomes less expensive with increased refuse service for most member agencies. The exceptions are Albany (5/11 to 11/11 rates), Emeryville (except for the 20-gallon can) and Berkeley whose cost per gallon rates are constant and Livermore, Oakland (except for the 20-gallon can) and Oro Loma Sanitary District (L1, L2, and L3) where cost-per-gallon rates increase with more service. Where costs decrease, or remain relatively constant, for larger volume service, the pricing structure does not necessarily encourage waste reduction.

Table 6: Municipal Residential Recycling Programs - Materials Included (2011)

Member Agency	Service Provider	Standard Materials[10]	Additional Materials Collected Curbside												Special Materials					Bulky Item					Special Takeback Event / Drop-off Collection	Residential Contamination Rate
			Plastics # 3- #7	Wide Mouth Containers	Plastic Shop Bags	Aseptic Containers	Scrap Metal	Foil	Pie Tins	Aerosol Cans	Batteries	Foam/Styrofoam	Latex Paint Cans	Reusable Clothing	E-Waste	Xmas Trees	Unused Medication/Rx	Universal Waste	Used Oil/ Filters	Pickup?	Used Tires	Mattresses	Major Appliances	Items Accepted[11]		
Alameda	ACI	X	X	X		X	X	X	X	X	X		X		X	X			X	X		X	X	M,A	Yes*	20%
Albany	WMAC	X	X	X	X		X	X	X	X	X		X		X	X		X	X	X	X	X	X	All	ND	14%
Berkeley	City of Berkeley*	X														X		X	X	X	X	X	X	T, A	Yes*	ND
	Ecology Center	X						X	X	X					X										ND	1.6%
CVSD	WMAC	X	X	X	X		X	X	X	X	X				X	X	X	X	X	X	X	X	X	All	Yes*	14%
Dublin	AVI	X	X	X		X	X	X	X	X	X		X		X	X			X	X	X	X	X	T, A	Yes*	21%
Emeryville	WMAC	X		X			X	X	X	X	X				X	X			X	X	X	X	X	All	ND	12%
Fremont	Allied	X	X	X	X		X	X	X	X					X	X	X	X	X	X	X	X	X	All	ND	12%
Hayward	Tri-CED	X	X	X			X	X	X	X	X									X						7%
	WMAC														X	X				X	X	X	X	All*	Yes*	ND
Livermore	Livermore Sanitation	X	X	X	X	X	X	X	X	X	X			X	X	X		X	X				X	All[1]	Yes*	ND
Newark	WMAC	X	X			X					X				X				X	X		X	X	A	Yes*	ND
Oakland	WMAC & CWS[1]	X	X	X		X		X	X	X	X		X		X	X			X	X	X	X	X	All	Yes	10%
Oro Loma[1]	WMAC	X	X	X	X	X		X		X	X				X	X		X	X	X	X	X	X	All	ND	13%
Piedmont	Republic	X	X	X	X	X	X	X	X	X	X	X	X		X	X				X	X	X	X	E	Yes*	10%
Pleasanton	PGS	X	X	X				X				X			X	X				X	X	X	X	All	Yes	18%
San Leandro	ACI	X	X			X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	All	Yes	22%
Union City	Tri-CED	X	X	X		X	X	X	X	X	X		X		X	X			X	X	X	X	X	A	Yes	8%

*See notes regarding member agencies in text below.

[10] Standard materials collected by all member agencies include: glass containers, metal containers, #1 and #2 plastics, mixed paper, newspaper and cardboard.

[11] A indicates appliances; M is mattresses; T is tires and E is E-waste. "All" indicates mattresses, appliances and tires.

Table 6 Notes

Information for Table 6 was culled from each member agency during the survey process.

Alameda:
City-sponsored annual collection event.

Albany:
E-waste collected during bulk pick-up only.

Berkeley:
City of Berkeley co-collects commercial and 10+ unit multi-family.

CVSD:
Pharms Box at Eden Hospital.

Dublin:
Household hazardous waste collection.

Fremont:

- Plastics #1-7; except expanded polystyrene (EPS, i.e., Styrofoam TM) accepted in curbside program.
- Unused medications/prescriptions accepted at HHW facility, selected pharmacies or Washington Hospital.
- Universal waste accepted at HHW and Allied/Republic offices.
- Used oil filters collected curbside, at HHW facility and at Allied office.

Hayward

- E-waste can be dropped off at Davis Street and Tri-CED.
- Materials collected by Tri-CED Community Recycling are sorted at their Union City facility.
- 100 free coupons are available each month to self-haul 2 cubic yards of household refuse; one coupon per household per year.

Newark:
E-waste collected during bulky pick-up events only. Sharps collected curbside.

Oakland:

- WMAC provides service in East Oakland and CWS provides service in West & North Oakland.
- E-waste is accepted in the bulky collection program, and at periodic drop-off events but not regular curbside collection.

Piedmont:
Fire Station provides CFL bulb and battery drop-off.

Pleasanton:
Transfer station provides E-waste drop-off.

San Leandro:
Unused prescription drug collection at Public Works, the Senior Center and Davis Street Family Resource Center. There are two others that are sponsored by other organizations – the Medical Arts Pharmacy by San Leandro Hospital and the bin at the Sheriff's Office.

Union City:
Tri-CED provides E-waste drop-off.

Table 7: Municipal Residential Recycling Programs - Funding, Accounts and Tonnages (2011)

Member Agency	Service Provider	Frequency	Collection Type	Collection Services Bundled with Refuse Collection Services?	Portion of Recycling Services Funded by Property Tax	Ref	# of SFD Recycling Accounts	Ref	% of SFD Covered	# of MFD Recycling Accounts (Bldgs. unless noted)	Ref	% of MFD Covered
Alameda	ACI	Weekly	Single-Stream	Yes	0%	A	15,186*	A	ND	865*	A	ND
Albany	WMAC	Weekly	Single-Stream	Yes	0%	A	4,066	B	99%	268	B	21%
Berkeley	City of Berkeley	Weekly	Dual - Stream	Yes	0%	A	202*	A	NA	1,513*	A	90%
	Ecology Center	Weekly	Dual - Stream	Yes	0%	A	24,458	A	98%	NA	A	NA
CVSD	WMAC	Weekly	Single-Stream	Yes	0%	A	15,241	C	100%	161	C	97%
Dublin	AVI	Weekly	Single-Stream	Yes	0%	A	10,587	A	100%	597 Units	A	100%
Emeryville	WMAC	Weekly	Single-Stream	Yes	0%	A	492	D	100%	102	D	100%
Fremont	Allied	Weekly	Single-Stream	Yes	0%	A	44,473	E	100%	340	E	100%
Hayward	Tri-CED	Weekly	Single-Stream	Yes	0%	A	28,095	F	100%	504	F	100%
Livermore	Livermore Sanitation	Weekly	Single-Stream	Yes	0%	A	25,621	G	100%	144	G	100%
Newark	WMAC	Weekly	Single-Stream	Yes	0%	A	9,555	H	88%	2,238 Units	H	88%
Oakland	WMAC & CWS*	Weekly	Single-Stream	Yes	0%	A	66,391*	A	100%	94,600 Units	A	100%
OLSD*	WMAC	L1 -Bi-Weekly L2 & L3 - Weekly	Single-Stream	L1 – No L2 – Yes L3 – Yes	100%	A	28,901*	A	100%	284	A	88%
Piedmont	Republic	Weekly	Single-Stream	Yes	NA	A	3,751*	I	98%	7*	I	20%
Pleasanton	PGS	Weekly	Single Stream	Yes	NA	A	19,211	B	100%	86	B	100%
San Leandro	ACI	Weekly	Single-Stream	Yes	0%	A	12,417	J	92%	252	J	3%
Union City	Tri-CED	Weekly	Single-Stream	Yes – SFD + non-parcelized MFD No – Parcelized MFD	0% SFD + non-parcelized MFD; 100% for Parcelized MFD	A	16,489	A	100%	5,386 Units	A	98%
Total							**325,136**					

*See notes regarding member agencies in text below.

Table 7 References

A – Member agency provided data in survey
B – StopWaste Franchise Database
C – 2011 Annual Report from Waste Management, Inc.
D - 2011 Annual Report from Waste Management Alameda County
E – 2011 Annual Report from Allied Services
F – 2011 Annual Report from Tri-CED
G – 2011 Annual Report from Livermore Sanitation
H – Municipal Presentation to the Recycling Board – Between 2010 and 2011
I – 2011 Annual Report from Republic Service
J – 2011 Annual Report from ACI

Notes for Table 7

Alameda:
City staff has indicated that the City of Alameda has segmented their residential community into 3 distinct segments: Single-family, Multi-plex, Multi-family.

Berkeley:

- City Staff provides recycling for 10+ MF units
- Ecology Center provides recycling collection for "SFD" which encompasses single family and 1 – 9 MF Units.
- Account data derived by combining City of Berkeley and Ecology Center Service Lists.

Oakland:
WMAC and CWS are contracted providers of residential weekly curbside recycling services: WMAC provides service in East Oakland and CWS provides service in West & North Oakland. Recycling services are bundled in residential garbage rates.

Oro Loma Sanitary District:
Data covers Oro Loma unincorporated area (L1).

Piedmont:
Recycling and organics are provided at no cost, except where accounts are delinquent. All MFD accounts with cart pickup are collected with SFD accounts. Accounts with 4 CY dumpsters are collected separately with front-loader truck. However, Republic Services combines MFD (Tote and Dumpster) and SFD when reporting total tons collected.

San Leandro:
The percentage of MFD with recycling services (3%) was provided by ACI in their 2011 Annual Report.

Union City:
Parcelized multi-family units (typically a townhouse or condo with its own property owner) are billed for a special assessment through the tax roll for recycling collection for $9.08 per month. Non-parcelized multi-family units (typically apartment buildings

or properties with multiple units) are treated as commercial accounts and are billed by the hauler a $6 per unit/per month recycling fee. There is also an additional special assessment that covers refuse and organics collection.

Table 8: Residential Organics Diversion Programs (2011)

Member Agency	Service Provider	Frequency	Container Sizes (Gal)				Materials						Collection Ses?				
			Mini	Small	Med	Large	Plant Debris	Food Scraps	Food-soiled paper	Meat	Bone	Unpainted Wood Scraps	Destination	Collection Services Bundled with Refuse Collection Servies?	Residential Organics Contamination Rates	Rref	MFD Organic Services Offered
Alameda	ACI	Weekly		32	64	96	X	X	X	X	X	X	Newby Island	Yes	0%	A	Yes
Albany	WMAC	Weekly	20	32	64	96	X	X	X	X	X	X	Grover	Yes	< 1 %	A	Yes
Berkeley	City of Berkeley	Weekly		32	64	96	X	X	X	X	X	X	Grover	Yes	7%	B	Yes
CVSD	WMAC	Weekly		32	64	96	X	X	X	X	X	X	Grover and Redwood	Yes	<1%	C	Yes
Dublin	AVI	Weekly		32	64	96	X	X	X	X	X		Newby Island	Yes	5%	B	Yes
Emeryville	WMAC	Weekly	20	32	64	96	X	X	X	X	X	X	Grover and Redwood	Yes	<1%	B	Yes
Fremont	Allied	Weekly			64	96	X	X	X	X	X	X	Newby Island	Yes	4%	B	No
Hayward	WMAC	Weekly		35	64	96	X	X	X	X	X	X	Grover	Yes	1%	D	No
Livermore	Livermore Sanitation	Weekly	20	32	64	96	X	X	X	X	X		Grover	Yes	0%	E	Yes
Newark	WMAC	Weekly			64	96	X	X	X	X	X		Grover	Yes	ND	A	No
Oakland	WMAC	Weekly			64		X	X	X	X	X	X	Grover	Yes	ND	D	Yes
OLSD (L1, L2, L3)	WMAC	Weekly		32	64	96	X	X	X	X	X	X	Altamont	No	2%	B	Yes
Piedmont	Republic	Weekly		32			X	X	X	X	X	X	West Contra Costa Sanitary Landfill	Yes	<1%	F	Yes
Pleasanton	PGS	Weekly				96	X	X	X	X	X	X	Color Scape	Yes	5%	A	No
San Leandro	ACI	Weekly	20	32	64	96	X	X	X	X	X	X	Newby Island	Yes	ND	G	Yes
Union City	Tri-CED	Weekly	20	35	64	96	X	X	X	X	X	X	Newby Island	Yes	<1%	B	Yes

Table 8 References

A – Municipal Presentation to the Recycling Board – Between 2010 and 2011
B – Member agency provided data in survey
C – 2011 Annual Report from Waste Management Incorporated
D – 2011 Annual Report from Waste Management Alameda County
E – 2011 Annual Report from Livermore Sanitation
F – 2011 Annual Report from Republic Services
G – 2011 Annual Report from ACI

Table 9: Monthly Residential Refuse Collection Rates in Alameda County (2011)

Member Agency	Mini Can		30-35 Gallons		60-64		90-96		Price Effective Dates	
	Cost	Gal.	Cost	Gal.	Cost	Gal.	Cost	Gal.	Begin	End
Alameda	$20.71	10	$31.45	32	$51.67	64	$72.17	96	7/1/11	6/30/12
	$22.67	20								
Albany	$11.06	10	$24.77	32	$42.82	64	$60.87	96	2010	4/30/11
	$22.13	20	$24.77	35						
	NA	NA	$21.22	32	$42.45	64	$63.67	96	5/1/11	11/1/11
	NA	NA								
Berkeley	$11.54	13	$28.34	32	$56.65	64	$84.95	96	7/1/11	open
	$17.72	20								
CVSD	$21.78	20	$33.78	32	$58.66	64	$83.60	96	7/1/11	6/30/12
Dublin	NA	NA	$18.65	32	$34.25	64	$49.85	96	7/1/11	6/30/12
Emeryville	$6.74	10	$16.91	32	$33.80	64	$50.71	96	2/1/11	12/31/11
	$10.21	20								
Fremont	$25.18	20	$25.71	32	$28.16	64	$41.44	96	1/1/10	12/31/11
Hayward	$16.98	20	$24.81	32	$44.25	64	$66.42	96	6/1/11	5/31/13
Livermore	$13.76	20	$22.96	32	$48.34	64	$80.21	96	1/1/11	6/30/11
Newark	$19.54	20	$21.72	32	$38.47	64	$55.20	96	6/1/11	5/31/12
Oakland	$20.85	20	$27.98	35	$61.01	64	$94.00	96	7/1/11	6/30/12
Oro Loma (L1)*	$6.31	20	$12.58	35	$25.20	64	$37.78	96	9/1/11	8/31/12
Oro Loma (L2)*	$6.31		$12.58		$25.20		$37.78			
Oro Loma (L3)*	$7.17		$14.38		$28.72		$43.10			
Piedmont	$46.66	20	$48.94	35	$57.16	65	$67.00	95	7/1/11	6/30/12
Pleasanton	NA	NA	$29.13	35	NA	NA	$34.57	90	4/1/11	open
San Leandro	$18.84	20	$23.48	32	$39.08	64	$54.66	96	7/1/11	6/30/12
Union City	$22.31	20	$27.90	35	$55.84	64	$83.74	96	7/1/11	6/30/12

Table 9 References

Information for Table 9 was culled from individual member agency franchise agreements collected in the StopWaste Franchise Database and confirmed by each member agency during the survey process.

Table 9 Notes

Oro Loma:

In addition to the rates listed in this table, Oro Loma Sanitary District collects $4.60/month/unit from L1 and L3 residents to help cover the cost of refuse, recycling and organics collection. From L2 OLSD collects is $2.85/month to assist with the cost of refuse and organics collection.

2.4 Municipally-Controlled Commercial Programs

This section presents details on the municipally-controlled commercial programs for each member agency. Municipal Construction and Demolition programs and School Waste Diversion programs are addressed in Sections 2.5 and 2.6, respectively. External to the municipal franchises is the open market in some Alameda County locations for recycling commodities and in some cases, organics. This is covered in Section 3 Non-Municipal Activities. Data on disposal, diversion and diversion rates related to these programs is provided in Section 2.3 above.

Table 10 describes the type of program, contract structure and incentives for diversion. After a sustained trend, most Alameda member agencies now have adopted exclusive franchise contracts for commercial services. The exceptions are Alameda, Berkeley, Fremont and Oakland, although each of these has adopted some level of exclusive franchise services. Most commercial businesses are served through single stream programs that accept a wide range of materials, similar to the residential programs described above. However, service providers work closely with customers to provide an appropriate system of containers matched to their generation patterns. The number of Commercial Refuse Accounts does not include MFD (as defined by the member agency).

Table 11 presents the monthly rates for containers ranging from 1 cubic yard to 40 cubic yards at a pickup frequency between 1 to 3 times per week or per pull for larger boxes, along with the effective dates for these rates. The table also identifies which member agencies offer a commercial food scrap rate discount. Most member agencies offer attractive discounts and incentives for recycling and/or organics diversion services.

Table 10: Summary of Municipally-Controlled Commercial Disposal and Reported Diversion (2011)

Member Agency	# of Businesses	Ref	# of Commercial Refuse Accounts	Ref	Recycling Franchise Type	Commercial Generator Incentives (See discounts in Table 11)
Alameda	1,924	A	908	B	Limited Non-Exclusive	▪ 20% discounts for recycling and organics
Albany	950	A	298	B	Exclusive	▪ Free recycling services ▪ 50% organics discount
Berkeley	4,270	A	2,242	B	Non-Exclusive	▪ Free recycling services ▪ 50% organics discount
CVSD	440	C	383	A	Exclusive	▪ 4R Star Business program with signup incentives of up to $525 per business for reducing waste.
Dublin	2,002	A	628	B	Exclusive	▪ Discounts/Free Recycling Assistance/Containers/ Free Educational Materials
Emeryville	684	A	285	A	Exclusive	▪ Firms with 2 CY/week of trash or less: up to 264 gal./wk free recycling + compost. ▪ For businesses 2 CY/week or more: Recycling + compost at 50% discount over trash ▪ Compacted; compost loads are discounted by 25% only.
Fremont	5,479	A	1,851	B	Exclusive	▪ One free 96-gal. recycling cart picked up every other week or corresponding $15 monthly credit for FEL accounts.
Hayward	2,570	A	2,570	B	Exclusive	▪ Free recycling services ▪ 50% organics discount
Livermore	1,842	A	1,176	B	Exclusive	▪ Free recycling services ▪ Free organics for restaurants.
Newark	1,165	A	740	B	Exclusive	▪ Discounted recycling rates.
Oakland	19,720	A	4,865	B	NA (Open Market)	▪ Recycling discounts for small businesses from residential franchised haulers.
OLSD (L1)	831	A	452	E	Exclusive	▪ Discount for recycling.
OLSD (L2)			47			
OLSD (L3)			332			
Piedmont	35	A	22	B	Exclusive	▪ NA
Pleasanton	2,750	A	848	B	Exclusive	▪ One free 96-gal./week recycling of paper and cardboard
San Leandro	1,855	D	1,185	B	Exclusive	▪ One free 96-gal. recycling/week ▪ One free 96-gal. organics cart/week
Union City	1,075	A	614	A	Exclusive	▪ Free indoor collection containers.
Total	**47,592**		**19,624**			

*See notes regarding member agencies in text below.

Table 10 References

A – Member agency provided data in survey
B – Provided by member agency or franchise hauler for StopWaste Commercial Summary by Jurisdiction (6/25/2012)
C – StopWaste Franchise Database
D – California Department of Finance - www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php
E – Email communication from Andreea Simion (OLSD) to Reagan Chung (SAIC) dated 12/18/12

Table 10 Notes

Alameda:
Provided 3/17/11 by ACI, 388 cart and 520 FEL; does not include MFD (845) or city accounts (199), but does include litter boxes.

Albany:
Does not include MFD.

Berkeley:
Provided 2/25/11 by City of Berkeley, 1430 carts and 558 bins, includes 113 exempt agencies and 141 city facilities, but does not include MFD.

Dublin:
Provided by AVI 3/28/11, does not include MFD (31).

Emeryville: Data provided during MA Survey from WMAC quarterly report 2011.

Fremont:
From City of Fremont and Allied on 3/14/11, does not include MFD.

Livermore:
Provided by LSI via the City of Livermore on 2/28/11, does not include MFD (122).

Newark
Data provided during MA Survey 11/30/11.

Oakland:
Does not include MFDs.

Pleasanton:
Provided by City of Pleasanton 3/2010.

San Leandro:
Provided by the City of San Leandro on 3/7/11 (Nov. 2010 data). Includes bin & cart customers. Does not include multi-family accounts (196 accts).

Union City:
Data provided during MA Survey 11/27/11.

Table 11: Franchised Commercial Refuse Rates by Container Size

Member Agency	1 cubic Yard 1x Week ($/month)	1 cubic Yard 3x Week ($/month)	3 cubic Yard 1x Week ($/month)	3 cubic Yard 3x Week ($/month)	14-15 Cubic Yard Box Per Pull	30-40 Cubic Yard Box Per Pull	Commercial Food Scraps Rate Discount	Organics Discount	Recycling Discount	Price Effective Dates	
										Begin	End
Alameda	$119.79	$366.55	$359.38	$1,099.66	$722.13	$1444.27 $1925.68	No	20%	20%	7/1/11	6/30/12
Albany	$98.73	$296.19	$296.19	$888.63	$369.39	$769.16	50%*	50%	100%	2010	4/30/11
	$99.95	$299.85	$299.87	$899.60	ND	ND				5/1/11	11/1/11
Berkeley	$137.23	$386.68	$379.80	$1,128.10	$2,200.00	$3,363.00	20%	20%	100%	7/1/11	Open
CVSD	$238.97	$716.87	$636.01	$1,782.72	$237.05	$559.89 $746.39	Depends on container size	ND	ND	7/1/11	6/30/12
Dublin	$90.46	$316.40	$271.38	$859.16	$381.75	$763.60	50%*	50%	100%	7/1/11	6/30/12
Emeryville	$100.67	$302.01	$302.01	$906.03	$506.60	$759.90* $1,013.20	No	50%	50%	2/1/11	12/31/11
Fremont	$73.89	$212.55	$166.10	$489.17	$309.84	$451.73* $646.96	75%	50% off MSW rate	Min 25% discount off MSW rate	1/1/10	12/31/11
Hayward	$108.56	$294.40	$279.70	$771.97	$275.22	$775.52	50%	50%	100%	6/1/11	5/31/12
Livermore	$103.30	$322.27	$309.87	$987.27	$322.34	$859.70	50%	50%	85%	1/1/11	6/30/11
Newark	$85.17	$235.24	$225.32	$614.50	$243.37	$521.55 [1] $695.39 [2]	No	NA	51%-62% [2]	6/1/11	5/31/12
Oakland	$131.34	$418.00	$344.35	$1,085.42	$547.39	$1,094.81	Open Competition	Open Market	Open Market	7/1/11	6/30/12
OLSD (L1 & L2)*	$81.93	$212.96	$218.24	$611.32	$248.90	$533.40* $711.20	96-gal/week at no extra charge	ND*	yes	9/1/11	8/31/12
Piedmont*	$153.50	$432.71	$307.05	$865.39	$399.29	$502.80 $532.46	Available at no extra charge	100%	100%	7/1/11	6/30/12
Pleasanton	$138.59	$362.71	$395.79	$1,068.15	$387.96	$1,034.40	Included in service	NA	100%	4/11/11	Open
San Leandro*	$102.94	$311.20	$311.20	$933.62	$349.23	$418.71	1 96-gal./week at no extra charge; 20% thereafter	20%	20% for commingled; 40% for source separated	7/1/11	6/30/12
Union City	$115.36	$318.62	$302.31	$823.88	$328.73	$695.60 $927.45	70%	70%	75%	7/1/11	6/30/12

*See notes regarding member agencies in text below.

Table 11 Notes

Information for Table 11 was culled from individual member agency franchise agreements collected in the StopWaste Franchise Database and confirmed by each member agency during the survey process.

ND – No Data

Albany:

Beginning 11/1/11 the City entered a new franchise agreement with WMAC with additional 40 percent rate increase. Dublin:
Discount rate piloted in 2011.

Emeryville, Fremont, OLSD and Union City:
The two rates shown are for a 30 cubic yard box and 40 cubic yard box, respectively.

Oro Loma:

- Rates shown are for Oro Loma L1 and L2 only.
- City staff has indicated there is an open market for commercial organics.

Piedmont:
Rates shown are for a 2 cubic yard container instead of a 3 cubic yard container and a 20 cubic yard box instead of a 14-15 cubic yard box. Rates do not include an additional $73.85/ton disposal fee for 20 and 30-40 cubic yard box pulls.

San Leandro:
Rates do not include an additional $100.81/ton disposal fee for 14-40 cubic yard box pull.

2.5 Municipal C&D Diversion Programs

Table 12 summarizes member agency construction & demolition (C&D) debris programs and policies. Every agency has a program, although Alameda County tracks and enforces projects in the unincorporated areas including Castro Valley Sanitary District and Area L1 of the Oro Loma Sanitary District. Twelve of the 17 member agencies reported diversion tonnage for a total of 777 projects totaling 23,720 tons captured. All but one jurisdiction have either an exclusive or non-exclusive franchise agreement for C&D hauling. Hayward has an open market but haulers and processing facilities must be pre-approved by the City.

Statewide the California Green Building Code (CALGreen) went into effect on January 1, 2011. As Part 11 of the California Building Code jurisdictions were mandated to adopt the basic CALGreen requirements. The requirements such as for residential projects to divert 50 percent of construction waste or meet the local C&D recycling requirement (whichever is more stringent) set a high, but attainable bar for CA jurisdictions. The requirement for non-residential buildings to provide accessible areas for building occupants to store recyclables also helps to curb the space constraints faced by many willing recyclers that live in older buildings.

Table 12: C&D Debris Diversion Program (2011)

Member Agency	C&D Debris Recycling Ordinance	Constr. Project Threshold	Demolition Project Threshold	Deposit Amount	Diversion Requirement	Total Commercial Contracted C&D Debris (Tons)	# of Projects over Threshold	Avg. Tons/ Project Diverted	Exclusive or Non-Exclusive Franchise or Open Market
Alameda	Yes	$100,000	$100,000	Bond posted before permit issued. Cost based on estimated tons generated	50% of remaining waste generated	1,500	98	ND	Exclusive
Albany	Yes	NA	$25,000	Lesser of 3% of project Cost or $10,000	100% of asphalt, concrete and similar material, at least 50%, by weight, of all other C&D Debris	177	ND	ND	Exclusive
Berkeley	Yes	$100,000	$3,000	None	100% of concrete & asphalt; 100% of land clearing waste, and 50% of remaining waste generated*	ND	ND	ND	Non-Exclusive
CVSD	Alameda County enforces and tracks C&D Debris projects in Castro Valley, not CVSD					1,663	ND	ND	Exclusive
Dublin	Yes	$100,000	$100,000	(Square Feet)x (60/2000)x ($35)+$2,738	100% of concrete & asphalt; 50% of remaining waste	5,645	36	157	Non-Exclusive
Emeryville	Yes	$50,000 and/or 1,000 sq ft.	All demolition projects	None	100% of all Portland cement, concrete & asphalt; 50% of remaining waste	1,050	129	5.8	Exclusive[1]
Fremont	Yes	$300,000	All demolition projects	None	100% of concrete & asphalt; 50% of remaining waste generated, 100% plant debris	11,079	110	ND	Non-Exclusive
Hayward	Yes	$75,000	$75,000	None	100% concrete & asphalt and similar material (dirt, inerts); 50% of remaining waste *	2,148	138	16	Open Market1
Livermore	Yes	$300,000	$40,000	$10,000	50% of remaining waste	ND	12	ND*	Non-Exclusive
Newark	Yes	$100,000	$20,000	None	100% of concrete & asphalt; 50% of remaining waste	ND	ND	ND	Exclusive

Member Agency	C&D Debris Recycling Ordinance	Constr. Project Threshold	Demolition Project Threshold	Deposit Amount	Diversion Requirement	Total Commercial Contracted C&D Debris (Tons)	# of Projects over Threshold	Avg. Tons/ Project Diverted	Exclusive or Non-Exclusive Franchise or Open Market
Oakland	Yes	$50k	All demolition projects*	None	100% concrete & asphalt; 65% remaining waste*	ND	100	47	Non-Exclusive
Oro Loma	Yes	$100,000	$40,000	None	100% asphalt, concrete and similar materials; 50% remaining waste	ND	0	0	Non-Exclusive
Piedmont	Yes	$50,000	$50,000	None	50% of waste	303	ND	ND	Exclusive
Pleasanton	Yes	$125,000	$25,000	None	90% Portland cement concrete & asphalt; 50% remaining waste	ND	154	ND	Exclusive
San Leandro	Yes	$100,000	$100,000	None	100% asphalt, concrete; 50% remaining waste	155	75	ND	Exclusive
Union City	Yes	$50,000	$25,000	Lesser of 3% of project Cost or $10,001	50% of all waste	ND	ND	ND	Non-Exclusive
Alameda County	Yes	Residential projects >1,000 sf Commercial projects >3,000 sf	All Demolition Projects		75% of inerts 50% of remaining waste generated	ND	ND	ND	Non-Exclusive

*See notes regarding member agencies in text below.

Table 12 Notes

Information for Table 12 was obtained from individual member agencies during the survey process.

Berkeley:
Applicants shall make salvageable materials available for reuse prior to demolition.

Hayward:
Haulers and processing facilities must be pre-approved by City.

Oakland:
Single-family households and duplexes are exempt.

Livermore:
75% diversion for all projects.

2.6 School Waste Diversion Programs

Public school districts in California (from kindergarten to twelfth grade) are part of the Department of Education. As subdivisions of the State of California, along with community colleges, state universities, county governments and state agencies (Caltrans, Department of Motor Vehicles, Employment Development Department, etc.), K-12 public school districts are not bound by local franchises. These entities may elect to procure services from any vendors, even if there is an exclusive municipal franchised hauler in place.

Table 13 identifies programs supporting school recycling for each member agency. All but two member agencies (Alameda and Pleasanton) reported that their schools receive some level of recycling-related support. Schools often receive direct funding and/or subsidized pricing from the agency or through a City franchise agreement. Many schools also receive support from other organizations for recycling. In 2011, StopWaste provided monetary support through mini-grants up to $5,000, as well as technical assistance, transfer station tours and outreach education. Ten school districts received services as included in their member agency franchise agreement. These services could include free regular collection services, free collection services at special events, technical assistance, or education and outreach presentations.

Table 13: Municipal School-Related Diversion Programs (2011)

Member Agency	Direct Funding for School Recycling	Subsidized Recycling-Related Services	Services included in Franchise Contract	Other Support
Alameda	No	No	No	No
Albany	Intern and recycled product purchase assistance	No charge for recycling; organics charged at 50%	Event roll-offs and e-Waste Collection	Provide resources, education and outreach to schools
Berkeley	No	City Parks Department subsidizes delivery of compost to school gardens on requested	Yes at normal commercial-customer rates	Green Schools Initiative to establish effective recycling & composting collection at 12 BUSD locations
CVSD	Schools meeting requirements receive award of $1,600-$2,775	11 schools participated in the Donation Request program and received donations over $8,500	Yes - Recycling and organics collection provided free to schools	Presentations, trainings, and more to set up and sustain waste reduction activities
Dublin	Yes, funding to participating schools for Go Green activities totaled $16,500	Recycling is Free and organics is subsidized 50%	GO Green requirement in franchise agreement with funding provided by AVI to each participating school	Altamont Education Advisory Board - 4R Contest Grant $18,100
Emeryville	No	Provide containers and technical assistance	Yes - Recycling and organics collection services free to EUSD schools and district office	No
Fremont	Yes	Yes	FUSD has separate Allied Waste/Republic contract, not part of City franchise	Recycling containers and outreach/education. AWS staff do classroom presentations
Hayward	No	Yes; City-subsidized services include technical assistance implementing programs to collect mixed recyclables and organics, plastic indoor containers for temporary storage of materials, labels for the containers and posters, as well as training for staff and students.	No	No
Livermore	No	No	Yes - Hauler must make 170 public school presentations/year and encouraged to visit private schools	No
Newark	No	Recycling provided to all schools in the Newark Unified School District at no charge through the franchise.	Collect solid waste, recyclables, and organics from facilities owned and/or operated by Newark Unified School District	Make at least 25 presentations or tours to schools located in City

Member Agency	Direct Funding for School Recycling	Subsidized Recycling-Related Services	Services included in Franchise Contract	Other Support
Oakland	No	Partners with StopWaste, Lincoln Elementary School & Civicorps Elementary School on environmental education program	None	No
Oro Loma	Yes	Free recycling to all public schools in the District	Yes	Recycling coordinator available to provide on-site support as needed
Piedmont	Purchased containers for some schools	No charge for recycling and organics collections with RSS contract	Yes	No
Pleasanton	No	No	No	No
San Leandro	No	Yes	Refuse, recycling, and organics at no charge	No
Union City	No	No	Upon request, the City will provide educational outreach and solid waste and recycling containers at school sponsored special events; however, most waste diversion programs are coordinated under a separate contract.	Upon Request

2.7 Sustainability Programs

The California Bay Area has a mature sustainability culture. StopWaste and its member agencies each have a robust set of policies and legislation that support greenhouse gas reduction; waste minimization; green building and Bay-Friendly landscaping practices.

Ordinances and policies that many of the member agencies have put in place include:

- Zero waste resolutions, plans and actions;
- Climate change resolutions, plans, baseline inventories and actions;
- Green building requirements for civic buildings and in some cases private construction;
- Bay-Friendly landscaping requirements for civic installations, and in some cases private projects;
- Environmentally preferable purchasing efforts for civic purchases.

Other sustainability initiatives adopted by member agencies include expanded polystyrene bans for take-out containers; requirements for recyclable/compostable foodservice ware; requirements that city events are zero waste, and bottled water bans.

Section 3
NON-MUNICIPAL ACTIVITIES

This section describes non-municipal waste reduction activities conducted by private-sector organizations in Alameda County. There is no reporting requirement, few publicly available data and a very wide range of activities and perspectives on private-sector recycling services. Consequently, StopWaste has made coverage of private-sector activities a lower priority in this report than coverage of municipally-controlled activities, and only a high-level description is provided. For this report, SAIC interviewed a dozen vendors with varied materials-focus and business models to obtain their perspective on recycling and diversion trends over the past five years and to gather their opinions regarding the future.

3.1 Overview

The Bay Area has a very robust recycling and composting industry that operates both within and outside of municipal contracts. Alameda County waste generators have access to a diverse selection of vendors providing waste reduction services. For example, StopWaste's Recycling Wizard lists 69 Alameda-County-based vendors accepting corrugated cardboard alone. Another measure of the vibrancy of the market is the wide variety of materials that the vendors accept. From acetone to zippers, the StopWaste Recycling Wizard lists 400 materials that local vendors accept for recycling or reuse, though it should be noted that the Agency is transitioning to a regional resource for recycling outlets called "Recycle Where?"

Overall, vendors generally feel that waste diversion activities and volumes are likely to continue to increase and expand, despite a continuing economic downturn. There are many drivers for this trend. A combination of local processors/manufacturers and two active seaports with access to the Pacific Rim provides strong recycling market access. Bay Area customers are often enthusiastic about the benefits of recycling, both environmental and financial. Alameda County services are advanced and many vendors are fielding requests for service in addition to or in some cases instead of marketing. Businesses are learning how their neighbors are reaping cost savings by diverting materials and are interested in doing the same. At least one vendor attributed inquiries for service to the new mandatory commercial recycling ordinance (see www.RecyclingRulesAC.Org). With widespread comingled recycling, smaller organizations are able to justify recycling collection for mixed recycling programs, when they were not able to generate enough volume of source separated materials resulting in an increase of smaller commercial accounts. On the other end of the spectrum, larger companies are getting external pressure from customers or 'Corporate' to green their operations.

Several noted that the recession did have an adverse impact on recycling and composting diversion. First, it affected discards as their customers were producing, manufacturing and discarding less material. Secondly, the weakened economy

resulted in large scale consolidations in some industries and across the board many businesses closed their doors. Perhaps related to finances, several vendors noted that in recent years food manufacturing industries have focused more on waste prevention and efficiency, reducing their dependency on outside collection vendors. Those that commented on the recession, also indicated that the economy and with it recycling accounts are on their way back up.

Following are brief descriptions of several trends and issues related to private sector waste reduction activities.

3.2 Mandatory Recycling

StopWaste created and passed a mandatory recycling ordinance in 2012 paralleling California's AB341 (statewide commercial and multi-family mandatory recycling) in some respects. Since this ordinance became effective July 1, 2012 it is outside the scope of this report for any meaningful in-depth analysis.

As a result of AB 341 and Alameda County's new mandatory commercial and multi-family recycling ordinance, StopWaste, many member agencies, and their franchise haulers are notifying customers about mandatory recycling. A good number of the franchise haulers are stipulated by their contract to offer businesses site visits to educate clients about recycling and to offer services. Rates often bundle recycling with refuse or have discounted rates for recycling and compostables. As a result, some speculate any positive impact for independent vendors outside of franchise agreements may be minimal.

Some vendors felt that Alameda County's mandatory commercial recycling ordinance would not have a large impact in getting more businesses in Alameda County to recycle. Some said the Bay Area has high 'environmental consciousness' already, and the majority of companies are already recycling. On the other hand, some felt it would be effective in spurring businesses to evaluate their own waste stream, or by providing an additional incentive to organizations that have not yet embraced recycling. A number of vendors anticipate the mandatory organics ordinance in Phase 2 of the County's approach will be a bigger driver for diversion.

3.3 Exclusive Franchise Agreements

Some vendors feel that the rise of exclusive municipal recycling contracts is stifling competition and having a negative impact on firms operating in the open market. One complaint is that some organizations are seeking recycling vendors, but cannot negotiate services due to exclusive franchise agreements. Businesses with hard-to-recycle materials in particular may have few options if their franchise recycling hauler cannot handle their discards. Despite these concerns, a number of larger retail and wholesale operations report back-hauling materials (i.e., cardboard, pallet wrap, plastics, tallow, etc.) to out-of-County distribution centers to be able to collect larger volumes and take advantage of more favorable terms.

3.4 Food Scraps Diversion

Those surveyed agreed that the largest opportunity in the years ahead lies in food scraps from the commercial sector, with exception of the food manufacturing industry. For the past decade the Bay Area has witnessed the blossoming of the food scraps collection for composting. The county-wide trend to offer food scraps collection for single family residential dwellings has helped to provide infrastructure for haulers to offer food scrap recycling to businesses. Residential and post-consumer food scrap collections are generally provided by franchise haulers or the jurisdiction itself, (Oakland being the exception for the commercial sector) while the food industry is able to tap independent haulers that utilize nearly expired baked goods, coffee chaff, excess ingredients or product, etc., for animal feed. Diversion of food scraps from food processing facilities, generally for animal feed, is a widespread practice in areas located reasonable distances from farmland. Vendors may take these materials for free; pay a market rate; or charge a fee generally less than the rate for refuse.

Another approach to capturing food scraps may be the next local trend. Through franchise haulers, several Bay Area jurisdictions are creating wet/dry commercial routing to capture food scraps from organic-rich MSW. Collection routes targeting "wet" loads include supermarkets and restaurants, and in some cases MFDs. This material can be composted then screened to create a lower-grade compost, that is used for road medians or islands in parking lots. Materials collected on a dry route may be processed to screen out recyclables. In some cases customers may be source separating some materials on the front end, and not aware there is additional sorting of their discards. Like single stream recycling, this may increase capture of materials, but downgrade the quality of the recyclables or organics. This service is currently invisible to generators with no explicit rate structures developed to address these services in a visible way.

3.5 EPR and State/County Policy

Several state policies help promote a vibrant private recycling infrastructure. These include:

- Product specific programs provide funding and other support for recycling of beverage containers, tires, E-Waste and used oil.
- New state EPR laws covering carpet and paint are spurring private activity, and new mandates may follow.
- A state commercial recycling mandate provided leverage to aid StopWaste and member agencies in adopting a stronger, County ordinance.
- New funding may become available for organics and commercial recycling as part of the State's Climate Change law, based on proceeds from Cap & Trade transactions.
- The County Pharmaceuticals EPR ordinance aims to expand recovery of unused prescription medications.

3.6 Shifts in Discards

For the most part, those surveyed did not anticipate substantial shifts in the generation of discards. Plastics were acknowledged as the one area of growth, both in the recent past and for the future. Vendors have seen an uptick in packaging plastics as manufacturers focus on light-weighting their primary packaging: mixed rigid plastics, thermoformed plastics and foams. There is concern that some of the outlets available to businesses that accept foams may be landfilling them only to be able to capture the other materials generated by the customer.

3.7 Green Facilities Movement

A positive trend in the Bay Area over the past few years has been the green facilities movement. A number of progressive building management and/or janitorial services companies are striving to educate tenants and provide services to increase diversion or reduce toxicity of cleaning materials. Initiatives under this banner include: collection of desk-side recycling; elimination or reduction of desk-side bin liners; introduction of paper towel composting and kitchen collection of food scraps. These property managers and janitorial services have been key in greening larger offices in many of the Bay Area cities. 2010 saw the debut of the Building Owners and Managers Association East Bay Earth Awards. These awards recognize achievements in "comprehensive resource management programs" for commercial office buildings. Typical programs include commercial recycling programs, energy and water conservation, air quality and toxics reduction efforts, support for public transportation, and tenant education programs on sustainable practices.

3.8 Barriers

The main obstacle to expanding private sector services cited is exclusive municipal franchise agreements, as noted above. Such agreements, some say, limit open market competition and therefore opportunities for some vendors. And, even if the franchised vendor is not able to recycle specific materials, they may still have sole ability to charge for collection which can in some cases complicate a generator's ability to recycle certain materials.

Another challenge is contamination in recycling and compost containers. A contributing cause is the lack of training or education when rolling out a program, or lack of resources to provide maintenance training for existing programs. As more and more multi-tenant properties offer recycling or composting to their clients, another cause of contamination in shared receptacles is dumping or the scenario where one tenant opts not to participate in a recycling or compost program, thereby ruining the program for all the other tenants.

Several vendors voiced frustration regarding the differences in recycling programs (i.e., acceptable materials) and varying regulations from city to city. Vendors focused on specific markets remarked that finding outlets for materials not collected in single stream was sometimes a challenge.

3.9 Opportunities

By and large, organics, specifically food scraps, are viewed as the largest diversion opportunity in the near-term. Electronic waste was also flagged as a large and expanding opportunity. When asked about which industries have potential to divert more from their waste stream, the Pharmaceutical and BioTech industries were cited. In terms of opportunities for specific vendors, several said that value-added service opportunities, such as niche jobs to separate materials or empty contents from containers to be recycled, were an area where non-franchised vendors could benefit. Business opportunities could emerge for several independent vendors, as subcontractors or outlets for recyclable material for the larger franchised haulers.

Section 4
COUNTY-WIDE PROGRAMS

This section summarizes the County-wide waste reduction related programs undertaken by StopWaste and other County agencies. StopWaste (the Agency) comprises both the Alameda County Source Reduction and Recycling Board and the Alameda County Waste Management Authority. As such, it is vested in a wide range of responsibilities, including administering financial disbursements to member agencies as required under Measure D.[12] The Agency operates one of the most comprehensive local government programs in the nation.

After a broad stakeholder engagement effort, StopWaste finalized its Strategic Workplan 2020 in July of 2010. This Workplan organized StopWaste activities into three program groups: Discards Management; Product Decisions and Communications; and Administration and Planning (CAP), and reinforced the broad sustainability orientation that the Agency has long pursued through its waste-related programs. The Workplan also reaffirmed the long-range goal of achieving maximum feasible waste reduction, and introduced a new metric: reducing the portion of readily recyclable or compostable materials in the disposal stream to no more than 10 percent by 2020. Following is a brief description of County-wide programs organized around the three StopWaste program groups. Activities of other County agencies and departments are referenced within these three broad categories as well.

4.1 Product Decisions

Activities in the Product Decisions group aim to influence "upstream" decisions on materials and products in order to reduce "downstream" impacts of producing products and managing discards. Following are key programs and activities in this group.

Through the ***Public Agency Environmentally Preferable Purchasing (EPP)*** program, StopWaste assists the Alameda County General Services Agency (GSA) and member agencies in developing and implementing EPP, including "buy recycled" efforts. StopWaste EPP project staff and contractors serve as subject matter experts, providing technical assistance and resources such as fact sheets, a website and model language. Thirteen member agencies now have approved EPP policies or resolutions. As of July 2012 with the adoption of a new memorandum of understanding (MOU) between the County of Alameda and StopWaste, County GSA staff will use a portion of the Measure D Recycled Product Purchase Preference (RPPP) program funding received to provide technical assistance to the member agencies .[13]

[12] Funding details are not provided in this report, but are available in the Five-Year Financial and Compliance Audit (Nov. 2012), prepared for StopWaste by Newpoint Group. Available at: http://www.stopwaste.org/docs/final_five_year_financial_and_compliance_audit.pdf.

[13] Memorandum of Understanding between StopWaste and Alameda County GSA, dated 7/1/2012.

The majority of the RPPP funding that County GSA receives is used for labor, but some funds are also used to help offset the cost of purchasing products with recycled content that meet stated guidelines. Through FY 2011-2012, Alameda County GSA had first rights to these funds, and any remaining funding could be applied for by the member agencies for their "buy recycled" efforts. In recent years, disbursements have ranged between $2,800 and $45,000, based on population. Beginning in FY 2011-2012 there have been no disbursements of "leftover" funds. With the new MOU the County is entitled to a 4.25 percent of the Measure D funding, while StopWaste utilizes the remaining 0.75 percent for EPP project administration and resource development.

County GSA efforts have included co-sponsoring regional workshops with the Association of Bay Area Governments (ABAG) and providing input on standards such as the U.S. EPA's Electronic Product Environmental Assessment Tool (EPEAT). Work with the Technical Advisory Committee (TAC) has spurred the development of the Alameda County Public Agencies Green Purchasing Roundtable, focused solely on sustainable purchasing, which meets three to four times a year.

Alameda County General Services Agency (GSA) manages several ***sustainability and purchasing initiatives*** in concert with StopWaste's programs. The Sustainability Program's efforts can be categorized in the following areas:

- Green purchasing initiatives such as:
  - Waste prevention and reduction – GSA continues to work with the Santa Rita Jail in Dublin to divert waste from the landfill. Through their efforts they were able to transition from disposable utensils to reusable ones, resulting in the source reduction of 1.9 million utensils. Tapping StopWaste funding, GSA switched to reusable microfiber cloths to clean County facilities.
  - Specifying recycled content – The County includes recycled content in requests for proposals (RFP's), including janitorial paper products and printing services.
  - Considering environmental factors – GSA incorporates many sustainability aspects in commodity solicitations. In addition to recycled content, they specify low toxicity, energy efficiency, and equal performance in solicited products. These are highlighted on their website as best practices for Alameda cities and others to replicate.
  - Using eco-labels – One of GSA's strategies has been to leverage third party certifications. For example, GSA participated in EPEAT specifications for electronics. For their janitorial cleaning supply RFP, they specified that products must have one of the following third party certification labels: GreenSeal, EcoLogic or EPA's Design for the Environment.
- Waste reduction initiatives such as low waste catering and transition from individual desk side printers to centrally located multifunction devices with duplex and scanning capability. The County transitioned to paperless enrollment and confirmation for employee benefits. The County operates a

property salvage program which provides surplus office furniture and equipment as needed for use in County agencies. The public benefits from this program by purchasing items at very reasonable prices. The recycling program for County buildings encompasses 130 buildings. Materials are collected desk side from office locations and transported to a recycler. Recycling streams include paper, metals, electronic waste, batteries and other hard to recycle materials. Green waste is collected for composting. A successful office organics collection pilot resulted in additional facilities rolling out the program.

- Adoption of LEED certification and Bay Friendly Landscaping practices. The new Castro Valley Library was certified as LEED Gold and the landscape was Bay Friendly rated. The Highland Hospital rebuild, in construction currently, is working towards achieving LEED Silver. The new Ashland Youth Center, completed in March 2013, is applying for the highest LEED rating - Platinum. The Green Building Ordinance for the unincorporated communities passed in June of 2008. The ordinance has been a successful tool in helping to educate those in the building community on green practices. At the beginning of 2012 there were five completed projects and 19 in progress under the green building ordinance. As a Bay Friendly Landscaping project, the Harbor Bay parking lot received a turf reduction make-over. In terms of staffing, all eleven GSA gardeners are now certified under BFL Maintenance and a dozen additional staff from several departments are certified under BFL Design.
- Adoption of a Climate Action Plan in June 2011. Priorities include: green purchasing, waste prevention and reduction, green building and landscaping, among other things. Six cross-agency climate initiative teams have been formed to implement specific initiatives that touch all County departments and employees, including: paper waste reduction, transition to electronic records and services, green IT, alternative work arrangements, commuter benefits and clean commute and business travel alternatives.

StopWaste has developed eight ***Product Decision Targets and Sustainability Filters*** and a goal of using them to track and ultimately influence county-wide purchasing decisions in eight target product categories (not all yet determined) by 2020. Sustainability filters are tools for evaluating products against established standards, similar to the US Green Building Council's LEED Certification program. The product targets include quantitative goals developed by focusing on a key question for each of the Agency's four classifications of waste reduction:

- Waste Prevention – When is waste prevention economically better than other management options?
- Household Hazardous Waste – How can we minimize the very high end-of-life financial burden of HHW management?
- Recycled Content – What development of the market for recycled content products will help to control the net costs of recycling?
- Hard-to-Recycle – What can or should we do about those products that are too costly or technically difficult to recycle?

In 2012 work on establishing baselines for three targets began: Waste Prevention/Reusable Transport Packaging; Bulk Purchasing of Recycled Content Compost and Bulk Purchase of Recycled Content Mulch. Additionally, a Request for Qualifications was used to pre-qualify consultants to support this effort.

The ***Use Reusables*** campaign is a joint project of StopWaste and the trade association the Reusable Packaging Association, with support from the U.S. EPA through a Climate Showcase Communities grant. The campaign provides free educational resources, training workshops and expert advice to help organizations transition away from limited-use transport packaging to reusable transport packaging such as durable pallets, totes and reusable pallet wrap. Launched in Alameda County in 2007, the campaign expanded to the San Francisco Bay region in 2009, and is currently further extending its reach to a national audience.

The Agency has adopted ***waste prevention and packaging targets*** aimed at increasing business waste prevention activities This effort focuses on identifying best practices and developing marketing strategies. Focus areas include food scraps prevention, bio-based packaging, utilizing a life-cycle approach for commercial packaging material decisions, and labeling packaging to improve recycling participation among consumers. Sustainable Packaging Coalition participation provides connections with packaging designers and specifiers. Under this initiative StopWaste also contributed to the EPEAT criteria for electronics packaging.

The Alameda County Waste Management Authority Board adopted the ***Single Use Bag Ordinance*** in March of 2012. Prior to the ordinance, Alameda County's baseline was approximately 763 million plastic bags and 104 million paper bags annually. StopWaste produced and certified the single use bag environmental impact report and drafted the ordinance language. The Agency collaborated with Save the Bay, Californians Against Waste, the California Grocers Association, Chambers of Commerce and the Alameda County Stormwater Program to support the ordinance. As of January 1, 2013, the Reusable Bag Ordinance prohibits distribution of single-use carryout bags at certain retail stores throughout Alameda County and allows for ordinance-compliant reusable bags or bags made of recycled-content paper to be provided at checkout, only if the store charges a minimum price of 10 cents per bag. Outreach efforts continue with identification and tracking of the 1,500 affected retailers and the development of outreach materials, website and media work.

The ***Product Decisions Student Action Project*** provides project-based learning curriculum and teacher training to 5th and 6th grade classrooms. Teachers register for action projects that address Product Decision Targets regarding HHW, compost, mulch or single-use bags/litter. Students conduct environmental audits, design and implement action projects, and communicate results to their families and community through events, workdays and outreach activities. Through the Product Decisions Project, an estimated 825 5th grade students and 21 teachers learned about Alameda County's watersheds, conducted litter audits at home and school, and identified ways to take action to reduce litter-prone products through Product Decision outreach projects in 2011. In addition, 3,300 students were indirectly served through school-wide action project initiatives including posters, infrastructure support, brochures, flyers, newsletters, and buddy book readings.

The ***Bay-Friendly Landscaping and Gardening Program*** is a whole systems approach to sustainable landscaping that recognizes that waste and pollution are an outcome of a system out of balance and that returning organic matter to the soil, sourced from urban plant debris is an important opportunity to help protect the watershed as well as conserve landfill space. The Bay-Friendly program is divided into three audience targets: residential, landscaping professionals, and public agencies. Two Bay-Friendly priorities are to reduce waste through better plant choice and spacing, and increase demand for compost and mulch sourced from local urban materials. Adding compost and mulch have significant benefits to the watershed including increasing the soil's water holding capacity, preventing erosion, suppressing weeds, breaking down pollutants, improving plant health, and reducing greenhouse gases by sequestering carbon in the soil.

In collaboration with Alameda County water agencies, and with state funding under Proposition 84, StopWaste launched a "Lose Your Lawn the Bay-Friendly Way" series of talks at local nurseries, focused on using sheet mulch with recycled mulch, compost and cardboard to remove lawns as well as online how-to-slide shows, model designs and sheet mulch packages available for purchase at local partner nurseries. Private and public sector landscape professionals can become Bay-Friendly Qualified professionals through taking a 24 hour training and passing an exam. There are nearly 500 Bay-Friendly Qualified professionals in Alameda County, 120 of which are public sector employees.

For member agencies that are developing new civic landscapes there is technical assistance and incentive funds for the projects to become Bay-Friendly Rated landscapes. Nearly 60 projects, or 215 acres, are Bay-Friendly Rated in Alameda County, resulting in an estimated purchase of 15,000 tons of recycled compost and mulch. All member agencies have adopted ordinances that require that new civic landscapes over a certain threshold meet the Bay-Friendly landscape standard. In addition, 11 member agencies out of 15 eligible have adopted the Bay-Friendly Basics ordinance for all permitted landscapes. The Bay-Friendly Landscaping and Gardening Coalition is an independent non-profit that has taken the StopWaste-developed Bay-Friendly tools outside of Alameda County to a regional level and is now coordinating the classes for the Bay Area. As BFC has matured, it has taken on more responsibility for the various programs, moving toward the Agency's Strategic Plan milestone of creating an independent Bay-Friendly Coalition.

The Agency's ***Green Building Market Development Project*** aims to promote improved residential, commercial and civic buildings by working with member agencies and local non-profits, with a target of 90 percent of permitted projects going through green building filters. StopWaste helped to launch *Build It Green*, an independent non-profit organization promoting green building, and its *GreenPoint Rated* system, a seal that verifies a home has been built or remodeled according to green standards. StopWaste continues to sponsor green building trainings on multi-family and single-family residential, as well as working with local non-profit organizations to build capacity to provide these trainings.

StopWaste is working on a separate governance structure to serve as a conduit for receiving energy-related funding and implementing sustainable energy initiatives. The

Agency is encouraging the 15 member agencies that have land use authority under state law to sign an ***Energy Council Joint Powers Agreement***. As of April 2013 the cities of Albany, Berkeley, Emeryville, Fremont, Hayward, Newark, Piedmont, San Leandro, Union City, and the County of Alameda have joined the Energy Council[14] [15]. A city (or County) within or outside of Alameda County may become a member of the Energy Council if approved by an affirmative vote of the Energy Council Board.

StopWaste is leading ***Energy Upgrade California*** efforts in Alameda County in collaboration with the Association of Bay Area Governments (ABAG). This is an energy-efficiency initiative for existing buildings, funded by the California Energy Commission and the US Department of Energy. Pillars of the program include retrofit standards and specifications, consumer outreach, and training/education for energy efficiency. Workshops and trainings were held in conjunction with both PG&E and Alameda Municipal Power. This program includes technical assistance for multi-family energy upgrades. Through the end of 2012 the program enrolled approximately 4,000 multi-family units, and of those, approximately 200 units have completed an upgrade, with another 850 units under construction.

For single family homes StopWaste is administering in Alameda County the ***Energize for the Prize Program***, a community-based social marketing pilot deployed in K-12 schools, and funded through a US Department of Energy's Better Building program grant. The Agency conducted a targeted community outreach campaign to encourage participation in the ***Energy Upgrade California Single Family Rebate*** program by incentivizing local school organizations. Outreach included school-based activities hosting Energy Upgrade workshops and open houses in collaboration with local contractors and neighborhood canvassing. Also funded by the Better Building grant, the ***Green Labeling Program*** provides rebates for obtaining green certifications for single family and multi-family homes, and increasing awareness in the real estate industry of benefits of attaining a green label for your property. For a "Retail Channel" pilot, StopWaste partnered with Lowe's Home Improvement to promote energy upgrades to single family homeowners and contractors already engaged in home improvement projects. The Agency launched a rebate program for small commercial facilities to utilize recycled and reused materials for renovations. The program offers technical assistance and reimbursement rebates to provide incentives for smaller businesses to employ salvage or recycled-content building materials.

4.2 Discards Management

Discards management activities are focused on efficiently reusing, recycling or composting products and packaging at the end of their useful life. County-wide programs include the following:

StopWaste ***coordinates student tours at the Davis Street and Fremont BLT transfer stations***. In 2011, 230 tours were conducted reaching 8,000 students and 1,600 adults.

[14] Email correspondence from Wendy Sommer and Tom Padia (StopWaste) to Maia Coladonato.

[15] The City of Alameda has stated their intention to join the Energy Council, but have not gotten City Council approval due to scheduling challenges.

The Agency provides a project-based learning curriculum and teacher training for 5th grade classrooms with the ***4Rs Student Action Project***. The idea is to engage students in addressing real environmental issues at their school and in their community by putting the 4Rs (Reduce, Reuse, Recycle, Rot/Compost) into practice. An estimated 1,565 5th grade students and 52 teachers learned about Alameda County's wastesheds and foodsheds, conducting waste audits at home and school, and identifying ways to reduce waste through discard management decisions at home and school. In addition, 3,700 students were indirectly served through school-wide action project discard initiatives including posters, infrastructure support, brochures, flyers, newsletters and buddy book readings. The goal for FY 2012/13 is to provide up to 50-classroom projects and align a portion of the mini grant funding to support community-based discard action projects. Also, the organization plans to develop a case study library and multi-lingual resources for marketing, website development, and distribution to community groups.

Green Star Activities are funded through a $867,000 Cool Climate grant from the Metropolitan Transportation Commission. This is a collaborative effort with San Jose, San Mateo County, and Sonoma county which uses a web tool to tracks student and teacher sustainability actions related to waste and recycling, transportation, energy, water, green waste and food scraps, and indoor air quality and toxics.

The Alameda County Office of Education coordinates a ***Service Learning Waste Reduction Project*** that supports middle and high school service learning waste reduction projects. In 2011, teams were established at 32 middle and high schools. School groups set up and populated content for StopWaste's school webpage. During that year, the county conducted fall and spring student leadership conferences.

StopWaste's ***revolving loan fund*** was founded in 1994, and assists small and medium sized businesses to expand activities that divert waste from Alameda County landfills. Forty-nine loans have been approved between 1996-2009 totaling $6.5 million, and creating 216 jobs. Currently, $2.17 million is available for lending as the fund continued to accumulate since 2010 without any new loans being disbursed. In 2011, the Board received seven loan inquiries but no were awarded as applicants were not eligible under adopted loan guidelines. Loans potentially are available to businesses in Alameda County or contiguous counties of Contra Costa, San Francisco, Santa Clara, San Mateo, San Joaquin or Stanislaus. In early 2013 the board secured new underwriting and loan review services and has made substantial changes to the loan guidelines to be more competitive with the lending community and is once again actively reaching out to businesses that can contribute to achieving the Agency's 2020 diversion target.

StopWaste's Discard Management Grant Program provides ***funding to qualified organizations to implement programs*** with diversion impacts in Alameda County. Program offerings include mini-grants up to $5,000 available to all types of businesses, non-profits, and schools for projects incorporating the 4Rs (Reduce, Reuse, Recycle and Rot). Competitive grants are available only to nonprofits and typically range from $25,000 to $60,000. Competitive grants can be higher than $60,000 but these larger awards need to have higher diversion impacts.

The goal of the ***Ready, Set, Recycle Contest*** is to use recognition and incentives to improve residential recycling participation, capture rates and reduction in contamination in support of the agency's 2020 waste diversion goal of having no more than 10 percent readily recyclable and compostable materials in the trash. Phase 1 of the Ready, Set, Recycle Contest was conducted in Dublin and Fremont in June and July of 2010, and the program has now been rolled out County-Wide. Under the program, field crews conduct random single-family residential garbage cart audits throughout the county. Each cart's contents are separated into three material groups: recyclables, compostables and trash. Then, each material group is weighed. The criteria for contest winners are residences demonstrating that they currently meet the 2020 waste diversion goal by having less than 10 percent readily recyclable and compostable materials in their trash carts. Nine hundred residential cart sorts and nearly 5,000 commercial lid flips were conducted during 2011 Ready, Set, Recycle Contest. The results indicate that cart size is not a good indicator of recycling performance as the percentage of recyclables and compostables in the trash carts does not decline much when cart sizes are smaller. The percentage of recyclables and compostables in even the smallest carts (about 39 percent) was far higher than the 2020 objective of 10 percent or less. It's too early to tell if the data indicates a decline in the percentage of readily recyclable materials and compostables found in residential trash carts since there is only one full year of data collected.

The Alameda County Waste Management Authority enacted a ***Mandatory Recycling Ordinance*** (Ordinance 2012-1) that went into effect on July 1, 2012. StopWaste developed the Ordinance jointly with its member agencies, and included an "opt out" provision. Member agencies who elected to opt-out of the first phase of the Ordinance include the cities of Dublin and Pleasanton, the Castro Valley Sanitary District and Oro Loma Sanitary District (for the portion of the unincorporated county that is within the boundaries of the Oro Loma Sanitary District). Pleasanton subsequently reversed their initial decision to opt-out and in October 2012 voted to join the member agencies covered under the ordinance. All other areas of the County are covered under the Ordinance. Alameda County's Ordinance takes California's mandatory commercial and multi-family recycling statute, AB 341, a step further by specifying materials that must be recycled and requiring generators to procure services sufficient to handle the recyclables they generate. The Ordinance requires that paper, cardboard, recyclable food and beverage glass containers, metal food and beverage cans (aluminum and steel), HDPE (#2) and PET (#1) plastic bottles be recycled. The Ordinance affects owners and managers of multi-family residential properties with five or more units, commercial property owners and managers of businesses (including non-profits, government entities, hospitals and religious centers) generating four or more cubic yards of solid waste per week, and regulated haulers. Under Phase II of the Ordinance, as of July 1, 2014, food scraps and compostable paper are also covered, and all commercial accounts are included, regardless of service level. Member agencies will have the ability to opt-out or postpone Phase II, even if they are covered under Phase I.

The Ordinance requires that collection containers be provided onsite to separate covered materials from refuse, along with clear instructions to employees, contractors and tenants about how to use the services. Building owners, third-party property

managers and solid waste account holders are all responsible for compliance with the above requirements. The Ordinance also extends to self-haulers, transfer stations and landfills located in Alameda County. Self-haulers are restricted from depositing readily recyclable materials generated from within Alameda County at landfills that are also located in Alameda County. The landfill or transfer station is required to impose a tipping fee that is 10 percent more than the regular fee if a self-hauler deposits a load of refuse containing readily recyclable material unless the load is destined to be processed through a high-diversion mixed waste processing facility or "dirty MRF." Owners and operators at landfills and transfer stations in Alameda County must provide quarterly reports to the Agency that list the dates and volumes or weights of every load of solid waste containing covered materials charged the 10 percent surcharge.

The Agency implemented the first phase of the Mandatory Recycling Ordinance by working with member agencies and haulers to notify approximately 4,500 affected businesses as well as providing technical assistance to these businesses, coordinating outreach efforts, and initiating enforcement protocol. Additionally, owners and managers of approximately 7,000 multi-family buildings were notified. The Agency also developed the RecyclingRulesAC.org website for the public to access information on various waste management ordinances. Since June 2012, the site has had nearly 15,000 page views and nearly 4,000 visits from over 2,300 unique visitors. In addition to being a tool for information gathering, the RecyclingRulesAC.org website provides multi-family tenants the ability to report Ordinance compliance violations that they observe at their building.

StopWaste plans to focus ***enforcement activities*** on outreach and education about the covered materials as opposed to fines and penalties. Notices of Violation (official notification of ordinance requirements – not a citation) will not be issued until January 1, 2013. Second violations will result in a formal warning and additional offers of technical assistance. Third violations may result in citations. The responsibility of complying with the Ordinance lies with owners/ managers of businesses and multi-family properties. Notices of Violation will not be issued to, nor will any fines or penalties be imposed on, individual employees of a business or residents of multi-family buildings. The Ordinance also specifies that Notices of Violation cannot be issued by the Authority to waste generators, property owners, or regulated haulers in any covered member agency's jurisdiction without written approval of a Primary Enforcement Representative for that member agency. ACWMA has inspectors with lists of routes and pick-up days for visiting commercial businesses and multi-family buildings. It is the inspector's job to inspect trash and recycling containers. They look to see if there are covered materials in the trash and vice versa. .

The Agency's ***Construction and Demolition Debris Recycling Program*** offers member agencies and businesses in the construction industry support and technical assistance in diverting C&D debris from landfill while supporting the California Building Standards Code (2011 California Code of Regulations, Title 24, Part 11). The Agency did not adopt a County-wide C&D ordinance, since it makes the most sense for such ordinances to be adopted by the jurisdiction issuing the building or

demolition permit and StopWaste does not possess land-use powers, although a model ordinance was developed for City use.

The Agency offers ***C&D recycling technical assistance*** to member agencies and contractors by providing them free access to *Green Halo*; a web based C&D planning and tracking tool. In 2011, eight Alameda cities tracked waste management plans through *Green Halo* and the cities of Oakland and Pleasanton require it. The Agency also hosts a C&D working group with member agencies. Additionally, the Agency conducts outreach to the construction industry to increase jobsite recycling and deconstruction activities and works with the building material reuse industry to promote reuse. Other resources maintained by the Agency include a database of C&D recycling facilities as well as diversion estimates for mixed C&D recycling facilities that member agencies and businesses can use.

To leverage funds and prevent duplication, StopWaste facilitates a ***County-Wide Media Campaign for Used Oil Recycling***. All member agencies participate in a working group and contribute funding to the campaign when they receive block grants from CalRecycle. The Alameda County campaign is also coordinated with San Francisco and Contra Costa County to reinforce consistent messaging regionally. StopWaste is not a financial contributor to the campaign. Currently, 14 out of the 16 member agencies offer used oil and filters collections through their weekly services. In addition, several cities also collect used motor oil and filters from multifamily complexes.

The ***Household Hazardous Waste (HHW) Facilities Program*** provides free drop off centers for Alameda County residents to dispose of household hazardous waste, including used oil. These HHW facilities also accept home generated sharps with the requirement that all sharps must be placed in sharps containers available at most chain pharmacies and drugstore. The HHW program also offers disposal services for small businesses within Alameda County that qualify as "small quantity generators." HHW also supports a voluntary retail and municipal site take back program; the collected materials are transported by the participants back to HHW for disposal. There are four HHW facilities located throughout Alameda County: Oakland, Fremont, Hayward, and Livermore that service over 45,000 households and businesses with 1,425 tons of household hazardous materials collected in 2011. The Fremont facility is operated by BLT Enterprises under an agreement with the City of Fremont and receives partial subsidy from the County-wide HHW Fee levied by StopWaste. The Oakland, Hayward and Livermore facilities are owned and operated by the Alameda County Environmental Health Department and are fully funded by the HHW Fee. The Alameda County Household Hazardous Waste Program is operated as a partnership between the Alameda County Department of Environmental Health and StopWaste. The Agency assists with outreach to underserved areas and promotion via mailers.

With funding from PG&E, StopWaste administers a pilot ***Fluorescent Lamp Collection Program*** that serves as a model for the PG&E territory. Residential fluorescent lamps offer one of the most cost-effective methods to decrease energy use and greenhouse gas emissions, but since 2006 it has been illegal in California to dispose of them in landfills due to mercury concerns. To solve this problem, Pacific Gas & Electric Company (PG&E) collaborated with StopWaste to implement the

program by creating take-back collection points at local retailers. For this campaign, StopWaste created county-specific and regional marketing and outreach templates that can be used freely by any local government in PG&E's territory. Additionally, the Agency recruited 14 retail stores to participate as take-back locations. All lamps collected are handled by the Alameda County HHW facilities. By the end of 2012 the program had collected 96,063 CFLs and linear tubes.

StopWaste manages and monitors a five-year incentive agreement with Waste Management of Alameda County's ***Davis Street MRF*** that provides a monetary reward for new diversion of solid waste generated in Alameda County . The current incentive agreement began in April 2009 and extends to March 2014. The first five-year agreement began in Summer 2002 and ended in August 2007. In that time, the Davis Street MRF averaged 31,000 tons per year of eligible diverted materials. The recovery rate without ADC averaged between 40-50 percent with approximately 75 percent of the incoming materials classified as C&D. Program guidelines offered "pay for performance" incentives to facility operators with no upfront funding. The goal of the current Davis Street MRF agreement is to divert, maintain and surpass 30,000 tons per year from landfill. There is no payment on the first 15,000 tons of eligible diverted materials. The quantities are measured on a quarterly basis so there is no payment for the first 3,750 tons per quarter diverted. After the first 3,750 tons are diverted, the Authority pays $15/ton until the 30,000 tons per year target is reached. Then, the Authority pays $20/ton until the 43,750 tons per year target is reached. The maximum annual payment in a single 12 month period is $500,000.

The Agency also negotiated agreements with in-county landfill operators to incentivize increased recycling. Currently, Republic Services, Inc. and Waste Management of Alameda County, Inc. are the two landfill operators who signed ***cooperative fee implementation and diversion agreements*** with the Alameda County Waste Management Authority.

In 2009, the Alameda County Waste Management Authority passed a ***Plant Debris Landfill Ban***. Plant debris includes grass, leaves, shrubbery, vines and tree branches, and must be separated from trash and deposited in a designated "organics" cart or collection bin or the disposal facility's designated "clean green" area. The ban applies to any person or organization generating significant amounts of plant debris that hauls the material to Alameda County disposal facilities or places the material in bins for collection, including residential landscapers and gardeners, commercial landscapers and gardeners, commercial and residential property managers, municipalities and institutions (e.g., colleges, hospitals), and commercial customers subscribing to 4 cubic yards or more of weekly solid waste collection service.

Prior to the ban, approximately 60,000 tons per year of plant debris were used as Alternative Daily Cover (ADC). In 2008, there were 68,000 tons of plant debris reported going to Alameda County landfill, not including ADC. Since the ordinance was enacted in 2009, disposal in landfills and use of plant debris as ADC has been banned altogether. Enforcement began January 1, 2010 at generator locations and at transfer stations and landfills. Landscapers and other self-haulers that fail to separate significant quantities of plant debris from their loads of solid waste are fined a

50 percent surcharge on their dump fee or could be issued a $100 citation for their first violation. Three or more violations within a year could result in a $500 citation.

Alameda County school districts that commit to district-wide recycling receive a comprehensive program of hands-on technical assistance and educational resources. The ***iRecycle@school*** program focuses on education and outreach by providing knowledge and access to the 4Rs; Reduce, Reuse, Recycle, and Rot. To qualify for the iRecycle@school program, school districts must commit to waste reduction, work toward placing a recycling bin in every classroom, train staff to support school recycling programs, and measure their progress in reducing waste. The following Unified School Districts committed to waste reduction and participated in iRecycle@school during the 2010/11 school year: Alameda, Albany, Berkeley, Castro Valley, Dublin, Emery, Fremont, Hayward, Livermore, New Haven, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and San Lorenzo. Schools in Alameda County generate approximately 4 percent of the waste sent to landfills annually.

The ***StopWaste Partnership*** (SWP) is a branded waste minimization program led by StopWaste. The program offers businesses and institutions throughout Alameda County technical assistance to help increase efficiency and protect the environment through recycling and waste prevention. The Partnership provides facility site visits to tailor recommendation to participating business' needs.

In light of mandatory recycling for the commercial sector, SWP has expanded the types of targeted businesses. In 2011, SWP provided the full range of assistance to commercial accounts with 10 or more cubic yards per week of garbage collection, while also providing a limited amount of assistance to businesses generating four to nine cubic yards per week of garbage. Beginning in 2012, the program began providing assistance to any businesses with four or more cubic yards per week of garbage collection, commercial accounts that need assistance to set up and/or expand their recycling program to help them comply with the Mandatory Recycling Ordinance. SWP is prioritizing accounts that do not have any existing recycling service or less than 25 percent recycling by volume when compared to total weekly service. In 2011 Mini Grants (discussed above) were offered to businesses looking to increase recycling, organics collection or waste prevention. Now with commercial recycling mandated, mini-grants are only for setting up or increasing organics diversion programs at facilities. SWP serves approximately 450 businesses and institutions in Alameda County. The program has recognized leaders in waste reduction by hosting an annual event in conjunction with the East Bay Economic Development Alliance and promoted the winners via a customad campaign.

StopWaste is an active member of the ***California Product Stewardship Council*** and the national ***Product Stewardship Institute***. Through these affiliations, the Agency advocates for extended producer responsibility and other policies on a case-by-case basis.

In July 2012, the Alameda County Board of Supervisors unanimously passed the Alameda County ***Safe Drug Disposal Ordinance***, requiring pharmaceutical manufacturers to create and fund a program to collect and properly dispose of expired or leftover drugs they manufacture. This, the nation's first pharmaceutical take back

ordinance, requires pharmaceutical companies that sell drugs in Alameda County to pay for the disposal of their products or face fines of up to $1,000 a day. Affected pharmaceutical companies can design their own take-back program or collaborate with others. Proposals need to be submitted to the County by July 2013 for approval. This ordinance marks a milestone for producer responsibility as it is only the second locally adopted producer responsibility ordinance in the country, following New York City's E-Waste Ordinance. Alameda County residents currently can drop off their old medications at 28 drop-off locations, including the Oakland, Hayward, or Livermore household hazardous waste facilities. Controlled substances are not accepted at any location other than the Alameda County Sheriff's Office.

4.3 Communications, Administration, Planning

Communications, Administration and Planning is a broad grouping for a number of Agency activities and programs, as described below.

California State Law, AB 939, requires all California counties to have a ***Countywide Integrated Waste Management Plan*** (CoIWMP), and Alameda County's CoIWMP is governed by the Alameda Waste Management Authority. The CoIWMP is used as the guiding document for achieving the Agency's waste management goals and addressing the challenges that arise over time. It is a living document in the sense that it can be amended in response to challenges or emerging legislation that alters present practices. Private industry and other entities can propose amendments as needed for new or expanded/modified solid waste facilities. Amendment applications are processed by the Authority and nearly every year an amendment is made to the existing CoIWMP. CalRecycle requires a review of each CoIWMP every five years, which may or may not result in amendments.

Over many years, StopWaste has conducted ***research and development aimed at siting a composting facility*** or other expanded organics processing capacity in Alameda County. The project team has assessed in-county, under-roof composting options, with or without anaerobic digestion, and held an Urban Metabolism Workshop focused on sustainable organics management in Alameda County. However, to date these efforts have not resulted in any new in-county facilities, and the County relies on out-of-county processing for organics collected through member agency programs. The Agency is also seeking to secure other new, long-term, low-cost, high-quality, high-volume processing facilities and services in Alameda County to provide sufficient assured capacity to meet the 75 percent diversion goal.

StopWaste managed a ***Franchise Task Force*** to explore the potential for standardized or "best practices" provisions in franchise agreements in the County.

StopWaste ***tracks disposal reporting*** on a regular basis. The agency monitors, analyzes and reports on amounts of the materials being landfilled, or used as ADC or other Beneficial Reuse at landfills in the County or at landfills outside the County for materials generated by member agencies. This information is needed to verify that the Authority receives full fee payments on solid waste loads being landfilled, and is also

crucial for meeting state reporting requirements and for tracking progress towards diversion targets.

The Agency established a project team to ***investigate the feasibility of implementing local Advanced Disposal Fees*** (ADFs) on difficult-to-recycle and/or manage products such as Household Hazardous Waste (HHW). California's Proposition 26, which heightens requirements for adopting new fees, has complicated the effort. The Agency is evaluating a wide range of possible ADF approaches, along with other funding options, and is currently scheduled to make recommendations to their Board in 2013. The products under consideration include paint, fertilizers, pesticides, batteries, solvents, CFLs and aerosols.

StopWaste has a ***Communication and Outreach Team*** that provides oversight, recommendation and continual improvement of external communications. This team is responsible for public relations, advertising and multi-media communications contributing to the effectiveness of the Agency's implementation of new programs and ordinances. More recently this team found Twitter® and Facebook® to be the top social media platforms most beneficial for expanding audiences especially for the Ready, Set, Recycle Contest.

The ***Legislation Project Team*** promotes Agency priorities at the state level by engaging in legislative and regulatory processes. In 2011, they helped pass Agency sponsored AB 255 (increased latex paint volume at HHW drop-off), and opposed legislation unfavorable to Agency goals. The team continually monitors and analyzes changes in legislation.

(BayROC) which is a collaboration of 40+ Bay Area cities, counties and other public agencies. The Coalition coordinates various media campaigns to promote personal action and behavior change related to waste reduction and product purchasing decisions. In 2011, the Coalition supported the media effort promoting the reusable bag campaign titled, "Bring Your Own Bag." The BayROC Working Committee meets monthly to develop public outreach programs, review creative messaging, edit press releases and discuss media buys.

The StopWaste ***website*** compiles and conveys information for all the recycling and sustainability programs offered by the Agency. Residents, businesses, schools, and local governments can find useful information such as the recycling guide to assist them in proper disposal of their materials. In addition, grant funding and loan programs can also be found at StopWaste. Businesses are able to apply for these funding opportunities to help kick start their sustainability and recycling programs.

Through its ***Camp Arroyo Scholarship Program***, StopWaste offers teachers an opportunity to apply to a three-day, two-night environmental education retreat at YMCA's Camp Arroyo. Due to funding priorities the scholarship program was discontinued in fiscal year 2012-2013. .

StopWaste closely tracks climate change issues and opportunities, and is developing a new ***County Greenhouse Gas Inventory***. Most member agencies have already developed a baseline inventory using the ICLEI model, and are planning to participate in the new inventory effort.

Section 5
FINDINGS FROM JURISDICTIONS OUTSIDE ALAMEDA COUNTY

This section describes findings and implications based on analysis of 13 case studies of community recycling programs outside of Alameda County. The purpose of this research was to place local program performance in a larger context and to profile experience and results in jurisdictions with every-other-week garbage collection, which is one potential tool that local jurisdictions may wish to evaluate as a way to drive higher diversion and realize certain efficiencies. For each selected jurisdiction, SERA researchers conducted in-depth interviews with program staff and reviewed available written information on the Internet and in published documents.

Section 5.1 first summarizes the rationale for selecting the jurisdictions, along with a high level overview of their key characteristics. Then, Section 5.2 presents findings from six jurisdictions that have reduced garbage collection frequency (usually every-other-week garbage collection, termed EOW in this report), and Section 5.3 presents findings from seven demographically comparable jurisdictions with advanced programs. Section 5.4 then analyzes factors influencing diversion rates, based on all thirteen case studies. Detailed profiles for each of the thirteen selected jurisdictions are provided in Appendices B and C.

In addition, Section 5.5 describes StopWaste's new goal of reducing the portion of readily divertible materials in the disposal stream to 10 percent or less by 2020, and compares progress to date with nine other jurisdictions for which data were available, some of which were also included among the 13 case studies described in Sections 5.1 through 5.4.

5.1 Overview of Selected Jurisdictions

Selection Rationale

The 16 StopWaste member agencies (not including the county itself) were combined into five groups to allow SERA to identify jurisdictions with comparable characteristics, based on:

- **Demographics:** Population, median income and housing value, population density, percent in multi-family dwellings, and business density;
- **Geography:** Location within the county, including its associated climate and vegetation characteristics;
- **Hauler arrangements and diversion rates;** and
- **Other data:** Project staff and StopWaste staff familiar with the communities provided input on other observed community characteristics.

The five groups and the Alameda County constituent jurisdictions are displayed in Table 14 below.

Table 14: Alameda County Member Agency Groups (2011)

Member Agency	Pop (1,000)	Med. Inc. ($1,000)	Med. Home Value ($1,000)	MF (%)	Pop/ Firms*	Pop./ Sq. Mile (1,000)	Cal Recycle Diversion Rate (%)
Group 1: Large Urban							
Oakland	391	$50	$529	52	9.9	7.0	65
Fremont	214	$96	$642	27	11.1	2.8	73
Hayward	144	$61	$434	34	14.0	3.2	71
Group 2: Middle Size - East County							
Livermore	81	$94	$592	19	10.9	3.2	74
Pleasanton	70	$115	$778	24	8.5	2.9	73
Dublin	46	$108	$653	33	10.0	3.1	73
Group 3: Middle Size - West County							
San Leandro	50*	$63	$493	31	13.6	6.4	77
Alameda	74	$74	$662	47	10.4	7.0	72
Union City	70	$84	$569	17	14.4	3.6	75
Newark	43	$81	$552	19	13.8	3.1	72
Castro Valley Sanitary District	55	N/A	N/A	N/A	N/A	5.5	70
Oro Loma Sanitary District	126	N/A	N/A	33	N/A	9.7	70
Group 4: Small Urban							
Albany	19	72	625	42	8.0	10.4	79
Emeryville	11	61	437	87	5.5	8.9	65
Group 5: Unique							
Berkeley	113	59	731	53	7.0	10.7	74
Piedmont	11	170	1000	4	7.3	6.4	69

Table 14 Notes

Pop/Firm was calculated by using 2010 population divided by latest number of firms provided (which was 2007). Data from Census Quick Facts (http://quickfacts.census.gov/qfd/states/06000.html).

Thirteen jurisdictions were selected from SERA's database of solid waste and diversion information from over 1,000 communities in North America. The jurisdictions were chosen based on consideration of several factors, including:

- **Demographics:** Population, median income and housing value, population density, percent in multi-family, and business density;
- **Collection frequency:** Six jurisdictions with every-other-week trash collection were targeted;

- **High diversion/innovative programs:** Jurisdictions with successful diversion programs in all sectors were given preferential consideration;
- **Geography:** Areas close to ports or major markets for the sale of commodities, especially the West Coast, were considered so as to provide comparable markets context for exported recycled materials (e.g. fibers, plastics, metals);
- **Data availability:** Data on tons collected, disposed, diverted and information on the program impacts; and
- **Unique characteristics:** Include the presence of universities, dense urban cores, non-profit recyclers, and other characteristics that make the jurisdictions highly comparable to Alameda County jurisdictions.
- **Every-other-week collection:** In addition to the above considerations, six of the jurisdictions were selected because they have EOW garbage collection. The 13 selected jurisdictions are listed and described in Table 15, grouped using the same demographic categories used to group Alameda County jurisdictions in Table 14 above.

Table 15: Jurisdictions Selected for Analysis (Start dates from 1998 to 2012)

Every-Other-Week Jurisdictions		
City	**Group**	**Description**
Vancouver, WA (USA)	[middle size, west] Group 3	Vancouver offers every-other-week and monthly trash collection as a low cost option for low generators; approximately 16 percent of households choose these options.
New Westminster, BC (Canada)	[middle size, west] Group 3	City staff collects residential trash and recycling every other week and organics once a week. The EOW program (the city also switched to single stream recycling at the same time) has helped reduced trash disposal by 25 percent and costs by around 8 percent.
Renton, WA	[middle size, east] Group 2	Through a single hauler, Renton provides every-other-week trash and recycling collections and weekly organics collection. After residential program start-up in 2009, residential recycling increased by 27 percent and residential garbage decreased by 18 percent.
Olympia, WA	[middle size, east] Group 2	Olympia has collected garbage and recycling on alternating weeks for over a decade; organics collection is optional. Although all households have EOW trash collection, only 53 percent of households opt to pay for the organics collection.
Portland, OR	[large, urban] Group 1	Portland adopted every-other-week garbage collection for all residential accounts in October 2012. The program has increased residential diversion from 54 percent to an estimated 70 percent, trash disposal has decreased by about 38 percent.
Markham, Ontario (Canada)	[large, urban] Group 1	The contracted hauler collects garbage on an every other week basis. Food and organics are collected in separate streams and regional product stewardship pay for large portion of recycling costs. The residential diversion rate doubled (from 36 percent to 72 percent) when they switched to every other week collection with organics.
Higher-Performing Comparable Jurisdictions		
City	**Group**	**Description**
Boulder, CO	[unique] Group 5	Boulder is a university community with a self-imposed 'trash tax' to fund solid waste programs. They also represent a strong model of non-profit, for profit, and government cooperation to provide services and facilities.
Santa Barbara, CA	[unique] Group 5	Santa Barbara focuses on the business sector and a recently approved single hauler contract uses incentives and penalties to increase services and diversion rates.
Seattle, WA	[large, urban] Group 1	The City uses contracted haulers to collect weekly garbage, recycling, and organics (including food scraps) in three separate streams for all generators. The City enforces a mandatory source separation requirement with fines and penalties for all sectors.
San Jose, CA	[large, urban] Group 1	The City uses contracted haulers and private processing facilities to reach high multi-family and commercial diversion rates focused on post-collection recovery. This includes commercial wet/dry collection and mixed waste recovery for MFD.
Cambridge, MA	[small, urban] Group 4	Residents have no financial incentive to recycle as all costs for trash, recycling and organics are embedded in property taxes. However, Cambridge is successful through their volunteer and cooperative efforts with residents, businesses and the State.
Vancouver, BC (Canada)	[large, urban] Group 1	City Staff collect recyclables and organics from residential customers. They have successful food scraps and every other week garbage pilot, and are now implementing city wide less than weekly trash collection. Extended producer responsibility programs and landfill disposal bans have played a large role in their success.
Grand Rapids, MI	[large, urban] Group 1	City staff collect residential trash with an innovative pay-as-you-tip scheme. Residents pay based on size of trash container and number of 'tips' or set-outs. Residents must self-manage and pre-pay. City does not invoice residents for solid waste services.

Summary of Profiled Jurisdictions

Table 16 displays demographic data on each of the jurisdictions as well as reported residential and total tons generated, diverted (both recycled and composted) and disposed. The *residential tons* are from-single family generators and are comparable between the cities, while what is included in the *total tonnages* varies significantly by jurisdiction. Some were able to accurately report data from all sectors, while others only have limited access to data from the commercial or multi-family sectors. The final column in Table 16 explains what is included in the *total tonnages*. Four of the jurisdictions (Portland, Oregon; San Jose, California; Markham, Ontario; and New Westminster, British Columbia) report diversion rates of 70 percent or above. It is important to keep in mind that methodologies for calculating diversion rates vary greatly and produce results that are often not comparable between jurisdictions.

Table 17 displays the pounds per person generated, diverted, and disposed based on the reported tonnage data (Table 16) for residential and overall and populations for each jurisdiction. With the exception of Grand Rapids, Michigan, all of the communities were able to report residential data (though Portland did not report residential recycling data). Residential recycling pounds collected per household or per capita is the most standard and comparable metric across jurisdictions[16]. Total disposal tons may or may not include multi-family, commercial, industrial, C&D or self-haul. As discussed above, the "Total pounds per person" data is less consistent but is included in Table 17 as well. The tonnage data (shown in Table 16) was used to calculate a residential, and when possible, overall diversion rate.

[16] Residential disposal tons may or may not include multi-family, small businesses collected on residential routes, bulky waste collections, and residential self-haul.

Table 16: Demographic, Tonnage and Diversion Rate Data as Reported by Selected Jurisdictions[17] (2011)

City	Population	House-holds	Businesses	Area (Sq. Mi.^{2})	Diversion Rate	Residential Tons				Total Tons				
						Total Gen.	Recycle/ Diverted	Compost	Landfill	Total Generated	Recycled/ Diverted	Compost	Landfill	What is Included
Boulder, CO	97,385	43,771	16,766	24.7	59% SFD, 34% commercial, 23% MFD	25,545	8,071	6,237	11,237	139,609	47,629	16,533	75,447	SFD, MFD, Comm'l
Cambridge, MA	105,162	49,913	12,277	6.4	40% residential	31,825	13,278	1,996	16,551	N/A	N/A	N/A	N/A	N/A
Grand Rapids, MI	188,040	81,595	15,528	44.4	64% overall	N/A	N/A	N/A	N/A	96,102	26,558	21,493	48,051	SFD, MFD, Comm'l
San Jose, CA	945,942	313,944	71,553	176.5	71% overall	247,850	97,415	N/A	149,670	N/A	N/A	N/A	N/A	N/A
Santa Barbara, CA	88,410	38,191	14,003	19.5	42% overall (60% residential, 24% MFD, 30% commercial)	30,193	7,270	10,565	12,358	84,207	16,245	16,119	51,843	SFD, MFD Comm'l; (incl. food scraps)
Seattle, WA	608,660	302,465	73,997	83.9	55% total (71% residential, 61% Commercial, 29% MFD)	203,194	60,604	79,813	62,779	527,276	80,541	127,392	319,343	All sectors and drop-offs
Vancouver, BC (Canada)	603,502	253,385	~75,000	44.4	55% SFD, 16% Metro MFD, 46% commercial	120,727	25,111	27,767	67,849	N/A	N/A	141,067	336,248	MFD, Comm'l., food scraps & disposal, & residential SFD curb-side recycling.
Markham, ON (Canada)	301,709	81,181	11,000–12,000	82.1	71% residential (no commercial)	71,744	22,938	27,188	21,618	88,375	24,081	38,705	25,589	SFD, MFD, no comm'l.

[17] Demographics data from US Census Bureau 2010 and Statistics Canada 2007 Community Profiles

City	Population	House-holds	Businesses	Area (Sq. Mi.^{2})	Diversion Rate	Residential Tons				Total Tons				
						Total Gen.	Recycle/ Diverted	Compost	Landfill	Total Generated	Recycled/ Diverted	Compost	Landfill	What is Included
New Westminster, BC (Canada)	65,976	28,670	Un-known	6.0	72% residential	8,731	1,794	3,423	3,514	13,159	3,337	4,765	5,057	SFD. Some comm'l disposal; no MFD Disposal; Includes MF recycling, no and recycling depots, drop-offs
Olympia, WA	46,478	21,729	6,132	17.8	57% SFD (no commercial or MFD)	16,110	4,764	5,049	6,297	27,266	4,904	6,053	38,223	SFD, MFD, Comm'l (Disposal only)
Portland, OR	583,776	262,616	65,465	133.4	70% residential (2012)[18], 69% commercial (2011)	N/A	N/A	85,400	58,300	1,148,771	600,312	163,575	384,884	2011 data so, tonnage totals do not include the EOW impact. Only est. diversion reflects EOW.
Renton, WA	90,927	37,340	6,094	23.1	33% overall (70% residential, 10% MFD, 12% commercial)	22,145	5,427	9,962	6,756	60,320	9,713	9,985	40,622	SFD, MFD, Comm'l
Vancouver, WA	161,791	69,899	13,642	46.5	47% residential	50,415	12,481	11,597	26,400	90,324	14,363	11,597	64,364	SFD, MFD and Comm'l (Disposal only)

[18] The residential diversion rate was reported to SERA during an interview but supporting tonnages reflecting the impacts of the newly adopted every-other-week program were not available for publication.

Table 17: Calculated Pounds per Capita per Year and Calculated Diversion Rate (2011)*

City	Residential Pounds per Person per year				Total Pounds per Person per year				Diversion Rate	
	Total generated	Recycled	Composted	Landfill	Total generated	Recycled	Composted	Landfill	Residential	Total
Boulder, CO	525	166	128	231	2,867	978	340	1,549	56%	46%
Cambridge, MA	605	253	38	315	N/A	N/A	N/A	N/A	48%	N/A
Grand Rapids, MI	N/A	N/A	N/A	N/A	1,022	282	229	511	N/A	50%
San Jose, CA	524	206	2	316	N/A	N/A	N/A	N/A	40%	71% *
Santa Barbara, CA	683	164	239	280	1,905	367	365	1,173	59%	38%
Seattle, WA	668	199	262	206	1,733	265	419	1,049	69%	39%
Vancouver, BC	400	83	92	225	N/A	N/A	467	1,114	44%	N/A%
Markham, ONT	476	152	180	143	586	160	257	170	70%	71%
New Westminster, BC	265	54	104	107	399	101	144	153	60%	62%
Olympia, WA	693	205	217	271	1,173	211	260	1,645	61%	40%
Portland, OR	N/A	N/A	293	200	3,936	2,057	560	1,319	N/A	66%
Renton, WA	487	119	219	149	1,327	214	220	894	69%	33%
Vancouver, WA	623	154	143	326	1,117	178	143	796	48%	29%

*Per Capita calculation: (Total Tons Generated per Year x 2000 lbs per Ton)/Total Population

5.2 Findings from Jurisdictions with Every-Other-Week Garbage Collection

This section summarizes findings from select North American experiences with every-other-week trash collection combined with increased food scraps collection. Detailed case studies of the six selected jurisdictions are provided in Appendix B. A total of six communities with less-than-weekly collection of garbage were researched, as described above. As shown in Table 18, the communities analyzed generated between 265 and 693 pounds per person per year (residential) and the amount composted was between 104 and 293 pounds. New Westminster, BC, the northwest community with the lowest composted amount also boasted the lowest total generated amounts.

Table 18: Pounds per Person per Year for EOW Jurisdictions (2011)*

City	Residential Pounds per Person per year				Total Pounds per Person per year				Diversion Rate	
	Total generated	Recycled	Composted	Landfill	Total generated	Recycled	Composted	Landfill	Residential	Total
Markham, ONT	476	152	180	143	586	160	257	170	70%	71%
New Westminster, BC	265	54	104	107	399	101	144	153	60%	62%
Olympia, WA	693	205	217	271	1,173	211	260	1,645	61%	40%
Portland, OR	N/A	N/A	293	200	3,936	2,057	560	1,319	N/A	66%
Renton, WA	487	119	219	149	1,327	214	220	894	69%	33%
Vancouver, WA	623	154	143	326	1,117	178	143	796	48%	29%
Average	**509**	**137**	**193**	**199**	**1,423**	**487**	**264**	**829**	**62%**	**53%**

*Per Capita calculation: $\frac{\text{Total Tons Generated per Year x 2000 lbs per Ton}}{\text{(Population)}}$

Collection System Services

Table 19 compares the collection systems and services offered. The only city without pay-as-you-throw trash rates is Markham, Ontario (rates are included in property taxes) whose City staff reported they do not want to 'penalize' larger generators. Two of the communities (Portland and Vancouver, WA) collect a modified single-stream in which glass is collected in a separate stream. The majority of communities offer a mini-can (~20-gallon) option for trash service, and one community (Seattle) offers a micro-can (12-gallon). Vancouver, WA provides EOW collection as an option, and only a portion (16 percent) of the households choose it. The communities are split; with half collecting recyclables EOW and half collecting recyclables weekly. Only Olympia and Vancouver collect organics on an every-other-week basis (rather than weekly). None of the EOW communities has open-market haulers for the residential sector.

Table 19: Collection System Services for EOW Jurisdictions (2012)

(●=Yes, ○=No)

City	Residential Services						Collection Frequency			Residential Hauler					Commercial Hauler					Multi-Family Hauler
	Single-Stream	Res. PAYT	Mini-Can Available	Recycling embedded	Organics Embedded	Include food scraps	Trash	Recycling	Organics	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Notes
Markham, ONT	●	○	○	●	●	●	EOW	Weekly	Weekly	●	○	○	○	Same hauler for 43 years	○	○	●	○		Included in res. contract services
New Westminster, BC	●	●	○	●	●	●	EOW	Weekly	Weekly	○	○	○	●		○	○	●	○		Open Market trash, city manages contract for recyc, city collects organics
Olympia, WA	●	●	●	●	○	●	EOW	EOW	EOW	○	○	○	●		○	○	○	●	City collects MSW, open market for recycling	Over 3 units falls under commercial
Portland, OR	○ [19]	●	●	●	●	●	EOW	Weekly	Weekly	○	●	○	○	19 total haulers	○	○	●	○		5 and larger falls under commercial
Renton, WA	●	●	●	●	●	●	EOW	EOW	Weekly	●	○	○	○		●	○	○	○		Single contracted hauler
Vancouver, WA	○	●	●	●	○	○	EOW-optional	EOW	EOW	●	○	○	○		●	○	○	○	Contractor collects MSW, open market for recyclables	Included in residential contract and services

[19] All materials except glass are collected via single stream.

Outreach and Education

Outreach and education plays a large role in all of the communities researched, and Table 20 compares approaches. Although all of the communities have an Internet presence, Portland and Markham have websites that are more interactive than some of their peers. Social media (Twitter, Facebook, etc.) has been used effectively to encourage diversion in New Westminster and Portland, and both jurisdictions, along with Olympia, have used community based social marketing in their outreach efforts. Commercial waste audits are a large part of the outreach program in three of the six jurisdictions, and the majority of jurisdictions have active source reduction efforts in place. Out of the six communities, four of them have staff dedicated to running their outreach programs. One city (Vancouver, WA) requires that their contracted hauler has staff dedicated to outreach, and another (Olympia) shares the outreach duties among all the program staff. Only two of the communities (Olympia and Portland) have recent waste composition studies available; however, Markham, New Westminster, and Vancouver have waste composition studies available at the regional or county level.

Table 20: Outreach and Education Programs for EOW Jurisdictions (2012)

(●=Yes, ○=No)

City	Interactive Website	Social media (twitter, etc.)	CBSM Programs	Commercial Waste Audits	Source Reduction Programs	Dedicated Outreach Staff	Waste Composition Studies	School Collection	School Curriculum	Other
Markham, ONT	●	Limited	○ Planning on CBSM in 2013	○ Region does (not city)	● EPR for 10 products	● 1 FTE	○ Regional only	●	●	Builder must provide recycling info to purchasers of new homes. Strong school programs
New Westminster	○	●	○	○	● EPR for 10 products	○ 1 FTE entire dept.	○ Regional only	●	●	
Olympia, WA	○	○	● Tried for grasscycling- middling success	● ~ 50 per year	● Goal to reduce 5% compared to 2006 baseline	○ 3 staff total, each dedicates portion of time to outreach	●	●	●	Free waste audits, recycling captains, incentives for MF. Milk carton source redux in schools, Commercial - 2 free months' service and free containers
Portland, OR	●	●	● Door to door, business recognition and MF CBSM	● Combined with water, energy, and transportation, also offer to MF	● EOW garbage, "free-cycling' waste redux goals	● 2 FTEs	●	●	●	Door to door outreach, link mailing addresses to occupant (not landlord) for rentals
Renton, WA	○	○	○	○	○ County program for hazardous waste reduction via the "Yellow Book" and junk mail l	● 2 FTEs shared between SW collection and education	○ Last one was 8 yrs ago	○	○	County does education in schools so City doesn't
Vancouver, WA	○	○	● Cart hangers for contamination and good recy.	● City pays County to run, hauler must as part of contract	○ Planned for future	○ County does and hauler does as part of contract	○ County only	●	●	"Recyclingist Neighborhood" to reach neighborhood associations, Resource Conservation Challenge for collection events, strong school programs

Bans and Mandates

Table 21 compares bans and mandates in the selected EOW jurisdictions. With the exception of the two Washington State communities, all of the jurisdictions are in states or provinces with beverage container deposit systems. Local disposal bans were not very common; only Renton and New Westminster reported that they have local disposal bans that are enforced. New Westminster is in British Columbia, a province that already bans the disposal of a large number of materials including conventional recyclables, and plans to ban the disposal of food scraps in 2015. Mandatory source separation of organics (SSO) is used in Portland (although it will not be enforced until next year) and Markham (starting in 2013). Markham will be implementing a mandatory "clear bag" program in 2013 requiring that all residential trash be placed in clear bags (they have semi-automated collection) as a way to help enforce their planned mandatory source separation ordinance. All of the jurisdictions are in provinces or states with strong EPR activity.

Table 21: Bans and Mandates for EOW Jurisdictions (2012)

(●=Yes, ○=No)

	Disposal Bans						Bottle Bill	Mandates								Product Stewardship
City	Local	County	State / Providence	Materials	Where enforced	Who	Presence	Res. SSO	Comm. SSO	Multi-family SSO	Min. level C&D diversion	Zero waste events	Bag fee or ban	Others	Describe	Describe
Markham, ONT	○	●	●	PD, in 2013 E-waste and batteries	LF, Curb (2013)	Region	●	In 2013	●	○	●	●	○	●	All res. trash must be in clear bags (2013) allows for inspection of mandatory SSO	● Manufacturers pay 50% of curbside recycling, tires, oil, E-waste, carpet, special waste, hhws
New Westminster, BC	●	●	●	E-waste, haz waste, glass, OCC, wood wastes, recyclable items including mattresses and gypsum, scrap metal, and large appliances. Food scraps 2015	LF	Region	●	○	○	○	○	○	○	●	No authority to mandate recycling, apply fees to all SF	● Antifreeze, bev. cont, electronics and batteries, gasoline, oil & by products, paint & containers, pesticides, Medication, tires
Olympia, WA	○	○	●	HHW, oil, batteries	LF	State	○	○	○	○	○	○	○	●	All generators must have trash service	● E-waste, mercury lamps, (others being considered are batteries, paint, and carpet)
Portland, OR	○	○	●	E-waste, oil, tires, batteries	LF	State	●	●	●	○	●	●	●	●	MF recycling must be available	● Paint, mercury thermostats, E-waste, bottle bill, carpet
Renton, WA	●	●	●	Local: PD not allowed in garbage; County: PD not allowed at County facilities; State: HHW, oil, batteries	LF	County and State LF	○	○	○	○	○	○	○	●	Only mandate is res, comm. and multi-family garbage service	● E-waste, mercury lamps, (others being considered are batteries, paint, and carpet)
Vancouver, WA	○	○	●	HHW, oil, batteries	LF	State	●	○	○	○	○	○	○	●	Only mandate is res garbage service and pay for recycling	● E-waste, mercury lamps, (others being considered are batteries, paint, and carpet)

Facility Ownership and Rates

Unlike the selected U.S. jurisdictions, none of which send MSW to publicly-owned facilities, both Markham and New Westminster do (Toronto's landfill and Vancouver Metro, respectively). The same trend is seen in MRF ownership. All of the communities send their organics to privately-owned facilities. The average tip fee for MSW is $116/ton and the average composting tip fee is $53/ton. Table 22 displays the facility ownership and gate fees.

Table 22: Facility Ownership and Rates for EOW Jurisdictions (2012)

(●=Yes, ○ = No)

	Landfill				MRF				Compost				Rates		WTE	
City	Private	Public	Other	Notes	Private	Public	Other	Notes	Private	Public	Other	Notes	Landfill (LF) / Transfer Station	Compost	Presence	Rates
Markham, ONT	○	●	○	Toronto City landfill	○	●	○	Regionally owned	●	○	○	Accepts pet waste, diapers, and plastic bags	$100 (TS)	N/A	○	Planned in 2014
New Westminster, BC	○	●	○	Metro operated	○	●	○		●	○	○		$107-$111 (TS)	$63	●	$107 Metro facility
Olympia, WA	●	○	○	240 miles away	●	○	○		●	○	○		$119 (TS)	$34	○	N/A
Portland, OR	●	○	○		●	○	○		●	○	○	Capacity is an issue	$94 (TS)	$55-$60	○	N/A
Renton, WA	○	○	●	County owned	●	○	○		●	○	○		$118 (TS)	$51	○	N/A
Vancouver, WA	●	○	○	Sent by barge-160 miles	●	○	○	City has partner-ship agreement	○	○	●	Metro T/S- end up at pvt. facility	$93 (LF)	$55-$60	○	N/A

5.3 Comparable Jurisdiction Findings

This section summarizes findings from select North American jurisdictions with advanced diversion programs and similar demographics to Alameda County communities. Detailed case studies of the seven selected jurisdictions are provided in Appendix C. The programs selected were described earlier. As seen in Table 23, per person generation (residential) in the selected jurisdictions generate ranged between 400 (Vancouver, British Columbia) and 683 (Santa Barbara, CA) pounds of residential discards per year. Cambridge, MA is the only community without a full-scale curbside organics program, and this is reflected in its low organics diversion rate. Average recycling per person per year ranges between 83 (Vancouver, BC) and 253 pounds (Cambridge, MA).

Table 23: Total Pounds per Person per Year and Diversion Rates for Comparable Jurisdictions (2011)

City	Residential Pounds per Person per year				Total Pounds per Person per year				Diversion Rate	
	Total generated	Recycled	Composted	Landfill	Total generated	Recycled	Composted	Landfill	Residential	Total
Boulder, CO	525	166	128	231	2,867	978	340	1,549	56%	46%
Cambridge, MA	605	253	38	315	N/A	N/A	N/A	N/A	48%	N/A
Grand Rapids, MI	N/A	N/A	N/A	N/A	1,022	282	229	511	N/A	50%
San Jose, CA	524	206	2	316	N/A	N/A	N/A	N/A	40%	71%*
Santa Barbara, CA	683	164	239	280	1,905	367	365	1,173	59%	38%
Seattle, WA	668	199	262	206	1,733	265	419	1,049	69%	39%
Vancouver, BC	400	83	92	225	1,665	N/A	467	1,114	44%	N/A
Average	**567**	**179**	**127**	**262**	**1,838**	**473**	**364**	**1,079**	**53%**	**49%**

Table 23 Notes

San Jose, CA did not provide commercial sector data, but did provide an overall total diversion rate of 71 percent.

Collection System Services

Two of the communities, Santa Barbara and Vancouver, BC, collect residential recyclables in multiple streams, while all of the other jurisdictions have single stream collection. The only community without PAYT rates is Cambridge, MA (fees are included in the property taxes). The majority of the communities researched embed the costs for recycling and organics in the residential trash rates. Recycling tends to be collected weekly (for all but Boulder and Grand Rapids) and organics is also most often collected weekly. Grand Rapids, MI residents are charged per tip or collection, and trash (and organics) can be collected as often as once a week or as rarely as once a year. Cambridge, MA and Grand Rapids, MI use municipal staff to provide residential services and four of the seven jurisdictions researched have an open market for commercial collections. The service provided and the hauler arrangements are compared in Table 24.

Table 24: Collection System Services for Comparable Jurisdictions (2012)

(●=Yes, ○=No)

								Collection Frequency [20]			Residential					Commercial					
City	Single stream	Notes [21]	Res. PAYT	Mini-Can Available?	Recycling Embed?	Organics Embed?	Include food scraps?	Trash	Recycling	Organics	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Multi-family
Boulder CO	●		●	○	●	●	Veg. only	W	EOW	EOW	○	○	●			○	○	●	○		Open market
Cambridge MA	●		○	○	●	●	In 2013	W	W	Seasonal now, weekly in 2013	●	○	○	●	City crews trash, hauler for recyc, organ	○	○	●	○	City requires licenses only. Some small business & MF on city service	Open market
Grand Rapids, MI	●		●	○	○	○	○	Pay Per Tip	EOW	Tag / Bag	○	○	●	●	Both muni and pvt haulers	○	○	●	●	Most have pvt. haulers but city offers collection	Most multi-family have private haulers, but City offers collection
San Jose, CA	●		●	●	●	●	○	W	W	W	●	○	○	○	Two contracted haulers	●	○	○	○		Contracted haulers
Santa Barbara, CA	○	3 streams now. 4 possible if food waste can't go in with PD	●	○	○	○	○	W	W	W	○	●	○	○			●	○	○		Same as comm'l, single franchise hauler

[20] W = Weekly
[21] PD = Plant Debris

								Collection Frequency [20]			Residential						Commercial					
City	Single stream	Notes [21]	Res. PAYT	Mini-Can Available?	Recycling Embed?	Organics Embed?	Include food scraps?	Trash	Recycling	Organics	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Contracted hauler(s)	Franchised hauler (s)	Open market	Municipality	Notes	Multi-family
Seattle, WA	●		●	●	●	●	●	W	W	W	●	○	○	○		●	○	○	○		Contracted haulers
Vancouver BC	○	3 streams, cart & bags	●	●	○	○	●	W/ EOW 2013	W	EOW/ W 2013	○	○	○	●		○	○	●	○	For small amounts of organics city will collect	Open market, if small city may collect. Recycling city collects. If on city trash, city collects organics, otherwise private

Outreach and Education

Table 25 compares the outreach and education activities among the comparable jurisdictions. Social media (Twitter, Facebook, etc.), community-based social marketing (CBSM), and sell-designed interactive websites are the norm for all of the communities. Likewise, the majority of jurisdictions have at least 0.5 FTEs dedicated to outreach programs and almost all have implemented some type of source reduction programs. Local waste composition studies are available in Cambridge, Santa Barbara, and Seattle. Boulder and Vancouver, BC have waste composition studies at the county/regional level only. Section 5.5 of this report describes data on the portion of the disposal stream that is readily divertible for nine jurisdictions, in addition to Alameda County, based on available waste characterization data.

Table 25: Outreach and Education in Comparable Jurisdictions (2012)

(●=Yes, ○=No)

City	Interactive website	Social media (twitter, etc.)	CBSM Programs	Commercial Waste Audits	Source Reduction Programs	Dedicated Outreach Staff	Waste Comp Study	School collection	School curriculum	Other
Boulder, CO	○	Limited	Limited	● Combined with energy and water audits	● Partner with a non-profit for building materials reuse	● 1.5 FTEs	○ County only	○	●	Offer comm'l. rebate on organics service, 3 free months comm'l. recycling
Cambridge, MA	●	●	● Give recycling status reports,	○ Advice only	● Backyard composting, junk-mail, state attempting electronics product stewardship	● .5 FTE	●	●	●	Grant program for food scraps marketing with comm'l.
Grand Rapids, MI	●	●	○	○	○ Sustainability Plan - reduce paper by 50%, June 2015	○	○	●	○	
San Jose, CA	Limited	●	○ Planning on MF CBSM in 2013	Technical assistance, provided by contracted hauler. Uncertain if audits included.	● Comm'l SW fee and landfill waste disposal fee for source redux, recycling, used oil collection	● 1 FTE	○	●	●	Bring your own bag campaign, Green events, Rebate programs, School grants, green fundraisers, zero waste film festival
Santa Barbara, CA	●	●	● Limited	● Waste assessment, posters, training	Litter free events, refrig recycling, food scraps green waste	● .75 FTEs	●	●	●	Refrigerator/ freezer trade outs, adopt a block, green fundraising, clean community program
Seattle, WA	●	●	●	●	● Phone books	●	●	●	●	School grants, event recycling, MFU outreach campaign,
Vancouver, BC	●	○	● Door to door	○	● Food donations, phone books, junk mail	○ Work with other depts..	○ Regional Studies	○	●	Voluntary deconstruction program for C& D

Bans and Mandates

Boulder and Seattle are in states without bottle bills, while all of the other jurisdictions are located in states or provinces with bottle bills. Two of the researched communities (Seattle and Cambridge) have mandatory source separation for all sectors and the same two communities, along with Grand Rapids, Michigan, and Vancouver, British Columbia, have local disposal bans. The disposal bans in Cambridge and Vancouver include conventional recyclables (paper, glass, aluminum, OCC, plastics) and both are enforced at the landfill. Product stewardship laws play a large role in the diversion programs in two of the communities researched, Vancouver, British Columbia and Seattle, Washington, and three of the seven communities have single use bag fees or bans. Table 26 compares the presence and the types of bans and mandates in the comparable jurisdictions.

Table 26: Bans and Mandates in Comparable Jurisdictions (2011)

City	Disposal Ban						Bottle Bill	Mandates								Product Stewardship	
	Local	County	State / Province	Materials	Where Enforced	Who Enforces	Presence	Res. SSO	Comm. SSO	Multi-family Source Separation Ordinance	Min. Level C&D Diversion	Zero Waste Events	Bag f Fee or Ban	Others	Describe	Presence	Describe
Boulder, CO	○	○	●	E-waste, oil, tires	LF	State	○	○	○	○	●	●	●	●	All MF units must have adequate level recycling service	○	
Cambridge, MA	●	●	●	HH recyclables, asphalt, E-waste, tires, wood, YW (food scraps 2015?)	LF	State	●	●	●	●	○	○	○	●	All buildings must separate recycling. Business, MF must file recycling Plan	○	Mercury, Looking into E-waste
Grand Rapids, MI	●	●	●	Beverage containers, YW, C&D, HHW, oil, tires, batteries	Waste to Energy (WTE) and LF	County and WTE	●	○	○	○	○	○	○	●	Only mandate is res, com, and multi-family garbage service	○	
San Jose, CA	○	○	●	Tires, white goods, Universal Wastes	LF & TS	State (LEA)	●	○	State	State	●	○	●	●	Mandatory collection SF, MF, Comm'l. Mandatory Source reduction and recycling fee. Required tonnage reporting- C&D ordinance requires 75% diversion – must receive Certificate of Final Occupncy	●	Paint, carpet through state legislation

City	Disposal Ban						Bottle Bill	Mandates								Product Stewardship	
	Local	County	State / Province	Materials	Where Enforced	Who Enforces	Presence	Res. SSO	Comm. SSO	Multi-family Source Separation Ordinance	Min. Level C&D Diversion	Zero Waste Events	Bag f Fee or Ban	Others	Describe	Presence	Describe
Santa Barbara, CA	○	○	●	Electronics, haz, universal waste.	LF		●	○	State	State	○	○	●	○		○	Looking into paint care program
Seattle, WA	●	○	●	Local: Recycling in trash, trash in recycling, State: HHW, oil, batteries	LF, Curb		○	●	●	●	●	●	●	●		●	
Vancouver, BC	●	●	●	E-waste, haz waste, glass, OCC, paper, plastics, wood, scrap metal, and appliances. Foodwaste 2015	LF	Regional staff	●	○	○	○	●	○	○	●	No authority to mandate recycling, apply fees to all SF	●	Antifreeze, bev. cont, electronics and batteries, gasoline, oil & by products, paint & containers, pesticides, medication, tires

Facility Ownership and Rates

Table 27 summarizes facilities types, ownership, and rates among the comparable jurisdictions. None of the communities own their own landfill but several of them (Grand Rapids, Santa Barbara, and Vancouver) deliver their MSW to regional or county owned landfills. San Jose, CA, contracts to use a mixed waste recovery facility for post collection separation of multi-family and commercial MSW and they also contract with a processor that will be using a large-scale dry fermentation anaerobic digestion process for their organics and energy recovery. Cambridge, Massachusetts and Grand Rapids, Michigan also send MSW to waste-to-energy facilities. Boulder, Colorado, stands out as having significantly lower landfill tipping fees ($13 – $16/ton) when compared to the other jurisdictions researched; however, Grand Rapids also has relatively low landfill tipping rates ($27-$34/ton).

Table 27: Facility Ownership and Rates for Comparable Jurisdictions (2011)

City	Landfill				MRF				Compost				Rates		WTE	
	Private	Public	Other	Notes	Private	Public	Other	Notes	Private	Public	Other	Notes	Landfill (LF) / Transfer Station (TS)	Compost	Presence	Rates
Boulder, CO	●	○	○	~30 miles	○	○	●	County-owned	●	○	○		$13 - $16 LF)	$38 - $45	○	N/A
Cambridge, MA	●	○	○		●	○	○		●	○	○	$55 for food scraps pilot	$89 (TS)	$55	●	$89
Grand Rapids, MI	○	●	○	County-owned	○	○	●	County owned, privately operated	●	○	○	Spurt Industries, they pick-up from City	$27 - $34 (LF)	$13.73 (includes hauling)	●	$45
San Jose, CA	●	○	○		●	○	○	2 mixed waste (dirty) MRFs used NIRRP- $30.34/ton per contract. Transfer/ transportation costs $6.75	●	○	○		$45 (LF) $42/ton residual rate residential haulers.	$71 - $94 Per contract $67- $70 depending on contam. levels. Comm'l contract	●	$85
Santa Barbara, CA	○	●	○	County-owned	●	○	○	Single hauler for city, has own MRF	●	○	○		$80 (LF)	$45	○	N/A
Seattle, WA	●	○	○	Long term contracts	●	○	○		●	○	○		$145 (TS); $37.50 (LF)	$22.50	○	N/A
Vancouver, BC	○	●	○	City owned, Metro operated	○	●	○		●	○	○		$107- $111 (LF & TS)	$40 (contracted rate)	●	City does not use regional WTE

5.4 Factors Influencing Diversion Rates

This section uses data from all 13 selected case study jurisdictions to analyze the factors influencing diversion rates, including select comparisons with Alameda County. It is important to note that although the data indicate may certain trends and/or that certain programs are more effective than others, the data set is very limited (only 13 communities were researched) and it does not allow for a statistical evaluation with a high level of confidence.

Demographics

Table 28 below compares the average residential pounds per person generated, disposed, and diverted as well as the residential diversion rates for the Alameda County jurisdiction groups to the researched jurisdictions. The Alameda County jurisdictions compare favorably, exceeding the overall diversion rate with the selected jurisdictions in each category.

Table 28: Comparison to Alameda County Jurisdiction Groups[22] (2011)*

Pounds/ Capita/ Year	Unique		Middle Size West		Middle Size East		Small Urban		Large Urban	
	Comp. Avg. (n=2)	Alameda Avg. (n=2)	Comp. Avg. (n=2)	Alameda Avg. (n=4)	Comp. Avg. (n=2)	Alameda Avg. (n=3)	Comp. Avg. (n=1)	Alameda Avg. (n=2)	Comp. Avg. (n=6)	Alameda Avg. (n=3)
Total Generation	600	686	519	848	557	938	605	739	523	813
Landfilled	254	251	263	387	190	358	315	287	237	411
Recycled	165	187	125	210	148	230	253	280	168	173
Composted	181	248	132	251	218	350	38	172	145	208
Calculated Average Diversion	58%	63%	50%	54%	66%	62%	48%	61%	66%	49%

Residential Service Options

Three types of residential service options are considered here:

- **Mini Cans:** Communities with a mini-can option (defined as 20-gallon or smaller carts) recycled slightly more pounds per person than those without one, but they had a slightly lower average diversion rate than those without the option (55 percent vs. 59 percent).

[22] Alameda diversion rates are based on the CalRecycle methodology, as presented in Table 2. Total generation, landfilled, recycled and composted are based on residential franchise/City operated activity as presented in Table 4, with OLSD and CVSD omitted due to no data and HH data from Table 1.

- **Embedded Organics:** Communities in which the costs of organics collection are embedded in the residential trash rates had a higher diversion rate than those that did not (59 percent compared to 53 percent).[23]
- **Food Scraps:** Communities with programs that include food scraps in the organics stream have higher overall diversion rates (62 percent vs. 50 percent) and they diverted, on average, about 160 pounds ***more*** organics per capita per year.

The calculated diversion rates and average pounds per capita are displayed in Table 29. All of the communities in Alameda County offer residential mini-can options, include the costs of organics in the residential trash rates, and include food scraps in the organics cart. The data indicate that these are effective programs in other jurisdictions as well.

Table 29: Residential Service Options (2012)

Pounds/Capita/Year	Mini-Can Option		Organics Embedded		Includes Food Scraps	
	Yes	No	Yes	No	Yes	No
Total Residential Generation	538	510	552	483	516	552
Residential Landfilled	249	198	236	251	197	309
Residential Recycled	168	162	189	110	141	198
Residential Composted	145	150	153	122	207	45
Average Residential Diversion Rate	55%	59%	59%	53%	62%	50%
Median Residential Diversion Rate	54%	59%	60%	53%	65%	48%

Collection Frequency

Table 30 summarizes the influence of MSW, recycling, and organics collection frequency on diversion rates. Selected communities with every-other-week trash collection have higher diversion rates than those with weekly collection (62 percent vs. 53 percent) and that the residents in EOW communities generate less overall materials (an average of 507 pounds per year total generation compared to 538), representing a possible future option for Alameda County. Previous studies and the interviews conducted with EOW jurisdictions indicate that EOW collection can significantly lower the costs of service, freeing up money for other programs.[24] However, the program can be challenging to implement without the accompaniment of

[23] The jurisdictions did however have a lower average number of pounds of organics diverted per person. This may be because jurisdictions with embedded rates collect organics for *all* households while those that pay for service collect only from households that sign-up and pay for the service, presumably those that generate a lot of organics or are good recyclers.

[24] For more information on the costs see the jurisdiction case studies section or Skumatz, Lisa, *Resource Recycling*, September 2007. *"Alternating Weeks: Options and Opportunities for Garbage and Recycling"*

strong planning and the support of the public and community leaders. It is also important to measure pre- and post- pounds per set-out and pounds collected over time of each stream, and to measure pre- and post- contamination rates in recycling and organics, to ensure that net increases in diversion are real and cost-effective, and that residents are not simply placing more garbage in the other carts.

Communities with every-other-week recycling collection had a slightly higher average diversion rate than those with weekly collection and the residents with every-other-week recycling diverted an average of about 13 pounds less recyclables per year.

The EOW organics communities had an average diversion rate of 52 percent compared to 59 percent for weekly collection (it is worth noting that the communities with EOW organics often have alternating EOW recycling as well). Residents in communities with EOW organics collection diverted an average of 111 pounds of organics per person per year, approximately 50 pounds less per year than the average for communities with weekly collection[25]. Weekly organics collection is recommended in an EOW trash collection scheme.

All of the Alameda County member agencies collect trash, recycling, and organics on a weekly basis (with the exception of Oro Loma (L1) that collects recycling bi-weekly). The trade-offs in switching from weekly to EOW recycling should be considered, especially if cost savings is a goal.

Table 30: Collection Frequency (2012)

Pounds/Capita/Year	Trash		Recycling		Organics	
	EOW	Weekly	EOW	Weekly	EOW	Weekly
Total Residential Generation	507	538	576	525	468	558
Residential Landfilled	197	262	256	238	246	238
Residential Recycled	142	173	155	168	111	189
Residential Composted	228	104	166	143	111	157
Average Residential Diversion Rate	62%	53%	59%	56%	52%	59%
Median Residential Diversion Rate	61%	52%	58%	59%	52%	60%

Waste Audits, Source Reduction and Product Stewardship

As summarized in Table 31, data from the researched jurisdictions was used to compare communities that offered 'free' commercial waste audits to those that did not, communities that have taken significant efforts to encourage source reduction to those that did not, and communities that are in counties, states, or provinces with significant

[25] The analysis does not take into account geography, growing seasons, and other factors that would also have a large impact on the organics diversion rates.

EPR efforts. EPR may have a larger impact on diversion rates than specific outreach and education campaigns.[26]

Communities with free commercial waste audits had a lower average total diversion rate (residential plus commercial) than those that did not (43 percent compared to 54 percent[27]). Commercial tonnages are more variable between jurisdictions, since they often only contain a fraction of commodities, like cardboard, and may or may not include C&D materials etc. However, virtually all of the jurisdictions (both researched and in Alameda County) have a commercial audit and/or technical assistance program. Similar to education in general, there is little information to verify (or dispute) the effectiveness of audits. Best management practices discussed by the comparable jurisdictions include focusing on select generators (those with high potential), provide one-on-one assistance, give recommendations to individual businesses on how to reduce costs and increase diversion, and consider including commercial audits in hauler contracts. Alameda County member agencies and StopWaste are meeting or exceeding the standard set in other high performing communities when it comes to commercial audits.

The communities that reported they had undertaken significant source reduction efforts (primarily outreach and education) had higher diversion rates (52 percent vs. 37 percent for total diversion) than those without major source reduction efforts.

Communities located in areas with strong EPR efforts had only slightly lower diversion rates than those without (49 percent vs. 45 percent, again total diversion). However, they did not generate less overall materials than communities in regions without strong EPR legislation.

Table 31: Waste Audits, Source Reduction, and Product Stewardship (2011)

Pounds/Capita/Year	Commercial Waste Audits		Strong Source Reduction Efforts		Strong Product Stewardship	
	Yes	No	Yes	No	Yes	No
Total Generation	2,543	1,216	2,113	1,120	1,996	1,712
Total Landfilled	1,178	729	1,032	694	986	938
Total Recycled	963	197	867	230	793	484
Total Composted	430	346	429	195	409	290
Average Total Diversion Rate	43%	54%	52%	37%	49%	45%
Median Total Diversion Rate	40%	50%	46%	33%	40%	46%

[26] It is important to remember that a base level of outreach and education is always needed to inform generators of programs and options.

[27] These diversion rates are 'Total' diversion and include commercial tonnage data. Pounds per person are not included in the comparison.

Mandatory Source Separation

The data comparing communities with and without mandatory source separation requirements is displayed in Table 32.

The communities with mandatory residential source separation diverted an average of 59 percent of their materials compared to 56 percent in non-mandated communities (there were only two jurisdictions with mandatory residential source separation programs that provided data; they diverted an average of 114 pounds of recyclables per capita compared to 154 pounds of recyclables in non-mandated communities; but ***generated*** over 100 pounds less of total discards – 362 pounds vs. 494 pounds).

Communities with mandatory commercial recycling had an average diversion rate of 59 percent (total) compared to 43 percent (total) in those without mandatory commercial recycling.

Although Alameda County has adopted a mandatory commercial and multi-family recycling ordinance, the impacts of the ordinance are not yet known. The County does not have a mandatory residential source separation ordinance. The data indicate that if fully enforced the County may see significant impacts from the commercial and multi-family mandate.

Table 32: Mandatory Source Separation (2011)

Pounds/Capita/Year	Residential Source Separation		Commercial Source Separation	
	Yes	No	Yes	No
Total Residential Generation	362	494	2,362	1,510
Residential Landfilled	212	255	977	983
Residential Recycled	114	154	944	332
Residential Composted	258	85	441	339
Average Residential Diversion Rate	59%	56%	59%	43%
Median Residential Diversion Rate	59%	59%	66%	40%

Other Factors

Following are some additional factors associated with high diversion rates, based on consideration of the 13 profiles discussed above.

Incentive-Based Contracts

Some of the highest achieving jurisdictions have used well-crafted hauler, disposal, and processing contracts to reach above average diversion rates. Innovative contracts clauses include, among others, performance based incentives centered around diversion rates/tons/and targets, requirements for 'green' fleets, minimum diversion and maximum contamination rates, requirements for education, outreach, and commercial audits, rate structures for the commercial sector that encourage generator

diversion, and post collection processing and sorting Hauler contracts that include residential rate incentives are almost universal in Alameda County and the majority of Alameda County jurisdictions that have exclusive contracts for commercial generators have rates that encourage recycling and organics generation (embedded or discounted options). It should be noted that offering "free" or deeply discounted recycling and/or organics collection service provide incentives to generators to divert more, but can result in perverse incentives to haulers since reducing garbage volumes reduces total revenues unless accompanied by large increases in garbage rates, which may be politically problematic. There may be additional opportunities to explore performance based incentives for haulers, 'green' fleets, and expanded education and outreach clauses.

Post-Collection Processing

San Jose's multi-family (and the newly implemented commercial) program demonstrates that using post-collection separation and processing may be an effective way to increase diversion in hard to reach sectors. Technologies have improved since the early dirty MRFs were built and new contracting options can allay fears related to 'put or pay' type agreements. Alameda County communities may wish to investigate ways to expand upon the post collection separation activities already occurring at processing facilities and transfer stations in the County.

Partnerships

The researched jurisdictions highlighted the successes that can be achieved through private/public and non-profit/public partnerships. This includes the provision of hauling services, outreach and education, processing, disposal, hard to recycle facilities, and construction and re-use facilities. Private companies and non-profits are able to fill niches and meet demand and, if supported by the local government, can cost-effectively provide services. Alameda County agencies and StopWaste are already working with the private sector and non-profits to provide services and facilities for diversion.

School Programs

All of the comparable jurisdictions, either through their own staff, contracted, or non-profit organizations, reported that having diversion education and programs in the schools was important to current and future success. Alameda County StopWaste and the member agencies compare favorably to programs in the investigated jurisdictions.

5.5 Comparisons of the Readily Divertible Portion of the Disposal Stream

As described in Section 2, StopWaste adopted a 75 percent diversion target years ago, and achieved a County-wide rate of 72 percent in 2011, based on the CalRecycle methodology. Member agency rates in 2011 using the same methodology varied from 65 percent in Oakland and Emeryville to 79 percent in Albany. (See Table 2 in Section 2.)

StopWaste has also recently adopted an additional, innovative goal as part of the Strategic Workplan. The new goal is to reduce the portion of readily recyclable or compostable materials to no more than 10 percent of the disposal stream by 2020. This readily divertible portion of the disposal stream is an effective new measure of high performing communities that can further help to focus efforts and track progress. It is relatively easy and straightforward to measure accurately via waste characterization studies or abbreviated audits that involve sorting samples into just a few categories (e.g., recyclable, compostable and landfill). It is repeatable, allowing progress over time to be directly compared to earlier benchmarks. And, information needed to calculate the measure is the same information needed to adjust current programs or implement new ones, namely, information on the amount of different materials in the waste stream. Also, the goal is directly tied to market conditions and allows the agency to adjust the list of what is readily recyclable or compostable as conditions change.

As shown in Table 33, as of 2008, the date of StopWaste's last waste characterization study, 57 percent of the overall disposed stream and 65 percent of the residential waste stream was comprised of readily divertible materials. These rates compare favorably to those from nine other high performing jurisdictions, although Alameda County was on the high side in 2008. Readily divertible rates for the overall waste stream range from 35 to 60 percent (with Hennepin County at 35 an outlier), and residential readily divertible rates range from 37 to 65 percent (with Boulder and Hennepin as outliers on the low end).

It must be noted that comparing waste characterization data from the different jurisdictions is challenging for a number of reasons. For example, SAIC had to make assumptions about differently defined waste stream categories from studies with different methodologies, and which ones should be considered "readily divertible." Some categories are difficult to distinguish as either "readily divertible" or "somewhat divertible," for example, the "other plastic container category" (which StopWaste designated as somewhat divertible.) Also, waste characterization studies often allocate fines found in sorted samples to broad material categories such as "other paper" or "other plastics," even though a portion of such fines may be derived from more readily divertible categories such as shredded office paper or junk mail. StopWaste staff has estimated that allocating a "readily recyclable" portion of fines to the mix may raise the readily divertible portion of the disposal stream (not necessarily divertible in practice) from 57 percent to 60 percent.

These results indicate that Alameda County's performance is generally among the top performers, and also that the 10 percent by 2020 goal is very ambitious and will be challenging to achieve.

Table 33: Readily Divertible Portion of the Disposal Stream Comparisons[28] (2011)

Jurisdiction	Overall Waste Stream	Residential Waste Stream	Specific Streams Included[29]
Alameda County	57	65	Overall: RO, SH, Comm'l, SF, MF Residential: SF, MF
Los Angeles	60	58	Overall: SF, MF, C&D, PD Residential: SF
Sunnyvale 2010	59	60	Overall: SF, MF, Comm'l, C&D, Transfer Residential: SF
CA Statewide	55	56	Overall: SF, MF, Comm'l, SH Residential: SF, MF
Seattle 2007	NA	43	Overall: Residential: SF
Seattle 2002	NA	65	Overall: Residential: SF, MF
King County	54	52	Overall: SF, MF, SH, Comm'l Residential: SF, MF, Res SH
Washington State 2009	55	62	Overall: SF, MF, Comm'l, SH Residential: SF, MF
Hennepin County	35	41	Overall: Res, ICI Residential: SF, MF
Boulder, CO	NA	37	Overall: Residential: SF, MF
NYC Residential	NA	55	Overall: Residential: SF, MF

[28] Readily divertible materials are assumed to include: Uncoated corrugated cardboard; high grade paper; newspaper; mixed recyclable paper; compostable paper; HDPE and PETE bottles; recyclable glass bottles/containers; aluminum cans; steel food and beverage cans; white goods; leaves/grass/chips; branches/stumps/prunings/trimmings; food scraps; untreated lumber; pallets; crushable inerts; gypsum board; and covered E-waste, as defined in the 2008 Alameda County Waste Characterization Study. Assumptions regarding similarity with categories in other jurisdiction waste characterization studies were made for this comparison.

[29] Key: SF = Single family residential; MF = multi-family residential; comm = commercial; ICI = industrial, commercial and institutional; C&D = construction & demolition; SH = self-haul; RO = roll off containers; PD = plant debris; Transfer = transfer station; Res SH = residential self-haul; Res = residential

Section 6
KEY TRENDS AND ISSUES

This section briefly describes some of the key trends and issues that are impacting waste diversion efforts in Alameda and throughout North America.

6.1 Efforts to Achieve Zero Waste/High Diversion Goals

A number of communities in the Bay Area, California and elsewhere in North America have adopted zero waste goals or plans, and/or aggressive waste diversion goals. StopWaste and its member agencies are prime examples of such high performing communities, which are pushing the envelope by implementing innovative approaches to diversion programs, funding, government policy, extended producer responsibility and other topics, leading to substantially increased diversion with lower disposal tonnages and disposal-based revenues, as covered in the remainder of this section.

6.2 Maximizing Diversion Through Established Programs

A fundamental challenge, especially for areas like Alameda County with high access to programs covering a broad range of waste materials, is maximizing diversion through existing programs. Many high-performing jurisdictions, including those in Alameda County, have already adopted residential single stream recycling, organics collection (with food scraps), PAYT rates, commercial recycling mandate, C&D programs, outreach/technical assistance programs and other programs associated with high diversion rates. The emphasis is turning now to seeking to maximize participation and capture rates in these programs, through efforts such as:

- Awards and recognition;
- Outreach and education;
- Waste audits and technical assistance;
- Adjusting collection systems, containers and frequency;
- Innovative contracting and incentive systems;
- Focusing on commercial sectors and organics, especially food scraps;
- Advocating for new state or local policies such as EPR; and
- Focusing on conversion and other emerging technologies.

Alameda County is at the forefront of these trends, some of which are discussed further below.

6.3 Focus on Commercial Recycling

Many high performing communities are expanding their focus on commercial recycling, especially in California where the State has recently adopted a statewide mandate that some communities, like Alameda, are leveraging for expanded local activities. Related trends include:

- Adoption of local commercial recycling ordinances that may exceed state requirements;
- Expansion of waste audits and technical assistance provided to commercial generators;
- Expanded education and incentives for commercial generators;
- Material disposal bans (recyclables or organics) that apply to commercial generators;
- Expansion of exclusive franchise agreements covering the commercial sector, with commercial rates, goals, incentives and/or required waste audits/technical assistance provisions all aimed at increasing commercial diversion rates; and
- Adjusted collection systems such as wet/dry systems, tied to post-collection processing facilities set up to divert large portions of incoming streams, such as in San Jose.

6.4 Focus on Organics and Food Scraps

Many communities, especially in the Bay Area, are focusing on expanded organics collection, including food scraps. Programs are increasingly covering not only residential generators but also the commercial sector as well. Nationally, organics collection programs, including food scraps, have been increasing in their prevalence, StopWaste and its member agencies are helping to lead this trend.

A recent study by SERA researchers identified and documented more than 180 food scrap diversion programs in the US, including communities with residential and / or commercial programs.[30] The most recent count of food scraps diversion programs in the US estimates there to be over 200 programs nationally[31]. The vast majority of programs have been introduced since 2004; growth has been dramatic since then[32]. Approximately 80 percent of the programs identified are located in three states, Washington, Minnesota, and California. The leading states with programs include:

- Washington (more than 50 programs);

[30] Best Management Practices in Food Scrap Programs. Econservation Institute. December 2011. Project funded by US EPA Region V.

[31] The new estimate is based on unpublished research by SERA staff and is higher than the counts published in annually in BioCycle magazine.

[32] Although growth in program adoption has been steady, it is still no where as common as curbside recycling programs. The US EPA estimates there are nearly 10,000 curbside recycling programs in the US.

- Minnesota and California (more than 40 programs each);
- Ohio, Vermont, Iowa, Massachusetts, Oregon, Colorado, Maine, and Michigan each have several programs located in the state; and
- A number of other states (including Florida, Georgia, Illinois, Indiana, Maryland, Missouri, North Carolina, New York, Pennsylvania Texas, and others) have one to three programs each.

Alameda County is ahead of the curve in their inclusion of food scraps in the organics collection streams and in fact, the County has more curbside collection programs than most states in the US. Issues that have hindered the widespread adoption of food scraps diversion in other communities include: processing capacity and facility siting, costs (both collection and processing), public acceptance, contamination, and regulatory issues.

6.5 Focus on Conversion Technologies

Conversion technologies (CT), and anaerobic digestion (AD) in particular, are gaining popularity in the U.S. For example, there are four large-scale commercial AD facilities either already operating or planned to be operating in the next two years in California and Oregon. In addition to AD, gasification and other CT projects are securing funding and getting the go ahead in California, New York, and elsewhere. Both facility types are designed operate in conjunction with mixed waste MRFs or mandatory source separation programs (as is the case in Portland) to achieve diversion rates of 75 percent or greater.

Two of the jurisdictions covered in Section 5 (San Jose and Markham, Ontario) send, or plan to send, materials to AD facilities for processing. There are several large scale gasification and bio-gas waste conversion facilities under construction or scheduled for construction in the US (for example, in Los Angeles County, California and in Orange County, New York). Despite the intention to use these next generation technologies to generate power and divert materials from landfills, they have not yet been built and commissioned and it appears that it will take at least a few more years before the effectiveness of these technologies in the U.S. can be evaluated. Securing feedstock, capital funding, and regulatory issues continue to slow the growth of CT in California and elsewhere.

6.6 Debate Over Optimal Scope for EPR in the U.S.

There is increasing debate over the role of EPR and the most appropriate scope for the US. To date most EPR attention in the U.S. has focused on HHW or problem materials, including paint, single-use bags, pesticides / fertilizers / toxics, batteries, aerosols, E-waste, fluorescents, or others. EPR legislation for a number of these products has already been implemented in various States in the US (e.g. paint, carpets, E-waste, pesticides / fertilizers / toxics).[33] However, Europe and several Canadian

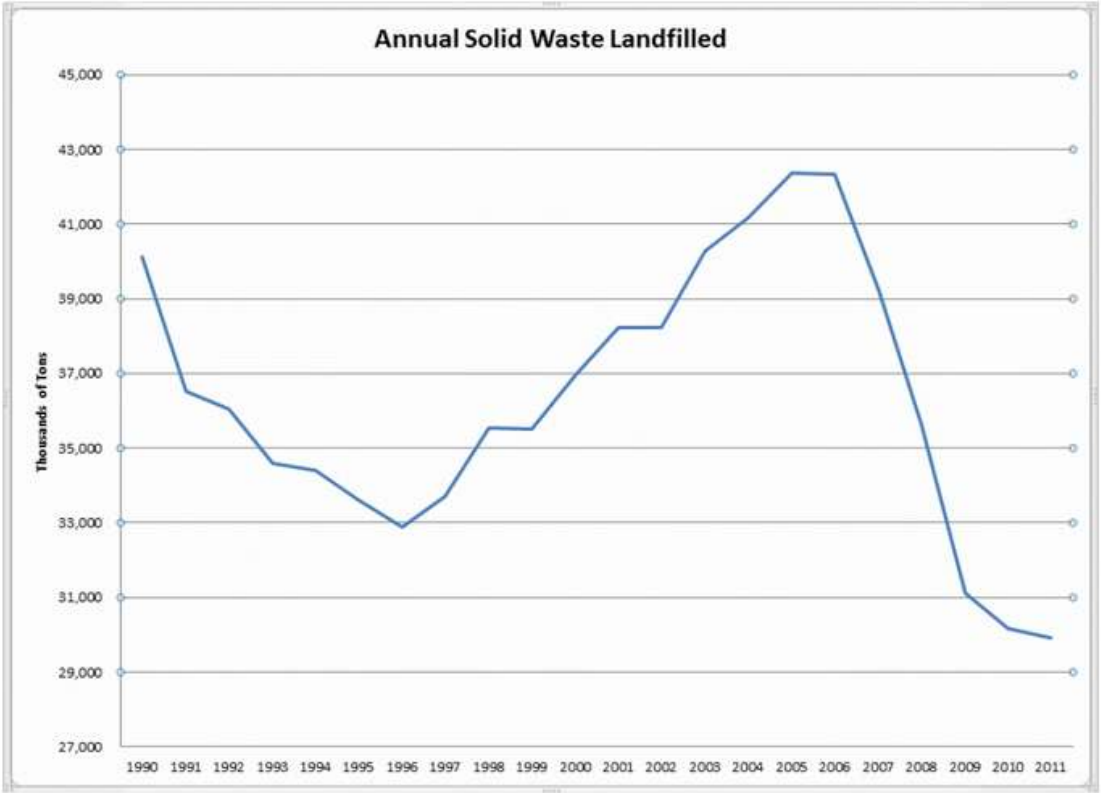
[33] The usual concerns are that purchases will be driven to outside communities, administrative issues, etc.

Provinces have taken a broader approach, looking to EPR as a method to address management of many products at the consumer waste end. Ontario's "Blue Box" program, for example, provides industry financial support for curbside recycling, and programs in British Columbia require separate industry collection programs for a wide range of products.

In the U.S. debate over expanding EPR to printed paper and packaging as usually included in municipal curbside programs, or to other products, is intensifying, including in state legislatures. It is unclear how EPR will ultimately evolve in the U.S.

6.7 Continuing Economic Down-Turn

The economic downturn which began in 2007 has had significant impacts on disposal tonnage, but the effect has disproportionately affected the commercial and self-haul sectors, with much less impact on residential disposal. As shown in Figure 1 below, California's statewide disposal fell sharply in 2007, falling 37 percent in two years, and while volumes started to stabilize in 2010, in 2011 they declined again. Many cities reported tonnage decreases from 3-12 percent immediately after the economy sputtered, in late 2008 (USA Today 8/28/08); and decreases in construction and demolition or self-haul tons were especially high. In Seattle, total generation fell more than 15 percent over the period 2007-2011. Self haul tons fell by almost 40 percent, reflecting the downturn in the housing market, and commercial tons fell 16 percent. The residential sector held fairly steady over the period. The downturn was strong and immediate, but the downturn has continued and worsened into 2011. The State of Virginia showed 25 percent decreases in disposed tons from 2006-2010, Utah fell 10-15 percent between 2007 and 2008, and Seattle's disposal fell 27 percent in a few years after the 2007 high.



Source: www.CalRecycle.org

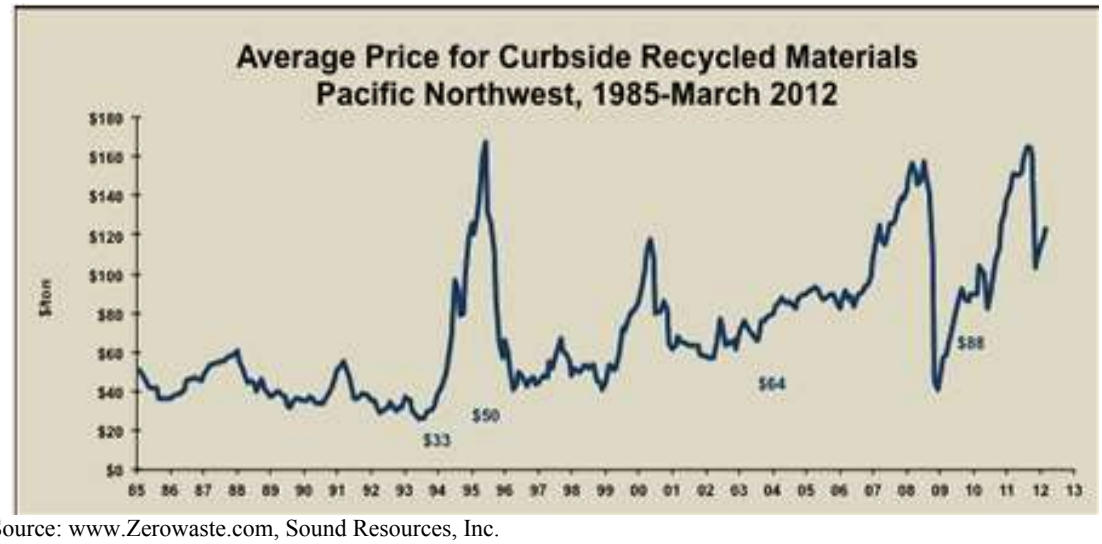
Figure 1. California's Landfilled Solid Waste, 1990-2011

The economic downturn has also impacted recycling tonnages and rates. Based on nationwide Franklin/EPA reports for 2005-2010, for example:

- The amount of newspaper generated and recycled nationwide fell by 18 percent between 2007 and 2008, but recovered a bit with an eight percent overall drop between 2007 and 2010. The percent recovered fell from 79 percent in 2007 to 72 percent in 2010, although the dramatic drop in tons available caused a spike in the recovery rate of 88 percent in 2008 and 2009.
- The amount of old corrugated containers available fell 5 percent from 2007-2008, and the decrease was 7 percent between 2007 and 2010. Recovery rates increased from 74 percent in 2007 to 85 percent by 2010.
- There was a substantial decrease in the tonnages of containers, glass and metals in the generation stream between 2007, 2008, and 2010, with figures varying from decreases of 2 percent (aluminum) to 16 percent (for glass bottles). The recovery rates nationwide for these materials were relatively stable over the period.
- The amount of PET and HDPE bottles decreased 6-8 percent in the year after the downturn, with recovery rates holding fairly constant.

- Food, as a percent of generated materials in the waste stream, increased by 2.3 percent between 2007 and 2008, and by 6 percent between 2007 and 2010. Recovery of these materials stayed the same nationally at about 3 percent.

After eight years of fairly stable growth, recycling market prices became highly volatile since the economic downturn, first dropping to 25 percent of their 2008 highs by 2009, and then rebounding by 2012. This pattern is illustrated by Figure 2. Some suggest that export demand is the main factor driving higher prices, and that shifts in such demand (especially from China) have had an even higher impact on pricing than has historically been the case.



Source: www.Zerowaste.com, Sound Resources, Inc.

Figure 2. Curbside Recycling Prices, Pacific Northwest, 1985-2012

6.8 Need to Explore Alternative, Sustainable Funding Mechanisms

Community recycling programs, including those in Alameda County, are generally experiencing severe funding challenges caused by several factors (some of which were discussed above) including:

- Reduced disposal-based funding caused by reduced tonnages, triggered by the economic downturn and increasing diversion rates;
- Increasing costs due to a greater focus on HHW, innovative programs covering food and other materials;
- Alameda jurisdictions have already addressed the 'low hanging fruit' and future programs will likely need to address items that are more difficult and costly to separate and process;
- Expanded services such as waste audits and technical assistance; and
- Exploration of new technologies to process waste.

Many high performing communities, like most in Alameda County, rely on funding sources such as:

- Landfill surcharges;
- Franchise fees for those with hauler-provided service, and user fees for municipally-provided services;
- AB939 planning and other fees;
- Deposit program and other state program funds such as California's E-Waste, Used Oil and Tire Programs;
- Funds from general fund revenues provided by the jurisdiction, and
- Miscellaneous revenues from deposits, bag fee revenues for those communities with single use bag legislation, etc..

Communities are increasingly exploring new, alternative approaches to funding such as:

- Partnerships with private organizations and non-profit organizations;
- Franchise fees;
- Promotion of new state or industry led programs, including EPR; or
- Exploration of new local fees such as the trash tax implemented in Boulder, CO, Minnesota Solid Waste Management tax and individual county environmental charges,[34] or exploration of local Advanced Disposal Fees as StopWaste researched in 2012; and/or
- Implementation of efficiency measures or increased effectiveness, for example, by implementing every-other-week garbage collection;
- New rate structures that cover core cost of service with a "base charge" while maintaining some type of incremental incentive rate structure.

6.9 Evolving Performance Metrics

The statement that "things that are measured tend to improve"[35] has strong application to the waste reduction business. Traditionally two types of metrics have been used: program-tonnage tracking and landfill-diversion tracking. Each has pros and cons. Tracking all recycling program tonnage provides detailed statistics by material type, but usually misses important private sector activity. Measuring diversion can lead to

[34] For example Hennepin County MN charges an environmental surcharge of 14.5 percent on commercial generators and 9 percent on residential generators. The surcharge is collected by haulers on customer bills and is only included on MSW services, not recycling or organics.

[35] In the 1930's, research was conducted which determined that what is measured will improve. This principle became known as the Hawthorne Effect and it determined that when something is measured -- it improves, but when it is measured and reported, it improves exponentially. By reporting the information, accountability is incorporated instantly into the measurement. Even Bill Gates ascribes to this principle, recently announcing grant funding opportunities for measurement/tracking efforts.

"creative accounting" in which an ever larger number of activities with varying environmental or economic benefits is counted. California has long focused on measuring disposal only, but used disposal data along with economic and demographic data and baseline waste generation data from prior program-tonnage tracking studies to estimate diversion levels. The agency has recently moved to tracking only disposal for local jurisdictions, although it still uses the demographic/economic data generation model to estimate statewide diversion or recycling ranges related to AB 341.

StopWaste adopted a 75 percent diversion target years ago, and achieved a County-wide rate of 72 percent in 2011, based on the CalRecycle methodology. Member agency rates in 2011 using the same methodology varied from 65 percent in Oakland and Emeryville to 79 percent in Albany. As described in Section 5.5, StopWaste has also adopted a new diversion related goal of reducing the portion of the disposal stream that is readily divertible to 10 percent by 2020, from a 2008 baseline of 57 percent for the overall disposal stream, and 65 percent for the residential waste stream.

Following is some more detailed information on measurement trends related to waste reduction, based on the research conducted for Section 5:

- **Per-capita generation and disposal:** Some jurisdictions (and some businesses) are shifting to per capita data expressed as pounds per day or pounds per year per person (or household), including total generated, total diverted, and total disposed. This is useful for measuring diversion and also source reduction goals.
- **Standardizing material definitions:** EPA and some other jurisdictions have sought to standardize waste characterization data and streams included in diversion measures. These do provide a common base, but wide diversity persists among reported information across states and jurisdictions.
- **Focus on commercial and multi-family sectors:** For many cities, commercial and multi-family data is less complete than the residential data because services are provided on the open market, and there is no private hauler reporting requirement. Jurisdictions are addressing this through adoption of exclusive franchise agreements with reporting requirements in some cases, as in most Alameda member agencies. Even in exclusive franchise situations, there may be some level of mixed generators covered under routes. For example, an exclusive residential route may include neighborhood small businesses and an exclusive commercial route may include multi-family accounts, making separate reporting difficult or, at best, an estimate.
- **Accounting fully for diversion:** More and more communities are attempting to fully account for recycling versus landfill diversion in their reporting and tracking by measuring residue and contamination at processing facilities and subtracting these tons in their reporting, or distinguishing certain material uses like alternative daily cover. For something like a move to every-other-week residential garbage collection, it is important to have good "before and after" measures of pounds per set-out and over time of garbage, recycling and organics, and of contamination levels in the recycling and organics.

- **Interest in measuring source reduction:** There is a strong desire by the leading cities in North America to measure and report on source reduction. There is however, no accepted or best way to do so and cities are still struggling with measuring the concept[36]. Some states allow cities to include a 'deemed' value for source reduction (for example MN allows a 3 percent credit) when reporting their diversion rates and some cities (for example, Fort Collins, Colorado) assume a source reduction impact based on published research. StopWaste should continue to investigate options to include the impacts of source reduction in their measurement and reporting.
- **Greenhouse gas and energy impacts:** There is a growing trend in reporting the greenhouse gas and energy benefits (i.e. number of cars off the road or barrels of oil saved) resulting from community recycling efforts. The U.S. EPA (and the WARM model) have helped fuel this effort. While this type of information is not meaningful to everyone, for residents and businesses in Alameda County concerned with environmental issues measuring and reporting the GHG impacts of recycling in the county is important.
- **'Other' metrics:** Some of the 'other' metrics communities are tracking and reporting on include: number of households or businesses contacted in an outreach campaign, number of public or special events, e-waste and white goods diversion, participation rates, compost bin sales, estimates of backyard composting (participation and tons), number of schools / students educated, material capture rates, and cost data (cost per ton or program).
- **Waste characterizations and life-cycle assessment:** None of the above recycling or diversion focused goals, however, addresses broader goals often associated with waste reduction related to, for example, climate change, energy and resource conservation, toxicity, air and water pollution, or economic development. There is a growing amount of interest in such measures, however.

The U.S. EPA is examining opportunities to modify the long-standing Characterization of Municipal Solid Waste in the U.S. reports that use production data and industry trade association information and opinions to estimate nationwide generation, diversion and disposal. Under consideration are options to more comprehensively measure upstream mining and manufacturing material flows, and to include a broader range of waste streams (e.g., industrial, C&D, etc.) and information (e.g., toxicity, energy, pollution, etc.). EPA's WARM model remains the most widely used life-cycle inventory model for estimating the climate change and energy conservation benefits associated with waste reduction. However, the California Air Resources Board, with input from CalRecycle and jurisdictions including StopWaste, has refined the model for use in California under AB32.

EPA and some jurisdictions such as Oregon Department of Environmental Quality and King County have also began to push the boundaries of recycling life-cycle

[36] SERA and Lisa Skumatz have published several articles on measuring Source Reduction including *Lisa* A. *Skumatz*, Ph.D., "*Source Reduction can be Measured*," Resource. Recycling, 8/2000 and Skumatz, Lisa, *Measuring Source Reduction from Composting: Quantitative Analysis*", Prepared for Portland Metro, 2002.

assessment and climate change metrics, for example, by developing consumption-based climate inventories based on consumer activity rather than local facilities, and sector-based climate inventories that more clearly capture the role of recycling and waste reduction in addressing climate change. Finally, industry is also taking the lead in seeking to expand and standardize sustainability data related to waste reduction through a number of different initiatives, for example, those undertaken by Wal-Mart and the Sustainable Packaging Council.

6.10 Ties to Climate, Sustainability and Other Broad Goals

Many communities, including those in Alameda County, are directly tying waste reduction efforts to broader goals related to climate change, resource conservation or sustainability. Through AB32, California has confirmed its commitment to transition to a sustainable, clean energy economy, with the requirement of an absolute statewide limit on greenhouse gas (GHG) emissions. California's emissions must be lowered to 1990 limits by 2020, and the Plan lays out five specific types of strategies for achieving the goal: energy efficiency, renewable energy, cap-and-trade, transportation-based strategies, and direct emission reduction strategies.

The Plan's strategies do not directly include quantitative targets for waste reduction, even though they acknowledge that such activities have important impacts on global energy use and GHG emissions. This is because such "tier three" emissions are indirect, and may occur at a wide range of locations around the globe, as recycling offsets the need for raw materials extraction and processing, and/or reduces energy used in manufacturing. However, the state's mandatory commercial recycling law was implemented as part of the Climate law, and the California Air Resources Board is considering allocating some funding derived from Cap & Trade proceeds to promote organics management and possibly other waste reduction-related activities.

Many communities are including waste reduction in Climate Action Plans, including the majority of comparable jurisdictions researched and in Alameda County. And, StopWaste is facilitating a new GHG inventory that refines previous estimates and directly ties climate change to waste management and reduction activities.

U.S. EPA, some states and some communities are recasting waste management and reduction as materials management strategies tied to even broader sustainability goals. These include Washington State's Beyond Waste Plan and various efforts by U.S. EPA. One example is EPA's award of a Climate Showcase Communities grant to StopWaste to expand the Use Reusables Campaign for its efforts to curb greenhouse gases via the prevention of transport packaging waste. Alameda County is at the forefront of these efforts through involvement in state and regional climate change forums, and its broad programs involving climate change, green building and Bay Friendly Landscaping activities, among others.

Section 7
CONCLUSIONS AND RECOMMENDATIONS

This section presents SAIC's and SERA's overall conclusions regarding the evaluation of Alameda County waste reduction programs and activities, along with recommendations for consideration. The conclusions and recommendations are based on the data and information presented in the previous sections of this report.

7.1 Progress Toward Diversion Goals

StopWaste and its member agencies are among the nation's highest performing jurisdictions in terms of waste diversion; they have made steady, strong progress consistently over many years. And yet, more remains to be done to fully meet the established diversion goals.

As discussed in Section 2, StopWaste adopted a 75 percent diversion target years ago, and achieved a County-wide rate of 72 percent in 2011, based on the CalRecycle methodology. Member agency rates in 2011 using the same methodology varied from 65 percent in Oakland and Emeryville to 79 percent in Albany. (See Table 2 in Section 2.)

And, as described in Section 5.5, StopWaste has also adopted a new diversion-related goal of reducing the portion of the disposal stream that is readily divertible to less than 10 percent by 2020, starting from a 2008 baseline of a 57 percent for the overall disposal stream, and 65 percent for the residential waste stream. These rates, while on the high end of the spectrum, generally compare favorably with the other jurisdictions analyzed. (See Table 33in Section 5.5.)

The County appears well poised to achieve the 75 percent diversion goal, although exceeding and sustaining this level will require continuing efforts. The new commercial recycling mandate, increasing efforts to educate the public to increase participation and capture rates (especially for food scraps) appear to have a good probability of nudging the County over the 75 percent level, based on the CalRecycle methodology used by StopWaste to develop the diversion estimates in Table 2.

Reducing the readily divertible portion of the disposal stream to 10 percent or less, however, may prove more challenging. StopWaste is on the cutting edge with this metric, but SAIC's analysis of other jurisdictions indicates that the highest performing jurisdictions are still in the mid thirty percent range (subject to various calculation assumptions).

7.2 Strategy and Approach

At the County-wide level, StopWaste has long been guided by a highly strategic, goal-oriented approach to programs, activities and outcomes, and this was emphasized even more with the adoption of the Strategic Workplan in 2010. Strengths include:

- Consistent use of outside funding sources wherever possible, for example, through State programs such as those targeting E-Waste, Used Oil and beverage containers, and grants from U.S. EPA, utilities and state agencies. These funds cover topics such as reuse, energy conservation, Bay Friendly activities, green building, E-Waste, household hazardous waste and others;
- Very extensive partnering, for example, with: other local solid waste and recycling agencies; utilities; non-profit organizations; industry trade associations; and other groups sharing a common interest;
- Strategic development and nurturing of independent non-profit organizations, for example, to undertake education, outreach and technical assistance related to Bay Friendly activities and green building;
- A proactive strategy that seeks to impact decisions regarding products manufactured and purchased in Alameda County, rather than dealing with them solely as discards;
- A comprehensive, broad approach that puts waste reduction squarely within the context of broader sustainability goals such as climate change, energy and resource conservation and economic development;
- Participation in organizations aimed at promoting state and industry policies/programs that forward StopWaste goals, such as the California Product Stewardship Council or the national Product Stewardship Institute;
- An approach to initiatives that balance the desire for unified, County-wide action with the need for member agencies to maintain autonomy and local control, for example, by providing opt-out provisions in the new mandatory commercial recycling and reusable bag ordinances.

On behalf of its member agencies and with their active involvement, StopWaste has undertaken strategic initiatives to proactively address numerous issues at the forefront of local waste reduction and waste management programs or conducted research to advance County-wide policy measures. For example, the Agency researched the potential for implementing local Advanced Disposal Fees to address an impending funding shortfall mainly affecting the HHW program. While a local ADF may not be feasible in the short run, the effort yielded information that could assist in future implementation in Alameda County or elsewhere. The Agency supported adoption by the Alameda County Board of Supervisors of the Alameda County Safe Drug Disposal Ordinance which requires producers of drugs sold or distributed in the county to pay for the safe collection and disposal of unused medications. The Agency prepared programmatic EIRs to help aid in citing a local composting facility, though it has not yet succeeded, and prepared other EIRs related to their new goals, commercial recycling ordinance and plastic bag ordinances. The Agency has investigated the potential for standard contract terms across member agencies' franchise agreements. And finally, the Agency spearheaded formulation of the new goal to reduce readily recyclable or compostable materials in the disposal stream, which could prove to be a highly efficient and useful metric. Activities included such County-wide research as

evaluating the need for new infrastructure to manage diverted materials to achieve established goals.

Member agencies participate in these strategies and approaches through their affiliation with StopWaste, and also adopt their own unique approaches and strategies. Through meeting presentations, the Technical Advisory Committee, the StopWaste web site and other mechanisms, there is strong communication across the County on issues related to waste management and waste reduction.

While some of StopWaste's strategic initiatives have not yet achieved their goal, the Agency has diligently tracked needs and sought to systematically focus on top priorities needed to move the County and its member agencies towards established goals. Going forward, StopWaste may wish to consider reinforcing existing strategic initiatives, or launching new ones, targeting the following issues:

- Evaluating the pros and cons of moving to every-other-week garbage collection, and options to promote this approach should it be deemed appropriate. (See Section 7.4 below for more details.)
- Considering emerging technologies as a means of securing in-County organics management capacity. This is a long-standing Agency goal that has proven elusive. One option is to monitor progress in existing and planned anaerobic digestion facilities such as the Zero Waste Energy Development Corporation in San Jose, and consider focusing efforts on evaluating whether AD or other conversion technologies may have merit in the County, for example, for commercial organics and/or for MRF residuals.
- Evaluating the pros and cons, and options for implementing collection systems such as wet/dry approaches for commercial generators, tied to post-collection processing facilities designed to divert high percentages of materials. The County's processing facilities already engage in aggressive efforts to divert materials, but there may be potential for wet/dry systems to further increase yields. Again, StopWaste should monitor such approaches, for example at Republic Industries' remodeled Newby Island Resource Recovery Park.

7.3 Programs and Activities

Alameda County's waste reduction programs and activities are generally highly advanced, even when compared to leading programs across North America, California and the Bay Area. Given that programs have been consistently relatively well funded (notwithstanding current StopWaste revenue concerns), and the sustained strategic approach described above, it is not surprising that the Agency and/or its member agencies have implemented, or evaluated, most all of the programs associated with high performance jurisdictions.

County-Wide

At the County-Wide level, StopWaste has partnered with numerous private, governmental and non-profit organizations, both within and outside of Alameda

County, to implement the broad suite of programs described in Section 4. In terms of its resources, staff expertise, and range of programs, the Agency functions in a manner similar to some advanced state agencies, comparable even to CalRecycle in many regards. However, while StopWaste addresses policy issues, its efforts are squarely focused on enhancing local, on-the-ground programs to achieve established goals.

Given the wide range of activities StopWaste and its partners have undertaken, SAIC has not identified any major gaps or deficiencies. However, going forward, at the County-Wide level StopWaste may wish to consider sustained programmatic efforts supporting the three strategic initiatives suggested above, namely:

- Evaluation of every-other-week garbage collection and options for promoting it;
- Monitoring and evaluating options for expanded diversion through alternative collection schemes such as wet/dry collection, tied to expanded post-collection processing levels;
- Development of in-County organics processing capacity, including options to expand AD capacity via East Bay Municipal Utility District, and/or via other new conversion technology facilities; and also
- Expanding and adjusting commercial technical assistance activities to focus on maximizing food scraps recovery, and educating businesses about the new mandate, while tying such activities to monitoring and enforcement of the new ordinance.

Member Agencies

As reported in previous Five Year Audit reports, StopWaste member agencies continue to have very advanced waste reduction programs that meet or exceed the standards set in high performance communities across North America. Moreover, the programs have continued to evolve in the past five years, with all member agencies now providing residential organics collection, including food scraps, widespread commercial organics programs, and innovative contracting and rate incentives to drive diversion.

Based on the analysis of 13 jurisdictions presented in Section 5, jurisdictions with the highest diversion rates have every-other-week trash collection programs, mini-can options for residents, mandatory source separation ordinances coupled with disposal bans, incentive-based rates, and tend to be located in regions with strong extended product stewardship activity. StopWaste and its member agencies have implemented several of the same programs including a disposal ban on plant debris, the widespread use of incentive-based rates, and the mandatory commercial and multi-family recycling programs, but there are still a number of opportunities available for consideration. The jurisdictional research of Section 5 was used to identify a number of potential programs for future consideration by StopWaste member agencies. These programs include those that have been used successfully in other jurisdictions that do not currently exist in the county or are improvements or refinements to existing StopWaste or member agency programs.

The Table includes a brief description of the program, identifies the jurisdiction(s) that have implemented the program, and lists whether or not a similar program already exists in the County. Section 7.4 below focuses on one particularly intriguing option: moving to every-other-week garbage collection, and Table 34 displays a number of additional programs alphabetically.

Table 34: Programs for Future Consideration

Program	Description	Case Study Example	Alameda County
Anaerobic Digester with Power Generation	Large-scale anaerobic digester to process organics and capture, clean, and sell or use bio-gas and compost by-products	Planned Facility in San Jose (CA), Markham (ON)	Limited Use of EBMUD AD Facility
Clear Bag Program	All trash must be placed in clear bags, allowing haulers to identify banned items; if present, trash is not collected and fines may be levied	Markham (ON)	No. Mandatory Ordinance inspectors currently need to open sampling of bagged waste to look for recyclables.
Commercial PAYT (Embedded recycling)	Commercial trash rates embed the costs of recycling, generators pay for services based on the size of the trash container and the frequency of collection. Similar to residential PAYT, this program encourages diversion, but migration to lower levels of garbage service may require significant rate increases.	Seattle (WA), Santa Barbara (CA)	Several Alameda County agencies and haulers offer rates structured this way including Albany, Berkeley (for those with City MSW accounts), CVSD (up to 3cy/week), Dublin, and Hayward.
Community Based Social Marketing Outreach (with measurement)	Use classic marketing techniques combined with sociological tools to encourage positive behaviors and actions. Many examples of programs exist. However there is little data available on the actual costs and impacts of these programs.	Vancouver (WA), Portland (OR) New Westminster (BC), Cambridge (MA), Grand Rapids (MI), Seattle (WA), Santa Barbara (CA)	StopWaste and some member agencies are using CBSM elements in their outreach already; they should consider trying to quantify the costs and impacts of CBSM to measure its efficacy.
Compressed Natural Gas Fleets	Employ contracts or ordinances to require that haulers use a 'green' CNG fleet to reduce the GHG impacts of collection	San Jose (CA)	Some newly executed franchise agreements include this provision.
Construction & Demolition, Enhanced	Support deconstruction practices with advanced permits and discounted tip fees (points based programs are also commonly used to encourage deconstruction)	Vancouver (BC), New Westminster (BC), Boulder (CO), San Jose (CA)	All Alameda County agencies already have C&D debris diversion ordinances, several require deposits for the largest projects.
Contract Fees for Funding	Use franchise fees to help fund diversion programs. Although charged to haulers, the fees are typically 'pass through' fees that are paid by generators through rates. This can function as an alternative to tip fee surcharges as a funding source	Santa Barbara (CA); San Jose (CA)	Franchise fees used, but potentially room for expanded use. Use of fees for diversion programs competes with other municipal budget needs.

Table 34: Programs for Future Consideration

Program	Description	Case Study Example	Alameda County
Contract Incentives	Member agencies can include incentives for haulers (reduced franchise fees, increased revenues, etc.) and generators (rates that favor diversion) in future contracts	Santa Barbara (CA), Seattle (WA)	Use of incentivized rates in some franchise agreements (e.g., Dublin)
Detailed Program Metrics and Tracking	Use of waste characterization data to evaluate program effectiveness and identify future needs/opportunities. Data and approaches could potentially be adjusted to best support the new goal related to reducing readily recyclables/compostable materials in waste stream through more frequent, streamlined data gathering	Seattle (WA)	Use of 2008 and previous waste characterization studies and recent audits conducted for awards program.
Every-other-week Trash for All Residents	Residents have trash every-other-week. Typically includes weekly collection of organics; some couple the program with weekly collection of recycling, others have every-other-week recycling collection (alternating with trash) to reduce costs	Portland (OR), Markham (ONT), Renton (WA), New Westminster (BC)	No
Exclusive Contracts / Franchises for Commercial Sector	Contract or franchise haulers to collect commercial sector materials with clauses to increase diversion. Contracts can include generator and hauler incentives, performance goals and metrics, education and outreach, reporting, contamination minimums, etc. They can also be structured to allow flexibility to generators and non-franchise haulers in situations where the franchise hauler cannot recycle a particular waste stream.	Seattle (WA), San Jose (CA), Santa Barbara (CA)	All Alameda County cities already have exclusive service providers in the commercial sector with the exception of Alameda, Albany, and Berkeley. All are exclusive for commercial putrescible “wet” garbage. Oakland allows open market for commercial source separated organics, but plans to move to exclusive in 2015, while maintaining a non-exclusive market for commercial recycling.
Expanded Material Disposal Bans	Ban the disposal of items such as conventional recyclables, food scraps, construction and demolition debris, or mattresses and pallets (as in NC) from the transfer station and/or the landfill.	Markham (ONT), Vancouver (BC), New Westminster (BC)	Existing disposal bans in the County include yard debris, while state policies ban select E-waste, and other HHW items; and the Alameda County mandatory commercial ordinance includes a disposal ban.
Mandatory Commercial Source Separation	Commercial generators must source separate and cause to be recycled certain selected materials. The program in some other cities is more aggressive than the Alameda County requirement as it impacts all commercial generators	Seattle (WA), Portland (OR)	Alameda County ordinance applies to businesses generating over 4 cubic yards per week and includes disposal ban of covered recyclables), but does allow for a “dirty MRF” compliance option.
Mandatory Multi-Family Source Separation	All multi-family generators must source separate and cause to be recycled certain selected materials	Seattle (WA)	StopWaste ordinance requires that a recycling program is set up for MF, but does not necessarily require its use.
Mandatory Residential Source Separation	All single-family generators must source separate and cause to be recycled selected materials.	Seattle (WA), Portland (OR)	None

Table 34: Programs for Future Consideration

Program	Description	Case Study Example	Alameda County
Non-Profit Partnerships	Work with non-profit organizations to design and implement outreach and education programs, often used to implement school outreach programs.	Vancouver (WA), Boulder (CO)	Several Alameda County agencies already do this. Measure D requires the Recycling Board to expend 10% of surcharge revenues on grants or contracts with non-profits. Much goes for schools and outreach efforts.
Points-based Incentive	Cities have followed RecycleBank's lead and implemented their own recycling incentive programs giving residents points based on the amount they recycle that can be redeemed for coupons and discounts at local stores. The program is well liked by residents and can increase diversion	Grand Rapids (MI)	No – but a variation of this recognition/awards program piloted in 2012.
Post Collection Separation	New generation 'dirty' MRF is used to separate recoverable items (recyclables and organics) from mixed MSW loads. The MRF works in conjunction with an organics processors to achieve high rates of diversion (70- 80 percent). Can employ wet/dry collection	San Jose (CA)	Union City commercial recyclables now transported to Republic Industries' Newby Island facility, provided contamination rate is <10%. County Mandatory Recycling Ordinance allows for a "dirty MRF" compliance option.
Pre-Paid trash with Pay by Collection	Residents must pre-pay their trash accounts. Money from the accounts is used for each collection, with residents only charged when they set out trash cart. Program uses RFID tags to record household's collections.	Grand Rapids (MI)	No
Regional EPR	Work with product producers to improve end-of-life options for materials. Ontario relies on EPR for recyclables to help fund many of their programs.	Markham (ON), Vancouver (BC), New Westminster (BC)	Paint, thermostats and Carpet (ADF for E-waste) at state level.
Trash Tax/Alternative funding sources	A voter approved tax used to fund zero waste and other diversion programs. Tax is levied on haulers and based on the number of accounts, the tax is passed through to generators	Boulder (CO)	No – But StopWaste researched ADFs and other funding alternatives. Measure D, passed by Alameda County voters in 1990, raises revenues from landfill surcharge that can only be used for waste reduction.
Wet / Dry Collection	A collection scheme that has generators separate materials into a Wet stream (organics, food soiled paper, tissues, paper towels) and a Dry stream (all other materials including recyclables). The streams are sent to facilities capable of post collection sorting and processing.	San Jose (CA)	Current "dry" commercial routing in Alameda County (for delivery to MRF for sorting) is largely invisible to generators.

7.4 Moving to EOW Garbage Collection

Because it is an innovative approach with high potential benefits not yet implemented in Alameda, EOW garbage collection is covered separately here from other program options presented in Section 7.3.

Every-other-week trash collection increases residential diversion, and households in the cities with EOW collection generate less overall materials. Moreover, shifting to EOW collection can potentially reduce service costs. Waste characterization data indicate that despite the Alameda's successes, a sizable portion of the residential waste stream can still be diverted through curbside programs. Reducing the frequency of garbage collection is a growing trend in North America[37]. Currently, all of the member agencies in Alameda County have weekly collection of trash and organics and should consider EOW trash collection as an option to increase diversion. Every-other-week programs are generally implemented with weekly organics (including food scraps), thus allowing for residents to maintain a weekly collection of putrescible waste and at the same time, turn current trash cart into a 'residuals' cart. Recyclables are collected either weekly or every-other-week, depending on how the member agency chooses to design the program.

State law and regulations are ambiguous or conflicting with regard to required frequency of solid waste collection, but the door appears to be open to this type of collection scheme. For example, 14 CCR §17331 requires refuse (defined as non-putrescibles) removal every seven days, except for inert materials, to prevent propagation, harborage, or attraction of flies, rodents or other vectors and the creation of nuisances. With food scrap organics collected weekly, vectors, rodents or flies will not be attracted to the remaining materials. Logistics regarding pet wastes and disposable diapers can be worked out. Following are some reasons why Alameda County member agencies should evaluate EOW collection:

- **Strong performing program with multiple benefits:** The research conducted for this report indicates that that every-other- week trash collection has the potential to improve the performance of already existing diversion programs, improve material capture rates, and lead to source reduction. The largest impacts were noted in the increase in organics diverted, particularly food scraps.
- **Cost reduction benefits:** Decreasing the number of collections can reduce the costs of service by as much as 40 percent[38]. This allows jurisdictions to reduce the overall costs of services or add additional services without a net increase in costs. Potentially, the highest cost saving model is to alternate trash collection weeks with recycling collection weeks, thus eliminating an entire collection for households.
- **Member agencies are well poised for program adoption:** The majority of StopWaste member agencies are already well situated to consider EOW trash

[37] While the number of US programs is still limited (around a dozen or so programs in the US, primarily located in the North West) there are significantly more programs successfully operating in Ontario and British Columbia.

[38] Skumatz, Lisa, *Resource Recycling*, September 2007. *"Alternating weeks: Options and opportunities for garbage and recycling"*.

collection because they **a)** collect organics including food scraps **b)** have single stream recycling (with the exception of Berkeley) **c)** use variable rates to charge for trash and **d)** have a history of adopting 'cutting edge' diversion programs.

- **Variety of program options:** As the jurisdictional research demonstrated, there are many different ways to implement a less than weekly collection scheme. Each member agency in the County can modify a program to fit the needs of their residents and haulers and the variety of program models means that the program can be designed to limit barriers and opposition.

A number of implementation tips for member agencies interested in adopting EOW trash collection are briefly presented in Table 35 below.

Table 35: Every-Other-Week Trash Collection Recommendations and Tips

Recommended Approach	Notes
Run a pilot program first	No Alameda cities currently have EOW trash collection. Prior to adopting the first program a pilot program is recommended. The pilot will help identify adoption barriers, costs savings, ascertain public support/opposition, and measure impacts.
Allow for a long build-up phase	The program represents a large departure from what most households are used to. A long build up phase (including the pilot), significant outreach and education, a strong media campaign, and public meetings, will be useful in making the full scale implementation successful.
Be prepared to change out containers	With less frequent trash collection a portion of households will want larger trash containers (interviews indicate perhaps 3-5 percent might change for each cart level). Have an inventory of carts available for the change and a plan for how to collect and replace carts.
Offer a 'new' service level or reduce rates	Reducing the frequency of trash collection can be seen by households as a loss of service. In some cases, going to EOW garbage collection may be an alternative to having to raise rates. However, if feasible, jurisdictions may wish to consider adding a new item to existing streams (more materials), adding a different 'new' program, or even reducing the rates paid by generators to make the program attractive.
Provide collection schedule information	Knowing collection schedules is very important in EOW collection schemes since a missed collection might mean a generator will not have trash collected for a month. Durable calendars mailed to households, easy web look-ups of collection days, a hot-line, and other options (discussed in more detail in the case studies) for clearly identifying collection days are necessary.
Make the program mandatory for all (or not)	The majority of the EOW jurisdictions interviewed report that the program should be mandatory for all generators with no option for weekly collection, This allows a clear reduction in collection costs, an ease of routing and education, and a uniform program city wide. An alternative (supported by 2 jurisdictions) is to keep a weekly, albeit expensive, option available to reduce opposition.
Re-examine existing PAYT rate structure	The variable rates in Alameda County are aggressive, in some instances over 100 percent rate increases per additional 'unit' of trash. Under EOW these aggressive rates may not be necessary. The EOW program effectively cuts all trash subscription amounts in half (a 64-gal cart collected EOW is now a 32) and the rate structure should be re-examined with this consideration in mind.
Be prepared to deal with multiple issues	The program is not without its barriers. These include diapers and pet waste in trash carts, residential opposition to a perceived loss of service, general confusion about the program, increased contamination (at least initially) in the recycling and organics streams, facility related issues, and the requirement of a large scale change in the disposal behaviors of residents. Contact cities with the program in place to learn how they overcame the issues and refer to the case studies in this report.

Table 35: Every-Other-Week Trash Collection Recommendations and Tips

Recommended Approach	Notes
Document contamination and other key metrics before and after a switch to EOW garbage collection	To help evaluate the impacts of a switch to EOW garbage collection, and to evaluate the need for adjustments to education or other practices, consider documenting program performance, and in particular contamination levels in the recycling and organics containers, both before and after the EOW program is launched.

7.5 Overall Assessment and Concluding Remarks

Alameda County's waste reduction programs continue to serve as a model for others across North America, at both the County-wide and the member agency levels. StopWaste, in conjunction with its member agencies has consistently demonstrated a highly strategic and comprehensive approach to tracking, evaluating options, planning and implementing new programs. As a result, programs and infrastructure have steadily evolved since adoption of Measure D, and most all of the approaches and programs used in other leading communities are either already in place, or have been evaluated in Alameda. StopWaste's member agencies have either exceeded the 75 percent diversion goal, or have demonstrated steady progress towards the goal. And the newly adopted goal to reduce readily recyclable or composting materials in the disposal stream to 10 percent or less by 2020 will continue to focus tracking and programs on the specific materials and market development needed to ensure steady progress.

While there are no major gaps in the waste reduction strategies, programs and approaches in place in Alameda, there are some activities that County decision makers should continue to explore and/or new programs that should be evaluated. These include:

- Continuing to seek to establish in-County organics management capacity, possibly via anaerobic digestion or other conversion technologies;
- Moving to every-other-week garbage collection to further incentivize diversion in the residential sector by maximizing participation and capture rates;
- Evaluating wet/dry and other innovative collection systems, along with expanded post-collection processing systems; and
- Continued exploration of how EPR and other state/local policies such as funding mechanisms can benefit local programs and assist in achieving long-term goals.

Overall, StopWaste and its member agencies are among the elite, high performing communities in terms of waste reduction and associated sustainability goals. The Agency is well poised to continue and expand upon this position as it follows the path laid out in its Strategic Workplan.

Appendix A
GLOSSARY OF ACRONYMS

4Rs	Reduce, Reuse, Recycle, Rot
ACI	Alameda County Industries
ACWMA	Alameda County Waste Management Authority (StopWaste)
ACWMB	Alameda County Source Reduction and Recycling Board
AD	Anaerobic Digestion
ADC	Alternative Daily Cover
ADFs	Advanced Disposal Fees
AVI	Amador Valley Industries
AWS	Allied Waste Solutions (now Republic)
BayROC	Bay Area Recycling Outreach Coalition
BFL	Bay-Friendly Landscape
BUSD	Berkeley Unified School District
C&D	Construction & Demolition
CAP	Climate Action Plan
CBSM	Community Based Social Marketing
CFL	Compact Fluorescent Lamp
CHaRM	Center for Hard to Recycle Materials
CIWMB	California Intergraded Waste Management Board (now CalRecycle)
CNG	Compressed Natural Gas
CoIWMP	Countywide Integrated Waste Management Plan
CPI	Consumer Price Index
CPSC	California Product Stewardship Council
CVSD	Castro Valley Sanitary District
CWS	California Waste Solutions
CY	Cubic Yards
EBMUD	East Bay Municipal Utility District
EOW	Every Other Week
EPA	U.S. Environmental Protection Agency
EPEAT	U.S. EPA's Electronic Product Environmental Assessment Tool

EPP	Environmentally Preferable Purchasing
EPR	Extended Producer Reasonability
EPS	Expanded Polystyrene
EUSD	Emeryville Unified School District
FELs	Front End Loaders
FTE	Full Time Equivalent
FUSD	Fremont Unified School District
FY	Fiscal Year
GHG	Green House Gas
GSA	Alameda County General Services Agency
HDPE	High Density Polyethylene
HH	Household
HHW	Household Hazardous Waste
ICLEI	International Council for Local Environmental Initiatives
IRRF	Integrated Resource Recovery Facility
IT	Information Technology
LCA	Life Cycle Assessment
LEED	US. Green Business Council's Leadership in Energy and Environmental Design
MA	Member Agency
MFD	Multi-Family Dwelling
MRF	Materials Resource Facility
MSW	Municipal Solid Waste
NA	Not Applicable
ND	Not determined
OBDC	Oakland Business Development Corporation
OCC	Old Corrugated Cardboard
OLSD	Oro Loma Sanitary District
PAYT	Pay As You Throw
PD	Plant Debris
PET	Polyethylene Terephthalate
PG&E	Pacific Gas & Electric
PGS	Pleasanton Garbage Service

PP	Per Person
PSI	Product Stewardship Institute
R&D	Research & Development
RFID	Radio Frequency Identification
RFP	Request For Proposals
SAIC	Science Applications International Corporation
SERA	Skumatz Economic Research Associates
SFD	Single Family Dwelling
SH	Self Haul
SSO	Source Separation Ordinance
SWO	StopWaste
SWP	StopWaste Partnership
TAC	Technical Advisory Committee
TS	Transfer Station
WDO	Waste Diversion Ontario
WK	Week
WMAC	Waste Management of Alameda County

Appendix B
PROFILES OF JURISDICTIONS WITH EVERY-OTHER-WEEK GARBAGE COLLECTION

This appendix provides case study profiles prepared by SERA for six jurisdictions that have adopted every-other-week garbage collection services as a strategy to increase diversion of organics and recyclable materials. The rationale for selecting these jurisdictions is presented in Section 5, along with a summary of findings. The jurisdictions profiles are:

- Vancouver, Washington
- New Westminster, British Columbia
- Renton, Washington
- Olympia, Washington
- Portland, Oregon
- Markham, Ontario

Vancouver, Washington

Jurisdiction Overview[39]

The City of Vancouver contracts with a single hauler for the provision of residential, multi-family, and commercial trash collection. The same hauler collects residential recycling and organics and commercial organics (optional program). Commercial recycling is collected by haulers competing in the open market. The City does not have mandatory source separation or disposal bans on recyclables for any sector. The residential sector must pay for recycling while organics service is optional. The residential organics program does not include food scraps. There is a commercial food scraps program in which commercial food scraps collection is offered at a price discount of approximately 25 percent compared to commercial trash collection. There is a 'free' commercial recycling program for small commercial generators that can use 96-gallon carts, and the program is paid for through the contracted rates paid by all generators.

Summary

Demographics:
Total population:161,791
Households: 69,899
Firms: 13,642
Square Miles: 46.5

Reported Diversion Rate:
47% (residential)

Residential Tons:
Total generated: 50,415
MSW: 26,400
Recycling: 12,481
Organics: 11,597

Residential Pounds per Person per Year:
Total Generation: 1044.6
Disposal: 547.0
Recycling: 257.3
Organics: 240.3

Measurement and Tracking: The City's contracted hauler is required to report monthly MSW tonnages; recycling is tracked through the MRF; alternative daily over (ADC) is not included in diversion rates.

Brief Description: Vancouver offers every-other-week and monthly trash collection as a low cost option for low generators, approximately 16% of households choose these options.

Every Other Week Garbage Collection Program:

Year Started and Who is Covered:

The every-other-week option started in 1999 and is available for all single family households in the City.

Program Details:

Vancouver offers EOW as an optional program for households that want less frequent collection. These households tend to be low generators, small or elderly households, and those that want to pay for as little government services as possible. Rates for the program are designed to encourage lower levels of service and are:

[39] The demographic data in this appendix is from the US Census Bureau 2010 or the Statistics Canada 2007 community profiles. The diversion rates and tonnage data are reported data from the researched jurisdictions, The pounds per person per year data is calculated based on the census data, the tonnage data, and the reported number of households serviced.

- 20 gallon $12.35 EOW, $14.75 weekly
- 32 gallon $9.95 once a month, $14.75 EOW, $18.74 weekly
- 64 gallon $18.74 EOW, $34.72 weekly
  - 96 gallon $50.70 weekly
  - Overall, 16 percent of the customers choose every other week or less frequent trash collection. The majority of customers (65 percent) have weekly collection of 32 gallon carts.

Keys to Implementation:

The City has mandatory trash collection, and implemented every other week and once a month collection as a way to meet public demand for low cost and low generator options. The driver for this change was increasing choices for residents, not more diversion, which simplified implementation. It is important to note that by having a contracted hauler they are able to set rates that allow the hauler to recover the revenue they need even when they are just driving past houses and not stopping for collections (or getting paid for it).

Program Impacts:

The City did not have pre- and post- data available. The City noted that residential garbage disposal has been on a slightly downward trend and recycling has been improving, but attributes only a portion of these gains to the program.

On-Going Concerns:

Nothing of note.

Advice for StopWaste:

Vancouver recommends communities allow options for people that want or demand weekly collection and avoid forcing the every-other-week program on all households. It is important to take time for planning and make sure the program meets the community needs.

Other Notable Successes

'Recyclingist Neighborhood', a social marketing program, provides training to neighborhood association members to encourage diversion, and is one of their most successful programs. The City has 64 distinct neighborhoods with neighborhood associations. The program reaches out to the associations, invites a representative to attend a meeting about encouraging diversion in the neighborhood, and asks the association to include an article in their newsletter. If they do this, they get $100 that goes to the neighborhood association. It uses social diffusion and trusted messengers to spread the diversion message. They run a 'Resource Conservation Challenge' with the neighborhood associations during clean-up weekends to encourage re-use and diversion of materials from the landfill. They also run a Wastebuster Competition (with Clark County) that

challenged six families to compete against each other to reduce their waste over six weeks.

Key Lessons

- Go with what works in your community. Do not just do what others are doing because it might not work for you and your citizens might not like the program. Fit the programs to your community.
- If every other week is offered as an option and only some households participate, the rates paid by all households (including EOW) must be set to meet the haulers revenue requirements. This is important as the haulers will still be driving past the EOW households each week but they will not be getting paid for it.

New Westminster, British Columbia

Jurisdiction Overview

The City of New Westminster uses municipal staff to collect trash, recycling, and organics (including food scraps) from all single family unit residents. City crews also collect a portion of the business sector - usually small ones that are unable to contract with private haulers - and charges them based on size and frequency of pickup. Multi-family recycling is provided through a City-managed contract with a private hauler and multi-family food scraps will be included in 2013 as a pilot. There is no commercial recycling program with the City; these services are completely handled by the private sector. The City follows Metro Vancouver's landfill bans, including conventional recyclable items (OCC, paper, glass, plastics #1, #2, #4, and # 5, beverage containers), electronics, hazardous waste, wood wastes, mattresses, gypsum, scrap metal, and large appliances[40]. Through Province-wide actions, they have extensive EPR programs covering 10 categories of materials[41].

Summary

Demographics:
Total population: 65,976
Households: 28,670
Firms: Not available
Square miles: 6.03

Reported Diversion Rate:
72% residential

Residential Tons:
Total generated: 8,731
MSW 3,514
Recycling 1,794
Organics 3,423

Residential Pounds per Person per Year:
Total generated: 989.9
MSW: 398.4
Recycling: 203.4
Organics: 388.0

Measurement and Tracking: City crews keep track of information for residential trash, recycling and organics. There is no reporting requirement for private haulers. Those wastes taken to other facilities are recorded through Metro Vancouver. EPR numbers are also reported.

Brief Description: The City of New Westminster staff collects residential trash and recycling every other week and organics once a week. The EOW program (the City also switched to single stream recycling at the same time) has helped reduced trash disposal by 25% and costs by around 8%.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

This is a residential mandatory program which kicked off January 2012 for all 8,600 single family households.

Program Details:

There are two trash sizes carts available, 32-gallon ($18.02/month) and 63-gallon ($27.03/ month). Single stream recycling and organics are collected in 63 gallon carts. Organics are collected weekly with trash and recycling collection

[40] The Region is planning on banning the disposal of organics waste including food scraps in landfills in 2015

[41] The EPR covered items include antifreeze, beverage containers (bottle bill), electronics and batteries (TVs computers, scanners, telephones AV, fluorescents, thermostats, smoke detectors, small electronics), gasoline, lead acid batteries, oils and petroleum byproducts, paint and empty paint containers and solvents, pesticides, pharmaceuticals and medications, and tires.

alternating weeks. The program is called the "Truer Bluer" recycling program and "Cleaner Greener" organics program. There are no options available for weekly collection.

Keys to Implementation:

The City completed the switch to EOW trash collection in several phases, all of which were prompted by the need for new trucks. In October 2010, they established the automated weekly trash collection system, including yard and food scraps collection. In advance of EOW collection, they mailed out flyers to all customers, conducted outreach in public and high traffic areas, and gave information packets with the roll out of the carts. In 2012 they switched garbage and recycling to EOW, but kept organics weekly. City crews switched from a standard five day week to four, ten-hour day work weeks for trash/recycling collection, and leaving one day a week for additional commercial pickups or adjustments for holidays.

Program Impacts:

For the first three quarters of 2012 (recorded at the end of the fiscal year 2012) they have seen a decrease of nearly 8 percent in garbage disposal costs. Overall garbage tonnages were down by nearly 25 percent. Organics volumes have increased 13 percent and there has been a 9 percent increase in recycling (partly attributed to the introduction of single stream).

Ongoing Concerns:

During the first two weeks of changing to EOW trash, complaints centered around a perceived loss of services (less collection) and issues related to holding on to trash for that long (odors and 'yuck'). However, by about six weeks into the program the complaints had mostly stopped and now residents seem content with the program.

Advice for StopWaste:

Using the same trucks for both trash and recycling EOW has proved a cost-effective way to run collections. Putting carts in unexpected places (such as malls) prior to the change was a great way to draw attention and get the word out.

Other Notable Successes:

Multi-family Food Scraps Pilot: New Westminster recently ran a pilot providing weekly organics/food scraps collection in six multi-family buildings. The pilot included educational materials for all residents along with lobby displays, and resulted in a 25 percent waste reduction (average). This was on par with the residential program and evidenced little contamination. The City is now in the process of rolling out organics collection for all multi-family units, all of which will receive all the same educational material as the pilot.

Extended Producer Responsibility (EPR): (Same as Vancouver) British Columbia has a Clean Energy Plan and The Recycling Regulation that sets up legal framework for

Extended Producer Responsibility. There are a total of ten materials covered through some form or other of EPR (includes the bottle bill). In 2008, Metro Vancouver reported the diversion of approximately 129,360 tons of material from "take back" locations in the region.

Key Lessons

- Unlike some other communities, New Westminster reports that in order for every other week garbage collection to be successful, food scraps must be collected weekly. However, it is possible to have recycling on an EOW schedule and still reduce garbage costs while increasing diversion.
- When planning the program rates and ordering and delivering carts, expect a portion of EOW program participants to switch container sizes during the initial phase (perhaps 3 – 5 percent).
- The regional EPR programs in place in Ontario allow individual municipalities to afford recycling opportunities that they may not be able to on their own. Alameda County may wish to explore expanded EPR programs to help provide ongoing funding for diversion programs.
- If possible, plan the every-other-week program with same day collection for multiple materials. This helps to free-up trucks for other programs and reduce the overall costs.

Renton, Washington

Jurisdiction Overview

The City-contracted hauler collects trash, single stream recycling and organics from residents, multi-family units and commercial entities. The trash collections are all PAYT systems with the recycling costs embedded in the trash rates. For commercial recycling, the business gets 200 percent of the volume of trash collected for recycling – i.e., if the business has 1 cubic yard of trash, then they get 2 cubic yards of recycling. Plant debris is banned from disposal within the City and at King County facilities. For residents, their organics collection includes both plant debris and food scraps and these costs are embedded in the trash rates. For multi-family and commercial customers, organics collection includes plant debris only, and is a subscription-based program that is billed by the City. Commercial venues also have the option of up to five collections per week for their organics.

Summary

Demographics:
Total Population: 90,927
Households: 37,340
Firms: 6,094
Square miles: 23.12

Reported Diversion Rate:
70% (residential), 33% (overall), 10% (MFD), 12% (commercial)

Residential Tons:
Total generated: 22,145
MSW: 6,756
Recycling: 5,427
Organics: 9,962

Residential Pounds per Person per Year:
Total generated: 1065.2
MSW: 325.0
Recycling: 261.1
Organics: 479.2

Measurement and Tracking: The City's contracted hauler is required to report monthly tonnages of MSW, recycling is tracked through the MRF, alternative daily over (ADC) is not included in diversion rates.

Brief Description: Through a single hauler, Renton provides every-other-week trash and recycling collections and weekly organics collection (including food scraps) for residents. After implementing their residential program in 2009, residential recycling tons increased by 27% and residential tons of garbage decreased by 18%.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

The every-other-week trash program covers single family residential households and was implemented on January 2009.

Program Details:

Renton's residential trash is collected EOW by the City contracted hauler. Their contract runs from January 2009 to May 2016. The City owns the carts, bills for trash monthly, and determines the trash rates. Although Renton's EOW trash collection is believed to be mandatory for all residents, there is actually an "out" with higher rates for weekly collection for customers that want it. This however is not advertised by the City and is not used by any residents.

Keys to Implementation:

Washington State codes, at the time, didn't allow for EOW trash and any food scraps collection. However, other communities that had already made the switch to EOW trash collection had worked with the State Public Health Department to get them to provide waivers that would allow cities to implement these programs before the State had changed their codes. So prior to implementation, the City only had to obtain a waiver, and had to change the rate ordinance for collection in their own codes. The City also conducted a year-and-a-half long pilot program with 1,429 HHs that was initiated in 2007. After beginning the pilot program, the Public Health Department walked through neighborhoods to monitor odors and vectors and to assess the program. They found more problems within the control group (where people were using their then current collection methods) than within those using the new EOW system. This pilot was critical for both building public support for and success of the program, and persuaded council members that it was possible to be successful with EOW trash collection. To further prepare for city-wide implementation of the program, the City provided extensive education using the web, letters, and mailers, and they conducted seven public meetings about the program. The City also made the following changes at the same time:

- Moved from weekly to EOW trash collection
- Switched from customer-owned cans to City-owned wheeled carts
- Changed the trash collection days
- Added a 45-gallon cart option for trash in addition to the 35-gallon, 64-gallon, and 96-gallon ones
- Instituted unlimited single-stream recycling and increased the number of items HHs could now recycle
- Added food scraps collection to the plant debris collection and would now have unlimited organics collection
- Increased the trash rates (they had not had increase in 9 years, which resulted in double digit increases in household rates, but the rates would have increased, and by even higher levels if they hadn't implemented the program).

Program Impacts:

Residential recycling tons increased by 27 percent and the pounds of residential recycling/person increased by 16 percent. The residential organics tons increased by 44 percent and residential pounds of organics/person increased by 32 percent; and residential tons of garbage sent for disposal decreased by 18 percent, while residential pounds of garbage/person decreased by 20 percent. It is important to remember that the City also implemented a number of other changes simultaneously with EOW collection. Initially, a small percentage of people complained about the program, but the City found that odors and vectors that had been a concern could be controlled by using the weekly collection of food scraps

in the organics carts, and by double bagging both diapers and pet waste before putting them in the trash carts.

Ongoing Concerns:

There aren't any ongoing concerns at this time. In spite of the initial challenges, there is now widespread support for the EOW program.

Advice for StopWaste:

Renton staff recommend conducting community engagement up front, and suggest staying positive with a "we can do this attitude," and make sure not to allow negative comments to dictate the direction of program. A pilot program on a smaller scale is very helpful, to anticipate some initial difficulties and to garner public and elected official support. Concurrent changes during implementation can make the transition process more difficult. There may be problems and challenges to overcome initially, but the program can be successful if you persevere.

Other Notable Successes

The City of Renton continues to target residents, businesses and school-age children with their education and outreach. These have an emphasis on waste reduction and recycling, backyard composting, natural yard care strategies, as well as HHW disposal and reduction strategies. Other noteworthy programs include significantly reduced trash rates for low-income seniors and low-income disabled citizens; an on-call bulky collection service, an annual broad-based Reuse Event; direct debit applications and on-line payment services, phone payment options, and a 24-hour payment drop box for payment of trash bills; four possible disposal sites in the County for HHW with including mobile site (the Wastemobile); several used motor oil drop-off sites; and two annual Recycling Day Events funded by the King County Waste Reduction and Recycling Program.

Key Lessons

- Employing a wide array of outreach methods and media was essential in gaining public support prior to the program implementation. The City used web tools, direct mail, public meeting (7), email, advertisements, and earned media to inform the public about the new program and gain public support.
- A small scale pilot program was integral in the successful implementation of the EOW program. The pilot program helped to demonstrate to both the public and elected officials that the program could work successfully in Renton. It also allowed for the identification and resolution of some initial problems[42] with the program before it was rolled out City-wide.
- City of Renton staff note that with every-other-week trash collection, as with many other major changes to a solid waste system, a City should expect to have

[42] Some of the issues included carts being lost in the truck hopper when they were tipped (they switched trucks / collection at the same time), changes to the billing system, and cart deliveries.

difficulties. Renton staff suggest that Alameda County member agencies will just need to 'work through them with a positive attitude and you'll have success.'

Olympia, Washington

Jurisdiction Overview

Olympia uses its own staff and trucks to collect MSW from all sectors. The City collects residential and multi-family recycling and organics and the private sector collects commercial recycling through an open competition system. Residential garbage is collected every-other-week and alternates with recycling collection; curbside organics includes food scraps and is an additional fee. If a residential customer opts for trash service alone (with no recycling), they pay a higher monthly fee than they would for trash and recycling combined. Commercial rates do not include recycling or organics, and those services are available for an extra fee. The City does not own any disposal or processing facilities and works with the private sector to provide these services. Recycling and diversion are not mandatory. The only requirement is that all generators (single family, multi-family, and commercial) must have and pay for trash service. Similar to Vancouver, Olympia preferred to take a voluntary and incentive-based approach.

Summary

Demographics:
Total population: 46,478
Households: 21,729
Firms: 6,132
Square miles: 17.82

Reported Diversion Rate:
57% (residential)

Residential Tons:
Total generated: 16,110
MSW: 6,297
Recycling: 4,764
Organics: 5,049

Residential Pounds per Person per Year:
Total generated: 1036.7
MSW: 405.2
Recycling: 306.6
Organics: 324.9

Measurement and Tracking: City collects trash, organics, and recycling and has accurate data on HHS and tons. City does not collect commercial recycling and does not report the sector. Alternative Daily Cover is not included in diversion. The City tracks per capita data and has waste minimization targets.

Brief Description: Olympia collects garbage and recycling on alternating weeks and organics collection is optional; 53% of households opt to pay for organics collection.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

The every-other-week option was started in 1998 and covers all customers with cart-based service.

Program Details:

City staff collects garbage one week and recycling the next. Every-other-week organics (including food) collection is an added fee ($6.80/HH/ month) and is voluntary (53 percent of HHs pay for organics service). The EOW garbage collection is voluntary, and the customer can choose to pay extra and have weekly collection; however, only 0.1 percent of customers choose to have weekly garbage collection. The *bi-monthly* rates charged to residential customers are:

- 20-gallon - $16.26
- 35-gallon - $28.10
- 65-gallon - $38.36
- 95-gallon - $66.46

- Additional pre-paid tags for overflow are $4.99 each, untagged bags are charged $8.19 each, and the charge for choosing *not* to recycle is $7 to $17 depending on cart size.

Keys to Implementation:

In the late 1990s, the City was facing severe budget cuts and examined options to reduce costs, including privatization of the trash system and reducing collection frequency. They opted to reduce the number of collections and switched to every other week trash. Unlike other EOW programs, Olympia does not collect organics weekly and not every household has organics service. When first implemented, the City decided to offer EOW as an option (albeit with significant price increases), and the customer could elect to continue with weekly collection. The City estimated that, once implemented, about 30 percent of customers would choose to stay on weekly; however, in reality, only 1 percent choose the (more expensive) weekly option. The City took two years prior to implementation to conduct outreach and education about the program.

Program Impacts:

The City does not have accurate pre/post data, but anecdotally, the diversion rates increased by around 20 percentage points or more (they also added new services at the same time though so it is difficult to estimate the portion of the impacts that are due to the EOW program separately). The City estimates that the curbside organics program is capturing 12 pounds of food scraps per participating household per collection (about 6 pounds of food scraps per household per week). Most importantly for Olympia was the fact that costs of service decreased significantly with the new program. Prior to the current system they used 13 staff with nine trucks to collect garbage weekly and plant debris and recycling collections on alternate weeks. Under the new program they are able to service the City with four trucks with four drivers running five days a week[43].

Ongoing Concerns:

The program has been in place for 14 years and is accepted in the community. The City does not have any ongoing issues with odors, pests, diapers, or other concerns common to less than weekly collection. They attribute a portion of this success to their northern geography and the fact that they only have a handful of days with temperatures above 90 degrees each year. They are still examining ways to increase the portion of food scraps that are captured, and if budgets and efficiencies were not one of the main drivers of the program they would consider opting for weekly organics collection (like many other EOW communities) so they could capture more organics from the waste stream.

Advice for StopWaste:

For Olympia, the true efficiencies and cost savings were realized by alternating garbage and recycling with optional plant debris, a program that may not work for other communities. The transition to EOW collection is made more acceptable to

[43] Note that the change in staff per truck is also related to a switch to automated collection

residents if the City provides it as an option with a significantly lower price (as an incentive). Cities should be aware that although weekly collections decreased, the trucks make more trips to the transfer station to dump loads because they fill up faster (more material per household per set out) and this should be taken into account.

Other Notable Successes

The City provides free multi-family and commercial waste audits. For multi-family households, they provide packets/brochures for tenants, encourage recycling captains in each building, and encourage property owners to offer incentives such as a discount on rent for the recycling captain. In the commercial sector the City offers a number of incentives including the free audit, two free months of recycling service (with a 12-month commitment), two free indoor carts, printed material, consolidated billing, staff training, and public recognition stickers. Finally, they offer classroom trainings and materials for teachers to use in lesson plans. The school program reaches out to 3rd grade students and the City staff visit the classroom and run a 60-90 minute interactive presentation that covers the "three Rs."

Key Lessons

- Olympia's every-other-week program has been in place for 13 years and the City does not have ongoing issues with odors, pests, dog waste, or other common program concerns, demonstrating that these types of programs can work.
- Strong planning and a long ramp-up period help ease the implementation. It is also important to 'sell' the program in way that is attractive to your customers. Olympia conducted two years of outreach leading up to program implementation, and sold it as a cost saving measure.
- Although weekly garbage collection is still available, only 0.1 percent of households choose the option. The economic incentives led virtually all of the customers to choose the every-other-week collection option.
- Olympia was able to reduce the costs of providing solid waste service by going to every-other-week garbage, but maintaining organics as an optional EOW program (for an additional fee). Unlike other EOW programs, they do not collect organics weekly and they charge for the organics program.

Portland, Oregon

Jurisdiction Overview

The City of Portland's residential collection operates under a franchise system overseen by the City's Bureau of Planning and Sustainability. The City works with the franchised haulers to set Pay-As-You-Throw based rates (PAYT) for different geographic areas of the City. The rates include the collection of recycling and organics (with food scraps) and every-other-week garbage collection. The commercial and multi-family sectors are collected by multiple haulers operating in open competition. Starting in 2013, the City will begin enforcing a mandatory commercial source separation ordinance. The City does not have disposal bans on conventional recyclable materials. Portland has a 75 percent diversion goal for 2015, a 90 percent goal for 2030, and a goal to reduce the amount of waste generated by 25 percent by 2030.

Summary

Demographics:
Total population: 583,776
Households: 262,616
Firms: 65,465
Square miles: 133.43

Reported Diversion Rate:
73% (56% residential estimated to be 70% under new program, 69% commercial)

Residential Tons:
Total generated: Not reported
MSW: 58,300
Recycling: Not reported
Organics: 85,400

Residential Pounds per Person per Year:
Total generated: 1137.4
MSW: 328.7
Recycling: 500.5
Organics: 307.1

Measurement and Tracking: Track tons diverted from landfill and report pounds per household, tons per business, and diversion rates. Alternative daily cover does not count in diversion.

Brief Description: Portland adopted every-other-week garbage collection for all residential accounts in October 2012. The program has increased residential diversion from 54% to an estimated 70%; trash disposal has decreased by about 38%.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

The program began on October 31, 2011 and covers all single-family residences up to and including four units per structure.

Program Details:

After conducting a pilot in 2010, the City Council passed an ordinance that changed the franchised hauler rates and schedules to every-other-week collection. The program requires franchised haulers to collect organics (including food scraps) and single stream recycling from all households on a weekly basis; garbage is collected every other week. There is no option for weekly garbage collection.

Keys to Implementation:

Prior to full implementation, the City conducted a 2010 pilot to test the impacts and acceptance. The pilot program demonstrated that there was a relatively high level of support among participants; the program diverted a significant portion of materials; and the collection schedule met the needs of the residents. Based on these findings the City council adopted the program and rolled it out in October 2011. The City added food scraps to the stream at the same time they rolled out the new program. The City conducted intensive outreach for a few months prior to implementation. From March to May 2012 the City sent out 1,200 reminder letters to households for contamination (garbage in the wrong cart). This is less than 1 percent of total households. Despite the successful pilot program and extensive outreach ramping up to implementation, media relations and the political aspects of the program have been an issue since it first rolled out. The program has been politicized (sometimes unfairly) and some publications have tied it to specific elected officials. There has also been an issue with odors at the main compost facility (a privately owned and operated facility) northeast of the City which has hurt the program's popularity. One of the most vocal critics has been the local newspaper. Despite the criticisms, the program has been very successful in meeting diversion related targets.

Program Impacts:

The 2010 pilot of every other week collection found that trash disposal decreased by about 40 percent and recycling and organics diversion increased significantly. The pilot households disposed of about 15 pounds of trash per household per week and diverted around 16 pounds of organics per household per week (3 pounds of which were estimated to be food scraps). Over the first year of the full-scale program implementation the City reports that garbage disposal decreased by 38 percent (94,100 tons in 2011 and 58,300 tons 2012) and organics collection has increased by nearly 300 percent (30,600 in 2011 to 85,400 in 2012). The collection costs have remained nearly the same under the EOW; there is no change in the number of collections per week, only a change in which items are collected when. They estimate they are capturing 85 percent of the available recyclables, 99 percent of the yard debris, and 45 percent off the available food scraps and that 78 percent of households are diverting food scraps.

Ongoing Concerns:

Contamination in the recycling and organic stream increased since the program went in place, but the City has not yet determined the amount of the increase. There have been some households that are purposefully throwing garbage in the organics and recycling streams due to dissatisfaction with changes to collection. There is a feeling that the City might have rushed the implementation schedule of the program to meet other goals (political) which may not necessarily have benefited the program overall. As mentioned above, media relations have been difficult, perhaps due to the quicker than anticipated roll-out. Processing capacity is also a growing challenge as more communities in the area begin to divert food

scraps. There have also been issues with processing (odors and permitting and the main privately owned facility) and capacity region-wide.

Advice for StopWaste:

The most important recommendation is to ramp-up customer service prior to implementation and be able to answer everyone's questions. This includes phone banks and web sites. One of Portland's advantages was that they did not offer food scraps collection prior to EOW. This allowed the City to add a new service (food collection) at the same time they were reducing a service (frequency of trash collection) which made it easier to 'sell'. City staff recommend being prepared for increased contamination in the organics and recycling streams and working with haulers, processors, and generators to proactively address it. The City also stresses the importance of going EOW for garbage to really make a food scraps program 'work'. Portland staff reported that EOW garbage should be City-wide for all customers, not an option. If it is an option, then the benefits of fewer trucks on the streets and lower customer rates are not fully realized. Finally, if EOW garbage is adopted, they suggest examining the PAYT rates. Under an EOW garbage scheme, large price differentials may not be as important as getting people on the right service levels (32 gallon or 64 gallon containers). Under the EOW system, a portion of the households will want larger trash cans (in Portland about 2 percent of 32-gallon customers switched to 64-gallon carts and another 2 percent of 64-gallon customers switched to 96-gallon carts). This provided the opportunity to balance, giving the customers a service level that meets their needs, encouraging diversion and source reduction, providing fair and equitable rates, and avoiding the appearance of a 'penalty' rate.

Other Notable Successes:

The City is in the process of fully implementing mandatory source separation for residential generators, mandatory commercial recycling, and mandatory recycling services *available* for multi-family. Starting in July 2012 the following ordinances were put in place:

- **Residential:** Barred from putting non-recyclables in recycling cart or non-compostable in an organics cart.
- **Commercial:** All commercial generators are required to source separate and divert paper, metal cans, plastic bottles, and cans/jars; food scraps generating businesses must source separate organics.
- **Multi-Family:** Recycling areas must be at least as convenient as trash on properties; property owners must provide new residents with recycling information within 30 days of move in and on an annual basis.
- In 2012 the enforcement has been on-call/complaint-based only. Starting in 2013 the City will be conducting random inspections for both commercial and multi-family with a code enforcement officer. Inspectors will look for containers, signs for recycling, and recycling in trash containers (for commercial). Businesses in violation have 30 days to comply, and non-

compliance can result in monthly fines ranging from $200 to $500, doubling each month they are in violation. Enforcement will be through Sustainability Office staff. The philosophy behind the enforcement is to provide assistance and education first and only use notifications of violation and fines if necessary. Finally, the City also requires that all construction, remodels, and demolitions over $50K divert at least 75 percent of the materials generated. If not, they are subject to fines.

Key Lessons

- Unlike some of the other EOW programs interviewed, Portland staff recommend that every-other-week collection should be implemented for all targeted customers; they recommend not providing a weekly option. Although this may be less politically attractive, it will help to reduce the trucks on the road and allow the rates to reflect this impact.
- If possible, add a new service at the same time every-other-week trash is implemented. Customers may perceive every-other-week collection as a loss of service; to balance this, Portland added food scraps to the organics stream at the same time.
- Be prepared for a lot of questions from residents and have customer service ready to answer the questions. Also, expect that contamination will increase (at least at first) and work with generators, haulers, and processors to mitigate the contamination.
- Approach the rates as an incentive, not a fee. Under EOW collection, large price differentials for smaller sized trash containers may not be as important as making sure everyone is able to get a trash cart that fits their needs.
- Although the Portland program has been very successful in achieving increased diversion and reduced disposal, the program has not been lauded by the media. Having a well-planned media relations campaign and working with local media to build support for, not opposition against, the program would be helpful.

Markham, Ontario

Jurisdiction Overview

The City of Markham includes the costs of residential and multi-family garbage, organics, and recycling collection in the property taxes. The City contracts with a single hauler to collect garbage on an every-other-week basis with weekly collection of food scraps (separate from plant debris) and recycling. Waste Diversion Ontario (a producer funded non-crown corporation) pays for 50 percent of the costs of the curbside recycling (blue box) program. The City will be implementing mandatory residential source separation in 2013 along with a 'clear bag' program (see below). The commercial sector is collected by multiple haulers operating in open competition. The City does not require commercial recycling, but the Province does have mandatory commercial and institutional source separation.

Summary

Demographics:
Total population: 301,709
Households: 81,181
Firms: 11,000-12,000
Square miles: 82.02

Reported Diversion Rate:
71% (does not include commercial)

Residential Tons:
Total generated: 71,744
MSW: 21,618
Recycling: 22,938,
Organics: 27,188

Residential Pounds per Person per Year:
Total generated: 587.6
MSW: 177.1
Recycling: 187.9
Organics: 222.7

Measurement and Tracking: Based on reported tons landfilled, recycled and composted in residential and multi-family sectors. Unlike other Region of York municipalities, they do not reduce the reported diversion rate by the tons residue at the MRF.

Brief Description: Contracted hauler collects garbage on an every other week basis. Food and organics are collected in separate streams and regional product stewardship pay for large portion of recycling costs. The residential diversion rate doubled, from 36% to 72%, when they switched to every other week collection with organics.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

The program went full scale in 2006 and was the first in the Region of York. It covers all single family residences.

Program Details:

The City uses its contracted hauler to collect recycling (blue bin) and food scraps (green bin) weekly. Garbage is collected every-other-week in bags, with a maximum set-out rate of three bags per household, and amounts over the limit must be tagged and paid for separately. Unlike the other EOW programs investigated, Markham keeps the yard scraps and food scraps in separate streams. Yard scraps are collected every other week on a seasonal basis and must be in owner supplied containers, Kraft bags, or bundled. Additionally, Markham is the only city investigated that allows diapers, pet waste, and plastic bags to be placed

in the green bin for weekly collection[44]. The City uses manual collection for organics and recycling, and both are collected in the same split-body truck.

Keys to Implementation:

Markham ran a pilot program in 2005 with 2,000 households to see what would happen with every-other-week collection. The pilot found that the program would not only significantly increase diversion but that it was also accepted by the pilot households. The City was able secure City council support for the program with the aid of the pilot results and a strong champion in the mayor; as a consequence, the council voted unanimously to adopt the program. The implementation process was significantly aided by adding a new service (weekly green bin collection) at the same time they were adopting EOW trash. Thus, residents did not perceive the program as a loss of service, but instead a gain of a new collection stream.

Program Impacts:

In 2005 the diversion rate was 36 percent for the residential sector. They added green waste and switched to every-other-week garbage in 2006 and the residential diversion rate doubled to 72 percent. Although the costs of collection did not change significantly with the new program, their use of split bodied trucks has allowed them to see some cost savings and reduce the impact of adding new trucks on the road.

Ongoing Concerns:

The City currently has no ongoing concerns. City staff report that the program is functioning well and is the 'most important program we have'. It is worth noting that the while Markham was the first city to go EOW in the region, now the entire York Region (1 million residents) and Toronto (3 million residents) operate under every-other-week garbage collection.

Advice for StopWaste:

EOW garbage is the best way to make a food scraps program work. Other parts of Ontario have food scraps with weekly garbage and the participation rates are below 30 percent, but EOW has forced participation to high levels (90 percent plus in Markham). Other important pieces of advice for StopWaste include:

- They added the green bin at the same time so people got a new service, which made selling the program easier.
- Calendars to make sure people know their collection days were integral to the roll-out. Prior to EOW, no calendar distribution was needed , because everyone knew their collection day. With EOW, it was critical to make it easy for residents to know what day to put out trash. Calendars are mailed to addresses based on GPS, not bulk mail, so each house gets their specific calendar, not a calendar for all collections.

[44] The green bin stream is sent to a privately owned anaerobic digester facility that can accept plastic bags, pet waste, diapers, etc. in the incoming streams. The plastic bags can go through the process which turns the entire stream into a slurry-type mixture. The plastic particles rise to the top of the mixture and can be 'skimmed off'.

- They had strong political support and had already gone zero waste at City offices, showing residents that it can be done.

Other Notable Successes:

Starting next year the City is getting rid of the bag limits and all residential trash must go into clear bag. This will be coupled with a mandatory source separation program. The bags will allow the haulers to see what is being thrown away, identify those that are disposing of recyclables and organics, and help push for more diversion. The City is 'selling' the program on increased health and safety for haulers - the clear bags let them identify potentially dangerous items in the trash. The City also works with Waste Diversion Ontario. Under WDO, the Minister of the Environment has the authority to designate specific materials for diversion. Waste Diversion Ontario, working cooperatively with stewards, then develop a diversion program for the designated materials. The manufacturers are responsible for funding a portion of the recovery costs of the designated items. Designated items include Blue Box Waste (conventional recyclables), Used Tires, Used Oil Material, Waste Electrical and Electronic Equipment and Municipal Hazardous or Special Waste.

Key Lessons

- Every-other-week garbage coupled with weekly organics are the most impactful and important programs the City has implemented. The every-other-week collection program is integral in pulling a significant portion of food scraps from the waste stream.
- Another key to moving forward was 'practicing what they preach'. Prior to EOW the City went zero waste at all city offices, buildings, and facilities to show it could be done. This was key in gaining support for more aggressive strategies by showing that the elected officials are walking the walk[45].

[45] An example of this can be seen in Ottawa which also tried to go EOW. The local media printed stories about how the City was not doing a good job recycling at city facilities and it helped to stop the program from being implemented.

Appendix C
PROFILES OF SELECT JURISDICTIONS WITH SIMILAR DEMOGRAPHICS

This appendix provides case study profiles prepared by SERA for seven jurisdictions with progressive waste reduction programs that also have similar demographics as StopWaste member agencies. The rationale for selecting these jurisdictions is presented in Section 5, along with a summary of findings. The jurisdictions profiles are:

- City of Boulder, Colorado
- Santa Barbara, California
- Seattle, Washington
- San Jose, California
- Cambridge, Massachusetts
- Vancouver, British Columbia
- Grand Rapids, Michigan

Boulder, Colorado

Jurisdiction Overview

The City of Boulder does not provide any services and only has limited facilities for managing solid waste. The City relies on multiple private haulers operating in open competition to provide residential, commercial, and multi-family services and uses licensing and ordinances to require certain service provisions. The City tends to require haulers to offer or provide certain services rather than require mandatory recycling or material disposal bans to reach their 2017 zero waste goal. For example, hauler must have Pay-As-You-Throw trash rates (the rate structure set through an ordinance) for residents, and the rates must embed curbside single stream recycling and organics (includes plant debris and vegetative food scraps). The City requires multi-family generators to have 'adequate' recycling service, although the ordinance is not actively enforced. Commercial initiatives are centered around incentives and education. Private firms, non-profits, and the County own and operate the transfer, composting, and processing facilities.

Summary

Demographics:
Total Population: 97,385 Households: 43,771
Firms: 16,766
Square miles: 24.7

Reported Diversion Rate:
Single Family: 59%
Commercial: 34%
Multi-family: 23%

Residential Tons:
Total generated: 25,545
MSW: 11,237
Recycling: 8,071,
Organics: 6,237

Residential Pounds per Person per Year:
Total generated: 856.4
MSW: 376.7
Recycling: 270.6
Organics: 209.1

Measurement and Tracking: City requires all haulers to report annually the number of tons collected, landfilled, and diverted and uses the data to track residential, multi-family, and commercial diversion rates.

Brief Description: University community with self imposed 'trash tax' to fund programs and a strong model of non-profit, for profit, and government cooperation to provide services and facilities.

Notable Successes

While the City of Boulder has number of successful and noteworthy programs, three programs stand above the others and are described briefly below:

- **Boulder Trash Tax:** In 2002 the voters passed a self imposed trash tax that has no sunset date. The tax is $3.50 per month per household and $0.85 per yard of MSW for the commercial sector. The tax funds all of the City's zero waste efforts and about 50 percent of the staff (the other 50 percent is funded by another self imposed tax- the Climate Action Plan (CAP) tax for energy efficiency which was renewed in 2012). The tax is an occupation tax on the haulers, not a tax on the generators. The haulers have the option to recover the revenue for the tax any way they choose, but in general it is a pass-through cost the generators. The tax revenues go to the general fund and while all the money is used for zero waste and recycling programs.

Theoretically the City could use it for other purposes, but this has not happened and is not expected to ever happen. The tax is integral in funding zero waste programs and activities in the City, especially as the City does not own any landfill or transfer station facilities so a tip fee or other surcharge is not a possibility.

- ***Public/Private Partnerships:*** There are no state goals, county mandates, state mandates, bans, or other drivers, and the only way Boulder has been able to make strides toward its goals is through cooperation with between the City, non-profits, private business, and the County. Although the City does not own any facilities, these partnerships have enabled almost all the facilities they need to reach zero waste to be co-located on one road (a compost site, MRF, transfer station, HHW facility, and re-use yard). The facilities are a mix of private own / operated, county owned non-profit operated, city owned land / non-profit operated, and public operated located on privately owned land. The non-profits in town have been responsible for attending city council meetings, pushing a zero waste agenda, rallying community support, and conducting education. Without these groups, the City would not have access to all the resources necessary to make strides toward zero waste (including getting the trash tax passed). The city pays $25,000 annually to a non-profit (Eco-Cycle) to run a school outreach and education programs. The Center for Resource Conservation and the Resource Yard for building materials (a non-profit dedicated to reducing solid waste, energy, and water use) partners with Boulder the to promote reuse and source reduction in building materials. Efforts at the resource yard includes a tool library where residents can rent tools, classes on building, donations, a large facility for reused items, and other programs. The City only charges the Resource Yard $1.00 / year for their property lease and also gives them a $45,000/year subsidy for operations. The same location is home the CHaRM (Center for Hard to Recycle Materials) and Eco-Cycle. This is the same non-profit that is in charge of operating the County's MRF (under contract to the County). Finally, a privately-owned hauling company owns and operates the transfer station and compost facility on the same road and works closely with the city to encourage diversion.
- ***Commercial Incentives and Education:*** The City offers Zero Waste Advisory Service to commercial generators that includes a meeting with an advisor, an assessment of waste generation and disposal (eyeball only), and preparation and delivery of an 'opportunity report'. The City also works with the business to direct businesses to service providers, and to support making signs and other changes. The city uses three incentives to encourage businesses to divert materials **1)** 3 'free' months of recycling service and **2)** A $2.50 / cubic yard or organics service rebate (estimate 345 businesses use this rebate), and **3)** a $250 zero waste rebate for containers and bins. The City also made commercial signs that any business can use and download for free. The program has 1.5 FTEs (one is a contracted, the other is staff) and the goal is to hit 180 businesses this year; last year they reached 120. The program is funded through the trash tax. Unfortunately, the program is its

own worst enemy, as the more businesses that sign up for rebates and assistance the more expensive the program, making it unsustainable in the long term as a full sector strategy.

Key Lessons

- Consider a trash tax. If your community is serious about moving toward zero waste, having a way to fund programs is necessary. Have the community show their support through funding. Boulder's trash tax is not based on tonnages, tip fees, MSW, etc. and provides an on-going source of funding that does not waver with disposal or generation rates.
- Foster strong relationships with non-profits and private companies in your City to provide and leverage facilities and services to the public, and use non-profit partnerships to help drive support for future programs. Boulder was able to support these groups to ensure facilities for processing are available (at minimal cost to the City) and the non-profits are able to drive public policy through active civic engagement.
- Education and incentives can be somewhat effective in increasing commercial diversion but more aggressive options may be needed to reach higher levels. Boulder has a wide range of incentives and outreach programs in place but has yet been to reach high multi-family or commercial diversion rates; they are considering mandatory options.

Santa Barbara, California

Jurisdiction Overview

Santa Barbara is a unique community that is set apart from other cities by geography, limiting the number hauler choices. They recently have consolidated the city in a franchise agreement with a single hauler (previously 2 haulers) with new rates and additional services taking effect July 2013. Residents receive trash service based on cart size. The new rates will include unlimited comingled recyclables and up to 192 gallons of green waste per week. Multi-family units will have 96 gallons of comingled recycling and 96 gallons on green waste included with trash service. The City is considering adding food scraps to the multi-family program in the near future. Santa Barbara does not own any facilities, most waste goes to County or private facilities. They have no city source separation or other mandates, but are subject to state regulations regarding diversion rates and bans.

Summary

Demographics:
Total population – 88,410 Households: 38,191
Firms: 14,003
Square miles: 19.5

Reported Diversion Rate:
60% residential, 42% overall, 24% MFD, 30% commercial

Residential Tons: Total generated: 30,193, MSW: 12,358, Recycling: 7,270, Organics: 10,565

Total Pounds per Person per Year:
Total generated: 1631.0
MSW: 668.0
Recycling: 393.0
Organics: 571.0

Measurement and Tracking: The city has a single contracted hauler and sets diversion goals through the contract. They require monthly reports and yearly diversion rates.

Brief Description: Santa Barbara has concentrated its efforts on the business sector with success. However, their single and multi-family programs are also noteworthy. A recently-approved contract will significantly increase services and diversion rates. Residential collections include trash, recyclables, and green waste, with Businesses, and potentially multi-family, included in the food scraps program.

Notable Successes:

- **Negotiations:** Santa Barbara has been forward thinking in their contract negotiations. As they don't have staff to enforce mandates, they work with contract incentives and disincentives. Under the new single contractor arrangement, they have placed much of the diversion responsibility on the hauler. The contractor is required to achieve a 1 percent increase in the diversion rate each year until the end of the contract period (2023). The Contractor is also required to ensure the City meets its AB 393 diversion requirement. Penalties are assessed for not meeting goals. The hauler is required to retain information such as weigh tickets, invoices, bills of lading, or receipts which the City may request in order to track diversion. The cost of the contract will be fully funded through the rates charged to solid waste customers, with the concessions back on the rates to the city totaling around $300,000; 9.5 percent

of this figure supports reduction programs and staff. An additional $80,000 will be contributed toward the Good Looking Santa Barbara program and provisions are also included for school programs. The franchise fee is 2 percent of gross revenues and recycling revenues are shared by the County and the hauler. Finally, the collection trucks serving the community are now required to be run on natural gas. The city had considered a plastic bag ban, but through negotiations with the City's recycling processor, they will accept plastic bags and other film plastic bags in residential and commercial recycling containers to divert these materials from landfill disposal.

- **Commercial Program:** Businesses accounted for about half of the total waste in Santa Barbara and commercial programs were an early focus of the City because there are fewer accounts and more waste per account. If commercial accounts use a recycling, green waste, or food scraps cart, they receive an incentive of up to 50 percent. City staff provides 'free' detailed audits and assistance to commercial generators and the City has developed standards for types of businesses for staff efficiency. For example, they estimate that a restaurant should set a goal of 40/40/20 (recyclables / food scraps / trash) and grocery stores should have about 50 percent recycling goal. The City has cart size and bill calculators on-line for commercial generators to use, and staff is hoping to add more web content to their site. The City reports that they currently have about 134 food scraps accounts and they are working closely with the hauler to enroll additional accounts.

Key Lessons:

- By including generator incentives that encourage diversion in the commercial hauler contracts the City was able to increase diversion in the sector.
- Working closely with individual business to reduce contamination and increase diversion is worth the extra cost and effort. There is less contamination, higher recycling rates, and a greater understanding of the entire system.
- Having input on development review allows the City to ensure that all new or remodeled businesses or developments make space for recycling.

Seattle, Washington

Jurisdiction Overview

Seattle has had tremendous and acclaimed success in increasing diversion rates over the past two decades through mandatory source separation, an early adopter of Pay-As-You-Throw rates (includes 12-gallon micro can options), creating ease of disposal of many hard-to-recycle materials, and extensive outreach and education. Seattle has a 75 percent diversion goal for the year 2025 as part of the Zero Waste Action Plan and they achieved a 55 percent diversion rate in 2011. The City of Seattle contracts with two separate waste haulers to provide all residents and businesses with three cart service. The city works with the haulers to set rates for garbage collection that includes the cost of recycling. All residents (starting in 2011) and businesses (starting in 2013) are required to have subscribed to organics collection service for an added fee or applied for a home composting exemption.

Summary

Demographics:
Total Population: 608,660 Households: 302,465
Frims:73,997
Square miles:83.9

Reported Diversion Rate:
55% total
71% - Residential,
61% - Commercial,
29% - Multi-family

Residential Tons:
Total generated: 203,194
MSW: 62,779
Recycling: 60,604
Organics: 79,813

Residential Pounds per Person per Year:
Total generated: 1,225.9
MSW: 378.8
Recycling: 365.6
Organics: 481.5

Measurement and Tracking: City requires contracted haulers to report annually and uses inspectors to track the number of tons collected, landfilled, and diverted. Detailed data reports are publically available.

Brief Description: The City uses contracted haulers to collect weekly garbage, recycling, and organics (including food scraps) in three separate streams for all generators. The City has adopted and enforces a mandatory source separation requirement with fines and penalties for all sectors.

Notable Successes:

- **Mandatory Source Separation:** In 2005, a City Ordinance was enacted that banned the disposal of paper, cardboard, and containers for residents and multi-family entities (residential plant debris was already banned in 1989) and paper, cardboard and plant debris for commercial and self-haul entities. Implementation of this ordinance was phased in with outreach in 2004, monitoring and educational tags in 2005, and full enforcement in 2006. Enforcement requires the contracted hauler to check carts during collection for residents, and City staff to inspect multi-family and commercial dumpsters separate from collection. If the trash to be collected contains more than 10 percent of recyclable materials, then an "oops" tag is placed on the container and the trash isn't collected for residents, but is for multi-family and commercial customers. A $50 fine is charged for subsequent violations after the

second tag warning for commercial and multi-family customers. All residents are required to pay for organics collection service (including food scraps) and starting in 2013 all commercial entities will also be required to contract for organics collection. Commercial organics collection costs will be 32 percent lower than equivalent volumes of MSW collection. Initially there were 2 FTEs allocated by the City for monitoring commercial and multi-family containers, but staff required for inspections has since been reduced. The City spent $600,000 on outreach; as a result, program awareness increased from 30 percent to 80 percent, support from 55 percent to 80 percent (based on survey results), and observations of non-compliance were minimal. Proactive customer outreach consisted of workshops, presentations, focus groups, newsletters, slogans, tool kits, a hotline, "e-alerts," the use of media, market research and the use of consultants who continue to offer assistance to the commercial sector.

- **Long-Term Disposal Contracts:** Seattle has long-term disposal contracts for landfilling. These long-term contracts have allowed the City to keeps costs low, which is particularly important for a city that does not have any disposal facilities of its own. Seattle recently extended its contracts until the year 2028 with an opt-out clause in 2019.
- **Robust Data Collection and Analysis:** Seattle uses a variety of data collecting and sophisticated modeling tools to track recycling progress and analyze future programs. In addition to these reports Seattle conducts waste composition studies on 4-year cycles by sector and uses its 'Discards Model' to analyze performance.

Key Lessons

- Adopting and enforcing mandatory source separation for all sectors is one of the keys of success for the Seattle. The program required a large outreach, education, and enforcement effort with an informational push in the residential sector and an enforcement approach for the commercial sector.
- Initiating a robust data collection system and analysis has allowed the city to identify high achieving programs as well as programs and sectors that are underperforming.

San Jose, California

Jurisdiction Overview

There are three residential districts covering about 170,000 single-family residences in the City of San Jose (San Jose is the 10th largest US city). Each district receives three services: recycling, plant debris (food scraps are not collected) and garbage. In two of the districts two different companies provide the services. In the third district, the same company provides recyclables and garbage services while a second provides the organics service. Commercial collection services are provided by a single hauler and the City has contracted with another firm to process commercial waste and generate energy. Both multi-family and commercial materials are sent to mixed waste recovery allowing recyclables and organics to be pulled from the stream post collection. The post collection processing has helped the City achieve the highest multi-family diversion rate in the nation and the City estimates that similar rates will be achieved in the commercial sector as well.

Summary

Demographics:
Total population: 945,942
Households: 313,944
Firms:71,553
Square miles: 176.5
Reported Diversion Rate:
71% overall

Residential Tons: Total generated: 247,850, MSW: 149,670, Recycling: 97,415, Organics: Not available
Residential Pounds per Person per Year:
Total generated: 862.7
MSW: 520.9
Recycling: 399.0
Organics: Not available

Measurement and Tracking: San Jose relies on quarterly reporting from its contracted haulers for tracking data. The haulers report tons of MSW, recycling. Organics recycling is occurring in the commercial sector under the new wet/dry arrangement and initial reports are not yet available.

Brief Description: The City uses contracted haulers and private processing facilities to reach high multi-family and commercial diversion rates with a focus on post-collection recovery. This includes wet / dry collection in the commercial sector and mixed waste recovery in the multi-family sector.

Notable Successes:

- **Switching from Franchise fees to Contracted Haulers for All Sectors:** Until 2008, the City of San Jose collected franchise fees from any hauler who wanted the privilege to use the streets for the purpose of hauling waste. Under this system, the market was free to set the rates, but the City set the franchise fee. The costs for the administration of the multiple complex contracts and oversight this system led to high waste and recycling costs in excess of $200 per ton. In 2009, San Jose began planning and implementing a move to exclusive contracts. Under the new system, there are two commercial and three residential districts. The switch to contracted services and contracted processors (in the commercial sector) has, among other impacts, allowed the City to 'green' the collection fleet through requirements for CNG trucks; implement innovative post-collection processing and large-scale anaerobic

digestion in the commercial and multi-family sector; secure more equitable rates for commercial generators; reduce the number of trucks serving generators in the City; and reach some of the highest diversion rates in the nation.

- **Mixed Waste Recovery:** While the City of San Jose was able to achieve high diversion rates in the single family sector, for years, they struggled to reach comparatively high rates in the multi-family and commercial sectors. Starting with the multi-family sector in 2009/2010 and adding the Commercial sector in the summer of 2012, the City has opted for post-collection processing (bolstered by the contracted hauler and processing arrangements) as opposed to generator source separation to increase diversion for traditionally hard-to-reach sectors.
  - ***Multi-Family*** – The residents of San Jose's approximately 96,000 multi-family units now have one of the nation's highest performing diversion programs. Starting in 2003 the City began investigating the efficacy of post-collection separation. The City ran a pilot study in which a portion of the multi-family materials were sent to a privately-owned mixed waste recovery facility[46] and found that they could recover about 75 percent of the materials in the stream. In the summer of 2008 the City signed a contract with a private company (Green Waste) to accept and process all of the City's multi-family MSW at a mixed waste recovery facility (contract recently extended to 2021) and the organics were sent to a different facility for composting. The MRF is capable of processing both MSW and incoming single stream materials, and the compost facility has both in-vessel and aerobic composting processes. City outreach still encourages multi-family residents to recycle, and the City's rate structure (with embedded recycling fees) encourages property managers to provide single stream recycling for their residents. However, all materials --both recyclables and MSW -- are sent to the same facility for processing on two separate lines. With the help of the privately owned processing facility, San Jose has been able to increase the multi-family diversion rate from 18 percent in 2008 to an average of 77 percent from July 2008 to June 2012. The City reports that 17 percent of the stream is recovered through source separated recycling (which is still a 'good' rate for MF recycling); 23 percent comes from recyclables pulled out of the MSW stream, and 37 percent is compostables pulled from the MSW stream. It is also worth noting that the property owners (including the CA Apartment Association) are strongly supportive of the mixed waste processing program and that the rates paid by property managers are $184.90 for a 3 cubic-yard container collected once weekly, which is significantly less than the $276.94 county average.
  - ***Commercial*** **–** In 2010, the 8,000 commercial accounts in San Jose were serviced by 20 different haulers through franchise agreements[47] and they achieved a diversion rate in the low 20 percent range. After significant

[46] GreenWaste Recovery Facility (MRF) and Z-Best Composting Facility, owned by Zanker Road Resource Management Ltd

[47] Although approximately 85% was collected by only four different haulers (Source: *Commercial Collection System Redesign, File Number PP10-157, May 2011)*

research (including public outreach, surveys, interviews, focus groups, etc.) the City opted to create two districts for commercial collection and released an RFP in 2010 for the collection and processing of commercial MSW, recycling, and organics, and an RFP for organics processing. The collection RFP required that the contractor achieved a 75 percent diversion rate and embedded a $10M annual fixed franchise fee (as opposed to a franchise fee based on tons disposed). In 2011 the City awarded 15-year contracts to a single contractor to collect all materials, and another contractor to process commercial organics. Since July 2012, all San Jose businesses now receive a 'wet' bin, into which they place organics such as food scraps and soiled paper, and a 'dry' bin in which they place all recyclables and garbage[48] and the hauler will collect materials using a 'green' fleet of 50 CNG collection vehicles. The waste and recycling contractor process the materials through a newly-retrofitted MRF facility that is similar to a 'dirty' MRF where recyclables are retrieved from the waste stream. The materials processed through the wet/dry system return a 50-20 percent residual rate that is sent to a landfill (currently this MRF is delivering a 50 percent residual rate, but expects to go as low as 20 percent after the first year of growing pains). The City of San Jose has required that in January 2013 the contractor must divert a minimum 75 percent of the materials collected and an 80 percent diversion rate must be achieved by the second year. Detailed agreements between the MSW collector processor and the compost facility set limits on acceptable levels of contamination to guarantee that the mixed MSW processing meets minimum standards. The organics contractor is the first large-scale facility in the US to use dry fermentation anaerobic digestion followed by in-vessel composting, and when fully operational it will have an annual capacity of 270,000 tons. Although diversion rates of the new system are not yet available, it is expected to bring businesses recycling rate from around 25 percent in 2011 to 80 percent by 2014 (which would represent one of the highest commercial diversion rates in the nation). The City reports that although the contract negotiations and preparation took years to complete, the transition to the new program has been relatively smooth.

Key Lessons

- San Jose's post-collection separation and processing system has been used to achieve some of the highest multi-family diversion rates in the nation. The program is a result of private / public partnerships and private sector innovation.
- Contracting for commercial hauling allowed the city to implement a post-collection separation and processing program that is planned to achieve commercial diversion rates between 75 and 80 percent. The contract was also used to provide equitable rates to all rate payers.

[48] Wet materials include fruit, vegetables, meat, seafood, coffee grounds and filters, food soiled paper / cardboard, napkins, paper towels, paper cups and plates and paper take-out food containers (no Styrofoam). The dry stream includes clean cardboard, paper, glass, packing materials, carpet, plastics, clean wood, scrap metal, foam, and other items

- The City has approached solid waste as both a renewable resource and a large potential contributor to GHG emissions. This philosophy has helped lead to large scale energy producing facilities, a new CNG collection fleet, and higher diversion rates.

Cambridge, Massachusetts

Jurisdiction Overview

The City of Cambridge is a small urban community with a variety of programs that combine to be very successful. As the Recycling Director commented, Cambridge's programs are "carrot based, not stick based". Although they do have a mandate for source separation in line with the state mandate, many of their programs are volunteer only. City crews collect residential trash, but offer options for multi-family and small commercial. They have a contracted hauler that collects single stream recycling for single family homes, schools, city buildings, and some small multi-family and small businesses, and they are in the process of initiating a residential curbside food scraps program. They also facilitate a business food scraps composting program.

Summary

Demographics:
Total population: 105,162
Households: 49,913
Firms: 12,277
Square miles: 6.39

Reported Diversion Rate:
40% (residential)

Residential Tons:
Total generated: 31,825
MSW: 16,551
Recycling: 13,278
Organics: 1,996

Residential Pounds per Person per Year:
Total generated: 820.4
MSW: 507.9
Recycling: 267.6
Organics: est. 44.9

Measurement and Tracking: The City's crews collect and report curbside trash; however, that includes MF, city buildings and schools. Private haulers are not required to report commercial recycling and waste tonnages.

Brief Description: Residents do not have a financial incentive to recycle as all costs for trash, recycling and organics are embedded in property taxes, but Cambridge is successful through their volunteer and cooperative efforts with residents, businesses and the State.

Notable Successes:

The City of Cambridge was designated as a "Green City" by the State of Massachusetts and received MassRecycle's 2011 Board of Director's Outstanding Achievement Award for visionary leadership and innovative efforts to improve recycling and waste reduction. They strive to keep ahead of the state mandates, including bans and producer responsibility by setting up volunteer programs beforehand.

- **Schools:** Public Works provides a wide range of recycling collection and educational help to the schools, which have direct access to the City's recycling staff. Of their small 2.5 FTE staff, one spends about half their time devoted to schools, including collecting weekly tonnage reports from custodians, providing technical assistance or classroom presentations, working with the annual school recycling competition (Recycle Craze), and the lunchroom composting program. Currently all schools have single stream recycling and half the schools have composting.

- **Business:** The City does not provide trash or recycling service for businesses, but there is a state mandate for commercial recycling. All haulers must offer recycling in Cambridge and all businesses must file a recycling plan. There is no City-run commercial composting program. Cambridge helped establish a market for business compost collection by working with Save That Stuff to offer food scraps recycling services to Cambridge businesses at a price below trash service. Some small businesses are able to use the food scraps drop-off and recycling center, or subscribe to a recycling service with the City's contractor.
- **Residents:** Curbside recycling, trash, plant debris (and soon food scraps) are included in residents' property taxes. Multi-family households can sign up for the recycling service if they have the same requirements as single family. They also provide a free food scraps drop-off center or provide links to businesses that will provide pick-up service. A recent food scraps pilot program was very popular and successful, but it also highlighted the fact that organics processing capacity would be a significant barrier if the program were expanded. Cambridge received a grant from the MassDEP to help implement the next phase of the composting program and the organizations are working together to help develop available composting facilities.
- **Cooperative Approach and Social Marketing:** Cambridge has numerous volunteer opportunities, including the Recycling Committee that works with the city towards zero waste goals; volunteers at over 90 public events, the drop off center, and schools to inform about recycling; and teaches home composting. They have a neighborhood outreach program that uses volunteers to create a "buzz" with neighbors about specifics actions when prompted. The 50 percent recycling pledge programs provides recognition awards to both residents and businesses. The City "grades" residents on recycling efforts and mails reminder postcards to poor performers and good performers.

Key Lessons:

- In order to avoid state mandates that may be difficult to implement, the City worked closely with state agencies to develop local voluntary programs prior to state mandates.
- A wide range of voluntary and incentive-based programs has allowed for the City to provide residential and commercial generators with multiple options and reduced cost and divert materials without the use of mandates. Funding is provided through property taxes as opposed to user fees.

Vancouver, British Columbia

Jurisdiction Overview

As part of a PAYT program, City crews collect trash every other week from single family and duplexes, and collect recycling and organics (including food scraps) on a weekly basis. Multifamily buildings receive City recycling and can obtain City trash and organics service unless they have high (or frequent) volume requirements. Commercial trash and recycling is collected by licensed haulers competing in the open market. The City of Vancouver has the benefit of not only an active regional entity in Metro Vancouver, but also the proactive Province of British Columbia. The City follows Metro's extensive landfill bans and the Province has a number of EPR policies (*See New Westminster for more information on the bans and EPR*). The City of Vancouver does not have the authority to ban materials on their own, so they are working closely with Metro and British Columbia to expand the program by developing plans for food scrap and plastic bag bans in the next few years. Vancouver has recently developed a voluntary building deconstruction program where participants receive reduced clean wood disposal fees and discounts at the landfill. They also receive building permit priorities.

Summary

Demographics:
Total population: 603,502
Households: 253,385
Firms: est. 75,000
Square miles: 44.4

Reported Diversion Rate:
58% SF
MF about 16% for Metro
MF about 46% for ICI

Residential Tons:
Total generated 120,727
MSW: 67,849
Recycling: 25,111
Organics: 27,767

Residential Pounds per Person per Year:
Total generated: 756.9
MSW: 445.4
Recycling: 157.4
Organics: 174.1

Measurement and Tracking: City crews collect a large portion of total waste, recycling and organics. Data is available from the landfill and transfer station. Those wastes taken to other facilities are recorded through Metro Vancouver. EPR numbers are also reported.

Brief Description: The City of Vancouver collects recycling, and organics from single- and multi-family households, and trash from SF and small MF through PAYT rates. They have had a successful food scraps and every other week garbage pilot, and are in the process of city-wide implementation of EOW trash. Extended producer responsibility programs and landfill disposal bans also play a large role in their success.

Every-Other-Week Garbage Collection Program:

Year Started and Who is Covered:

The program will start City-wide in the spring of 2013, including approximately 110,000 single family and duplex structures. Currently there are 2,000 homes with EOW garbage and weekly organics and recycling.

Program Details:

City crews currently collect trash weekly and organics EOW. There are five sizes of carts available for trash from 20 to 96 gallons, and monthly pricing ranges from $8.25 to $18 (charged annually on the utility bill). The program is not mandatory, but based on the pilot, less frequent garbage and more frequent organics collection motivates residents to place their food scraps in their green bin, rather than in the garbage where it would remain until collected every-other-week. Every City unit is charged a recycling fee regardless of participation, and variable fees are charged based on size of green waste bin desired. Multi-family buildings that are currently on city garbage services may participate in the food scraps and recycling program. Their garbage will switch to every-other-week as well. There is no commercial program.

Keys to Implementation:

The program is a result of the City-wide move to include food scraps (including meat and dairy) in their organics collection, leading to reduced need for weekly collection. The City conducted a pilot with 2,000 residents, and the results encouraged the City to expand the service to all residents May 2013. The implementation plans includes the following steps:

- Notify residents with the new year calendar.
- Develop comprehensive multi-language communications and engagement program.
- Distribute kitchen containers.
- Build additional space at city facility for load receiving and inspection.
- Phase-in service change over 10 weeks.
- Add temporary staff to cover cart change requests.
- Monitor contamination and impacts.

Program Impacts:

The pilot resulted in a 39 percent, or 12.3 pounds per household per week reduction in garbage, a 2,000 percent increase in compostables (from 0.25 to 5.1 lbs/HH/wk), and about a 10 percent increase in recyclables. .The one-time operating costs for the changeover are expected to be about $5.4 million, with a one-time capital construction cost of an additional $5 million. The switch to bi-weekly garbage collection and weekly green bin collection will result in a weighted average cost increase of 6.6 percent to the homeowner (about $28 per HH/ year). The City expects to see an annual reduction of about $3.5 million city wide for trash collection / disposal with an increase of compostable collection / processing of $6.5 million.

Ongoing Concerns:

The City anticipates more than 20,000 garbage cart and green bin change requests will be received, based on the pilot, which will require a short-term increase in

staff. In anticipation of the Metro 2015 Organics Ban, Vancouver is considering mandatory Multi-family and Commercial organics recycling to coincide with the every-other-week trash collection.

Other Notable Successes:

- **Extended Producer Responsibility (EPR):** British Columbia has a Clean Energy Plan and The Recycling Regulation that sets up legal framework for Extended Producer Responsibility. As part of Vancouver's Greenest City Action Plan they are working with the Province to expand the list of materials to include packaging (including plastic bags). Through the City's zoning and licensing laws they are planning to increase the number of take back locations. In 2008, Metro Vancouver reported 117,600 tons (129,360 tons) of material diverted through "take back" locations.
- **Social Marketing:** The City conducted a social marketing program and found that providing residents with a kitchen container for food scraps resulted in a 7 percent higher participation rate and a 0.7 percent lower contamination rate compared to the control group. Door-to-door contact with residents showed a positive impact with 5 percent more participation than the control group, but contamination levels that were somewhat poorer than the kitchen container group.
- **Voluntary Deconstruction:** To encourage wood waste diversion, the City reduced disposal fees for loads of clean wood waste at the Vancouver South Transfer Station and the Vancouver Landfill in January 2011. Since the program started, more than 1,700 loads (approximately 770 tons) of clean wood waste have been diverted from the waste stream. Vancouver developed an expanded Deconstruction Program which requires participants to meet a minimum diversion rate of 75 percent; participants who deconstruct under this option are able to start construction (having already cleared their site) as soon as their building permit was issued and they will receive better rates at the landfill.

Key Lessons

- The regional EPR programs in British Columbia allow individual municipalities to afford the provision of recycling opportunities that they may not be able to on their own.
- Community Based Social Marketing is an effective tool for increasing participation rates; however, data on the costs or impacts of the CBSM efforts are not available for comparison to other programs and efforts.
- Vancouver has used Municipalities permits and rate structures as tools to encourage recycling programs without the implementation of mandatory regulations.

Grand Rapids, Michigan

Jurisdiction Overview

Residential trash is collected by the both the City and private haulers. The City services include trash, recycling and organics collection for residents. The City trash collection uses an innovative "pay as you tip" program. Residential recycling is collected bi-weekly and includes a City-run points-based incentive program. Residential organics collection is available nine months of the year and includes only plant debris. Multi-family and commercial trash, recycling, and organics collection are offered by the City and by private haulers. However, only small multi-family and commercial entities tend to use the City services as they are the same systems and rates as those offered to the residents. MSW is sent to the County-owned and privately-operated WTE plant.

Summary

Demographics:
Total population: 188,040
Households: 81,595
Firms - 15,528
Square miles: 44.4

Reported diversion rate: 64% Overall

***Total* Tons:**
Total generated: 96,102
MSW: 48,051
Recycling: 26,558
Organics: 21,493 *Note: Grand Rapids does not have separate data for residential and commercial sectors*

***Total* Pounds per Person per Year:** Total generated: 2431.7, MSW: 1344.0, Recycling: 466.0, Organics: 621.6
Note: Grand Rapids does not have separate data for residential and commercial sectors

Measurement and Tracking: City receives data from the County facilities that allow them to determine overall totals; they do not keep track of data for sectors.

Brief Description: Grand Rapids City staff collect residential trash using a pay-as-you-tip scheme in which residents pay services on the size of their trash container and the number of 'tips' or set-outs. Residents must self-manage and pre-pay their accounts and the City does not invoice residents for solid waste services.

Notable Successes:

Grand Rapids, has been named a Regional Centre of Expertise by the United Nations University and has been recognized for their work in sustainability by several national and international entities. In Grand Rapids, garbage collection is mandatory, but recycling and organics collection is not. The new trash program is noteworthy, and in addition, the City's recycling and organics programs also have unique aspects that make them significant. The programs are discussed below.

- **Pay As You Tip Program:** In 2012 the City began the Smart Cart Refuse Program, a pre-paid system that charges residents for trash based on the size of cart and the number of trash 'tips' they have. The City provides a choice of 32 to 96-gallon smart-carts and each cart is equipped with a RFID (radio frequency identification) chip. The RFID chip allows the reader in the automated trash truck to instantly deduct the corresponding collection fee from the customer's trash account each time the cart is placed at the curb and "tipped." The costs per tip vary based on the selected cart size with the 32-gallon costing $2/tip, the 64-gallon at $4 per tip, $6 for the 96-gallon cart. If the trash account becomes negative, then the cart will not be tipped until the account has been made positive. Under this program residents do not receive invoices or bills for solid waste services and the City eliminates issues with bad debt or accounts in arrears. Customers have to self-manage their

trash accounts and can accomplish this using an online system, an automated phone system, or by calling the Public Services Department. They can make payments to their account using a credit card, check, cash or money order, and can get email alerts that warn them when their balance is getting low.

- ***Implementation –*** The City began a "soft roll-out" of their new Smart Cart Refuse Program in September 2012 and will continue the implementation through December 2012 as a way to reduce the overall cost of services. They currently have 8,000 customers converted over to the new program and an additional 8,000 new cart customers signed up who were not previously City customers. To ease the transition, the City kept the PAYT bags from the previous system available in stores, but will eventually phase them out. The City built public support through neighborhood meetings, talking to stores, presentations at the City Commission level, bill boards, email blasts, flyers on trash carts, ads in papers, and press conferences in which the City Commissioners wheeled out the new trash carts.
- ***Challenges –*** The major challenge with the new program is that people have to maintain their own trash accounts. There is no longer any billing and residents have to pro-actively put money into their accounts. This has been difficult for some, but the City is working on continued education for residents and they report that people are becoming more familiar with what they need to do. Another issue is that they have to make sure that the carts are at the right location, so they don't end up providing free service to some or mis-charging others for services they did not receive.
- ***Recycling Incentive Program –*** The City runs a points-based recycling incentive program that allows customers to collect points through recycling, community service, and volunteering. The implementation of the single-stream recycling program in 2010 and the "myGRcitypoints" program in 2011 have combined to reduce the average number of tons of MSW landfilled by 12 percent, and the amount of curbside recycling collected has increased by around 64 percent.

- **Pay-Per-Tip and Tagged Plant Debris Options:** There are 3 options available for curbside plant debris collection:
  - ***Plant Debris Tags for Yard Carts –*** One-time charge for the cart ($27.50) and $5.25 tag for the plant debris cart each time they set it out for collection (3,500 households use this option, with 12,360 tags sold)
  - ***Plant Debris Bags –*** Customers purchase five plant debris bags for $7.50, that can be set out for collection as needed (most popular, with 359,000 bags sold)
  - ***Bulk Plant Debris –*** $1.50 plant debris tags can be purchased and then put on each tied bundle of plant debris at the curb (8,000 plant debris bulk tags)

Key Lessons

- In order for a program like Grand Rapid's to work, the community (residents and elected officials)must be open to change. The pay-as-you-tip program requires the City (or hauler) to track trash, help customers manage accounts and eliminate invoices. The City (or hauler) must be willing to help residents and have great outreach and information about the program and residents must now change how they pay for their trash services.
- As with any major change to a trash collection system, pre-program outreach and education is essential for gaining public support and letting customers know how to set out materials correctly and pay for their services.
- An implementation phase-in helps to quickly identify and allow for resolution of transition problems, especially with a program that completely changes the way residents pay for services.
- A points-based incentives program can be run by a city and can help motivate certain actors to recycle more. Grand Rapids allows volunteering and community service activities to be eligible for customer 'points' and the points are only for local stores or charities, which helps keep the money in the City (not for large chain or 'big box' stores).

Appendix D

PUBLICALLY AVAILABLE WASTE CHARACTERIZATION FOR COMPARISON JURISICTIONS

Every-Other-Week Jurisdictions	
City	**Link**
Vancouver, WA	ND
New Westminster, BC	ND
Renton, WA	http://rentonwa.gov/uploadedFiles/Living/PBPW/UTILITIES/final%20Renton%20EOW%20Pilot%20Report.pdf
Olympia, WA	http://www.co.thurston.wa.us/solidwaste/regulations/docs/ThurstonCountyWasteComp-08-09.pdf, Starts on p63.
Portland, OR	http://www.portlandoregon.gov/bps/article/380681
Markham, Ontario	ND
Higher Performing Comparable Jurisdictions	
City	**Link**
Boulder, CO	http://www.bouldercolorado.gov/files/City%20Council/Study%20Sessions/2011/2011SS/10112011SS/ Update_to_Zero_Waste_Master_Plan_SS_memo_and_attachments.pdf
Santa Barbara, CA	ND
Seattle, WA	http://www.swalco.org/Documents/Seattle,%20WA%20-%20Zero%20Waste%20Study.pdf
San Jose, CA	http://www3.sanjoseca.gov/clerk/CommitteeAgenda/TE/050508/TE050508_f.pdf
Cambridge, MA	ND
Vancouver, BC	http://www.metrovancouver.org/about/publications/Publications/2011_Waste_Composition_Report.pdf
Grand Rapids, MI	ND