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GETTING TO MORE: REVIEW OF OPTIONS FOR AN AREA WITH ROBUST RECYCLING

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Organization of the Report

Contents

1. Executive Summary: Background and Recommendations

The following memo summarizes early results from our analysis of the data from the UTC areas in King County and surrounds, and the implications regarding potential for various program refinements. The focus areas are "south sound" (SS) and "northwest / north sound" (NW).

These service territories already have a majority of key programs that set the stage for strong diversion, including:

- PAYT
- Embedded recycling fees
- Yard waste ban
- Convenient every other week recycling in large containers
- Weekly YW organics with food scraps
- Broad eligibility for programs
- Surcharges and high tip fees

This package of options has led to strong recycling. The data we received from the County and the hauler provides the following diversion performance results.

Figure 1.1: Residential Diversion Rates and Components

	South Sound	Northwest / North Sound	Woodinville	Seattle
Diversion Rate	46.4%	54.6%	55.6%	56.9%
Recycling Rate	26.7%	24.8%	25.1%	24.4%
Organics Rate	19.7%	29.8%	30.5%	32.5%

We conducted two types of analyses, described in detail later in this report.

- We examined the status quo rate incentives, subscriptions, and diversion, and explored changes that could result in greater diversion.
- We looked at an array of programs, incentives, and policies that had the potential to increase recycling or diversion in the two service areas.

The analyses led to recommendations that should increase recycling and diversion in the UTC area. The high-level summary of recommendations is presented in Figure 2. Detail underlying these recommendations is included in the remainder of the report. Case studies on the options are included in the Appendix.

Figure 1.2: Recommendations for Strategies to Increase Diversion in UTC Area of King County

ID	Change	Recom-mend	Consider Stage 2 if more progress needed	Notes
1	Change to Every Other Week Trash Collection	☑		Direct measurement not available, but savings in collection and indications it drives tons to diversion, with special potential for driving food waste to organics container. Has already been approved for other communities in state.
2	Consider changing recycling to WEEKLY rather than EOW	No	No	Changing collection from every other week to weekly is not cost-effective. It results in a minor increase in recycling tons but at high cost per ton – extra collection better "spent" elsewhere
8	Embed organics cost	☑		This is a crucial element of high diversion. Embed at least 32 gallons of service to drive tons to diversion; food waste and paper included. May choose to pay or not pay for larger sizes (policy pros & cons). For most aggressive, embed all service level (up to one or two 96 gallon containers). Include food and soiled paper)
14	More aggressive PAYT rates	☑		Evidence that higher differentials should drive additional diversion. Will take work with WUTC, but could argue like Oregon (vary "with" service) and argue volume?
22	Landfill / taxes / differential fees for communities, haulers, incentive	☑	☑	IF LEGAL, establish a substantial additional tax / fee on trash tons, but not diverted (recycling or organics) tons. Successful in increasing diversion in com'l / schools sector in MN. Should help residential diversion and can spillover to commercial.
22B	Landfill / taxes / differential fees for communities, haulers, incentive – Option b: Deferred if goals met	☑	☑	IF LEGAL, establish a substantial additional tax / fee on trash tons, but allow rebate or deferral if hauler or community has met diversion or other goals (participation, etc.). Examples in IA. Can be used to help residential diversion and can spillover to commercial.
23	Hauler incentives for reaching goals	☑	☑	Provide reductions in taxes or fees to haulers for meeting specific goals (percent reduction, participation, etc.). Successful thru franchise fees in CA.
29	Social marketing – bill feedback	Pilot / then full if C/E		It is very easy to modify bills to show comparisons to average customers and provide "tips" on the bill. Other simple messaging might be possible; could be tested on a random share of customers and changes compared. (Especially suited to com'l). Evaluate and determine cost-effectiveness (C/E) before confirming going full-scale.
15	Mandates for recycling - consider option of "No Bin No Barrel"	Consider possibly	☑	No Bin No Barrel is not complicated and can be a clear and dramatic signal that diversion is the priority. If more aggressive PAYT isn't strong enough (or can't be implemented), this is a very viable option (or pay more for not recycling / next alternative).
24	Pay more for NOT recycling	Consider possibly	Consider possibly	Seriously consider this option. This type of price signal may be what it takes for those who don't recycle to do so. There are political issues, but it has been successful nearby. Retains choice, but pay more for this choice. May be an option if more aggressive PAYT isn't viable; however, no bin no barrel may be stronger.
25	Mandatory YW, possibly enforced via "Pay more for NOT food / organics"		☑, depending on other options selected	YW already banned, and if embedded YW fee (above) isn't successful enough, consider this option. Embedded fee makes it more complex, but there should be set outs every time– No bin no barrel is likely stronger.
17	Mandatory YW, possibly via "No (organics) Bin / No (Trash) Barrel collected " policy		☑	YW is already banned; if service is not required, consider embedding (first stage, recommended above). Then the best "next" option may be to consider enforcing ban / mandate via no bin no barrel or pay more for not organics.

2. Rates and Incentives

In this chapter, we review the state of current rate and incentives in the UTC area, and compare to other communities. We also explore the diversion potential that may exist from modifying the rates.

Optimizing Rate Differentials and Incentives

Rate incentives and specifically, PAYT rate differentials can be a driver for successfully increasing diversion. Previous quantitative research[1] indicates that a community can achieve the same recycling or diversion levels from a PAYT rate differential of 80% more for double the service. Less than this achieves less recycling – and from our more casual research, less than 50% -- is much less effective. That implies a goal is between 50% and 80%, with a bias toward higher levels.

To assess a community's incentives, we usually compare rates for 64 to 32-gallon service levels (including embedded recycling costs) and assess the differential. The current incentives in the region are shown in Figure 2.1; fully embedded, the differentials are 30-37%. To be very conservative, we also show the garbage-only component, which has incentives in the range of 48-59%.

Current recycling rates in the region are about 25-26%. We believe recycling is being left on the table with rate incentives this low.

Conclusion 1: Preliminary indications are that the PAYT incentives are low in the region (30-37%) compared to goal levels (50-80%). The dollar differentials in SS and NW are $8.20 for 30 gallons. Increasing this percentage differential may result in additional recycling on the order of 4-8 percentage points,[2] moving diversion from 46.4% and 54.6%, respectively, for South Sound and NW, to diversion closer to 52-61%. There may also be a stronger impact from the incentivized yard waste diversion. In estimation work, PAYT has had similar effects on YW as on recycling; however, the conservative assumption may be to assume a 4-8 percentage point impact. Of course, in addition to increased recycling, the County can also expect increases in rates (especially for large disposers) and accompanying complaints, etc.

Figure 2.1: PAYT Rate Incentives Currently in Place

Rate Diff'ls	32 gal gbg	64 gal gbg	Recy	% (64/32) Combined	% (64/32) Gbg only
Snoh Rural	$14.80	$23.55	$9.12	37%	59%
KC	$15.11	$23.98	$9.12	37%	59%
Urban Snoh	$14.80	$23.55	$9.12	37%	59%
South Sound & WM Sea Tariff 22	$17.20	$25.40	$9.70	30%	48%
GOAL				50% - 80%	

[1] *Skumatz, "Maximizing Vr/Payt Impacts – Policies, Rate Designs And Progress", Resource Recycling, June 2001, and Skumatz, "Recycling Best Practices Study: Practical and Effective Methods to Move Recycling Forward", prepared for Waste Management, November 29, 2013.*

[2] *Skumatz, "Maximizing Vr/Payt Impacts – Policies, Rate Designs And Progress", Resource Recycling, June 2001, and Skumatz, "Recycling Best Practices Study: Practical and Effective Methods to Move Recycling Forward", prepared for Waste Management, November 29, 2013. The 8% figure seems high for an area with as much recycling as this.*

Figure 2.2: PAYT Scenario 1 – 60% extra for double the trash service with recycling cost embedded

Rate Diff'ls	32 gal gbg	64 gal gbg	Recy	% (64/32) Combined	Actual 64	64 should be	96 should be
Snoh Rural	$14.80	$23.55	$9.12	37%	$32.67	$38.27	$52.62
KC	$15.11	$23.98	$9.12	37%	$31.55	$38.77	$53.31
Urban Snoh	$14.80	$23.55	$9.12	37%	$30.85	$38.27	$52.62
South Sound & WM Sea Tariff 22	$17.20	$25.40	$9.70	30%	$32.00	$43.04	$59.18
GOAL				50% to 80%		60%	

Figure 2.3: PAYT Scenario 2 – 80% extra for double the trash service with recycling cost embedded

Rate Diff'ls	32 gal gbg	64 gal gbg	Recy	% (64/32) Combined	Actual 64	64 should be	96 should be
Snoh Rural	$14.80	$23.55	$9.12	37%	$32.67	$43.06	$62.19
KC	$15.11	$23.98	$9.12	37%	$31.55	$43.61	$63.00
Urban Snoh	$14.80	$23.55	$9.12	37%	$30.85	$43.06	$62.19
South Sound & WM Sea Tariff 22	$17.20	$25.40	$9.70	30%	$32.00	$48.42	$69.94
GOAL				50% to 80%		80%	

These computations do not represent actual rates that should be charged, because the scenarios are not revenue neutral,[3] and do not take account of the rate shifts that would result as a consequence of the refined incentives.[4]

Analysis of Status Quo consistency between Rates, Subscriptions, and Diversions

When examining data regarding rates, subscriptions, and diversion, we can propose several hypotheses: We would expect that communities with average gallons of trash service that are lower would tend to have higher diversion levels. We would also expect that cheaper diversion service leads to greater use.

Figure 2.4 shows the subscription distributions for the two areas. Figure 2.5 summarizes the cumulative subscriptions ordered by average weekly gallons of trash subscribed, and compares the diversion rates and the average rate paid in the area.

[3] or revenue neutral modified by anticipated cost changes.

[4] IF the County and WM are interested in additional exploration of this refinement, we can perform some sample computations that recompute revenue neutral rates with a selected incentive level (e.g. 60%, 80%, etc.).

Figure 2.4: Status Quo Subscription Levels

Subscriptions	South Sound-Seattle	Northwest	Cumula-tive SS	Cumula-tive NW	Approx wkly gals
Micro/wk	0.4%	0.0%	0.4%	0.0%	10
Mini/mo	6.0%	2.0%	6.3%	2.0%	5
2 mini/mo	0.0%	0.0%	6.3%	2.0%	10
Mini/wk	10.9%	5.4%	17.2%	7.4%	20
32/mo	1.3%	1.0%	18.5%	8.4%	8
32/wk	56.3%	53.1%	74.8%	61.5%	32
64/wk	21.2%	28.7%	96.0%	90.1%	64
96/wk	3.8%	9.5%	99.8%	99.6%	96
>96	0.3%	0.4%	100.1%	100.1%	More
Total	100.1%	100.1%			

Figure 2.5: Cumulative Trash Subscriptions, Average Trash Gallons, and Diversion Rates

Wkly Gals	Cumulative Subscriptions in South Sound (SS)	Cumulative Subscriptions in NW
5	6.0%	2.0%
8	7.2%	3.0%
10	7.6%	3.0%
20	18.5%	8.4%
32	74.8%	61.5%
64	96.0%	90.1%
96	99.8%	99.6%
120	100.1%	100.1%
Avg Gals	38.1	46.1
Diversion Rate	46.4%	54.6%
Recycling Rate	26.7%	24.8%
Organics Rate	19.7%	29.8%
Pct signed up for organics	51%	51%-67% (more recy customers than trash)
Avg gals Recy	96.0	94.3
Avg Gals YW (for those subscribed)	85.9	101.5
Avg paid YW (for those subscribed)	$11.38	$10.74

Review of the data provided allows comparison of yard waste rates and service choices. In South Sound, the organics rates for 32, 64, and 96 gallons of service are $9.60, $10.60, and $11.70 (with 11%, 17%, and 71% signed

up for the service levels. Northwest's comparable organics rates are $8.50, $9.50, and $10.40 (with 10%, 11%, and 74% subscribing).

Conclusion 2: This bears further review. The data indicate the NW area subscribes to 20% more garbage service on average and has a higher diversion rate – purely reflected in the organics program. Organics service is about $1 cheaper per service level in Northwest, and the area has 18% more service subscribed for those subscribing, and the same or higher percent subscribed.[5] The difference between the organics diversion rates found in these communities is 9.9% (29.8-19.7), with higher diversion in the area with cheaper yard waste service fees. This finding is unexpected, and leads to a question about whether there are underlying differences in the amounts of yard waste generated in the two service areas, perhaps because of yard size or other factors.

Conclusion 3*:* Our existing quantitative research implies that if the yard waste service fee is "embedded" the community will see an additional 3-7 percentage points of diversion.[6] This change has the potential to move the communities' overall diversion rates from the 46-55% range to about 51-60% (using the midpoint).

- However, there are tradeoffs to consider; charging for organics encourages backyard composting (reducing the collected / processed waste stream) and there are equity issues. Not all need the service, and some might argue that those needing more service might tend to have larger yards and higher incomes.
- Note that our estimate of the tonnage impact from reducing the price to zero is smaller than the difference in diversion rates for the two service territories. This is not an entirely consistent finding, and may possibly be due to additional differences between the service territories for which we have not controlled.

[5] This is a confusing result. There are more residential accounts on recycling than no trash. The two percentages reflect the proportion of yard waste customers subscribed divided by trash and divided by recycling subscribers.

[6]Skumatz, "Achieving 50 Percent Recycling: Program elements, analysis and policy implications", Resource Recycling, September, 1999.

3. Program Designs, Convenience, and Cost-Effectiveness Tradeoffs

We assembled some additional strategies that might be considered, and any quantitative effects data we could locate. The results are presented in the following table, along with a preliminary rationale for the range of effects. Some of these estimates bear additional study beyond this interim / work-in-progress memo.

In addition to the rates and service options discussed in Chapter 2, this chapter analyzed a number of programmatic, convenience, and incentive options. The core options follow.

Every Other Week (EOW) Trash collection

Every other week trash supports several objectives:

- Helps drive food waste toward the (more frequently-collected[7]) organics bin; households have proven reluctant to transfer food out of their traditional trash container; and reduces the visual of "trash" as the centerpiece of solid waste management;
- Reduces cost compared to weekly collection, and becomes part of a system that optimizes collections.[8]

The case studies highlight a number of communities with EOW trash collection, including: Vancouver, Renton, and Olympia Washington; Portland Oregon, Markham Ontario, and New Westminster and Vancouver, British Columbia. These are not the only communities with the program, but they provide a good diversity of community size. Unfortunately there is little in the way of measured impacts, and EOW was often implemented with other changes, making it difficult to identify direct attributable impacts. However, in waste composition studies we have conducted in association with food waste pilot programs, we find households are quite reluctant to transfer materials to the new container; they are wedded to thinking of food and trash jointly. It is a reasonable assumption to think that the transfer will be encouraged by moving trash to every other week, and yard / food collection to weekly – in conjunction with strong outreach and education about how to address the yuck factor (layering, freezing, etc.) and other perceived barriers to food scraps programs.

Differential Tipping Fees or other Fees, with Incentives

There are several related options incorporated in this discussion:

- Impose an additional tax / fee on trash only, not recycling or organics, to drive an additional price wedge into the system. This is in place in several counties in Minnesota, and it has shown demonstrated substantial differences in the amount of recycling and diversion – and the per-cubic-yard price charged for service – in a recent SERA study of school practices. This option would tend to increase commercial recycling as well, given the price signals would be broad.

[7] This works best if the organics then moves to weekly, and trash alternates with recycling on an every other week basis.
[8] In BC, crews switched from standard 5-day weeks to 4-10s for trash / recycling, leaving a day a week for additional commercial pickups and adjustments for holidays.

- Impose an additional tax / fee on trash at the landfill, but forgive or rebate it for communities (or haulers) that meet diversion (or other) goals. This is in place in Iowa, and the additional fees help fund a grant program for communities.
- Provide lower tipping fees or other fees / taxes (in California, they charge lower franchise fees) for haulers that meet diversion or participation goals. Those goals are then ratcheted up over time.

Any of these options – to the degree they are legal in the County – may be effective at increasing recycling by providing incentives to partners, and changing the economics of recycling. Examples in the appendix include a two-tiered disposal rate for qualified haulers at transfer / landfills (Santa Cruz and San Diego), and taxes /surcharges to increase (trash) tipping fees (CA, IA, MN).

Mandatory Recycling, Realized as "No Bin / No Barrel"

"No bin no barrel", or "Total Participation Recycling", pioneered by Smithfield RI (2007), is in place in several communities in Rhode Island (Lincoln, 2009, Pawtucket, East Providence 2011, others). If a household doesn't recycle, it doesn't receive trash collection. This program was suggested by a trash hauler in response to requests for suggestions on how to increase diversion. The program works even with every other week recycling; the program is required on the recycling collection day and not enforced the other trash collection day. No new ordinance was required, so there were no public meetings prior to implementation – which simply included sending out information packets to the homes. Smithfield saw the recycling rate (tonnage) jump from 19.2% to 24.5%.

Pay More for NOT recycling or NOT putting out Organics

Olympia Washington charges more for households that do not recycle, at least for service above the smallest offered. The differential is substantial - $38.04 vs. $30.34 for 35 gallons of trash, $51.92 vs. $41.42 for 65 gallons, and $89.92 vs. $71.78 for 95 gallons of trash. Organics is a separate subscription service in Olympia. Customers elect service with or without recycling at initial sign-up, and there is little or no monitoring on whether customers actually set out their recycling. A total of 99% of households have recycling, and from "eyeballing" the City estimates they have 90% set out of recycling.

Performance of Key Programmatic Options

From SERA analysis, or from the literature, we have identified impacts and costs for an array of programmatic and incentive options (where information is available), and have summarized key performance-related elements in Figure 5. Additional details on the options, including community case studies, are gathered in the Appendix.

Figure 3.1: Estimated Diversion and Cost Impacts Associated with a Set of Potential Strategy Changes for the Service Territories

ID	Change	Diversion Rate Impact Range (estimated percentage points, low - high)[9]	Cost Impact Range (estimated percent change in program cost)	Discussion
1	Change to Every Other Week Trash Collection	0% - 5% Possibly higher	SAVINGS – perhaps 40% like reducing recycling frequency -	Moving from TWICE weekly garbage collection to weekly collection led to an increase of recycling of about 4-6 percentage points. The impact of EOW trash may be similar, but data are scarce at this point. The case studies we collected (see appendix) show strong performance (they are leading communities); if implemented with embedded yard waste, one city saw a doubling of diversion from 36-72%. It is unlikely that King County would see that level of effect but the strategy appears among the more promising options.
2	Consider changing recycling collection frequency to WEEKLY rather than EOW	0% - 2%	25% - 60%	Gain some recycling but at a cost (changing from weekly to EOW saves 20-40% - this is inverse); older study finds recycling impact is 2-4 percentage points. This is NOT recommended, as it is NOT cost-effective, and the savings are best applied to whole new streams, like applying the collection to yard / food.
8	Embed organics cost	3% - 7%	Differential - Revenue impact[10]	Described in Chapter 2; Embedding the cost of organics provides extra "bump" beyond just offering the program for a fee. This is likely to be an understatement of the effect. The cost is the cost of providing curbside service, which can be mitigated some (nearly halved) if it is traded off with less frequent trash collection.
14	More aggressive PAYT rates	4% - 8%	Revenue - neutral[11]	Described earlier in memo; excludes separate yard waste effect, which would be expected to add about 6 percentage points of

[9] The percentage points of diversion would be applied to generation – they are additional points of diversion, not percent more recycling. The base is generation, not recycling. The costs are changes in the cost of providing the diversion program. The source for all percentages (cost and diversion) for strategy ID numbers 1, 2, 8, 14, 29, and 17 are published studies by Skumatz Economic Research Associates, Inc., 1996-2014.

[10] For the organics program, those using the optional service would see an overall price decrease, and those obtaining the service for the first time would see an increase in overall bills. The cost of organics per household would decrease due to economies of scale in collection, etc. One example of the kind of cost differentials that might arise can be made; two nearby communities have organics collection, and the one with optional service charges $10.75/month, and the one with embedded costs charges about $5. Overall bills are likely to be higher, given that optional services (for extra fees) are usually selected by about 10-15% of the population. In this example, overall household costs might increase by $3.40 to embed the service (15% at nearly $11 compared to $5 for all). However, the program would presumably not cost the City or government extra, as the costs would be embedded in household fees. The incremental fee differential would be considerably less (and probably be $0-$1 net) if trash collection was decreased in frequency concurrently.

[11] Revenue neutral: By this we mean that when the new fees are calculated, the rate study takes into account estimates of the number of tons or users that would be paying the higher rates and those that would pay the lower rates, and the total revenue recovered under the new rates would be (virtually) the same as if fees did not have the policy element embedded, and it would not cost more for any city or county governmental entity requesting or requiring this change.

ID	Change	Diversion Rate Impact Range (estimated percentage points, low - high)[9]	Cost Impact Range (estimated percent change in program cost)	Discussion
				diversion in organics, and potentially 6% percentage points diversion from the trash can toward source reduction.[12]
22	Landfill differential fees for communities	Relatively Strong -	Revenue neutral -	In place in several communities – Used in state of Iowa and communities paid attention; also led to communities "competing" to be in the favored status.
23	Hauler incentives for reaching goals	Relatively Strong -	Revenue neutral -	In place in a number of communities; effective at getting increases in diversion to goal, but financial incentives must be worth the extra investment.
29	Social marketing – bill feedback	1% - 7%?	CBSM Can be expensive, but bill-based program potentially inexpensive	The most relevant comparables may be 1) Garbage by the Pound" experiment (which showed a 15% impact on diversion tons), and the O-Power and other behavioral / feedback experiments, which showed 1.2-2% savings in energy usage.
15	Mandates for recycling - consider option of "No Bin No Barrel"	Case study with measurement reported 5+ percentage point increase in recycling diversion	Inexpensive to enforce – education plus drive by.. -	In place in a couple communities. Difficult to assign an estimate of impact / limited case studies. Provides a step beyond "ban" or mandatory pay, well into mandatory collection. "Mandatory recycling" through embedded fee impact is estimated as 2-4 percentage points; this may provide an adder.
24	Pay more for NOT recycling	Probably mostly symbolic, but clear	Revenue neutral -	In place in several communities – small percent subscribe, but provides a reminder. No measured impacts.
25	Pay more for NOT food / organics	TBD -	Revenue neutral -	Not in place; presumably similar to the previous option
17	Mandatory YW	5% - 6%	-10% - -25%	Mandatory YW service showed a 5-6 percentage point impact in a SERA national study (which was similar in size to the effect from a YW ban in a SERA California study). Would not expect cumulative effects from this PLUS embedding the fee. Significant economies of scale in collection (SERA CA Study).

For example, PAYT fees for some users would increase and others would see reductions, but the overall "average" rate paid by the households would stay about the same. For the landfill case, it means that the rate study for the landfill fees would take into account estimates of how many tons would be at the lower vs. higher rates, and the landfill fees would be set to accommodate this policy. The overall total landfill fees raised would remain the same, but the amounts individual communities would pay might differ based on their behaviors.

[12] The source reduction impact was measured as lower generation figures: the total of trash plus diversion was lower in communities with PAYT (controlling for programs, demographics, etc.). The presumption is that the reduction takes the form of buying with less packaging, buying in bulk, re-using, giving to Goodwill, and other behaviors. (Source for source reduction and other quantitative estimates in this entry: published Skumatz Economic Research Associates study).

APPENDIX – Case Studies on Strategies Analyzed for UTC Areas

The case studies and program descriptions in this appendix provide input to the discussions of each of the four key program types in the main body of the memo. Note that the detail and style of the case studies and descriptions differ; this project budget was very small, so we have incorporated case studies SERA has conducted in-house or for other efforts, in the forms in which we already have them.

Every Other Week Trash (#1)

Vancouver, Washington

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.

Jurisdiction Overview
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.

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

Reported diversion rate: 47% (residential)

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:

- 32 gallons once a month, $9.95
- 20 gallon: $12.35 EOW, $14.75 weekly
- 32 gallons $9.95 once a month, $14.75 EOW, $18.74 weekly
- 64 gallons $18.74 EOW, $34.72 weekly
- 96 gallons $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 Other Communities:
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.

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

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%.

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. Multifamily 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'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[13]. Through Province-wide actions, they have extensive EPR programs covering 10 categories of materials[14].

Demographics: Total population- 65,976, Households- 8,600; Firms- Not available; Square miles- 6.03

Reported diversion rate: 72% residential

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 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 Other Communities:
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.

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

[14] *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.*

Key Lessons

- Unlike some other communities, Markham 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. Other communities 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

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%.

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. Yard waste is banned from disposal within the City and at King County facilities. For residents, their organics collection includes both yard waste and food waste and these costs are embedded in the trash rates. For multi-family and commercial customers, organics collection includes yard waste 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.

Demographics: Total Population - 90,927; HH - 37,340; Firms - 6,094; Square miles – 23.12

Reported diversion rate: 70% (residential)

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 waste 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 waste collection to the yard waste 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 waste 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 Other Communities:
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.

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[15] 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 difficulties. Renton staff suggest that other jurisdictions will just need to 'work through them with a positive attitude and you'll have success.'

Olympia, Washington

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

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.

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

Reported Diversion Rate: 57% (residential)

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-gallons - $16.26

[15] *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.*

- 35-gallons - $28.10
- 65-gallons - $38.36
- 95-gallons - $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 waste per participating household per collection (about 6 pounds of food waste 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 yard waste 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[16].

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

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

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

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%.

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.

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)

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 Other Communities:
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.

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

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.

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 yard waste) 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.

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)

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. Markham reported they allow diapers, pet waste, and plastic bags to be placed in the green bin for weekly collection[17]. 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 Other Communities:
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 other communities 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.

[17] *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.

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[18].

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.

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

Reported Diversion Rate: 58% SF

Every-Other-Week Garbage Collection Program: Year Started and Who is Covered: *The program will start City-wide in the spring of 2013 (Update – it presumably has started…), 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.

[18] *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.*

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.

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.

Differential Landfill / Tip Fees or Taxes (#22)

Two-Tiered Disposal Rates for Qualified Haulers at Landfill / Transfer Station (e.g. Santa Cruz, CA and San Diego, CA)

Community Examples / Population: Santa Cruz, CA: 62,041; San Diego, CA: 1,338,000;

Description: Under this program, the community sets up lower tipping fees for haulers (or communities) that meet diversion goals, thresholds, or other positive service standards set by the community. These qualified haulers (with qualification status certified by the community / entity) pay less to dispose of trash at the landfill or transfer station. This may be constructed as a base fee for those haulers meeting standards, and a surcharge assessed to those haulers not meeting the qualification thresholds, or set up as a discount for those meeting the thresholds. Note that in some instances, this has been constructed as communities that meet recycling thresholds pay less at the county transfer stations or landfills, again, with qualification status assigned by the county or entity. This is usually set up as a differential fee for MSW (to provide an added incentive to recycle more), but it could feasibly apply to reward separation of other material streams as well (higher recycling revenues, or lower tip fees at community-owned composting facilities as well). A system must be set up for initially identifying qualifying haulers, and for re-certifying as needed. This may be from an analysis of weight slips over a period of time, or other methods.

Design Considerations: This type of program is easier to establish for publicly owned sites. For privately held sites, consider whether the state or county has authority to assess surcharges, or consider the willingness of the owner / operator to work with the jurisdiction or reevaluate current contracts. Define what limit will be required to receive the lower fee. For communities implementing this particular program, the percentage of diversion reaches a threshold (in conjunction with, perhaps, contamination limits). What will the criteria be based on, a per load basis, or recycling at the facility or offsite? Enforcement and pricing will be a key to success. The incentive needs to be high enough to change hauler behavior, and outweigh their costs to achieve the threshold diversion. Most programs require confirmation through weight slips or other accounting; another verification system could be devised by the community.

Implementation: There are many things that need to be done to implement this type of program. The most important ones include researching the legal statutes of your state regarding special pricing; determining the price point (through researching other communities or meeting with haulers) which will encourage haulers to separate materials and reach desired goals; working with landfill / recycling center staff (public) or negotiating contracts (private) to establish and implement the pricing and surcharge/ discount system; and providing ample notice and outreach to the haulers since they may need to change service standards in order to take advantage of the incentives.

Enforcement: Most programs rely on tonnage reports from haulers (paired with weight slip verifications) to identify which haulers are qualified to receive the discounts or incentive pricing at the landfill or transfer station (or other facility). Once qualified, haulers should have to re-qualify each year, or each half year or quarter to assure continued compliance and equity within the program.

Program Impacts: Medium: The level of impact will depend on whether the price differential is enough to incentivize haulers and if there is easy access for diverting materials.

Cost Impacts: Low: Program costs would largely include qualification and oversight, initial set-up, and potentially a more complicated rate study for the disposal facilities in order to compute rates that will cover the subsidized service provided.

Taxes or Surcharges to Increase Tipping Fee (e.g. CA, IA, MN)

Community Examples / Population: The communities in the State of California are (or were) allowed to implement charges of this nature under AB939. The State of Iowa has / had a landfill surcharge in which communities that met the "rates and dates" were exempted from a higher fee, and those that did not, paid the extra surcharge. In addition, a number of counties in Minnesota charge a tax on MSW – but NOT recycling or organics. A fairly hefty tax has led to higher recycling and lower incremental costs for recycling and organic (and better program uptake).

Description: In this program, taxes or surcharges are imposed on specific disposal streams or MSW to increase tipping fee relative to recycling or compost streams (tip fees).
Design Considerations: There are several main ways this economic incentive is structured. Taxes may be waived from recyclable streams (organics and recycling; or surcharges may be added to the trash tipping fees (either directly added, or added in order to fund a subsidy or allow discounts on recyclable and composting tipping fees). The purpose is to reduce the tipping fees of those streams relative to the cost of disposing of the materials as trash – in order to encourage the separation and diversion. Note that some communities have also allowed discounted tipping fees to qualified haulers or communities (entities reaching a specific recycling goal). One design consideration of note is that, if there are public and private facilities, the surcharge or tax incentives should be able to be imposed at all facilities, or the incentives will drive streams to the cheaper options, which may not suit the program goals.
Implementation: There are several possible funding source(s) available. One option is a combined rate study that would be conducted on all tipping streams at a facility, with a combination of subsidized and surcharged rates designed to cover all revenue requirements across the streams (rather than rates designed to cover each individual stream's revenue requirements). Another funding source is subsidy from, for instance, a tire fund or other deposit or recycling-based source of revenues. State law allows imposition of surcharges directly in some cases.
Enforcement: Enforcement can be at the landfill, or at the time of collection. A schedule of fines or penalties could be assessed. Clear billing requirements will be important for businesses to see the discounted cost (by comparison to MSW).
Barriers: Haulers may be resistant to adding more cost, though it is usually passed on the customer. Businesses may see it as just another tax especially if they are not educated in the discount it provides on the non-taxed streams.
Program Impact: Medium
Cost Impacts: Low

Mandates for Recycling – No Bin No Barrel (#15)

This program was suggested by a hauler in Smithfield (2007) in response to questions about how to increase recycling; it is in place in many communities in Rhode Island (Lincoln 2009, East Providence 2011, Providence, Pautucket, etc.). Smithfield's example and interview results with Providence are provided below.

Town of Smithfield, RI

Name of Program: Total Participation Recycling Program / No Bin, No Barrel (from web)

The basis for the program is deceptively simple. In Smithfield, if a resident doesn't recycle, they won't receive trash collection. The program was adopted to address habitual non-recyclers. In Smithfield, this represented close to 20% of residents. The reasons for not recycling were varied (bins lost, don't know what to recycle, inconvenient, time-consuming, etc.). In FY2007, the Town of Smithfield exceeded the RIRRC municipal cap by nearly 1000 tons, and the recycling rate was 18.39%. The over cap fees came to $49,500. Residents were literally throwing their money away. Town decision-makers asked for suggestions on how to solve the problem. The town trash hauler, Coastal Recycling, suggested the No Bin, No Barrel program, which was embraced by the town immediately.

Public Policy
The determination was made at the outset that the program would constitute a department policy adjustment and existing code enforcement tool, and would not necessitate a new ordinance. If to do again, I would push harder for an ordinance that spelled out the program in detail and included penalties for non-compliance and program enforcement responsibilities. This way, the program would be automatically transferred as law to each successive solid waste hauler, and would not be dependent upon the whims/desires/time restrictions of department personnel to enforce the program.

As no new ordinance was required, there were no public meetings held prior to the informational packet being mailed to residents and property owners. Simply stated, it was what it was-a change to the program with which residents were expected to comply.

Implementation
Information packets were direct mailed to each residential property owner in town (to cover the multi-family units collected in the municipal program as well as single family units).
Smithfield countered each reason for not recycling by making resources available (bins, information, wheeled bins for the disabled, home delivery of bins) and by stressing exactly what residents stood to gain or to continue to lose by not maximizing recycling.

Implementation of this policy did not change the household routine for the majority of residents. Most Smithfield residents recycled weekly. Not all utilized both a green and a blue container on a weekly basis, and this was taken into consideration. The Smithfield program requires that **at least one** container of recycling must be set out alongside the trash container to receive collection. One resident attempted to skirt the program by setting out a vendor sample of a blue container, designed for a desktop, as their recycling container. The resident was issued a citation for excessive trash, and re-notified of the policy, ordinance, etc.

Outcome

Compliance with the new program began immediately after resident notification, even prior to the program start date. The town's recycling rate jumped from 19.2% in March 2007 to 24.5% in April 2007. Three months of No Bin, No Barrel was enough to lift the total recycling rate from 18.39% in FY06 to 19.73% in FY07, enough to qualify for a $16,500 Participation Grant from RIRRC. The over cap tonnage was reduced by 50%.

Pay More for NOT recycling / NOT organics (#24/25)

Olympia, Washington

Program Details:

Olympia uses its own staff and trucks to collect MSW from all sectors. The City collects residential and multi-family recycling and organics. Residential garbage is collected every-other-week and alternates with recycling collection; every-other-week organics (including food) collection is an added fee ($16.36/HH/bi-monthly) and is voluntary. Customers can still get weekly trash collection for a much higher rate, but it is not encouraged and all but 15 opt for EOW service. Additional carts can be requested for each service, with additional charges for trash and organics collections. Customers elect to have trash service with or without recycling service and sign-up with the utility accordingly. There is not any monitoring of whether customers actually recycle and set out their recycling cart, but a lower trash rate is charged if the customer has signed up for recycling. About 99% of the residents elect to have recycling service. The City estimates by eye-balling that there is roughly a 90% recycling set-out rate. The ***bi-monthly* trash rates** charged to residential customers recycling cart **with recycling** are:

- 20-gallons - $17.56
- 35-gallons - $30.34
- 65-gallons - $41.42
- 95-gallons - $71.78

The ***bi-monthly* trash rates** charged to residential customers **without** recycling are:

- 20-gallons - $17.56
- 35-gallons - $38.04
- 65-gallons - $51.92
- 95-gallons - $89.92

- The charge for choosing ***not*** to recycle is $8.30 to $18.14 bi-monthly depending on cart size.
- Customer can request and pay for trash service for additional carts.
- **Recycling service** for **no fee** is available for the following container sizes: 35 gal, 65 gal and 95 gal but must be signed up for through the utility. Customers can request additional carts.
- Organics is a subscription service for $16.36 bi-monthly on the utility bill for either a 35 gal or 95 gal containers. Customers can request and pay for additional carts.
- Overflow tags for each extra bag of trash are available for $5.39 each.
- There is a $25 re-delivery fee for if you stop and re-start within a 12 month period. Service can however be stopped at any time.

Comments:

- 99% of customers have recycling, doesn't know why anyone wouldn't, it's a mystery
- About roughly 90% recycling set-out rate from eyeballing, no enforcement or tracking of recycling
- 15 customers still pay more for **weekly** collection: bi-monthly rates of $66.86 / $83.66 for 35 gal with recycling / no recycling respectively; $133.72 / $167.30 for 65 gal with recycling / no recycling respectively; $217.36 for 95 gal